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Analytical Report Number : 20-24468

Replaces Analytical Report Number: 20-24468, issue no. 1

Deviation page added.

Project / Site name:	Clarendon Road	Samples received on:	13/08/2020
Your job number:	6075	Samples instructed on/ Analysis started on:	13/08/2020
Your order number:	S-RE6075-00005	Analysis completed by:	18/08/2020
Report Issue Number:	2	Report issued on:	09/09/2020
Samples Analysed:	3 leachate samples - 3 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

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.



Analytical Report Number: 20-24468
Project / Site name: Clarendon Road

Your Order No: S-RE6075-00005

Lab Sample Number				1591391	1591392	1591393
Sample Reference				VS N4	SP-030	SP-029
Sample Number				None Supplied	None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied	None Supplied
Date Sampled				13/08/2020	13/08/2020	13/08/2020
Time Taken				None Supplied	None Supplied	None Supplied
Analytical Parameter (Leachate Analysis)				Units	Limit of detection	Accreditation Status

General Inorganics

Sulphate as SO4	mg/l	0.1	ISO 17025	9.2	223	1670
Ammonium as NH4	µg/l	15	NONE	150	450	23000

U/S = Unsuitable Sample I/S = Insufficient Sample



Analytical Report Number: 20-24468
Project / Site name: Clarendon Road
Your Order No: S-RE6075-00005

Lab Sample Number	1591388	1591389	1591390
Sample Reference	VS N4	SP-030	SP-029
Sample Number	None Supplied	None Supplied	None Supplied
Depth (m)	None Supplied	None Supplied	None Supplied
Date Sampled	13/08/2020	13/08/2020	13/08/2020
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	17	5.2	7.1
Total mass of sample received	kg	0.001	NONE	1.7	2	1.6

Asbestos in Soil Screen / Identification Name	Type	N/A	ISO 17025	-	-	Amosite & Crocidolite
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

Water Soluble SO ₄ (2:1 Leach. Equiv.) 1hr extraction	g/l	0.00125	MCERTS	0.43	1.6	2.5
Water Soluble SO ₄ (2:1 Leach. Equiv.) 1hr extraction	mg/kg	2.5	MCERTS	870	3200	5000
Water Soluble SO ₄ (2:1 Leach. Equiv.) 1hr extraction	mg/l	1.25	MCERTS	433	1590	2490
Ammonium as NH ₄	mg/kg	0.5	MCERTS	1	4.1	250

Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	-	2.1	42
Acenaphthene	mg/kg	0.05	MCERTS	-	2.4	7.6
Fluorene	mg/kg	0.05	MCERTS	-	10	21
Anthracene	mg/kg	0.05	MCERTS	-	12	18
Fluoranthene	mg/kg	0.05	MCERTS	-	45	51
Pyrene	mg/kg	0.05	MCERTS	-	40	44
Benzo(a)pyrene	mg/kg	0.05	MCERTS	-	16	13

Monoaromatics & Oxygenates

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

Petroleum Hydrocarbons

TPH-CWG - Aliphatic >EC5 - EC6	mg/kg	0.001	MCERTS	-	< 0.001	< 0.001
TPH-CWG - Aliphatic >EC6 - EC8	mg/kg	0.001	MCERTS	-	< 0.001	< 0.001
TPH-CWG - Aliphatic >EC8 - EC10	mg/kg	0.001	MCERTS	-	< 0.001	< 0.001
TPH-CWG - Aliphatic >EC10 - EC12	mg/kg	1	MCERTS	-	< 1.0	60
TPH-CWG - Aliphatic >EC12 - EC16	mg/kg	2	MCERTS	-	12	270
TPH-CWG - Aliphatic >EC16 - EC21	mg/kg	8	MCERTS	-	41	490
TPH-CWG - Aliphatic >EC21 - EC35	mg/kg	8	MCERTS	-	34	230
TPH-CWG - Aliphatic (EC5 - EC35)	mg/kg	10	MCERTS	-	87	1100

TPH-CWG - Aromatic >EC5 - EC7	mg/kg	0.001	MCERTS	-	< 0.001	< 0.001
TPH-CWG - Aromatic >EC7 - EC8	mg/kg	0.001	MCERTS	-	< 0.001	< 0.001
TPH-CWG - Aromatic >EC8 - EC10	mg/kg	0.001	MCERTS	-	< 0.001	0.044
TPH-CWG - Aromatic >EC10 - EC12	mg/kg	1	MCERTS	-	11	260
TPH-CWG - Aromatic >EC12 - EC16	mg/kg	2	MCERTS	-	43	570
TPH-CWG - Aromatic >EC16 - EC21	mg/kg	10	MCERTS	-	160	1800
TPH-CWG - Aromatic >EC21 - EC35	mg/kg	10	MCERTS	-	170	1200
TPH-CWG - Aromatic (EC5 - EC35)	mg/kg	10	MCERTS	-	380	3800



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Lab Sample Number				1591388	1591389	1591390
Sample Reference				VS N4	SP-030	SP-029
Sample Number				None Supplied	None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied	None Supplied
Date Sampled				13/08/2020	13/08/2020	13/08/2020
Time Taken				None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)				Units	Limit of detection	Accreditation Status

VOCs

Vinyl Chloride	µg/kg	1	NONE	-	< 1.0	< 1.0
Cis-1,2-dichloroethene	µg/kg	1	MCERTS	-	< 1.0	< 1.0
1,1-Dichloroethane	µg/kg	1	MCERTS	-	< 1.0	< 1.0
1,1,1-Trichloroethane	µg/kg	1	MCERTS	-	< 1.0	< 1.0
1,2-Dichloroethane	µg/kg	1	MCERTS	-	< 1.0	< 1.0
Trans-1,2-dichloroethene	µg/kg	1	NONE	-	< 1.0	< 1.0
Tetrachloromethane	µg/kg	1	MCERTS	-	< 1.0	< 1.0
Trichloroethene	µg/kg	1	MCERTS	-	< 1.0	< 1.0
1,1,2-Trichloroethane	µg/kg	1	MCERTS	-	< 1.0	< 1.0
Tetrachloroethene	µg/kg	1	NONE	-	< 1.0	< 1.0
1,1,1,2-Tetrachloroethane	µg/kg	1	MCERTS	-	< 1.0	< 1.0
1,1,2,2-Tetrachloroethane	µg/kg	1	MCERTS	-	< 1.0	< 1.0

SVOCs

Phenol	mg/kg	0.2	ISO 17025	-	< 0.2	< 0.2
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Analytical Report Number: 20-24468
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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-PL 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
1591390	SP-029		155	Loose Fibres	Amosite & Crocidolite	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 *
1591388	VS N4	None Supplied	None Supplied	Brown clay with gravel.
1591389	SP-030	None Supplied	None Supplied	Brown clay and sand with rubble and gravel
1591390	SP-029	None Supplied	None Supplied	Grey clay and sand with gravel and vegetation.



Analytical Report Number : 20-24468
Project / Site name: Clarendon Road

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

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.	L038-PL	D	MCERTS
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
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
Moisture Content	Moisture content, determined gravimetrically. (30 oC)	In house method.	L019-UK/PL	W	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
Semi-volatile organic compounds in soil	Determination of semi-volatile organic compounds in soil by extraction in dichloromethane and hexane followed by GC-MS.	In-house method based on USEPA 8270	L064-PL	D	ISO 17025
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
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
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
Ammonium as NH4 in leachate	Determination of Ammonium/Ammonia/ Ammoniacal Nitrogen by the colorimetric salicylate/nitroprusside method.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L082-PL	W	NONE
Ammonium as NH4 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
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
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
Sulphate in leachates	Determination of sulphate in leachate by acidification followed by ICP-OES.	In-house method based on MEWAM 1986 Methods for the Determination of Metals in Soil"	L039-PL	W	ISO 17025
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
Sulphate, water soluble, in soil (1hr extraction)	Sulphate, water soluble, in soil (1hr extraction)	In-house method	L038-PL	D	MCERTS



Analytical Report Number : 20-24468
Project / Site name: Clarendon Road

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

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.



Sample Deviation Report



Analytical Report Number : 20-24468
Project / Site name: Clarendon Road

Sample ID	Other ID	Sample Type	Lab Sample Number	Sample Deviation	Test Name	Test Ref	Test Deviation
SP-029	None Supplied	S	1591390	b	BTEX and MTBE in soil (Monoaromatics)	L073B-PL	b
SP-029	None Supplied	S	1591390	b	Semi-volatile organic compounds in soil	L064-PL	b
SP-029	None Supplied	S	1591390	b	Speciated EPA-16 PAHs in soil	L064-PL	b
SP-029	None Supplied	S	1591390	b	TPHCWG (Soil)	L088/76-PL	b
SP-029	None Supplied	S	1591390	b	Volatile organic compounds in soil	L073B-PL	b
SP-030	None Supplied	S	1591389	b	BTEX and MTBE in soil (Monoaromatics)	L073B-PL	b
SP-030	None Supplied	S	1591389	b	Semi-volatile organic compounds in soil	L064-PL	b
SP-030	None Supplied	S	1591389	b	Speciated EPA-16 PAHs in soil	L064-PL	b
SP-030	None Supplied	S	1591389	b	TPHCWG (Soil)	L088/76-PL	b
SP-030	None Supplied	S	1591389	b	Volatile organic compounds in soil	L073B-PL	b