

APPENDIX M

Site Won Material – CGL Test Data

*CGL Testing –Landscape and Cover Soil Testing
including Stockpiles 1 and 3*

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Analytical Report Number : 18-22293

Project / Site name:	Southall	Samples received on:	12/12/2018
Your job number:	CG-28308	Samples instructed on:	12/12/2018
Your order number:		Analysis completed by:	27/12/2018
Report Issue Number:	1	Report issued on:	27/12/2018
Samples Analysed:	16 soil samples		

Signed

Jordan Hill
Reporting Manager
For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41 -711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

soils	- 4 weeks from reporting
leachates	- 2 weeks from reporting
waters	- 2 weeks from reporting
asbestos	- 6 months from reporting

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Analytical Report Number: 18-22293

Project / Site name: Southall

Lab Sample Number	1114489	1114490	1114491	1114492	1114493
Sample Reference	TP1-6F2	TP1-B	TP2-6F2	TP2-B	TP3-6F2
Sample Number	TP101F	TP102B	TP201	TP202	TP301
Depth (m)	0.10	0.70	0.10	1.00	0.10
Date Sampled	11/12/2018	11/12/2018	11/12/2018	11/12/2018	11/12/2018
Time Taken	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status		
Stone Content	%	0.1	NONE	63	< 0.1
Moisture Content	%	N/A	NONE	10	13
Total mass of sample received	kg	0.001	NONE	1.8	1.4

Asbestos in Soil Screen / Identification Name	Type	N/A	ISO 17025	-	Chrysotile	-	-	-
Asbestos in Soil	Type	N/A	ISO 17025	Not-detected	Detected	Not-detected	Not-detected	Not-detected
Asbestos Quantification (Stage 2)	%	0.001	ISO 17025	-	< 0.001	-	-	-
Asbestos Quantification Total	%	0.001	ISO 17025	-	< 0.001	-	-	-

General Inorganics

pH - Automated	pH Units	N/A	MCERTS	10.9	7.8	10.6	8.2	10.0
Total Cyanide	mg/kg	1	MCERTS	< 1	15	< 1	< 1	< 1
Free Cyanide	mg/kg	1	MCERTS	< 1	< 1	< 1	< 1	< 1
Total Sulphate as SO ₄	mg/kg	50	MCERTS	8300	1400	8500	1300	6000
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.67	0.057	0.81	0.28	0.72
Ammonia as NH ₃	mg/kg	0.5	MCERTS	0.6	37	3.7	6.6	< 0.5
Ammonium as NH ₄	mg/kg	0.5	MCERTS	0.7	40	4.0	7.0	< 0.5
Organic Matter	%	0.1	MCERTS	0.3	6.7	0.3	1.1	0.6

Total Phenols

Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
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Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	< 0.05	0.31	< 0.05	< 0.05	< 0.05
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	0.80	< 0.05	< 0.05	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	0.27	< 0.05	0.68	< 0.05
Fluorene	mg/kg	0.05	MCERTS	< 0.05	0.37	< 0.05	0.67	< 0.05
Phenanthrene	mg/kg	0.05	MCERTS	0.33	5.0	0.69	7.5	0.94
Anthracene	mg/kg	0.05	MCERTS	< 0.05	1.4	0.19	2.1	0.26
Fluoranthene	mg/kg	0.05	MCERTS	0.75	14	1.1	7.9	2.0
Pyrene	mg/kg	0.05	MCERTS	0.68	11	0.96	6.6	1.8
Benzo(a)anthracene	mg/kg	0.05	MCERTS	0.51	7.8	0.71	4.0	1.2
Chrysene	mg/kg	0.05	MCERTS	0.43	7.3	0.61	3.3	0.93
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	0.83	14	0.98	4.2	1.7
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	0.24	5.1	0.32	1.8	0.66
Benzo(a)pyrene	mg/kg	0.05	MCERTS	0.57	11	0.66	3.6	1.4
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	0.36	7.6	0.40	1.8	0.81
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05	1.6	< 0.05	0.40	0.19
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	0.41	8.3	0.40	1.9	0.89
Coronene	mg/kg	0.05	NONE	< 0.05	2.9	< 0.05	< 0.05	< 0.05

Total PAH

Total WAC-17 PAHs	mg/kg	0.85	NONE	5.1	98	7.0	46	13
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Analytical Report Number: 18-22293

Project / Site name: Southall

Lab Sample Number	1114489	1114490	1114491	1114492	1114493
Sample Reference	TP1-6F2	TP1-B	TP2-6F2	TP2-B	TP3-6F2
Sample Number	TP101F	TP102B	TP201	TP202	TP301
Depth (m)	0.10	0.70	0.10	1.00	0.10
Date Sampled	11/12/2018	11/12/2018	11/12/2018	11/12/2018	11/12/2018
Time Taken	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status		

Heavy Metals / Metalloids

Antimony (aqua regia extractable)	mg/kg	1	ISO 17025	14	14	6.4	1.4	15
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	12	48	7.2	12	12
Barium (aqua regia extractable)	mg/kg	1	MCERTS	170	540	150	74	200
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	0.45	1.8	0.56	0.89	0.55
Boron (water soluble)	mg/kg	0.2	MCERTS	2.7	3.8	3.6	2.1	6.8
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	2.6	21	2.1	< 0.2	2.0
Chromium (hexavalent)	mg/kg	1.2	MCERTS	< 1.2	< 1.2	< 1.2	< 1.2	< 1.2
Chromium (III)	mg/kg	1	NONE	36	110	33	28	40
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	36	110	33	28	40
Copper (aqua regia extractable)	mg/kg	1	MCERTS	320	330	440	37	280
Lead (aqua regia extractable)	mg/kg	1	MCERTS	110	790	96	43	100
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	3.3	< 0.3	< 0.3	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	24	71	16	25	23
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	1.6	< 1.0	2.5
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	27	80	28	37	26
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	520	1100	260	82	500

Monoaromatics

Benzene	ug/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Toluene	ug/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Ethylbenzene	ug/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
p & m-xylene	ug/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
o-xylene	ug/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
MTBE (Methyl Tertiary Butyl Ether)	ug/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0

Petroleum Hydrocarbons

TPH-CWG - Aliphatic >EC5 - EC6	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aliphatic >EC6 - EC8	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aliphatic >EC8 - EC10	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aliphatic >EC10 - EC12	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic >EC12 - EC16	mg/kg	2	MCERTS	< 2.0	3.7	< 2.0	< 2.0	< 2.0
TPH-CWG - Aliphatic >EC16 - EC21	mg/kg	8	MCERTS	< 8.0	22	< 8.0	< 8.0	< 8.0
TPH-CWG - Aliphatic >EC21 - EC35	mg/kg	8	MCERTS	< 8.0	460	< 8.0	< 8.0	< 8.0
TPH-CWG - Aliphatic (EC5 - EC35)	mg/kg	10	MCERTS	< 10	490	< 10	< 10	< 10

TPH-CWG - Aromatic >EC5 - EC7	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aromatic >EC7 - EC8	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aromatic >EC8 - EC10	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aromatic >EC10 - EC12	mg/kg	1	MCERTS	< 1.0	< 1.0	3.2	< 1.0	< 1.0
TPH-CWG - Aromatic >EC12 - EC16	mg/kg	2	MCERTS	< 2.0	14	9.5	18	9.4
TPH-CWG - Aromatic >EC16 - EC21	mg/kg	10	MCERTS	< 10	130	27	63	23
TPH-CWG - Aromatic >EC21 - EC35	mg/kg	10	MCERTS	16	690	88	69	100
TPH-CWG - Aromatic (EC5 - EC35)	mg/kg	10	MCERTS	25	840	130	150	130



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Lab Sample Number	1114489	1114490	1114491	1114492	1114493
Sample Reference	TP1-6F2	TP1-B	TP2-6F2	TP2-B	TP3-6F2
Sample Number	TP101F	TP102B	TP201	TP202	TP301
Depth (m)	0.10	0.70	0.10	1.00	0.10
Date Sampled	11/12/2018	11/12/2018	11/12/2018	11/12/2018	11/12/2018
Time Taken	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status		

VOCs

Chloromethane	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Chloroethane	µg/kg	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Bromomethane	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Vinyl Chloride	µg/kg	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Trichlorofluoromethane	µg/kg	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1-Dichloroethene	µg/kg	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1,2-Trichloro 1,2,2-Trifluoroethane	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Cis-1,2-dichloroethene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1-Dichloroethane	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
2,2-Dichloropropane	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Trichloromethane	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1,1-Trichloroethane	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dichloroethane	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1-Dichloropropene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Trans-1,2-dichloroethene	µg/kg	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Benzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Tetrachloromethane	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dichloropropane	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Trichloroethene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Dibromomethane	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Bromodichloromethane	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Cis-1,3-dichloropropene	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Trans-1,3-dichloropropene	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Toluene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1,2-Trichloroethane	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,3-Dichloropropane	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Dibromochloromethane	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Tetrachloroethene	µg/kg	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dibromoethane	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Chlorobenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1,1,2-Tetrachloroethane	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Ethylbenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
p & m-Xylene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Styrene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Tribromomethane	µg/kg	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
o-Xylene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1,2,2-Tetrachloroethane	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Isopropylbenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Bromobenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
n-Propylbenzene	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
2-Chlorotoluene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
4-Chlorotoluene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,3,5-Trimethylbenzene	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
tert-Butylbenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2,4-Trimethylbenzene	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
sec-Butylbenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,3-Dichlorobenzene	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
p-Isopropyltoluene	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dichlorobenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,4-Dichlorobenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Butylbenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dibromo-3-chloropropane	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2,4-Trichlorobenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Hexachlorobutadiene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2,3-Trichlorobenzene	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0

Analytical Report Number: 18-22293

Project / Site name: Southall

Lab Sample Number	1114494	1114495	1114496	1114497	1114498
Sample Reference	TP3-B	TP4-6F2	TP4-B	TP5-6F2	TP5-B
Sample Number	TP302	TP401	TP402	TP501	TP502
Depth (m)	0.90	0.20	1.10	0.30	0.60
Date Sampled	11/12/2018	11/12/2018	11/12/2018	11/12/2018	11/12/2018
Time Taken	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status		
Stone Content	%	0.1	NONE	< 0.1	< 0.1
Moisture Content	%	N/A	NONE	16	11
Total mass of sample received	kg	0.001	NONE	1.5	1.6

Asbestos in Soil Screen / Identification Name	Type	N/A	ISO 17025	-	-	-	-	-
Asbestos in Soil	Type	N/A	ISO 17025	Not-detected	Not-detected	Not-detected	Not-detected	Not-detected
Asbestos Quantification (Stage 2)	%	0.001	ISO 17025	-	-	-	-	-
Asbestos Quantification Total	%	0.001	ISO 17025	-	-	-	-	-

General Inorganics

pH - Automated	pH Units	N/A	MCERTS	8.3	10.2	8.2	10.3	9.1
Total Cyanide	mg/kg	1	MCERTS	< 1	< 1	< 1	< 1	< 1
Free Cyanide	mg/kg	1	MCERTS	< 1	< 1	< 1	< 1	< 1
Total Sulphate as SO ₄	mg/kg	50	MCERTS	1800	14000	1800	10000	3000
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.50	1.8	0.51	1.0	0.99
Ammonia as NH ₃	mg/kg	0.5	MCERTS	4.2	0.9	6.8	1.4	3.8
Ammonium as NH ₄	mg/kg	0.5	MCERTS	4.4	0.9	7.2	1.5	4.0
Organic Matter	%	0.1	MCERTS	1.4	0.7	1.4	0.8	1.0

Total Phenols

Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
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Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Fluorene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Phenanthrene	mg/kg	0.05	MCERTS	1.7	1.1	0.70	0.75	0.45
Anthracene	mg/kg	0.05	MCERTS	0.53	0.33	0.20	0.22	< 0.05
Fluoranthene	mg/kg	0.05	MCERTS	4.6	2.4	1.8	2.1	1.2
Pyrene	mg/kg	0.05	MCERTS	3.9	2.1	1.5	1.9	1.2
Benzo(a)anthracene	mg/kg	0.05	MCERTS	2.4	1.4	1.1	1.2	0.72
Chrysene	mg/kg	0.05	MCERTS	1.6	1.1	0.73	0.77	0.59
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	3.0	1.8	1.3	1.7	1.1
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	0.74	0.49	0.39	0.43	0.29
Benzo(a)pyrene	mg/kg	0.05	MCERTS	2.3	1.3	1.0	1.2	0.89
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	1.2	0.66	0.55	0.63	0.47
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	0.29	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	1.3	0.75	0.60	0.61	0.51
Coronene	mg/kg	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05

Total PAH

Total WAC-17 PAHs	mg/kg	0.85	NONE	24	13	9.9	11	7.5
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Analytical Report Number: 18-22293

Project / Site name: Southall

Lab Sample Number				1114494	1114495	1114496	1114497	1114498
Sample Reference				TP3-B	TP4-6F2	TP4-B	TP5-6F2	TP5-B
Sample Number				TP302	TP401	TP402	TP501	TP502
Depth (m)				0.90	0.20	1.10	0.30	0.60
Date Sampled				11/12/2018	11/12/2018	11/12/2018	11/12/2018	11/12/2018
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
Heavy Metals / Metalloids								
Antimony (aqua regia extractable)	mg/kg	1	ISO 17025	< 1.0	13	3.7	16	4.7
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	13	7.6	15	15	12
Barium (aqua regia extractable)	mg/kg	1	MCERTS	120	180	99	200	120
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	1.1	0.53	1.3	0.66	0.99
Boron (water soluble)	mg/kg	0.2	MCERTS	2.7	7.5	2.6	5.3	2.8
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	0.3	1.5	< 0.2	2.3	0.4
Chromium (hexavalent)	mg/kg	1.2	MCERTS	< 1.2	< 1.2	< 1.2	< 1.2	< 1.2
Chromium (III)	mg/kg	1	NONE	35	36	38	42	30
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	35	36	38	42	30
Copper (aqua regia extractable)	mg/kg	1	MCERTS	47	420	59	210	55
Lead (aqua regia extractable)	mg/kg	1	MCERTS	63	160	62	150	65
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	30	23	33	36	30
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	1.4	< 1.0	< 1.0	< 1.0	1.4
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	56	25	47	34	50
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	110	640	120	490	160

Monoaromatics

Benzene	ug/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Toluene	ug/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Ethylbenzene	ug/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
p & m-xylene	ug/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
o-xylene	ug/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
MTBE (Methyl Tertiary Butyl Ether)	ug/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0

Petroleum Hydrocarbons

TPH-CWG - Aliphatic >EC5 - EC6	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aliphatic >EC6 - EC8	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aliphatic >EC8 - EC10	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aliphatic >EC10 - EC12	mg/kg	1	MCERTS	< 1.0	< 1.0	2.0	1.8	< 1.0
TPH-CWG - Aliphatic >EC12 - EC16	mg/kg	2	MCERTS	2.7	4.4	2.4	7.3	< 2.0
TPH-CWG - Aliphatic >EC16 - EC21	mg/kg	8	MCERTS	17	24	< 8.0	23	13
TPH-CWG - Aliphatic >EC21 - EC35	mg/kg	8	MCERTS	80	82	14	99	66
TPH-CWG - Aliphatic (EC5 - EC35)	mg/kg	10	MCERTS	99	110	21	130	80

TPH-CWG - Aromatic >EC5 - EC7	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aromatic >EC7 - EC8	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aromatic >EC8 - EC10	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aromatic >EC10 - EC12	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aromatic >EC12 - EC16	mg/kg	2	MCERTS	4.5	< 2.0	< 2.0	3.0	< 2.0
TPH-CWG - Aromatic >EC16 - EC21	mg/kg	10	MCERTS	41	24	< 10	28	< 10
TPH-CWG - Aromatic >EC21 - EC35	mg/kg	10	MCERTS	99	120	15	120	11
TPH-CWG - Aromatic (EC5 - EC35)	mg/kg	10	MCERTS	140	150	20	150	13



Analytical Report Number: 18-22293

Project / Site name: Southall

Lab Sample Number				1114494	1114495	1114496	1114497	1114498
Sample Reference				TP3-B	TP4-6F2	TP4-B	TP5-6F2	TP5-B
Sample Number				TP302	TP401	TP402	TP501	TP502
Depth (m)				0.90	0.20	1.10	0.30	0.60
Date Sampled				11/12/2018	11/12/2018	11/12/2018	11/12/2018	11/12/2018
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
VOCs								
Chloromethane	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Chloroethane	µg/kg	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Bromomethane	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Vinyl Chloride	µg/kg	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Trichlorofluoromethane	µg/kg	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1-Dichloroethene	µg/kg	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1,2-Trichloro 1,2,2-Trifluoroethane	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Cis-1,2-dichloroethene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1-Dichloroethane	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
2,2-Dichloropropane	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Trichloromethane	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1,1-Trichloroethane	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dichloroethane	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1-Dichloropropene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Trans-1,2-dichloroethene	µg/kg	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Benzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Tetrachloromethane	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dichloropropane	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Trichloroethene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Dibromomethane	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Bromodichloromethane	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Cis-1,3-dichloropropene	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Trans-1,3-dichloropropene	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Toluene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1,2-Trichloroethane	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,3-Dichloropropane	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Dibromochloromethane	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Tetrachloroethene	µg/kg	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dibromoethane	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Chlorobenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1,1,2-Tetrachloroethane	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Ethylbenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
p & m-Xylene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Styrene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Tribromomethane	µg/kg	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
o-Xylene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1,2,2-Tetrachloroethane	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Isopropylbenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Bromobenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
n-Propylbenzene	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
2-Chlorotoluene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
4-Chlorotoluene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,3,5-Trimethylbenzene	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
tert-Butylbenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2,4-Trimethylbenzene	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
sec-Butylbenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,3-Dichlorobenzene	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
p-Isopropyltoluene	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dichlorobenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,4-Dichlorobenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Butylbenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dibromo-3-chloropropane	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2,4-Trichlorobenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Hexachlorobutadiene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2,3-Trichlorobenzene	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0

Analytical Report Number: 18-22293

Project / Site name: Southall

Lab Sample Number	1114499	1114500	1114501	1114502	1114503
Sample Reference	TP6-6F2	TP6-B	TP7-6F2	TP7-B	TP8-6F2
Sample Number	TP601	TP602	TP701	TP702	TP801
Depth (m)	0.60	1.30	0.30	1.20	0.50
Date Sampled	11/12/2018	11/12/2018	11/12/2018	11/12/2018	11/12/2018
Time Taken	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status		
Stone Content	%	0.1	NONE	< 0.1	< 0.1
Moisture Content	%	N/A	NONE	13	15
Total mass of sample received	kg	0.001	NONE	1.7	1.7

Asbestos in Soil Screen / Identification Name	Type	N/A	ISO 17025	-	-	-	-	-
Asbestos in Soil	Type	N/A	ISO 17025	Not-detected	Not-detected	Not-detected	Not-detected	Not-detected
Asbestos Quantification (Stage 2)	%	0.001	ISO 17025	-	-	-	-	-
Asbestos Quantification Total	%	0.001	ISO 17025	-	-	-	-	-

General Inorganics

pH - Automated	pH Units	N/A	MCERTS	10.2	8.6	11.0	8.4	11.1
Total Cyanide	mg/kg	1	MCERTS	< 1	< 1	< 1	< 1	< 1
Free Cyanide	mg/kg	1	MCERTS	< 1	< 1	< 1	< 1	< 1
Total Sulphate as SO ₄	mg/kg	50	MCERTS	11000	1800	14000	1300	13000
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	1.0	0.40	0.63	0.21	0.46
Ammonia as NH ₃	mg/kg	0.5	MCERTS	1.0	5.3	3.1	3.7	1.4
Ammonium as NH ₄	mg/kg	0.5	MCERTS	1.1	5.6	3.3	3.9	1.5
Organic Matter	%	0.1	MCERTS	1.4	1.2	1.4	0.4	1.2

Total Phenols

Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
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Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	0.66	< 0.05	< 0.05
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	0.72	< 0.05	0.32
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	0.38	< 0.05	< 0.05
Fluorene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	1.4	< 0.05	0.29
Phenanthrene	mg/kg	0.05	MCERTS	1.6	0.47	9.3	< 0.05	2.7
Anthracene	mg/kg	0.05	MCERTS	0.45	0.15	2.7	< 0.05	0.77
Fluoranthene	mg/kg	0.05	MCERTS	3.7	1.1	12	0.38	4.8
Pyrene	mg/kg	0.05	MCERTS	3.4	0.98	9.4	0.30	4.1
Benzo(a)anthracene	mg/kg	0.05	MCERTS	2.4	0.55	6.6	0.21	2.6
Chrysene	mg/kg	0.05	MCERTS	1.6	0.52	3.4	0.18	1.8
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	2.8	0.82	5.1	0.25	2.7
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	1.3	0.30	2.3	0.13	0.90
Benzo(a)pyrene	mg/kg	0.05	MCERTS	2.4	0.68	4.5	0.24	2.0
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	1.3	0.35	2.3	< 0.05	1.3
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	0.22	< 0.05	0.78	< 0.05	0.41
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	1.4	0.41	2.5	< 0.05	1.3
Coronene	mg/kg	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05

Total PAH

Total WAC-17 PAHs	mg/kg	0.85	NONE	23	6.3	64	1.7	26
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Analytical Report Number: 18-22293

Project / Site name: Southall

Lab Sample Number				1114499	1114500	1114501	1114502	1114503
Sample Reference				TP6-6F2	TP6-B	TP7-6F2	TP7-B	TP8-6F2
Sample Number				TP601	TP602	TP701	TP702	TP801
Depth (m)				0.60	1.30	0.30	1.20	0.50
Date Sampled				11/12/2018	11/12/2018	11/12/2018	11/12/2018	11/12/2018
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
Heavy Metals / Metalloids								
Antimony (aqua regia extractable)	mg/kg	1	ISO 17025	8.8	2.0	6.3	1.7	8.3
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	10	12	13	9.5	13
Barium (aqua regia extractable)	mg/kg	1	MCERTS	180	92	160	75	150
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	0.73	1.0	0.68	1.0	0.65
Boron (water soluble)	mg/kg	0.2	MCERTS	6.0	2.3	4.6	1.5	3.8
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	1.4	0.4	1.0	< 0.2	1.5
Chromium (hexavalent)	mg/kg	1.2	MCERTS	< 1.2	< 1.2	< 1.2	< 1.2	< 1.2
Chromium (III)	mg/kg	1	NONE	42	39	28	36	33
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	42	39	28	36	33
Copper (aqua regia extractable)	mg/kg	1	MCERTS	380	51	160	28	120
Lead (aqua regia extractable)	mg/kg	1	MCERTS	100	73	77	24	86
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	1.7	< 0.3	< 0.3	0.5
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	29	30	18	35	22
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	3.6	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	35	43	31	50	34
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	300	110	250	89	300

Monoaromatics

Benzene	ug/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Toluene	ug/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Ethylbenzene	ug/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
p & m-xylene	ug/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
o-xylene	ug/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
MTBE (Methyl Tertiary Butyl Ether)	ug/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0

Petroleum Hydrocarbons

TPH-CWG - Aliphatic >EC5 - EC6	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aliphatic >EC6 - EC8	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aliphatic >EC8 - EC10	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aliphatic >EC10 - EC12	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic >EC12 - EC16	mg/kg	2	MCERTS	4.8	< 2.0	15	< 2.0	7.8
TPH-CWG - Aliphatic >EC16 - EC21	mg/kg	8	MCERTS	26	< 8.0	55	< 8.0	32
TPH-CWG - Aliphatic >EC21 - EC35	mg/kg	8	MCERTS	160	< 8.0	220	< 8.0	150
TPH-CWG - Aliphatic (EC5 - EC35)	mg/kg	10	MCERTS	200	< 10	290	< 10	190

TPH-CWG - Aromatic >EC5 - EC7	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aromatic >EC7 - EC8	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aromatic >EC8 - EC10	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aromatic >EC10 - EC12	mg/kg	1	MCERTS	< 1.0	< 1.0	5.0	< 1.0	1.8
TPH-CWG - Aromatic >EC12 - EC16	mg/kg	2	MCERTS	3.1	< 2.0	40	< 2.0	11
TPH-CWG - Aromatic >EC16 - EC21	mg/kg	10	MCERTS	32	12	250	< 10	61
TPH-CWG - Aromatic >EC21 - EC35	mg/kg	10	MCERTS	130	18	720	< 10	200
TPH-CWG - Aromatic (EC5 - EC35)	mg/kg	10	MCERTS	160	30	1000	< 10	280



Analytical Report Number: 18-22293

Project / Site name: Southall

Lab Sample Number				1114499	1114500	1114501	1114502	1114503
Sample Reference				TP6-6F2	TP6-B	TP7-6F2	TP7-B	TP8-6F2
Sample Number				TP601	TP602	TP701	TP702	TP801
Depth (m)				0.60	1.30	0.30	1.20	0.50
Date Sampled				11/12/2018	11/12/2018	11/12/2018	11/12/2018	11/12/2018
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
VOCs								
Chloromethane	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Chloroethane	µg/kg	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Bromomethane	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Vinyl Chloride	µg/kg	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Trichlorofluoromethane	µg/kg	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1-Dichloroethene	µg/kg	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1,2-Trichloro 1,2,2-Trifluoroethane	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Cis-1,2-dichloroethene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1-Dichloroethane	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
2,2-Dichloropropane	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Trichloromethane	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1,1-Trichloroethane	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dichloroethane	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1-Dichloropropene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Trans-1,2-dichloroethene	µg/kg	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Benzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Tetrachloromethane	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dichloropropane	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Trichloroethene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Dibromomethane	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Bromodichloromethane	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Cis-1,3-dichloropropene	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Trans-1,3-dichloropropene	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Toluene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1,2-Trichloroethane	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,3-Dichloropropane	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Dibromochloromethane	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Tetrachloroethene	µg/kg	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dibromoethane	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Chlorobenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1,1,2-Tetrachloroethane	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Ethylbenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
p & m-Xylene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Styrene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Tribromomethane	µg/kg	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
o-Xylene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1,2,2-Tetrachloroethane	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Isopropylbenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Bromobenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
n-Propylbenzene	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
2-Chlorotoluene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
4-Chlorotoluene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,3,5-Trimethylbenzene	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
tert-Butylbenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2,4-Trimethylbenzene	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
sec-Butylbenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,3-Dichlorobenzene	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
p-Isopropyltoluene	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dichlorobenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,4-Dichlorobenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Butylbenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dibromo-3-chloropropane	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2,4-Trichlorobenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Hexachlorobutadiene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2,3-Trichlorobenzene	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0

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Lab Sample Number				1114504				
Sample Reference				TP8-B				
Sample Number				TP802				
Depth (m)				1.40				
Date Sampled				11/12/2018				
Time Taken				None Supplied				
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
Stone Content	%	0.1	NONE	< 0.1				
Moisture Content	%	N/A	NONE	12				
Total mass of sample received	kg	0.001	NONE	1.5				

Asbestos in Soil Screen / Identification Name	Type	N/A	ISO 17025	-				
Asbestos in Soil	Type	N/A	ISO 17025	Not-detected				
Asbestos Quantification (Stage 2)	%	0.001	ISO 17025	-				
Asbestos Quantification Total	%	0.001	ISO 17025	-				

General Inorganics

pH - Automated	pH Units	N/A	MCERTS	9.8				
Total Cyanide	mg/kg	1	MCERTS	< 1				
Free Cyanide	mg/kg	1	MCERTS	< 1				
Total Sulphate as SO ₄	mg/kg	50	MCERTS	3700				
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.93				
Ammonia as NH ₃	mg/kg	0.5	MCERTS	20				
Ammonium as NH ₄	mg/kg	0.5	MCERTS	21				
Organic Matter	%	0.1	MCERTS	1.8				

Total Phenols

Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0				
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Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	< 0.05				
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05				
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05				
Fluorene	mg/kg	0.05	MCERTS	< 0.05				
Phenanthrene	mg/kg	0.05	MCERTS	0.91				
Anthracene	mg/kg	0.05	MCERTS	0.25				
Fluoranthene	mg/kg	0.05	MCERTS	2.1				
Pyrene	mg/kg	0.05	MCERTS	1.8				
Benzo(a)anthracene	mg/kg	0.05	MCERTS	1.2				
Chrysene	mg/kg	0.05	MCERTS	0.88				
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	1.7				
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	0.53				
Benzo(a)pyrene	mg/kg	0.05	MCERTS	1.3				
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	0.79				
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05				
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	0.84				
Coronene	mg/kg	0.05	NONE	< 0.05				

Total PAH

Total WAC-17 PAHs	mg/kg	0.85	NONE	12				
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Project / Site name: Southall

Lab Sample Number				1114504				
Sample Reference				TP8-B				
Sample Number				TP802				
Depth (m)				1.40				
Date Sampled				11/12/2018				
Time Taken				None Supplied				
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
Heavy Metals / Metalloids								
Antimony (aqua regia extractable)	mg/kg	1	ISO 17025	5.2				
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	15				
Barium (aqua regia extractable)	mg/kg	1	MCERTS	130				
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	1.0				
Boron (water soluble)	mg/kg	0.2	MCERTS	3.5				
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	1.8				
Chromium (hexavalent)	mg/kg	1.2	MCERTS	< 1.2				
Chromium (III)	mg/kg	1	NONE	39				
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	40				
Copper (aqua regia extractable)	mg/kg	1	MCERTS	100				
Lead (aqua regia extractable)	mg/kg	1	MCERTS	96				
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3				
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	30				
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0				
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	38				
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	220				

Monoaromatics

Benzene	ug/kg	1	MCERTS	< 1.0				
Toluene	ug/kg	1	MCERTS	< 1.0				
Ethylbenzene	ug/kg	1	MCERTS	< 1.0				
p & m-xylene	ug/kg	1	MCERTS	< 1.0				
o-xylene	ug/kg	1	MCERTS	< 1.0				
MTBE (Methyl Tertiary Butyl Ether)	ug/kg	1	MCERTS	< 1.0				

Petroleum Hydrocarbons

TPH-CWG - Aliphatic >EC5 - EC6	mg/kg	0.001	MCERTS	< 0.001				
TPH-CWG - Aliphatic >EC6 - EC8	mg/kg	0.001	MCERTS	< 0.001				
TPH-CWG - Aliphatic >EC8 - EC10	mg/kg	0.001	MCERTS	< 0.001				
TPH-CWG - Aliphatic >EC10 - EC12	mg/kg	1	MCERTS	< 1.0				
TPH-CWG - Aliphatic >EC12 - EC16	mg/kg	2	MCERTS	2.9				
TPH-CWG - Aliphatic >EC16 - EC21	mg/kg	8	MCERTS	24				
TPH-CWG - Aliphatic >EC21 - EC35	mg/kg	8	MCERTS	160				
TPH-CWG - Aliphatic (EC5 - EC35)	mg/kg	10	MCERTS	190				

TPH-CWG - Aromatic >EC5 - EC7	mg/kg	0.001	MCERTS	< 0.001				
TPH-CWG - Aromatic >EC7 - EC8	mg/kg	0.001	MCERTS	< 0.001				
TPH-CWG - Aromatic >EC8 - EC10	mg/kg	0.001	MCERTS	< 0.001				
TPH-CWG - Aromatic >EC10 - EC12	mg/kg	1	MCERTS	3.5				
TPH-CWG - Aromatic >EC12 - EC16	mg/kg	2	MCERTS	7.6				
TPH-CWG - Aromatic >EC16 - EC21	mg/kg	10	MCERTS	26				
TPH-CWG - Aromatic >EC21 - EC35	mg/kg	10	MCERTS	100				
TPH-CWG - Aromatic (EC5 - EC35)	mg/kg	10	MCERTS	140				

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Lab Sample Number				1114504				
Sample Reference				TP8-B				
Sample Number				TP802				
Depth (m)				1.40				
Date Sampled				11/12/2018				
Time Taken				None Supplied				
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
VOCs								
Chloromethane	µg/kg	1	ISO 17025	< 1.0				
Chloroethane	µg/kg	1	NONE	< 1.0				
Bromomethane	µg/kg	1	ISO 17025	< 1.0				
Vinyl Chloride	µg/kg	1	NONE	< 1.0				
Trichlorofluoromethane	µg/kg	1	NONE	< 1.0				
1,1-Dichloroethene	µg/kg	1	NONE	< 1.0				
1,1,2-Trichloro 1,2,2-Trifluoroethane	µg/kg	1	ISO 17025	< 1.0				
Cis-1,2-dichloroethene	µg/kg	1	MCERTS	< 1.0				
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS	< 1.0				
1,1-Dichloroethane	µg/kg	1	MCERTS	< 1.0				
2,2-Dichloropropane	µg/kg	1	MCERTS	< 1.0				
Trichloromethane	µg/kg	1	MCERTS	< 1.0				
1,1,1-Trichloroethane	µg/kg	1	MCERTS	< 1.0				
1,2-Dichloroethane	µg/kg	1	MCERTS	< 1.0				
1,1-Dichloropropene	µg/kg	1	MCERTS	< 1.0				
Trans-1,2-dichloroethene	µg/kg	1	NONE	< 1.0				
Benzene	µg/kg	1	MCERTS	< 1.0				
Tetrachloromethane	µg/kg	1	MCERTS	< 1.0				
1,2-Dichloropropane	µg/kg	1	MCERTS	< 1.0				
Trichloroethene	µg/kg	1	MCERTS	< 1.0				
Dibromomethane	µg/kg	1	MCERTS	< 1.0				
Bromodichloromethane	µg/kg	1	MCERTS	< 1.0				
Cis-1,3-dichloropropene	µg/kg	1	ISO 17025	< 1.0				
Trans-1,3-dichloropropene	µg/kg	1	ISO 17025	< 1.0				
Toluene	µg/kg	1	MCERTS	< 1.0				
1,1,2-Trichloroethane	µg/kg	1	MCERTS	< 1.0				
1,3-Dichloropropane	µg/kg	1	ISO 17025	< 1.0				
Dibromochloromethane	µg/kg	1	ISO 17025	< 1.0				
Tetrachloroethene	µg/kg	1	NONE	< 1.0				
1,2-Dibromoethane	µg/kg	1	ISO 17025	< 1.0				
Chlorobenzene	µg/kg	1	MCERTS	< 1.0				
1,1,1,2-Tetrachloroethane	µg/kg	1	MCERTS	< 1.0				
Ethylbenzene	µg/kg	1	MCERTS	< 1.0				
p & m-Xylene	µg/kg	1	MCERTS	< 1.0				
Styrene	µg/kg	1	MCERTS	< 1.0				
Tribromomethane	µg/kg	1	NONE	< 1.0				
o-Xylene	µg/kg	1	MCERTS	< 1.0				
1,1,2,2-Tetrachloroethane	µg/kg	1	MCERTS	< 1.0				
Isopropylbenzene	µg/kg	1	MCERTS	< 1.0				
Bromobenzene	µg/kg	1	MCERTS	< 1.0				
n-Propylbenzene	µg/kg	1	ISO 17025	< 1.0				
2-Chlorotoluene	µg/kg	1	MCERTS	< 1.0				
4-Chlorotoluene	µg/kg	1	MCERTS	< 1.0				
1,3,5-Trimethylbenzene	µg/kg	1	ISO 17025	< 1.0				
tert-Butylbenzene	µg/kg	1	MCERTS	< 1.0				
1,2,4-Trimethylbenzene	µg/kg	1	ISO 17025	< 1.0				
sec-Butylbenzene	µg/kg	1	MCERTS	< 1.0				
1,3-Dichlorobenzene	µg/kg	1	ISO 17025	< 1.0				
p-Isopropyltoluene	µg/kg	1	ISO 17025	< 1.0				
1,2-Dichlorobenzene	µg/kg	1	MCERTS	< 1.0				
1,4-Dichlorobenzene	µg/kg	1	MCERTS	< 1.0				
Butylbenzene	µg/kg	1	MCERTS	< 1.0				
1,2-Dibromo-3-chloropropane	µg/kg	1	ISO 17025	< 1.0				
1,2,4-Trichlorobenzene	µg/kg	1	MCERTS	< 1.0				
Hexachlorobutadiene	µg/kg	1	MCERTS	< 1.0				
1,2,3-Trichlorobenzene	µg/kg	1	ISO 17025	< 1.0				



Analytical Report Number: 18-22293

Project / Site name: Southall

Your Order No:

Certificate of Analysis - Asbestos Quantification

Methods:

Qualitative Analysis

The samples were analysed qualitatively for asbestos by polarising light and dispersion staining as described by the Health and Safety Executive in HSG 248.

Quantitative Analysis

The analysis was carried out using our documented in-house method A006 based on HSE Contract Research Report No: 83/1996: Development and Validation of an analytical method to determine the amount of asbestos in soils and loose aggregates (Davies et al, 1996) and HSG 248. Our method includes initial examination of the entire representative sample, then fractionation and detailed analysis of each fraction, with quantification by hand picking and weighing.

The limit of detection (reporting limit) of this method is 0.001 %.

The method has been validated using samples of at least 100 g, results for samples smaller than this should be interpreted with caution.

Both Qualitative and Quantitative Analyses are UKAS accredited.

Sample Number	Sample ID	Sample Depth (m)	Sample Weight (g)	Asbestos Containing Material Types Detected (ACM)	PLM Results	Asbestos by hand picking/weighing (%)	Total % Asbestos in Sample
1114490	TP1-B	0.70	158	Loose Fibres	Chrysotile	< 0.001	< 0.001

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



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* These descriptions are only intended to act as a cross check if sample identities are questioned. The major constituent of the sample is intended to act with respect to MCERTS validation. The laboratory is accredited for sand, clay and loam (MCERTS) soil types. Data for unaccredited types of solid should be interpreted with care.

Stone content of a sample is calculated as the % weight of the stones not passing a 10 mm sieve. Results are not corrected for stone content.

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
1114489	TP1-6F2	TP101F	0.10	Light brown loam and sand with stones and gravel.
1114490	TP1-B	TP102B	0.70	Brown loam and sand with vegetation and gravel.
1114491	TP2-6F2	TP201	0.10	Light brown loam and sand with gravel and rubble.
1114492	TP2-B	TP202	1.00	Brown loam and clay with stones and gravel
1114493	TP3-6F2	TP301	0.10	Light grey loam and sand with gravel and vegetation.
1114494	TP3-B	TP302	0.90	Brown clay and loam with vegetation and gravel
1114495	TP4-6F2	TP401	0.20	Light grey loam and sand with gravel and glass.
1114496	TP4-B	TP402	1.10	Brown clay and sand with gravel and vegetation.
1114497	TP5-6F2	TP501	0.30	Brown loam and sand with gravel and brick.
1114498	TP5-B	TP502	0.60	Brown loam and clay with gravel and vegetation.
1114499	TP6-6F2	TP601	0.60	Brown loam and sand with vegetation and gravel.
1114500	TP6-B	TP602	1.30	Brown clay and sand with vegetation and gravel
1114501	TP7-6F2	TP701	0.30	Brown loam and sand with gravel and glass.
1114502	TP7-B	TP702	1.20	Brown clay and sand with gravel and vegetation.
1114503	TP8-6F2	TP801	0.50	Brown loam and sand with rubble and gravel
1114504	TP8-B	TP802	1.40	Brown clay and sand with gravel and rubble.

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Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Water (PrW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Ammonia as NH ₃ in soil	Determination of Ammonium/Ammonia/Ammoniacal Nitrogen by the colorimetric salicylate/nitroprusside method, 10:1 water extraction.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L082-PL	W	MCERTS
Asbestos identification in soil	Asbestos Identification with the use of polarised light microscopy in conjunction with disperion staining techniques.	In house method based on HSG 248	A001-PL	D	ISO 17025
Asbestos Quantification - Gravimetric	Asbestos quantification by gravimetric method - in house method based on references.	HSE Report No: 83/1996, HSG 248, HSG 264 & SCA Blue Book (draft).	A006-PL	D	ISO 17025
Boron, water soluble, in soil	Determination of water soluble boron in soil by hot water extract followed by ICP-OES.	In-house method based on Second Site Properties version 3	L038-PL	D	MCERTS
BTEX and MTBE in soil (Monoaromatics)	Determination of BTEX in soil by headspace GC-MS.	In-house method based on USEPA8260	L073B-PL	W	MCERTS
Cr (III) in soil	In-house method by calculation from total Cr and Cr VI.	In-house method by calculation	L080-PL	W	NONE
D.O. for Gravimetric Quant if Screen/ID positive	Dependent option for Gravimetric Quant if Screen/ID positive scheduled.	In house asbestos methods A001 & A006.	A006-PL	D	NONE
Free cyanide in soil	Determination of free cyanide by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	MCERTS
Hexavalent chromium in soil (Lower Level)	Determination of hexavalent chromium in soil by extraction in water then by acidification, addition of 1,5 diphenylcarbazine followed by colorimetry.	In-house method	L080-PL	W	MCERTS
Metals in soil by ICP-OES	Determination of metals in soil by aqua-regia digestion followed by ICP-OES.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L038-PL	D	MCERTS
Moisture Content	Moisture content, determined gravimetrically.	In-house method based on BS1377 Part 2, 1990, Chemical and Electrochemical Tests	L019-UK/PL	W	NONE
Monohydric phenols in soil	Determination of phenols in soil by extraction with sodium hydroxide followed by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (skalar)	L080-PL	W	MCERTS
Organic matter (Automated) in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate.	BS1377 Part 3, 1990, Chemical and Electrochemical Tests ^{***}	L009-PL	D	MCERTS
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L099-PL	D	MCERTS
Speciated WAC-17 PAHs in soil	Determination of PAH compounds in soil by extraction in dichloromethane and hexane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270. MCERTS accredited except Coronene.	L064-PL	D	NONE
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE
Sulphate, water soluble, in soil (16hr extraction)	Determination of water soluble sulphate by ICP-OES. Results reported directly (leachate equivalent) and corrected for extraction ratio (soil equivalent).	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests, 2:1 water:soil extraction, analysis by ICP-OES.	L038-PL	D	MCERTS

Iss No 18-22293-1 Southall CG-28308

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The results included within the report are representative of the samples submitted for analysis.

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Analytical Report Number : 18-22293

Project / Site name: Southall

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Water (PrW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Total cyanide in soil	Determination of total cyanide by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	MCERTS
Total sulphate (as SO ₄ in soil)	Determination of total sulphate in soil by extraction with 10% HCl followed by ICP-OES.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L038-PL	D	MCERTS
TPHCWG (Soil)	Determination of hexane extractable hydrocarbons in soil by GC-MS/GC-FID.	In-house method with silica gel split/clean up.	L088/76-PL	W	MCERTS
Volatile organic compounds in soil	Determination of volatile organic compounds in soil by headspace GC-MS.	In-house method based on USEPA8260	L073B-PL	W	MCERTS

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.

For method numbers ending in 'PL' analysis have been carried out in our laboratory in Poland.

Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.

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Analytical Report Number : 19-26103

Project / Site name:	Southall	Samples received on:	23/01/2019
Your job number:	CG-28308	Samples instructed on:	23/01/2019
Your order number:		Analysis completed by:	01/02/2019
Report Issue Number:	1	Report issued on:	01/02/2019
Samples Analysed:	13 soil samples		

Signed:

Rexona Rahman
Head of Customer Services
For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41 -711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :	soils	- 4 weeks from reporting
	leachates	- 2 weeks from reporting
	waters	- 2 weeks from reporting
	asbestos	- 6 months from reporting

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Analytical Report Number: 19-26103

Project / Site name: Southall

Lab Sample Number				1139227	1139228	1139229	1139230	1139231
Sample Reference				TP1	TP2	TP3	TP3	TP4
Sample Number				S1	S1	S1	S2	S1
Depth (m)				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Date Sampled				22/01/2019	22/01/2019	22/01/2019	22/01/2019	22/01/2019
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
Stone Content	%	0.1	NONE	< 0.1	< 0.1	24	< 0.1	< 0.1
Moisture Content	%	N/A	NONE	16	19	11	23	12
Total mass of sample received	kg	0.001	NONE	1.2	1.2	1.1	1.3	1.2

Asbestos in Soil Screen / Identification Name	Type	N/A	ISO 17025	-	-	-	-	-
Asbestos in Soil	Type	N/A	ISO 17025	Not-detected	Not-detected	Not-detected	Not-detected	Not-detected
Asbestos Quantification (Stage 2)	%	0.001	ISO 17025	-	-	-	-	-
Asbestos Quantification Total	%	0.001	ISO 17025	-	-	-	-	-

General Inorganics

pH - Automated	pH Units	N/A	MCERTS	7.8	7.7	8.2	7.7	9.1
Total Cyanide	mg/kg	1	MCERTS	< 1	2	< 1	< 1	< 1
Free Cyanide	mg/kg	1	MCERTS	< 1	< 1	< 1	< 1	< 1
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.10	0.49	0.53	0.18	0.60
Ammoniacal Nitrogen as N	mg/kg	0.5	MCERTS	45	15	< 0.5	26	< 0.5
Organic Matter	%	0.1	MCERTS	6.1	4.9	3.0	6.9	3.5

Total Phenols

Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
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Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(a)anthracene	mg/kg	0.05	MCERTS	4.6	3.1	2.0	2.0	1.9
Chrysene	mg/kg	0.05	MCERTS	3.3	2.8	1.6	1.5	1.5
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	5.0	4.0	2.4	2.9	2.3
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	1.5	1.4	0.96	0.76	0.92
Benzo(a)pyrene	mg/kg	0.05	MCERTS	4.0	3.4	2.0	2.1	2.0
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	2.0	1.8	1.1	1.2	1.1
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	0.56	0.47	0.27	0.31	0.29

Heavy Metals / Metalloids

Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	16	15	12	18	13
Barium (aqua regia extractable)	mg/kg	1	MCERTS	220	170	160	200	190
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	0.96	1.1	0.92	1.1	0.95
Boron (water soluble)	mg/kg	0.2	MCERTS	3.4	4.4	3.0	4.1	2.5
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	1.1	2.9	1.8	1.2	0.9
Chromium (hexavalent)	mg/kg	1.2	MCERTS	< 1.2	< 1.2	< 1.2	< 1.2	< 1.2
Chromium (III)	mg/kg	1	NONE	-	44	38	-	-
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	32	44	39	35	35
Copper (aqua regia extractable)	mg/kg	1	MCERTS	110	110	120	120	150
Lead (aqua regia extractable)	mg/kg	1	MCERTS	460	250	190	360	160
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	3.8	1.7	1.0	2.9	1.2
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	22	27	29	22	25
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	53	54	45	53	52
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	210	240	240	200	170

Analytical Report Number: 19-26103

Project / Site name: Southall

Lab Sample Number	1139227	1139228	1139229	1139230	1139231
Sample Reference	TP1	TP2	TP3	TP3	TP4
Sample Number	S1	S1	S1	S2	S1
Depth (m)	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Date Sampled	22/01/2019	22/01/2019	22/01/2019	22/01/2019	22/01/2019
Time Taken	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status		

Monoaromatics & Oxygenates

Benzene	ug/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Toluene	ug/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Ethylbenzene	ug/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
p & m-xylene	ug/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
o-xylene	ug/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
MTBE (Methyl Tertiary Butyl Ether)	ug/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0

Petroleum Hydrocarbons

TPH-CWG - Aliphatic >EC5 - EC6	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aliphatic >EC6 - EC8	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aliphatic >EC8 - EC10	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aliphatic >EC10 - EC12	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic >EC12 - EC16	mg/kg	2	MCERTS	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
TPH-CWG - Aliphatic >EC16 - EC21	mg/kg	8	MCERTS	< 8.0	< 8.0	12	< 8.0	8.9
TPH-CWG - Aliphatic >EC21 - EC35	mg/kg	8	MCERTS	79	77	84	14	80
TPH-CWG - Aliphatic (EC5 - EC35)	mg/kg	10	MCERTS	82	85	97	14	89

TPH-CWG - Aromatic >EC5 - EC7	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aromatic >EC7 - EC8	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aromatic >EC8 - EC10	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aromatic >EC10 - EC12	mg/kg	1	MCERTS	2.2	2.4	< 1.0	< 1.0	< 1.0
TPH-CWG - Aromatic >EC12 - EC16	mg/kg	2	MCERTS	11	4.3	5.0	< 2.0	7.8
TPH-CWG - Aromatic >EC16 - EC21	mg/kg	10	MCERTS	60	43	30	11	50
TPH-CWG - Aromatic >EC21 - EC35	mg/kg	10	MCERTS	170	120	85	40	220
TPH-CWG - Aromatic (EC5 - EC35)	mg/kg	10	MCERTS	240	170	120	51	280

TPH (C10 - C25)	mg/kg	10	MCERTS	130	100	86	19	140
TPH (C25 - C40)	mg/kg	10	NONE	240	200	180	67	300

Analytical Report Number: 19-26103

Project / Site name: Southall

Lab Sample Number				1139232	1139233	1139234	1139235	1139236
Sample Reference				TP5	TP5	TP6	TP7	TP8
Sample Number				S1	S2	S1	S1	S1
Depth (m)				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Date Sampled				22/01/2019	22/01/2019	22/01/2019	22/01/2019	22/01/2019
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	18
Moisture Content	%	N/A	NONE	13	19	18	12	10
Total mass of sample received	kg	0.001	NONE	1.1	1.2	1.1	1.2	1.2

Asbestos in Soil Screen / Identification Name	Type	N/A	ISO 17025	-	-	-	-	Chrysotile
Asbestos in Soil	Type	N/A	ISO 17025	Not-detected	Not-detected	Not-detected	Not-detected	Detected
Asbestos Quantification (Stage 2)	%	0.001	ISO 17025	-	-	-	-	< 0.001
Asbestos Quantification Total	%	0.001	ISO 17025	-	-	-	-	< 0.001

General Inorganics

pH - Automated	pH Units	N/A	MCERTS	8.0	7.7	7.8	7.7	8.0
Total Cyanide	mg/kg	1	MCERTS	< 1	< 1	< 1	< 1	< 1
Free Cyanide	mg/kg	1	MCERTS	< 1	< 1	< 1	< 1	< 1
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.38	0.14	0.14	0.087	0.93
Ammoniacal Nitrogen as N	mg/kg	0.5	MCERTS	< 0.5	38	21	9.2	< 0.5
Organic Matter	%	0.1	MCERTS	4.7	5.7	4.4	3.1	2.6

Total Phenols

Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
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Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(a)anthracene	mg/kg	0.05	MCERTS	1.9	1.8	2.0	0.95	2.8
Chrysene	mg/kg	0.05	MCERTS	1.9	1.6	1.8	1.1	2.7
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	2.3	2.4	2.4	1.4	3.6
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	1.3	0.97	1.1	0.46	2.0
Benzo(a)pyrene	mg/kg	0.05	MCERTS	2.2	2.0	2.2	1.1	3.5
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	1.2	1.1	1.1	0.62	2.3
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	0.35	0.28	0.33	< 0.05	0.56

Heavy Metals / Metalloids

Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	16	13	13	14	22
Barium (aqua regia extractable)	mg/kg	1	MCERTS	180	200	150	120	220
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	0.97	0.89	0.92	0.91	1.1
Boron (water soluble)	mg/kg	0.2	MCERTS	2.8	2.3	2.9	2.1	3.4
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	1.2	0.8	1.0	0.5	7.4
Chromium (hexavalent)	mg/kg	1.2	MCERTS	< 1.2	< 1.2	< 1.2	< 1.2	< 1.2
Chromium (III)	mg/kg	1	NONE	-	-	-	-	70
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	34	29	33	31	70
Copper (aqua regia extractable)	mg/kg	1	MCERTS	98	89	83	59	170
Lead (aqua regia extractable)	mg/kg	1	MCERTS	300	290	220	140	190
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	3.0	2.7	2.5	< 0.3	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	23	22	21	22	41
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	51	50	48	48	57
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	190	180	160	120	340

Analytical Report Number: 19-26103

Project / Site name: Southall

Lab Sample Number				1139232	1139233	1139234	1139235	1139236
Sample Reference				TP5	TP5	TP6	TP7	TP8
Sample Number				S1	S2	S1	S1	S1
Depth (m)				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Date Sampled				22/01/2019	22/01/2019	22/01/2019	22/01/2019	22/01/2019
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
Monoaromatics & Oxygenates								
Benzene	ug/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Toluene	ug/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Ethylbenzene	ug/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
p & m-xylene	ug/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
o-xylene	ug/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
MTBE (Methyl Tertiary Butyl Ether)	ug/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0

Petroleum Hydrocarbons

TPH-CWG - Aliphatic >EC5 - EC6	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aliphatic >EC6 - EC8	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aliphatic >EC8 - EC10	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aliphatic >EC10 - EC12	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic >EC12 - EC16	mg/kg	2	MCERTS	< 2.0	< 2.0	< 2.0	< 2.0	4.9
TPH-CWG - Aliphatic >EC16 - EC21	mg/kg	8	MCERTS	< 8.0	< 8.0	< 8.0	< 8.0	43
TPH-CWG - Aliphatic >EC21 - EC35	mg/kg	8	MCERTS	59	< 8.0	12	< 8.0	270
TPH-CWG - Aliphatic (EC5 - EC35)	mg/kg	10	MCERTS	67	< 10	12	< 10	320
TPH-CWG - Aromatic >EC5 - EC7	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aromatic >EC7 - EC8	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aromatic >EC8 - EC10	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aromatic >EC10 - EC12	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aromatic >EC12 - EC16	mg/kg	2	MCERTS	11	5.2	4.0	2.3	3.6
TPH-CWG - Aromatic >EC16 - EC21	mg/kg	10	MCERTS	45	34	31	12	67
TPH-CWG - Aromatic >EC21 - EC35	mg/kg	10	MCERTS	120	110	110	32	260
TPH-CWG - Aromatic (EC5 - EC35)	mg/kg	10	MCERTS	170	150	150	46	330
TPH (C10 - C25)	mg/kg	10	MCERTS	99	64	61	22	230
TPH (C25 - C40)	mg/kg	10	NONE	180	120	110	25	510

Analytical Report Number: 19-26103

Project / Site name: Southall

Lab Sample Number				1139237	1139238	1139239		
Sample Reference				TP9	TP10	TP11		
Sample Number				S1	S1	S1		
Depth (m)				None Supplied	None Supplied	None Supplied		
Date Sampled				22/01/2019	22/01/2019	22/01/2019		
Time Taken				None Supplied	None Supplied	None Supplied		
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1		
Moisture Content	%	N/A	NONE	18	16	12		
Total mass of sample received	kg	0.001	NONE	1.2	1.2	1.1		

Asbestos in Soil Screen / Identification Name	Type	N/A	ISO 17025	-	Chrysotile & Crocidolite	-		
Asbestos in Soil	Type	N/A	ISO 17025	Not-detected	Detected	Not-detected		
Asbestos Quantification (Stage 2)	%	0.001	ISO 17025	-	< 0.001	-		
Asbestos Quantification Total	%	0.001	ISO 17025	-	< 0.001	-		

General Inorganics

pH - Automated	pH Units	N/A	MCERTS	8.0	7.9	8.8		
Total Cyanide	mg/kg	1	MCERTS	< 1	2	4		
Free Cyanide	mg/kg	1	MCERTS	< 1	< 1	< 1		
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.46	0.65	1.5		
Ammoniacal Nitrogen as N	mg/kg	0.5	MCERTS	< 0.5	< 0.5	< 0.5		
Organic Matter	%	0.1	MCERTS	4.6	5.2	4.7		

Total Phenols

Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0		
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Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	< 0.05	0.86	< 0.05		
Benzo(a)anthracene	mg/kg	0.05	MCERTS	3.4	4.6	3.6		
Chrysene	mg/kg	0.05	MCERTS	2.5	3.3	3.6		
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	4.4	5.2	5.5		
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	1.4	2.5	1.7		
Benzo(a)pyrene	mg/kg	0.05	MCERTS	3.7	4.9	4.4		
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	2.0	2.9	2.7		
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	0.55	0.56	0.73		

Heavy Metals / Metalloids

Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	17	21	20		
Barium (aqua regia extractable)	mg/kg	1	MCERTS	160	220	210		
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	1.0	1.1	1.1		
Boron (water soluble)	mg/kg	0.2	MCERTS	3.4	4.7	4.5		
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	2.7	9.2	9.6		
Chromium (hexavalent)	mg/kg	1.2	MCERTS	< 1.2	< 1.2	< 1.2		
Chromium (III)	mg/kg	1	NONE	45	76	83		
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	45	76	83		
Copper (aqua regia extractable)	mg/kg	1	MCERTS	100	240	240		
Lead (aqua regia extractable)	mg/kg	1	MCERTS	190	270	250		
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	1.8	1.9	1.9		
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	28	40	42		
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0		
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	55	53	53		
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	220	370	430		

Analytical Report Number: 19-26103

Project / Site name: Southall

Lab Sample Number				1139237	1139238	1139239		
Sample Reference				TP9	TP10	TP11		
Sample Number				S1	S1	S1		
Depth (m)				None Supplied	None Supplied	None Supplied		
Date Sampled				22/01/2019	22/01/2019	22/01/2019		
Time Taken				None Supplied	None Supplied	None Supplied		
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
Monoaromatics & Oxygenates								
Benzene	ug/kg	1	MCERTS	< 1.0	< 1.0	< 1.0		
Toluene	ug/kg	1	MCERTS	< 1.0	< 1.0	< 1.0		
Ethylbenzene	ug/kg	1	MCERTS	< 1.0	< 1.0	< 1.0		
p & m-xylene	ug/kg	1	MCERTS	< 1.0	< 1.0	< 1.0		
o-xylene	ug/kg	1	MCERTS	< 1.0	< 1.0	< 1.0		
MTBE (Methyl Tertiary Butyl Ether)	ug/kg	1	MCERTS	< 1.0	< 1.0	< 1.0		

Petroleum Hydrocarbons

TPH-CWG - Aliphatic >EC5 - EC6	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001		
TPH-CWG - Aliphatic >EC6 - EC8	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001		
TPH-CWG - Aliphatic >EC8 - EC10	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001		
TPH-CWG - Aliphatic >EC10 - EC12	mg/kg	1	MCERTS	< 1.0	1.7	2.8		
TPH-CWG - Aliphatic >EC12 - EC16	mg/kg	2	MCERTS	< 2.0	4.5	11		
TPH-CWG - Aliphatic >EC16 - EC21	mg/kg	8	MCERTS	17	30	48		
TPH-CWG - Aliphatic >EC21 - EC35	mg/kg	8	MCERTS	120	210	260		
TPH-CWG - Aliphatic (EC5 - EC35)	mg/kg	10	MCERTS	140	240	320		
TPH-CWG - Aromatic >EC5 - EC7	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001		
TPH-CWG - Aromatic >EC7 - EC8	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001		
TPH-CWG - Aromatic >EC8 - EC10	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001		
TPH-CWG - Aromatic >EC10 - EC12	mg/kg	1	MCERTS	2.6	1.3	3.6		
TPH-CWG - Aromatic >EC12 - EC16	mg/kg	2	MCERTS	12	9.7	12		
TPH-CWG - Aromatic >EC16 - EC21	mg/kg	10	MCERTS	38	49	64		
TPH-CWG - Aromatic >EC21 - EC35	mg/kg	10	MCERTS	110	130	270		
TPH-CWG - Aromatic (EC5 - EC35)	mg/kg	10	MCERTS	170	190	350		
TPH (C10 - C25)	mg/kg	10	MCERTS	120	160	260		
TPH (C25 - C40)	mg/kg	10	NONE	250	340	480		



Analytical Report Number: 19-26103
Project / Site name: Southall
Your Order No:

Certificate of Analysis - Asbestos Quantification

Methods:

Qualitative Analysis

The samples were analysed qualitatively for asbestos by polarising light and dispersion staining as described by the Health and Safety Executive in HSG 248.

Quantitative Analysis

The analysis was carried out using our documented in-house method A006 based on HSE Contract Research Report No: 83/1996: Development and Validation of an analytical method to determine the amount of asbestos in soils and loose aggregates (Davies et al, 1996) and HSG 248. Our method includes initial examination of the entire representative sample, then fractionation and detailed analysis of each fraction, with quantification by hand picking and weighing.

The limit of detection (reporting limit) of this method is 0.001 %.

The method has been validated using samples of at least 100 g, results for samples smaller than this should be interpreted with caution.

Both Qualitative and Quantitative Analyses are UKAS accredited.

Sample Number	Sample ID	Sample Depth (m)	Sample Weight (g)	Asbestos Containing Material Types Detected (ACM)	PLM Results	Asbestos by hand picking/weighing (%)	Total % Asbestos in Sample
1139236	TP8		135	Loose Fibres	Chrysotile	< 0.001	< 0.001
1139238	TP10		134	Loose Fibres	Chrysotile & Crocidolite	< 0.001	< 0.001

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

Analytical Report Number : 19-26103

Project / Site name: Southall

* These descriptions are only intended to act as a cross check if sample identities are questioned. The major constituent of the sample is intended to act with respect to MCERTS validation. The laboratory is accredited for sand, clay and loam (MCERTS) soil types. Data for unaccredited types of solid should be interpreted with care.

Stone content of a sample is calculated as the % weight of the stones not passing a 10 mm sieve. Results are not corrected for stone content.

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
1139227	TP1	S1	None Supplied	3.21.17.18
1139228	TP2	S1	None Supplied	Brown loam and clay with gravel and vegetation.
1139229	TP3	S1	None Supplied	Brown loam and clay with gravel and stones.
1139230	TP3	S2	None Supplied	Brown loam and clay with gravel and vegetation.
1139231	TP4	S1	None Supplied	Brown loam and clay with gravel.
1139232	TP5	S1	None Supplied	Brown loam and sand with gravel.
1139233	TP5	S2	None Supplied	Brown loam and clay with gravel and vegetation.
1139234	TP6	S1	None Supplied	Brown loam and clay with gravel.
1139235	TP7	S1	None Supplied	Brown loam and clay with gravel and vegetation.
1139236	TP8	S1	None Supplied	Brown loam and clay with brick and stones.
1139237	TP9	S1	None Supplied	Brown loam and clay with gravel.
1139238	TP10	S1	None Supplied	Brown loam and sand with gravel and vegetation.
1139239	TP11	S1	None Supplied	Brown loam and clay with gravel and vegetation.

Analytical Report Number : 19-26103

Project / Site name: Southall

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Water (PrW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Ammoniacal Nitrogen as N in soil	Determination of Ammonium/Ammonia/ Ammoniacal Nitrogen by the discrete analyser (colorimetric) salicylate/nitroprusside method,10:1 water extraction.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L082-PL	W	MCERTS
Asbestos identification in soil	Asbestos Identification with the use of polarised light microscopy in conjunction with disperion staining techniques.	In house method based on HSG 248	A001-PL	D	ISO 17025
Asbestos Quantification - Gravimetric	Asbestos quantification by gravimetric method - in house method based on references.	HSE Report No: 83/1996, HSG 248, HSG 264 & SCA Blue Book (draft).	A006-PL	D	ISO 17025
Boron, water soluble, in soil	Determination of water soluble boron in soil by hot water extract followed by ICP-OES.	In-house method based on Second Site Properties version 3	L038-PL	D	MCERTS
BTEX and MTBE in soil (Monoaromatics)	Determination of BTEX in soil by headspace GC-MS.	In-house method based on USEPA8260	L073B-PL	W	MCERTS
Cr (III) in soil	In-house method by calculation from total Cr and Cr VI.	In-house method by calculation	L080-PL	W	NONE
D.O. for Gravimetric Quant if Screen/ID positive	Dependent option for Gravimetric Quant if Screen/ID positive scheduled.	In house asbestos methods A001 & A006.	A006-PL	D	NONE
DRO C10-28 (Soil)	Determination of TPH bands by HS-GC-MS/GC-FID	In-house method with silica gel split/clean up.	L076-PL	D	NONE
Free cyanide in soil	Determination of free cyanide by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	MCERTS
Hexavalent chromium in soil (Lower Level)	Determination of hexavalent chromium in soil by extraction in water then by acidification, addition of 1,5 diphenylcarbazine followed by colorimetry.	In-house method	L080-PL	W	MCERTS
Metals in soil by ICP-OES	Determination of metals in soil by aqua-regia digestion followed by ICP-OES.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L038-PL	D	MCERTS
Moisture Content	Moisture content, determined gravimetrically.	In-house method based on BS1377 Part 2, 1990, Chemical and Electrochemical Tests	L019-UK/PL	W	NONE
Monohydric phenols in soil	Determination of phenols in soil by extraction with sodium hydroxide followed by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (skalar)	L080-PL	W	MCERTS
Organic matter (Automated) in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate.	BS1377 Part 3, 1990, Chemical and Electrochemical Tests""	L009-PL	D	MCERTS
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L099-PL	D	MCERTS
Speciated EPA-16 PAHs in soil	Determination of PAH compounds in soil by extraction in dichloromethane and hexane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270	L064-PL	D	MCERTS
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE

Iss No 19-26103-1 Southall CG-28308

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The results included within the report are representative of the samples submitted for analysis.

Page 10 of 11

Analytical Report Number : 19-26103

Project / Site name: Southall

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Water (PrW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Sulphate, water soluble, in soil (16hr extraction)	Determination of water soluble sulphate by ICP-OES. Results reported directly (leachate equivalent) and corrected for extraction ratio (soil equivalent).	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests, 2:1 water:soil extraction, analysis by ICP-OES.	L038-PL	D	MCERTS
Total cyanide in soil	Determination of total cyanide by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	MCERTS
TPH Oils (Soils)	Determination of extractable hydrocarbons in soil by GC-MS/FID.	In-house method with silica gel split/clean up.	L076-PL	D	NONE
TPHCWG (Soil)	Determination of hexane extractable hydrocarbons in soil by GC-MS/GC-FID.	In-house method with silica gel split/clean up.	L088/76-PL	W	MCERTS

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.

For method numbers ending in 'PL' analysis have been carried out in our laboratory in Poland.

Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.

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Analytical Report Number : 19-28000

Project / Site name:	Southall	Samples received on:	07/02/2019
Your job number:	CG-28308	Samples instructed on:	07/02/2019
Your order number:		Analysis completed by:	18/02/2019
Report Issue Number:	1	Report issued on:	18/02/2019
Samples Analysed:	4 soil samples		

Signed:

Jordan Hill
Reporting Manager
For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41 -711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

soils	- 4 weeks from reporting
leachates	- 2 weeks from reporting
waters	- 2 weeks from reporting
asbestos	- 6 months from reporting

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Analytical Report Number: 19-28000

Project / Site name: Southall

Lab Sample Number				1150118	1150119	1150120	1150121	
Sample Reference				WGUC SW	EGUC SE Stockpile	HR TP1	HR TP2	
Sample Number				S1	S1	S1	S1	
Depth (m)				0.00	2.50	0.30	0.30	
Date Sampled				06/01/2019	06/01/2019	06/01/2019	06/01/2019	
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
Stone Content	%	0.1	NONE	< 0.1	31	< 0.1	< 0.1	
Moisture Content	%	N/A	NONE	21	9.5	7.0	5.4	
Total mass of sample received	kg	0.001	NONE	1.2	1.4	1.3	1.3	
Asbestos in Soil				Type	N/A	ISO 17025	Not-detected	Not-detected
General Inorganics								
Free Cyanide (low level)	mg/kg	0.5	ISO 17025	< 0.5	< 0.5	< 0.5	< 0.5	
Ammonia as NH ₃	mg/kg	0.5	MCERTS	< 0.5	< 0.5	1.0	< 0.5	
Total Phenols								
Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	
Speciated PAHs								
Naphthalene	mg/kg	0.05	MCERTS	< 0.05	0.66	0.45	0.89	
Benzo(a)pyrene	mg/kg	0.05	MCERTS	2.1	9.4	12	15	
Heavy Metals / Metalloids								
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	1.4	0.9	1.3	0.5	
Chromium (hexavalent)	mg/kg	4	MCERTS	< 4.0	< 4.0	< 4.0	< 4.0	
Lead (aqua regia extractable)	mg/kg	1	MCERTS	77	110	170	53	
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3	
Monoaromatics & Oxygenates								
Benzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	



Analytical Report Number : 19-28000

Project / Site name: Southall

* These descriptions are only intended to act as a cross check if sample identities are questioned. The major constituent of the sample is intended to act with respect to MCERTS validation. The laboratory is accredited for sand, clay and loam (MCERTS) soil types. Data for unaccredited types of solid should be interpreted with care.

Stone content of a sample is calculated as the % weight of the stones not passing a 10 mm sieve. Results are not corrected for stone content.

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
1150118	WGUC SW	S1	0.00	Light brown clay and sand with gravel.
1150119	EGUC SE Stockpile	S1	2.50	Brown clay and sand with gravel and stones.
1150120	HR TP1	S1	0.30	Brown sand with gravel.
1150121	HR TP2	S1	0.30	Brown gravelly loam with vegetation.

Analytical Report Number : 19-28000

Project / Site name: Southall

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Water (PrW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Ammonia as NH ₃ in soil	Determination of Ammonium/Ammonia/Ammoniacal Nitrogen by the colorimetric salicylate/nitroprusside method, 10:1 water extraction.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L082-PL	W	MCERTS
Asbestos identification in soil	Asbestos Identification with the use of polarised light microscopy in conjunction with disperion staining techniques.	In house method based on HSG 248	A001-PL	D	ISO 17025
BTEX in soil (Monoaromatics)	Determination of BTEX in soil by headspace GC-MS.	In-house method based on USEPA8260	L073B-PL	W	MCERTS
D.O. for Gravimetric Quant if Screen/ID positive	Dependent option for Gravimetric Quant if Screen/ID positive scheduled.	In house asbestos methods A001 & A006.	A006-PL	D	NONE
Free cyanide (Low level) in soil	Determination of free cyanide by distillation followed by colorimetry.	In-house method	L080-PL	W	ISO 17025
Hexavalent chromium in soil	Determination of hexavalent chromium in soil by extraction in water then by acidification, addition of 1,5 diphenylcarbazide followed by colorimetry.	In-house method	L080-PL	W	MCERTS
Metals in soil by ICP-OES	Determination of metals in soil by aqua-regia digestion followed by ICP-OES.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L038-PL	D	MCERTS
Moisture Content	Moisture content, determined gravimetrically.	In-house method based on BS1377 Part 2, 1990, Chemical and Electrochemical Tests	L019-UK/PL	W	NONE
Monohydric phenols in soil	Determination of phenols in soil by extraction with sodium hydroxide followed by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (skalar)	L080-PL	W	MCERTS
Speciated EPA-16 PAHs in soil	Determination of PAH compounds in soil by extraction in dichloromethane and hexane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270	L064-PL	D	MCERTS
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.

For method numbers ending in 'PL' analysis have been carried out in our laboratory in Poland.

Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.

Sample ID	Other_ID	Sample Type	Job	Sample Number	Sample Deviation Code	test_name	test_ref	Test Deviation code
EGUC SE Stockpile	S1	S	19-28000	1150119	c	Hexavalent chromium in soil	L080-PL	c
EGUC SE Stockpile	S1	S	19-28000	1150119	c	Ammonia as NH3 in soil	L082-PL	c
EGUC SE Stockpile	S1	S	19-28000	1150119	c	Ammoniacal Nitrogen as N in soil	L082-PL	c
EGUC SE Stockpile	S1	S	19-28000	1150119	c	BTEX in soil (Monoaromatics)	L073B-PL	c
EGUC SE Stockpile	S1	S	19-28000	1150119	c	Monohydric phenols in soil	L080-PL	c
EGUC SE Stockpile	S1	S	19-28000	1150119	c	Speciated EPA-16 PAHs in soil	L064-PL	c
HR TP1	S1	S	19-28000	1150120	c	Hexavalent chromium in soil	L080-PL	c
HR TP1	S1	S	19-28000	1150120	c	Ammonia as NH3 in soil	L082-PL	c
HR TP1	S1	S	19-28000	1150120	c	Ammoniacal Nitrogen as N in soil	L082-PL	c
HR TP1	S1	S	19-28000	1150120	c	BTEX in soil (Monoaromatics)	L073B-PL	c
HR TP1	S1	S	19-28000	1150120	c	Monohydric phenols in soil	L080-PL	c
HR TP1	S1	S	19-28000	1150120	c	Speciated EPA-16 PAHs in soil	L064-PL	c
HR TP2	S1	S	19-28000	1150121	c	Hexavalent chromium in soil	L080-PL	c
HR TP2	S1	S	19-28000	1150121	c	Ammonia as NH3 in soil	L082-PL	c
HR TP2	S1	S	19-28000	1150121	c	Ammoniacal Nitrogen as N in soil	L082-PL	c
HR TP2	S1	S	19-28000	1150121	c	BTEX in soil (Monoaromatics)	L073B-PL	c
HR TP2	S1	S	19-28000	1150121	c	Monohydric phenols in soil	L080-PL	c
HR TP2	S1	S	19-28000	1150121	c	Speciated EPA-16 PAHs in soil	L064-PL	c
WGUC SW	S1	S	19-28000	1150118	c	Hexavalent chromium in soil	L080-PL	c
WGUC SW	S1	S	19-28000	1150118	c	Ammonia as NH3 in soil	L082-PL	c
WGUC SW	S1	S	19-28000	1150118	c	Ammoniacal Nitrogen as N in soil	L082-PL	c
WGUC SW	S1	S	19-28000	1150118	c	BTEX in soil (Monoaromatics)	L073B-PL	c
WGUC SW	S1	S	19-28000	1150118	c	Monohydric phenols in soil	L080-PL	c
WGUC SW	S1	S	19-28000	1150118	c	Speciated EPA-16 PAHs in soil	L064-PL	c



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Analytical Report Number : 19-35192

Project / Site name:	Southall	Samples received on:	29/03/2019
Your job number:	CG-28308	Samples instructed on:	29/03/2019
Your order number:	2445	Analysis completed by:	08/04/2019
Report Issue Number:	1	Report issued on:	08/04/2019
Samples Analysed:	9 soil samples - 3 water samples		

Signed:

Dr Claire Stone
Quality Manager
For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41 -711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

soils	- 4 weeks from reporting
leachates	- 2 weeks from reporting
waters	- 2 weeks from reporting
asbestos	- 6 months from reporting

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Analytical Report Number: 19-35192

Project / Site name: Southall

Your Order No: 2445

Lab Sample Number				1189019	1189020	1189021	1189022	1189023
Sample Reference				TP1	TP2	TP3	TP4	TP5
Sample Number				RDE ES1	RDE ES2	RDW ES3	FCA ES4	FCA ES5
Depth (m)				0.30	0.10	0.20	0.20	0.10
Date Sampled				26/03/2019	26/03/2019	26/03/2019	26/03/2019	26/03/2019
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Moisture Content	%	0.001	NONE	21	14	20	21	19
Total mass of sample received	kg	0.001	NONE	1.2	1.2	1.3	1.2	1.2

Asbestos in Soil Screen / Identification Name	Type	N/A	ISO 17025	-	-	-	-	-
Asbestos in Soil	Type	N/A	ISO 17025	Not-detected	Not-detected	Not-detected	Not-detected	Not-detected
Asbestos Quantification (Stage 2)	%	0.001	ISO 17025	-	-	-	-	-
Asbestos Quantification Total	%	0.001	ISO 17025	-	-	-	-	-

General Inorganics

pH - Automated	pH Units	N/A	MCERTS	7.1	8.1	7.9	8.0	8.0
Total Cyanide	mg/kg	1	MCERTS	< 1	< 1	1	1	< 1
Free Cyanide (low level)	mg/kg	0.5	ISO 17025	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.14	0.18	0.44	0.93	0.13
Ammoniacal Nitrogen as N	mg/kg	0.5	MCERTS	< 0.5	6.1	< 0.5	< 0.5	0.8
Ammonia as NH ₃	mg/kg	0.5	MCERTS	-	-	-	-	-
Organic Matter	%	0.1	MCERTS	4.8	3.4	5.2	4.7	5.1

Total Phenols

Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
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Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(a)anthracene	mg/kg	0.05	MCERTS	1.3	3.8	2.8	2.5	7.5
Chrysene	mg/kg	0.05	MCERTS	1.5	2.6	2.9	2.3	7.3
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	2.1	4.2	4.1	4.0	10
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	0.70	1.7	1.6	1.2	3.2
Benzo(a)pyrene	mg/kg	0.05	MCERTS	1.7	3.7	3.5	3.2	8.2
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	0.84	1.7	1.8	1.8	4.2
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05	0.32	0.42	< 0.05	0.94

Heavy Metals / Metalloids

Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	16	16	19	23	20
Barium (aqua regia extractable)	mg/kg	1	MCERTS	220	250	210	220	260
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	1.3	1.7	1.3	1.5	1.5
Boron (water soluble)	mg/kg	0.2	MCERTS	2.4	1.5	3.8	4.6	2.6
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	0.8	0.8	1.6	6.0	2.2
Chromium (hexavalent)	mg/kg	1.2	MCERTS	< 1.2	< 1.2	< 1.2	< 1.2	< 1.2
Chromium (III)	mg/kg	1	NONE	-	40	41	68	44
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	35	40	41	68	44
Copper (aqua regia extractable)	mg/kg	1	MCERTS	110	110	99	210	160
Lead (aqua regia extractable)	mg/kg	1	MCERTS	150	110	210	230	220
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	1.5	< 0.3	2.8	1.1	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	28	58	29	42	38
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	50	100	59	61	54
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	210	210	260	400	330

Analytical Report Number: 19-35192

Project / Site name: Southall

Your Order No: 2445

Lab Sample Number	1189019	1189020	1189021	1189022	1189023
Sample Reference	TP1	TP2	TP3	TP4	TP5
Sample Number	RDE ES1	RDE ES2	RDW ES3	FCA ES4	FCA ES5
Depth (m)	0.30	0.10	0.20	0.20	0.10
Date Sampled	26/03/2019	26/03/2019	26/03/2019	26/03/2019	26/03/2019
Time Taken	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status		

Monoaromatics & Oxygenates

Benzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Toluene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Ethylbenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
p & m-xylene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
o-xylene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0

Petroleum Hydrocarbons

TPH-CWG - Aliphatic >EC5 - EC6	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aliphatic >EC6 - EC8	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aliphatic >EC8 - EC10	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aliphatic >EC10 - EC12	mg/kg	1	MCERTS	1.7	4.0	< 1.0	9.1	4.7
TPH-CWG - Aliphatic >EC12 - EC16	mg/kg	2	MCERTS	5.3	7.8	< 2.0	31	14
TPH-CWG - Aliphatic >EC16 - EC21	mg/kg	8	MCERTS	12	18	< 8.0	43	14
TPH-CWG - Aliphatic >EC21 - EC35	mg/kg	8	MCERTS	53	62	< 8.0	280	93
TPH-CWG - Aliphatic (EC5 - EC35)	mg/kg	10	MCERTS	72	91	< 10	370	130

TPH-CWG - Aromatic >EC5 - EC7	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aromatic >EC7 - EC8	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aromatic >EC8 - EC10	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aromatic >EC10 - EC12	mg/kg	1	MCERTS	< 1.0	< 1.0	3.8	< 1.0	4.0
TPH-CWG - Aromatic >EC12 - EC16	mg/kg	2	MCERTS	< 2.0	2.6	10	18	15
TPH-CWG - Aromatic >EC16 - EC21	mg/kg	10	MCERTS	19	27	24	34	59
TPH-CWG - Aromatic >EC21 - EC35	mg/kg	10	MCERTS	42	40	36	100	91
TPH-CWG - Aromatic (EC5 - EC35)	mg/kg	10	MCERTS	63	70	74	160	170

TPH (C10 - C25)	mg/kg	10	MCERTS	60	84	48	220	160
TPH (C25 - C40)	mg/kg	10	MCERTS	98	92	26	400	170

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Project / Site name: Southall

Your Order No: 2445

Lab Sample Number				1189024	1189025	1189026	1189027	
Sample Reference				TP6	TP7	TP8	TP9	
Sample Number				C. PARK ES6	C. PARK ES7	C. PARK ES8	WYB ES9	
Depth (m)				0.00	0.20	0.20	0.30	
Date Sampled				26/03/2019	26/03/2019	26/03/2019	26/03/2019	
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	
Moisture Content	%	N/A	NONE	6.1	5.2	7.0	16	
Total mass of sample received	kg	0.001	NONE	1.3	1.3	1.2	1.2	

Asbestos in Soil Screen / Identification Name	Type	N/A	ISO 17025	-	-	-	Chrysotile	
Asbestos in Soil	Type	N/A	ISO 17025	Not-detected	Not-detected	Not-detected	Detected	
Asbestos Quantification (Stage 2)	%	0.001	ISO 17025	-	-	-	< 0.001	
Asbestos Quantification Total	%	0.001	ISO 17025	-	-	-	< 0.001	

General Inorganics

pH - Automated	pH Units	N/A	MCERTS	-	-	-	7.9	
Total Cyanide	mg/kg	1	MCERTS	-	-	-	< 1	
Free Cyanide (low level)	mg/kg	0.5	ISO 17025	< 0.5	< 0.5	< 0.5	< 0.5	
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	-	-	-	0.59	
Ammoniacal Nitrogen as N	mg/kg	0.5	MCERTS	-	-	-	< 0.5	
Ammonia as NH ₃	mg/kg	0.5	MCERTS	< 0.5	< 0.5	< 0.5	-	
Organic Matter	%	0.1	MCERTS	-	-	-	4.7	

Total Phenols

Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	
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Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	< 0.05	2.3	< 0.05	< 0.05	
Benzo(a)anthracene	mg/kg	0.05	MCERTS	-	-	-	2.2	
Chrysene	mg/kg	0.05	MCERTS	-	-	-	2.3	
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	-	-	-	3.1	
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	-	-	-	1.6	
Benzo(a)pyrene	mg/kg	0.05	MCERTS	11	36	10	2.7	
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	-	-	-	1.6	
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	-	-	-	0.33	

Heavy Metals / Metalloids

Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	-	-	-	15	
Barium (aqua regia extractable)	mg/kg	1	MCERTS	-	-	-	170	
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	-	-	-	1.3	
Boron (water soluble)	mg/kg	0.2	MCERTS	-	-	-	3.8	
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	< 0.2	0.4	2.7	
Chromium (hexavalent)	mg/kg	1.2	MCERTS	-	-	-	< 1.2	
Chromium (III)	mg/kg	1	NONE	-	-	-	52	
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	-	-	-	53	
Copper (aqua regia extractable)	mg/kg	1	MCERTS	-	-	-	120	
Lead (aqua regia extractable)	mg/kg	1	MCERTS	34	63	82	260	
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	1.8	
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	-	-	-	34	
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	-	-	-	< 1.0	
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	-	-	-	59	
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	-	-	-	230	

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Project / Site name: Southall

Your Order No: 2445

Lab Sample Number	1189024	1189025	1189026	1189027	
Sample Reference	TP6	TP7	TP8	TP9	
Sample Number	C. PARK ES6	C. PARK ES7	C. PARK ES8	WYB ES9	
Depth (m)	0.00	0.20	0.20	0.30	
Date Sampled	26/03/2019	26/03/2019	26/03/2019	26/03/2019	
Time Taken	None Supplied	None Supplied	None Supplied	None Supplied	
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status		

Monoaromatics & Oxygenates

Benzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	
Toluene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	
Ethylbenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	
p & m-xylene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	
o-xylene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS	-	-	-	< 1.0	

Petroleum Hydrocarbons

TPH-CWG - Aliphatic >EC5 - EC6	mg/kg	0.001	MCERTS	-	-	-	< 0.001	
TPH-CWG - Aliphatic >EC6 - EC8	mg/kg	0.001	MCERTS	-	-	-	< 0.001	
TPH-CWG - Aliphatic >EC8 - EC10	mg/kg	0.001	MCERTS	-	-	-	< 0.001	
TPH-CWG - Aliphatic >EC10 - EC12	mg/kg	1	MCERTS	-	-	-	1.8	
TPH-CWG - Aliphatic >EC12 - EC16	mg/kg	2	MCERTS	-	-	-	6.8	
TPH-CWG - Aliphatic >EC16 - EC21	mg/kg	8	MCERTS	-	-	-	27	
TPH-CWG - Aliphatic >EC21 - EC35	mg/kg	8	MCERTS	-	-	-	170	
TPH-CWG - Aliphatic (EC5 - EC35)	mg/kg	10	MCERTS	-	-	-	210	

TPH-CWG - Aromatic >EC5 - EC7	mg/kg	0.001	MCERTS	-	-	-	< 0.001	
TPH-CWG - Aromatic >EC7 - EC8	mg/kg	0.001	MCERTS	-	-	-	< 0.001	
TPH-CWG - Aromatic >EC8 - EC10	mg/kg	0.001	MCERTS	-	-	-	< 0.001	
TPH-CWG - Aromatic >EC10 - EC12	mg/kg	1	MCERTS	-	-	-	< 1.0	
TPH-CWG - Aromatic >EC12 - EC16	mg/kg	2	MCERTS	-	-	-	3.5	
TPH-CWG - Aromatic >EC16 - EC21	mg/kg	10	MCERTS	-	-	-	29	
TPH-CWG - Aromatic >EC21 - EC35	mg/kg	10	MCERTS	-	-	-	87	
TPH-CWG - Aromatic (EC5 - EC35)	mg/kg	10	MCERTS	-	-	-	120	

TPH (C10 - C25)	mg/kg	10	MCERTS	-	-	-	120	
TPH (C25 - C40)	mg/kg	10	MCERTS	-	-	-	230	



Analytical Report Number: 19-35192
Project / Site name: Southall
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Certificate of Analysis - Asbestos Quantification

Methods:

Qualitative Analysis

The samples were analysed qualitatively for asbestos by polarising light and dispersion staining as described by the Health and Safety Executive in HSG 248.

Quantitative Analysis

The analysis was carried out using our documented in-house method A006 based on HSE Contract Research Report No: 83/1996: Development and Validation of an analytical method to determine the amount of asbestos in soils and loose aggregates (Davies et al, 1996) and HSG 248. Our method includes initial examination of the entire representative sample, then fractionation and detailed analysis of each fraction, with quantification by hand picking and weighing.

The limit of detection (reporting limit) of this method is 0.001 %.

The method has been validated using samples of at least 100 g, results for samples smaller than this should be interpreted with caution.

Both Qualitative and Quantitative Analyses are UKAS accredited.

Sample Number	Sample ID	Sample Depth (m)	Sample Weight (g)	Asbestos Containing Material Types Detected (ACM)	PLM Results	Asbestos by hand picking/weighing (%)	Total % Asbestos in Sample
1189027	TP9	0.30	138	Loose Fibres	Chrysotile	< 0.001	< 0.001

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



Analytical Report Number: 19-35192

Project / Site name: Southall

Your Order No: 2445

Lab Sample Number	1189028	1189029	1189030		
Sample Reference	EWYB	LAGOON	LAGOON		
Sample Number	IBC W1	IBC W2	BUND W3		
Depth (m)	None Supplied	None Supplied	None Supplied		
Date Sampled	26/03/2019	26/03/2019	26/03/2019		
Time Taken	None Supplied	None Supplied	None Supplied		
Analytical Parameter (Water Analysis)	Units	Limit of detection	Accreditation Status		

General Inorganics

pH	pH Units	N/A	ISO 17025	7.0	8.1	9.2		
Total Cyanide (Low Level 1 µg/l)	µg/l	1	ISO 17025	20	36	7.5		
Free Cyanide (Low Level 1 µg/l)	µg/l	1	ISO 17025	< 1	< 1	< 1		
Sulphate as SO ₄	µg/l	45	ISO 17025	520000	101000	1230000		
Chloride	mg/l	0.15	ISO 17025	1000	7100	580		
Ammoniacal Nitrogen as N	µg/l	15	ISO 17025	24000	46000	3400		
Dissolved Organic Carbon (DOC)	mg/l	0.1	NONE	113	159	44.0		
Chemical Oxygen Demand (Total)	mg/l	2	ISO 17025	460	910	130		
Total Suspended Solids	mg/l	2	ISO 17025	3000	1700	120		
Settleable Solids (Rapidly Settleable)	mg/l	2	NONE	325	10.0	40.0		
Settleable Solids - Total (1 hour)	mg/l	2	NONE	2670	1270	100		
Hardness - Total	mgCaCO ₃ /l	1	ISO 17025	1450	440	1340		

Total Phenols

Total Phenols (monohydric)	µg/l	1	ISO 17025	7.7	1600	8.3		
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Speciated PAHs

Naphthalene	µg/l	0.01	ISO 17025	0.43	< 0.01	0.59		
Acenaphthylene	µg/l	0.01	ISO 17025	0.33	< 0.01	0.09		
Acenaphthene	µg/l	0.01	ISO 17025	0.23	< 0.01	0.40		
Fluorene	µg/l	0.01	ISO 17025	0.19	< 0.01	0.16		
Phenanthrene	µg/l	0.01	ISO 17025	1.78	3.84	0.77		
Anthracene	µg/l	0.01	ISO 17025	0.30	0.94	0.22		
Fluoranthene	µg/l	0.01	ISO 17025	4.41	9.30	2.05		
Pyrene	µg/l	0.01	ISO 17025	4.11	8.42	1.90		
Benzo(a)anthracene	µg/l	0.01	ISO 17025	1.94	3.95	0.82		
Chrysene	µg/l	0.01	ISO 17025	2.57	5.02	0.88		
Benzo(b)fluoranthene	µg/l	0.01	ISO 17025	3.54	4.44	1.03		
Benzo(k)fluoranthene	µg/l	0.01	ISO 17025	1.37	2.03	0.48		
Benzo(a)pyrene	µg/l	0.01	ISO 17025	1.99	3.03	0.68		
Indeno(1,2,3-cd)pyrene	µg/l	0.01	ISO 17025	1.63	1.60	0.41		
Dibenz(a,h)anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	0.12		
Benzo(ghi)perylene	µg/l	0.01	ISO 17025	2.23	2.24	0.54		

Total PAH

Total EPA-16 PAHs	µg/l	0.16	ISO 17025	27.1	44.8	11.1		
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Project / Site name: Southall

Your Order No: 2445

Lab Sample Number	1189028	1189029	1189030		
Sample Reference	EWYB	LAGOON	LAGOON		
Sample Number	IBC W1	IBC W2	BUND W3		
Depth (m)	None Supplied	None Supplied	None Supplied		
Date Sampled	26/03/2019	26/03/2019	26/03/2019		
Time Taken	None Supplied	None Supplied	None Supplied		
Analytical Parameter (Water Analysis)	Units	Limit of detection	Accreditation Status		

Heavy Metals / Metalloids

Boron (dissolved)	µg/l	10	ISO 17025	140	28	64		
Calcium (dissolved)	mg/l	0.012	ISO 17025	480	170	530		
Chromium (hexavalent)	µg/l	5	ISO 17025	< 5.0	< 5.0	< 5.0		
Chromium (III)	µg/l	1	NONE	1.4	< 1.0	1.5		
Magnesium (dissolved)	mg/l	0.005	ISO 17025	62	2.5	6.4		
Selenium (dissolved)	µg/l	4	ISO 17025	< 4.0	< 4.0	< 4.0		
Antimony (dissolved)	µg/l	0.4	ISO 17025	5.0	2.9	4.3		
Arsenic (dissolved)	µg/l	0.15	ISO 17025	7.92	2.15	6.24		
Barium (dissolved)	µg/l	0.06	ISO 17025	170	230	85		
Beryllium (dissolved)	µg/l	0.1	ISO 17025	< 0.1	< 0.1	< 0.1		
Boron (dissolved)	µg/l	10	ISO 17025	140	28	64		
Cadmium (dissolved)	µg/l	0.02	ISO 17025	0.05	0.03	0.07		
Calcium (dissolved)	mg/l	0.012	ISO 17025	480	170	530		
Chromium (hexavalent)	µg/l	5	ISO 17025	< 5.0	< 5.0	< 5.0		
Chromium (III)	µg/l	1	NONE	1.4	< 1.0	1.5		
Chromium (dissolved)	µg/l	0.2	ISO 17025	1.4	< 0.2	1.5		
Copper (dissolved)	µg/l	0.5	ISO 17025	1.5	< 0.5	42		
Lead (dissolved)	µg/l	0.2	ISO 17025	6.6	0.3	12		
Magnesium (dissolved)	mg/l	0.005	ISO 17025	62	2.5	6.4		
Mercury (dissolved)	µg/l	0.05	ISO 17025	0.12	0.27	0.23		
Nickel (dissolved)	µg/l	0.5	ISO 17025	37	28	7.8		
Selenium (dissolved)	µg/l	0.6	ISO 17025	U/S	U/S	U/S		
Vanadium (dissolved)	µg/l	0.2	ISO 17025	5.5	0.9	7.6		
Zinc (dissolved)	µg/l	0.5	ISO 17025	4.2	< 0.5	7.2		

Monoaromatics & Oxygenates

Benzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		
Toluene	µg/l	1	ISO 17025	5.3	< 1.0	< 1.0		
Ethylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		
p & m-xylene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		
o-xylene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		
MTBE (Methyl Tertiary Butyl Ether)	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		

Petroleum Hydrocarbons

TPH-CWG - Aliphatic >C5 - C6	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		
TPH-CWG - Aliphatic >C6 - C8	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		
TPH-CWG - Aliphatic >C8 - C10	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		
TPH-CWG - Aliphatic >C10 - C12	µg/l	10	NONE	< 10	< 10	< 10		
TPH-CWG - Aliphatic >C12 - C16	µg/l	10	NONE	< 10	< 10	< 10		
TPH-CWG - Aliphatic >C16 - C21	µg/l	10	NONE	< 10	< 10	< 10		
TPH-CWG - Aliphatic >C21 - C35	µg/l	10	NONE	< 10	< 10	< 10		
TPH-CWG - Aliphatic (C5 - C35)	µg/l	10	NONE	< 10	< 10	< 10		

TPH-CWG - Aromatic >C5 - C7	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0		
TPH-CWG - Aromatic >C7 - C8	µg/l	1	ISO 17025	5.3	< 1.0	< 1.0		
TPH-CWG - Aromatic >C8 - C10	µg/l	1	ISO 17025	2.3	< 1.0	< 1.0		
TPH-CWG - Aromatic >C10 - C12	µg/l	10	NONE	< 10	< 10	< 10		
TPH-CWG - Aromatic >C12 - C16	µg/l	10	NONE	< 10	< 10	< 10		
TPH-CWG - Aromatic >C16 - C21	µg/l	10	NONE	11	23	< 10		
TPH-CWG - Aromatic >C21 - C35	µg/l	10	NONE	15	23	< 10		
TPH-CWG - Aromatic (C5 - C35)	µg/l	10	NONE	33	45	< 10		

Miscellaneous Organics

Petroleum Ether Extractable Matter	mg/l	4	NONE	< 4.0	< 4.0	< 4.0		
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U/S = Unsuitable Sample due to matrix interference

Analytical Report Number : 19-35192

Project / Site name: Southall

* These descriptions are only intended to act as a cross check if sample identities are questioned. The major constituent of the sample is intended to act with respect to MCERTS validation. The laboratory is accredited for sand, clay and loam (MCERTS) soil types. Data for unaccredited types of solid should be interpreted with care.

Stone content of a sample is calculated as the % weight of the stones not passing a 10 mm sieve. Results are not corrected for stone content.

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
1189019	TP1	RDE ES1	0.30	Brown clay with vegetation and chalk.
1189020	TP2	RDE ES2	0.10	Brown loam and clay with vegetation and gravel
1189021	TP3	RDW ES3	0.20	Brown loam and clay with gravel and chalk.
1189022	TP4	FCA ES4	0.20	Brown loam and clay with vegetation and gravel
1189023	TP5	FCA ES5	0.10	Brown loam and clay with vegetation and gravel
1189024	TP6	C. PARK ES6	0.00	Brown loam and sand with gravel.
1189025	TP7	C. PARK ES7	0.20	Brown loam and sand with gravel.
1189026	TP8	C. PARK ES8	0.20	Brown loam and sand with gravel and rubble.
1189027	TP9	WYB ES9	0.30	Brown loam and clay with gravel and vegetation.

Analytical Report Number : 19-35192

Project / Site name: Southall

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Water (PrW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Ammonia as NH ₃ in soil	Determination of Ammonium/Ammonia/Ammoniacal Nitrogen by the colorimetric salicylate/nitroprusside method, 10:1 water extraction.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L082-PL	W	MCERTS
Ammoniacal Nitrogen as N in soil	Determination of Ammonium/Ammonia/Ammoniacal Nitrogen by the discrete analyser (colorimetric) salicylate/nitroprusside method, 10:1 water extraction.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L082-PL	W	MCERTS
Ammoniacal Nitrogen as N in water	Determination of Ammonium/Ammonia/Ammoniacal Nitrogen by the discrete analyser (colorimetric) salicylate/nitroprusside method. Accredited matrices SW, GW, PW.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L082-PL	W	ISO 17025
Asbestos identification in soil	Asbestos Identification with the use of polarised light microscopy in conjunction with dispersion staining techniques.	In house method based on HSG 248	A001-PL	D	ISO 17025
Asbestos Quantification - Gravimetric	Asbestos quantification by gravimetric method - in house method based on references.	HSE Report No: 83/1996, HSG 248, HSG 264 & SCA Blue Book (draft).	A006-PL	D	ISO 17025
Boron in water	Determination of boron in water by acidification followed by ICP-OES. Accredited matrices: SW PW GW	In-house method based on MEWAM	L039-PL	W	ISO 17025
Boron, water soluble, in soil	Determination of water soluble boron in soil by hot water extract followed by ICP-OES.	In-house method based on Second Site Properties version 3	L038-PL	D	MCERTS
BTEX and MTBE in water (Monoaromatics)	Determination of BTEX and MTBE in water by headspace GC-MS. Accredited matrices: SW PW GW	In-house method based on USEPA8260	L073B-PL	W	ISO 17025
BTEX in soil (Monoaromatics)	Determination of BTEX in soil by headspace GC-MS.	In-house method based on USEPA8260	L073B-PL	W	MCERTS
Chemical Oxygen Demand in Water (Total)	Determination of total COD in water by reflux oxidation with acidified K ₂ Cr ₂ O ₇ followed by colorimetry. Accredited matrices: SW, PW, GW.	HACH DR/890 Colorimeter Procedures Manual (48470-22) (Ref 0170.2)	L065-PL	W	ISO 17025
Chloride in water	Determination of Chloride colorimetrically by discrete analyser.	In house based on MEWAM Method ISBN 0117516260. Accredited matrices: SW, PW, GW.	L082-PL	W	ISO 17025
chromium III in soil	In-house method by calculation from total Cr and Cr VI.	In-house method	L068-PL	D	NONE
Cr (III) in water	In-house method by calculation from total Cr and Cr VI.	In-house method by calculation	L080-PL	W	NONE
D.O. for Gravimetric Quant if Screen/ID positive	Dependent option for Gravimetric Quant if Screen/ID positive scheduled.	In house asbestos methods A001 & A006.	A006-PL	D	NONE
Dissolved Organic Carbon in water	Determination of dissolved inorganic carbon in water by TOC/DOC NDIR Analyser.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L037-PL	W	NONE
DRO C10-28 (Soil)	Determination of TPH bands by HS-GC-MS/GC-FID	In-house method with silica gel split/clean up.	L076-PL	D	NONE
Free cyanide (Low level) in soil	Determination of free cyanide by distillation followed by colorimetry.	In-house method	L080-PL	W	ISO 17025

Iss No 19-35192-1 Southall CG-28308

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The results included within the report are representative of the samples submitted for analysis.

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Analytical Report Number : 19-35192

Project / Site name: Southall

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Water (PrW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Free cyanide (low level) in water	Determination of free cyanide by distillation followed by colorimetry. Accredited matrices SW, GW, PW.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	ISO 17025
Hexavalent chromium in soil (Lower Level)	Determination of hexavalent chromium in soil by extraction in water then by acidification, addition of 1,5 diphenylcarbazide followed by colorimetry.	In-house method	L080-PL	W	MCERTS
Hexavalent chromium in water	Determination of hexavalent chromium in water by acidification, addition of 1,5 diphenylcarbazide followed by colorimetry.	In-house method by continuous flow analyser. Accredited Matrices SW, GW, PW.	L080-PL	W	ISO 17025
Low level total cyanide in water	Determination of total cyanide by distillation followed by colorimetry. Accredited matrices: SW PW GW	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	ISO 17025
Metals in soil by ICP-OES	Determination of metals in soil by aqua-regia digestion followed by ICP-OES.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L038-PL	D	MCERTS
Metals in water by ICP-MS (dissolved)	Determination of metals in water by acidification followed by ICP-MS. Accredited Matrices: SW, GW, PW except B=SW,GW, Hg=SW,PW, Al=SW,PW.	In-house method based on USEPA Method 6020 & 200.8 "for the determination of trace elements in water by ICP-MS.	L012-PL	W	ISO 17025
Metals in water by ICP-OES (dissolved)	Determination of metals in water by acidification followed by ICP-OES. Accredited Matrices SW, GW, PW, PrW.(Al, Cu,Fe,Zn).	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L039-PL	W	ISO 17025
Moisture Content	Moisture content, determined gravimetrically.	In-house method based on BS1377 Part 2, 1990, Chemical and Electrochemical Tests	L019-UK/PL	W	NONE
Monohydric phenols in soil	Determination of phenols in soil by extraction with sodium hydroxide followed by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (skalar)	L080-PL	W	MCERTS
Monohydric phenols in water - LOW LEVEL 1 ug/l	Determination of phenols in water by continuous flow analyser. Accredited matrices: SW PW GW	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (skalar)	L080-PL	W	ISO 17025
Organic matter (Automated) in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate.	BS1377 Part 3, 1990, Chemical and Electrochemical Tests""	L009-PL	D	MCERTS
Petroleum Ether Extractable Matter in water	Gravimetrically determined through extraction with petroleum ether.	In-house method	L060-PL	W	NONE
pH at 20oC in water (automated)	Determination of pH in water by electrometric measurement. Accredited matrices: SW PW GW	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L099-PL	W	ISO 17025
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L099-PL	D	MCERTS
Settleable Solids (Rapidly Settleable) in water	Determined gravimetrically with GFC filtration papers.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L004-PL	W	NONE
Speciated EPA-16 PAHs in soil	Determination of PAH compounds in soil by extraction in dichloromethane and hexane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270	L064-PL	D	MCERTS
Speciated EPA-16 PAHs in water	Determination of PAH compounds in water by extraction in dichloromethane followed by GC-MS with the use of surrogate and internal standards. Accredited matrices: SW PW GW	In-house method based on USEPA 8270	L102B-PL	W	ISO 17025

Analytical Report Number : 19-35192

Project / Site name: Southall

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Water (PrW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE
Sulphate in water	Determination of sulphate in water by acidification followed by ICP-OES. Accredited matrices: SW PW GW, PrW.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L039-PL	W	ISO 17025
Sulphate, water soluble, in soil (16hr extraction)	Determination of water soluble sulphate by ICP-OES. Results reported directly (leachate equivalent) and corrected for extraction ratio (soil equivalent).	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests, 2:1 water:soil extraction, analysis by ICP-OES.	L038-PL	D	MCERTS
Total cyanide in soil	Determination of total cyanide by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	MCERTS
Total Hardness of water	Determination of hardness in waters by calculation from calcium and magnesium. Accredited Matrices SW, GW, PW.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L045-PL	W	ISO 17025
TPH Oils (Soils)	Determination of extractable hydrocarbons in soil by GC-MS/FID.	In-house method with silica gel split/clean up.	L076-PL	D	MCERTS
TPHCWG (Soil)	Determination of hexane extractable hydrocarbons in soil by GC-MS/GC-FID.	In-house method with silica gel split/clean up.	L088/76-PL	W	MCERTS
TPHCWG (Waters)	Determination of dichloromethane extractable hydrocarbons in water by GC-MS, speciation by interpretation.	In-house method	L070-PL	W	NONE

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.

For method numbers ending in 'PL' analysis have been carried out in our laboratory in Poland.

Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30°C.

**Anne Curtis**

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Analytical Report Number : 19-49243

Project / Site name:	Southall	Samples received on:	08/07/2019
Your job number:	CG-28308	Samples instructed on:	10/07/2019
Your order number:	2975	Analysis completed by:	18/07/2019
Report Issue Number:	1	Report issued on:	18/07/2019
Samples Analysed:	3 soil samples		

Signed:

Katarzyna Lewicka
Head of Reporting Section
For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41 -711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :	soils	- 4 weeks from reporting
	leachates	- 2 weeks from reporting
	waters	- 2 weeks from reporting
	asbestos	- 6 months from reporting

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Any assessments of compliance with specifications are based on actual analytical results with no contribution from uncertainty of measurement. Application of uncertainty of measurement would provide a range within which the true result lies. An estimate of measurement uncertainty can be provided on request.

Analytical Report Number: 19-49243

Project / Site name: Southall

Your Order No: 2975

Lab Sample Number				1263667	1263668	1263669		
Sample Reference				TS SP1	TS SP1	TS SP1		
Sample Number				1	2	3		
Depth (m)				1.00	2.00	0.50		
Date Sampled				05/07/2019	05/07/2019	05/07/2019		
Time Taken				None Supplied	None Supplied	None Supplied		
Analytical Parameter (Soil Analysis)				Units	Limit of detection	Accreditation Status		
Stone Content				%	0.1	NONE	< 0.1	< 0.1
Moisture Content				%	N/A	NONE	17	16
Total mass of sample received				kg	0.001	NONE	1.7	1.8
Asbestos in Soil				Type	N/A	ISO 17025	Not-detected	Not-detected
General Inorganics								
Free Cyanide (low level)				mg/kg	0.5	ISO 17025	< 0.5	< 0.5
Ammonia as NH ₃				mg/kg	0.5	MCERTS	< 0.5	0.9
Total Phenols								
Total Phenols (monohydric)				mg/kg	1	MCERTS	< 1.0	< 1.0
Speciated PAHs								
Naphthalene				mg/kg	0.05	MCERTS	< 0.05	< 0.05
Benzo(a)pyrene				mg/kg	0.05	MCERTS	3.9	1.9
Heavy Metals / Metalloids								
Cadmium (aqua regia extractable)				mg/kg	0.2	MCERTS	2.7	1.9
Chromium (hexavalent)				mg/kg	4	MCERTS	< 4.0	< 4.0
Lead (aqua regia extractable)				mg/kg	1	MCERTS	480	260
Mercury (aqua regia extractable)				mg/kg	0.3	MCERTS	2.3	2.2
Monoaromatics & Oxygenates								
Benzene				µg/kg	1	MCERTS	< 1.0	< 1.0

Analytical Report Number : 19-49243

Project / Site name: Southall

* These descriptions are only intended to act as a cross check if sample identities are questioned. The major constituent of the sample is intended to act with respect to MCERTS validation. The laboratory is accredited for sand, clay and loam (MCERTS) soil types. Data for unaccredited types of solid should be interpreted with care.

Stone content of a sample is calculated as the % weight of the stones not passing a 10 mm sieve. Results are not corrected for stone content.

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
1263667	TS SP1	1	1.00	Brown clay and sand with gravel and chalk.
1263668	TS SP1	2	2.00	Brown clay and sand with gravel and vegetation.
1263669	TS SP1	3	0.50	Brown clay and sand with gravel.

Analytical Report Number : 19-49243

Project / Site name: Southall

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Water (PrW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Ammonia as NH ₃ in soil	Determination of Ammonium/Ammonia/Ammoniacal Nitrogen by the colorimetric salicylate/nitroprusside method, 10:1 water extraction.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L082-PL	W	MCERTS
Asbestos identification in soil	Asbestos Identification with the use of polarised light microscopy in conjunction with disperion staining techniques.	In house method based on HSG 248	A001-PL	D	ISO 17025
BTEX in soil (Monoaromatics)	Determination of BTEX in soil by headspace GC-MS.	In-house method based on USEPA8260	L0738-PL	W	MCERTS
D.O. for Gravimetric Quant if Screen/ID positive	Dependent option for Gravimetric Quant if Screen/ID positive scheduled.	In house asbestos methods A001 & A006.	A006-PL	D	NONE
Free cyanide (Low level) in soil	Determination of free cyanide by distillation followed by colorimetry.	In-house method	L080-PL	W	ISO 17025
Hexavalent chromium in soil	Determination of hexavalent chromium in soil by extraction in water then by acidification, addition of 1,5 diphenylcarbazide followed by colorimetry.	In-house method	L080-PL	W	MCERTS
Metals in soil by ICP-OES	Determination of metals in soil by aqua-regia digestion followed by ICP-OES.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L038-PL	D	MCERTS
Moisture Content	Moisture content, determined gravimetrically.	In-house method based on BS1377 Part 2, 1990, Chemical and Electrochemical Tests	L019-UK/PL	W	NONE
Monohydric phenols in soil	Determination of phenols in soil by extraction with sodium hydroxide followed by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (skalar)	L080-PL	W	MCERTS
Speciated EPA-16 PAHs in soil	Determination of PAH compounds in soil by extraction in dichloromethane and hexane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270	L064-PL	D	MCERTS
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.

For method numbers ending in 'PL' analysis have been carried out in our laboratory in Poland.

Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30°C.

CGL Testing - Stockpile 4

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Analytical Report Number : 17-58339

Replaces Analytical Report Number : 17-58339, issue no. 1

Project / Site name:	Southall Western Access	Samples received on:	24/08/2017
Your job number:	CG-20308	Samples instructed on:	24/08/2017
Your order number:		Analysis completed by:	14/09/2017
Report Issue Number:	2	Report issued on:	14/09/2017
Samples Analysed:	6 soil samples		

Signed:

Dr Irma Doyle
Senior Account Manager
For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41 -711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :	soils	- 4 weeks from reporting
	leachates	- 2 weeks from reporting
	waters	- 2 weeks from reporting
	asbestos	- 6 months from reporting

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Analytical Report Number: 17-58339

Project / Site name: Southall Western Access

Lab Sample Number	804974	804975	804976	804977	804978
Sample Reference	ES1 BB	ES2 DC	ES3 DC	ES4 BG	ES5 GC
Sample Number	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)	1.20	1.20	2.00	2.00	2.00
Date Sampled	22/08/2017	22/08/2017	23/08/2017	23/08/2017	23/08/2017
Time Taken	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status		
Stone Content	%	0.1	NONE	< 0.1	< 0.1
Moisture Content	%	N/A	NONE	25	35
Total mass of sample received	kg	0.001	NONE	1.4	1.9

Asbestos in Soil Screen / Identification Name	Type	N/A	ISO 17025	-	Chrysotile	Chrysotile & Crocidolite	Chrysotile	-
Asbestos in Soil	Type	N/A	ISO 17025	Not-detected	Detected	Detected	Detected	Not-detected
Asbestos Quantification (Stage 2)	%	0.001	ISO 17025	-	0.001	< 0.001	< 0.001	-
Asbestos Quantification Total	%	0.001	ISO 17025	-	0.001	< 0.001	< 0.001	-

General Inorganics

pH - Automated	pH Units	N/A	MCERTS	7.6	8.0	7.7	6.8	7.5
Total Cyanide	mg/kg	1	MCERTS	2	5	1	< 1	3
Free Cyanide	mg/kg	1	MCERTS	< 1	< 1	< 1	< 1	< 1
Total Sulphate as SO ₄	mg/kg	50	MCERTS	21000	1500	2700	20000	6800
Ammoniacal Nitrogen as N	mg/kg	0.5	MCERTS	< 0.5	310	< 0.5	< 0.5	< 0.5
Organic Matter	%	0.1	MCERTS	3.1	7.2	3.8	1.3	8.3

Total Phenols

Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
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Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	< 0.05	0.18	< 0.05	< 0.05	0.58
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	0.45	< 0.05	< 0.05	0.50
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	0.72	< 0.05	0.19	0.47
Fluorene	mg/kg	0.05	MCERTS	< 0.05	1.2	< 0.05	0.24	0.55
Phenanthrene	mg/kg	0.05	MCERTS	0.55	7.7	0.24	3.3	5.8
Anthracene	mg/kg	0.05	MCERTS	0.10	2.2	< 0.05	0.71	1.4
Fluoranthene	mg/kg	0.05	MCERTS	1.1	15	0.94	5.0	10
Pyrene	mg/kg	0.05	MCERTS	1.0	14	0.81	4.3	9.7
Benzo(a)anthracene	mg/kg	0.05	MCERTS	0.54	5.6	1.6	2.3	6.2
Chrysene	mg/kg	0.05	MCERTS	0.74	7.2	2.0	2.0	5.2
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	1.1	5.9	1.6	2.6	7.1
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	0.74	6.5	2.0	1.9	4.7
Benzo(a)pyrene	mg/kg	0.05	MCERTS	1.1	6.4	0.93	2.6	6.9
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	0.91	4.6	0.91	1.4	3.8
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	0.19	1.3	0.41	0.35	1.1
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	1.2	5.7	1.1	1.8	4.5
Coronene	mg/kg	0.05	NONE	< 0.05	1.2	< 0.05	< 0.05	0.64

Total PAH

Total WAC-17 PAHs	mg/kg	0.85	NONE	9.1	85	12	29	69
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Heavy Metals / Metalloids

Antimony (aqua regia extractable)	mg/kg	1	ISO 17025	6.6	7.1	24	76	47
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	10	20	320	170	170
Barium (aqua regia extractable)	mg/kg	1	MCERTS	85	240	810	300	1300
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	0.40	1.2	2.6	3.7	6.5
Boron (water soluble)	mg/kg	0.2	MCERTS	5.0	6.1	4.4	5.9	7.0
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	7.2	12	54	11	8.1
Chromium (hexavalent)	mg/kg	1.2	MCERTS	< 1.2	< 1.2	< 1.2	< 1.2	< 1.2
Chromium (III)	mg/kg	1	NONE	60	88	350	120	77
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	61	88	350	130	77
Copper (aqua regia extractable)	mg/kg	1	MCERTS	4500	250	800	960	760
Lead (aqua regia extractable)	mg/kg	1	MCERTS	180	560	530	7600	1800
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	1.0	< 0.3	< 0.3	2.7
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	100	60	98	120	70
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	28	59	83	130	130
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	980	670	1700	1900	2200



Analytical Report Number: 17-58339

Project / Site name: Southall Western Access

Lab Sample Number				804974	804975	804976	804977	804978
Sample Reference				ES1 BB	ES2 DC	ES3 DC	ES4 BG	ES5 GC
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				1.20	1.20	2.00	2.00	2.00
Date Sampled				22/08/2017	22/08/2017	23/08/2017	23/08/2017	23/08/2017
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)				Units	Limit of detection	Accreditation Status		

Analytical Report Number: 17-58339

Project / Site name: Southall Western Access

Lab Sample Number				804974	804975	804976	804977	804978
Sample Reference				ES1 BB	ES2 DC	ES3 DC	ES4 BG	ES5 GC
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				1.20	1.20	2.00	2.00	2.00
Date Sampled				22/08/2017	22/08/2017	23/08/2017	23/08/2017	23/08/2017
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					

Monoaromatics

Benzene	ug/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Toluene	ug/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Ethylbenzene	ug/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
p & m-xylene	ug/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
o-xylene	ug/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
MTBE (Methyl Tertiary Butyl Ether)	ug/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0

Petroleum Hydrocarbons

TPH-CWG - Aliphatic >EC5 - EC6	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aliphatic >EC6 - EC8	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aliphatic >EC8 - EC10	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aliphatic >EC10 - EC12	mg/kg	1	MCERTS	< 1.0	45	< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic >EC12 - EC16	mg/kg	2	MCERTS	8.6	650	5.7	< 2.0	3.0
TPH-CWG - Aliphatic >EC16 - EC21	mg/kg	8	MCERTS	43	1300	< 8.0	19	31
TPH-CWG - Aliphatic >EC21 - EC35	mg/kg	8	MCERTS	280	4100	24	130	200
TPH-CWG - Aliphatic (EC5 - EC35)	mg/kg	10	MCERTS	330	6100	36	150	240

TPH-CWG - Aromatic >EC5 - EC7	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aromatic >EC7 - EC8	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aromatic >EC8 - EC10	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aromatic >EC10 - EC12	mg/kg	1	MCERTS	< 1.0	2.8	< 1.0	2.4	< 1.0
TPH-CWG - Aromatic >EC12 - EC16	mg/kg	2	MCERTS	< 2.0	220	< 2.0	5.3	5.2
TPH-CWG - Aromatic >EC16 - EC21	mg/kg	10	MCERTS	21	640	< 10	14	54
TPH-CWG - Aromatic >EC21 - EC35	mg/kg	10	MCERTS	230	1500	19	45	180
TPH-CWG - Aromatic (EC5 - EC35)	mg/kg	10	MCERTS	250	2300	22	67	240

Analytical Report Number: 17-58339

Project / Site name: Southall Western Access

Lab Sample Number				804979				
Sample Reference				ES6 DC				
Sample Number				None Supplied				
Depth (m)				2.00				
Date Sampled				23/08/2017				
Time Taken				None Supplied				
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
Stone Content	%	0.1	NONE	< 0.1				
Moisture Content	%	N/A	NONE	27				
Total mass of sample received	kg	0.001	NONE	1.9				

Asbestos in Soil Screen / Identification Name	Type	N/A	ISO 17025	Chrysotile				
Asbestos in Soil	Type	N/A	ISO 17025	Detected				
Asbestos Quantification (Stage 2)	%	0.001	ISO 17025	0.002				
Asbestos Quantification Total	%	0.001	ISO 17025	0.002				

General Inorganics

pH - Automated	pH Units	N/A	MCERTS	7.7				
Total Cyanide	mg/kg	1	MCERTS	44				
Free Cyanide	mg/kg	1	MCERTS	< 1				
Total Sulphate as SO ₄	mg/kg	50	MCERTS	2300				
Ammoniacal Nitrogen as N	mg/kg	0.5	MCERTS	51				
Organic Matter	%	0.1	MCERTS	6.6				

Total Phenols

Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0				
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Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	0.63				
Acenaphthylene	mg/kg	0.05	MCERTS	0.72				
Acenaphthene	mg/kg	0.05	MCERTS	0.44				
Fluorene	mg/kg	0.05	MCERTS	0.95				
Phenanthrene	mg/kg	0.05	MCERTS	6.6				
Anthracene	mg/kg	0.05	MCERTS	2.2				
Fluoranthene	mg/kg	0.05	MCERTS	13				
Pyrene	mg/kg	0.05	MCERTS	11				
Benzo(a)anthracene	mg/kg	0.05	MCERTS	7.0				
Chrysene	mg/kg	0.05	MCERTS	10				
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	12				
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	8.1				
Benzo(a)pyrene	mg/kg	0.05	MCERTS	12				
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	7.9				
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	2.3				
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	8.7				
Coronene	mg/kg	0.05	NONE	< 0.05				

Total PAH

Total WAC-17 PAHs	mg/kg	0.85	NONE	100				
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Heavy Metals / Metalloids

Antimony (aqua regia extractable)	mg/kg	1	ISO 17025	17				
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	55				
Barium (aqua regia extractable)	mg/kg	1	MCERTS	890				
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	1.2				
Boron (water soluble)	mg/kg	0.2	MCERTS	5.2				
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	230				
Chromium (hexavalent)	mg/kg	1.2	MCERTS	< 1.2				
Chromium (III)	mg/kg	1	NONE	750				
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	750				
Copper (aqua regia extractable)	mg/kg	1	MCERTS	3600				
Lead (aqua regia extractable)	mg/kg	1	MCERTS	680				
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	3.4				
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	310				
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0				
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	38				
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	780				



Analytical Report Number: 17-58339

Project / Site name: Southall Western Access

Lab Sample Number				804979				
Sample Reference				ES6 DC				
Sample Number				None Supplied				
Depth (m)				2.00				
Date Sampled				23/08/2017				
Time Taken				None Supplied				
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					

Analytical Report Number: 17-58339

Project / Site name: Southall Western Access

Lab Sample Number				804979				
Sample Reference				ES6 DC				
Sample Number				None Supplied				
Depth (m)				2.00				
Date Sampled				23/08/2017				
Time Taken				None Supplied				
Analytical Parameter (Soil Analysis)				Units	Limit of detection	Accreditation Status		

Monoaromatics

Benzene	ug/kg	1	MCERTS	< 1.0				
Toluene	ug/kg	1	MCERTS	< 1.0				
Ethylbenzene	ug/kg	1	MCERTS	< 1.0				
p & m-xylene	ug/kg	1	MCERTS	< 1.0				
o-xylene	ug/kg	1	MCERTS	< 1.0				
MTBE (Methyl Tertiary Butyl Ether)	ug/kg	1	MCERTS	< 1.0				

Petroleum Hydrocarbons

TPH-CWG - Aliphatic >EC5 - EC6	mg/kg	0.001	MCERTS	< 0.001				
TPH-CWG - Aliphatic >EC6 - EC8	mg/kg	0.001	MCERTS	< 0.001				
TPH-CWG - Aliphatic >EC8 - EC10	mg/kg	0.001	MCERTS	< 0.001				
TPH-CWG - Aliphatic >EC10 - EC12	mg/kg	1	MCERTS	1.2				
TPH-CWG - Aliphatic >EC12 - EC16	mg/kg	2	MCERTS	110				
TPH-CWG - Aliphatic >EC16 - EC21	mg/kg	8	MCERTS	510				
TPH-CWG - Aliphatic >EC21 - EC35	mg/kg	8	MCERTS	3100				
TPH-CWG - Aliphatic (EC5 - EC35)	mg/kg	10	MCERTS	3800				

TPH-CWG - Aromatic >EC5 - EC7	mg/kg	0.001	MCERTS	< 0.001				
TPH-CWG - Aromatic >EC7 - EC8	mg/kg	0.001	MCERTS	< 0.001				
TPH-CWG - Aromatic >EC8 - EC10	mg/kg	0.001	MCERTS	< 0.001				
TPH-CWG - Aromatic >EC10 - EC12	mg/kg	1	MCERTS	3.8				
TPH-CWG - Aromatic >EC12 - EC16	mg/kg	2	MCERTS	15				
TPH-CWG - Aromatic >EC16 - EC21	mg/kg	10	MCERTS	260				
TPH-CWG - Aromatic >EC21 - EC35	mg/kg	10	MCERTS	1600				
TPH-CWG - Aromatic (EC5 - EC35)	mg/kg	10	MCERTS	1900				



Analytical Report Number: **17-58339**
Project / Site name: **Southall Western Access**
Your Order No:

Certificate of Analysis - Asbestos Quantification

Methods:

Qualitative Analysis

The samples were analysed qualitatively for asbestos by polarising light and dispersion staining as described by the Health and Safety Executive in HSG 248.

Quantitative Analysis

The analysis was carried out using our documented in-house method A006 based on HSE Contract Research Report No: 83/1996: Development and Validation of an analytical method to determine the amount of asbestos in soils and loose aggregates (Davies et al, 1996) and HSG 248. Our method includes initial examination of the entire representative sample, then fractionation and detailed analysis of each fraction, with quantification by hand picking and weighing.

The limit of detection (reporting limit) of this method is 0.001 %.

The method has been validated using samples of at least 100 g, results for samples smaller than this should be interpreted with caution.

Both Qualitative and Quantitative Analyses are UKAS accredited.

Sample Number	Sample ID	Sample Depth (m)	Sample Weight (g)	Asbestos Containing Material Types Detected (ACM)	PLM Results	Asbestos by hand picking/weighing (%)	Total % Asbestos in Sample
804975	ES2 DC	1.20	101	Loose Fibrous Debris	Chrysotile	0.001	0.001
804976	ES3 DC	2.00	112	Loose Fibres	Chrysotile & Crocidolite	< 0.001	< 0.001
804977	ES4 BG	2.00	100	Loose Fibres	Chrysotile	< 0.001	< 0.001
804979	ES6 DC	2.00	116	Loose Fibres	Chrysotile	0.002	0.002

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



Analytical Report Number : 17-58339

Project / Site name: Southall Western Access

* These descriptions are only intended to act as a cross check if sample identities are questioned. The major constituent of the sample is intended to act with respect to MCERTS validation. The laboratory is accredited for sand, clay and loam (MCERTS) soil types. Data for unaccredited types of solid should be interpreted with care.

Stone content of a sample is calculated as the % weight of the stones not passing a 10 mm sieve. Results are not corrected for stone content.

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
804974	ES1 BB	None Supplied	1.20	Grey loam and sand with gravel and vegetation.
804975	ES2 DC	None Supplied	1.20	Brown clay and sand.
804976	ES3 DC	None Supplied	2.00	Brown loam and clay with gravel.
804977	ES4 BG	None Supplied	2.00	Brown loam and clay with gravel.
804978	ES5 GC	None Supplied	2.00	Brown loam and clay with gravel.
804979	ES6 DC	None Supplied	2.00	Brown clay and sand.

Analytical Report Number : 17-58339

Project / Site name: Southall Western Access

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Water (PrW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Ammoniacal Nitrogen as N in soil	Determination of Ammonium/Ammonia/ Ammoniacal Nitrogen by the discrete analyser (colorimetric) salicylate/nitroprusside method,10:1 water extraction.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L082-PL	W	MCERTS
Asbestos identification in soil	Asbestos Identification with the use of polarised light microscopy in conjunction with disperion staining techniques.	In house method based on HSG 248	A001-PL	D	ISO 17025
Asbestos Quantification - Gravimetric	Asbestos quantification by gravimetric method - in ouse method based on references.	HSE Report No: 83/1996, HSG 248, HSG 264 & SCA Blue Book (draft).	A006-PL	D	ISO 17025
Boron, water soluble, in soil	Determination of water soluble boron in soil by hot water extract followed by ICP-OES.	In-house method based on Second Site Properties version 3	L038-PL	D	MCERTS
BTEX and MTBE in soil (Monoaromatics)	Determination of BTEX in soil by headspace GC-MS.	In-house method based on USEPA8260	L073B-PL	W	MCERTS
Cr (III) in soil	In-house method by calculation from total Cr and Cr VI.	In-house method by calculation	L080-PL	W	NONE
D.O. for Gravimetric Quant if Screen/ID positive	Dependent option for Gravimetric Quant if Screen/ID positive scheduled.	In house asbestos methods A001 & A006.	A006-PL	D	NONE
Free cyanide in soil	Determination of free cyanide by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	MCERTS
Hexavalent chromium in soil (Lower Level)	Determination of hexavalent chromium in soil by extraction in water then by acidification, addition of 1,5 diphenylcarbazine followed by colorimetry.	In-house method	L080-PL	W	MCERTS
Metals in soil by ICP-OES	Determination of metals in soil by aqua-regia digestion followed by ICP-OES.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L038-PL	D	MCERTS
Moisture Content	Moisture content, determined gravimetrically.	In-house method based on BS1377 Part 2, 1990, Chemical and Electrochemical Tests	L019-UK/PL	W	NONE
Monohydric phenols in soil	Determination of phenols in soil by extraction with sodium hydroxide followed by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (skalar)	L080-PL	W	MCERTS
Organic matter (Automated) in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate.	BS1377 Part 3, 1990, Chemical and Electrochemical Tests""	L009-PL	D	MCERTS
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L099-PL	D	MCERTS
Speciated WAC-17 PAHs in soil	Determination of PAH compounds in soil by extraction in dichloromethane and hexane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270	L064-PL	D	NONE
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE
Total cyanide in soil	Determination of total cyanide by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	MCERTS

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The results included within the report are representative of the samples submitted for analysis.

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Analytical Report Number : 17-58339

Project / Site name: Southall Western Access

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Water (PrW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Total sulphate (as SO ₄ in soil)	Determination of total sulphate in soil by extraction with 10% HCl followed by ICP-OES.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L038-PL	D	MCERTS
TPHCWG (Soil)	Determination of hexane extractable hydrocarbons in soil by GC-MS/GC-FID.	In-house method	L088/76-PL	W	MCERTS

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.

For method numbers ending in 'PL' analysis have been carried out in our laboratory in Poland.

Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.

**Tom Fairweather**

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Analytical Report Number : 17-60711

Project / Site name:	Southall Western Access	Samples received on:	18/09/2017
Your job number:	CG-28308	Samples instructed on:	18/09/2017
Your order number:	4586	Analysis completed by:	21/09/2017
Report Issue Number:	1	Report issued on:	21/09/2017
Samples Analysed:	6 soil samples		

Signed:

Rexona Rahman
Reporting Manager
For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41 -711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :	soils	- 4 weeks from reporting
	leachates	- 2 weeks from reporting
	waters	- 2 weeks from reporting
	asbestos	- 6 months from reporting

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Analytical Report Number: 17-60711

Project / Site name: Southall Western Access

Your Order No: 4586

Lab Sample Number				819189	819190	819191	819192	819193
Sample Reference				RD1	RD1	RD1	WGUC Arisings	WGUC Arisings
Sample Number				ES1	ES2	ES3	ES1	ES2
Depth (m)				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Date Sampled				15/09/2017	15/09/2017	15/09/2017	15/09/2017	15/09/2017
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
Stone Content	%	0.1	NONE	47	< 0.1	< 0.1	< 0.1	< 0.1
Moisture Content	%	N/A	NONE	7.1	25	9.8	17	17
Total mass of sample received	kg	0.001	NONE	1.5	1.5	1.8	1.6	1.5

General Inorganics

Free Cyanide (low level)	mg/kg	0.5	ISO 17025	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Ammonia as NH ₃	mg/kg	0.5	MCERTS	< 0.5	< 0.5	< 0.5	21	15

Total Phenols

Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
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Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(a)pyrene	mg/kg	0.05	MCERTS	< 0.05	0.41	< 0.05	0.36	0.31

Heavy Metals / Metalloids

Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Chromium (hexavalent)	mg/kg	4	MCERTS	< 4.0	< 4.0	< 4.0	< 4.0	< 4.0
Lead (aqua regia extractable)	mg/kg	1	MCERTS	25	26	31	49	45
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3

Monoaromatics

Benzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
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Analytical Report Number: 17-60711

Project / Site name: Southall Western Access

Your Order No: 4586

Lab Sample Number				819194				
Sample Reference				WGUC Arisings				
Sample Number				ES3				
Depth (m)				None Supplied				
Date Sampled				15/09/2017				
Time Taken				None Supplied				
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
Stone Content	%	0.1	NONE	< 0.1				
Moisture Content	%	N/A	NONE	19				
Total mass of sample received	kg	0.001	NONE	1.5				

General Inorganics

Free Cyanide (low level)	mg/kg	0.5	ISO 17025	< 0.5				
Ammonia as NH ₃	mg/kg	0.5	MCERTS	17				

Total Phenols

Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0				
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Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	< 0.05				
Benzo(a)pyrene	mg/kg	0.05	MCERTS	< 0.05				

Heavy Metals / Metalloids

Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2				
Chromium (hexavalent)	mg/kg	4	MCERTS	< 4.0				
Lead (aqua regia extractable)	mg/kg	1	MCERTS	28				
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3				

Monoaromatics

Benzene	µg/kg	1	MCERTS	< 1.0				
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Analytical Report Number : 17-60711

Project / Site name: Southall Western Access

* These descriptions are only intended to act as a cross check if sample identities are questioned. The major constituent of the sample is intended to act with respect to MCERTS validation. The laboratory is accredited for sand, clay and loam (MCERTS) soil types. Data for unaccredited types of solid should be interpreted with care.

Stone content of a sample is calculated as the % weight of the stones not passing a 10 mm sieve. Results are not corrected for stone content.

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
819189	RD1	ES1	None Supplied	Brown clay with stones.
819190	RD1	ES2	None Supplied	Grey clay.
819191	RD1	ES3	None Supplied	Brown clay with gravel.
819192	WGUC Arisings	ES1	None Supplied	Grey clay and loam.
819193	WGUC Arisings	ES2	None Supplied	Grey clay and loam.
819194	WGUC Arisings	ES3	None Supplied	Grey clay and loam.

Analytical Report Number : 17-60711

Project / Site name: Southall Western Access

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Water (PrW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Ammonia as NH ₃ in soil	Determination of Ammonium/Ammonia/Ammoniacal Nitrogen by the colorimetric salicylate/nitroprusside method, 10:1 water extraction	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L082-PL	W	MCERTS
BTEX in soil (Monoaromatics)	Determination of BTEX in soil by headspace GC-MS.	In-house method based on USEPA8260	L073B-PL	W	MCERTS
Free cyanide (Low level) in soil	Determination of free cyanide by distillation followed by colorimetry.	In-house method	L080-PL	W	ISO 17025
Hexavalent chromium in soil	Determination of hexavalent chromium in soil by extraction in water then by acidification, addition of 1,5 diphenylcarbazine followed by colorimetry.	In-house method	L080-PL	W	MCERTS
Metals in soil by ICP-OES	Determination of metals in soil by aqua-regia digestion followed by ICP-OES.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L038-PL	D	MCERTS
Moisture Content	Moisture content, determined gravimetrically.	In-house method based on BS1377 Part 2, 1990, Chemical and Electrochemical Tests	L019-UK/PL	W	NONE
Monohydric phenols in soil	Determination of phenols in soil by extraction with sodium hydroxide followed by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (skalar)	L080-PL	W	MCERTS
Speciated EPA-16 PAHs in soil	Determination of PAH compounds in soil by extraction in dichloromethane and hexane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270	L064-PL	D	MCERTS
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.

For method numbers ending in 'PL' analysis have been carried out in our laboratory in Poland.

Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30°C.

CGL Testing - Stockpiles 5 & 6

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Analytical Report Number : 17-57682

Project / Site name:	Southall Western Access	Samples received on:	17/08/2017
Your job number:	CG-28308	Samples instructed on:	17/08/2017
Your order number:		Analysis completed by:	22/08/2017
Report Issue Number:	1	Report issued on:	22/08/2017
Samples Analysed:	1 soil sample		

Signed:

Dr Irma Doyle
Senior Account Manager
For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41 -711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :	soils	- 4 weeks from reporting
	leachates	- 2 weeks from reporting
	waters	- 2 weeks from reporting
	asbestos	- 6 months from reporting

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Analytical Report Number: 17-57682

Project / Site name: Southall Western Access

Lab Sample Number				800924				
Sample Reference				TP101				
Sample Number				ES1				
Depth (m)				1.80				
Date Sampled				17/08/2017				
Time Taken				None Supplied				
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
Stone Content	%	0.1	NONE	< 0.1				
Moisture Content	%	N/A	NONE	35				
Total mass of sample received	kg	0.001	NONE	1.0				

General Inorganics

pH - Automated	pH Units	N/A	MCERTS	7.9				
Total Cyanide	mg/kg	1	MCERTS	3				
Free Cyanide	mg/kg	1	MCERTS	< 1				
Total Sulphate as SO ₄	mg/kg	50	MCERTS	1300				
Ammoniacal Nitrogen as N	mg/kg	0.5	MCERTS	220				
Organic Matter	%	0.1	MCERTS	6.7				

Total Phenols

Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0				
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Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	0.15				
Acenaphthylene	mg/kg	0.05	MCERTS	0.54				
Acenaphthene	mg/kg	0.05	MCERTS	0.80				
Fluorene	mg/kg	0.05	MCERTS	1.3				
Phenanthrene	mg/kg	0.05	MCERTS	6.8				
Anthracene	mg/kg	0.05	MCERTS	1.6				
Fluoranthene	mg/kg	0.05	MCERTS	16				
Pyrene	mg/kg	0.05	MCERTS	15				
Benzo(a)anthracene	mg/kg	0.05	MCERTS	7.0				
Chrysene	mg/kg	0.05	MCERTS	8.5				
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	7.8				
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	8.5				
Benzo(a)pyrene	mg/kg	0.05	MCERTS	8.0				
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	4.5				
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	1.4				
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	5.1				
Coronene	mg/kg	0.05	NONE	< 0.05				

Total PAH

Total WAC-17 PAHs	mg/kg	0.85	NONE	93				
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Heavy Metals / Metalloids

Antimony (aqua regia extractable)	mg/kg	1	ISO 17025	6.6				
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	24				
Barium (aqua regia extractable)	mg/kg	1	MCERTS	230				
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	1.3				
Boron (water soluble)	mg/kg	0.2	MCERTS	10				
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	8.4				
Chromium (hexavalent)	mg/kg	1.2	MCERTS	< 1.2				
Chromium (III)	mg/kg	1	NONE	82				
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	83				
Copper (aqua regia extractable)	mg/kg	1	MCERTS	200				
Lead (aqua regia extractable)	mg/kg	1	MCERTS	460				
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3				
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	60				
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0				
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	63				
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	490				

Analytical Report Number: 17-57682

Project / Site name: Southall Western Access

Lab Sample Number				800924				
Sample Reference				TP101				
Sample Number				ES1				
Depth (m)				1.80				
Date Sampled				17/08/2017				
Time Taken				None Supplied				
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					

Monoaromatics

Benzene	ug/kg	1	MCERTS	< 1.0				
Toluene	ug/kg	1	MCERTS	< 1.0				
Ethylbenzene	ug/kg	1	MCERTS	< 1.0				
p & m-xylene	ug/kg	1	MCERTS	< 1.0				
o-xylene	ug/kg	1	MCERTS	< 1.0				
MTBE (Methyl Tertiary Butyl Ether)	ug/kg	1	MCERTS	< 1.0				

Petroleum Hydrocarbons

TPH-CWG - Aliphatic >EC5 - EC6	mg/kg	0.001	MCERTS	< 0.001				
TPH-CWG - Aliphatic >EC6 - EC8	mg/kg	0.001	MCERTS	< 0.001				
TPH-CWG - Aliphatic >EC8 - EC10	mg/kg	0.001	MCERTS	< 0.001				
TPH-CWG - Aliphatic >EC10 - EC12	mg/kg	1	MCERTS	7.7				
TPH-CWG - Aliphatic >EC12 - EC16	mg/kg	2	MCERTS	340				
TPH-CWG - Aliphatic >EC16 - EC21	mg/kg	8	MCERTS	1300				
TPH-CWG - Aliphatic >EC21 - EC35	mg/kg	8	MCERTS	4100				
TPH-CWG - Aliphatic (EC5 - EC35)	mg/kg	10	MCERTS	5700				

TPH-CWG - Aromatic >EC5 - EC7	mg/kg	0.001	MCERTS	< 0.001				
TPH-CWG - Aromatic >EC7 - EC8	mg/kg	0.001	MCERTS	< 0.001				
TPH-CWG - Aromatic >EC8 - EC10	mg/kg	0.001	MCERTS	< 0.001				
TPH-CWG - Aromatic >EC10 - EC12	mg/kg	1	MCERTS	< 1.0				
TPH-CWG - Aromatic >EC12 - EC16	mg/kg	2	MCERTS	170				
TPH-CWG - Aromatic >EC16 - EC21	mg/kg	10	MCERTS	840				
TPH-CWG - Aromatic >EC21 - EC35	mg/kg	10	MCERTS	1900				
TPH-CWG - Aromatic (EC5 - EC35)	mg/kg	10	MCERTS	2900				



Analytical Report Number : 17-57682

Project / Site name: Southall Western Access

* These descriptions are only intended to act as a cross check if sample identities are questioned. The major constituent of the sample is intended to act with respect to MCERTS validation. The laboratory is accredited for sand, clay and loam (MCERTS) soil types. Data for unaccredited types of solid should be interpreted with care.

Stone content of a sample is calculated as the % weight of the stones not passing a 10 mm sieve. Results are not corrected for stone content.

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
800924	TP101	ES1	1.80	Brown clay with vegetation and oil / petroleum.

Analytical Report Number : 17-57682

Project / Site name: Southall Western Access

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Water (PrW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Ammoniacal Nitrogen as N in soil	Determination of Ammonium/Ammonia/ Ammoniacal Nitrogen by the discrete analyser (colorimetric) salicylate/nitroprusside method,10:1 water extraction.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L082-PL	W	MCERTS
Boron, water soluble, in soil	Determination of water soluble boron in soil by hot water extract followed by ICP-OES.	In-house method based on Second Site Properties version 3	L038-PL	D	MCERTS
BTEX and MTBE in soil (Monoaromatics)	Determination of BTEX in soil by headspace GC-MS.	In-house method based on USEPA8260	L073B-PL	W	MCERTS
Cr (III) in soil	In-house method by calculation from total Cr and Cr VI.	In-house method by calculation	L080-PL	W	NONE
Free cyanide in soil	Determination of free cyanide by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	MCERTS
Hexavalent chromium in soil (Lower Level)	Determination of hexavalent chromium in soil by extraction in water then by acidification, addition of 1,5 diphenylcarbazide followed by colorimetry.	In-house method	L080-PL	W	MCERTS
Metals in soil by ICP-OES	Determination of metals in soil by aqua-regia digestion followed by ICP-OES.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L038-PL	D	MCERTS
Moisture Content	Moisture content, determined gravimetrically.	In-house method based on BS1377 Part 2, 1990, Chemical and Electrochemical Tests	L019-UK/PL	W	NONE
Monohydric phenols in soil	Determination of phenols in soil by extraction with sodium hydroxide followed by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (skalar)	L080-PL	W	MCERTS
Organic matter (Automated) in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate.	BS1377 Part 3, 1990, Chemical and Electrochemical Tests""	L009-PL	D	MCERTS
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L099-PL	D	MCERTS
Speciated WAC-17 PAHs in soil	Determination of PAH compounds in soil by extraction in dichloromethane and hexane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270	L064-PL	D	NONE
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE
Total cyanide in soil	Determination of total cyanide by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	MCERTS
Total sulphate (as SO4 in soil)	Determination of total sulphate in soil by extraction with 10% HCl followed by ICP-OES.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L038-PL	D	MCERTS
TPHCWG (Soil)	Determination of hexane extractable hydrocarbons in soil by GC-MS/GC-FID.	In-house method	L088/76-PL	W	MCERTS

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.

For method numbers ending in 'PL' analysis have been carried out in our laboratory in Poland.

Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.

Iss No 17-57682-1 Southall Western Access CG-28308

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The results included within the report are representative of the samples submitted for analysis.

Page 5 of 5

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Analytical Report Number : 17-58339

Replaces Analytical Report Number : 17-58339, issue no. 1

Project / Site name:	Southall Western Access	Samples received on:	24/08/2017
Your job number:	CG-20308	Samples instructed on:	24/08/2017
Your order number:		Analysis completed by:	14/09/2017
Report Issue Number:	2	Report issued on:	14/09/2017
Samples Analysed:	6 soil samples		

Signed:

Dr Irma Doyle
Senior Account Manager
For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41 -711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :	soils	- 4 weeks from reporting
	leachates	- 2 weeks from reporting
	waters	- 2 weeks from reporting
	asbestos	- 6 months from reporting

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Analytical Report Number: 17-58339

Project / Site name: Southall Western Access

Lab Sample Number				804974	804975	804976	804977	804978
Sample Reference				ES1 BB	ES2 DC	ES3 DC	ES4 BG	ES5 GC
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				1.20	1.20	2.00	2.00	2.00
Date Sampled				22/08/2017	22/08/2017	23/08/2017	23/08/2017	23/08/2017
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Moisture Content	%	N/A	NONE	25	35	34	30	39
Total mass of sample received	kg	0.001	NONE	1.4	1.9	1.9	1.7	2.0

Asbestos in Soil Screen / Identification Name	Type	N/A	ISO 17025	-	Chrysotile	Chrysotile & Crocidolite	Chrysotile	-
Asbestos in Soil	Type	N/A	ISO 17025	Not-detected	Detected	Detected	Detected	Not-detected
Asbestos Quantification (Stage 2)	%	0.001	ISO 17025	-	0.001	< 0.001	< 0.001	-
Asbestos Quantification Total	%	0.001	ISO 17025	-	0.001	< 0.001	< 0.001	-

General Inorganics

pH - Automated	pH Units	N/A	MCERTS	7.6	8.0	7.7	6.8	7.5
Total Cyanide	mg/kg	1	MCERTS	2	5	1	< 1	3
Free Cyanide	mg/kg	1	MCERTS	< 1	< 1	< 1	< 1	< 1
Total Sulphate as SO ₄	mg/kg	50	MCERTS	21000	1500	2700	20000	6800
Ammoniacal Nitrogen as N	mg/kg	0.5	MCERTS	< 0.5	310	< 0.5	< 0.5	< 0.5
Organic Matter	%	0.1	MCERTS	3.1	7.2	3.8	1.3	8.3

Total Phenols

Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
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Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	< 0.05	0.18	< 0.05	< 0.05	0.58
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	0.45	< 0.05	< 0.05	0.50
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	0.72	< 0.05	0.19	0.47
Fluorene	mg/kg	0.05	MCERTS	< 0.05	1.2	< 0.05	0.24	0.55
Phenanthrene	mg/kg	0.05	MCERTS	0.55	7.7	0.24	3.3	5.8
Anthracene	mg/kg	0.05	MCERTS	0.10	2.2	< 0.05	0.71	1.4
Fluoranthene	mg/kg	0.05	MCERTS	1.1	15	0.94	5.0	10
Pyrene	mg/kg	0.05	MCERTS	1.0	14	0.81	4.3	9.7
Benzo(a)anthracene	mg/kg	0.05	MCERTS	0.54	5.6	1.6	2.3	6.2
Chrysene	mg/kg	0.05	MCERTS	0.74	7.2	2.0	2.0	5.2
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	1.1	5.9	1.6	2.6	7.1
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	0.74	6.5	2.0	1.9	4.7
Benzo(a)pyrene	mg/kg	0.05	MCERTS	1.1	6.4	0.93	2.6	6.9
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	0.91	4.6	0.91	1.4	3.8
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	0.19	1.3	0.41	0.35	1.1
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	1.2	5.7	1.1	1.8	4.5
Coronene	mg/kg	0.05	NONE	< 0.05	1.2	< 0.05	< 0.05	0.64

Total PAH

Total WAC-17 PAHs	mg/kg	0.85	NONE	9.1	85	12	29	69
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Heavy Metals / Metalloids

Antimony (aqua regia extractable)	mg/kg	1	ISO 17025	6.6	7.1	24	76	47
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	10	20	320	170	170
Barium (aqua regia extractable)	mg/kg	1	MCERTS	85	240	810	300	1300
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	0.40	1.2	2.6	3.7	6.5
Boron (water soluble)	mg/kg	0.2	MCERTS	5.0	6.1	4.4	5.9	7.0
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	7.2	12	54	11	8.1
Chromium (hexavalent)	mg/kg	1.2	MCERTS	< 1.2	< 1.2	< 1.2	< 1.2	< 1.2
Chromium (III)	mg/kg	1	NONE	60	88	350	120	77
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	61	88	350	130	77
Copper (aqua regia extractable)	mg/kg	1	MCERTS	4500	250	800	960	760
Lead (aqua regia extractable)	mg/kg	1	MCERTS	180	560	530	7600	1800
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	1.0	< 0.3	< 0.3	2.7
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	100	60	98	120	70
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	28	59	83	130	130
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	980	670	1700	1900	2200



Analytical Report Number: 17-58339

Project / Site name: Southall Western Access

Lab Sample Number				804974	804975	804976	804977	804978
Sample Reference				ES1 BB	ES2 DC	ES3 DC	ES4 BG	ES5 GC
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				1.20	1.20	2.00	2.00	2.00
Date Sampled				22/08/2017	22/08/2017	23/08/2017	23/08/2017	23/08/2017
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)				Units	Limit of detection	Accreditation Status		

Analytical Report Number: 17-58339

Project / Site name: Southall Western Access

Lab Sample Number				804974	804975	804976	804977	804978
Sample Reference				ES1 BB	ES2 DC	ES3 DC	ES4 BG	ES5 GC
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				1.20	1.20	2.00	2.00	2.00
Date Sampled				22/08/2017	22/08/2017	23/08/2017	23/08/2017	23/08/2017
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)				Units	Limit of detection	Accreditation Status		

Monoaromatics

Benzene	ug/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Toluene	ug/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Ethylbenzene	ug/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
p & m-xylene	ug/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
o-xylene	ug/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
MTBE (Methyl Tertiary Butyl Ether)	ug/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0

Petroleum Hydrocarbons

TPH-CWG - Aliphatic >EC5 - EC6	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aliphatic >EC6 - EC8	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aliphatic >EC8 - EC10	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aliphatic >EC10 - EC12	mg/kg	1	MCERTS	< 1.0	45	< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic >EC12 - EC16	mg/kg	2	MCERTS	8.6	650	5.7	< 2.0	3.0
TPH-CWG - Aliphatic >EC16 - EC21	mg/kg	8	MCERTS	43	1300	< 8.0	19	31
TPH-CWG - Aliphatic >EC21 - EC35	mg/kg	8	MCERTS	280	4100	24	130	200
TPH-CWG - Aliphatic (EC5 - EC35)	mg/kg	10	MCERTS	330	6100	36	150	240

TPH-CWG - Aromatic >EC5 - EC7	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aromatic >EC7 - EC8	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aromatic >EC8 - EC10	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aromatic >EC10 - EC12	mg/kg	1	MCERTS	< 1.0	2.8	< 1.0	2.4	< 1.0
TPH-CWG - Aromatic >EC12 - EC16	mg/kg	2	MCERTS	< 2.0	220	< 2.0	5.3	5.2
TPH-CWG - Aromatic >EC16 - EC21	mg/kg	10	MCERTS	21	640	< 10	14	54
TPH-CWG - Aromatic >EC21 - EC35	mg/kg	10	MCERTS	230	1500	19	45	180
TPH-CWG - Aromatic (EC5 - EC35)	mg/kg	10	MCERTS	250	2300	22	67	240

Analytical Report Number: 17-58339

Project / Site name: Southall Western Access

Lab Sample Number				804979				
Sample Reference				ES6 DC				
Sample Number				None Supplied				
Depth (m)				2.00				
Date Sampled				23/08/2017				
Time Taken				None Supplied				
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
Stone Content	%	0.1	NONE	< 0.1				
Moisture Content	%	N/A	NONE	27				
Total mass of sample received	kg	0.001	NONE	1.9				

Asbestos in Soil Screen / Identification Name	Type	N/A	ISO 17025	Chrysotile				
Asbestos in Soil	Type	N/A	ISO 17025	Detected				
Asbestos Quantification (Stage 2)	%	0.001	ISO 17025	0.002				
Asbestos Quantification Total	%	0.001	ISO 17025	0.002				

General Inorganics

pH - Automated	pH Units	N/A	MCERTS	7.7				
Total Cyanide	mg/kg	1	MCERTS	44				
Free Cyanide	mg/kg	1	MCERTS	< 1				
Total Sulphate as SO ₄	mg/kg	50	MCERTS	2300				
Ammoniacal Nitrogen as N	mg/kg	0.5	MCERTS	51				
Organic Matter	%	0.1	MCERTS	6.6				

Total Phenols

Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0				
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Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	0.63				
Acenaphthylene	mg/kg	0.05	MCERTS	0.72				
Acenaphthene	mg/kg	0.05	MCERTS	0.44				
Fluorene	mg/kg	0.05	MCERTS	0.95				
Phenanthrene	mg/kg	0.05	MCERTS	6.6				
Anthracene	mg/kg	0.05	MCERTS	2.2				
Fluoranthene	mg/kg	0.05	MCERTS	13				
Pyrene	mg/kg	0.05	MCERTS	11				
Benzo(a)anthracene	mg/kg	0.05	MCERTS	7.0				
Chrysene	mg/kg	0.05	MCERTS	10				
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	12				
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	8.1				
Benzo(a)pyrene	mg/kg	0.05	MCERTS	12				
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	7.9				
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	2.3				
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	8.7				
Coronene	mg/kg	0.05	NONE	< 0.05				

Total PAH

Total WAC-17 PAHs	mg/kg	0.85	NONE	100				
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Heavy Metals / Metalloids

Antimony (aqua regia extractable)	mg/kg	1	ISO 17025	17				
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	55				
Barium (aqua regia extractable)	mg/kg	1	MCERTS	890				
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	1.2				
Boron (water soluble)	mg/kg	0.2	MCERTS	5.2				
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	230				
Chromium (hexavalent)	mg/kg	1.2	MCERTS	< 1.2				
Chromium (III)	mg/kg	1	NONE	750				
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	750				
Copper (aqua regia extractable)	mg/kg	1	MCERTS	3600				
Lead (aqua regia extractable)	mg/kg	1	MCERTS	680				
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	3.4				
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	310				
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0				
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	38				
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	780				



Analytical Report Number: 17-58339

Project / Site name: Southall Western Access

Lab Sample Number				804979				
Sample Reference				ES6 DC				
Sample Number				None Supplied				
Depth (m)				2.00				
Date Sampled				23/08/2017				
Time Taken				None Supplied				
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					

Analytical Report Number: 17-58339

Project / Site name: Southall Western Access

Lab Sample Number				804979				
Sample Reference				ES6 DC				
Sample Number				None Supplied				
Depth (m)				2.00				
Date Sampled				23/08/2017				
Time Taken				None Supplied				
Analytical Parameter (Soil Analysis)				Units	Limit of detection	Accreditation Status		

Monoaromatics

Benzene	ug/kg	1	MCERTS	< 1.0				
Toluene	ug/kg	1	MCERTS	< 1.0				
Ethylbenzene	ug/kg	1	MCERTS	< 1.0				
p & m-xylene	ug/kg	1	MCERTS	< 1.0				
o-xylene	ug/kg	1	MCERTS	< 1.0				
MTBE (Methyl Tertiary Butyl Ether)	ug/kg	1	MCERTS	< 1.0				

Petroleum Hydrocarbons

TPH-CWG - Aliphatic >EC5 - EC6	mg/kg	0.001	MCERTS	< 0.001				
TPH-CWG - Aliphatic >EC6 - EC8	mg/kg	0.001	MCERTS	< 0.001				
TPH-CWG - Aliphatic >EC8 - EC10	mg/kg	0.001	MCERTS	< 0.001				
TPH-CWG - Aliphatic >EC10 - EC12	mg/kg	1	MCERTS	1.2				
TPH-CWG - Aliphatic >EC12 - EC16	mg/kg	2	MCERTS	110				
TPH-CWG - Aliphatic >EC16 - EC21	mg/kg	8	MCERTS	510				
TPH-CWG - Aliphatic >EC21 - EC35	mg/kg	8	MCERTS	3100				
TPH-CWG - Aliphatic (EC5 - EC35)	mg/kg	10	MCERTS	3800				

TPH-CWG - Aromatic >EC5 - EC7	mg/kg	0.001	MCERTS	< 0.001				
TPH-CWG - Aromatic >EC7 - EC8	mg/kg	0.001	MCERTS	< 0.001				
TPH-CWG - Aromatic >EC8 - EC10	mg/kg	0.001	MCERTS	< 0.001				
TPH-CWG - Aromatic >EC10 - EC12	mg/kg	1	MCERTS	3.8				
TPH-CWG - Aromatic >EC12 - EC16	mg/kg	2	MCERTS	15				
TPH-CWG - Aromatic >EC16 - EC21	mg/kg	10	MCERTS	260				
TPH-CWG - Aromatic >EC21 - EC35	mg/kg	10	MCERTS	1600				
TPH-CWG - Aromatic (EC5 - EC35)	mg/kg	10	MCERTS	1900				



Analytical Report Number: **17-58339**
Project / Site name: **Southall Western Access**
Your Order No:

Certificate of Analysis - Asbestos Quantification

Methods:

Qualitative Analysis

The samples were analysed qualitatively for asbestos by polarising light and dispersion staining as described by the Health and Safety Executive in HSG 248.

Quantitative Analysis

The analysis was carried out using our documented in-house method A006 based on HSE Contract Research Report No: 83/1996: Development and Validation of an analytical method to determine the amount of asbestos in soils and loose aggregates (Davies et al, 1996) and HSG 248. Our method includes initial examination of the entire representative sample, then fractionation and detailed analysis of each fraction, with quantification by hand picking and weighing.

The limit of detection (reporting limit) of this method is 0.001 %.

The method has been validated using samples of at least 100 g, results for samples smaller than this should be interpreted with caution.

Both Qualitative and Quantitative Analyses are UKAS accredited.

Sample Number	Sample ID	Sample Depth (m)	Sample Weight (g)	Asbestos Containing Material Types Detected (ACM)	PLM Results	Asbestos by hand picking/weighing (%)	Total % Asbestos in Sample
804975	ES2 DC	1.20	101	Loose Fibrous Debris	Chrysotile	0.001	0.001
804976	ES3 DC	2.00	112	Loose Fibres	Chrysotile & Crocidolite	< 0.001	< 0.001
804977	ES4 BG	2.00	100	Loose Fibres	Chrysotile	< 0.001	< 0.001
804979	ES6 DC	2.00	116	Loose Fibres	Chrysotile	0.002	0.002

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



Analytical Report Number : 17-58339

Project / Site name: Southall Western Access

* These descriptions are only intended to act as a cross check if sample identities are questioned. The major constituent of the sample is intended to act with respect to MCERTS validation. The laboratory is accredited for sand, clay and loam (MCERTS) soil types. Data for unaccredited types of solid should be interpreted with care.

Stone content of a sample is calculated as the % weight of the stones not passing a 10 mm sieve. Results are not corrected for stone content.

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
804974	ES1 BB	None Supplied	1.20	Grey loam and sand with gravel and vegetation.
804975	ES2 DC	None Supplied	1.20	Brown clay and sand.
804976	ES3 DC	None Supplied	2.00	Brown loam and clay with gravel.
804977	ES4 BG	None Supplied	2.00	Brown loam and clay with gravel.
804978	ES5 GC	None Supplied	2.00	Brown loam and clay with gravel.
804979	ES6 DC	None Supplied	2.00	Brown clay and sand.

Analytical Report Number : 17-58339

Project / Site name: Southall Western Access

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Water (PrW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Ammoniacal Nitrogen as N in soil	Determination of Ammonium/Ammonia/ Ammoniacal Nitrogen by the discrete analyser (colorimetric) salicylate/nitroprusside method,10:1 water extraction.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L082-PL	W	MCERTS
Asbestos identification in soil	Asbestos Identification with the use of polarised light microscopy in conjunction with disperion staining techniques.	In house method based on HSG 248	A001-PL	D	ISO 17025
Asbestos Quantification - Gravimetric	Asbestos quantification by gravimetric method - in ouse method based on references.	HSE Report No: 83/1996, HSG 248, HSG 264 & SCA Blue Book (draft).	A006-PL	D	ISO 17025
Boron, water soluble, in soil	Determination of water soluble boron in soil by hot water extract followed by ICP-OES.	In-house method based on Second Site Properties version 3	L038-PL	D	MCERTS
BTEX and MTBE in soil (Monoaromatics)	Determination of BTEX in soil by headspace GC-MS.	In-house method based on USEPA8260	L073B-PL	W	MCERTS
Cr (III) in soil	In-house method by calculation from total Cr and Cr VI.	In-house method by calculation	L080-PL	W	NONE
D.O. for Gravimetric Quant if Screen/ID positive	Dependent option for Gravimetric Quant if Screen/ID positive scheduled.	In house asbestos methods A001 & A006.	A006-PL	D	NONE
Free cyanide in soil	Determination of free cyanide by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	MCERTS
Hexavalent chromium in soil (Lower Level)	Determination of hexavalent chromium in soil by extraction in water then by acidification, addition of 1,5 diphenylcarbazine followed by colorimetry.	In-house method	L080-PL	W	MCERTS
Metals in soil by ICP-OES	Determination of metals in soil by aqua-regia digestion followed by ICP-OES.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L038-PL	D	MCERTS
Moisture Content	Moisture content, determined gravimetrically.	In-house method based on BS1377 Part 2, 1990, Chemical and Electrochemical Tests	L019-UK/PL	W	NONE
Monohydric phenols in soil	Determination of phenols in soil by extraction with sodium hydroxide followed by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (skalar)	L080-PL	W	MCERTS
Organic matter (Automated) in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate.	BS1377 Part 3, 1990, Chemical and Electrochemical Tests""	L009-PL	D	MCERTS
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L099-PL	D	MCERTS
Speciated WAC-17 PAHs in soil	Determination of PAH compounds in soil by extraction in dichloromethane and hexane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270	L064-PL	D	NONE
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE
Total cyanide in soil	Determination of total cyanide by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	MCERTS

Iss No 17-58339-2 Southall Western Access CG-20308

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The results included within the report are representative of the samples submitted for analysis.

Page 10 of 11



Analytical Report Number : 17-58339

Project / Site name: Southall Western Access

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Water (PrW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Total sulphate (as SO ₄ in soil)	Determination of total sulphate in soil by extraction with 10% HCl followed by ICP-OES.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L038-PL	D	MCERTS
TPHCWG (Soil)	Determination of hexane extractable hydrocarbons in soil by GC-MS/GC-FID.	In-house method	L088/76-PL	W	MCERTS

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.

For method numbers ending in 'PL' analysis have been carried out in our laboratory in Poland.

Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.

CGL Testing - Stockpile 7



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Analytical Report Number : 17-59543

Project / Site name:	Southall	Samples received on:	06/09/2017
Your job number:	CG-28308	Samples instructed on:	06/09/2017
Your order number:	4586	Analysis completed by:	11/09/2017
Report Issue Number:	1	Report issued on:	11/09/2017
Samples Analysed:	4 soil samples		

Signed:

Dr Irma Doyle
Senior Account Manager
For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41 -711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :	soils	- 4 weeks from reporting
	leachates	- 2 weeks from reporting
	waters	- 2 weeks from reporting
	asbestos	- 6 months from reporting

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Analytical Report Number: 17-59543

Project / Site name: Southall

Your Order No: 4586

Lab Sample Number	811760	811761	811762	811763	
Sample Reference	EYBPM1	EYBPM2	EYBPM3	EYBPM4	
Sample Number	None Supplied	None Supplied	None Supplied	None Supplied	
Depth (m)	0.30	0.30	None Supplied	None Supplied	
Date Sampled	04/09/2017	04/09/2017	04/09/2017	04/09/2017	
Time Taken	None Supplied	None Supplied	None Supplied	None Supplied	
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status		
Stone Content	%	0.1	NONE	11	28
Moisture Content	%	N/A	NONE	12	11
Total mass of sample received	kg	0.001	NONE	1.6	1.4

General Inorganics

Free Cyanide	mg/kg	1	MCERTS	< 1	< 1	< 1	< 1	
Ammonia as NH ₃	mg/kg	0.5	MCERTS	< 0.5	< 0.5	< 0.5	< 0.5	

Total Phenols

Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	
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Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	0.06	0.08	< 0.05	< 0.05	
Benzo(a)pyrene	mg/kg	0.05	MCERTS	1.8	3.5	0.23	0.58	

Heavy Metals / Metalloids

Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	2.2	3.3	1.7	1.4	
Chromium (hexavalent)	mg/kg	4	MCERTS	< 4.0	< 4.0	< 4.0	< 4.0	
Lead (aqua regia extractable)	mg/kg	1	MCERTS	110	130	28	46	
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	1.7	< 0.3	< 0.3	< 0.3	

Monoaromatics

Benzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	
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Analytical Report Number : 17-59543

Project / Site name: Southall

* These descriptions are only intended to act as a cross check if sample identities are questioned. The major constituent of the sample is intended to act with respect to MCERTS validation. The laboratory is accredited for sand, clay and loam (MCERTS) soil types. Data for unaccredited types of solid should be interpreted with care.

Stone content of a sample is calculated as the % weight of the stones not passing a 10 mm sieve. Results are not corrected for stone content.

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
811760	EYBPM1	None Supplied	0.30	Brown loam and clay with stones and vegetation.
811761	EYBPM2	None Supplied	0.30	Brown clay and loam with stones and vegetation.
811762	EYBPM3	None Supplied	None Supplied	Light brown clay.
811763	EYBPM4	None Supplied	None Supplied	Light brown clay.

Analytical Report Number : 17-59543

Project / Site name: Southall

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Water (PrW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Ammonia as NH ₃ in soil	Determination of Ammonium/Ammonia/Ammoniacal Nitrogen by the colorimetric salicylate/nitroprusside method, 10:1 water extraction.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L082-PL	W	MCERTS
BTEX in soil (Monoaromatics)	Determination of BTEX in soil by headspace GC-MS.	In-house method based on USEPA8260	L073B-PL	W	MCERTS
Free cyanide in soil	Determination of free cyanide by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	MCERTS
Hexavalent chromium in soil	Determination of hexavalent chromium in soil by extraction in water then by acidification, addition of 1,5 diphenylcarbazide followed by colorimetry.	In-house method	L080-PL	W	MCERTS
Metals in soil by ICP-OES	Determination of metals in soil by aqua-regia digestion followed by ICP-OES.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L038-PL	D	MCERTS
Moisture Content	Moisture content, determined gravimetrically.	In-house method based on BS1377 Part 2, 1990, Chemical and Electrochemical Tests	L019-UK/PL	W	NONE
Monohydric phenols in soil	Determination of phenols in soil by extraction with sodium hydroxide followed by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (skalar)	L080-PL	W	MCERTS
Speciated EPA-16 PAHs in soil	Determination of PAH compounds in soil by extraction in dichloromethane and hexane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270	L064-PL	D	MCERTS
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.

For method numbers ending in 'PL' analysis have been carried out in our laboratory in Poland.

Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.



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Analytical Report Number : 17-60408

Replaces Analytical Report Number : 17-60408, issue no. 1

Project / Site name:	Southall Western Access	Samples received on:	15/09/2017
Your job number:	CG-28308	Samples instructed on:	15/09/2017
Your order number:	4586	Analysis completed by:	21/09/2017
Report Issue Number:	2	Report issued on:	21/09/2017
Samples Analysed:	3 soil samples		

Signed:

Rexona Rahman
Reporting Manager
For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41 -711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :	soils	- 4 weeks from reporting
	leachates	- 2 weeks from reporting
	waters	- 2 weeks from reporting
	asbestos	- 6 months from reporting

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Analytical Report Number: 17-60408

Project / Site name: Southall Western Access

Your Order No: 4586

Lab Sample Number				816866	816867	816868		
Sample Reference				WYBPM Arisings	WYBPM Arisings	WYBPM Arisings		
Sample Number				ES1	ES2	ES3		
Depth (m)				None Supplied	None Supplied	None Supplied		
Date Sampled				12/09/2017	12/09/2017	12/09/2017		
Time Taken				None Supplied	None Supplied	None Supplied		
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
Stone Content	%	0.1	NONE	< 0.1	18	38		
Moisture Content	%	N/A	NONE	21	17	8.9		
Total mass of sample received	kg	0.001	NONE	1.8	1.8	1.8		

General Inorganics

Free Cyanide	mg/kg	1	MCERTS	< 1	< 1	< 1		
Free Cyanide (low level)	mg/kg	0.5	ISO 17025	< 0.5	< 0.5	< 0.5		
Ammonia as NH ₃	mg/kg	0.5	MCERTS	14	3.8	11		

Total Phenols

Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0		
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Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05		
Benzo(a)pyrene	mg/kg	0.05	MCERTS	0.18	< 0.05	< 0.05		

Heavy Metals / Metalloids

Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2		
Chromium (hexavalent)	mg/kg	4	MCERTS	< 4.0	< 4.0	< 4.0		
Lead (aqua regia extractable)	mg/kg	1	MCERTS	22	23	32		
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3		

Monoaromatics

Benzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0		
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Analytical Report Number : 17-60408

Project / Site name: Southall Western Access

* These descriptions are only intended to act as a cross check if sample identities are questioned. The major constituent of the sample is intended to act with respect to MCERTS validation. The laboratory is accredited for sand, clay and loam (MCERTS) soil types. Data for unaccredited types of solid should be interpreted with care.

Stone content of a sample is calculated as the % weight of the stones not passing a 10 mm sieve. Results are not corrected for stone content.

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
816866	WYBPM Arisings	ES1	None Supplied	Brown clay and loam.
816867	WYBPM Arisings	ES2	None Supplied	Brown clay and loam with stones.
816868	WYBPM Arisings	ES3	None Supplied	Brown loam and gravel with stones.

Analytical Report Number : 17-60408

Project / Site name: Southall Western Access

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Water (PrW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Ammonia as NH ₃ in soil	Determination of Ammonium/Ammonia/Ammoniacal Nitrogen by the colorimetric salicylate/nitroprusside method, 10:1 water extraction.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L082-PL	W	MCERTS
BTEX in soil (Monoaromatics)	Determination of BTEX in soil by headspace GC-MS.	In-house method based on USEPA8260	L073B-PL	W	MCERTS
Free cyanide (Low level) in soil	Determination of free cyanide by distillation followed by colorimetry.	In-house method	L080-PL	W	ISO 17025
Free cyanide in soil	Determination of free cyanide by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	MCERTS
Hexavalent chromium in soil	Determination of hexavalent chromium in soil by extraction in water then by acidification, addition of 1,5 diphenylcarbazide followed by colorimetry.	In-house method	L080-PL	W	MCERTS
Metals in soil by ICP-OES	Determination of metals in soil by aqua-regia digestion followed by ICP-OES.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L038-PL	D	MCERTS
Moisture Content	Moisture content, determined gravimetrically.	In-house method based on BS1377 Part 2, 1990, Chemical and Electrochemical Tests	L019-UK/PL	W	NONE
Monohydric phenols in soil	Determination of phenols in soil by extraction with sodium hydroxide followed by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (skalar)	L080-PL	W	MCERTS
Speciated EPA-16 PAHs in soil	Determination of PAH compounds in soil by extraction in dichloromethane and hexane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270	L064-PL	D	MCERTS
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.

For method numbers ending in 'PL' analysis have been carried out in our laboratory in Poland.

Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 300C.

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Analytical Report Number : 17-60711

Project / Site name:	Southall Western Access	Samples received on:	18/09/2017
Your job number:	CG-28308	Samples instructed on:	18/09/2017
Your order number:	4586	Analysis completed by:	21/09/2017
Report Issue Number:	1	Report issued on:	21/09/2017
Samples Analysed:	6 soil samples		

Signed:

Rexona Rahman
Reporting Manager
For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41 -711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

soils	- 4 weeks from reporting
leachates	- 2 weeks from reporting
waters	- 2 weeks from reporting
asbestos	- 6 months from reporting

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Analytical Report Number: 17-60711

Project / Site name: Southall Western Access

Your Order No: 4586

Lab Sample Number				819189	819190	819191	819192	819193
Sample Reference				RD1	RD1	RD1	WGUC Arisings	WGUC Arisings
Sample Number				ES1	ES2	ES3	ES1	ES2
Depth (m)				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Date Sampled				15/09/2017	15/09/2017	15/09/2017	15/09/2017	15/09/2017
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
Stone Content	%	0.1	NONE	47	< 0.1	< 0.1	< 0.1	< 0.1
Moisture Content	%	N/A	NONE	7.1	25	9.8	17	17
Total mass of sample received	kg	0.001	NONE	1.5	1.5	1.8	1.6	1.5

General Inorganics

Free Cyanide (low level)	mg/kg	0.5	ISO 17025	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Ammonia as NH ₃	mg/kg	0.5	MCERTS	< 0.5	< 0.5	< 0.5	21	15

Total Phenols

Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
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Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(a)pyrene	mg/kg	0.05	MCERTS	< 0.05	0.41	< 0.05	0.36	0.31

Heavy Metals / Metalloids

Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Chromium (hexavalent)	mg/kg	4	MCERTS	< 4.0	< 4.0	< 4.0	< 4.0	< 4.0
Lead (aqua regia extractable)	mg/kg	1	MCERTS	25	26	31	49	45
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3

Monoaromatics

Benzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
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Analytical Report Number: 17-60711

Project / Site name: Southall Western Access

Your Order No: 4586

Lab Sample Number				819194				
Sample Reference				WGUC Arisings				
Sample Number				ES3				
Depth (m)				None Supplied				
Date Sampled				15/09/2017				
Time Taken				None Supplied				
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
Stone Content	%	0.1	NONE	< 0.1				
Moisture Content	%	N/A	NONE	19				
Total mass of sample received	kg	0.001	NONE	1.5				

General Inorganics

Free Cyanide (low level)	mg/kg	0.5	ISO 17025	< 0.5				
Ammonia as NH ₃	mg/kg	0.5	MCERTS	17				

Total Phenols

Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0				
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Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	< 0.05				
Benzo(a)pyrene	mg/kg	0.05	MCERTS	< 0.05				

Heavy Metals / Metalloids

Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2				
Chromium (hexavalent)	mg/kg	4	MCERTS	< 4.0				
Lead (aqua regia extractable)	mg/kg	1	MCERTS	28				
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3				

Monoaromatics

Benzene	µg/kg	1	MCERTS	< 1.0				
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Analytical Report Number : 17-60711

Project / Site name: Southall Western Access

* These descriptions are only intended to act as a cross check if sample identities are questioned. The major constituent of the sample is intended to act with respect to MCERTS validation. The laboratory is accredited for sand, clay and loam (MCERTS) soil types. Data for unaccredited types of solid should be interpreted with care.

Stone content of a sample is calculated as the % weight of the stones not passing a 10 mm sieve. Results are not corrected for stone content.

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
819189	RD1	ES1	None Supplied	Brown clay with stones.
819190	RD1	ES2	None Supplied	Grey clay.
819191	RD1	ES3	None Supplied	Brown clay with gravel.
819192	WGUC Arisings	ES1	None Supplied	Grey clay and loam.
819193	WGUC Arisings	ES2	None Supplied	Grey clay and loam.
819194	WGUC Arisings	ES3	None Supplied	Grey clay and loam.

Analytical Report Number : 17-60711

Project / Site name: Southall Western Access

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Water (PrW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Ammonia as NH ₃ in soil	Determination of Ammonium/Ammonia/Ammoniacal Nitrogen by the colorimetric salicylate/nitroprusside method, 10:1 water extraction	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L082-PL	W	MCERTS
BTEX in soil (Monoaromatics)	Determination of BTEX in soil by headspace GC-MS.	In-house method based on USEPA8260	L073B-PL	W	MCERTS
Free cyanide (Low level) in soil	Determination of free cyanide by distillation followed by colorimetry.	In-house method	L080-PL	W	ISO 17025
Hexavalent chromium in soil	Determination of hexavalent chromium in soil by extraction in water then by acidification, addition of 1,5 diphenylcarbazine followed by colorimetry.	In-house method	L080-PL	W	MCERTS
Metals in soil by ICP-OES	Determination of metals in soil by aqua-regia digestion followed by ICP-OES.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L038-PL	D	MCERTS
Moisture Content	Moisture content, determined gravimetrically.	In-house method based on BS1377 Part 2, 1990, Chemical and Electrochemical Tests	L019-UK/PL	W	NONE
Monohydric phenols in soil	Determination of phenols in soil by extraction with sodium hydroxide followed by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (skalar)	L080-PL	W	MCERTS
Speciated EPA-16 PAHs in soil	Determination of PAH compounds in soil by extraction in dichloromethane and hexane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270	L064-PL	D	MCERTS
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.

For method numbers ending in 'PL' analysis have been carried out in our laboratory in Poland.

Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.

CGL Testing - Stockpile 9

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Analytical Report Number : 17-60711

Project / Site name:	Southall Western Access	Samples received on:	18/09/2017
Your job number:	CG-28308	Samples instructed on:	18/09/2017
Your order number:	4586	Analysis completed by:	21/09/2017
Report Issue Number:	1	Report issued on:	21/09/2017
Samples Analysed:	6 soil samples		

Signed:

Rexona Rahman
Reporting Manager
For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41 -711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :	soils	- 4 weeks from reporting
	leachates	- 2 weeks from reporting
	waters	- 2 weeks from reporting
	asbestos	- 6 months from reporting

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Analytical Report Number: 17-60711

Project / Site name: Southall Western Access

Your Order No: 4586

Lab Sample Number	819189	819190	819191	819192	819193
Sample Reference	RD1	RD1	RD1	WGUC Arisings	WGUC Arisings
Sample Number	ES1	ES2	ES3	ES1	ES2
Depth (m)	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Date Sampled	15/09/2017	15/09/2017	15/09/2017	15/09/2017	15/09/2017
Time Taken	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status		
Stone Content	%	0.1	NONE	< 0.1	< 0.1
Moisture Content	%	N/A	NONE	7.1	25
Total mass of sample received	kg	0.001	NONE	1.5	1.5

General Inorganics

Free Cyanide (low level)	mg/kg	0.5	ISO 17025	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Ammonia as NH ₃	mg/kg	0.5	MCERTS	< 0.5	< 0.5	< 0.5	21	15

Total Phenols

Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
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Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(a)pyrene	mg/kg	0.05	MCERTS	< 0.05	0.41	< 0.05	0.36	0.31

Heavy Metals / Metalloids

Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Chromium (hexavalent)	mg/kg	4	MCERTS	< 4.0	< 4.0	< 4.0	< 4.0	< 4.0
Lead (aqua regia extractable)	mg/kg	1	MCERTS	25	26	31	49	45
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3

Monoaromatics

Benzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
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Analytical Report Number: 17-60711

Project / Site name: Southall Western Access

Your Order No: 4586

Lab Sample Number				819194				
Sample Reference				WGUC Arisings				
Sample Number				ES3				
Depth (m)				None Supplied				
Date Sampled				15/09/2017				
Time Taken				None Supplied				
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
Stone Content	%	0.1	NONE	< 0.1				
Moisture Content	%	N/A	NONE	19				
Total mass of sample received	kg	0.001	NONE	1.5				

General Inorganics

Free Cyanide (low level)	mg/kg	0.5	ISO 17025	< 0.5				
Ammonia as NH ₃	mg/kg	0.5	MCERTS	17				

Total Phenols

Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0				
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Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	< 0.05				
Benzo(a)pyrene	mg/kg	0.05	MCERTS	< 0.05				

Heavy Metals / Metalloids

Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2				
Chromium (hexavalent)	mg/kg	4	MCERTS	< 4.0				
Lead (aqua regia extractable)	mg/kg	1	MCERTS	28				
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3				

Monoaromatics

Benzene	µg/kg	1	MCERTS	< 1.0				
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Analytical Report Number : 17-60711

Project / Site name: Southall Western Access

* These descriptions are only intended to act as a cross check if sample identities are questioned. The major constituent of the sample is intended to act with respect to MCERTS validation. The laboratory is accredited for sand, clay and loam (MCERTS) soil types. Data for unaccredited types of solid should be interpreted with care.

Stone content of a sample is calculated as the % weight of the stones not passing a 10 mm sieve. Results are not corrected for stone content.

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
819189	RD1	ES1	None Supplied	Brown clay with stones.
819190	RD1	ES2	None Supplied	Grey clay.
819191	RD1	ES3	None Supplied	Brown clay with gravel.
819192	WGUC Arisings	ES1	None Supplied	Grey clay and loam.
819193	WGUC Arisings	ES2	None Supplied	Grey clay and loam.
819194	WGUC Arisings	ES3	None Supplied	Grey clay and loam.

Analytical Report Number : 17-60711

Project / Site name: Southall Western Access

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Water (PrW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Ammonia as NH ₃ in soil	Determination of Ammonium/Ammonia/Ammoniacal Nitrogen by the colorimetric salicylate/nitroprusside method, 10:1 water extraction	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L082-PL	W	MCERTS
BTEX in soil (Monoaromatics)	Determination of BTEX in soil by headspace GC-MS.	In-house method based on USEPA8260	L073B-PL	W	MCERTS
Free cyanide (Low level) in soil	Determination of free cyanide by distillation followed by colorimetry.	In-house method	L080-PL	W	ISO 17025
Hexavalent chromium in soil	Determination of hexavalent chromium in soil by extraction in water then by acidification, addition of 1,5 diphenylcarbazine followed by colorimetry.	In-house method	L080-PL	W	MCERTS
Metals in soil by ICP-OES	Determination of metals in soil by aqua-regia digestion followed by ICP-OES.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L038-PL	D	MCERTS
Moisture Content	Moisture content, determined gravimetrically.	In-house method based on BS1377 Part 2, 1990, Chemical and Electrochemical Tests	L019-UK/PL	W	NONE
Monohydric phenols in soil	Determination of phenols in soil by extraction with sodium hydroxide followed by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (skalar)	L080-PL	W	MCERTS
Speciated EPA-16 PAHs in soil	Determination of PAH compounds in soil by extraction in dichloromethane and hexane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270	L064-PL	D	MCERTS
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE

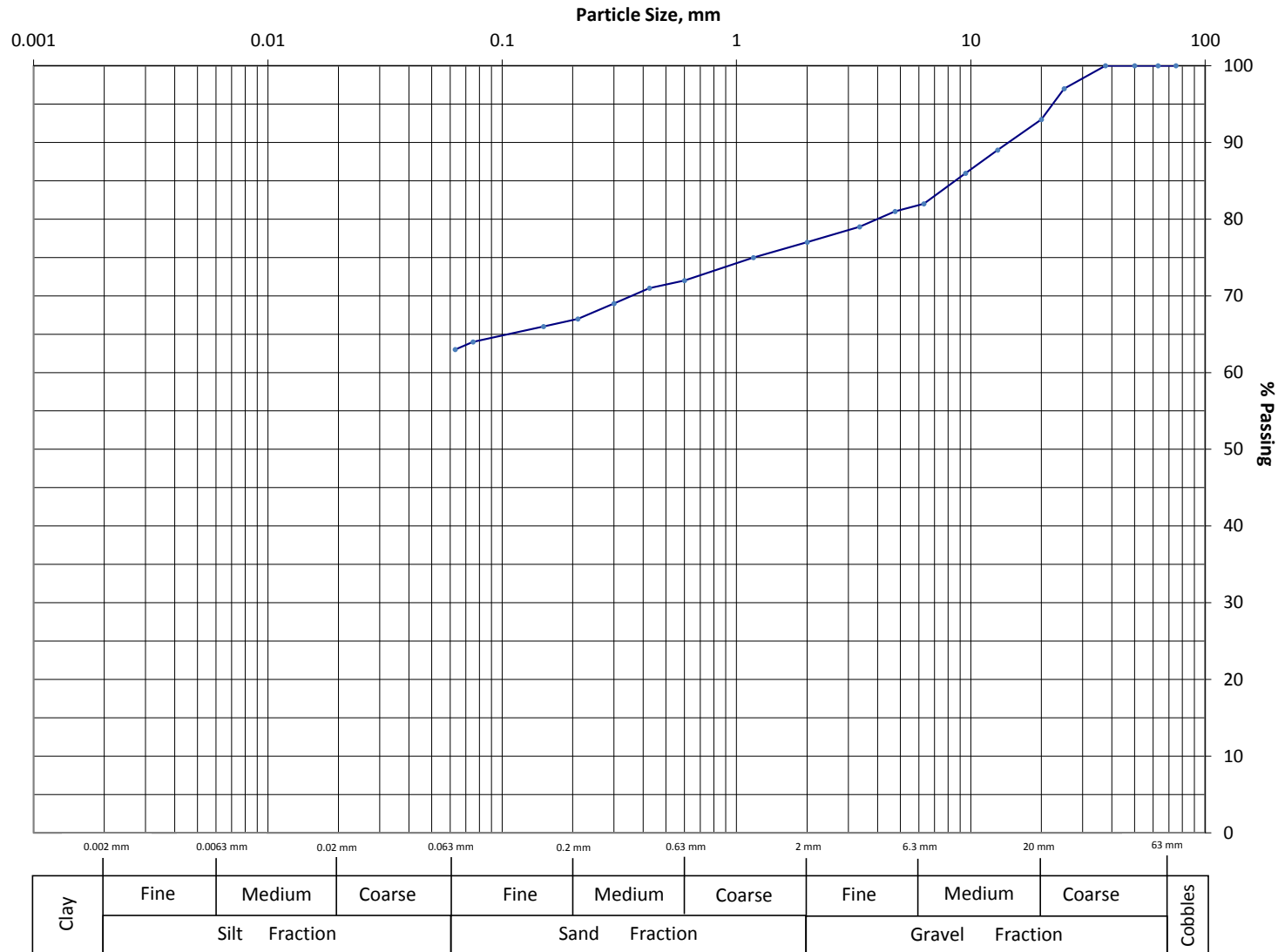
For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.

For method numbers ending in 'PL' analysis have been carried out in our laboratory in Poland.

Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30°C.

PARTICLE SIZE DISTRIBUTION TEST

BS 1377 : Part 2 : Clauses 9.2, 9.3 : 1990 Particle Size Distribution by Wet/Dry Sieving Method



BS Test Sieve Aperture Size (mm)	Percentage Passing
75	
63	
50	
37.5	100
25	97
20	93
13	89
9.5	86
6.3	82
4.75	81
3.35	79
2	77
1.18	75
0.6	72
0.425	71
0.3	69
0.21	67
0.15	66
0.075	64
0.063	63

Particle Proportions (%)	
Cobbles	0
Gravel	23
Sand	14
Silt & Clay	63

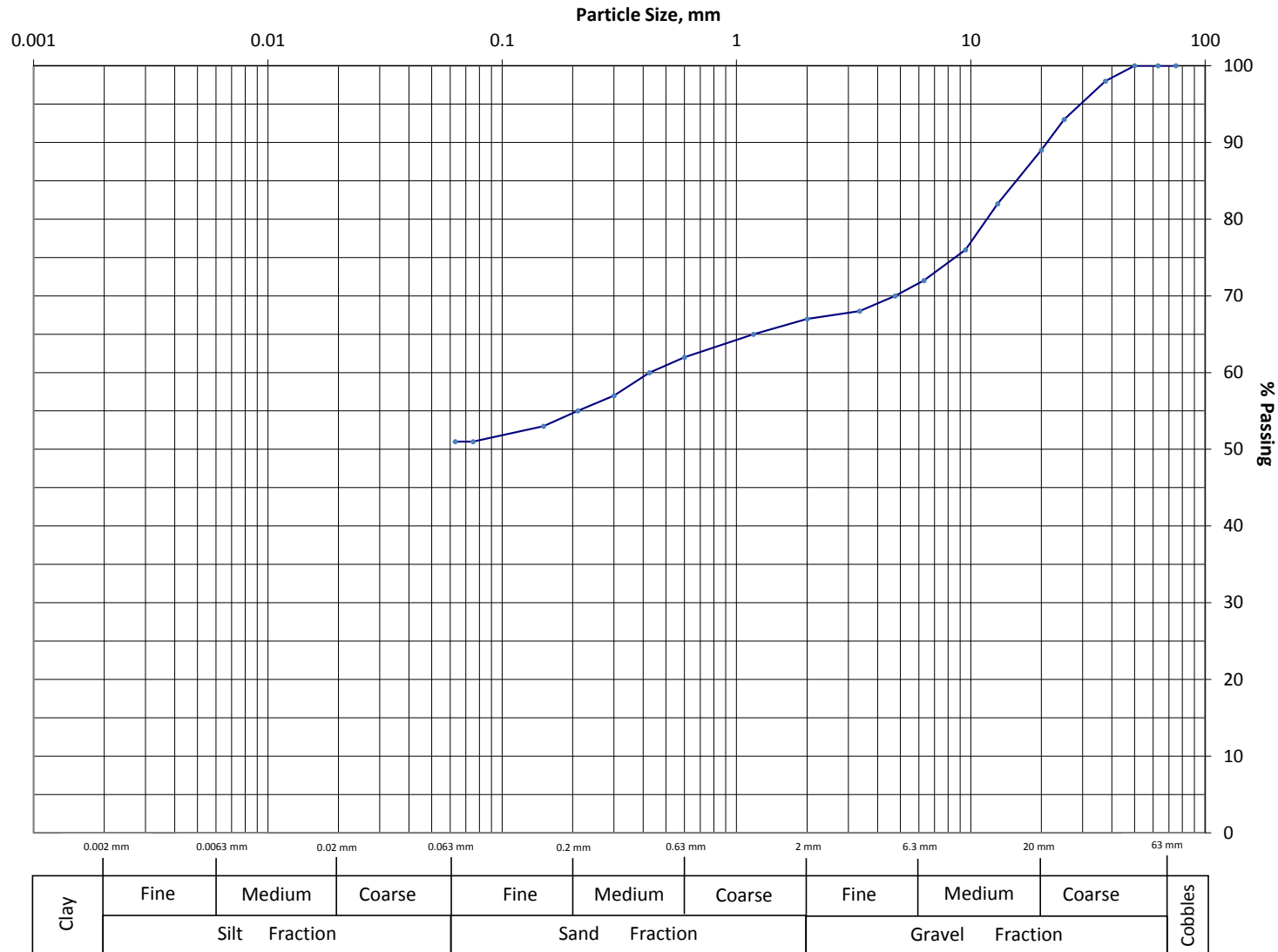
BH/TP No.	SP9	Sample	S1	Report Ref	T17/1722
Visual Description	Made ground: Grey brown gravelly sandy clay with concrete pieces			Contract	Southall Western Access, Pump Lane, Hayes



ALBURY S.I. LTD Miltons Yard, Petworth Road, Witley, Surrey GU8 5LH

PARTICLE SIZE DISTRIBUTION TEST

BS 1377 : Part 2 : Clauses 9.2, 9.3 : 1990 Particle Size Distribution by Wet/Dry Sieving Method



BS Test Sieve Aperture Size (mm)	Percentage Passing
75	
63	
50	100
37.5	98
25	93
20	89
13	82
9.5	76
6.3	72
4.75	70
3.35	68
2	67
1.18	65
0.6	62
0.425	60
0.3	57
0.21	55
0.15	53
0.075	51
0.063	51

Particle Proportions (%)	
Cobbles	0
Gravel	33
Sand	16
Silt & Clay	51

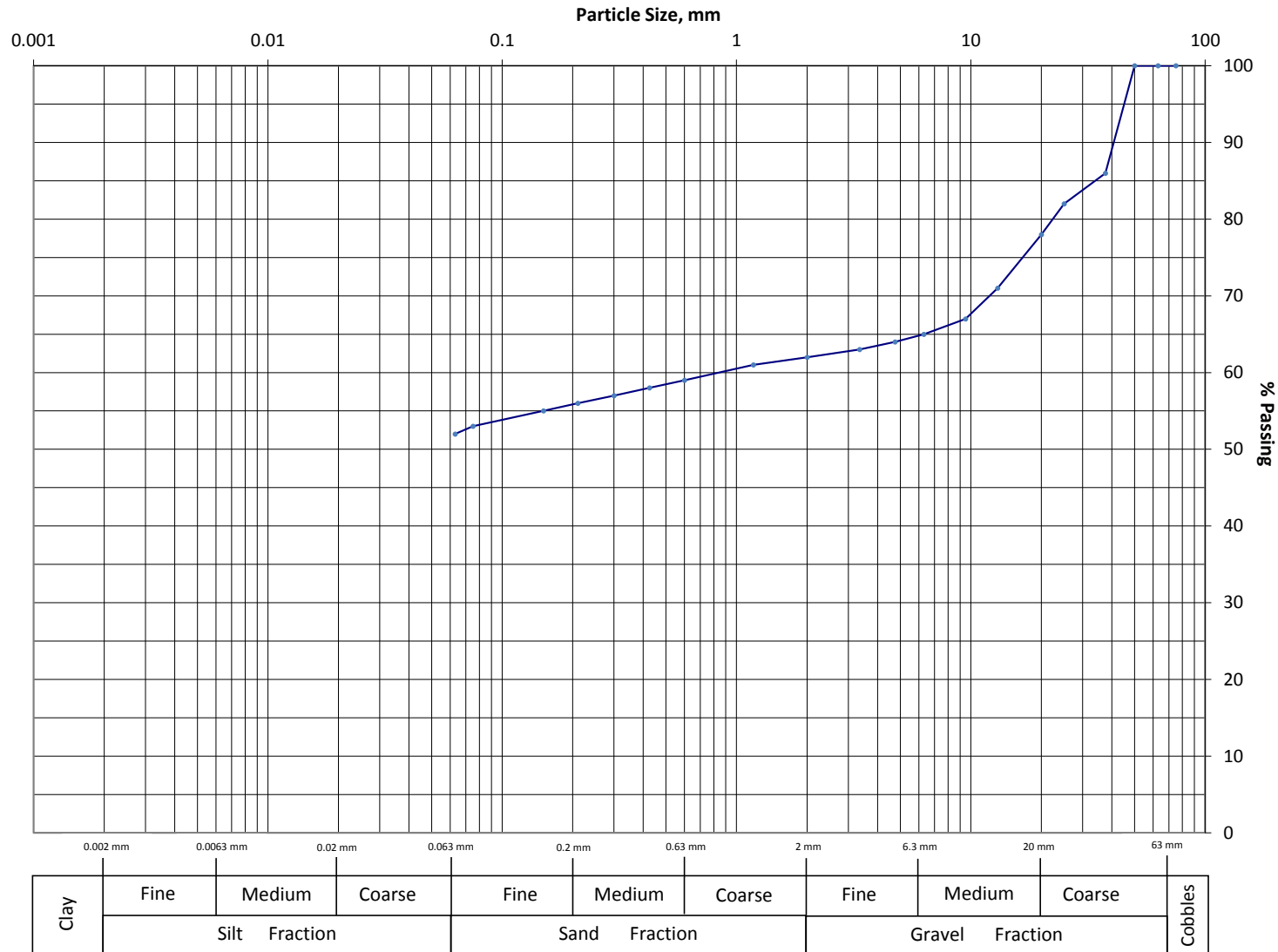
BH/TP No.	SP9	Sample	S2	Report Ref	T17/1722
Visual Description	Made ground: Brown gravelly clayey sand, pockets of grey brown clay and concrete			Contract	Southall Western Access, Pump Lane, Hayes



ALBURY S.I. LTD Miltons Yard, Petworth Road, Witley, Surrey GU8 5LH

PARTICLE SIZE DISTRIBUTION TEST

BS 1377 : Part 2 : Clauses 9.2, 9.3 : 1990 Particle Size Distribution by Wet/Dry Sieving Method



BS Test Sieve Aperture Size (mm)	Percentage Passing
75	
63	
50	100
37.5	86
25	82
20	78
13	71
9.5	67
6.3	65
4.75	64
3.35	63
2	62
1.18	61
0.6	59
0.425	58
0.3	57
0.21	56
0.15	55
0.075	53
0.063	52

Particle Proportions (%)	
Cobbles	0
Gravel	38
Sand	10
Silt & Clay	52

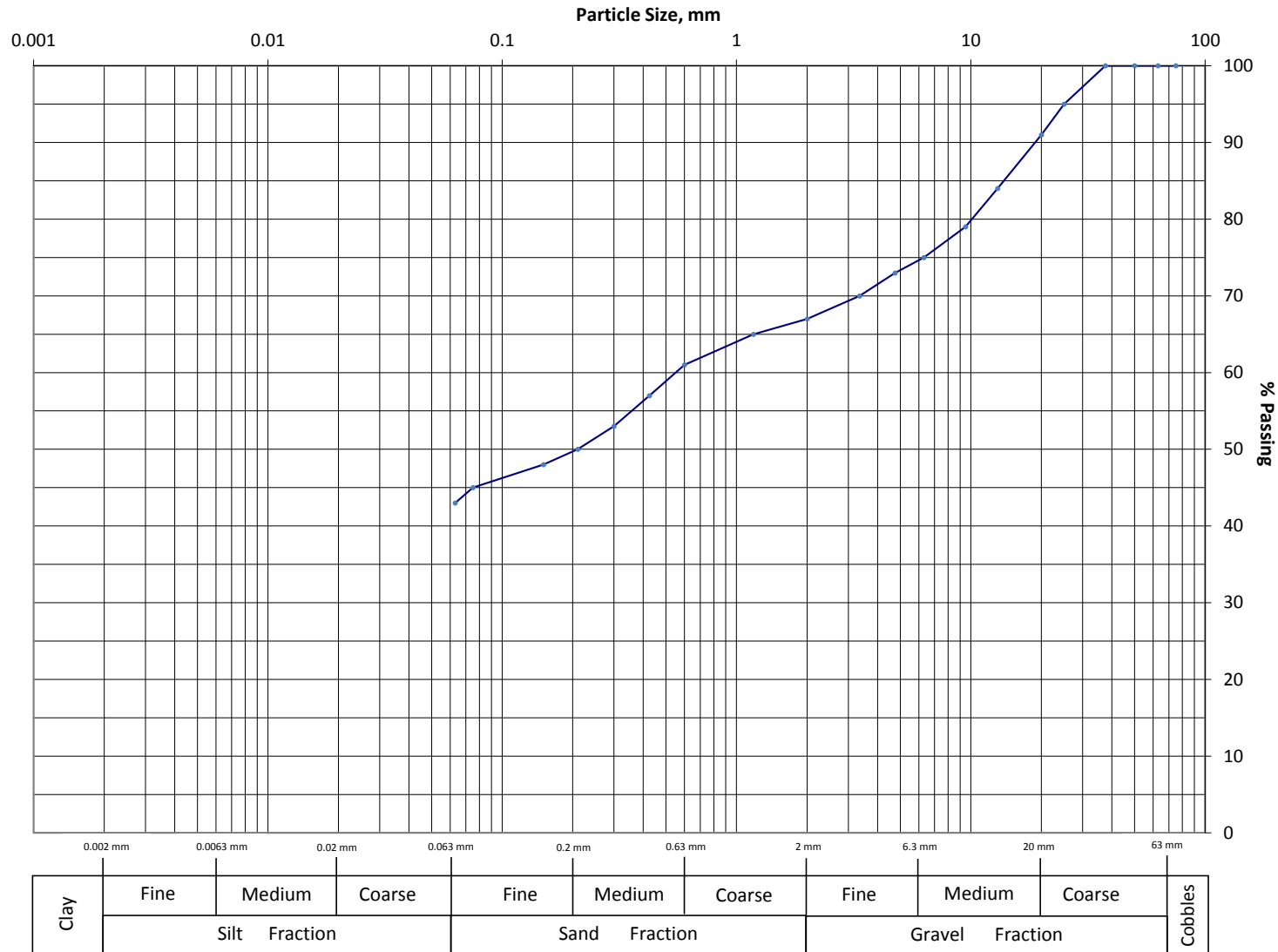
BH/TP No.	SP9	Sample	S3	Report Ref	T17/1722
Visual Description	Made ground: Brown gravelly clayey sand, pockets of grey brown clay and concrete			Contract	Southall Western Access, Pump Lane, Hayes



ALBURY S.I. LTD Miltons Yard, Petworth Road, Witley, Surrey GU8 5LH

PARTICLE SIZE DISTRIBUTION TEST

BS 1377 : Part 2 : Clauses 9.2, 9.3 : 1990 Particle Size Distribution by Wet/Dry Sieving Method



BS Test Sieve Aperture Size (mm)	Percentage Passing
75	
63	
50	
37.5	100
25	95
20	91
13	84
9.5	79
6.3	75
4.75	73
3.35	70
2	67
1.18	65
0.6	61
0.425	57
0.3	53
0.21	50
0.15	48
0.075	45
0.063	43

Particle Proportions (%)	
Cobbles	0
Gravel	33
Sand	24
Silt & Clay	43

BH/TP No.	SP9	Sample	S4	Report Ref	T17/1722
Visual Description	Made ground: Dark brown gravelly sandy clay with concrete pieces			Contract	Southall Western Access, Pump Lane, Hayes



ALBURY S.I. LTD Miltons Yard, Petworth Road, Witley, Surrey GU8 5LH

CGL Testing - Stockpile 10

**Tom Fairweather**

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Analytical Report Number : 17-61856

Project / Site name:	Southall	Samples received on:	28/09/2017
Your job number:	CG-28308	Samples instructed on:	28/09/2017
Your order number:	4586	Analysis completed by:	02/10/2017
Report Issue Number:	1	Report issued on:	02/10/2017
Samples Analysed:	2 leachate samples - 5 soil samples		

Signed: _____

Emma Winter
Assistant Reporting Manager
For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41 -711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :	soils	- 4 weeks from reporting
	leachates	- 2 weeks from reporting
	waters	- 2 weeks from reporting
	asbestos	- 6 months from reporting

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Environmental Science

Analytical Report Number: 17-61856

Project / Site name: Southall

Your Order No: 4586

Lab Sample Number				825353	825354	825355	825356	825357
Sample Reference				WYBPM Cropping	WYBPM Cropping	WYBPM Cropping	RCBBS	RCBBS
Sample Number				ES2	ES5	ES9	ES2	ES6
Depth (m)				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Date Sampled				27/09/2017	27/09/2017	27/09/2017	27/09/2017	27/09/2017
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
Stone Content	%	0.1	NONE	< 0.1	6.3	15	26	11
Moisture Content	%	N/A	NONE	14	7.5	5.5	5.6	5.6
Total mass of sample received	kg	0.001	NONE	1.3	1.1	1.1	1.2	2.0

General Inorganics

pH - Automated	pH Units	N/A	MCERTS	7.1	7.6	8.0	7.6	7.5
Total Cyanide	mg/kg	1	MCERTS	< 1	< 1	< 1	< 1	< 1
Free Cyanide (low level)	mg/kg	0.5	ISO 17025	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Total Sulphate as SO ₄	mg/kg	50	MCERTS	1600	1600	1900	1400	1000
Ammoniacal Nitrogen as N	mg/kg	0.5	MCERTS	< 0.5	< 0.5	< 0.5	9.6	4.8
Organic Matter	%	0.1	MCERTS	0.7	0.8	0.8	0.4	1.1

Total Phenols

Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
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Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Fluorene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Phenanthrene	mg/kg	0.05	MCERTS	0.14	0.20	0.21	0.14	1.2
Anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	0.38
Fluoranthene	mg/kg	0.05	MCERTS	0.23	0.46	0.46	0.25	3.4
Pyrene	mg/kg	0.05	MCERTS	0.21	0.41	0.41	0.19	3.1
Benzo(a)anthracene	mg/kg	0.05	MCERTS	< 0.05	0.23	0.23	0.12	2.0
Chrysene	mg/kg	0.05	MCERTS	< 0.05	0.19	0.21	0.12	1.6
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	< 0.05	0.22	0.23	< 0.05	2.0
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	< 0.05	0.16	0.14	< 0.05	1.3
Benzo(a)pyrene	mg/kg	0.05	MCERTS	< 0.05	0.23	0.24	< 0.05	2.0
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	< 0.05	0.12	< 0.05	< 0.05	1.2
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	0.31
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	< 0.05	0.13	< 0.05	< 0.05	1.3
Coronene	mg/kg	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05

Total PAH

Total WAC-17 PAHs	mg/kg	0.85	NONE	< 0.9	2.4	2.1	< 0.9	20
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Heavy Metals / Metalloids

Antimony (aqua regia extractable)	mg/kg	1	ISO 17025	1.2	1.2	3.2	< 1.0	3.1
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	23	25	15	1.0	21
Barium (aqua regia extractable)	mg/kg	1	MCERTS	140	83	170	59	170
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	1.1	1.2	1.1	0.61	0.82
Boron (water soluble)	mg/kg	0.2	MCERTS	2.8	1.9	3.0	2.1	2.0
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2	< 0.2	0.7
Chromium (hexavalent)	mg/kg	1.2	MCERTS	< 1.2	< 1.2	< 1.2	< 1.2	< 1.2
Chromium (III)	mg/kg	1	NONE	43	40	44	23	27
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	43	40	44	23	27
Copper (aqua regia extractable)	mg/kg	1	MCERTS	32	51	90	370	4000
Lead (aqua regia extractable)	mg/kg	1	MCERTS	42	78	80	43	260
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	0.7	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	37	38	39	15	26
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	71	72	71	31	36
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	84	97	110	130	630

Analytical Report Number: 17-61856

Project / Site name: Southall

Your Order No: 4586

Lab Sample Number				825353	825354	825355	825356	825357
Sample Reference				WYBPM Cropping	WYBPM Cropping	WYBPM Cropping	RCBBS	RCBBS
Sample Number				ES2	ES5	ES9	ES2	ES6
Depth (m)				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Date Sampled				27/09/2017	27/09/2017	27/09/2017	27/09/2017	27/09/2017
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					

Monoaromatics

Benzene	ug/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Toluene	ug/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Ethylbenzene	ug/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
p & m-xylene	ug/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
o-xylene	ug/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
MTBE (Methyl Tertiary Butyl Ether)	ug/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0

Petroleum Hydrocarbons

TPH-CWG - Aliphatic >EC5 - EC6	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aliphatic >EC6 - EC8	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aliphatic >EC8 - EC10	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aliphatic >EC10 - EC12	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic >EC12 - EC16	mg/kg	2	MCERTS	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
TPH-CWG - Aliphatic >EC16 - EC21	mg/kg	8	MCERTS	< 8.0	< 8.0	< 8.0	< 8.0	< 8.0
TPH-CWG - Aliphatic >EC21 - EC35	mg/kg	8	MCERTS	< 8.0	< 8.0	< 8.0	< 8.0	37
TPH-CWG - Aliphatic (EC5 - EC35)	mg/kg	10	MCERTS	< 10	< 10	10	10	43

TPH-CWG - Aromatic >EC5 - EC7	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aromatic >EC7 - EC8	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aromatic >EC8 - EC10	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aromatic >EC10 - EC12	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aromatic >EC12 - EC16	mg/kg	2	MCERTS	< 2.0	2.1	< 2.0	< 2.0	3.3
TPH-CWG - Aromatic >EC16 - EC21	mg/kg	10	MCERTS	< 10	< 10	< 10	< 10	18
TPH-CWG - Aromatic >EC21 - EC35	mg/kg	10	MCERTS	< 10	12	< 10	< 10	76
TPH-CWG - Aromatic (EC5 - EC35)	mg/kg	10	MCERTS	< 10	19	10	10	97

VOCs

Trichloroethene	ug/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
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Analytical Report Number: 17-61856

Project / Site name: Southall

Your Order No: 4586

Lab Sample Number				825358	825359			
Sample Reference				WYBPM Cropping	RCBBS			
Sample Number				ES2	ES2			
Depth (m)				None Supplied	None Supplied			
Date Sampled				27/09/2017	27/09/2017			
Time Taken				None Supplied	None Supplied			
Analytical Parameter (Leachate Analysis)				Units	Limit of detection	Accreditation Status		

General Inorganics

pH	pH Units	N/A	ISO 17025	7.7	7.5			
Total Cyanide (Low Level 1 µg/l)	µg/l	1	ISO 17025	< 1.0	< 1.0			
Free Cyanide (Low Level 1 µg/l)	µg/l	1	ISO 17025	< 1	< 1			
Sulphate as SO ₄	µg/l	100	ISO 17025	444000	181000			
Ammoniacal Nitrogen as N	µg/l	15	NONE	120	2500			
Dissolved Organic Carbon (DOC)	mg/l	0.1	NONE	5.72	7.20			

Total Phenols

Total Phenols (monohydric)	µg/l	1	ISO 17025	< 1.0	< 1.0			
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Speciated PAHs

Naphthalene	µg/l	0.01	NONE	< 0.01	< 0.01			
Acenaphthylene	µg/l	0.01	NONE	< 0.01	< 0.01			
Acenaphthene	µg/l	0.01	NONE	< 0.01	< 0.01			
Fluorene	µg/l	0.01	NONE	< 0.01	< 0.01			
Phenanthrene	µg/l	0.01	NONE	< 0.01	< 0.01			
Anthracene	µg/l	0.01	NONE	< 0.01	< 0.01			
Fluoranthene	µg/l	0.01	NONE	< 0.01	< 0.01			
Pyrene	µg/l	0.01	NONE	< 0.01	< 0.01			
Benzo(a)anthracene	µg/l	0.01	NONE	< 0.01	< 0.01			
Chrysene	µg/l	0.01	NONE	< 0.01	< 0.01			
Benzo(b)fluoranthene	µg/l	0.01	NONE	< 0.01	< 0.01			
Benzo(k)fluoranthene	µg/l	0.01	NONE	< 0.01	< 0.01			
Benzo(a)pyrene	µg/l	0.01	NONE	< 0.01	< 0.01			
Indeno(1,2,3-cd)pyrene	µg/l	0.01	NONE	< 0.01	< 0.01			
Dibenz(a,h)anthracene	µg/l	0.01	NONE	< 0.01	< 0.01			
Benzo(ghi)perylene	µg/l	0.01	NONE	< 0.01	< 0.01			

Total PAH

Total EPA-16 PAHs	µg/l	0.2	NONE	< 0.2	< 0.2			
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Heavy Metals / Metalloids

Antimony (dissolved)	µg/l	1.7	ISO 17025	< 1.7	< 1.7			
Arsenic (dissolved)	µg/l	1.1	ISO 17025	< 1.1	< 1.1			
Barium (dissolved)	µg/l	0.05	ISO 17025	25	32			
Beryllium (dissolved)	µg/l	0.2	ISO 17025	< 0.2	< 0.2			
Boron (dissolved)	µg/l	10	ISO 17025	96	120			
Cadmium (dissolved)	µg/l	0.08	ISO 17025	< 0.08	< 0.08			
Chromium (hexavalent)	µg/l	5	NONE	< 5.0	< 5.0			
Chromium (III)	µg/l	1	NONE	5.7	< 1.0			
Chromium (dissolved)	µg/l	0.4	ISO 17025	5.7	< 0.4			
Copper (dissolved)	µg/l	0.7	ISO 17025	20	20			
Lead (dissolved)	µg/l	1	ISO 17025	2.1	< 1.0			
Mercury (dissolved)	µg/l	0.5	ISO 17025	< 0.5	< 0.5			
Nickel (dissolved)	µg/l	0.3	ISO 17025	1.2	0.9			
Selenium (dissolved)	µg/l	4	ISO 17025	< 4.0	< 4.0			
Vanadium (dissolved)	µg/l	1.7	ISO 17025	< 1.7	< 1.7			
Zinc (dissolved)	µg/l	0.4	ISO 17025	11	9.7			
Calcium (dissolved)	mg/l	0.012	ISO 17025	110	58			



Analytical Report Number: 17-61856

Project / Site name: Southall

Your Order No: 4586

Lab Sample Number				825358	825359			
Sample Reference				WYBPM Cropping	RCBBS			
Sample Number				ES2	ES2			
Depth (m)				None Supplied	None Supplied			
Date Sampled				27/09/2017	27/09/2017			
Time Taken				None Supplied	None Supplied			
Analytical Parameter (Leachate Analysis)				Units	Limit of detection	Accreditation Status		

Petroleum Hydrocarbons

TPH-CWG - Aliphatic >C5 - C6	µg/l	1	ISO 17025	< 1.0	< 1.0			
TPH-CWG - Aliphatic >C6 - C8	µg/l	1	ISO 17025	< 1.0	< 1.0			
TPH-CWG - Aliphatic >C8 - C10	µg/l	1	ISO 17025	< 1.0	< 1.0			
TPH-CWG - Aliphatic >C10 - C12	µg/l	10	NONE	< 10	< 10			
TPH-CWG - Aliphatic >C12 - C16	µg/l	10	NONE	< 10	< 10			
TPH-CWG - Aliphatic >C16 - C21	µg/l	10	NONE	< 10	< 10			
TPH-CWG - Aliphatic >C21 - C35	µg/l	10	NONE	< 10	< 10			
TPH-CWG - Aliphatic (C5 - C35)	µg/l	10	NONE	< 10	< 10			

TPH-CWG - Aromatic >C5 - C7	µg/l	1	ISO 17025	< 1.0	< 1.0			
TPH-CWG - Aromatic >C7 - C8	µg/l	1	ISO 17025	< 1.0	< 1.0			
TPH-CWG - Aromatic >C8 - C10	µg/l	1	ISO 17025	< 1.0	< 1.0			
TPH-CWG - Aromatic >C10 - C12	µg/l	10	NONE	< 10	< 10			
TPH-CWG - Aromatic >C12 - C16	µg/l	10	NONE	< 10	< 10			
TPH-CWG - Aromatic >C16 - C21	µg/l	10	NONE	< 10	< 10			
TPH-CWG - Aromatic >C21 - C35	µg/l	10	NONE	< 10	< 10			
TPH-CWG - Aromatic (C5 - C35)	µg/l	10	NONE	< 10	< 10			

VOCs

Trichloroethene	µg/l	1	NONE	< 1.0	< 1.0			
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Analytical Report Number : 17-61856

Project / Site name: Southall

* These descriptions are only intended to act as a cross check if sample identities are questioned. The major constituent of the sample is intended to act with respect to MCERTS validation. The laboratory is accredited for sand, clay and loam (MCERTS) soil types. Data for unaccredited types of solid should be interpreted with care.

Stone content of a sample is calculated as the % weight of the stones not passing a 10 mm sieve. Results are not corrected for stone content.

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
825353	WYBPM Cropping	ES2	None Supplied	Brown clay and loam with gravel.
825354	WYBPM Cropping	ES5	None Supplied	Brown clay and loam with stones and vegetation.
825355	WYBPM Cropping	ES9	None Supplied	Brown clay and loam with stones.
825356	RCBBS	ES2	None Supplied	Brown clay and sand with stones.
825357	RCBBS	ES6	None Supplied	Brown clay with stones.

Analytical Report Number : 17-61856

Project / Site name: Southall

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Water (PrW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Ammoniacal Nitrogen as N in leachate	Determination of Ammonium/Ammonia/ Ammoniacal Nitrogen by the discrete analyser (colorimetric) salicylate/nitroprusside method.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L082-PL	W	NONE
Ammoniacal Nitrogen as N in soil	Determination of Ammonium/Ammonia/ Ammoniacal Nitrogen by the discrete analyser (colorimetric) salicylate/nitroprusside method, 10:1 water extraction.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L082-PL	W	MCERTS
Boron in leachate	Determination of boron in leachate. Sample acidified and followed by ICP-OES.	In-house method based on MEWAM	L039-PL	W	ISO 17025
Boron, water soluble, in soil	Determination of water soluble boron in soil by hot water extract followed by ICP-OES.	In-house method based on Second Site Properties version 3	L038-PL	D	MCERTS
BS EN 12457-1 (2:1) Leachate Prep	2:1 (as recieved, moisture adjusted) end over end extraction with water for 24 hours. Eluate filtered prior to analysis.	In-house method based on BSEN12457-1.	L043-PL	W	NONE
BTEX and MTBE in soil (Monoaromatics)	Determination of BTEX in soil by headspace GC-MS.	In-house method based on USEPA8260	L073B-PL	W	MCERTS
Cr (III) in soil	In-house method by calculation from total Cr and Cr VI.	In-house method by calculation	L080-PL	W	NONE
Dissolved Organic Carbon in leachate	Determination of dissolved organic carbon in leachate by the measurement on a non-dispersive infrared analyser of carbon dioxide released by acidification.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L023-PL	W	NONE
Free cyanide (Low level) in soil	Determination of free cyanide by distillation followed by colorimetry.	In-house method	L080-PL	W	ISO 17025
Free cyanide in leachate	Determination of free cyanide by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	ISO 17025
Hexavalent chromium in leachate	Determination of hexavalent chromium in leachate by acidification, addition of 1,5 diphenylcarbazide followed by colorimetry.	In-house method	L080-PL	W	NONE
Hexavalent chromium in soil (Lower Level)	Determination of hexavalent chromium in soil by extraction in water then by acidification, addition of 1,5 diphenylcarbazide followed by colorimetry.	In-house method	L080-PL	W	MCERTS
Metals by ICP-OES in leachate	Determination of metals in leachate by acidification followed by ICP-OES.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L039-PL	W	ISO 17025
Metals in soil by ICP-OES	Determination of metals in soil by aqua-regia digestion followed by ICP-OES.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L038-PL	D	MCERTS
Moisture Content	Moisture content, determined gravimetrically.	In-house method based on BS1377 Part 2, 1990, Chemical and Electrochemical Tests	L019-UK/PL	W	NONE
Monohydric phenols in leachate - LOW LEVEL 1 ug/l	Determination of phenols in leachate by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (skalar)	L080-PL	W	ISO 17025
Monohydric phenols in soil	Determination of phenols in soil by extraction with sodium hydroxide followed by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (skalar)	L080-PL	W	MCERTS

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The results included within the report are representative of the samples submitted for analysis.

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Analytical Report Number : 17-61856

Project / Site name: Southall

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Water (PrW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Organic matter (Automated) in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate.	BS1377 Part 3, 1990, Chemical and Electrochemical Tests""	L009-PL	D	MCERTS
pH at 20oC in leachate	Determination of pH in leachate by electrometric measurement.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L005-PL	W	ISO 17025
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L099-PL	D	MCERTS
Speciated EPA-16 PAHs in leachate	Determination of PAH compounds in leachate by extraction in dichloromethane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270	L102B-PL	W	NONE
Speciated WAC-17 PAHs in soil	Determination of PAH compounds in soil by extraction in dichloromethane and hexane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270	L064-PL	D	NONE
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE
Sulphate in leachates	Determination of sulphate in leachate by acidification followed by ICP-OES.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L039-PL	W	ISO 17025
Total cyanide in leachate - 1µg/l	Determination of total cyanide by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L080-PL	W	ISO 17025
Total cyanide in soil	Determination of total cyanide by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	MCERTS
Total sulphate (as SO4 in soil)	Determination of total sulphate in soil by extraction with 10% HCl followed by ICP-OES.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L038-PL	D	MCERTS
TPHCWG (Leachates)	Determination of dichloromethane extractable hydrocarbons in leachate by GC-MS.	In-house method	L070-PL	W	NONE
TPHCWG (Soil)	Determination of hexane extractable hydrocarbons in soil by GC-MS/GC-FID.	In-house method	L088/76-PL	W	MCERTS
Volatile organic compounds in leachate	Determination of volatile organic compounds in leachate by headspace GC-MS	In-house method based on USEPA8260	L073B-PL	W	NONE
Volatile organic compounds in soil	Determination of volatile organic compounds in soil by headspace GC-MS.	In-house method based on USEPA8260	L073B-PL	W	MCERTS

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.

For method numbers ending in 'PL' analysis have been carried out in our laboratory in Poland.

Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.



TEST CERTIFICATE

Determination of Liquid and Plastic Limits

i2 Analytical Ltd
7 Woodshots Meadow
Croxley Green Business Park
Watford Herts WD18 8YS



Tested in Accordance with BS1377-2: 1990: Clause 4.4 & 5: One Point Method

Client: Card Geotechnics Ltd
Client Address: 4 Godalming Business Centre
Woolsack Way
Godalming
Surrey
GU7 1XW
Contact: Chris Gordon
Site Name: Southall Western Access
Site Address: Not Given

Client Reference: CG-28308
Job Number: 17-63312
Date Sampled: 06/10/2017
Date Received: 06/10/2017
Date Tested: 19/10/2017
Sampled By: CRG

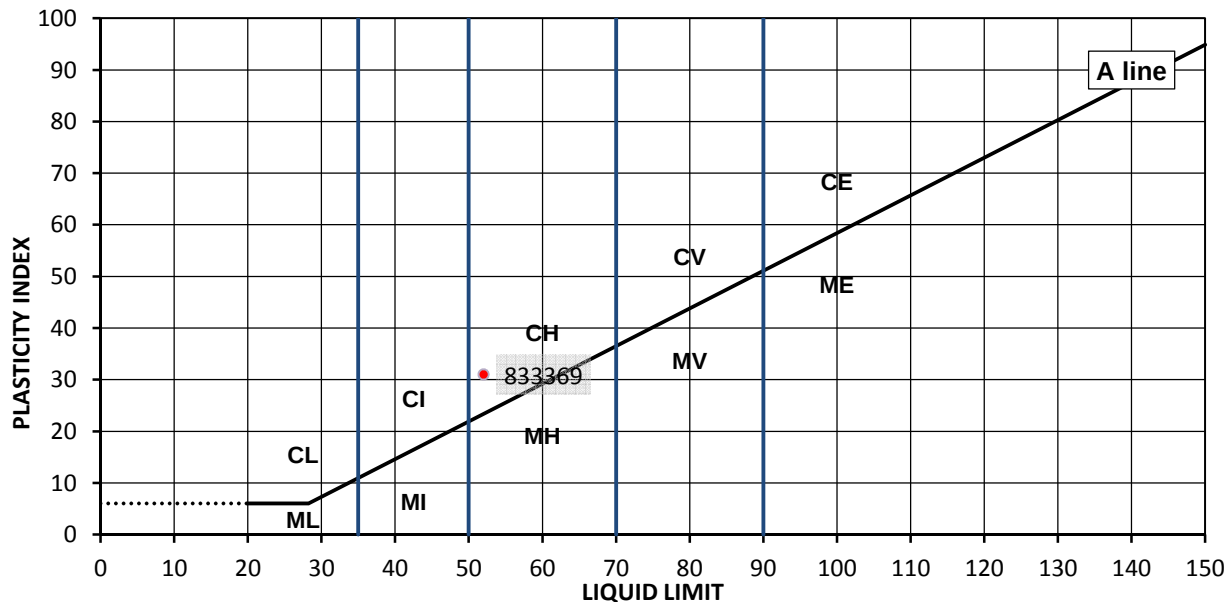
TEST RESULTS

Laboratory Reference: 833369
Sample Reference: 1 of 5

Description: Yellowish brown very sandy very clayey GRAVEL
Location: Stockpile 10
Sample Preparation: Tested after washing to remove >425um

Sample Type: B
Depth Top [m]: Not Given
Depth Base [m]: Not Given

As Received Moisture Content [%]	Liquid Limit [%]	Plastic Limit [%]	Plasticity Index [%]	% Passing 425µm BS Test Sieve
13	52	21	31	48



Legend, based on BS 5930:2015 Code of practice for site investigations

	Plasticity	Liquid Limit
C	Clay	below 35
M	Silt	35 to 50
	L Low	50 to 70
	I Medium	70 to 90
	H High	exceeding 90
	V Very high	
	E Extremely high	
Organic	O	append to classification for organic material (eg CHO)

Remarks

Approved:

Dariusz Piotrowski
PL Laboratory
Manager Geotechnical
Section

Date Reported: 30/10/2017

Signed:

Sushil Sharda
Technical Manager
(Geotechnical Division)

for and on behalf of i2 Analytical Ltd

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TEST CERTIFICATE

Determination of Liquid and Plastic Limits

i2 Analytical Ltd
7 Woodshots Meadow
Croxley Green Business Park
Watford Herts WD18 8YS



Tested in Accordance with BS1377-2: 1990: Clause 4.4 & 5: One Point Method

Client: Card Geotechnics Ltd
Client Address: 4 Godalming Business Centre
Woolsack Way
Godalming
Surrey
GU7 1XW
Contact: Chris Gordon
Site Name: Southall Western Access
Site Address: Not Given

Client Reference: CG-28308
Job Number: 17-63312
Date Sampled: 06/10/2017
Date Received: 06/10/2017
Date Tested: 19/10/2017
Sampled By: CRG

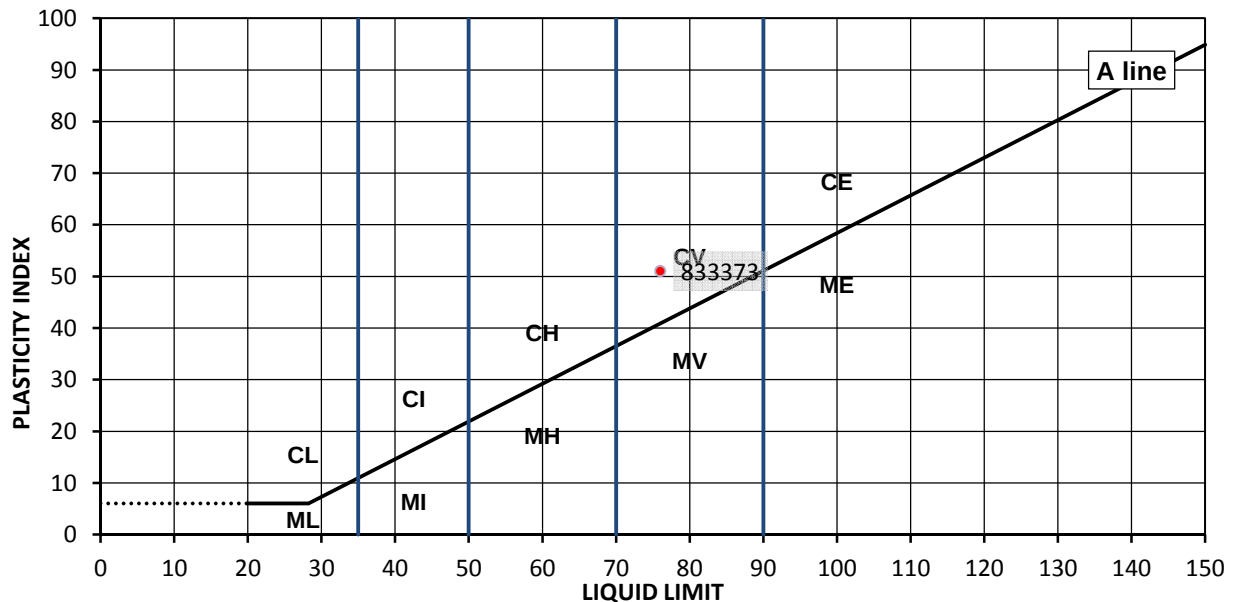
TEST RESULTS

Laboratory Reference: 833373
Sample Reference: 1 of 5

Description: Dark brown slightly sandy gravelly CLAY
Location: Stockpile 11
Sample Preparation: Tested after washing to remove >425um

Sample Type: B
Depth Top [m]: Not Given
Depth Base [m]: Not Given

As Received Moisture Content [%]	Liquid Limit [%]	Plastic Limit [%]	Plasticity Index [%]	% Passing 425µm BS Test Sieve
20	76	25	51	55



Remarks

Approved:

Dariusz Piotrowski
PL Laboratory
Manager Geotechnical
Section

Date Reported: 30/10/2017

Signed:

Sushil Sharda
Technical Manager
(Geotechnical Division)

for and on behalf of i2 Analytical Ltd

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TEST CERTIFICATE

Summary of Classification Test Results

i2 Analytical Ltd
7 Woodshots Meadow
Croxley Green Business Park
Watford Herts WD18 8YS



Client: Card Geotechnics Ltd
Client Address: 4 Godalming Business Centre
Woolsack Way
Godalming
Surrey
GU7 1XW
Contact: Chris Gordon
Site Name: Southall Western Access
Site Address: Not Given

Client Reference: CG-28308
Job Number: 17-63312
Date Sampled: 06/10/2017
Date Received: 06/10/2017
Date Tested: 19/10/2017
Sampled By: CRG

Test results

Laboratory Reference	Hole No.	Sample				Soil Description	Density		M/C	Atterberg				PD
		Reference	Top depth [m]	Base depth [m]	Type		bulk	dry		% Passing 425um	LL	PL	PI	
							Mg/m3	Mg/m3		%	%	%	%	
833369	Stockpile 10	1 of 5	Not Given	Not Given	B	Yellowish brown very sandy very clayey GRAVEL			13	48	52	21	31	
833370	Stockpile 10	2 of 5	Not Given	Not Given	B	Brown very clayey very sandy GRAVEL			12					
833371	Stockpile 10	3 of 5	Not Given	Not Given	B	Brown gravelly sandy CLAY			7.1					
833372	Stockpile 10	4 of 5	Not Given	Not Given	B	Brown gravelly sandy CLAY			8.0					
833373	Stockpile 11	1 of 5	Not Given	Not Given	B	Dark brown slightly sandy gravelly CLAY			20	55	76	25	51	
833374	Stockpile 11	2 of 5	Not Given	Not Given	B	Dark brown sandy very clayey GRAVEL			14					
833375	Stockpile 11	3 of 5	Not Given	Not Given	B	Brown gravelly sandy CLAY			15					
833376	Stockpile 11	4 of 5	Not Given	Not Given	B	Brown gravelly sandy CLAY			23					

Comments:

Approved:

Dariusz Piotrowski
PL Laboratory Manager
Geotechnical Section

Date Reported: 30/10/2017

Signed:

Sushil Sharda
Technical Manager (Geotechnical
Division)

for and on behalf of i2 Analytical Ltd

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TEST CERTIFICATE

Determination of Particle Size Distribution

i2 Analytical Ltd
7 Woodshots Meadow
Croxley Green Business Park
Watford Herts WD18 8YS



Tested in Accordance with BS1377:Part 2:1990, clauses 9.2 and 9.5

Client: Card Geotechnics Ltd
Client Address: 4 Godalming Business Centre
Woolsack Way
Godalming
Surrey
GU7 1XW

Client Reference: CG-28308
Job Number: 17-63312
Date Sampled: 06/10/2017
Date Received: 06/10/2017

Contact: Chris Gordon
Site Name: Southall Western Access
Site Address: Not Given

Date Tested: 19/10/2017
Sampled By: CRG

TEST RESULTS

Laboratory Reference: 833369

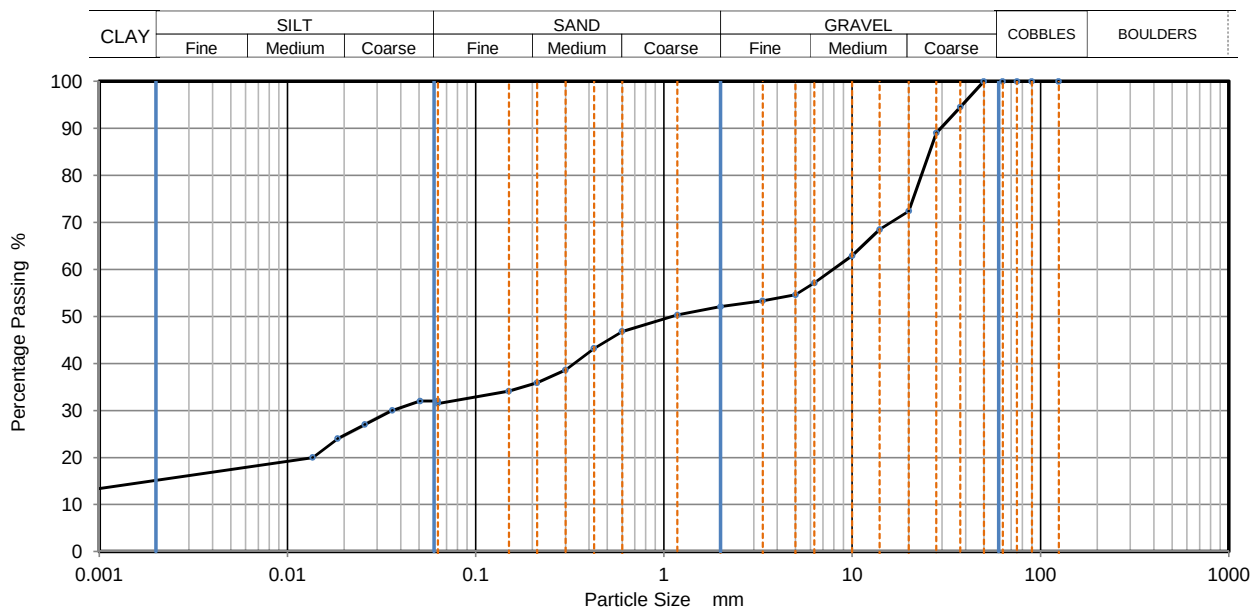
Sample Reference: 1 of 5

Sample description: Yellowish brown very sandy very clayey GRAVEL

Sample Type: B

Location: Stockpile 10
Supplier: Not Given

Depth Top [m]: Not Given
Depth Base [m]: Not Given



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0630	32
90	100	0.0507	32
75	100	0.0361	30
63	100	0.0258	27
50	100	0.0185	24
37.5	95	0.0136	20
28	89	0.0009	13
20	72		
14	69		
10	63		
6.3	57		
5	55		
3.35	53		
2	52		
1.18	50		
0.6	47	Particle density (assumed) 2.65 Mg/m3	
0.425	43		
0.3	39		
0.212	36		
0.15	34		
0.063	32		

Dry Mass of sample [g]: 6824

Sample Proportions	% dry mass
Very coarse	0.00
Gravel	47.90
Sand	20.70
Silt	16.40
Clay	15.00

Grading Analysis	
D100	mm 50
D60	mm 7.93
D30	mm 0.0366
D10	mm
Uniformity Coefficient	
Curvature Coefficient	

Remarks
Preparation and testing in accordance with BS1377 unless noted below

Approved:

Signed:

Dariusz Piotrowski
PL Laboratory Manager
Geotechnical Section

Piotrowski

Sushil Sharda
Technical Manager
(Geotechnical Division)

S. Sharda

Date Reported: 23/10/2017

for and on behalf of i2 Analytical Ltd

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TEST CERTIFICATE

Determination of Particle Size Distribution

i2 Analytical Ltd
7 Woodshots Meadow
Croxley Green Business Park
Watford Herts WD18 8YS



Tested in Accordance with BS1377:Part 2:1990, clauses 9.2 and 9.5

Client: Card Geotechnics Ltd
Client Address: 4 Godalming Business Centre
Woolsack Way
Godalming
Surrey
GU7 1XW

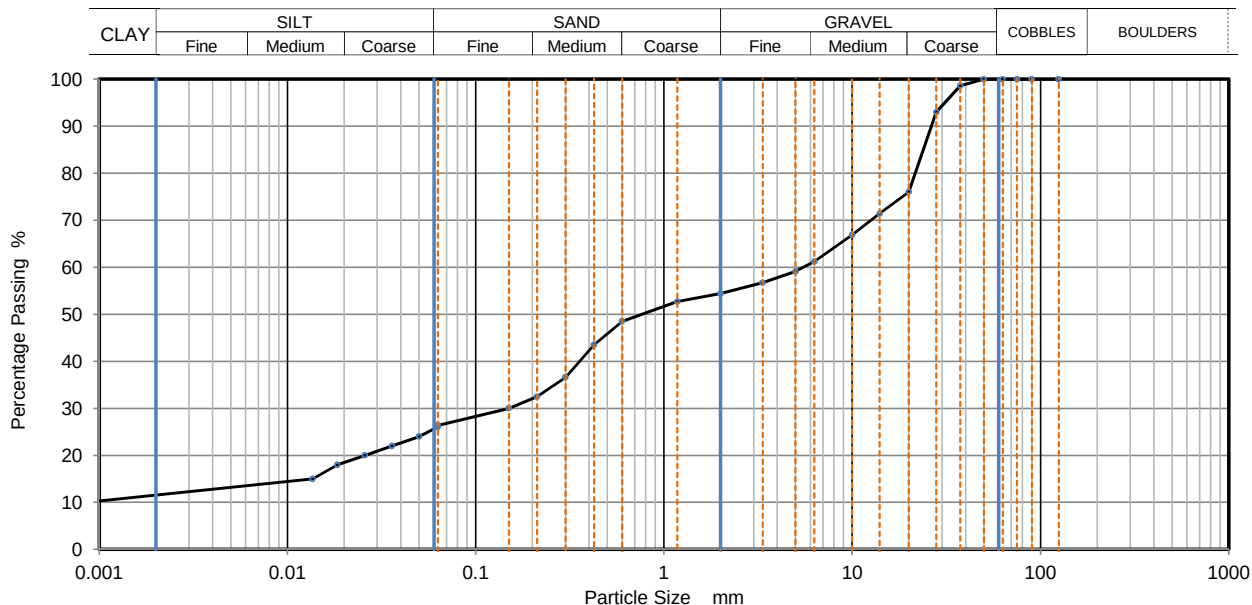
Client Reference: CG-28308
Job Number: 17-63312
Date Sampled: 06/10/2017
Date Received: 06/10/2017

Contact: Chris Gordon
Site Name: Southall Western Access
Site Address: Not Given

Date Tested: 19/10/2017
Sampled By: CRG

TEST RESULTS
Laboratory Reference: 833370
Sample description: Brown very clayey very sandy GRAVEL
Location: Stockpile 10
Supplier: Not Given

Sample Reference: 2 of 5
Sample Type: B
Depth Top [m]: Not Given
Depth Base [m]: Not Given





TEST CERTIFICATE

Determination of Particle Size Distribution

Tested in Accordance with BS1377:Part 2:1990, clauses 9.2 and 9.5

i2 Analytical Ltd
7 Woodshots Meadow
Croxley Green Business Park
Watford Herts WD18 8YS



Client: Card Geotechnics Ltd
Client Address: 4 Godalming Business Centre
Woolsack Way
Godalming
Surrey
GU7 1XW

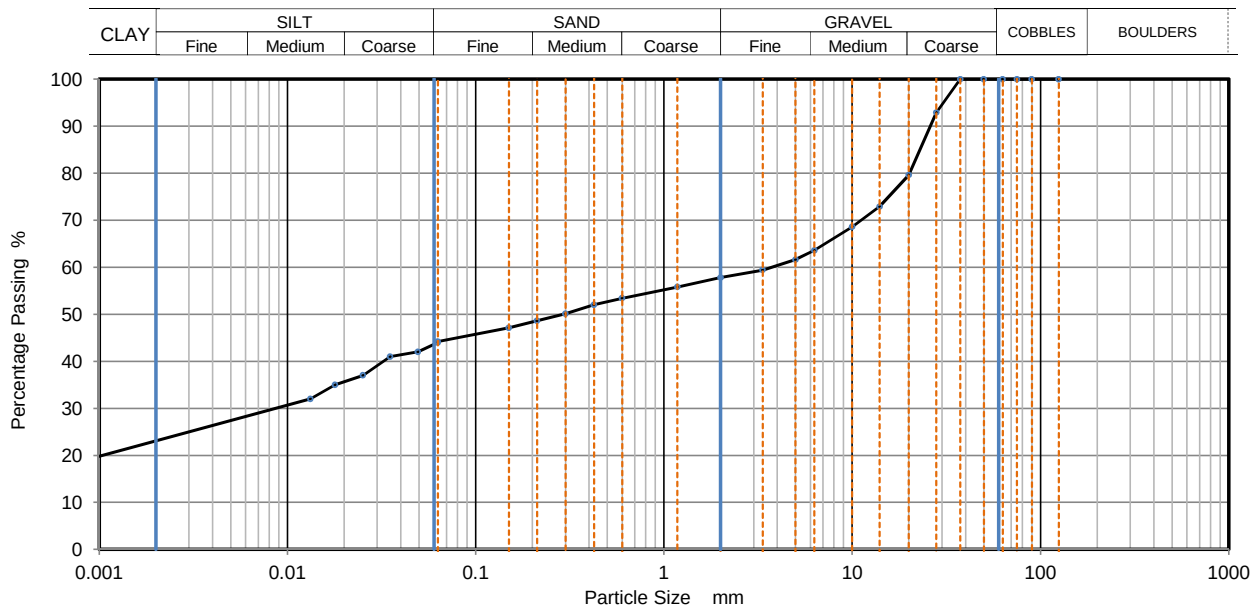
Client Reference: CG-28308
Job Number: 17-63312
Date Sampled: 06/10/2017
Date Received: 06/10/2017

Contact: Chris Gordon
Site Name: Southall Western Access
Site Address: Not Given

Date Tested: 19/10/2017
Sampled By: CRG

TEST RESULTS Laboratory Reference: 833373
Sample description: Dark brown slightly sandy gravelly CLAY
Location: Stockpile 11
Supplier: Not Given

Sample Reference: 1 of 5
Sample Type: B
Depth Top [m]: Not Given
Depth Base [m]: Not Given



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0630	44
90	100	0.0494	42
75	100	0.0351	41
63	100	0.0252	37
50	100	0.0179	35
37.5	100	0.0132	32
28	93	0.0098	19
20	80		
14	73		
10	69		
6.3	64		
5	62		
3.35	59		
2	58		
1.18	56		
0.6	53	Particle density (assumed) 2.65 Mg/m ³	
0.425	52		
0.3	50		
0.212	49		
0.15	47		
0.063	44		

Dry Mass of sample [g]: 2973

Sample Proportions	% dry mass
Very coarse	0.00
Gravel	42.20
Sand	13.60
Silt	20.90
Clay	23.30

Grading Analysis		
D100	mm	37.5
D60	mm	3.75
D30	mm	0.00883
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks
Preparation and testing in accordance with BS1377 unless noted below

Approved:

Dariusz Piotrowski
PL Laboratory Manager
Geotechnical Section

Signed:

Sushil Sharda
Technical Manager
(Geotechnical Division)

Date Reported: 23/10/2017

for and on behalf of i2 Analytical Ltd

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TEST CERTIFICATE

Determination of Particle Size Distribution

Tested in Accordance with BS1377:Part 2:1990, clauses 9.2 and 9.5

i2 Analytical Ltd
7 Woodshots Meadow
Croxley Green Business Park
Watford Herts WD18 8YS



Client: Card Geotechnics Ltd
Client Address: 4 Godalming Business Centre
Woolsack Way
Godalming
Surrey
GU7 1XW

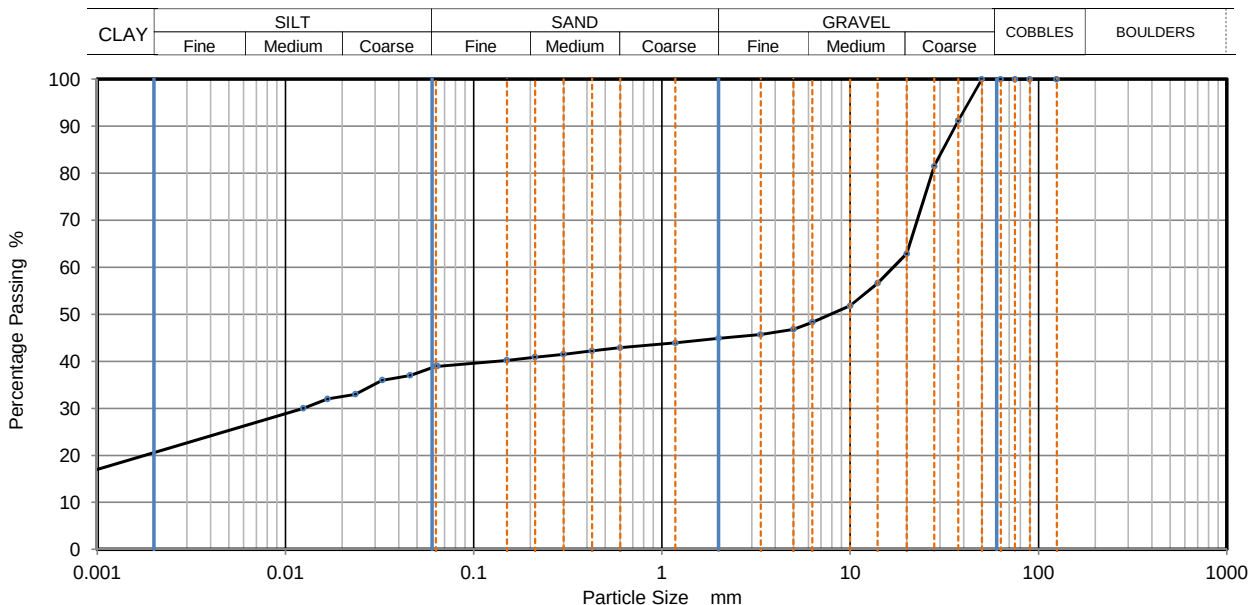
Client Reference: CG-28308
Job Number: 17-63312
Date Sampled: 06/10/2017
Date Received: 06/10/2017

Contact: Chris Gordon
Site Name: Southall Western Access
Site Address: Not Given

Date Tested: 19/10/2017
Sampled By: CRG

TEST RESULTS
Laboratory Reference: 833374
Sample description: Dark brown sandy very clayey GRAVEL
Location: Stockpile 11
Supplier: Not Given

Sample Reference: 2 of 5
Sample Type: B
Depth Top [m]: Not Given
Depth Base [m]: Not Given



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0641	39
90	100	0.0460	37
75	100	0.0328	36
63	100	0.0235	33
50	100	0.0168	32
37.5	91	0.0124	30
28	82	0.0088	16
20	63		
14	57		
10	52		
6.3	48		
5	47		
3.35	46		
2	45		
1.18	44		
0.6	43	Particle density (assumed) 2.65 Mg/m ³	
0.425	42		
0.3	42		
0.212	41		
0.15	40		
0.063	39		

Dry Mass of sample [g]: 7433

Sample Proportions		% dry mass
Very coarse		0.00
Gravel		55.10
Sand		6.00
Silt		18.10
Clay		20.80

Grading Analysis		
D100	mm	50
D60	mm	17
D30	mm	0.0118
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks
Preparation and testing in accordance with BS1377 unless noted below

Approved:

Dariusz Piotrowski
PL Laboratory Manager
Geotechnical Section

Signed:

Sushil Sharda
Technical Manager
(Geotechnical Division)

Date Reported: 23/10/2017

for and on behalf of i2 Analytical Ltd

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TEST CERTIFICATE

Dry Density / Moisture Content Relationship Light Compaction

i2 Analytical Ltd
7 Woodshots Meadow
Croxley Green Business Park
Watford Herts WD18 8YS



Tested in accordance with BS 1377-4:1990: Clause 3.3 using 2.5kg[light] Rammer

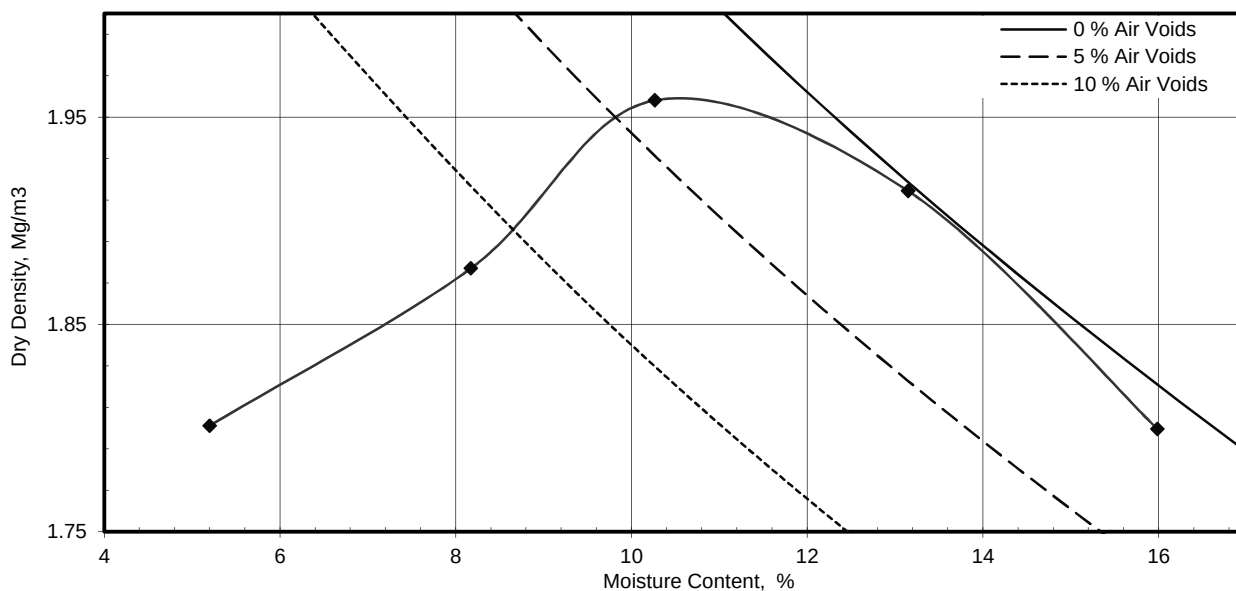
Client: Card Geotechnics Ltd
Client Address: 4 Godalming Business Centre
Woolsack Way
Godalming
Surrey
GU7 1XW
Contact: Chris Gordon
Site Name: Southall Western Access
Site Address: Not Given

Client Reference: CG-28308
Job Number: 17-63312
Date Sampled: 06/10/2017
Date Received: 06/10/2017
Date Tested: 25/10/2017
Sampled By: CRG

TEST RESULTS

Laboratory Reference: 833369
Hole No.: Stockpile 10
Sample Reference: 1 of 5
Sample Description: Yellowish brown very sandy very clayey GRAVEL

Depth Top [m]: Not Given
Depth Base [m]: Not Given
Sample Type: B



Preparation		Material used was natural
Mould Type		1 Litre
Samples Used		Composite specimens tested
Material Retained on 37.5 mm Sieve	%	0
Material Retained on 20.0 mm Sieve	%	6
Particle Density - Assumed	Mg/m³	2.57
As received Moisture Content	%	13
Maximum Dry Density	Mg/m³	1.96
Optimum Moisture Content	%	10

Remarks: Insufficient material supplied - compacted in proctor mould.

Approved:

Dariusz Piotrowski
PL Laboratory Manager
Geotechnical Section

Signed:

Sushil Sharda
Technical Manager
(Geotechnical Division)

Date Reported: 30/10/2017

for and on behalf of i2 Analytical Ltd

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4041

TEST CERTIFICATE**Dry Density / Moisture Content Relationship****Light Compaction**

i2 Analytical Ltd
7 Woodshots Meadow
Croxley Green Business Park
Watford Herts WD18 8YS



Tested in accordance with BS 1377-4:1990: Clause 3.3 using 2.5kg[light] Rammer

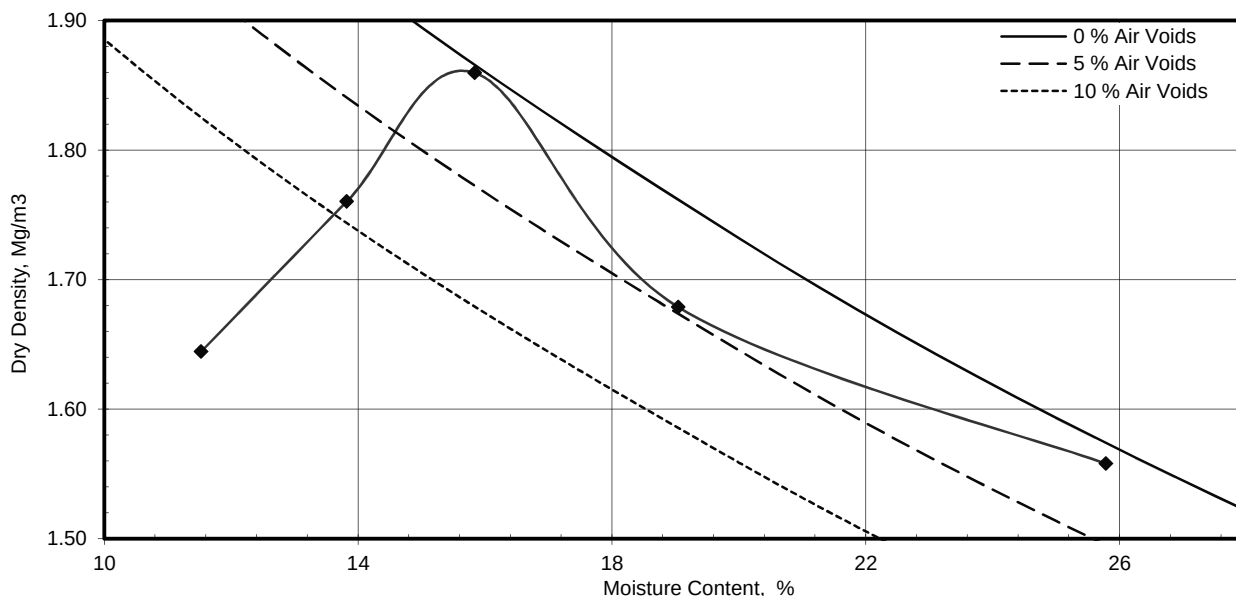
Client: Card Geotechnics Ltd
Client Address: 4 Godalming Business Centre
Woolsack Way
Godalming
Surrey
GU7 1XW
Contact: Chris Gordon
Site Name: Southall Western Access
Site Address: Not Given

Client Reference: CG-28308
Job Number: 17-63312
Date Sampled: 06/10/2017
Date Received: 06/10/2017
Date Tested: 25/10/2017
Sampled By: CRG

TEST RESULTS

Laboratory Reference: 833373
Hole No.: Stockpile 11
Sample Reference: 1 of 5
Sample Description: Dark brown slightly sandy gravelly CLAY

Depth Top [m]: Not Given
Depth Base [m]: Not Given
Sample Type: B



Preparation		Material used was natural
Mould Type		1 Litre
Samples Used		Composite specimens tested
Material Retained on 37.5 mm Sieve	%	0
Material Retained on 20.0 mm Sieve	%	2
Particle Density - Assumed	Mg/m³	2.65
As received Moisture Content	%	19
Maximum Dry Density	Mg/m³	1.86
Optimum Moisture Content	%	16

Remarks:

Approved:

Dariusz Piotrowski
PL Laboratory Manager
Geotechnical Section

Signed:

Sushil Sharda
Technical Manager
(Geotechnical Division)

Date Reported: 30/10/2017

for and on behalf of i2 Analytical Ltd

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TEST CERTIFICATE

Determination of Moisture Condition Value

Tested in Accordance with BS 1377-4: 1990: Clause 5.4

i2 Analytical Ltd
7 Woodshots Meadow
Croxley Green Business Park
Watford Herts WD18 8YS



Client: Card Geotechnics Ltd
Client Address: 4 Godalming Business Centre
Woolsack Way
Godalming
Surrey
GU7 1XW
Contact: Chris Gordon
Site Name: Southall Western Access
Site Address: Not Given

Client Reference: CG-28308
Lab Job Number: 17-63312
Date Sampled: 06/10/2017
Date Received: 06/10/2017
Date Tested: 23/10 - 24/10/2017
Sampled By: CRG

Test results

Laboratory Reference	Hole No.	Sample				Soil Description	Retained on 20mm sieve %	Moisture Content <20mm %	Moisture Condition Value	Method of Interpretation	Remarks
		Reference	Depth Top [m]	Depth Base [m]	Type						
833369	Stockpile 10	1 of 5	Not Given	Not Given	B	Yellowish brown very sandy very clayey GRAVEL	13	11	9	Steepest straight line	
833370	Stockpile 10	2 of 5	Not Given	Not Given	B	Brown very clayey very sandy GRAVEL	23	14	9.9	Steepest straight line	
833371	Stockpile 10	3 of 5	Not Given	Not Given	B	Brown gravelly sandy CLAY	34	7.1	13.1	Steepest straight line	
833372	Stockpile 10	4 of 5	Not Given	Not Given	B	Brown gravelly sandy CLAY	13	8.0	9.4	Steepest straight line	
833373	Stockpile 11	1 of 5	Not Given	Not Given	B	Dark brown slightly sandy gravelly CLAY	12	17	12.2	Steepest straight line	
833374	Stockpile 11	2 of 5	Not Given	Not Given	B	Dark brown sandy very clayey GRAVEL	36	16	11.5	Best fit line	
833375	Stockpile 11	3 of 5	Not Given	Not Given	B	Brown gravelly sandy CLAY	16	15	14.8	Steepest straight line	
833376	Stockpile 11	4 of 5	Not Given	Not Given	B	Brown gravelly sandy CLAY	9	23	12.3	Steepest straight line	

Comments:

Approved:

Dariusz Piotrowski
PL Laboratory Manager
Geotechnical Section

Date Reported: 30/10/2017

Signed:

Sushil Sharda
Technical Manager
(Geotechnical Division)

for and on behalf of i2 Analytical Ltd

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**Chris Gordon**

Card Geotechnics Ltd
4 Godalming Business Centre
Woolsack Way
Godalming
Surrey
GU7 1XW

t: 01483 310600
f: 01483 527285
e: ChrisG@cgl-uk.com

i2 Analytical Ltd.
7 Woodshots Meadow,
Croxley Green
Business Park,
Watford,
Herts,
WD18 8YS

t: 01923 225404
f: 01923 237404
e: reception@i2analytical.com

Analytical Report Number : 17-65529

Project / Site name:	Southall	Samples received on:	26/10/2017
Your job number:	CG-28308	Samples instructed on:	27/10/2017
Your order number:	4586	Analysis completed by:	06/11/2017
Report Issue Number:	1	Report issued on:	06/11/2017
Samples Analysed:	1 soil sample		


Signed: _____

Vineetha Meethale Vettil
Senior Account Manager
For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41 -711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

soils	- 4 weeks from reporting
leachates	- 2 weeks from reporting
waters	- 2 weeks from reporting
asbestos	- 6 months from reporting

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Analytical Report Number: 17-65529

Project / Site name: Southall

Your Order No: 4586

Lab Sample Number				845629				
Sample Reference				Stockpile 10				
Sample Number				B104				
Depth (m)				None Supplied				
Date Sampled				25/10/2017				
Time Taken				None Supplied				
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
Stone Content	%	0.1	NONE	< 0.1				
Moisture Content	%	N/A	NONE	20				
Total mass of sample received	kg	0.001	NONE	1.2				

General Inorganics

Free Cyanide (low level)	mg/kg	0.5	ISO 17025	< 0.5				
Ammonia as NH ₃	mg/kg	0.5	MCERTS	< 0.5				

Total Phenols

Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0				
----------------------------	-------	---	--------	-------	--	--	--	--

Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	< 0.05				
Benzo(a)pyrene	mg/kg	0.05	MCERTS	< 0.05				

Heavy Metals / Metalloids

Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2				
Chromium (hexavalent)	mg/kg	4	MCERTS	< 4.0				
Lead (aqua regia extractable)	mg/kg	1	MCERTS	16				
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3				

Monoaromatics

Benzene	µg/kg	1	MCERTS	< 1.0				
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Analytical Report Number : 17-65529

Project / Site name: Southall

* These descriptions are only intended to act as a cross check if sample identities are questioned. The major constituent of the sample is intended to act with respect to MCERTS validation. The laboratory is accredited for sand, clay and loam (MCERTS) soil types. Data for unaccredited types of solid should be interpreted with care.

Stone content of a sample is calculated as the % weight of the stones not passing a 10 mm sieve. Results are not corrected for stone content.

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
845629	Stockpile 10	B104	None Supplied	Brown clay.

Analytical Report Number : 17-65529

Project / Site name: Southall

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Water (PrW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Ammonia as NH ₃ in soil	Determination of Ammonium/Ammonia/Ammoniacal Nitrogen by the colorimetric salicylate/nitroprusside method, 10:1 water extraction.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L082-PL	W	MCERTS
BTEX in soil (Monoaromatics)	Determination of BTEX in soil by headspace GC-MS.	In-house method based on USEPA8260	L073B-PL	W	MCERTS
Free cyanide (Low level) in soil	Determination of free cyanide by distillation followed by colorimetry.	In-house method	L080-PL	W	ISO 17025
Hexavalent chromium in soil	Determination of hexavalent chromium in soil by extraction in water then by acidification, addition of 1,5 diphénylcarbazine followed by colorimetry.	In-house method	L080-PL	W	MCERTS
Metals in soil by ICP-OES	Determination of metals in soil by aqua-regia digestion followed by ICP-OES.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L038-PL	D	MCERTS
Moisture Content	Moisture content, determined gravimetrically.	In-house method based on BS1377 Part 2, 1990, Chemical and Electrochemical Tests	L019-UK/PL	W	NONE
Monohydric phenols in soil	Determination of phenols in soil by extraction with sodium hydroxide followed by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (skalar)	L080-PL	W	MCERTS
Speciated EPA-16 PAHs in soil	Determination of PAH compounds in soil by extraction in dichloromethane and hexane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270	L064-PL	D	MCERTS
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.

For method numbers ending in 'PL' analysis have been carried out in our laboratory in Poland.

Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.

CGL Testing - Stockpiles 11 & 11A

**Tom Fairweather**

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Analytical Report Number : 17-61856

Project / Site name:	Southall	Samples received on:	28/09/2017
Your job number:	CG-28308	Samples instructed on:	28/09/2017
Your order number:	4586	Analysis completed by:	02/10/2017
Report Issue Number:	1	Report issued on:	02/10/2017
Samples Analysed:	2 leachate samples - 5 soil samples		

Signed: _____

Emma Winter
Assistant Reporting Manager
For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41 -711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :	soils	- 4 weeks from reporting
	leachates	- 2 weeks from reporting
	waters	- 2 weeks from reporting
	asbestos	- 6 months from reporting

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4041



Environmental Science

Analytical Report Number: 17-61856

Project / Site name: Southall

Your Order No: 4586

Lab Sample Number				825353	825354	825355	825356	825357
Sample Reference				WYBPM Cropping	WYBPM Cropping	WYBPM Cropping	RCBBS	RCBBS
Sample Number				ES2	ES5	ES9	ES2	ES6
Depth (m)				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Date Sampled				27/09/2017	27/09/2017	27/09/2017	27/09/2017	27/09/2017
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
Stone Content	%	0.1	NONE	< 0.1	6.3	15	26	11
Moisture Content	%	N/A	NONE	14	7.5	5.5	5.6	5.6
Total mass of sample received	kg	0.001	NONE	1.3	1.1	1.1	1.2	2.0

General Inorganics

pH - Automated	pH Units	N/A	MCERTS	7.1	7.6	8.0	7.6	7.5
Total Cyanide	mg/kg	1	MCERTS	< 1	< 1	< 1	< 1	< 1
Free Cyanide (low level)	mg/kg	0.5	ISO 17025	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Total Sulphate as SO ₄	mg/kg	50	MCERTS	1600	1600	1900	1400	1000
Ammoniacal Nitrogen as N	mg/kg	0.5	MCERTS	< 0.5	< 0.5	< 0.5	9.6	4.8
Organic Matter	%	0.1	MCERTS	0.7	0.8	0.8	0.4	1.1

Total Phenols

Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
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Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Fluorene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Phenanthrene	mg/kg	0.05	MCERTS	0.14	0.20	0.21	0.14	1.2
Anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	0.38
Fluoranthene	mg/kg	0.05	MCERTS	0.23	0.46	0.46	0.25	3.4
Pyrene	mg/kg	0.05	MCERTS	0.21	0.41	0.41	0.19	3.1
Benzo(a)anthracene	mg/kg	0.05	MCERTS	< 0.05	0.23	0.23	0.12	2.0
Chrysene	mg/kg	0.05	MCERTS	< 0.05	0.19	0.21	0.12	1.6
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	< 0.05	0.22	0.23	< 0.05	2.0
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	< 0.05	0.16	0.14	< 0.05	1.3
Benzo(a)pyrene	mg/kg	0.05	MCERTS	< 0.05	0.23	0.24	< 0.05	2.0
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	< 0.05	0.12	< 0.05	< 0.05	1.2
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	0.31
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	< 0.05	0.13	< 0.05	< 0.05	1.3
Coronene	mg/kg	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05

Total PAH

Total WAC-17 PAHs	mg/kg	0.85	NONE	< 0.9	2.4	2.1	< 0.9	20
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Heavy Metals / Metalloids

Antimony (aqua regia extractable)	mg/kg	1	ISO 17025	1.2	1.2	3.2	< 1.0	3.1
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	23	25	15	1.0	21
Barium (aqua regia extractable)	mg/kg	1	MCERTS	140	83	170	59	170
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	1.1	1.2	1.1	0.61	0.82
Boron (water soluble)	mg/kg	0.2	MCERTS	2.8	1.9	3.0	2.1	2.0
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2	< 0.2	0.7
Chromium (hexavalent)	mg/kg	1.2	MCERTS	< 1.2	< 1.2	< 1.2	< 1.2	< 1.2
Chromium (III)	mg/kg	1	NONE	43	40	44	23	27
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	43	40	44	23	27
Copper (aqua regia extractable)	mg/kg	1	MCERTS	32	51	90	370	4000
Lead (aqua regia extractable)	mg/kg	1	MCERTS	42	78	80	43	260
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	0.7	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	37	38	39	15	26
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	71	72	71	31	36
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	84	97	110	130	630

Analytical Report Number: 17-61856

Project / Site name: Southall

Your Order No: 4586

Lab Sample Number				825353	825354	825355	825356	825357
Sample Reference				WYBPM Cropping	WYBPM Cropping	WYBPM Cropping	RCBBS	RCBBS
Sample Number				ES2	ES5	ES9	ES2	ES6
Depth (m)				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Date Sampled				27/09/2017	27/09/2017	27/09/2017	27/09/2017	27/09/2017
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					

Monoaromatics

Benzene	ug/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Toluene	ug/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Ethylbenzene	ug/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
p & m-xylene	ug/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
o-xylene	ug/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
MTBE (Methyl Tertiary Butyl Ether)	ug/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0

Petroleum Hydrocarbons

TPH-CWG - Aliphatic >EC5 - EC6	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aliphatic >EC6 - EC8	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aliphatic >EC8 - EC10	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aliphatic >EC10 - EC12	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic >EC12 - EC16	mg/kg	2	MCERTS	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
TPH-CWG - Aliphatic >EC16 - EC21	mg/kg	8	MCERTS	< 8.0	< 8.0	< 8.0	< 8.0	< 8.0
TPH-CWG - Aliphatic >EC21 - EC35	mg/kg	8	MCERTS	< 8.0	< 8.0	< 8.0	< 8.0	37
TPH-CWG - Aliphatic (EC5 - EC35)	mg/kg	10	MCERTS	< 10	< 10	10	10	43

TPH-CWG - Aromatic >EC5 - EC7	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aromatic >EC7 - EC8	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aromatic >EC8 - EC10	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aromatic >EC10 - EC12	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aromatic >EC12 - EC16	mg/kg	2	MCERTS	< 2.0	2.1	< 2.0	< 2.0	3.3
TPH-CWG - Aromatic >EC16 - EC21	mg/kg	10	MCERTS	< 10	< 10	< 10	< 10	18
TPH-CWG - Aromatic >EC21 - EC35	mg/kg	10	MCERTS	< 10	12	< 10	< 10	76
TPH-CWG - Aromatic (EC5 - EC35)	mg/kg	10	MCERTS	< 10	19	10	10	97

VOCs

Trichloroethene	ug/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
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Analytical Report Number: 17-61856

Project / Site name: Southall

Your Order No: 4586

Lab Sample Number				825358	825359			
Sample Reference				WYBPM Cropping	RCBBS			
Sample Number				ES2	ES2			
Depth (m)				None Supplied	None Supplied			
Date Sampled				27/09/2017	27/09/2017			
Time Taken				None Supplied	None Supplied			
Analytical Parameter (Leachate Analysis)				Units	Limit of detection	Accreditation Status		

General Inorganics

pH	pH Units	N/A	ISO 17025	7.7	7.5			
Total Cyanide (Low Level 1 µg/l)	µg/l	1	ISO 17025	< 1.0	< 1.0			
Free Cyanide (Low Level 1 µg/l)	µg/l	1	ISO 17025	< 1	< 1			
Sulphate as SO ₄	µg/l	100	ISO 17025	444000	181000			
Ammoniacal Nitrogen as N	µg/l	15	NONE	120	2500			
Dissolved Organic Carbon (DOC)	mg/l	0.1	NONE	5.72	7.20			

Total Phenols

Total Phenols (monohydric)	µg/l	1	ISO 17025	< 1.0	< 1.0			
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Speciated PAHs

Naphthalene	µg/l	0.01	NONE	< 0.01	< 0.01			
Acenaphthylene	µg/l	0.01	NONE	< 0.01	< 0.01			
Acenaphthene	µg/l	0.01	NONE	< 0.01	< 0.01			
Fluorene	µg/l	0.01	NONE	< 0.01	< 0.01			
Phenanthrene	µg/l	0.01	NONE	< 0.01	< 0.01			
Anthracene	µg/l	0.01	NONE	< 0.01	< 0.01			
Fluoranthene	µg/l	0.01	NONE	< 0.01	< 0.01			
Pyrene	µg/l	0.01	NONE	< 0.01	< 0.01			
Benzo(a)anthracene	µg/l	0.01	NONE	< 0.01	< 0.01			
Chrysene	µg/l	0.01	NONE	< 0.01	< 0.01			
Benzo(b)fluoranthene	µg/l	0.01	NONE	< 0.01	< 0.01			
Benzo(k)fluoranthene	µg/l	0.01	NONE	< 0.01	< 0.01			
Benzo(a)pyrene	µg/l	0.01	NONE	< 0.01	< 0.01			
Indeno(1,2,3-cd)pyrene	µg/l	0.01	NONE	< 0.01	< 0.01			
Dibenz(a,h)anthracene	µg/l	0.01	NONE	< 0.01	< 0.01			
Benzo(ghi)perylene	µg/l	0.01	NONE	< 0.01	< 0.01			

Total PAH

Total EPA-16 PAHs	µg/l	0.2	NONE	< 0.2	< 0.2			
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Heavy Metals / Metalloids

Antimony (dissolved)	µg/l	1.7	ISO 17025	< 1.7	< 1.7			
Arsenic (dissolved)	µg/l	1.1	ISO 17025	< 1.1	< 1.1			
Barium (dissolved)	µg/l	0.05	ISO 17025	25	32			
Beryllium (dissolved)	µg/l	0.2	ISO 17025	< 0.2	< 0.2			
Boron (dissolved)	µg/l	10	ISO 17025	96	120			
Cadmium (dissolved)	µg/l	0.08	ISO 17025	< 0.08	< 0.08			
Chromium (hexavalent)	µg/l	5	NONE	< 5.0	< 5.0			
Chromium (III)	µg/l	1	NONE	5.7	< 1.0			
Chromium (dissolved)	µg/l	0.4	ISO 17025	5.7	< 0.4			
Copper (dissolved)	µg/l	0.7	ISO 17025	20	20			
Lead (dissolved)	µg/l	1	ISO 17025	2.1	< 1.0			
Mercury (dissolved)	µg/l	0.5	ISO 17025	< 0.5	< 0.5			
Nickel (dissolved)	µg/l	0.3	ISO 17025	1.2	0.9			
Selenium (dissolved)	µg/l	4	ISO 17025	< 4.0	< 4.0			
Vanadium (dissolved)	µg/l	1.7	ISO 17025	< 1.7	< 1.7			
Zinc (dissolved)	µg/l	0.4	ISO 17025	11	9.7			
Calcium (dissolved)	mg/l	0.012	ISO 17025	110	58			



Analytical Report Number: 17-61856

Project / Site name: Southall

Your Order No: 4586

Lab Sample Number				825358	825359			
Sample Reference				WYBPM Cropping	RCBBS			
Sample Number				ES2	ES2			
Depth (m)				None Supplied	None Supplied			
Date Sampled				27/09/2017	27/09/2017			
Time Taken				None Supplied	None Supplied			
Analytical Parameter (Leachate Analysis)	Units	Limit of detection	Accreditation Status					

Petroleum Hydrocarbons

TPH-CWG - Aliphatic >C5 - C6	µg/l	1	ISO 17025	< 1.0	< 1.0			
TPH-CWG - Aliphatic >C6 - C8	µg/l	1	ISO 17025	< 1.0	< 1.0			
TPH-CWG - Aliphatic >C8 - C10	µg/l	1	ISO 17025	< 1.0	< 1.0			
TPH-CWG - Aliphatic >C10 - C12	µg/l	10	NONE	< 10	< 10			
TPH-CWG - Aliphatic >C12 - C16	µg/l	10	NONE	< 10	< 10			
TPH-CWG - Aliphatic >C16 - C21	µg/l	10	NONE	< 10	< 10			
TPH-CWG - Aliphatic >C21 - C35	µg/l	10	NONE	< 10	< 10			
TPH-CWG - Aliphatic (C5 - C35)	µg/l	10	NONE	< 10	< 10			

TPH-CWG - Aromatic >C5 - C7	µg/l	1	ISO 17025	< 1.0	< 1.0			
TPH-CWG - Aromatic >C7 - C8	µg/l	1	ISO 17025	< 1.0	< 1.0			
TPH-CWG - Aromatic >C8 - C10	µg/l	1	ISO 17025	< 1.0	< 1.0			
TPH-CWG - Aromatic >C10 - C12	µg/l	10	NONE	< 10	< 10			
TPH-CWG - Aromatic >C12 - C16	µg/l	10	NONE	< 10	< 10			
TPH-CWG - Aromatic >C16 - C21	µg/l	10	NONE	< 10	< 10			
TPH-CWG - Aromatic >C21 - C35	µg/l	10	NONE	< 10	< 10			
TPH-CWG - Aromatic (C5 - C35)	µg/l	10	NONE	< 10	< 10			

VOCs

Trichloroethene	µg/l	1	NONE	< 1.0	< 1.0			
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Analytical Report Number : 17-61856

Project / Site name: Southall

* These descriptions are only intended to act as a cross check if sample identities are questioned. The major constituent of the sample is intended to act with respect to MCERTS validation. The laboratory is accredited for sand, clay and loam (MCERTS) soil types. Data for unaccredited types of solid should be interpreted with care.

Stone content of a sample is calculated as the % weight of the stones not passing a 10 mm sieve. Results are not corrected for stone content.

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
825353	WYBPM Cropping	ES2	None Supplied	Brown clay and loam with gravel.
825354	WYBPM Cropping	ES5	None Supplied	Brown clay and loam with stones and vegetation.
825355	WYBPM Cropping	ES9	None Supplied	Brown clay and loam with stones.
825356	RCBBS	ES2	None Supplied	Brown clay and sand with stones.
825357	RCBBS	ES6	None Supplied	Brown clay with stones.

Analytical Report Number : 17-61856

Project / Site name: Southall

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Water (PrW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Ammoniacal Nitrogen as N in leachate	Determination of Ammonium/Ammonia/ Ammoniacal Nitrogen by the discrete analyser (colorimetric) salicylate/nitroprusside method.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L082-PL	W	NONE
Ammoniacal Nitrogen as N in soil	Determination of Ammonium/Ammonia/ Ammoniacal Nitrogen by the discrete analyser (colorimetric) salicylate/nitroprusside method, 10:1 water extraction.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L082-PL	W	MCERTS
Boron in leachate	Determination of boron in leachate. Sample acidified and followed by ICP-OES.	In-house method based on MEWAM	L039-PL	W	ISO 17025
Boron, water soluble, in soil	Determination of water soluble boron in soil by hot water extract followed by ICP-OES.	In-house method based on Second Site Properties version 3	L038-PL	D	MCERTS
BS EN 12457-1 (2:1) Leachate Prep	2:1 (as recieved, moisture adjusted) end over end extraction with water for 24 hours. Eluate filtered prior to analysis.	In-house method based on BSEN12457-1.	L043-PL	W	NONE
BTEX and MTBE in soil (Monoaromatics)	Determination of BTEX in soil by headspace GC-MS.	In-house method based on USEPA8260	L073B-PL	W	MCERTS
Cr (III) in soil	In-house method by calculation from total Cr and Cr VI.	In-house method by calculation	L080-PL	W	NONE
Dissolved Organic Carbon in leachate	Determination of dissolved organic carbon in leachate by the measurement on a non-dispersive infrared analyser of carbon dioxide released by acidification.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L023-PL	W	NONE
Free cyanide (Low level) in soil	Determination of free cyanide by distillation followed by colorimetry.	In-house method	L080-PL	W	ISO 17025
Free cyanide in leachate	Determination of free cyanide by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	ISO 17025
Hexavalent chromium in leachate	Determination of hexavalent chromium in leachate by acidification, addition of 1,5 diphenylcarbazide followed by colorimetry.	In-house method	L080-PL	W	NONE
Hexavalent chromium in soil (Lower Level)	Determination of hexavalent chromium in soil by extraction in water then by acidification, addition of 1,5 diphenylcarbazide followed by colorimetry.	In-house method	L080-PL	W	MCERTS
Metals by ICP-OES in leachate	Determination of metals in leachate by acidification followed by ICP-OES.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L039-PL	W	ISO 17025
Metals in soil by ICP-OES	Determination of metals in soil by aqua-regia digestion followed by ICP-OES.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L038-PL	D	MCERTS
Moisture Content	Moisture content, determined gravimetrically.	In-house method based on BS1377 Part 2, 1990, Chemical and Electrochemical Tests	L019-UK/PL	W	NONE
Monohydric phenols in leachate - LOW LEVEL 1 ug/l	Determination of phenols in leachate by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (skalar)	L080-PL	W	ISO 17025
Monohydric phenols in soil	Determination of phenols in soil by extraction with sodium hydroxide followed by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (skalar)	L080-PL	W	MCERTS

Iss No 17-61856-1 Southall CG-28308

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The results included within the report are representative of the samples submitted for analysis.

Page 7 of 8

Analytical Report Number : 17-61856

Project / Site name: Southall

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Water (PrW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Organic matter (Automated) in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate.	BS1377 Part 3, 1990, Chemical and Electrochemical Tests""	L009-PL	D	MCERTS
pH at 20oC in leachate	Determination of pH in leachate by electrometric measurement.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L005-PL	W	ISO 17025
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L099-PL	D	MCERTS
Speciated EPA-16 PAHs in leachate	Determination of PAH compounds in leachate by extraction in dichloromethane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270	L102B-PL	W	NONE
Speciated WAC-17 PAHs in soil	Determination of PAH compounds in soil by extraction in dichloromethane and hexane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270	L064-PL	D	NONE
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE
Sulphate in leachates	Determination of sulphate in leachate by acidification followed by ICP-OES.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L039-PL	W	ISO 17025
Total cyanide in leachate - 1µg/l	Determination of total cyanide by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L080-PL	W	ISO 17025
Total cyanide in soil	Determination of total cyanide by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	MCERTS
Total sulphate (as SO4 in soil)	Determination of total sulphate in soil by extraction with 10% HCl followed by ICP-OES.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L038-PL	D	MCERTS
TPHCWG (Leachates)	Determination of dichloromethane extractable hydrocarbons in leachate by GC-MS.	In-house method	L070-PL	W	NONE
TPHCWG (Soil)	Determination of hexane extractable hydrocarbons in soil by GC-MS/GC-FID.	In-house method	L088/76-PL	W	MCERTS
Volatile organic compounds in leachate	Determination of volatile organic compounds in leachate by headspace GC-MS	In-house method based on USEPA8260	L073B-PL	W	NONE
Volatile organic compounds in soil	Determination of volatile organic compounds in soil by headspace GC-MS.	In-house method based on USEPA8260	L073B-PL	W	MCERTS

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.

For method numbers ending in 'PL' analysis have been carried out in our laboratory in Poland.

Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.

CGL Testing - Stockpile 12

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Analytical Report Number : 17-63010

Project / Site name:	Southall Western Access	Samples received on:	06/10/2017
Your job number:	CG-28308	Samples instructed on:	09/10/2017
Your order number:	4586	Analysis completed by:	11/10/2017
Report Issue Number:	1	Report issued on:	11/10/2017
Samples Analysed:	4 soil samples		


Signed: _____

Vineetha Meethale Vettil
Senior Account Manager
For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41 -711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

soils	- 4 weeks from reporting
leachates	- 2 weeks from reporting
waters	- 2 weeks from reporting
asbestos	- 6 months from reporting

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Analytical Report Number: 17-63010

Project / Site name: Southall Western Access

Your Order No: 4586

Lab Sample Number				831644	831645	831646	831647
Sample Reference				WGUCPA1	WGUCPA2	WGUCPA3	WGUCPA4
Sample Number				SP12	SP12	SP12	SP12
Depth (m)				None Supplied	None Supplied	None Supplied	None Supplied
Date Sampled				06/10/2017	06/10/2017	06/10/2017	06/10/2017
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status				
Stone Content	%	0.1	NONE	< 0.1	< 0.1	19	< 0.1
Moisture Content	%	N/A	NONE	26	30	16	19
Total mass of sample received	kg	0.001	NONE	1.8	1.8	1.8	2.0

General Inorganics

pH - Automated	pH Units	N/A	MCERTS	7.8	6.9	9.2	9.7
Total Cyanide	mg/kg	1	MCERTS	26	13	3	3
Free Cyanide (low level)	mg/kg	0.5	ISO 17025	< 0.5	< 0.5	< 0.5	< 0.5
Total Sulphate as SO ₄	mg/kg	50	MCERTS	1400	1400	4300	5500
Ammoniacal Nitrogen as N	mg/kg	0.5	MCERTS	22	30	2.0	5.6
Ammonia as NH ₃	mg/kg	0.5	MCERTS	27	36	2.4	6.9
Organic Matter	%	0.1	MCERTS	8.1	9.7	3.5	4.4

Total Phenols

Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0
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Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	1.7	1.7	0.52	0.47
Acenaphthylene	mg/kg	0.05	MCERTS	2.0	2.6	0.65	0.59
Acenaphthene	mg/kg	0.05	MCERTS	1.2	1.3	0.39	0.40
Fluorene	mg/kg	0.05	MCERTS	1.5	1.6	0.42	0.45
Phenanthrene	mg/kg	0.05	MCERTS	13	14	3.4	3.6
Anthracene	mg/kg	0.05	MCERTS	3.1	3.6	0.93	1.0
Fluoranthene	mg/kg	0.05	MCERTS	28	33	8.6	8.5
Pyrene	mg/kg	0.05	MCERTS	25	29	7.5	7.5
Benzo(a)anthracene	mg/kg	0.05	MCERTS	17	20	5.2	6.0
Chrysene	mg/kg	0.05	MCERTS	15	17	4.5	4.2
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	23	29	8.1	7.5
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	9.0	9.5	2.4	3.1
Benzo(a)pyrene	mg/kg	0.05	MCERTS	19	22	6.0	5.7
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	15	18	5.1	5.0
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	2.5	3.0	0.91	0.85
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	13	15	4.3	4.4
Coronene	mg/kg	0.05	NONE	13	14	4.3	4.0

Total PAH

Total WAC-17 PAHs	mg/kg	0.85	NONE	200	230	63	63
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Heavy Metals / Metalloids

Antimony (aqua regia extractable)	mg/kg	1	ISO 17025	11	13	11	13
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	39	46	37	36
Barium (aqua regia extractable)	mg/kg	1	MCERTS	430	510	310	900
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	1.7	2.0	1.2	1.3
Boron (water soluble)	mg/kg	0.2	MCERTS	11	12	2.1	5.1
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	41	48	9.7	8.6
Chromium (hexavalent)	mg/kg	1.2	MCERTS	< 1.2	< 1.2	< 1.2	< 1.2
Chromium (III)	mg/kg	1	NONE	230	260	82	93
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	230	260	83	93
Copper (aqua regia extractable)	mg/kg	1	MCERTS	710	800	310	440
Lead (aqua regia extractable)	mg/kg	1	MCERTS	530	600	350	450
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	2.1	2.1	0.9	1.0
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	93	110	55	68
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	65	74	52	50
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	910	1200	660	740

Analytical Report Number: 17-63010

Project / Site name: Southall Western Access

Your Order No: 4586

Lab Sample Number	831644	831645	831646	831647	
Sample Reference	WGUCPA1	WGUCPA2	WGUCPA3	WGUCPA4	
Sample Number	SP12	SP12	SP12	SP12	
Depth (m)	None Supplied	None Supplied	None Supplied	None Supplied	
Date Sampled	06/10/2017	06/10/2017	06/10/2017	06/10/2017	
Time Taken	None Supplied	None Supplied	None Supplied	None Supplied	
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status		

Monoaromatics

Benzene	ug/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	
Toluene	ug/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	
Ethylbenzene	ug/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	
p & m-xylene	ug/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	
o-xylene	ug/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	
MTBE (Methyl Tertiary Butyl Ether)	ug/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	

Petroleum Hydrocarbons

TPH-CWG - Aliphatic >EC5 - EC6	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001	
TPH-CWG - Aliphatic >EC6 - EC8	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001	
TPH-CWG - Aliphatic >EC8 - EC10	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001	
TPH-CWG - Aliphatic >EC10 - EC12	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	
TPH-CWG - Aliphatic >EC12 - EC16	mg/kg	2	MCERTS	6.0	14	5.4	12	
TPH-CWG - Aliphatic >EC16 - EC21	mg/kg	8	MCERTS	62	110	43	56	
TPH-CWG - Aliphatic >EC21 - EC35	mg/kg	8	MCERTS	410	750	240	290	
TPH-CWG - Aliphatic (EC5 - EC35)	mg/kg	10	MCERTS	480	880	280	360	

TPH-CWG - Aromatic >EC5 - EC7	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001	
TPH-CWG - Aromatic >EC7 - EC8	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001	
TPH-CWG - Aromatic >EC8 - EC10	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001	
TPH-CWG - Aromatic >EC10 - EC12	mg/kg	1	MCERTS	2.8	1.9	1.8	2.0	
TPH-CWG - Aromatic >EC12 - EC16	mg/kg	2	MCERTS	20	23	15	18	
TPH-CWG - Aromatic >EC16 - EC21	mg/kg	10	MCERTS	170	210	80	76	
TPH-CWG - Aromatic >EC21 - EC35	mg/kg	10	MCERTS	830	890	390	440	
TPH-CWG - Aromatic (EC5 - EC35)	mg/kg	10	MCERTS	1000	1100	480	540	



Analytical Report Number : 17-63010

Project / Site name: Southall Western Access

* These descriptions are only intended to act as a cross check if sample identities are questioned. The major constituent of the sample is intended to act with respect to MCERTS validation. The laboratory is accredited for sand, clay and loam (MCERTS) soil types. Data for unaccredited types of solid should be interpreted with care.

Stone content of a sample is calculated as the % weight of the stones not passing a 10 mm sieve. Results are not corrected for stone content.

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
831644	WGUCPA1	SP12	None Supplied	Brown clay and loam.
831645	WGUCPA2	SP12	None Supplied	Brown clay and loam.
831646	WGUCPA3	SP12	None Supplied	Brown clay and loam with stones and brick.
831647	WGUCPA4	SP12	None Supplied	Brown clay and loam with gravel and vegetation.

Analytical Report Number : 17-63010

Project / Site name: Southall Western Access

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Water (PrW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Ammonia as NH ₃ in soil	Determination of Ammonium/Ammonia/Ammoniacal Nitrogen by the colorimetric salicylate/nitroprusside method, 10:1 water extraction.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L082-PL	W	MCERTS
Ammoniacal Nitrogen as N in soil	Determination of Ammonium/Ammonia/Ammoniacal Nitrogen by the discrete analyser (colorimetric) salicylate/nitroprusside method, 10:1 water extraction.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L082-PL	W	MCERTS
Boron, water soluble, in soil	Determination of water soluble boron in soil by hot water extract followed by ICP-OES.	In-house method based on Second Site Properties version 3	L038-PL	D	MCERTS
BTEX and MTBE in soil (Monoaromatics)	Determination of BTEX in soil by headspace GC-MS.	In-house method based on USEPA8260	L073B-PL	W	MCERTS
Cr (III) in soil	In-house method by calculation from total Cr and Cr VI.	In-house method by calculation	L080-PL	W	NONE
Free cyanide (Low level) in soil	Determination of free cyanide by distillation followed by colorimetry.	In-house method	L080-PL	W	ISO 17025
Hexavalent chromium in soil (Lower Level)	Determination of hexavalent chromium in soil by extraction in water then by acidification, addition of 1,5 diphenylcarbazide followed by colorimetry.	In-house method	L080-PL	W	MCERTS
Metals in soil by ICP-OES	Determination of metals in soil by aqua-regia digestion followed by ICP-OES.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L038-PL	D	MCERTS
Moisture Content	Moisture content, determined gravimetrically.	In-house method based on BS1377 Part 2, 1990, Chemical and Electrochemical Tests	L019-UK/PL	W	NONE
Monohydric phenols in soil	Determination of phenols in soil by extraction with sodium hydroxide followed by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (skalar)	L080-PL	W	MCERTS
Organic matter (Automated) in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate.	BS1377 Part 3, 1990, Chemical and Electrochemical Tests ^{***}	L009-PL	D	MCERTS
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L099-PL	D	MCERTS
Speciated WAC-17 PAHs in soil	Determination of PAH compounds in soil by extraction in dichloromethane and hexane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270	L064-PL	D	NONE
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE
Total cyanide in soil	Determination of total cyanide by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	MCERTS
Total sulphate (as SO ₄ in soil)	Determination of total sulphate in soil by extraction with 10% HCl followed by ICP-OES.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L038-PL	D	MCERTS
TPHCWG (Soil)	Determination of hexane extractable hydrocarbons in soil by GC-MS/GC-FID.	In-house method	L088/76-PL	W	MCERTS

Iss No 17-63010-1 Southall Western Access CG-28308

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The results included within the report are representative of the samples submitted for analysis.

Page 5 of 6



Analytical Report Number : 17-63010

Project / Site name: Southall Western Access

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Water (PrW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
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For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.

For method numbers ending in 'PL' analysis have been carried out in our laboratory in Poland.

Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.

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Analytical Report Number : 17-63012

Project / Site name:	Southall Western Access	Samples received on:	06/10/2017
Your job number:	CG-28308	Samples instructed on:	09/10/2017
Your order number:	4586	Analysis completed by:	13/10/2017
Report Issue Number:	1	Report issued on:	13/10/2017
Samples Analysed:	1 WAC 10:1 Sample		

Signed: _____

Vineetha Meethale Vettil
Senior Account Manager
For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41 -711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

soils	- 4 weeks from reporting
leachates	- 2 weeks from reporting
waters	- 2 weeks from reporting
asbestos	- 6 months from reporting

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Waste Acceptance Criteria Analytical Results							
Report No:	17-63012						
					Client: CARDGEO		
Location	Southall Western Access						
Lab Reference (Sample Number)	831692 / 831693				Landfill Waste Acceptance Criteria		
Sampling Date	06/10/2017				Inert Waste Landfill	Stable Non-reactive HAZARDOUS waste in non-hazardous Landfill	Hazardous Waste Landfill
Sample ID	WGUCPA1						
Depth (m)							
Solid Waste Analysis							
TOC (%)**	5.7				3%	5%	6%
Loss on Ignition (%) **	16.6				--	--	10%
BTEX (µg/kg) **	< 10				6000	--	--
Sum of PCBs (mg/kg) **	< 0.007				1	--	--
Mineral Oil (mg/kg)	1700				500	--	--
Total PAH (WAC-17) (mg/kg)	180				100	--	--
pH (units)**	7.5				--	>6	--
Acid Neutralisation Capacity (mol / kg)	6.3				--	To be evaluated	To be evaluated
Eluate Analysis	10:1			10:01	Limit values for compliance leaching test		
	(BS EN 12457 - 2 preparation utilising end over end leaching procedure)	mg/l		mg/kg	using BS EN 12457-2 at L/S 10 l/kg (mg/kg)		
Arsenic *	0.0166			0.105	0.5	2	25
Barium *	0.107			0.678	20	100	300
Cadmium *	0.0010			0.0064	0.04	1	5
Chromium *	0.0061			0.039	0.5	10	70
Copper *	0.022			0.14	2	50	100
Mercury *	< 0.0005			< 0.0050	0.01	0.2	2
Molybdenum *	0.0531			0.336	0.5	10	30
Nickel *	0.013			0.083	0.4	10	40
Lead *	0.015			0.098	0.5	10	50
Antimony *	0.034			0.21	0.06	0.7	5
Selenium *	< 0.0040			< 0.040	0.1	0.5	7
Zinc *	0.042			0.26	4	50	200
Chloride *	12			76	800	4000	25000
Fluoride	0.66			4.2	10	150	500
Sulphate *	30			190	1000	20000	50000
TDS	190			1200	4000	60000	100000
Phenol Index (Monohydric Phenols) *	< 0.010			< 0.10	1	-	-
DOC	30.2			191	500	800	1000
Leach Test Information							
Stone Content (%)	< 0.1						
Sample Mass (kg)	1.8						
Dry Matter (%)	74						
Moisture (%)	26						
Results are expressed on a dry weight basis, after correction for moisture content where applicable.							
Stated limits are for guidance only and i2 cannot be held responsible for any discrepancies with current legislation							
** = UKAS accredited (liquid eluate analysis only)							
** = MCERTS accredited							

Landfill WAC analysis (specifically leaching test results) must not be used for hazardous waste classification purposes as defined by the Waste (England and Wales) Regulations 2011 (as amended) and EA Guidance WM3.
This analysis is only applicable for landfill acceptance criteria (The Environmental Permitting (England and Wales) Regulations) and does not give any indication as to whether a waste may be hazardous or non-hazardous.



Analytical Report Number : 17-63012

Project / Site name: Southall Western Access

* These descriptions are only intended to act as a cross check if sample identities are questioned. The major constituent of the sample is intended to act with respect to MCERTS validation. The laboratory is accredited for sand, clay and loam (MCERTS) soil types. Data for unaccredited types of solid should be interpreted with care.

Stone content of a sample is calculated as the % weight of the stones not passing a 10 mm sieve. Results are not corrected for stone content.

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
831692	WGUCPA1	None Supplied	None Supplied	Brown clay and loam.

Analytical Report Number : 17-63012

Project / Site name: Southall Western Access

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Water (PrW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Acid neutralisation capacity of soil	Determination of acid neutralisation capacity by addition of acid or alkali followed by electronic probe.	In-house method based on Guidance on Sampling and Testing of Wastes to Meet Landfill Waste Acceptance"	L046-UK	W	NONE
BS EN 12457-2 (10:1) Leachate Prep	10:1 (as recieved, moisture adjusted) end over end extraction with water for 24 hours. Eluate filtered prior to analysis.	In-house method based on BSEN12457-2.	L043-PL	W	NONE
BTEX in soil (Monoaromatics)	Determination of BTEX in soil by headspace GC-MS.	In-house method based on USEPA8260	L073B-PL	W	MCERTS
Chloride 10:1 WAC	Determination of Chloride colorimetrically by discrete analyser.	In house based on MEWAM Method ISBN 0117516260.	L082-PL	W	ISO 17025
Dissolved organic carbon 10:1 WAC	Determination of dissolved inorganic carbon in leachate by TOC/DOC NDIR Analyser.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L037-PL	W	NONE
Fluoride 10:1 WAC	Determination of fluoride in leachate by 1:1ratio with a buffer solution followed by Ion Selective Electrode.	In-house method based on Use of Total Ionic Strength Adjustment Buffer for Electrode Determination"	L033B-PL	W	ISO 17025
Loss on ignition of soil @ 450oC	Determination of loss on ignition in soil by gravimetrically with the sample being ignited in a muffle furnace.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L047-PL	D	MCERTS
Metals in leachate by ICP-OES	Determination of metals in leachate by acidification followed by ICP-OES.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil"	L039-PL	W	ISO 17025
Mineral Oil (Soil) C10 - C40	Determination of mineral oil fraction extractable hydrocarbons in soil by GC-MS/GC-FID.	In-house method	L076-PL	D	NONE
Moisture Content	Moisture content, determined gravimetrically.	In-house method based on BS1377 Part 2, 1990, Chemical and Electrochemical Tests	L019-UK/PL	W	NONE
Monohydric phenols 10:1 WAC	Determination of phenols in leachate by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L080-PL	W	ISO 17025
PCB's By GC-MS in soil	Determination of PCB by extraction with acetone and hexane followed by GC-MS.	In-house method based on USEPA 8082	L027-PL	D	MCERTS
pH in soil	Determination of pH in soil by addition of water followed by electrometric measurement.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L005-PL	W	MCERTS
Speciated WAC-17 PAHs in soil	Determination of PAH compounds in soil by extraction in dichloromethane and hexane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270	L064-PL	D	NONE
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE
Sulphate 10:1 WAC	Determination of sulphate in leachate by ICP-OES	In-house method based on MEWAM 1986 Methods for the Determination of Metals in Soil"	L039-PL	W	ISO 17025
Total dissolved solids 10:1 WAC	Determination of total dissolved solids in water by electrometric measurement.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L004-PL	W	NONE
Total organic carbon (Automated) in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests"	L009-PL	D	MCERTS



Analytical Report Number : 17-63012

Project / Site name: Southall Western Access

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Water (PrW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
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For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.

For method numbers ending in 'PL' analysis have been carried out in our laboratory in Poland.

Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.

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Analytical Report Number : 17-65049

Project / Site name:	Southall	Samples received on:	25/10/2017
Your job number:	CG-28308	Samples instructed on:	25/10/2017
Your order number:	4586	Analysis completed by:	01/11/2017
Report Issue Number:	1	Report issued on:	01/11/2017
Samples Analysed:	2 soil samples		

Signed: _____

Vineetha Meethale Vettil
Senior Account Manager
For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41 -711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

soils	- 4 weeks from reporting
leachates	- 2 weeks from reporting
waters	- 2 weeks from reporting
asbestos	- 6 months from reporting

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Analytical Report Number: 17-65049

Project / Site name: Southall

Your Order No: 4586

Lab Sample Number				842921	842922			
Sample Reference				Stockpile 12	Stockpile 13			
Sample Number				ES1	ES1			
Depth (m)				None Supplied	None Supplied			
Date Sampled				23/10/2017	23/10/2017			
Time Taken				None Supplied	None Supplied			
Analytical Parameter (Soil Analysis)				Units	Limit of detection	Accreditation Status		
Stone Content				%	0.1	NONE	< 0.1	17
Moisture Content				%	N/A	NONE	20	14
Total mass of sample received				kg	0.001	NONE	1.4	1.2

General Inorganics

Free Cyanide (low level)	mg/kg	0.5	ISO 17025	< 0.5	< 0.5			
Ammonia as NH ₃	mg/kg	0.5	MCERTS	52	0.6			

Total Phenols

Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0	< 1.0			
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Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	0.76	< 0.05			
Benzo(a)pyrene	mg/kg	0.05	MCERTS	3.3	1.1			

Heavy Metals / Metalloids

Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	3.7	0.4			
Chromium (hexavalent)	mg/kg	4	MCERTS	< 4.0	< 4.0			
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	51	160			
Lead (aqua regia extractable)	mg/kg	1	MCERTS	230	46			
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	1.1	< 0.3			

Monoaromatics

Benzene	µg/kg	1	MCERTS	< 1.0	< 1.0			
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Analytical Report Number : 17-65049

Project / Site name: Southall

* These descriptions are only intended to act as a cross check if sample identities are questioned. The major constituent of the sample is intended to act with respect to MCERTS validation. The laboratory is accredited for sand, clay and loam (MCERTS) soil types. Data for unaccredited types of solid should be interpreted with care.

Stone content of a sample is calculated as the % weight of the stones not passing a 10 mm sieve. Results are not corrected for stone content.

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
842921	Stockpile 12	ES1	None Supplied	Brown clay with gravel and rubble.
842922	Stockpile 13	ES1	None Supplied	Light brown clay with gravel and stones.

Analytical Report Number : 17-65049

Project / Site name: Southall

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Water (PrW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Ammonia as NH ₃ in soil	Determination of Ammonium/Ammonia/Ammoniacal Nitrogen by the colorimetric salicylate/nitroprusside method, 10:1 water extraction.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L082-PL	W	MCERTS
BTEX in soil (Monoaromatics)	Determination of BTEX in soil by headspace GC-MS.	In-house method based on USEPA8260	L073B-PL	W	MCERTS
Free cyanide (Low level) in soil	Determination of free cyanide by distillation followed by colorimetry.	In-house method	L080-PL	W	ISO 17025
Hexavalent chromium in soil	Determination of hexavalent chromium in soil by extraction in water then by acidification, addition of 1,5 diphenylcarbazide followed by colorimetry.	In-house method	L080-PL	W	MCERTS
Metals in soil by ICP-OES	Determination of metals in soil by aqua-regia digestion followed by ICP-OES.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L038-PL	D	MCERTS
Moisture Content	Moisture content, determined gravimetrically.	In-house method based on BS1377 Part 2, 1990, Chemical and Electrochemical Tests	L019-UK/PL	W	NONE
Monohydric phenols in soil	Determination of phenols in soil by extraction with sodium hydroxide followed by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (skalar)	L080-PL	W	MCERTS
Speciated EPA-16 PAHs in soil	Determination of PAH compounds in soil by extraction in dichloromethane and hexane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270	L064-PL	D	MCERTS
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.

For method numbers ending in 'PL' analysis have been carried out in our laboratory in Poland.

Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.

CGL Testing - Stockpile 13

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Analytical Report Number : 17-65049

Project / Site name:	Southall	Samples received on:	25/10/2017
Your job number:	CG-28308	Samples instructed on:	25/10/2017
Your order number:	4586	Analysis completed by:	01/11/2017
Report Issue Number:	1	Report issued on:	01/11/2017
Samples Analysed:	2 soil samples		

Signed: _____

Vineetha Meethale Vettil
Senior Account Manager
For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41 -711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

soils	- 4 weeks from reporting
leachates	- 2 weeks from reporting
waters	- 2 weeks from reporting
asbestos	- 6 months from reporting

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Analytical Report Number: 17-65049

Project / Site name: Southall

Your Order No: 4586

Lab Sample Number				842921	842922			
Sample Reference				Stockpile 12	Stockpile 13			
Sample Number				ES1	ES1			
Depth (m)				None Supplied	None Supplied			
Date Sampled				23/10/2017	23/10/2017			
Time Taken				None Supplied	None Supplied			
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
Stone Content	%	0.1	NONE	< 0.1	17			
Moisture Content	%	N/A	NONE	20	14			
Total mass of sample received	kg	0.001	NONE	1.4	1.2			

General Inorganics

Free Cyanide (low level)	mg/kg	0.5	ISO 17025	< 0.5	< 0.5			
Ammonia as NH ₃	mg/kg	0.5	MCERTS	52	0.6			

Total Phenols

Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0	< 1.0			
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Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	0.76	< 0.05			
Benzo(a)pyrene	mg/kg	0.05	MCERTS	3.3	1.1			

Heavy Metals / Metalloids

Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	3.7	0.4			
Chromium (hexavalent)	mg/kg	4	MCERTS	< 4.0	< 4.0			
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	51	160			
Lead (aqua regia extractable)	mg/kg	1	MCERTS	230	46			
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	1.1	< 0.3			

Monoaromatics

Benzene	µg/kg	1	MCERTS	< 1.0	< 1.0			
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Analytical Report Number : 17-65049

Project / Site name: Southall

* These descriptions are only intended to act as a cross check if sample identities are questioned. The major constituent of the sample is intended to act with respect to MCERTS validation. The laboratory is accredited for sand, clay and loam (MCERTS) soil types. Data for unaccredited types of solid should be interpreted with care.

Stone content of a sample is calculated as the % weight of the stones not passing a 10 mm sieve. Results are not corrected for stone content.

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
842921	Stockpile 12	ES1	None Supplied	Brown clay with gravel and rubble.
842922	Stockpile 13	ES1	None Supplied	Light brown clay with gravel and stones.

Analytical Report Number : 17-65049

Project / Site name: Southall

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Water (PrW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Ammonia as NH ₃ in soil	Determination of Ammonium/Ammonia/Ammoniacal Nitrogen by the colorimetric salicylate/nitroprusside method, 10:1 water extraction.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L082-PL	W	MCERTS
BTEX in soil (Monoaromatics)	Determination of BTEX in soil by headspace GC-MS.	In-house method based on USEPA8260	L073B-PL	W	MCERTS
Free cyanide (Low level) in soil	Determination of free cyanide by distillation followed by colorimetry.	In-house method	L080-PL	W	ISO 17025
Hexavalent chromium in soil	Determination of hexavalent chromium in soil by extraction in water then by acidification, addition of 1,5 dphenylcarbazine followed by colorimetry.	In-house method	L080-PL	W	MCERTS
Metals in soil by ICP-OES	Determination of metals in soil by aqua-regia digestion followed by ICP-OES.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L038-PL	D	MCERTS
Moisture Content	Moisture content, determined gravimetrically.	In-house method based on BS1377 Part 2, 1990, Chemical and Electrochemical Tests	L019-UK/PL	W	NONE
Monohydric phenols in soil	Determination of phenols in soil by extraction with sodium hydroxide followed by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (skalar)	L080-PL	W	MCERTS
Speciated EPA-16 PAHs in soil	Determination of PAH compounds in soil by extraction in dichloromethane and hexane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270	L064-PL	D	MCERTS
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.

For method numbers ending in 'PL' analysis have been carried out in our laboratory in Poland.

Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.

CGL Testing - Stockpile 16

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Analytical Report Number : 17-64726

Project / Site name:	Southall	Samples received on:	20/10/2017
Your job number:	CG-28308	Samples instructed on:	20/10/2017
Your order number:	4586	Analysis completed by:	30/10/2017
Report Issue Number:	1	Report issued on:	30/10/2017
Samples Analysed:	2 soil samples		

Signed: 

Dr Claire Stone
Quality Manager
For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41 -711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

soils	- 4 weeks from reporting
leachates	- 2 weeks from reporting
waters	- 2 weeks from reporting
asbestos	- 6 months from reporting

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Analytical Report Number: 17-64726

Project / Site name: Southall

Your Order No: 4586

Lab Sample Number				841158	841159			
Sample Reference				YBBA 1	YBBA 2			
Sample Number				Granular	Cohesive			
Depth (m)				None Supplied	None Supplied			
Date Sampled				19/10/2017	19/10/2017			
Time Taken				None Supplied	None Supplied			
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
Stone Content	%	0.1	NONE	18	< 0.1			
Moisture Content	%	N/A	NONE	3.9	26			
Total mass of sample received	kg	0.001	NONE	1.5	1.5			

General Inorganics

Free Cyanide (low level)	mg/kg	0.5	ISO 17025	< 0.5	< 0.5			
Ammonia as NH ₃	mg/kg	0.5	MCERTS	4.6	14			

Total Phenols

Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0	< 1.0			
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Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	< 0.05	< 0.05			
Benzo(a)pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05			

Heavy Metals / Metalloids

Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	< 0.2			
Chromium (hexavalent)	mg/kg	4	MCERTS	< 4.0	< 4.0			
Lead (aqua regia extractable)	mg/kg	1	MCERTS	9.4	26			
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3			

Monoaromatics

Benzene	µg/kg	1	MCERTS	< 1.0	< 1.0			
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Analytical Report Number : 17-64726

Project / Site name: Southall

* These descriptions are only intended to act as a cross check if sample identities are questioned. The major constituent of the sample is intended to act with respect to MCERTS validation. The laboratory is accredited for sand, clay and loam (MCERTS) soil types. Data for unaccredited types of solid should be interpreted with care.

Stone content of a sample is calculated as the % weight of the stones not passing a 10 mm sieve. Results are not corrected for stone content.

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
841158	YBBA 1	Granular	None Supplied	Grey clay and sand with gravel and stones.
841159	YBBA 2	Cohesive	None Supplied	Brown clay.

Analytical Report Number : 17-64726

Project / Site name: Southall

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Water (PrW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Ammonia as NH ₃ in soil	Determination of Ammonium/Ammonia/Ammoniacal Nitrogen by the colorimetric salicylate/nitroprusside method, 10:1 water extraction.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L082-PL	W	MCERTS
BTEX in soil (Monoaromatics)	Determination of BTEX in soil by headspace GC-MS.	In-house method based on USEPA8260	L073B-PL	W	MCERTS
Free cyanide (Low level) in soil	Determination of free cyanide by distillation followed by colorimetry.	In-house method	L080-PL	W	ISO 17025
Hexavalent chromium in soil	Determination of hexavalent chromium in soil by extraction in water then by acidification, addition of 1,5 dphenylcarbazine followed by colorimetry.	In-house method	L080-PL	W	MCERTS
Metals in soil by ICP-OES	Determination of metals in soil by aqua-regia digestion followed by ICP-OES.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L038-PL	D	MCERTS
Moisture Content	Moisture content, determined gravimetrically.	In-house method based on BS1377 Part 2, 1990, Chemical and Electrochemical Tests	L019-UK/PL	W	NONE
Monohydric phenols in soil	Determination of phenols in soil by extraction with sodium hydroxide followed by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (skalar)	L080-PL	W	MCERTS
Speciated EPA-16 PAHs in soil	Determination of PAH compounds in soil by extraction in dichloromethane and hexane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270	L064-PL	D	MCERTS
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.

For method numbers ending in 'PL' analysis have been carried out in our laboratory in Poland.

Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.

CGL Testing - Stockpile 17

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Analytical Report Number : 18-22014

Project / Site name:	Southall	Samples received on:	11/12/2018
Your job number:	CG-28308	Samples instructed on:	11/12/2018
Your order number:		Analysis completed by:	21/12/2018
Report Issue Number:	1	Report issued on:	21/12/2018
Samples Analysed:	8 soil samples		

Signed

Jordan Hill
Reporting Manager
For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41 -711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :	soils	- 4 weeks from reporting
	leachates	- 2 weeks from reporting
	waters	- 2 weeks from reporting
	asbestos	- 6 months from reporting

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Analytical Report Number: 18-22014

Project / Site name: Southall

Lab Sample Number				1112515	1112516	1112517	1112518	1112519
Sample Reference				SP17B	SP17B	SP17A	SP17A	SP17A
Sample Number				HP101	HP102	HP305	HP306	HP407
Depth (m)				1.00	3.50	1.10	4.20	1.00
Date Sampled				10/12/2018	10/12/2018	10/12/2018	10/12/2018	10/12/2018
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Moisture Content	%	N/A	NONE	19	21	17	19	20
Total mass of sample received	kg	0.001	NONE	1.2	1.2	1.6	1.4	1.7

Asbestos in Soil Screen / Identification Name	Type	N/A	ISO 17025	Chrysotile & Crocidolite	Chrysotile & Crocidolite & Anthophyllite	Amosite	Amosite	Chrysotile
Asbestos in Soil	Type	N/A	ISO 17025	Detected	Detected	Detected	Detected	Detected
Asbestos Quantification (Stage 2)	%	0.001	ISO 17025	0.002	< 0.001	< 0.001	< 0.001	< 0.001
Asbestos Quantification Total	%	0.001	ISO 17025	0.002	< 0.001	< 0.001	< 0.001	< 0.001

General Inorganics

pH - Automated	pH Units	N/A	MCERTS	7.4	7.7	8.0	8.2	8.4
Total Cyanide	mg/kg	1	MCERTS	4	7	1	1	2
Free Cyanide	mg/kg	1	MCERTS	< 1	< 1	< 1	< 1	< 1
Total Sulphate as SO ₄	mg/kg	50	MCERTS	4900	10000	3300	2200	2400
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	1.8	2.0	1.1	0.83	1.0
Ammonia as NH ₃	mg/kg	0.5	MCERTS	< 0.5	< 0.5	< 0.5	7.7	4.4
Ammonium as NH ₄	mg/kg	0.5	MCERTS	< 0.5	< 0.5	< 0.5	8.1	4.7
Organic Matter	%	0.1	MCERTS	5.9	4.7	3.3	1.8	3.0

Total Phenols

Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
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Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	1.3	1.7	0.62	0.34	0.63
Acenaphthylene	mg/kg	0.05	MCERTS	0.95	0.86	0.51	0.25	0.37
Acenaphthene	mg/kg	0.05	MCERTS	0.87	0.61	0.32	0.21	0.29
Fluorene	mg/kg	0.05	MCERTS	0.89	0.76	0.38	0.25	0.35
Phenanthrene	mg/kg	0.05	MCERTS	10	7.9	3.9	2.1	3.4
Anthracene	mg/kg	0.05	MCERTS	2.7	2.3	0.99	0.50	0.91
Fluoranthene	mg/kg	0.05	MCERTS	19	17	8.0	4.1	5.7
Pyrene	mg/kg	0.05	MCERTS	16	15	6.8	3.5	4.9
Benzo(a)anthracene	mg/kg	0.05	MCERTS	10	12	4.3	2.2	2.9
Chrysene	mg/kg	0.05	MCERTS	8.1	10	3.7	1.8	2.6
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	12	13	5.3	2.7	3.4
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	5.9	6.2	2.5	1.3	1.9
Benzo(a)pyrene	mg/kg	0.05	MCERTS	11	12	5.3	2.6	3.5
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	7.8	6.6	3.3	1.6	2.2
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	1.7	1.5	0.73	0.36	0.47
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	9.0	7.7	3.9	1.9	2.7
Coronene	mg/kg	0.05	NONE	3.4	2.2	< 0.05	< 0.05	0.81

Total PAH

Total WAC-17 PAHs	mg/kg	0.85	NONE	120	120	50	26	37
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Analytical Report Number: 18-22014

Project / Site name: Southall

Lab Sample Number	1112515	1112516	1112517	1112518	1112519
Sample Reference	SP17B	SP17B	SP17A	SP17A	SP17A
Sample Number	HP101	HP102	HP305	HP306	HP407
Depth (m)	1.00	3.50	1.10	4.20	1.00
Date Sampled	10/12/2018	10/12/2018	10/12/2018	10/12/2018	10/12/2018
Time Taken	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status		

Heavy Metals / Metalloids

Antimony (aqua regia extractable)	mg/kg	1	ISO 17025	12	17	5.6	4.0	8.7
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	46	73	19	19	23
Barium (aqua regia extractable)	mg/kg	1	MCERTS	380	380	210	140	190
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	1.8	1.8	0.97	1.3	1.3
Boron (water soluble)	mg/kg	0.2	MCERTS	6.3	8.2	4.2	3.6	4.7
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	18	13	5.6	1.9	3.9
Chromium (hexavalent)	mg/kg	1.2	MCERTS	< 1.2	< 1.2	< 1.2	< 1.2	< 1.2
Chromium (III)	mg/kg	1	NONE	120	93	50	50	53
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	130	93	50	50	54
Copper (aqua regia extractable)	mg/kg	1	MCERTS	590	430	140	110	130
Lead (aqua regia extractable)	mg/kg	1	MCERTS	440	600	190	100	190
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	2.3	1.9	1.1	1.6	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	68	62	44	31	40
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	2.5	2.7	< 1.0	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	68	63	57	60	48
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	900	1000	420	230	350

Monoaromatics

Benzene	ug/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Toluene	ug/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Ethylbenzene	ug/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
p & m-xylene	ug/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
o-xylene	ug/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
MTBE (Methyl Tertiary Butyl Ether)	ug/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0

Petroleum Hydrocarbons

TPH-CWG - Aliphatic >EC5 - EC6	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aliphatic >EC6 - EC8	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aliphatic >EC8 - EC10	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aliphatic >EC10 - EC12	mg/kg	1	MCERTS	< 1.0	< 1.0	1.0	1.3	1.1
TPH-CWG - Aliphatic >EC12 - EC16	mg/kg	2	MCERTS	14	6.4	9.7	9.1	12
TPH-CWG - Aliphatic >EC16 - EC21	mg/kg	8	MCERTS	76	53	37	22	36
TPH-CWG - Aliphatic >EC21 - EC35	mg/kg	8	MCERTS	360	270	190	83	140
TPH-CWG - Aliphatic (EC5 - EC35)	mg/kg	10	MCERTS	450	330	240	120	190

TPH-CWG - Aromatic >EC5 - EC7	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aromatic >EC7 - EC8	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aromatic >EC8 - EC10	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aromatic >EC10 - EC12	mg/kg	1	MCERTS	1.2	2.5	2.5	< 1.0	3.0
TPH-CWG - Aromatic >EC12 - EC16	mg/kg	2	MCERTS	8.1	7.7	4.6	3.1	11
TPH-CWG - Aromatic >EC16 - EC21	mg/kg	10	MCERTS	68	61	31	14	32
TPH-CWG - Aromatic >EC21 - EC35	mg/kg	10	MCERTS	310	220	120	35	100
TPH-CWG - Aromatic (EC5 - EC35)	mg/kg	10	MCERTS	390	290	160	52	150



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Project / Site name: Southall

Lab Sample Number				1112515	1112516	1112517	1112518	1112519
Sample Reference				SP17B	SP17B	SP17A	SP17A	SP17A
Sample Number				HP101	HP102	HP305	HP306	HP407
Depth (m)				1.00	3.50	1.10	4.20	1.00
Date Sampled				10/12/2018	10/12/2018	10/12/2018	10/12/2018	10/12/2018
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)				Units	Limit of detection	Accreditation Status		

VOCs

Chloromethane	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Chloroethane	µg/kg	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Bromomethane	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Vinyl Chloride	µg/kg	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Trichlorofluoromethane	µg/kg	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1-Dichloroethene	µg/kg	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1,2-Trichloro 1,2,2-Trifluoroethane	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Cis-1,2-dichloroethene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1-Dichloroethane	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
2,2-Dichloropropane	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Trichloromethane	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1,1-Trichloroethane	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dichloroethane	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1-Dichloropropene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Trans-1,2-dichloroethene	µg/kg	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Benzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Tetrachloromethane	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dichloropropane	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Trichloroethene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Dibromomethane	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Bromodichloromethane	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Cis-1,3-dichloropropene	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Trans-1,3-dichloropropene	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Toluene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1,2-Trichloroethane	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,3-Dichloropropane	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Dibromochloromethane	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Tetrachloroethene	µg/kg	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dibromoethane	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Chlorobenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1,1,2-Tetrachloroethane	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Ethylbenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
p & m-Xylene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Styrene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Tribromomethane	µg/kg	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
o-Xylene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1,2,2-Tetrachloroethane	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Isopropylbenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Bromobenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
n-Propylbenzene	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
2-Chlorotoluene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
4-Chlorotoluene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,3,5-Trimethylbenzene	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
tert-Butylbenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2,4-Trimethylbenzene	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
sec-Butylbenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,3-Dichlorobenzene	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
p-Isopropyltoluene	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dichlorobenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,4-Dichlorobenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Butylbenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dibromo-3-chloropropane	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2,4-Trichlorobenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Hexachlorobutadiene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2,3-Trichlorobenzene	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0

Analytical Report Number: 18-22014

Project / Site name: Southall

Lab Sample Number	1112520	1112521	1112522		
Sample Reference	SP17A	SP17A	SP17B		
Sample Number	HP408	HP510	HP611		
Depth (m)	2.50	2.40	1.00		
Date Sampled	10/12/2018	10/12/2018	10/12/2018		
Time Taken	None Supplied	None Supplied	None Supplied		
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status		
Stone Content	%	0.1	NONE	< 0.1	< 0.1
Moisture Content	%	N/A	NONE	17	21
Total mass of sample received	kg	0.001	NONE	1.7	1.7

Asbestos in Soil Screen / Identification Name	Type	N/A	ISO 17025	-	-	Chrysotile		
Asbestos in Soil	Type	N/A	ISO 17025	Not-detected	Not-detected	Detected		
Asbestos Quantification (Stage 2)	%	0.001	ISO 17025	-	-	< 0.001		
Asbestos Quantification Total	%	0.001	ISO 17025	-	-	< 0.001		

General Inorganics

pH - Automated	pH Units	N/A	MCERTS	7.9	8.2	9.4		
Total Cyanide	mg/kg	1	MCERTS	2	< 1	4		
Free Cyanide	mg/kg	1	MCERTS	< 1	< 1	< 1		
Total Sulphate as SO ₄	mg/kg	50	MCERTS	2700	3600	10000		
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.75	1.3	1.8		
Ammonia as NH ₃	mg/kg	0.5	MCERTS	12	27	< 0.5		
Ammonium as NH ₄	mg/kg	0.5	MCERTS	13	29	< 0.5		
Organic Matter	%	0.1	MCERTS	2.7	3.3	4.3		

Total Phenols

Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0		
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Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	0.64	0.50	0.50		
Acenaphthylene	mg/kg	0.05	MCERTS	0.47	0.46	0.55		
Acenaphthene	mg/kg	0.05	MCERTS	0.64	0.32	0.36		
Fluorene	mg/kg	0.05	MCERTS	0.61	0.40	0.55		
Phenanthrene	mg/kg	0.05	MCERTS	5.1	3.6	5.0		
Anthracene	mg/kg	0.05	MCERTS	1.4	0.78	1.3		
Fluoranthene	mg/kg	0.05	MCERTS	8.8	6.6	9.4		
Pyrene	mg/kg	0.05	MCERTS	7.4	5.7	7.9		
Benzo(a)anthracene	mg/kg	0.05	MCERTS	4.7	3.6	5.1		
Chrysene	mg/kg	0.05	MCERTS	3.6	2.8	4.5		
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	4.6	4.7	6.6		
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	3.1	1.7	2.6		
Benzo(a)pyrene	mg/kg	0.05	MCERTS	5.1	4.3	6.0		
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	3.2	2.7	4.0		
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	0.65	0.48	0.88		
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	3.6	3.2	4.8		
Coronene	mg/kg	0.05	NONE	1.1	< 0.05	1.6		

Total PAH

Total WAC-17 PAHs	mg/kg	0.85	NONE	55	42	62		
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Analytical Report Number: 18-22014

Project / Site name: Southall

Lab Sample Number				1112520	1112521	1112522		
Sample Reference				SP17A	SP17A	SP17B		
Sample Number				HP408	HP510	HP611		
Depth (m)				2.50	2.40	1.00		
Date Sampled				10/12/2018	10/12/2018	10/12/2018		
Time Taken				None Supplied	None Supplied	None Supplied		
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
Heavy Metals / Metalloids								
Antimony (aqua regia extractable)	mg/kg	1	ISO 17025	7.4	5.6	8.1		
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	20	26	22		
Barium (aqua regia extractable)	mg/kg	1	MCERTS	150	190	260		
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	1.0	1.1	1.2		
Boron (water soluble)	mg/kg	0.2	MCERTS	5.8	4.3	3.6		
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	3.9	6.3	11		
Chromium (hexavalent)	mg/kg	1.2	MCERTS	< 1.2	< 1.2	< 1.2		
Chromium (III)	mg/kg	1	NONE	47	57	77		
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	48	57	77		
Copper (aqua regia extractable)	mg/kg	1	MCERTS	120	170	270		
Lead (aqua regia extractable)	mg/kg	1	MCERTS	180	200	260		
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	1.3	1.2		
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	47	42	45		
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	2.0	< 1.0	< 1.0		
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	45	54	48		
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	280	360	640		

Monoaromatics

Benzene	ug/kg	1	MCERTS	< 1.0	< 1.0	< 1.0		
Toluene	ug/kg	1	MCERTS	< 1.0	< 1.0	< 1.0		
Ethylbenzene	ug/kg	1	MCERTS	< 1.0	< 1.0	< 1.0		
p & m-xylene	ug/kg	1	MCERTS	< 1.0	< 1.0	< 1.0		
o-xylene	ug/kg	1	MCERTS	< 1.0	< 1.0	< 1.0		
MTBE (Methyl Tertiary Butyl Ether)	ug/kg	1	MCERTS	< 1.0	< 1.0	< 1.0		

Petroleum Hydrocarbons

TPH-CWG - Aliphatic >EC5 - EC6	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001		
TPH-CWG - Aliphatic >EC6 - EC8	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001		
TPH-CWG - Aliphatic >EC8 - EC10	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001		
TPH-CWG - Aliphatic >EC10 - EC12	mg/kg	1	MCERTS	4.7	1.7	1.8		
TPH-CWG - Aliphatic >EC12 - EC16	mg/kg	2	MCERTS	22	14	16		
TPH-CWG - Aliphatic >EC16 - EC21	mg/kg	8	MCERTS	40	38	66		
TPH-CWG - Aliphatic >EC21 - EC35	mg/kg	8	MCERTS	120	150	290		
TPH-CWG - Aliphatic (EC5 - EC35)	mg/kg	10	MCERTS	180	200	380		

TPH-CWG - Aromatic >EC5 - EC7	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001		
TPH-CWG - Aromatic >EC7 - EC8	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001		
TPH-CWG - Aromatic >EC8 - EC10	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001		
TPH-CWG - Aromatic >EC10 - EC12	mg/kg	1	MCERTS	< 1.0	< 1.0	1.9		
TPH-CWG - Aromatic >EC12 - EC16	mg/kg	2	MCERTS	2.6	3.1	7.1		
TPH-CWG - Aromatic >EC16 - EC21	mg/kg	10	MCERTS	19	16	52		
TPH-CWG - Aromatic >EC21 - EC35	mg/kg	10	MCERTS	38	40	170		
TPH-CWG - Aromatic (EC5 - EC35)	mg/kg	10	MCERTS	59	59	230		



Analytical Report Number: 18-22014

Project / Site name: Southall

Lab Sample Number				1112520	1112521	1112522		
Sample Reference				SP17A	SP17A	SP17B		
Sample Number				HP408	HP510	HP611		
Depth (m)				2.50	2.40	1.00		
Date Sampled				10/12/2018	10/12/2018	10/12/2018		
Time Taken				None Supplied	None Supplied	None Supplied		
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
VOCs								
Chloromethane	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0		
Chloroethane	µg/kg	1	NONE	< 1.0	< 1.0	< 1.0		
Bromomethane	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0		
Vinyl Chloride	µg/kg	1	NONE	< 1.0	< 1.0	< 1.0		
Trichlorofluoromethane	µg/kg	1	NONE	< 1.0	< 1.0	< 1.0		
1,1-Dichloroethene	µg/kg	1	NONE	< 1.0	< 1.0	< 1.0		
1,1,2-Trichloro 1,2,2-Trifluoroethane	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0		
Cis-1,2-dichloroethene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0		
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0		
1,1-Dichloroethane	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0		
2,2-Dichloropropane	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0		
Trichloromethane	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0		
1,1,1-Trichloroethane	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0		
1,2-Dichloroethane	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0		
1,1-Dichloropropene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0		
Trans-1,2-dichloroethene	µg/kg	1	NONE	< 1.0	< 1.0	< 1.0		
Benzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0		
Tetrachloromethane	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0		
1,2-Dichloropropane	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0		
Trichloroethene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0		
Dibromomethane	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0		
Bromodichloromethane	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0		
Cis-1,3-dichloropropene	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0		
Trans-1,3-dichloropropene	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0		
Toluene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0		
1,1,2-Trichloroethane	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0		
1,3-Dichloropropane	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0		
Dibromochloromethane	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0		
Tetrachloroethene	µg/kg	1	NONE	< 1.0	< 1.0	< 1.0		
1,2-Dibromoethane	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0		
Chlorobenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0		
1,1,1,2-Tetrachloroethane	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0		
Ethylbenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0		
p & m-Xylene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0		
Styrene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0		
Tribromomethane	µg/kg	1	NONE	< 1.0	< 1.0	< 1.0		
o-Xylene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0		
1,1,2,2-Tetrachloroethane	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0		
Isopropylbenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0		
Bromobenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0		
n-Propylbenzene	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0		
2-Chlorotoluene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0		
4-Chlorotoluene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0		
1,3,5-Trimethylbenzene	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0		
tert-Butylbenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0		
1,2,4-Trimethylbenzene	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0		
sec-Butylbenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0		
1,3-Dichlorobenzene	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0		
p-Isopropyltoluene	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0		
1,2-Dichlorobenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0		
1,4-Dichlorobenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0		
Butylbenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0		
1,2-Dibromo-3-chloropropane	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0		
1,2,4-Trichlorobenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0		
Hexachlorobutadiene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0		
1,2,3-Trichlorobenzene	µg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0		



Analytical Report Number: 18-22014

Project / Site name: Southall

Your Order No:

Certificate of Analysis - Asbestos Quantification

Methods:

Qualitative Analysis

The samples were analysed qualitatively for asbestos by polarising light and dispersion staining as described by the Health and Safety Executive in HSG 248.

Quantitative Analysis

The analysis was carried out using our documented in-house method A006 based on HSE Contract Research Report No: 83/1996: Development and Validation of an analytical method to determine the amount of asbestos in soils and loose aggregates (Davies et al, 1996) and HSG 248. Our method includes initial examination of the entire representative sample, then fractionation and detailed analysis of each fraction, with quantification by hand picking and weighing.

The limit of detection (reporting limit) of this method is 0.001 %.

The method has been validated using samples of at least 100 g, results for samples smaller than this should be interpreted with caution.

Both Qualitative and Quantitative Analyses are UKAS accredited.

Sample Number	Sample ID	Sample Depth (m)	Sample Weight (g)	Asbestos Containing Material Types Detected (ACM)	PLM Results	Asbestos by hand picking/weighing (%)	Total % Asbestos in Sample
1112515	SP17B	1.00	123	Loose Fibres	Chrysotile & Crocidolite	0.002	0.002
1112516	SP17B	3.50	126	Loose Fibres	Chrysotile & Crocidolite & Anthophyllite	< 0.001	< 0.001
1112517	SP17A	1.10	134	Loose Fibres	Amosite	< 0.001	< 0.001
1112518	SP17A	4.20	119	Loose Fibres	Amosite	< 0.001	< 0.001
1112519	SP17A	1.00	125	Loose Fibres	Chrysotile	< 0.001	< 0.001
1112522	SP17B	1.00	129	Loose Fibres	Chrysotile	< 0.001	< 0.001

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



Analytical Report Number : 18-22014

Project / Site name: Southall

* These descriptions are only intended to act as a cross check if sample identities are questioned. The major constituent of the sample is intended to act with respect to MCERTS validation. The laboratory is accredited for sand, clay and loam (MCERTS) soil types. Data for unaccredited types of solid should be interpreted with care.

Stone content of a sample is calculated as the % weight of the stones not passing a 10 mm sieve. Results are not corrected for stone content.

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
1112515	SP17B	HP101	1.00	Brown clay and loam with gravel and vegetation.
1112516	SP17B	HP102	3.50	Brown loam and clay with gravel and vegetation.
1112517	SP17A	HP305	1.10	Brown clay and loam with gravel and vegetation.
1112518	SP17A	HP306	4.20	Brown clay with gravel.
1112519	SP17A	HP407	1.00	Brown clay with gravel.
1112520	SP17A	HP408	2.50	Brown clay with gravel.
1112521	SP17A	HP510	2.40	Brown clay with gravel.
1112522	SP17B	HP611	1.00	Brown clay and loam with gravel.

Analytical Report Number : 18-22014

Project / Site name: Southall

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Water (PrW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Ammonia as NH ₃ in soil	Determination of Ammonium/Ammonia/Ammoniacal Nitrogen by the colorimetric salicylate/nitroprusside method, 10:1 water extraction.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L082-PL	W	MCERTS
Asbestos identification in soil	Asbestos Identification with the use of polarised light microscopy in conjunction with disperion staining techniques.	In house method based on HSG 248	A001-PL	D	ISO 17025
Asbestos Quantification - Gravimetric	Asbestos quantification by gravimetric method - in house method based on references.	HSE Report No: 83/1996, HSG 248, HSG 264 & SCA Blue Book (draft).	A006-PL	D	ISO 17025
Boron, water soluble, in soil	Determination of water soluble boron in soil by hot water extract followed by ICP-OES.	In-house method based on Second Site Properties version 3	L038-PL	D	MCERTS
BTEX and MTBE in soil (Monoaromatics)	Determination of BTEX in soil by headspace GC-MS.	In-house method based on USEPA8260	L073B-PL	W	MCERTS
Cr (III) in soil	In-house method by calculation from total Cr and Cr VI.	In-house method by calculation	L080-PL	W	NONE
D.O. for Gravimetric Quant if Screen/ID positive	Dependent option for Gravimetric Quant if Screen/ID positive scheduled.	In house asbestos methods A001 & A006.	A006-PL	D	NONE
Free cyanide in soil	Determination of free cyanide by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	MCERTS
Hexavalent chromium in soil (Lower Level)	Determination of hexavalent chromium in soil by extraction in water then by acidification, addition of 1,5 diphenylcarbazine followed by colorimetry.	In-house method	L080-PL	W	MCERTS
Metals in soil by ICP-OES	Determination of metals in soil by aqua-regia digestion followed by ICP-OES.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L038-PL	D	MCERTS
Moisture Content	Moisture content, determined gravimetrically.	In-house method based on BS1377 Part 2, 1990, Chemical and Electrochemical Tests	L019-UK/PL	W	NONE
Monohydric phenols in soil	Determination of phenols in soil by extraction with sodium hydroxide followed by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (skalar)	L080-PL	W	MCERTS
Organic matter (Automated) in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate.	BS1377 Part 3, 1990, Chemical and Electrochemical Tests ^{***}	L009-PL	D	MCERTS
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L099-PL	D	MCERTS
Speciated WAC-17 PAHs in soil	Determination of PAH compounds in soil by extraction in dichloromethane and hexane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270. MCERTS accredited except Coronene.	L064-PL	D	NONE
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE
Sulphate, water soluble, in soil (16hr extraction)	Determination of water soluble sulphate by ICP-OES. Results reported directly (leachate equivalent) and corrected for extraction ratio (soil equivalent).	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests, 2:1 water:soil extraction, analysis by ICP-OES.	L038-PL	D	MCERTS

Iss No 18-22014-1 Southall CG-28308

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The results included within the report are representative of the samples submitted for analysis.

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Analytical Report Number : 18-22014

Project / Site name: Southall

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Water (PrW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Total cyanide in soil	Determination of total cyanide by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	MCERTS
Total sulphate (as SO ₄ in soil)	Determination of total sulphate in soil by extraction with 10% HCl followed by ICP-OES.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L038-PL	D	MCERTS
TPHCWG (Soil)	Determination of hexane extractable hydrocarbons in soil by GC-MS/GC-FID.	In-house method with silica gel split/clean up.	L088/76-PL	W	MCERTS
Volatile organic compounds in soil	Determination of volatile organic compounds in soil by headspace GC-MS.	In-house method based on USEPA8260	L073B-PL	W	MCERTS

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.

For method numbers ending in 'PL' analysis have been carried out in our laboratory in Poland.

Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.



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Analytical Report Number : 19-36247

Project / Site name:	Southall	Samples received on:	05/04/2019
Your job number:	CG-28308	Samples instructed on:	05/04/2019
Your order number:	2502	Analysis completed by:	12/04/2019
Report Issue Number:	1	Report issued on:	12/04/2019
Samples Analysed:	7 leachate samples - 9 soil samples		

Signed:

Dr Claire Stone
Quality Manager
For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41 -711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

soils	- 4 weeks from reporting
leachates	- 2 weeks from reporting
waters	- 2 weeks from reporting
asbestos	- 6 months from reporting

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Analytical Report Number: 19-36247

Project / Site name: Southall

Your Order No: 2502

Lab Sample Number				1194574	1194575	1194576	1194577	1194578
Sample Reference				TP101 Lagoon Base	TP102 Lagoon Base	TP103 Lagoon Base	TP104 FCA TS	TP105 FCA TS Oil
Sample Number				S1	S1	S1	S1	S1
Depth (m)				0.30	0.10	0.20	1.00	0.30
Date Sampled				04/04/2019	04/04/2019	04/04/2019	04/04/2019	04/04/2019
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Moisture Content	%	N/A	NONE	19	19	16	20	22
Total mass of sample received	kg	0.001	NONE	1.5	1.5	1.5	1.3	1.7

Asbestos in Soil Screen / Identification Name	Type	N/A	ISO 17025	-	-	Amosite	Chrysotile	Chrysotile
Asbestos in Soil	Type	N/A	ISO 17025	Not-detected	Not-detected	Detected	Detected	Detected
Asbestos Quantification (Stage 2)	%	0.001	ISO 17025	-	-	< 0.001	< 0.001	< 0.001
Asbestos Quantification Total	%	0.001	ISO 17025	-	-	< 0.001	< 0.001	< 0.001

General Inorganics

pH - Automated	pH Units	N/A	MCERTS	-	-	-	7.7	7.4
Total Cyanide	mg/kg	1	MCERTS	-	-	-	11	< 1
Free Cyanide	mg/kg	1	MCERTS	-	-	-	< 1	< 1
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	-	-	-	1.6	0.23
Ammoniacal Nitrogen as N	mg/kg	0.5	MCERTS	-	-	-	< 0.5	< 0.5
Organic Matter	%	0.1	MCERTS	-	-	-	6.0	6.2

Total Phenols

Total Phenols (monohydric)	mg/kg	1	MCERTS	-	-	-	< 1.0	< 1.0
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Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	-	-	-	0.60	< 0.05
Acenaphthylene	mg/kg	0.05	MCERTS	-	-	-	0.54	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	-	-	-	0.49	< 0.05
Fluorene	mg/kg	0.05	MCERTS	-	-	-	0.54	< 0.05
Phenanthrene	mg/kg	0.05	MCERTS	-	-	-	5.5	1.6
Anthracene	mg/kg	0.05	MCERTS	-	-	-	1.1	0.41
Fluoranthene	mg/kg	0.05	MCERTS	-	-	-	10	4.1
Pyrene	mg/kg	0.05	MCERTS	-	-	-	8.8	3.5
Benzo(a)anthracene	mg/kg	0.05	MCERTS	-	-	-	5.2	1.8
Chrysene	mg/kg	0.05	MCERTS	-	-	-	4.7	1.8
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	-	-	-	7.3	2.1
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	-	-	-	2.2	1.3
Benzo(a)pyrene	mg/kg	0.05	MCERTS	-	-	-	5.6	1.8
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	-	-	-	3.7	1.2
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	-	-	-	1.1	0.32
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	-	-	-	4.5	1.5
Coronene	mg/kg	0.05	NONE	-	-	-	2.0	< 0.05

Total PAH

Total WAC-17 PAHs	mg/kg	0.85	NONE	-	-	-	64	21
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Analytical Report Number: 19-36247

Project / Site name: Southall

Your Order No: 2502

Lab Sample Number				1194574	1194575	1194576	1194577	1194578
Sample Reference				TP101 Lagoon Base	TP102 Lagoon Base	TP103 Lagoon Base	TP104 FCA TS	TP105 FCA TS Oil
Sample Number				S1	S1	S1	S1	S1
Depth (m)				0.30	0.10	0.20	1.00	0.30
Date Sampled				04/04/2019	04/04/2019	04/04/2019	04/04/2019	04/04/2019
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)				Units	Limit of detection	Accreditation Status		

Heavy Metals / Metalloids

Antimony (aqua regia extractable)	mg/kg	1	ISO 17025	1.8	2.0	2.7	-	-
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	17	13	11	27	17
Barium (aqua regia extractable)	mg/kg	1	MCERTS	110	91	120	280	140
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	1.2	1.2	0.91	1.3	0.90
Boron (water soluble)	mg/kg	0.2	MCERTS	1.7	2.3	1.5	4.0	2.3
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	0.6	0.3	0.3	15	0.9
Chromium (hexavalent)	mg/kg	4	MCERTS	-	-	-	< 4.0	-
Chromium (III)	mg/kg	1	NONE	37	40	29	110	-
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	37	40	30	110	31
Copper (aqua regia extractable)	mg/kg	1	MCERTS	51	44	51	330	72
Lead (aqua regia extractable)	mg/kg	1	MCERTS	87	53	100	380	130
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	1.9	0.8
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	30	33	26	54	23
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	5.7	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	53	63	45	63	44
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	160	170	130	600	420

Monoaromatics & Oxygenates

Benzene	ug/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Toluene	ug/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Ethylbenzene	ug/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
p & m-xylene	ug/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
o-xylene	ug/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
MTBE (Methyl Tertiary Butyl Ether)	ug/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0

Petroleum Hydrocarbons

TPH-CWG - Aliphatic >EC5 - EC6	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aliphatic >EC6 - EC8	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aliphatic >EC8 - EC10	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aliphatic >EC10 - EC12	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	3.1
TPH-CWG - Aliphatic >EC12 - EC16	mg/kg	2	MCERTS	< 2.0	< 2.0	< 2.0	< 2.0	13
TPH-CWG - Aliphatic >EC16 - EC21	mg/kg	8	MCERTS	< 8.0	< 8.0	< 8.0	53	30
TPH-CWG - Aliphatic >EC21 - EC35	mg/kg	8	MCERTS	29	20	66	380	260
TPH-CWG - Aliphatic (EC5 - EC35)	mg/kg	10	MCERTS	34	20	72	430	300

TPH-CWG - Aromatic >EC5 - EC7	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aromatic >EC7 - EC8	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aromatic >EC8 - EC10	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aromatic >EC10 - EC12	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aromatic >EC12 - EC16	mg/kg	2	MCERTS	< 2.0	< 2.0	< 2.0	4.3	7.0
TPH-CWG - Aromatic >EC16 - EC21	mg/kg	10	MCERTS	< 10	< 10	< 10	60	24
TPH-CWG - Aromatic >EC21 - EC35	mg/kg	10	MCERTS	< 10	< 10	< 10	180	83
TPH-CWG - Aromatic (EC5 - EC35)	mg/kg	10	MCERTS	11	< 10	< 10	250	110

TPH (C10 - C25)	mg/kg	10	MCERTS	-	-	-	240	140
TPH (C25 - C40)	mg/kg	10	MCERTS	-	-	-	580	380

Analytical Report Number: 19-36247

Project / Site name: Southall

Your Order No: 2502

Lab Sample Number				1194579	1194580	1194581	1194582	
Sample Reference				TP106 SP 17B	TP106 SP 17B	TP107 SP17B	TP107 SP17B	
Sample Number				S1	S2	S1	S2	
Depth (m)				1.50	3.00	1.00	3.50	
Date Sampled				04/04/2019	04/04/2019	04/04/2019	04/04/2019	
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	
Moisture Content	%	N/A	NONE	24	27	19	23	
Total mass of sample received	kg	0.001	NONE	1.5	1.6	1.5	1.5	

Asbestos in Soil Screen / Identification Name	Type	N/A	ISO 17025	Chrysotile	Chrysotile	Amosite	Chrysotile & Amosite	
Asbestos in Soil	Type	N/A	ISO 17025	Detected	Detected	Detected	Detected	
Asbestos Quantification (Stage 2)	%	0.001	ISO 17025	< 0.001	0.001	< 0.001	< 0.001	
Asbestos Quantification Total	%	0.001	ISO 17025	< 0.001	0.001	< 0.001	< 0.001	

General Inorganics

pH - Automated	pH Units	N/A	MCERTS	-	-	-	-	
Total Cyanide	mg/kg	1	MCERTS	-	-	-	-	
Free Cyanide	mg/kg	1	MCERTS	-	-	-	-	
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	-	-	-	-	
Ammoniacal Nitrogen as N	mg/kg	0.5	MCERTS	-	-	-	-	
Organic Matter	%	0.1	MCERTS	-	-	-	-	

Total Phenols

Total Phenols (monohydric)	mg/kg	1	MCERTS	-	-	-	-	
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Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	-	-	-	-	
Acenaphthylene	mg/kg	0.05	MCERTS	-	-	-	-	
Acenaphthene	mg/kg	0.05	MCERTS	-	-	-	-	
Fluorene	mg/kg	0.05	MCERTS	-	-	-	-	
Phenanthrene	mg/kg	0.05	MCERTS	-	-	-	-	
Anthracene	mg/kg	0.05	MCERTS	-	-	-	-	
Fluoranthene	mg/kg	0.05	MCERTS	-	-	-	-	
Pyrene	mg/kg	0.05	MCERTS	-	-	-	-	
Benzo(a)anthracene	mg/kg	0.05	MCERTS	-	-	-	-	
Chrysene	mg/kg	0.05	MCERTS	-	-	-	-	
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	-	-	-	-	
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	-	-	-	-	
Benzo(a)pyrene	mg/kg	0.05	MCERTS	-	-	-	-	
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	-	-	-	-	
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	-	-	-	-	
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	-	-	-	-	
Coronene	mg/kg	0.05	NONE	-	-	-	-	

Total PAH

Total WAC-17 PAHs	mg/kg	0.85	NONE	-	-	-	-	
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Analytical Report Number: 19-36247

Project / Site name: Southall

Your Order No: 2502

Lab Sample Number				1194579	1194580	1194581	1194582	
Sample Reference				TP106 SP 17B	TP106 SP 17B	TP107 SP17B	TP107 SP17B	
Sample Number				S1	S2	S1	S2	
Depth (m)				1.50	3.00	1.00	3.50	
Date Sampled				04/04/2019	04/04/2019	04/04/2019	04/04/2019	
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
Heavy Metals / Metalloids								
Antimony (aqua regia extractable)	mg/kg	1	ISO 17025	12	14	12	22	
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	46	42	41	37	
Barium (aqua regia extractable)	mg/kg	1	MCERTS	430	370	430	510	
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	2.0	1.9	1.8	1.9	
Boron (water soluble)	mg/kg	0.2	MCERTS	4.9	5.0	4.9	5.1	
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	24	16	22	19	
Chromium (hexavalent)	mg/kg	4	MCERTS	-	-	-	-	
Chromium (III)	mg/kg	1	NONE	150	120	150	140	
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	150	120	150	140	
Copper (aqua regia extractable)	mg/kg	1	MCERTS	490	430	450	440	
Lead (aqua regia extractable)	mg/kg	1	MCERTS	540	560	510	590	
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	1.5	2.1	1.7	1.8	
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	83	71	76	67	
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	7.7	3.7	< 1.0	
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	74	69	67	64	
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	9300	1200	1100	960	

Monoaromatics & Oxygenates

Benzene	ug/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	
Toluene	ug/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	
Ethylbenzene	ug/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	
p & m-xylene	ug/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	
o-xylene	ug/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	
MTBE (Methyl Tertiary Butyl Ether)	ug/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	

Petroleum Hydrocarbons

TPH-CWG - Aliphatic >EC5 - EC6	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001	
TPH-CWG - Aliphatic >EC6 - EC8	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001	
TPH-CWG - Aliphatic >EC8 - EC10	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001	
TPH-CWG - Aliphatic >EC10 - EC12	mg/kg	1	MCERTS	2.7	1.7	< 1.0	4.4	
TPH-CWG - Aliphatic >EC12 - EC16	mg/kg	2	MCERTS	12	16	8.3	35	
TPH-CWG - Aliphatic >EC16 - EC21	mg/kg	8	MCERTS	94	150	110	160	
TPH-CWG - Aliphatic >EC21 - EC35	mg/kg	8	MCERTS	590	870	650	740	
TPH-CWG - Aliphatic (EC5 - EC35)	mg/kg	10	MCERTS	700	1000	760	940	
TPH-CWG - Aromatic >EC5 - EC7	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001	
TPH-CWG - Aromatic >EC7 - EC8	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001	
TPH-CWG - Aromatic >EC8 - EC10	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001	
TPH-CWG - Aromatic >EC10 - EC12	mg/kg	1	MCERTS	2.2	2.3	< 1.0	1.1	
TPH-CWG - Aromatic >EC12 - EC16	mg/kg	2	MCERTS	9.4	11	8.7	18	
TPH-CWG - Aromatic >EC16 - EC21	mg/kg	10	MCERTS	62	98	95	120	
TPH-CWG - Aromatic >EC21 - EC35	mg/kg	10	MCERTS	170	< 10	310	300	
TPH-CWG - Aromatic (EC5 - EC35)	mg/kg	10	MCERTS	250	110	410	440	
TPH (C10 - C25)	mg/kg	10	MCERTS	-	-	-	-	
TPH (C25 - C40)	mg/kg	10	MCERTS	-	-	-	-	



Analytical Report Number: **19-36247**
Project / Site name: **Southall**
Your Order No: **2502**

Certificate of Analysis - Asbestos Quantification

Methods:

Qualitative Analysis

The samples were analysed qualitatively for asbestos by polarising light and dispersion staining as described by the Health and Safety Executive in HSG 248.

Quantitative Analysis

The analysis was carried out using our documented in-house method A006 based on HSE Contract Research Report No: 83/1996: Development and Validation of an analytical method to determine the amount of asbestos in soils and loose aggregates (Davies et al, 1996) and HSG 248. Our method includes initial examination of the entire representative sample, then fractionation and detailed analysis of each fraction, with quantification by hand picking and weighing.

The limit of detection (reporting limit) of this method is 0.001 %.

The method has been validated using samples of at least 100 g, results for samples smaller than this should be interpreted with caution.

Both Qualitative and Quantitative Analyses are UKAS accredited.

Sample Number	Sample ID	Sample Depth (m)	Sample Weight (g)	Asbestos Containing Material Types Detected (ACM)	PLM Results	Asbestos by hand picking/weighing (%)	Total % Asbestos in Sample
1194576	TP103 Lagoon Base	0.20	116	Loose Fibres	Amosite	< 0.001	< 0.001
1194577	TP104 FCA TS	1.00	109	Loose Fibres	Chrysotile	< 0.001	< 0.001
1194578	TP105 FCA TS Oil	0.30	116	Loose Fibres	Chrysotile	< 0.001	< 0.001
1194579	TP106 SP 17B	1.50	119	Loose Fibres	Chrysotile	< 0.001	< 0.001
1194580	TP106 SP 17B	3.00	105	Loose Fibres	Chrysotile	0.001	0.001
1194581	TP107 SP17B	1.00	110	Loose Fibres	Amosite	< 0.001	< 0.001
1194582	TP107 SP17B	3.50	113	Loose Fibres	Chrysotile & Amosite	< 0.001	< 0.001

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



Analytical Report Number: 19-36247

Project / Site name: Southall

Your Order No: 2502

Lab Sample Number				1194583	1194584	1194585	1194586	1194587
Sample Reference				TP101 Lagoon Base	TP102 Lagoon Base	TP103 Lagoon Base	TP106 SP17B	TP106 SP 17B
Sample Number				S1	S1	S1	S1	S2
Depth (m)				0.30	0.10	0.20	1.50	3.00
Date Sampled				04/04/2019	04/04/2019	04/04/2019	04/04/2019	04/04/2019
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Leachate Analysis)				Units	Limit of detection	Accreditation Status		

Heavy Metals / Metalloids

Arsenic (dissolved)	µg/l	1.1	ISO 17025	< 1.1	< 1.1	< 1.1	4.0	15
Barium (dissolved)	µg/l	0.05	ISO 17025	25	20	16	42	39
Beryllium (dissolved)	µg/l	0.2	ISO 17025	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Boron (dissolved)	µg/l	10	ISO 17025	39	49	< 10	120	150
Cadmium (dissolved)	µg/l	0.08	ISO 17025	< 0.08	< 0.08	< 0.08	0.25	< 0.08
Chromium (hexavalent)	µg/l	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Chromium (III)	µg/l	1	NONE	< 1.0	< 1.0	1.2	2.1	1.3
Chromium (dissolved)	µg/l	0.4	ISO 17025	< 0.4	0.8	1.2	2.1	1.3
Copper (dissolved)	µg/l	0.7	ISO 17025	5.5	8.1	10	24	20
Lead (dissolved)	µg/l	1	ISO 17025	< 1.0	< 1.0	1.9	1.0	4.0
Mercury (dissolved)	µg/l	0.5	ISO 17025	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Nickel (dissolved)	µg/l	0.3	ISO 17025	1.6	1.4	2.8	3.2	7.0
Selenium (dissolved)	µg/l	4	ISO 17025	5.7	< 4.0	< 4.0	< 4.0	5.6
Vanadium (dissolved)	µg/l	1.7	ISO 17025	5.9	5.5	5.8	6.0	15
Zinc (dissolved)	µg/l	0.4	ISO 17025	1.1	1.8	5.5	7.6	8.2



Analytical Report Number: 19-36247

Project / Site name: Southall

Your Order No: 2502

Lab Sample Number				1194588	1194589			
Sample Reference				TP107 SP17B	TP107 SP17B			
Sample Number				S1	S2			
Depth (m)				1.00	3.50			
Date Sampled				04/04/2019	04/04/2019			
Time Taken				None Supplied	None Supplied			
Analytical Parameter (Leachate Analysis)				Units	Limit of detection	Accreditation Status		

Heavy Metals / Metalloids

Arsenic (dissolved)	µg/l	1.1	ISO 17025	1.9	18			
Barium (dissolved)	µg/l	0.05	ISO 17025	38	36			
Beryllium (dissolved)	µg/l	0.2	ISO 17025	< 0.2	< 0.2			
Boron (dissolved)	µg/l	10	ISO 17025	130	130			
Cadmium (dissolved)	µg/l	0.08	ISO 17025	< 0.08	< 0.08			
Chromium (hexavalent)	µg/l	5	ISO 17025	< 5.0	< 5.0			
Chromium (III)	µg/l	1	NONE	2.0	2.2			
Chromium (dissolved)	µg/l	0.4	ISO 17025	2.0	2.2			
Copper (dissolved)	µg/l	0.7	ISO 17025	17	30			
Lead (dissolved)	µg/l	1	ISO 17025	< 1.0	1.4			
Mercury (dissolved)	µg/l	0.5	ISO 17025	< 0.5	< 0.5			
Nickel (dissolved)	µg/l	0.3	ISO 17025	3.1	7.5			
Selenium (dissolved)	µg/l	4	ISO 17025	< 4.0	< 4.0			
Vanadium (dissolved)	µg/l	1.7	ISO 17025	4.2	11			
Zinc (dissolved)	µg/l	0.4	ISO 17025	8.5	7.4			

Analytical Report Number : 19-36247

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* These descriptions are only intended to act as a cross check if sample identities are questioned. The major constituent of the sample is intended to act with respect to MCERTS validation. The laboratory is accredited for sand, clay and loam (MCERTS) soil types. Data for unaccredited types of solid should be interpreted with care.

Stone content of a sample is calculated as the % weight of the stones not passing a 10 mm sieve. Results are not corrected for stone content.

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
1194574	TP101 Lagoon Base	S1	0.30	Brown clay and sand with gravel.
1194575	TP102 Lagoon Base	S1	0.10	Brown clay and loam with vegetation.
1194576	TP103 Lagoon Base	S1	0.20	Brown clay and loam with gravel and vegetation.
1194577	TP104 FCA TS	S1	1.00	Brown loam and clay with gravel and vegetation.
1194578	TP105 FCA TS Oil	S1	0.30	Brown loam and clay with gravel and vegetation.
1194579	TP106 SP 17B	S1	1.50	Brown clay and sand with gravel and vegetation.
1194580	TP106 SP 17B	S2	3.00	Brown clay and sand with gravel.
1194581	TP107 SP17B	S1	1.00	Brown loam and clay with gravel and vegetation.
1194582	TP107 SP17B	S2	3.50	Brown clay and sand with gravel and clinker.

Analytical Report Number : 19-36247

Project / Site name: Southall

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Water (PrW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Ammoniacal Nitrogen as N in soil	Determination of Ammonium/Ammonia/Ammoniacal Nitrogen by the discrete analyser (colorimetric) salicylate/nitroprusside method,10:1 water extraction.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L082-PL	W	MCERTS
Asbestos identification in soil	Asbestos Identification with the use of polarised light microscopy in conjunction with disperion staining techniques.	In house method based on HSG 248	A001-PL	D	ISO 17025
Asbestos Quantification - Gravimetric	Asbestos quantification by gravimetric method - in house method based on references.	HSE Report No: 83/1996, HSG 248, HSG 264 & SCA Blue Book (draft).	A006-PL	D	ISO 17025
Boron in leachate	Determination of boron in leachate. Sample acidified and followed by ICP-OES.	In-house method based on MEWAM	L039-PL	W	ISO 17025
Boron, water soluble, in soil	Determination of water soluble boron in soil by hot water extract followed by ICP-OES.	In-house method based on Second Site Properties version 3	L038-PL	D	MCERTS
BTEX and MTBE in soil (Monoaromatics)	Determination of BTEX in soil by headspace GC-MS.	In-house method based on USEPA8260	L073B-PL	W	MCERTS
chromium III in soil	In-house method by calculation from total Cr and Cr VI.	In-house method	L068-PL	D	NONE
Cr (III) in soil	In-house method by calculation from total Cr and Cr VI.	In-house method by calculation	L080-PL	W	NONE
D.O. for Gravimetric Quant if Screen/ID positive	Dependent option for Gravimetric Quant if Screen/ID positive scheduled.	In house asbestos methods A001 & A006.	A006-PL	D	NONE
DRO C10-28 (Soil)	Determination of TPH bands by HS-GC-MS/GC-FID	In-house method with silica gel split/clean up.	L076-PL	D	NONE
Free cyanide in soil	Determination of free cyanide by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	MCERTS
Hexavalent chromium in leachate	Determination of hexavalent chromium in leachate by acidification, addition of 1,5 diphenylcarbazine followed by colorimetry.	In-house method	L080-PL	W	ISO 17025
Hexavalent chromium in soil	Determination of hexavalent chromium in soil by extraction in water then by acidification, addition of 1,5 diphenylcarbazine followed by colorimetry.	In-house method	L080-PL	W	MCERTS
Metals by ICP-OES in leachate	Determination of metals in leachate by acidification followed by ICP-OES.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L039-PL	W	ISO 17025
Metals in soil by ICP-OES	Determination of metals in soil by aqua-regia digestion followed by ICP-OES.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L038-PL	D	MCERTS
Moisture Content	Moisture content, determined gravimetrically.	In-house method based on BS1377 Part 2, 1990, Chemical and Electrochemical Tests	L019-UK/PL	W	NONE
Monohydric phenols in soil	Determination of phenols in soil by extraction with sodium hydroxide followed by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (skalar)	L080-PL	W	MCERTS

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The results included within the report are representative of the samples submitted for analysis.

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Analytical Report Number : 19-36247

Project / Site name: Southall

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Water (PrW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
NRA Leachate Prep	10:1 extract with de-ionised water shaken for 24 hours then filtered.	In-house method based on National Rivers Authority	L020-PL	W	NONE
Organic matter (Automated) in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate.	BS1377 Part 3, 1990, Chemical and Electrochemical Tests""	L009-PL	D	MCERTS
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L099-PL	D	MCERTS
Speciated EPA-16 PAHs in soil	Determination of PAH compounds in soil by extraction in dichloromethane and hexane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270	L064-PL	D	MCERTS
Speciated WAC-17 PAHs in soil	Determination of PAH compounds in soil by extraction in dichloromethane and hexane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270. MCERTS accredited except Coronene.	L064-PL	D	NONE
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE
Sulphate, water soluble, in soil (16hr extraction)	Determination of water soluble sulphate by ICP-OES. Results reported directly (leachate equivalent) and corrected for extraction ratio (soil equivalent).	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests, 2:1 water:soil extraction, analysis by ICP-OES.	L038-PL	D	MCERTS
Total cyanide in soil	Determination of total cyanide by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	MCERTS
TPH Oils (Soils)	Determination of extractable hydrocarbons in soil by GC-MS/FID.	In-house method with silica gel split/clean up.	L076-PL	D	MCERTS
TPHCWG (Soil)	Determination of hexane extractable hydrocarbons in soil by GC-MS/GC-FID.	In-house method with silica gel split/clean up.	L088/76-PL	W	MCERTS

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.

For method numbers ending in 'PL' analysis have been carried out in our laboratory in Poland.

Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30°C.



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Analytical Report Number : 19-47039

Project / Site name:	Southall	Samples received on:	19/06/2019
Your job number:	CG-28308	Samples instructed on:	25/06/2019
Your order number:	2917	Analysis completed by:	04/07/2019
Report Issue Number:	1	Report issued on:	04/07/2019
Samples Analysed:	16 soil samples		

Signed: 

Katarzyna Lewicka
Head of Reporting Section
For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41 -711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

soils	- 4 weeks from reporting
leachates	- 2 weeks from reporting
waters	- 2 weeks from reporting
asbestos	- 6 months from reporting

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Any assessments of compliance with specifications are based on actual analytical results with no contribution from uncertainty of measurement. Application of uncertainty of measurement would provide a range within which the true result lies. An estimate of measurement uncertainty can be provided on request.

Analytical Report Number: 19-47039

Project / Site name: Southall

Your Order No: 2917

Lab Sample Number				1252905	1252906	1252907	1252908	1252909
Sample Reference				SP17B	SP17B	SP17B	SP17C	SP17A
Sample Number				1	2	3	1	1
Depth (m)				None Supplied	None Supplied	None Supplied	None Supplied	0.20
Date Sampled				18/06/2019	18/06/2019	18/06/2019	18/06/2019	18/06/2019
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
Stone Content	%	0.1	NONE	-	-	-	-	-
Moisture Content	%	N/A	NONE	-	-	-	-	-
Total mass of sample received	kg	0.001	NONE	-	-	-	-	-

Asbestos in Soil Screen / Identification Name	Type	N/A	ISO 17025	Chrysotile	Chrysotile	Chrysotile	Chrysotile	Chrysotile
Asbestos in Soil	Type	N/A	ISO 17025	Detected	Detected	Detected	Detected	Detected
Asbestos Quantification (Stage 2)	%	0.001	ISO 17025	< 0.001	0.001	0.001	0.004	< 0.001
Asbestos Quantification Total	%	0.001	ISO 17025	< 0.001	0.001	0.001	0.004	< 0.001

General Inorganics

Free Cyanide (low level)	mg/kg	0.5	ISO 17025	-	-	-	-	-
Ammonia as NH ₃	mg/kg	0.5	MCERTS	-	-	-	-	-

Total Phenols

Total Phenols (monohydric)	mg/kg	1	MCERTS	-	-	-	-	-
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Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	-	-	-	-	-
Benzo(a)pyrene	mg/kg	0.05	MCERTS	-	-	-	-	-

Heavy Metals / Metalloids

Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	-	-	-	-	-
Chromium (hexavalent)	mg/kg	4	MCERTS	-	-	-	-	-
Lead (aqua regia extractable)	mg/kg	1	MCERTS	-	-	-	-	-
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	-	-	-	-	-

Monoaromatics & Oxygenates

Benzene	µg/kg	1	MCERTS	-	-	-	-	-
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Analytical Report Number: 19-47039

Project / Site name: Southall

Your Order No: 2917

Lab Sample Number	1252910	1252911	1252912	1252913	1252914
Sample Reference	SP17A	PLTP2	PLTP2	PLTP1	PLTP1
Sample Number	2	1	2	1	2
Depth (m)	2.00	0.10	0.30	0.10	0.30
Date Sampled	18/06/2019	18/06/2019	18/06/2019	18/06/2019	18/06/2019
Time Taken	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status		
Stone Content	%	0.1	NONE	-	< 0.1
Moisture Content	%	N/A	NONE	-	17
Total mass of sample received	kg	0.001	NONE	-	1.1

Asbestos in Soil Screen / Identification Name	Type	N/A	ISO 17025	Chrysotile	Chrysotile	Chrysotile	Chrysotile	Chrysotile
Asbestos in Soil	Type	N/A	ISO 17025	Detected	Detected	Detected	Detected	Detected
Asbestos Quantification (Stage 2)	%	0.001	ISO 17025	0.001	< 0.001	< 0.001	< 0.001	< 0.001
Asbestos Quantification Total	%	0.001	ISO 17025	0.001	< 0.001	< 0.001	< 0.001	< 0.001

General Inorganics

Free Cyanide (low level)	mg/kg	0.5	ISO 17025	-	< 0.5	< 0.5	< 0.5	< 0.5
Ammonia as NH ₃	mg/kg	0.5	MCERTS	-	< 0.5	< 0.5	< 0.5	< 0.5

Total Phenols

Total Phenols (monohydric)	mg/kg	1	MCERTS	-	< 1.0	< 1.0	< 1.0	< 1.0
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Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	-	0.67	< 0.05	0.37	< 0.05
Benzo(a)pyrene	mg/kg	0.05	MCERTS	-	6.6	4.6	4.5	6.7

Heavy Metals / Metalloids

Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	-	3.7	1.6	6.7	3.8
Chromium (hexavalent)	mg/kg	4	MCERTS	-	< 4.0	< 4.0	< 4.0	< 4.0
Lead (aqua regia extractable)	mg/kg	1	MCERTS	-	270	160	320	390
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	-	1.7	0.9	2.2	1.2

Monoaromatics & Oxygenates

Benzene	µg/kg	1	MCERTS	-	< 1.0	< 1.0	< 1.0	< 1.0
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Analytical Report Number: 19-47039

Project / Site name: Southall

Your Order No: 2917

Lab Sample Number	1252915	1252916	1252917	1252918	1252919
Sample Reference	PLTP3	PLTP3	EYBN	EYBN	EYBS
Sample Number	1	2	1	2	1
Depth (m)	0.10	0.30	0.10	0.10	0.10
Date Sampled	18/06/2019	18/06/2019	18/06/2019	18/06/2019	18/06/2019
Time Taken	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status		
Stone Content	%	0.1	NONE	< 0.1	< 0.1
Moisture Content	%	N/A	NONE	18	11
Total mass of sample received	kg	0.001	NONE	1.2	1.1

Asbestos in Soil Screen / Identification Name	Type	N/A	ISO 17025	Chrysotile	Chrysotile	Chrysotile	Chrysotile	Chrysotile
Asbestos in Soil	Type	N/A	ISO 17025	Detected	Detected	Detected	Detected	Detected
Asbestos Quantification (Stage 2)	%	0.001	ISO 17025	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Asbestos Quantification Total	%	0.001	ISO 17025	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001

General Inorganics

Free Cyanide (low level)	mg/kg	0.5	ISO 17025	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Ammonia as NH ₃	mg/kg	0.5	MCERTS	< 0.5	< 0.5	< 0.5	0.7	< 0.5

Total Phenols

Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
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Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	0.35	0.28	0.28	0.23	0.42
Benzo(a)pyrene	mg/kg	0.05	MCERTS	3.9	4.0	4.4	3.1	4.2

Heavy Metals / Metalloids

Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	3.9	3.4	2.1	2.1	8.0
Chromium (hexavalent)	mg/kg	4	MCERTS	< 4.0	< 4.0	< 4.0	< 4.0	< 4.0
Lead (aqua regia extractable)	mg/kg	1	MCERTS	250	280	220	270	270
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	1.7	1.3	1.5	1.9	1.8

Monoaromatics & Oxygenates

Benzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
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Analytical Report Number: 19-47039

Project / Site name: Southall

Your Order No: 2917

Lab Sample Number				1252920				
Sample Reference				WYBS				
Sample Number				1				
Depth (m)				0.10				
Date Sampled				18/06/2019				
Time Taken				None Supplied				
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
Stone Content	%	0.1	NONE	< 0.1				
Moisture Content	%	N/A	NONE	18				
Total mass of sample received	kg	0.001	NONE	1.2				
Asbestos in Soil Screen / Identification Name	Type	N/A	ISO 17025	Chrysotile				
Asbestos in Soil	Type	N/A	ISO 17025	Detected				
Asbestos Quantification (Stage 2)	%	0.001	ISO 17025	< 0.001				
Asbestos Quantification Total	%	0.001	ISO 17025	< 0.001				
General Inorganics								
Free Cyanide (low level)	mg/kg	0.5	ISO 17025	< 0.5				
Ammonia as NH ₃	mg/kg	0.5	MCERTS	< 0.5				
Total Phenols								
Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0				
Speciated PAHs								
Naphthalene	mg/kg	0.05	MCERTS	0.30				
Benzo(a)pyrene	mg/kg	0.05	MCERTS	2.4				
Heavy Metals / Metalloids								
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	2.0				
Chromium (hexavalent)	mg/kg	4	MCERTS	< 4.0				
Lead (aqua regia extractable)	mg/kg	1	MCERTS	240				
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	1.7				
Monoaromatics & Oxygenates								
Benzene	µg/kg	1	MCERTS	< 1.0				



Analytical Report Number: **19-47039**
Project / Site name: **Southall**
Your Order No: **2917**

Certificate of Analysis - Asbestos Quantification

Methods:

Qualitative Analysis

The samples were analysed qualitatively for asbestos by polarising light and dispersion staining as described by the Health and Safety Executive in HSG 248.

Quantitative Analysis

The analysis was carried out using our documented in-house method A006 based on HSE Contract Research Report No: 83/1996: Development and Validation of an analytical method to determine the amount of asbestos in soils and loose aggregates (Davies et al, 1996) and HSG 248. Our method includes initial examination of the entire representative sample, then fractionation and detailed analysis of each fraction, with quantification by hand picking and weighing.

The limit of detection (reporting limit) of this method is 0.001 %.

The method has been validated using samples of at least 100 g, results for samples smaller than this should be interpreted with caution.

Both Qualitative and Quantitative Analyses are UKAS accredited.

Sample Number	Sample ID	Sample Depth (m)	Sample Weight (g)	Asbestos Containing Material Types Detected (ACM)	PLM Results	Asbestos by hand picking/weighing (%)	Total % Asbestos in Sample
1252905	SP17B		139	Loose Fibres	Chrysotile	< 0.001	< 0.001
1252906	SP17B		120	Loose Fibres	Chrysotile	0.001	0.001
1252907	SP17B		127	Loose Fibres	Chrysotile	0.001	0.001
1252908	SP17C		113	Loose Fibrous Debris	Chrysotile	0.004	0.004
1252909	SP17A	0.20	126	Loose Fibres	Chrysotile	< 0.001	< 0.001
1252910	SP17A	2.00	122	Loose Fibres	Chrysotile	0.001	0.001
1252911	PLTP2	0.10	124	Loose Fibres	Chrysotile	< 0.001	< 0.001
1252912	PLTP2	0.30	138	Loose Fibres	Chrysotile	< 0.001	< 0.001
1252913	PLTP1	0.10	125	Loose Fibres	Chrysotile	< 0.001	< 0.001
1252914	PLTP1	0.30	160	Loose Fibres	Chrysotile	< 0.001	< 0.001
1252915	PLTP3	0.10	128	Loose Fibres	Chrysotile	< 0.001	< 0.001
1252916	PLTP3	0.30	160	Loose Fibres	Chrysotile	< 0.001	< 0.001
1252917	EYBN	0.10	119	Loose Fibres	Chrysotile	< 0.001	< 0.001
1252918	EYBN	0.10	136	Loose Fibres	Chrysotile	< 0.001	< 0.001
1252919	EYBS	0.10	138	Loose Fibres	Chrysotile	< 0.001	< 0.001
1252920	WYBS	0.10	142	Loose Fibres	Chrysotile	< 0.001	< 0.001



Analytical Report Number: 19-47039
Project / Site name: Southall
Your Order No: 2917

Certificate of Analysis - Asbestos Quantification

Methods:

Qualitative Analysis

The samples were analysed qualitatively for asbestos by polarising light and dispersion staining as described by the Health and Safety Executive in HSG 248.

Quantitative Analysis

The analysis was carried out using our documented in-house method A006 based on HSE Contract Research Report No: 83/1996: Development and Validation of an analytical method to determine the amount of asbestos in soils and loose aggregates (Davies et al, 1996) and HSG 248. Our method includes initial examination of the entire representative sample, then fractionation and detailed analysis of each fraction, with quantification by hand picking and weighing.

The limit of detection (reporting limit) of this method is 0.001 %.

The method has been validated using samples of at least 100 g, results for samples smaller than this should be interpreted with caution.

Both Qualitative and Quantitative Analyses are UKAS accredited.

Sample Number	Sample ID	Sample Depth (m)	Sample Weight (g)	Asbestos Containing Material Types Detected (ACM)	PLM Results	Asbestos by hand picking/weighing (%)	Total % Asbestos in Sample
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Opinions and interpretations expressed herein are outside the scope of UKAS accreditation.

Analytical Report Number : 19-47039

Project / Site name: Southall

* These descriptions are only intended to act as a cross check if sample identities are questioned. The major constituent of the sample is intended to act with respect to MCERTS validation. The laboratory is accredited for sand, clay and loam (MCERTS) soil types. Data for unaccredited types of solid should be interpreted with care.

Stone content of a sample is calculated as the % weight of the stones not passing a 10 mm sieve. Results are not corrected for stone content.

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
1252905	SP17B	1	None Supplied	-
1252906	SP17B	2	None Supplied	-
1252907	SP17B	3	None Supplied	-
1252908	SP17C	1	None Supplied	-
1252909	SP17A	1	0.20	-
1252910	SP17A	2	2.00	-
1252911	PLTP2	1	0.10	Brown loam and clay with gravel and vegetation.
1252912	PLTP2	2	0.30	Brown loam and clay with gravel and vegetation.
1252913	PLTP1	1	0.10	Brown loam and clay with gravel and vegetation.
1252914	PLTP1	2	0.30	Brown loam and clay with gravel and vegetation.
1252915	PLTP3	1	0.10	Brown loam and clay with gravel and vegetation.
1252916	PLTP3	2	0.30	Brown loam and clay with gravel and vegetation.
1252917	EYBN	1	0.10	Brown loam and clay with gravel and vegetation.
1252918	EYBN	2	0.10	Brown loam and clay with gravel and vegetation.
1252919	EYBS	1	0.10	Brown loam and clay with gravel and vegetation.
1252920	WYBS	1	0.10	Brown loam and clay with gravel and vegetation.

Analytical Report Number : 19-47039

Project / Site name: Southall

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Water (PrW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Ammonia as NH ₃ in soil	Determination of Ammonium/Ammonia/Ammoniacal Nitrogen by the colorimetric salicylate/nitroprusside method, 10:1 water extraction.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L082-PL	W	MCERTS
Asbestos identification in soil	Asbestos Identification with the use of polarised light microscopy in conjunction with disperion staining techniques.	In house method based on HSG 248	A001-PL	D	ISO 17025
Asbestos Quantification - Gravimetric	Asbestos quantification by gravimetric method - in house method based on references.	HSE Report No: 83/1996, HSG 248, HSG 264 & SCA Blue Book (draft).	A006-PL	D	ISO 17025
BTEX in soil (Monoaromatics)	Determination of BTEX in soil by headspace GC-MS.	In-house method based on USEPA8260	L073B-PL	W	MCERTS
D.O. for Gravimetric Quant if Screen/ID positive	Dependent option for Gravimetric Quant if Screen/ID positive scheduled.	In house asbestos methods A001 & A006.	A006-PL	D	NONE
Free cyanide (Low level) in soil	Determination of free cyanide by distillation followed by colorimetry.	In-house method	L080-PL	W	ISO 17025
Hexavalent chromium in soil	Determination of hexavalent chromium in soil by extraction in water then by acidification, addition of 1,5 diphenylcarbazine followed by colorimetry.	In-house method	L080-PL	W	MCERTS
Metals in soil by ICP-OES	Determination of metals in soil by aqua-regia digestion followed by ICP-OES.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L038-PL	D	MCERTS
Moisture Content	Moisture content, determined gravimetrically.	In-house method based on BS1377 Part 2, 1990, Chemical and Electrochemical Tests	L019-UK/PL	W	NONE
Monohydric phenols in soil	Determination of phenols in soil by extraction with sodium hydroxide followed by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (skalar)	L080-PL	W	MCERTS
Speciated EPA-16 PAHs in soil	Determination of PAH compounds in soil by extraction in dichloromethane and hexane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270	L064-PL	D	MCERTS
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.

For method numbers ending in 'PL' analysis have been carried out in our laboratory in Poland.

Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30°C.

CGL Testing – FCA

**Chris Gordon**

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Analytical Report Number : 17-65741

Project / Site name:	Southall	Samples received on:	30/10/2017
Your job number:	CG-28308	Samples instructed on:	30/10/2017
Your order number:	4586	Analysis completed by:	06/11/2017
Report Issue Number:	1	Report issued on:	06/11/2017
Samples Analysed:	1 soil sample		

Signed:

Rexona Rahman
Customer Services Manager
For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41 -711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

soils	- 4 weeks from reporting
leachates	- 2 weeks from reporting
waters	- 2 weeks from reporting
asbestos	- 6 months from reporting

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Analytical Report Number: 17-65741

Project / Site name: Southall

Your Order No: 4586

Lab Sample Number				846725				
Sample Reference				FCTP1				
Sample Number				ES1				
Depth (m)				1.30				
Date Sampled				26/10/2017				
Time Taken				None Supplied				
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
Stone Content	%	0.1	NONE	34				
Moisture Content	%	N/A	NONE	2.0				
Total mass of sample received	kg	0.001	NONE	1.4				

General Inorganics

Free Cyanide (low level)	mg/kg	0.5	ISO 17025	< 0.5				
Ammonia as NH ₃	mg/kg	0.5	MCERTS	< 0.5				

Total Phenols

Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0				
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Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	< 0.05				
Benzo(a)pyrene	mg/kg	0.05	MCERTS	0.19				

Heavy Metals / Metalloids

Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2				
Chromium (hexavalent)	mg/kg	4	MCERTS	< 4.0				
Lead (aqua regia extractable)	mg/kg	1	MCERTS	19				
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3				

Monoaromatics

Benzene	µg/kg	1	MCERTS	< 1.0				
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Analytical Report Number : 17-65741

Project / Site name: Southall

* These descriptions are only intended to act as a cross check if sample identities are questioned. The major constituent of the sample is intended to act with respect to MCERTS validation. The laboratory is accredited for sand, clay and loam (MCERTS) soil types. Data for unaccredited types of solid should be interpreted with care.

Stone content of a sample is calculated as the % weight of the stones not passing a 10 mm sieve. Results are not corrected for stone content.

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
846725	FCTP1	ES1	1.30	Light brown sand with gravel and stones.

Analytical Report Number : 17-65741

Project / Site name: Southall

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Water (PrW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Ammonia as NH ₃ in soil	Determination of Ammonium/Ammonia/Ammoniacal Nitrogen by the colorimetric salicylate/nitroprusside method, 10:1 water extraction.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L082-PL	W	MCERTS
BTEX in soil (Monoaromatics)	Determination of BTEX in soil by headspace GC-MS.	In-house method based on USEPA8260	L073B-PL	W	MCERTS
Free cyanide (Low level) in soil	Determination of free cyanide by distillation followed by colorimetry.	In-house method	L080-PL	W	ISO 17025
Hexavalent chromium in soil	Determination of hexavalent chromium in soil by extraction in water then by acidification, addition of 1,5 diphénylcarbazine followed by colorimetry.	In-house method	L080-PL	W	MCERTS
Metals in soil by ICP-OES	Determination of metals in soil by aqua-regia digestion followed by ICP-OES.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L038-PL	D	MCERTS
Moisture Content	Moisture content, determined gravimetrically.	In-house method based on BS1377 Part 2, 1990, Chemical and Electrochemical Tests	L019-UK/PL	W	NONE
Monohydric phenols in soil	Determination of phenols in soil by extraction with sodium hydroxide followed by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (skalar)	L080-PL	W	MCERTS
Speciated EPA-16 PAHs in soil	Determination of PAH compounds in soil by extraction in dichloromethane and hexane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270	L064-PL	D	MCERTS
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.

For method numbers ending in 'PL' analysis have been carried out in our laboratory in Poland.

Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 300C.

**Chris Gordon**

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Analytical Report Number : 17-66259

Project / Site name:	Southall	Samples received on:	02/11/2017
Your job number:	CG-28308	Samples instructed on:	02/11/2017
Your order number:	4586	Analysis completed by:	07/11/2017
Report Issue Number:	1	Report issued on:	07/11/2017
Samples Analysed:	4 soil samples		


Signed: _____

Vineetha Meethale Vettil
Senior Account Manager
For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41 -711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

soils	- 4 weeks from reporting
leachates	- 2 weeks from reporting
waters	- 2 weeks from reporting
asbestos	- 6 months from reporting

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Analytical Report Number: 17-66259

Project / Site name: Southall

Your Order No: 4586

Lab Sample Number				849604	849605	849606	849607	
Sample Reference				FCTP2	FCTP3	FCTP4	FCTP5	
Sample Number				ES1	ES1	ES1	ES1	
Depth (m)				1.60	2.00	1.90	1.60	
Date Sampled				26/10/2017	26/10/2017	26/10/2017	26/10/2017	
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	
Moisture Content	%	N/A	NONE	21	22	19	21	
Total mass of sample received	kg	0.001	NONE	1.3	1.5	1.4	1.4	

General Inorganics

Free Cyanide (low level)	mg/kg	0.5	ISO 17025	< 0.5	< 0.5	< 0.5	< 0.5	
Ammonia as NH ₃	mg/kg	0.5	MCERTS	< 0.5	< 0.5	0.8	< 0.5	

Total Phenols

Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	
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Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	
Benzo(a)pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	

Heavy Metals / Metalloids

Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2	< 0.2	
Chromium (hexavalent)	mg/kg	4	MCERTS	< 4.0	< 4.0	< 4.0	< 4.0	
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	44	51	48	50	
Lead (aqua regia extractable)	mg/kg	1	MCERTS	14	17	14	16	
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3	

Monoaromatics

Benzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	
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Analytical Report Number : 17-66259

Project / Site name: Southall

* These descriptions are only intended to act as a cross check if sample identities are questioned. The major constituent of the sample is intended to act with respect to MCERTS validation. The laboratory is accredited for sand, clay and loam (MCERTS) soil types. Data for unaccredited types of solid should be interpreted with care.

Stone content of a sample is calculated as the % weight of the stones not passing a 10 mm sieve. Results are not corrected for stone content.

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
849604	FCTP2	ES1	1.60	Brown clay.
849605	FCTP3	ES1	2.00	Brown clay.
849606	FCTP4	ES1	1.90	Brown clay.
849607	FCTP5	ES1	1.60	Brown clay.

Analytical Report Number : 17-66259

Project / Site name: Southall

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Water (PrW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Ammonia as NH ₃ in soil	Determination of Ammonium/Ammonia/Ammoniacal Nitrogen by the colorimetric salicylate/nitroprusside method, 10:1 water extraction.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L082-PL	W	MCERTS
BTEX in soil (Monoaromatics)	Determination of BTEX in soil by headspace GC-MS.	In-house method based on USEPA8260	L073B-PL	W	MCERTS
Free cyanide (Low level) in soil	Determination of free cyanide by distillation followed by colorimetry.	In-house method	L080-PL	W	ISO 17025
Hexavalent chromium in soil	Determination of hexavalent chromium in soil by extraction in water then by acidification, addition of 1,5 dphenylcarbazine followed by colorimetry.	In-house method	L080-PL	W	MCERTS
Metals in soil by ICP-OES	Determination of metals in soil by aqua-regia digestion followed by ICP-OES.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L038-PL	D	MCERTS
Moisture Content	Moisture content, determined gravimetrically.	In-house method based on BS1377 Part 2, 1990, Chemical and Electrochemical Tests	L019-UK/PL	W	NONE
Monohydric phenols in soil	Determination of phenols in soil by extraction with sodium hydroxide followed by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (skalar)	L080-PL	W	MCERTS
Speciated EPA-16 PAHs in soil	Determination of PAH compounds in soil by extraction in dichloromethane and hexane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270	L064-PL	D	MCERTS
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.

For method numbers ending in 'PL' analysis have been carried out in our laboratory in Poland.

Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.

**Chris Gordon**

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Analytical Report Number : 17-68111

Project / Site name:	Southall	Samples received on:	20/11/2017
Your job number:	CG-28308	Samples instructed on:	20/11/2017
Your order number:	4586	Analysis completed by:	23/11/2017
Report Issue Number:	1	Report issued on:	23/11/2017
Samples Analysed:	9 soil samples		

Signed:

Rexona Rahman
Customer Services Manager
For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41 -711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

soils	- 4 weeks from reporting
leachates	- 2 weeks from reporting
waters	- 2 weeks from reporting
asbestos	- 6 months from reporting

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Analytical Report Number: 17-68111

Project / Site name: Southall

Your Order No: 4586

Lab Sample Number				860736	860737	860738	860739	860740
Sample Reference				FCTP6	FCTP6	FCTP6	FCTP7	FCTP7
Sample Number				ES1	ES2	ES3	ES4	ES5
Depth (m)				0.40	0.80	3.70	0.30	0.80
Date Sampled				15/11/2017	15/11/2017	15/11/2017	16/11/2017	16/11/2017
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
Stone Content	%	0.1	NONE	7.9	31	< 0.1	17	41
Moisture Content	%	N/A	NONE	13	5.9	19	9.6	4.3
Total mass of sample received	kg	0.001	NONE	1.4	1.1	1.3	1.1	1.4

General Inorganics

pH - Automated	pH Units	N/A	MCERTS	6.9	7.3	7.9	7.6	8.2
Total Cyanide	mg/kg	1	MCERTS	< 1	< 1	< 1	< 1	< 1
Free Cyanide (low level)	mg/kg	0.5	ISO 17025	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Total Sulphate as SO ₄	mg/kg	50	MCERTS	900	300	710	1200	150
Ammoniacal Nitrogen as N	mg/kg	0.5	MCERTS	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Organic Matter	%	0.1	MCERTS	7.2	0.3	1.3	4.8	0.2

Total Phenols

Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
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Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Acenaphthylene	mg/kg	0.05	MCERTS	0.33	< 0.05	< 0.05	< 0.05	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	0.97	< 0.05	< 0.05	0.35	< 0.05
Fluorene	mg/kg	0.05	MCERTS	1.2	< 0.05	< 0.05	0.40	< 0.05
Phenanthrene	mg/kg	0.05	MCERTS	13	< 0.05	< 0.05	5.3	< 0.05
Anthracene	mg/kg	0.05	MCERTS	3.0	< 0.05	< 0.05	1.0	< 0.05
Fluoranthene	mg/kg	0.05	MCERTS	30	< 0.05	< 0.05	12	< 0.05
Pyrene	mg/kg	0.05	MCERTS	23	< 0.05	< 0.05	9.5	< 0.05
Benzo(a)anthracene	mg/kg	0.05	MCERTS	14	< 0.05	< 0.05	6.1	< 0.05
Chrysene	mg/kg	0.05	MCERTS	13	< 0.05	< 0.05	5.0	< 0.05
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	14	< 0.05	< 0.05	5.3	< 0.05
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	9.2	< 0.05	< 0.05	3.9	< 0.05
Benzo(a)pyrene	mg/kg	0.05	MCERTS	14	< 0.05	< 0.05	5.1	< 0.05
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	7.6	< 0.05	< 0.05	3.1	< 0.05
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	1.8	< 0.05	< 0.05	0.71	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	9.4	< 0.05	< 0.05	3.7	< 0.05
Coronene	mg/kg	0.05	NONE	4.4	< 0.05	< 0.05	< 0.05	< 0.05

Total PAH

Total WAC-17 PAHs	mg/kg	0.85	NONE	160	< 0.9	< 0.9	62	< 0.9
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Heavy Metals / Metalloids

Antimony (aqua regia extractable)	mg/kg	1	ISO 17025	8.4	1.6	< 1.0	5.3	< 1.0
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	17	23	9.5	14	15
Barium (aqua regia extractable)	mg/kg	1	MCERTS	540	36	51	290	45
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	1.4	0.73	1.4	1.1	0.88
Boron (water soluble)	mg/kg	0.2	MCERTS	1.7	0.5	2.0	1.2	1.4
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	2.9	< 0.2	< 0.2	1.2	< 0.2
Chromium (hexavalent)	mg/kg	1.2	MCERTS	< 1.2	< 1.2	< 1.2	< 1.2	< 1.2
Chromium (III)	mg/kg	1	NONE	41	21	54	35	22
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	41	21	54	35	22
Copper (aqua regia extractable)	mg/kg	1	MCERTS	300	18	34	140	15
Lead (aqua regia extractable)	mg/kg	1	MCERTS	580	10	17	190	7.7
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	2.0	< 0.3	< 0.3	0.9	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	44	44	44	29	27
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	43	43	77	41	36
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	1300	43	90	390	34

Analytical Report Number: 17-68111

Project / Site name: Southall

Your Order No: 4586

Lab Sample Number	860736	860737	860738	860739	860740
Sample Reference	FCTP6	FCTP6	FCTP6	FCTP7	FCTP7
Sample Number	ES1	ES2	ES3	ES4	ES5
Depth (m)	0.40	0.80	3.70	0.30	0.80
Date Sampled	15/11/2017	15/11/2017	15/11/2017	16/11/2017	16/11/2017
Time Taken	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status		

Monoaromatics

Benzene	ug/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Toluene	ug/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Ethylbenzene	ug/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
p & m-xylene	ug/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
o-xylene	ug/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
MTBE (Methyl Tertiary Butyl Ether)	ug/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0

Petroleum Hydrocarbons

TPH-CWG - Aliphatic >EC5 - EC6	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aliphatic >EC6 - EC8	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aliphatic >EC8 - EC10	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aliphatic >EC10 - EC12	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic >EC12 - EC16	mg/kg	2	MCERTS	3.8	< 2.0	< 2.0	< 2.0	< 2.0
TPH-CWG - Aliphatic >EC16 - EC21	mg/kg	8	MCERTS	8.9	< 8.0	< 8.0	< 8.0	< 8.0
TPH-CWG - Aliphatic >EC21 - EC35	mg/kg	8	MCERTS	93	< 8.0	< 8.0	49	< 8.0
TPH-CWG - Aliphatic (EC5 - EC35)	mg/kg	10	MCERTS	110	< 10	< 10	56	< 10

TPH-CWG - Aromatic >EC5 - EC7	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aromatic >EC7 - EC8	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aromatic >EC8 - EC10	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aromatic >EC10 - EC12	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aromatic >EC12 - EC16	mg/kg	2	MCERTS	6.6	< 2.0	< 2.0	3.2	< 2.0
TPH-CWG - Aromatic >EC16 - EC21	mg/kg	10	MCERTS	92	< 10	< 10	44	< 10
TPH-CWG - Aromatic >EC21 - EC35	mg/kg	10	MCERTS	250	< 10	< 10	110	< 10
TPH-CWG - Aromatic (EC5 - EC35)	mg/kg	10	MCERTS	350	< 10	< 10	160	< 10

Analytical Report Number: 17-68111

Project / Site name: Southall

Your Order No: 4586

Lab Sample Number				860741	860742	860743	860744	
Sample Reference				FCTP7	FCTP8	FCTP8	FCTP8	
Sample Number				ES6	ES7	ES8	ES9	
Depth (m)				4.00	0.40	1.10	4.0	
Date Sampled				16/11/2017	16/11/2017	16/11/2017	16/11/2017	
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
Stone Content	%	0.1	NONE	< 0.1	16	53	< 0.1	
Moisture Content	%	N/A	NONE	25	9.8	2.7	14	
Total mass of sample received	kg	0.001	NONE	1.2	1.1	1.4	1.2	

General Inorganics

pH - Automated	pH Units	N/A	MCERTS	8.5	6.9	7.2	7.5	
Total Cyanide	mg/kg	1	MCERTS	< 1	< 1	< 1	< 1	
Free Cyanide (low level)	mg/kg	0.5	ISO 17025	< 0.5	< 0.5	< 0.5	< 0.5	
Total Sulphate as SO ₄	mg/kg	50	MCERTS	780	780	270	1500	
Ammoniacal Nitrogen as N	mg/kg	0.5	MCERTS	< 0.5	< 0.5	< 0.5	< 0.5	
Organic Matter	%	0.1	MCERTS	1.4	5.5	0.2	2.2	

Total Phenols

Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	
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Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	0.33	< 0.05	< 0.05	
Fluorene	mg/kg	0.05	MCERTS	< 0.05	0.27	< 0.05	< 0.05	
Phenanthrene	mg/kg	0.05	MCERTS	< 0.05	3.6	< 0.05	< 0.05	
Anthracene	mg/kg	0.05	MCERTS	< 0.05	0.69	< 0.05	< 0.05	
Fluoranthene	mg/kg	0.05	MCERTS	< 0.05	6.6	< 0.05	< 0.05	
Pyrene	mg/kg	0.05	MCERTS	< 0.05	5.2	< 0.05	< 0.05	
Benzo(a)anthracene	mg/kg	0.05	MCERTS	< 0.05	3.0	< 0.05	< 0.05	
Chrysene	mg/kg	0.05	MCERTS	< 0.05	2.8	< 0.05	< 0.05	
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	< 0.05	3.1	< 0.05	< 0.05	
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	< 0.05	1.4	< 0.05	< 0.05	
Benzo(a)pyrene	mg/kg	0.05	MCERTS	< 0.05	2.5	< 0.05	< 0.05	
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	< 0.05	1.7	< 0.05	< 0.05	
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05	0.33	< 0.05	< 0.05	
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	< 0.05	1.9	< 0.05	< 0.05	
Coronene	mg/kg	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	

Total PAH

Total WAC-17 PAHs	mg/kg	0.85	NONE	< 0.9	34	< 0.9	< 0.9	
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Heavy Metals / Metalloids

Antimony (aqua regia extractable)	mg/kg	1	ISO 17025	< 1.0	6.1	< 1.0	< 1.0	
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	9.9	18	4.1	16	
Barium (aqua regia extractable)	mg/kg	1	MCERTS	51	370	13	42	
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	1.2	1.2	0.27	1.2	
Boron (water soluble)	mg/kg	0.2	MCERTS	1.5	1.5	0.7	2.2	
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	1.2	< 0.2	< 0.2	
Chromium (hexavalent)	mg/kg	1.2	MCERTS	< 1.2	< 1.2	< 1.2	< 1.2	
Chromium (III)	mg/kg	1	NONE	49	42	13	44	
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	49	42	13	44	
Copper (aqua regia extractable)	mg/kg	1	MCERTS	30	220	11	29	
Lead (aqua regia extractable)	mg/kg	1	MCERTS	17	310	6.3	15	
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	1.6	< 0.3	< 0.3	
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	51	38	13	44	
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	80	46	13	66	
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	80	420	15	76	

Analytical Report Number: 17-68111

Project / Site name: Southall

Your Order No: 4586

Lab Sample Number				860741	860742	860743	860744	
Sample Reference				FCTP7	FCTP8	FCTP8	FCTP8	
Sample Number				ES6	ES7	ES8	ES9	
Depth (m)				4.00	0.40	1.10	4.0	
Date Sampled				16/11/2017	16/11/2017	16/11/2017	16/11/2017	
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	
Analytical Parameter (Soil Analysis)				Units	Limit of detection	Accreditation Status		

Monoaromatics

Benzene	ug/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	
Toluene	ug/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	
Ethylbenzene	ug/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	
p & m-xylene	ug/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	
o-xylene	ug/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	
MTBE (Methyl Tertiary Butyl Ether)	ug/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	

Petroleum Hydrocarbons

TPH-CWG - Aliphatic >EC5 - EC6	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001	
TPH-CWG - Aliphatic >EC6 - EC8	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001	
TPH-CWG - Aliphatic >EC8 - EC10	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001	
TPH-CWG - Aliphatic >EC10 - EC12	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	
TPH-CWG - Aliphatic >EC12 - EC16	mg/kg	2	MCERTS	< 2.0	2.8	< 2.0	< 2.0	
TPH-CWG - Aliphatic >EC16 - EC21	mg/kg	8	MCERTS	< 8.0	< 8.0	< 8.0	< 8.0	
TPH-CWG - Aliphatic >EC21 - EC35	mg/kg	8	MCERTS	< 8.0	44	< 8.0	< 8.0	
TPH-CWG - Aliphatic (EC5 - EC35)	mg/kg	10	MCERTS	< 10	53	< 10	< 10	

TPH-CWG - Aromatic >EC5 - EC7	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001	
TPH-CWG - Aromatic >EC7 - EC8	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001	
TPH-CWG - Aromatic >EC8 - EC10	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001	
TPH-CWG - Aromatic >EC10 - EC12	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	
TPH-CWG - Aromatic >EC12 - EC16	mg/kg	2	MCERTS	< 2.0	3.5	< 2.0	< 2.0	
TPH-CWG - Aromatic >EC16 - EC21	mg/kg	10	MCERTS	< 10	19	< 10	< 10	
TPH-CWG - Aromatic >EC21 - EC35	mg/kg	10	MCERTS	< 10	45	< 10	< 10	
TPH-CWG - Aromatic (EC5 - EC35)	mg/kg	10	MCERTS	< 10	68	< 10	< 10	



Analytical Report Number : 17-68111

Project / Site name: Southall

* These descriptions are only intended to act as a cross check if sample identities are questioned. The major constituent of the sample is intended to act with respect to MCERTS validation. The laboratory is accredited for sand, clay and loam (MCERTS) soil types. Data for unaccredited types of solid should be interpreted with care.

Stone content of a sample is calculated as the % weight of the stones not passing a 10 mm sieve. Results are not corrected for stone content.

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
860736	FCTP6	ES1	0.40	Brown loam and clay with stones and vegetation.
860737	FCTP6	ES2	0.80	Brown clay and sand with stones.
860738	FCTP6	ES3	3.70	Brown clay.
860739	FCTP7	ES4	0.30	Brown loam and clay with stones and vegetation.
860740	FCTP7	ES5	0.80	Brown clay and sand with stones.
860741	FCTP7	ES6	4.00	Brown clay.
860742	FCTP8	ES7	0.40	Brown loam and clay with stones and vegetation.
860743	FCTP8	ES8	1.10	Brown sand with stones.
860744	FCTP8	ES9	4.0	Brown clay.

Analytical Report Number : 17-68111

Project / Site name: Southall

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Water (PrW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Ammoniacal Nitrogen as N in soil	Determination of Ammonium/Ammonia/Ammoniacal Nitrogen by the discrete analyser (colorimetric) salicylate/nitroprusside method,10:1 water extraction.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L082-PL	W	MCERTS
Boron, water soluble, in soil	Determination of water soluble boron in soil by hot water extract followed by ICP-OES.	In-house method based on Second Site Properties version 3	L038-PL	D	MCERTS
BTEX and MTBE in soil (Monoaromatics)	Determination of BTEX in soil by headspace GC-MS.	In-house method based on USEPA8260	L073B-PL	W	MCERTS
Cr (III) in soil	In-house method by calculation from total Cr and Cr VI.	In-house method by calculation	L080-PL	W	NONE
Free cyanide (Low level) in soil	Determination of free cyanide by distillation followed by colorimetry.	In-house method	L080-PL	W	ISO 17025
Hexavalent chromium in soil (Lower Level)	Determination of hexavalent chromium in soil by extraction in water then by acidification, addition of 1,5 diphenylcarbazide followed by colorimetry.	In-house method	L080-PL	W	MCERTS
Metals in soil by ICP-OES	Determination of metals in soil by aqua-regia digestion followed by ICP-OES.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L038-PL	D	MCERTS
Moisture Content	Moisture content, determined gravimetrically.	In-house method based on BS1377 Part 2, 1990, Chemical and Electrochemical Tests	L019-UK/PL	W	NONE
Monohydric phenols in soil	Determination of phenols in soil by extraction with sodium hydroxide followed by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (skalar)	L080-PL	W	MCERTS
Organic matter (Automated) in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate.	BS1377 Part 3, 1990, Chemical and Electrochemical Tests""	L009-PL	D	MCERTS
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L099-PL	D	MCERTS
Speciated WAC-17 PAHs in soil	Determination of PAH compounds in soil by extraction in dichloromethane and hexane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270	L064-PL	D	NONE
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE
Total cyanide in soil	Determination of total cyanide by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	MCERTS
Total sulphate (as SO4 in soil)	Determination of total sulphate in soil by extraction with 10% HCl followed by ICP-OES.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L038-PL	D	MCERTS
TPHCWG (Soil)	Determination of hexane extractable hydrocarbons in soil by GC-MS/GC-FID.	In-house method	L088/76-PL	W	MCERTS

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.

For method numbers ending in 'PL' analysis have been carried out in our laboratory in Poland.

Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.

Iss No 17-68111-1 Southall CG-28308

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The results included within the report are representative of the samples submitted for analysis.

Page 7 of 7

*CGL Testing – Environmental Incident and
Waste Acceptance Criteria (WAC) Testing*



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Analytical Report Number : 19-47040

Project / Site name:	Southall	Samples received on:	19/06/2019
Your job number:	CG-28308	Samples instructed on:	25/06/2019
Your order number:	2917	Analysis completed by:	04/07/2019
Report Issue Number:	1	Report issued on:	04/07/2019
Samples Analysed:	6 WAC 10:1 SAMPLES		

Signed:

Rexona Rahman
Head of Customer Services
For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41 -711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

soils	- 4 weeks from reporting
leachates	- 2 weeks from reporting
waters	- 2 weeks from reporting
asbestos	- 6 months from reporting

Excel copies of reports are only valid when accompanied by this PDF certificate.

Any assessments of compliance with specifications are based on actual analytical results with no contribution from uncertainty of measurement. Application of uncertainty of measurement would provide a range within which the true result lies. An estimate of measurement uncertainty can be provided on request.

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Waste Acceptance Criteria Analytical Results							
Report No:	19-47040						
				Client: CARDGEO			
Location	Southall						
Lab Reference (Sample Number)	1252921 / 1252922			Landfill Waste Acceptance Criteria			
				Limits			
Sampling Date	18/06/2019			Inert Waste Landfill	Stable Non-reactive HAZARDOUS waste in non-hazardous Landfill	Hazardous Waste Landfill	
Sample ID	SP17B 1						
Depth (m)							
Solid Waste Analysis							
TOC (%)**	3.1			3%	5%	6%	
Loss on Ignition (%) **	6.1			--	--	10%	
BTEX (µg/kg) **	< 10			6000	--	--	
Sum of PCBs (mg/kg) **	0.059			1	--	--	
Mineral Oil (mg/kg)	2000			500	--	--	
Total PAH (WAC-17) (mg/kg)	120			100	--	--	
pH (units)**	7.7			--	>6	--	
Acid Neutralisation Capacity (mol / kg)	14			--	To be evaluated	To be evaluated	
Eluate Analysis				10:1	Limit values for compliance leaching test		
(BS EN 12457 - 2 preparation utilising end over end leaching procedure)	mg/l		mg/kg	using BS EN 12457-2 at L/S 10 l/kg (mg/kg)			
Arsenic *	0.0141		0.128	0.5	2	25	
Barium *	0.0295		0.269	20	100	300	
Cadmium *	< 0.0001		< 0.0008	0.04	1	5	
Chromium *	0.0020		0.018	0.5	10	70	
Copper *	0.029		0.26	2	50	100	
Mercury *	< 0.0005		< 0.0050	0.01	0.2	2	
Molybdenum *	0.0263		0.239	0.5	10	30	
Nickel *	0.0075		0.068	0.4	10	40	
Lead *	0.0034		0.031	0.5	10	50	
Antimony *	0.040		0.36	0.06	0.7	5	
Selenium *	< 0.0040		< 0.040	0.1	0.5	7	
Zinc *	0.0030		0.027	4	50	200	
Chloride *	13		110	800	4000	25000	
Fluoride	1.0		9.5	10	150	500	
Sulphate *	240		2200	1000	20000	50000	
TDS*	330		3000	4000	60000	100000	
Phenol Index (Monohydric Phenols) *	< 0.010		< 0.10	1	-	-	
DOC	21.6		197	500	800	1000	
Leach Test Information							
Stone Content (%)	< 0.1						
Sample Mass (kg)	1.2						
Dry Matter (%)	77						
Moisture (%)	23						
Results are expressed on a dry weight basis, after correction for moisture content where applicable. *= UKAS accredited (liquid eluate analysis only)							
Stated limits are for guidance only and i2 cannot be held responsible for any discrepancies with current legislation ** = MCERTS accredited							
Landfill WAC analysis (specifically leaching test results) must not be used for hazardous waste classification purposes as defined by the Waste (England and Wales) Regulations 2011 (as amended) and EA Guidance WM3.							
This analysis is only applicable for landfill acceptance criteria (The Environmental Permitting (England and Wales) Regulations) and does not give any indication as to whether a waste may be hazardous or non-hazardous.							



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Waste Acceptance Criteria Analytical Results								
Report No:	19-47040							
					Client: CARDGEO			
Location	Southall							
Lab Reference (Sample Number)	1252927 / 1252928				Landfill Waste Acceptance Criteria			
Sampling Date	18/06/2019				Limits			
Sample ID	SP17C 1				Inert Waste Landfill	Stable Non-reactive HAZARDOUS waste in non-hazardous Landfill	Hazardous Waste Landfill	
Depth (m)								
Solid Waste Analysis								
TOC (%)**	2.8				3%	5%	6%	
Loss on Ignition (%) **	5.5				--	--	10%	
BTEX (µg/kg) **	< 10				6000	--	--	
Sum of PCBs (mg/kg) **	0.055				1	--	--	
Mineral Oil (mg/kg)	890				500	--	--	
Total PAH (WAC-17) (mg/kg)	49				100	--	--	
pH (units)**	7.3				--	>6	--	
Acid Neutralisation Capacity (mol / kg)	4.4				--	To be evaluated	To be evaluated	
Eluate Analysis								
(BS EN 12457 - 2 preparation utilising end over end leaching procedure)	10:1			10:1	Limit values for compliance leaching test			
	mg/l			mg/kg	using BS EN 12457-2 at L/S 10 l/kg (mg/kg)			
Arsenic *	0.0055			0.0479	0.5	2	25	
Barium *	0.0433			0.375	20	100	300	
Cadmium *	< 0.0001			< 0.0008	0.04	1	5	
Chromium *	0.0041			0.036	0.5	10	70	
Copper *	0.024			0.21	2	50	100	
Mercury *	< 0.0005			< 0.0050	0.01	0.2	2	
Molybdenum *	0.0109			0.0947	0.5	10	30	
Nickel *	0.0041			0.036	0.4	10	40	
Lead *	< 0.0010			< 0.010	0.5	10	50	
Antimony *	0.014			0.12	0.06	0.7	5	
Selenium *	< 0.0040			< 0.040	0.1	0.5	7	
Zinc *	0.0070			0.060	4	50	200	
Chloride *	20			170	800	4000	25000	
Fluoride	0.69			6.0	10	150	500	
Sulphate *	480			4200	1000	20000	50000	
TDS*	500			4300	4000	60000	100000	
Phenol Index (Monhydric Phenols) *	< 0.010			< 0.10	1	-	-	
DOC	15.8			137	500	800	1000	
Leach Test Information								
Stone Content (%)	< 0.1							
Sample Mass (kg)	0.95							
Dry Matter (%)	81							
Moisture (%)	19							
Results are expressed on a dry weight basis, after correction for moisture content where applicable.								
Stated limits are for guidance only and i2 cannot be held responsible for any discrepancies with current legislation								
Landfill WAC analysis (specifically leaching test results) must not be used for hazardous waste classification purposes as defined by the Waste (England and Wales) Regulations 2011 (as amended) and EA Guidance WM3.								
This analysis is only applicable for landfill acceptance criteria (The Environmental Permitting (England and Wales) Regulations) and does not give any indication as to whether a waste may be hazardous or non-hazardous.								



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Waste Acceptance Criteria Analytical Results								
Report No:		19-47040						
						Client: CARDGEO		
Location		Southall						
Lab Reference (Sample Number)		1252929 / 1252930				Landfill Waste Acceptance Criteria		
Sampling Date		18/06/2019				Limits		
Sample ID		SP17A 1				Inert Waste Landfill	Stable Non-reactive HAZARDOUS waste in non-hazardous Landfill	Hazardous Waste Landfill
Depth (m)		0.20						
Solid Waste Analysis								
TOC (%)**		2.2				3%	5%	6%
Loss on Ignition (%) **		4.3				--	--	10%
BTEX (µg/kg) **		< 10				6000	--	--
Sum of PCBs (mg/kg) **		< 0.007				1	--	--
Mineral Oil (mg/kg)		460				500	--	--
Total PAH (WAC-17) (mg/kg)		66				100	--	--
pH (units)**		7.9				--	>6	--
Acid Neutralisation Capacity (mol / kg)		6.6				--	To be evaluated	To be evaluated
Eluate Analysis		10:1			10:1	Limit values for compliance leaching test		
(BS EN 12457 - 2 preparation utilising end over end leaching procedure)		mg/l			mg/kg	using BS EN 12457-2 at L/S 10 l/kg (mg/kg)		
Arsenic *		0.0075			0.0680	0.5	2	25
Barium *		0.0325			0.297	20	100	300
Cadmium *		< 0.0001			< 0.0008	0.04	1	5
Chromium *		0.0019			0.018	0.5	10	70
Copper *		0.029			0.26	2	50	100
Mercury *		< 0.0005			< 0.0050	0.01	0.2	2
Molybdenum *		0.0186			0.170	0.5	10	30
Nickel *		0.0040			0.037	0.4	10	40
Lead *		0.0025			0.023	0.5	10	50
Antimony *		0.015			0.14	0.06	0.7	5
Selenium *		< 0.0040			< 0.040	0.1	0.5	7
Zinc *		0.0027			0.025	4	50	200
Chloride *		13			120	800	4000	25000
Fluoride		0.73			6.7	10	150	500
Sulphate *		190			1700	1000	20000	50000
TDS*		270			2500	4000	60000	100000
Phenol Index (Monhydric Phenols) *		< 0.010			< 0.10	1	-	-
DOC		13.8			126	500	800	1000
Leach Test Information								
Stone Content (%)		< 0.1						
Sample Mass (kg)		1.3						
Dry Matter (%)		83						
Moisture (%)		17						
Results are expressed on a dry weight basis, after correction for moisture content where applicable.						** = UKAS accredited (liquid eluate analysis only)		
Stated limits are for guidance only and i2 cannot be held responsible for any discrepancies with current legislation						** = MCFRTS accredited		

Landfill WAC analysis (specifically leaching test results) must not be used for hazardous waste classification purposes as defined by the Waste (England and Wales) Regulations 2011 (as amended) and EA Guidance WM3.

This analysis is only applicable for landfill acceptance criteria (The Environmental Permitting (England and Wales) Regulations) and does not give any indication as to whether a waste may be hazardous or non-hazardous.

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Waste Acceptance Criteria Analytical Results

Report No:	19-47040					
				Client: CARDGEO		
Location	Southall					
Lab Reference (Sample Number)	1252931 / 1252932			Landfill Waste Acceptance Criteria		
Sampling Date	18/06/2019			Limits		
Sample ID	SP17A 2			Inert Waste Landfill	Stable Non-reactive HAZARDOUS waste in non-hazardous Landfill	Hazardous Waste Landfill
Depth (m)	2.00					
Solid Waste Analysis						
TOC (%)**	2.5			3%	5%	6%
Loss on Ignition (%) **	5.0			--	--	10%
BTEX (µg/kg) **	< 10			6000	--	--
Sum of PCBs (mg/kg) **	< 0.007			1	--	--
Mineral Oil (mg/kg)	340			500	--	--
Total PAH (WAC-17) (mg/kg)	53			100	--	--
pH (units)**	7.3			--	>6	--
Acid Neutralisation Capacity (mol / kg)	3.8			--	To be evaluated	To be evaluated
Eluate Analysis	10:1		10:1	Limit values for compliance leaching test		
(BS EN 12457 - 2 preparation utilising end over end leaching procedure)	mg/l		mg/kg	using BS EN 12457-2 at L/S 10 l/kg (mg/kg)		
Arsenic *	0.0036		0.0329	0.5	2	25
Barium *	0.0390		0.352	20	100	300
Cadmium *	< 0.0001		< 0.0008	0.04	1	5
Chromium *	0.0012		0.011	0.5	10	70
Copper *	0.019		0.17	2	50	100
Mercury *	< 0.0005		< 0.0050	0.01	0.2	2
Molybdenum *	0.0105		0.0952	0.5	10	30
Nickel *	0.0034		0.031	0.4	10	40
Lead *	0.0028		0.025	0.5	10	50
Antimony *	0.014		0.12	0.06	0.7	5
Selenium *	< 0.0040		< 0.040	0.1	0.5	7
Zinc *	0.0030		0.027	4	50	200
Chloride *	14		120	800	4000	25000
Fluoride	0.87		7.8	10	150	500
Sulphate *	150		1400	1000	20000	50000
TDS*	240		2200	4000	60000	100000
Phenol Index (Monhydric Phenols) *	< 0.010		< 0.10	1	-	-
DOC	11.3		102	500	800	1000
Leach Test Information						
Stone Content (%)	< 0.1					
Sample Mass (kg)	1.1					
Dry Matter (%)	82					
Moisture (%)	18					
Results are expressed on a dry weight basis, after correction for moisture content where applicable.				*= UKAS accredited (liquid eluate analysis only)		
Stated limits are for guidance only and i2 cannot be held responsible for any discrepancies with current legislation				** = MCERTS accredited		

Landfill WAC analysis (specifically leaching test results) must not be used for hazardous waste classification purposes as defined by the Waste (England and Wales) Regulations 2011 (as amended) and EA Guidance WM3.
This analysis is only applicable for landfill acceptance criteria (The Environmental Permitting (England and Wales) Regulations) and does not give any indication as to whether a waste may be hazardous or non-hazardous.

Analytical Report Number : 19-47040

Project / Site name: Southall

* These descriptions are only intended to act as a cross check if sample identities are questioned. The major constituent of the sample is intended to act with respect to MCERTS validation. The laboratory is accredited for sand, clay and loam (MCERTS) soil types. Data for unaccredited types of solid should be interpreted with care.

Stone content of a sample is calculated as the % weight of the stones not passing a 10 mm sieve. Results are not corrected for stone content.

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
1252921	SP17B	1	None Supplied	Grey clay and sand with gravel and brick.
1252923	SP17B	2	None Supplied	Brown clay and sand with gravel.
1252925	SP17B	3	None Supplied	Brown clay and sand with gravel.
1252927	SP17C	1	None Supplied	Brown clay and sand with gravel.
1252929	SP17A	1	0.20	Brown clay and sand with gravel and brick.
1252931	SP17A	2	2.00	Brown clay and sand with gravel and vegetation.

Analytical Report Number : 19-47040

Project / Site name: Southall

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Water (PrW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Acid neutralisation capacity of soil	Determination of acid neutralisation capacity by addition of acid or alkali followed by electronic probe.	In-house method based on Guidance on Sampling and Testing of Wastes to Meet Landfill Waste Acceptance"	L046-PL	W	NONE
BS EN 12457-2 (10:1) Leachate Prep	10:1 (as recieved, moisture adjusted) end over end extraction with water for 24 hours. Eluate filtered prior to analysis.	In-house method based on BSEN12457-2.	L043-PL	W	NONE
BTEX in soil (Monoaromatics)	Determination of BTEX in soil by headspace GC-MS.	In-house method based on USEPA8260	L0738-PL	W	MCERTS
Chloride 10:1 WAC	Determination of Chloride colorimetrically by discrete analyser.	In house based on MEWAM Method ISBN 0117516260.	L082-PL	W	ISO 17025
Dissolved organic carbon 10:1 WAC	Determination of dissolved inorganic carbon in leachate by TOC/DOC NDIR Analyser.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L037-PL	W	NONE
Fluoride 10:1 WAC	Determination of fluoride in leachate by 1:1ratio with a buffer solution followed by Ion Selective Electrode.	In-house method based on Use of Total Ionic Strength Adjustment Buffer for Electrode Determination"	L0338-PL	W	ISO 17025
Loss on ignition of soil @ 450oC	Determination of loss on ignition in soil by gravimetrically with the sample being ignited in a muffle furnace.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L047-PL	D	MCERTS
Metals in leachate by ICP-OES	Determination of metals in leachate by acidification followed by ICP-OES.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil"	L039-PL	W	ISO 17025
Mineral Oil (Soil) C10 - C40	Determination of mineral oil fraction extractable hydrocarbons in soil by GC-MS/GC-FID.	In-house method with silica gel split/clean up.	L076-PL	D	NONE
Moisture Content	Moisture content, determined gravimetrically.	In-house method based on BS1377 Part 2, 1990, Chemical and Electrochemical Tests	L019-UK/PL	W	NONE
Monohydric phenols 10:1 WAC	Determination of phenols in leachate by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L080-PL	W	ISO 17025
PCB's By GC-MS in soil	Determination of PCB by extraction with acetone and hexane followed by GC-MS.	In-house method based on USEPA 8082	L027-PL	D	MCERTS
pH in soil	Determination of pH in soil by addition of water followed by electrometric measurement.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L005-PL	W	MCERTS
Speciated WAC-17 PAHs in soil	Determination of PAH compounds in soil by extraction in dichloromethane and hexane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270. MCERTS accredited except Coronene.	L064-PL	D	NONE
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE
Sulphate 10:1 WAC	Determination of sulphate in leachate by ICP-OES	In-house method based on MEWAM 1986 Methods for the Determination of Metals in Soil"	L039-PL	W	ISO 17025
Total dissolved solids 10:1 WAC	Determination of total dissolved solids in water by electrometric measurement.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L004-PL	W	NONE

Iss No 19-47040-1 Southall CG-28308

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The results included within the report are representative of the samples submitted for analysis.

Page 9 of 10

Analytical Report Number : 19-47040

Project / Site name: Southall

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Water (PrW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Total organic carbon (Automated) in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests [™]	L009-PL	D	MCERTS

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.

For method numbers ending in 'PL' analysis have been carried out in our laboratory in Poland.

Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.



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Analytical Report Number : 19-49244

Project / Site name:	Southall	Samples received on:	08/07/2019
Your job number:	CG-28308	Samples instructed on:	10/07/2019
Your order number:	2975	Analysis completed by:	18/07/2019
Report Issue Number:	1	Report issued on:	18/07/2019
Samples Analysed:	2 10:1 WAC samples		

Signed:

Katarzyna Lewicka
Head of Reporting Section
For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41 -711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

soils	- 4 weeks from reporting
leachates	- 2 weeks from reporting
waters	- 2 weeks from reporting
asbestos	- 6 months from reporting

Excel copies of reports are only valid when accompanied by this PDF certificate.

Any assessments of compliance with specifications are based on actual analytical results with no contribution from uncertainty of measurement. Application of uncertainty of measurement would provide a range within which the true result lies. An estimate of measurement uncertainty can be provided on request.

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Waste Acceptance Criteria Analytical Results							
Report No:	19-49244						
				Client: CARDGEO			
Location	Southall						
Lab Reference (Sample Number)	1263670 / 1263671			Landfill Waste Acceptance Criteria			
Sampling Date	05/07/2019			Limits			
Sample ID	TS SP2 2			Inert Waste Landfill	Stable Non-reactive HAZARDOUS waste in non-hazardous Landfill	Hazardous Waste Landfill	
Depth (m)	2.00						
Solid Waste Analysis							
TOC (%)**	3.3			3%	5%	6%	
Loss on Ignition (%) **	6.3			--	--	10%	
BTEX (µg/kg) **	< 10			6000	--	--	
Sum of PCBs (mg/kg) **	0.025			1	--	--	
Mineral Oil (mg/kg)	330			500	--	--	
Total PAH (WAC-17) (mg/kg)	62			100	--	--	
pH (units)**	7.8			--	>6	--	
Acid Neutralisation Capacity (mol / kg)	5.1			--	To be evaluated	To be evaluated	
Eluate Analysis							
(BS EN 12457 - 2 preparation utilising end over end leaching procedure)	10:1		10:1	Limit values for compliance leaching test			
	mg/l		mg/kg	using BS EN 12457-2 at L/S 10 l/kg (mg/kg)			
Arsenic *	0.0095		0.0772	0.5	2	25	
Barium *	0.0495		0.401	20	100	300	
Cadmium *	< 0.0001		< 0.0008	0.04	1	5	
Chromium *	0.0038		0.031	0.5	10	70	
Copper *	0.034		0.28	2	50	100	
Mercury *	< 0.0005		< 0.0050	0.01	0.2	2	
Molybdenum *	0.0180		0.146	0.5	10	30	
Nickel *	0.0075		0.061	0.4	10	40	
Lead *	0.0081		0.066	0.5	10	50	
Antimony *	0.022		0.17	0.06	0.7	5	
Selenium *	< 0.0040		< 0.040	0.1	0.5	7	
Zinc *	0.0091		0.074	4	50	200	
Chloride *	4.7		38	800	4000	25000	
Fluoride	0.78		6.3	10	150	500	
Sulphate *	53		430	1000	20000	50000	
TDS*	190		1500	4000	60000	100000	
Phenol Index (Monohydric Phenols) *	< 0.010		< 0.10	1	-	-	
DOC	17.2		139	500	800	1000	
Leach Test Information							
Stone Content (%)	< 0.1						
Sample Mass (kg)	1.1						
Dry Matter (%)	79						
Moisture (%)	21						
Results are expressed on a dry weight basis, after correction for moisture content where applicable.							
Stated limits are for guidance only and i2 cannot be held responsible for any discrepancies with current legislation							
** = UKAS accredited (liquid eluate analysis only)							
** = MCERTS accredited							

Landfill WAC analysis (specifically leaching test results) must not be used for hazardous waste classification purposes as defined by the Waste (England and Wales) Regulations 2011 (as amended) and EA Guidance WM3.
This analysis is only applicable for landfill acceptance criteria (The Environmental Permitting (England and Wales) Regulations) and does not give any indication as to whether a waste may be hazardous or non-hazardous.



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Landfill WAC analysis (specifically leaching test results) must not be used for hazardous waste classification purposes as defined by the Waste (England and Wales) Regulations 2011 (as amended) and EA Guidance WM3.

This analysis is only applicable for landfill acceptance criteria (The Environmental Permitting (England and Wales) Regulations) and does not give any indication as to whether a waste may be hazardous or non-hazardous.



Analytical Report Number : 19-49244

Project / Site name: Southall

* These descriptions are only intended to act as a cross check if sample identities are questioned. The major constituent of the sample is intended to act with respect to MCERTS validation. The laboratory is accredited for sand, clay and loam (MCERTS) soil types. Data for unaccredited types of solid should be interpreted with care.

Stone content of a sample is calculated as the % weight of the stones not passing a 10 mm sieve. Results are not corrected for stone content.

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
1263670	TS SP2	2	2.00	Brown clay and sand with gravel and vegetation.
1263672	TS SP2	3	0.50	Brown sandy clay with gravel and vegetation.

Analytical Report Number : 19-49244

Project / Site name: Southall

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Water (PrW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Acid neutralisation capacity of soil	Determination of acid neutralisation capacity by addition of acid or alkali followed by electronic probe.	In-house method based on Guidance on Sampling and Testing of Wastes to Meet Landfill Waste Acceptance""	L046-PL	W	NONE
BS EN 12457-2 (10:1) Leachate Prep	10:1 (as recieved, moisture adjusted) end over end extraction with water for 24 hours. Eluate filtered prior to analysis.	In-house method based on BSEN12457-2.	L043-PL	W	NONE
BTEX in soil (Monoaromatics)	Determination of BTEX in soil by headspace GC-MS.	In-house method based on USEPA8260	L0738-PL	W	MCERTS
Chloride 10:1 WAC	Determination of Chloride colorimetrically by discrete analyser.	In house based on MEWAM Method ISBN 0117516260.	L082-PL	W	ISO 17025
Dissolved organic carbon 10:1 WAC	Determination of dissolved inorganic carbon in leachate by TOC/DOC NDIR Analyser.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L037-PL	W	NONE
Fluoride 10:1 WAC	Determination of fluoride in leachate by 1:1ratio with a buffer solution followed by Ion Selective Electrode.	In-house method based on Use of Total Ionic Strength Adjustment Buffer for Electrode Determination"	L0338-PL	W	ISO 17025
Loss on ignition of soil @ 450oC	Determination of loss on ignition in soil by gravimetrically with the sample being ignited in a muffle furnace.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L047-PL	D	MCERTS
Metals in leachate by ICP-OES	Determination of metals in leachate by acidification followed by ICP-OES.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil""	L039-PL	W	ISO 17025
Mineral Oil (Soil) C10 - C40	Determination of mineral oil fraction extractable hydrocarbons in soil by GC-MS/GC-FID.	In-house method with silica gel split/clean up.	L076-PL	D	NONE
Moisture Content	Moisture content, determined gravimetrically.	In-house method based on BS1377 Part 2, 1990, Chemical and Electrochemical Tests	L019-UK/PL	W	NONE
Monohydric phenols 10:1 WAC	Determination of phenols in leachate by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L080-PL	W	ISO 17025
PCB's By GC-MS in soil	Determination of PCB by extraction with acetone and hexane followed by GC-MS.	In-house method based on USEPA 8082	L027-PL	D	MCERTS
pH in soil	Determination of pH in soil by addition of water followed by electrometric measurement.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L005-PL	W	MCERTS
Speciated WAC-17 PAHs in soil	Determination of PAH compounds in soil by extraction in dichloromethane and hexane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270. MCERTS accredited except Coronene.	L064-PL	D	NONE
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE
Sulphate 10:1 WAC	Determination of sulphate in leachate by ICP-OES	In-house method based on MEWAM 1986 Methods for the Determination of Metals in Soil""	L039-PL	W	ISO 17025
Total dissolved solids 10:1 WAC	Determination of total dissolved solids in water by electrometric measurement.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L004-PL	W	NONE

Iss No 19-49244-1 Southall CG-28308

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The results included within the report are representative of the samples submitted for analysis.

Page 5 of 6

Analytical Report Number : 19-49244

Project / Site name: Southall

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Water (PrW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Total organic carbon (Automated) in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests [™]	L009-PL	D	MCERTS

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.

For method numbers ending in 'PL' analysis have been carried out in our laboratory in Poland.

Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30°C.



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Analytical Report Number : 19-74500

Project / Site name:	Southall	Samples received on:	26/11/2019
Your job number:	CG-28308	Samples instructed on:	28/11/2019
Your order number:	3880	Analysis completed by:	09/12/2019
Report Issue Number:	1	Report issued on:	09/12/2019
Samples Analysed:	5 soil samples		

Signed:

Zina Abdul Razzak
Senior Quality Specialist

For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41 -711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

soils	- 4 weeks from reporting
leachates	- 2 weeks from reporting
waters	- 2 weeks from reporting
asbestos	- 6 months from reporting

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Any assessments of compliance with specifications are based on actual analytical results with no contribution from uncertainty of measurement. Application of uncertainty of measurement would provide a range within which the true result lies. An estimate of measurement uncertainty can be provided on request.

Analytical Report Number: 19-74500

Project / Site name: Southall

Your Order No: 3880

Lab Sample Number				1375616	1375617	1375618	1375619	1375620
Sample Reference				Conway Import Type S1	Conway Import Type S2	Lagoon Oil Spill S3	Lagoon Oil Spill S4	Lagoon Oil Spill S5
Sample Number				S1	S2	S3	S4	S5
Depth (m)				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Date Sampled				25/11/2019	25/11/2019	25/11/2019	25/11/2019	25/11/2019
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Moisture Content	%	N/A	NONE	11	8.5	23	23	34
Total mass of sample received	kg	0.001	NONE	1.4	1.4	1.1	1.0	0.85

Asbestos in Soil	Type	N/A	ISO 17025	Not-detected	Not-detected	-	-	-
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General Inorganics

pH - Automated	pH Units	N/A	MCERTS	10.9	10.8	-	-	-
Total Cyanide	mg/kg	1	MCERTS	< 1	< 1	-	-	-
Total Sulphate as SO ₄	mg/kg	50	MCERTS	3100	2900	-	-	-
Organic Matter	%	0.1	MCERTS	2.8	2.4	-	-	-

Total Phenols

Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0	< 1.0	-	-	-
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Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	< 0.05	0.59	-	-	-
Acenaphthylene	mg/kg	0.05	MCERTS	0.48	0.63	-	-	-
Acenaphthene	mg/kg	0.05	MCERTS	1.1	1.8	-	-	-
Fluorene	mg/kg	0.05	MCERTS	1.3	1.9	-	-	-
Phenanthrene	mg/kg	0.05	MCERTS	11	22	-	-	-
Anthracene	mg/kg	0.05	MCERTS	2.2	5.3	-	-	-
Fluoranthene	mg/kg	0.05	MCERTS	14	31	-	-	-
Pyrene	mg/kg	0.05	MCERTS	12	24	-	-	-
Benzo(a)anthracene	mg/kg	0.05	MCERTS	6.8	15	-	-	-
Chrysene	mg/kg	0.05	MCERTS	5.7	11	-	-	-
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	6.9	12	-	-	-
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	2.9	8.1	-	-	-
Benzo(a)pyrene	mg/kg	0.05	MCERTS	5.8	11	-	-	-
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	3.0	5.5	-	-	-
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	0.91	1.8	-	-	-
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	3.5	6.4	-	-	-
Coronene	mg/kg	0.05	NONE	< 0.05	< 0.05	-	-	-

Total PAH

Total WAC-17 PAHs	mg/kg	0.85	NONE	78	160	-	-	-
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Analytical Report Number: 19-74500

Project / Site name: Southall

Your Order No: 3880

Lab Sample Number	1375616	1375617	1375618	1375619	1375620
Sample Reference	Conway Import Type S1	Conway Import Type S2	Lagoon Oil Spill S3	Lagoon Oil Spill S4	Lagoon Oil Spill S5
Sample Number	S1	S2	S3	S4	S5
Depth (m)	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Date Sampled	25/11/2019	25/11/2019	25/11/2019	25/11/2019	25/11/2019
Time Taken	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status		

Heavy Metals / Metalloids

Antimony (aqua regia extractable)	mg/kg	1	ISO 17025	4.4	3.5	-	-	-
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	9.3	9.2	-	-	-
Barium (aqua regia extractable)	mg/kg	1	MCERTS	120	170	-	-	-
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	0.79	1.2	-	-	-
Boron (water soluble)	mg/kg	0.2	MCERTS	0.9	0.8	-	-	-
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	0.3	0.3	-	-	-
Chromium (hexavalent)	mg/kg	1.2	MCERTS	< 1.2	< 1.2	-	-	-
Chromium (III)	mg/kg	1	NONE	24	28	-	-	-
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	25	29	-	-	-
Copper (aqua regia extractable)	mg/kg	1	MCERTS	42	39	-	-	-
Lead (aqua regia extractable)	mg/kg	1	MCERTS	160	93	-	-	-
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3	-	-	-
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	17	16	-	-	-
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	-	-	-
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	28	36	-	-	-
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	110	98	-	-	-

Monoaromatics & Oxygenates

Benzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Toluene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Ethylbenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
p & m-xylene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
o-xylene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0

Petroleum Hydrocarbons

TPH-CWG - Aliphatic >EC5 - EC6	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aliphatic >EC6 - EC8	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aliphatic >EC8 - EC10	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aliphatic >EC10 - EC12	mg/kg	1	MCERTS	1.9	1.8	3.2	7.7	2.6
TPH-CWG - Aliphatic >EC12 - EC16	mg/kg	2	MCERTS	9.1	15	7.1	7.7	12
TPH-CWG - Aliphatic >EC16 - EC21	mg/kg	8	MCERTS	19	30	26	40	68
TPH-CWG - Aliphatic >EC21 - EC35	mg/kg	8	MCERTS	130	180	190	370	560
TPH-CWG - Aliphatic (EC5 - EC35)	mg/kg	10	MCERTS	160	220	230	430	640

TPH-CWG - Aromatic >EC5 - EC7	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aromatic >EC7 - EC8	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aromatic >EC8 - EC10	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aromatic >EC10 - EC12	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aromatic >EC12 - EC16	mg/kg	2	MCERTS	8.2	24	8.5	5.4	7.3
TPH-CWG - Aromatic >EC16 - EC21	mg/kg	10	MCERTS	62	150	56	58	63
TPH-CWG - Aromatic >EC21 - EC35	mg/kg	10	MCERTS	290	500	160	230	230
TPH-CWG - Aromatic (EC5 - EC35)	mg/kg	10	MCERTS	360	680	220	300	300

Analytical Report Number : 19-74500

Project / Site name: Southall

* These descriptions are only intended to act as a cross check if sample identities are questioned. The major constituent of the sample is intended to act with respect to MCERTS validation. The laboratory is accredited for sand, clay and loam (MCERTS) soil types. Data for unaccredited types of solid should be interpreted with care.

Stone content of a sample is calculated as the % weight of the stones not passing a 10 mm sieve. Results are not corrected for stone content.

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
1375616	ay Import Ty	S1	None Supplied	Brown clay and sand with gravel.
1375617	ay Import Ty	S2	None Supplied	Brown clay and sand with gravel.
1375618	agoon Oil Spi	S3	None Supplied	Brown clay and sand with gravel and brick.
1375619	agoon Oil Spi	S4	None Supplied	Brown clay and sand with gravel and rubble.
1375620	agoon Oil Spi	S5	None Supplied	Brown sandy clay with gravel and brick.

Analytical Report Number : 19-74500

Project / Site name: Southall

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Water (PrW)

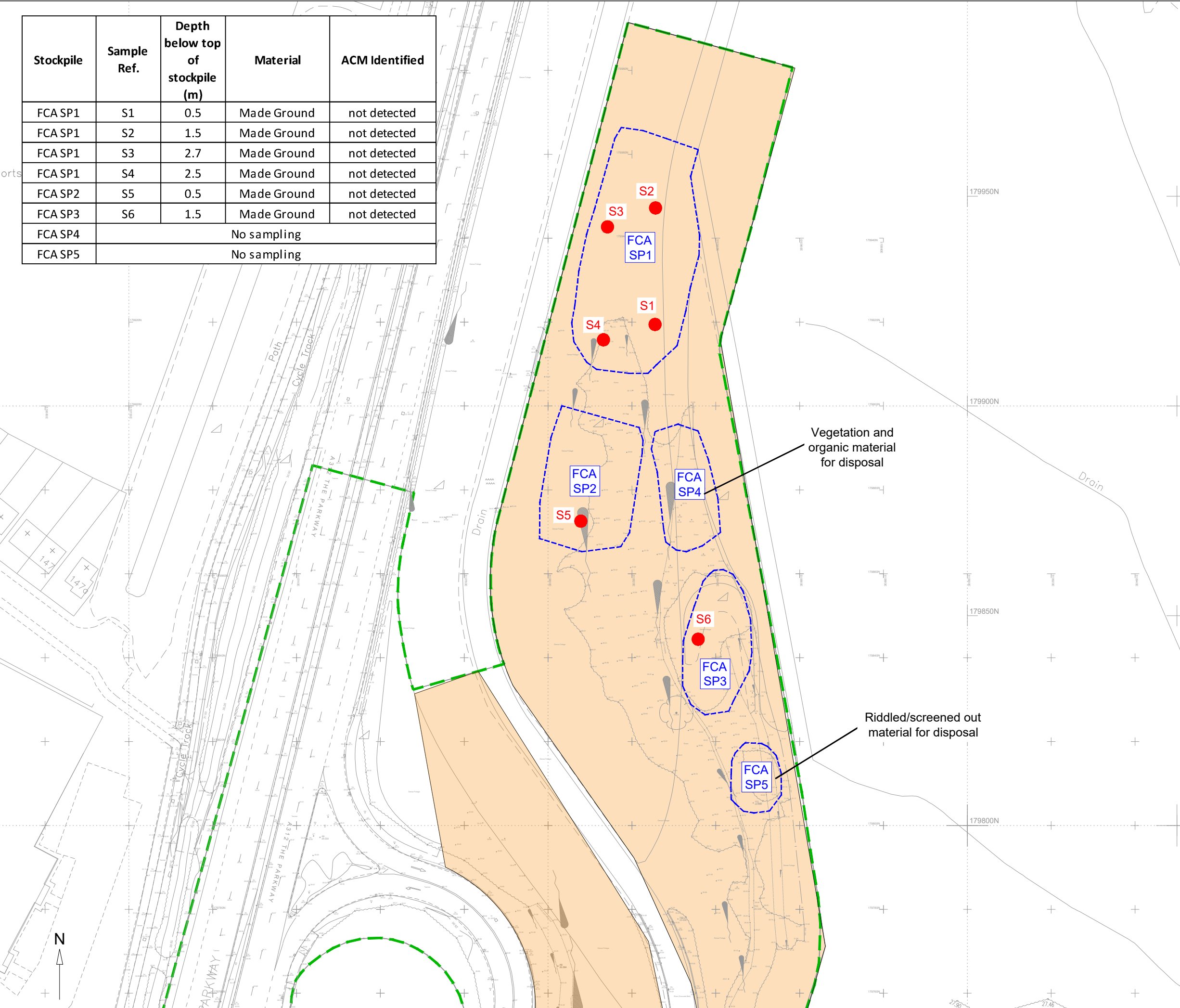
Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Asbestos identification in soil	Asbestos Identification with the use of polarised light microscopy in conjunction with disperion staining techniques.	In house method based on HSG 248	A001-PL	D	ISO 17025
Boron, water soluble, in soil	Determination of water soluble boron in soil by hot water extract followed by ICP-OES.	In-house method based on Second Site Properties version 3	L038-PL	D	MCERTS
BTEX and MTBE in soil (Monoaromatics)	Determination of BTEX in soil by headspace GC-MS.	In-house method based on USEPA8260	L0738-PL	W	MCERTS
Cr (III) in soil	In-house method by calculation from total Cr and Cr VI.	In-house method by calculation	L080-PL	W	NONE
D.O. for Gravimetric Quant if Screen/ID positive	Dependent option for Gravimetric Quant if Screen/ID positive scheduled.	In house asbestos methods A001 & A006.	A006-PL	D	NONE
Hexavalent chromium in soil (Lower Level)	Determination of hexavalent chromium in soil by extraction in water then by acidification, addition of 1,5 diphenylcarbazide followed by colorimetry.	In-house method	L080-PL	W	MCERTS
Metals in soil by ICP-OES	Determination of metals in soil by aqua-regia digestion followed by ICP-OES.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L038-PL	D	MCERTS
Moisture Content	Moisture content, determined gravimetrically. (30 oC)	In-house method based on BS1377 Part 2, 1990, Classification tests	L019-UK/PL	W	NONE
Monohydric phenols in soil	Determination of phenols in soil by extraction with sodium hydroxide followed by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (skalar)	L080-PL	W	MCERTS
Organic matter (Automated) in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate.	BS1377 Part 3, 1990, Chemical and Electrochemical Tests""	L009-PL	D	MCERTS
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L099-PL	D	MCERTS
Speciated WAC-17 PAHs in soil	Determination of PAH compounds in soil by extraction in dichloromethane and hexane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270. MCERTS accredited except Coronene.	L064-PL	D	NONE
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE
Total cyanide in soil	Determination of total cyanide by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	MCERTS
Total sulphate (as SO4 in soil)	Determination of total sulphate in soil by extraction with 10% HCl followed by ICP-OES.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L038-PL	D	MCERTS
TPHCWG (Soil)	Determination of hexane extractable hydrocarbons in soil by GC-MS/GC-FID.	In-house method with silica gel split/clean up.	L088/76-PL	W	MCERTS

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.

For method numbers ending in 'PL' analysis have been carried out in our laboratory in Poland.

Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.

*CGL Testing – Lagoon and FCA Exploratory Hole and
Sample Location Plans*



KEY

Area 1 - River Crane incorporating Western Embankment & Flood Alleviation Zone

Approximate location of stockpiles

Approximate location of stockpile sample

Notes.

1. Samples taken on 19/10/18

2. FCA = Flood Compensation Area

3. SP1 - 5 = Stockpiles 1 - 5

4. Drawing produced from: A724-E05-PA-VEC-HW-DR-0001

0	28/11/18	
Rev	Date	Comments



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Project

Southall Western Access

Client

FM Conway Limited

Drawing title

Flood Compensation Area (FCA) Layout

Scale(s)

NTS

Job No.

CG/28308

Drawn

TSB

03/12/18

Dwg No.

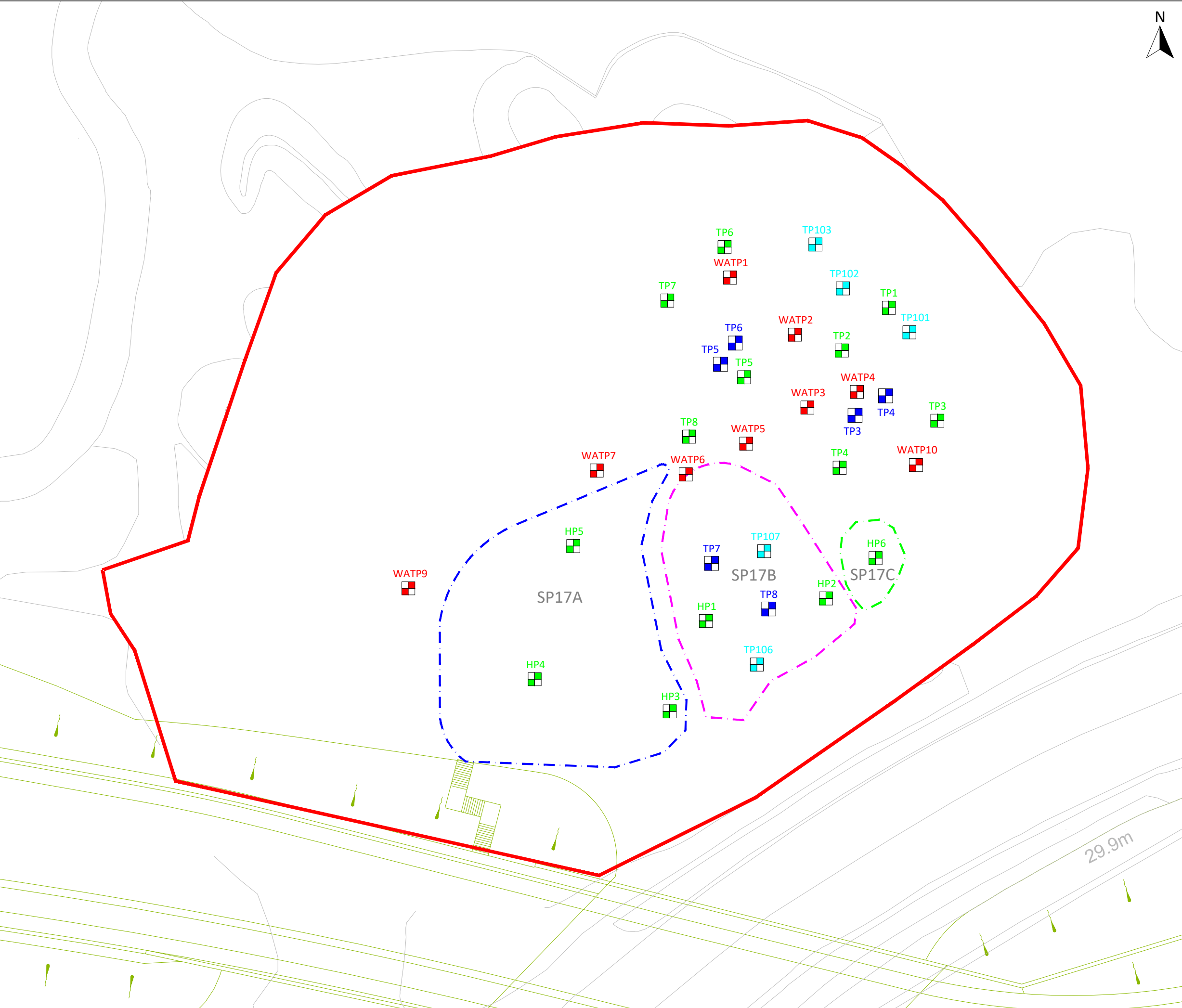
Rev.

0

Checked

Approved

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KEY

- Approximate extent of lagoon
- Stockpile 17A
- Stockpile 17B
- Stockpile 17C

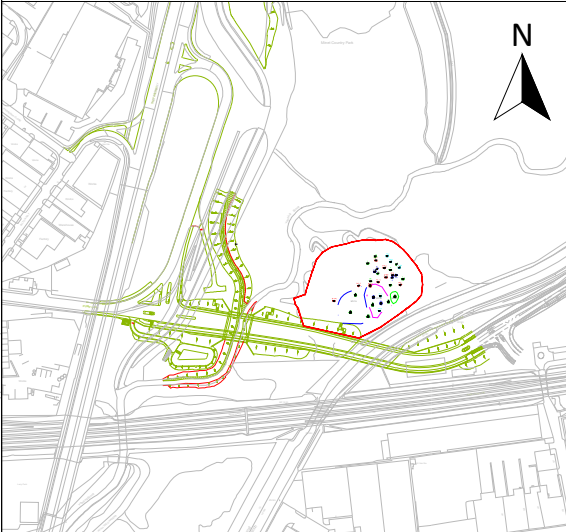
Blackwell trial pits

Lagoon base trial pits

- Lagoon base (above and below butyl liner) (10/12/18 & 11/12/18)
- Lagoon base above butyl liner (22/01/19)
- Lagoon base below butyl liner (04/04/19)

Stockpile 17 (SP17A, SP17B & SP17C) hand pits (HP) and trial pits (TP)

- SP17A, SP17B & SP17C (10/12/18 & 11/12/18)
- SP17B (22/01/19)
- SP17B (04/04/19)



0	19/07/19	
Rev	Date	Comments
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Project Southall Western Access		
Client FM Conway Limited		
Drawing title Lagoon & Stockpile 17 Exploratory Hole & Sampling Location Plan		
Scale(s) NTS		Job No. CG/28308
Drawn Checked Approved	TSB 19/07/19	Dwg No. CG/28308-ANP-002
		Rev. 0

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