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Analytical Report Number : 20-91992

Project / Site name:	97a Lovedean Lane	Samples received on:	10/03/2020
Your job number:	ICO108540	Samples instructed on:	11/03/2020
Your order number:		Analysis completed by:	18/03/2020
Report Issue Number:	1	Report issued on:	18/03/2020
Samples Analysed:	6 leachate samples - 6 soil samples		

Signed:

Rachel Bradley

Deputy 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

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.

Iss No 20-91992-1 97a Lovedean Lane ICO108540

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

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Lab Sample Number				1469160	1469161	1469163	1469164	
Sample Reference				WS201	WS201	WS202	WS202	
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	
Depth (m)				1.80-2.00	6.90-7.00	3.50-3.60	6.90-7.00	
Date Sampled				05/03/2020	05/03/2020	05/03/2020	05/03/2020	
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	19	22	19	20	
Total mass of sample received	kg	0.001	NONE	0.72	1.1	1.1	1.0	

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Lab Sample Number	1469160	1469161	1469163	1469164	
Sample Reference	WS201	WS201	WS202	WS202	
Sample Number	None Supplied	None Supplied	None Supplied	None Supplied	
Depth (m)	1.80-2.00	6.90-7.00	3.50-3.60	6.90-7.00	
Date Sampled	05/03/2020	05/03/2020	05/03/2020	05/03/2020	
Time Taken	None Supplied	None Supplied	None Supplied	None Supplied	
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status		
Speciated PAHs					
Naphthalene	mg/kg	0.05	MCERTS	< 0.05	< 0.05
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05
Fluorene	mg/kg	0.05	MCERTS	< 0.05	< 0.05
Phenanthrene	mg/kg	0.05	MCERTS	< 0.05	0.73
Anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05
Fluoranthene	mg/kg	0.05	MCERTS	< 0.05	2.6
Pyrene	mg/kg	0.05	MCERTS	< 0.05	2.4
Benzo(a)anthracene	mg/kg	0.05	MCERTS	< 0.05	1.7
Chrysene	mg/kg	0.05	MCERTS	< 0.05	1.7
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	< 0.05	3.0
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	< 0.05	0.81
Benzo(a)pyrene	mg/kg	0.05	MCERTS	< 0.05	2.2
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	< 0.05	1.3
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05	0.32
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	< 0.05	1.6
Total PAH					
Speciated Total EPA-16 PAHs	mg/kg	0.8	MCERTS	< 0.80	18.3

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Lab Sample Number	1469160	1469161	1469163	1469164	
Sample Reference	WS201	WS201	WS202	WS202	
Sample Number	None Supplied	None Supplied	None Supplied	None Supplied	
Depth (m)	1.80-2.00	6.90-7.00	3.50-3.60	6.90-7.00	
Date Sampled	05/03/2020	05/03/2020	05/03/2020	05/03/2020	
Time Taken	None Supplied	None Supplied	None Supplied	None Supplied	
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status		
Heavy Metals / Metalloids					
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	6.3	< 1.0
Barium (aqua regia extractable)	mg/kg	1	MCERTS	44	6.9
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	1.0	< 0.06
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	0.4	0.8
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	28	1.8
Copper (aqua regia extractable)	mg/kg	1	MCERTS	11	3.3
Iron (aqua regia extractable)	mg/kg	40	MCERTS	25000	790
Lead (aqua regia extractable)	mg/kg	1	MCERTS	13	2.4
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	21	3.0
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	55	16
Magnesium (aqua regia extractable)	mg/kg	20	ISO 17025	1700	1600



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Lab Sample Number	1469166	1469167	1469169	1469170	
Sample Reference	WS201	WS201	WS202	WS202	
Sample Number	None Supplied	None Supplied	None Supplied	None Supplied	
Depth (m)	1.80-2.00	6.90-7.00	3.50-3.60	6.90-7.00	
Date Sampled	05/03/2020	05/03/2020	05/03/2020	05/03/2020	
Time Taken	None Supplied	None Supplied	None Supplied	None Supplied	
Analytical Parameter (Leachate Analysis)	Units	Limit of detection	Accreditation Status		

Speciated PAHs

Naphthalene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	
Acenaphthylene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	
Acenaphthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	
Fluorene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	
Phenanthrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	
Anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	
Fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	
Pyrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	
Benzo(a)anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	
Chrysene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	
Benzo(b)fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	
Benzo(k)fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	
Benzo(a)pyrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	
Indeno(1,2,3-cd)pyrene	µg/l	0.01	NONE	< 0.01	< 0.01	< 0.01	< 0.01	
Dibenz(a,h)anthracene	µg/l	0.01	NONE	< 0.01	< 0.01	< 0.01	< 0.01	
Benzo(ghi)perylene	µg/l	0.01	NONE	< 0.01	< 0.01	< 0.01	< 0.01	

Total PAH

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

Arsenic (dissolved)	µg/l	1.1	ISO 17025	< 1.1	< 1.1	1.8	< 1.1	
Barium (dissolved)	µg/l	0.05	ISO 17025	9.6	4.0	14	5.8	
Beryllium (dissolved)	µg/l	0.2	ISO 17025	< 0.2	< 0.2	< 0.2	< 0.2	
Cadmium (dissolved)	µg/l	0.08	ISO 17025	< 0.08	< 0.08	< 0.08	< 0.08	
Chromium (dissolved)	µg/l	0.4	ISO 17025	1.0	0.6	1.9	0.6	
Copper (dissolved)	µg/l	0.7	ISO 17025	2.0	1.3	3.0	1.5	
Iron (dissolved)	mg/l	0.004	ISO 17025	0.39	0.056	0.87	0.026	
Lead (dissolved)	µg/l	1	ISO 17025	2.2	1.9	< 1.0	1.8	
Mercury (dissolved)	µg/l	0.5	ISO 17025	< 0.5	2.7	< 0.5	< 0.5	
Nickel (dissolved)	µg/l	0.3	ISO 17025	< 0.3	0.6	1.7	< 0.3	
Selenium (dissolved)	µg/l	4	ISO 17025	< 4.0	< 4.0	< 4.0	< 4.0	
Zinc (dissolved)	µg/l	0.4	ISO 17025	9.1	5.2	5.9	4.2	
Magnesium (dissolved)	mg/l	0.005	ISO 17025	1.3	0.67	2.1	0.68	

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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 *
1469160	WS201	None Supplied	1.80-2.00	Brown clay with chalk.
1469161	WS201	None Supplied	6.90-7.00	White chalk.**
1469163	WS202	None Supplied	3.50-3.60	Brown silt.**
1469164	WS202	None Supplied	6.90-7.00	White chalk.**

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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
Cations in soil by ICP-OES	Determination of cations 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 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. (30 °C)	In house method.	L019-UK/PL	W	NONE
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
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 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	L054-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.