Certificate of Analysis

Certificate Number	21-02798	*Issued:*	16-Feb-21

Client GroundSolve Limited
Unit 1
Well House Barns
Bretton
Flintshire
FAO Adam Fenwick
CH4 0DH

Our Reference	21-02798
Client Reference	2402
Order No	(not supplied)
Contract Title	(not supplied)
Description	6 Soil samples.
Date Received	10-Feb-21
Date Started	10-Feb-21
Date Completed	16-Feb-21
Test Procedures	Identified by prefix DETSn (details on request).

Notes Opinions and interpretations are outside the laboratory's scope of ISO 17025 accreditation. This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service. The results reported herein relate only to the material supplied to the laboratory. This certificate shall not be reproduced except in full, without the prior written approval of the laboratory.

Approved By [redacted]

Adam Fenwick
Contracts Manager

UKAS TESTING
2139

Summary of Chemical Analysis
Soil Samples

Our Ref 21-02798
Client Ref 2402
Contract Title

			Lab No	1799681	1799682	1799683	1799684	1799685	1799686
			.Sample ID	TP2	TP4	TP5	TP6	TP7	TP9
			Depth	0.00-1.00	0.00-0.50	0.00-1.00	0.00-1.20	0.00-1.20	0.00-0.10
			Other ID						
			Sample Type	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
			Sampling Date	03/02/2021	03/02/2021	03/02/2021	03/02/2021	03/02/2021	03/02/2021
			Sampling Time	n/s	n/s	n/s	n/s	n/s	n/s
Test	Method	LOD	Units						
Metals									
Arsenic	DETSC 2301#	0.2	mg/kg	10	11	12	14	18	14
Boron, Water Soluble	DETSC 2311#	0.2	mg/kg	0.4	0.3	0.3	< 0.2	< 0.2	0.2
Cadmium	DETSC 2301#	0.1	mg/kg	0.2	0.3	0.2	< 0.1	< 0.1	< 0.1
Chromium	DETSC 2301#	0.15	mg/kg	30	24	28	25	22	24
Chromium III	DETSC 2301*	0.15	mg/kg	30	24	28	25	22	24
Chromium, Hexavalent	DETSC 2204*	1	mg/kg	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Copper	DETSC 2301#	0.2	mg/kg	40	49	31	37	50	36
Lead	DETSC 2301#	0.3	mg/kg	28	32	25	17	26	35
Mercury	DETSC 2325#	0.05	mg/kg	< 0.05	0.07	< 0.05	< 0.05	< 0.05	0.05
Nickel	DETSC 2301#	1	mg/kg	34	32	43	39	35	35
Selenium	DETSC 2301#	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Zinc	DETSC 2301#	1	mg/kg	98	120	110	74	100	100
Inorganics									
pH	DETSC 2008#		pH	8.2	8.0	7.9	6.5	7.3	7.5
Cyanide, Total	DETSC 2130#	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Organic matter	DETSC 2002#	0.1	%	1.0	0.4	< 0.1	< 0.1	1.2	0.7
Sulphate Aqueous Extract as SO4	DETSC 2076#	10	mg/l	170	29	65	15	430	54
Sulphide	DETSC 2024*	10	mg/kg	< 10	< 10	< 10	< 10	32	< 10
Sulphur (free)	DETSC 3049#	0.75	mg/kg	< 0.75	2.3	1.7	< 0.75	< 0.75	< 0.75
Petroleum Hydrocarbons									
Aliphatic C5-C6	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Aliphatic C6-C8	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Aliphatic C8-C10	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Aliphatic C10-C12	DETSC 3072#	1.5	mg/kg	< 1.5	< 1.5	< 1.5	< 1.5	< 1.5	< 1.5
Aliphatic C12-C16	DETSC 3072#	1.2	mg/kg	< 1.2	< 1.2	< 1.2	< 1.2	< 1.2	< 1.2
Aliphatic C16-C21	DETSC 3072#	1.5	mg/kg	< 1.5	< 1.5	< 1.5	< 1.5	< 1.5	< 1.5
Aliphatic C21-C35	DETSC 3072#	3.4	mg/kg	< 3.4	< 3.4	< 3.4	< 3.4	< 3.4	< 3.4
Aliphatic C35-C40	DETSC 3072*	3.4	mg/kg	< 3.4	< 3.4	< 3.4	< 3.4	< 3.4	< 3.4
Aliphatic C5-C35	DETSC 3072*	10	mg/kg	< 10	< 10	< 10	< 10	< 10	< 10
Aromatic C5-C7	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Aromatic C7-C8	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Aromatic C8-C10	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Aromatic C10-C12	DETSC 3072#	0.9	mg/kg	< 0.9	< 0.9	< 0.9	< 0.9	< 0.9	< 0.9
Aromatic C12-C16	DETSC 3072#	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Aromatic C16-C21	DETSC 3072#	0.6	mg/kg	< 0.6	< 0.6	< 0.6	< 0.6	< 0.6	< 0.6
Aromatic C21-C35	DETSC 3072#	1.4	mg/kg	< 1.4	< 1.4	< 1.4	< 1.4	< 1.4	< 1.4
Aromatic C35-C40	DETSC 3072*	1.4	mg/kg	< 1.4	< 1.4	< 1.4	< 1.4	< 1.4	< 1.4
Aromatic C5-C35	DETSC 3072*	10	mg/kg	< 10	< 10	< 10	< 10	< 10	< 10
TPH Ali/Aro Total C5-C35	DETSC 3072*	10	mg/kg	< 10	< 10	< 10	< 10	< 10	< 10
PAHs									
Naphthalene	DETSC 3303#	0.03	mg/kg	0.10	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03

Key: * -not accredited. # -MCERTS (accreditation only applies if report carries the MCERTS logo). n/s -not supplied.

Summary of Chemical Analysis
Soil Samples

Our Ref 21-02798
Client Ref 2402
Contract Title

			Lab No	1799681	1799682	1799683	1799684	1799685	1799686
			.Sample ID	TP2	TP4	TP5	TP6	TP7	TP9
			Depth	0.00-1.00	0.00-0.50	0.00-1.00	0.00-1.20	0.00-1.20	0.00-0.10
			Other ID						
			Sample Type	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
			Sampling Date	03/02/2021	03/02/2021	03/02/2021	03/02/2021	03/02/2021	03/02/2021
			Sampling Time	n/s	n/s	n/s	n/s	n/s	n/s
Test	Method	LOD	Units						
Acenaphthylene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03
Acenaphthene	DETSC 3303#	0.03	mg/kg	0.55	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03
Fluorene	DETSC 3303	0.03	mg/kg	0.44	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03
Phenanthrene	DETSC 3303#	0.03	mg/kg	2.4	0.17	< 0.03	< 0.03	< 0.03	< 0.03
Anthracene	DETSC 3303	0.03	mg/kg	0.74	0.06	< 0.03	< 0.03	< 0.03	< 0.03
Fluoranthene	DETSC 3303#	0.03	mg/kg	3.3	0.54	0.03	< 0.03	< 0.03	< 0.03
Pyrene	DETSC 3303#	0.03	mg/kg	2.8	0.49	0.03	< 0.03	< 0.03	< 0.03
Benzo(a)anthracene	DETSC 3303#	0.03	mg/kg	1.1	0.22	< 0.03	< 0.03	< 0.03	< 0.03
Chrysene	DETSC 3303	0.03	mg/kg	1.0	0.21	< 0.03	< 0.03	< 0.03	< 0.03
Benzo(b)fluoranthene	DETSC 3303#	0.03	mg/kg	1.0	0.28	< 0.03	< 0.03	< 0.03	< 0.03
Benzo(k)fluoranthene	DETSC 3303#	0.03	mg/kg	0.47	0.10	< 0.03	< 0.03	< 0.03	< 0.03
Benzo(a)pyrene	DETSC 3303#	0.03	mg/kg	0.90	0.23	< 0.03	< 0.03	< 0.03	< 0.03
Indeno(1,2,3-c,d)pyrene	DETSC 3303#	0.03	mg/kg	0.26	0.10	< 0.03	< 0.03	< 0.03	< 0.03
Dibenzo(a,h)anthracene	DETSC 3303#	0.03	mg/kg	0.07	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03
Benzo(g,h,i)perylene	DETSC 3303#	0.03	mg/kg	0.32	0.11	< 0.03	< 0.03	< 0.03	< 0.03
PAH - USEPA 16, Total	DETSC 3303	0.1	mg/kg	15	2.5	< 0.10	< 0.10	< 0.10	< 0.10
Phenols									
Phenol - Monohydric	DETSC 2130#	0.3	mg/kg	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3

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Summary of Asbestos Analysis
Soil Samples

Our Ref 21-02798
Client Ref 2402
Contract Title

Lab No	Sample ID	Material Type	Result	Comment*	Analyst
1799681	TP2 0.00-1.00	SOIL	NAD	none	Rebecca Burgess
1799682	TP4 0.00-0.50	SOIL	NAD	none	Rebecca Burgess
1799683	TP5 0.00-1.00	SOIL	NAD	none	Rebecca Burgess
1799684	TP6 0.00-1.20	SOIL	NAD	none	Rebecca Burgess
1799685	TP7 0.00-1.20	SOIL	NAD	none	Rebecca Burgess
1799686	TP9 0.00-0.10	SOIL	NAD	none	Rebecca Burgess

Crocidolite = Blue Asbestos, Amosite = Brown Asbestos, Chrysotile = White Asbestos. Anthophyllite, Actinolite and Tremolite are other forms of Asbestos. Samples are analysed by DETSC 1101 using polarised light microscopy in accordance with HSG248 and documented in-house methods. NAD = No Asbestos Detected. Where a sample is NAD, the result is based on analysis of at least 2 sub-samples and should be taken to mean 'no asbestos detected in sample'. Key: * - not included in laboratory scope of accreditation.

Information in Support of the Analytical Results

Our Ref 21-02798
Client Ref 2402
Contract

Containers Received & Deviating Samples

Lab No	Sample ID	Date Sampled	Containers Received	Holding time exceeded for tests	Inappropriate container for tests
1799681	TP2 0.00-1.00 SOIL	03/02/21	GJ 250ml x2, GJ 60ml x2		
1799682	TP4 0.00-0.50 SOIL	03/02/21	GJ 250ml x2, GJ 60ml x2		
1799683	TP5 0.00-1.00 SOIL	03/02/21	GJ 250ml x2, GJ 60ml x2		
1799684	TP6 0.00-1.20 SOIL	03/02/21	GJ 250ml x2, GJ 60ml x2		
1799685	TP7 0.00-1.20 SOIL	03/02/21	GJ 250ml x2, GJ 60ml x2		
1799686	TP9 0.00-0.10 SOIL	03/02/21	GJ 250ml x2, GJ 60ml x2		

Key: G-Glass J-Jar

DETS cannot be held responsible for the integrity of samples received whereby the laboratory did not undertake the sampling. In this instance samples received may be deviating. Deviating Sample criteria are based on British and International standards and laboratory trials in conjunction with the UKAS note 'Guidance on Deviating Samples'. All samples received are listed above. However, those samples that have additional comments in relation to hold time, inappropriate containers etc are deviating due to the reasons stated. This means that the analysis is accredited where applicable, but results may be compromised due to sample deviations. If no sampled date (soils) or date+time (waters) has been supplied then samples are deviating. However, if you are able to supply a sampled date (and time for waters) this will prevent samples being reported as deviating where specific hold times are not exceeded and where the container supplied is suitable.

Soil Analysis Notes

Inorganic soil analysis was carried out on a dried sample, crushed to pass a 425µm sieve, in accordance with BS1377.

Organic soil analysis was carried out on an 'as received' sample. Organics results are corrected for moisture and expressed on a dry weight basis.

The Loss on Drying, used to express organics analysis on an air dried basis, is carried out at a temperature of 28°C +/-2°C.

Disposal

From the issue date of this test certificate, samples will be held for the following times prior to disposal :-

Soils - 1 month, Liquids - 2 weeks, Asbestos (test portion) - 6 months

End of Report