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Analytical Report Number : 21-79838

Project / Site name:	Vine Street	Samples received on:	08/06/2021
Your job number:	14944	Samples instructed on/ Analysis started on:	08/06/2021
Your order number:	AS-14944B	Analysis completed by:	11/06/2021
Report Issue Number:	1	Report issued on:	11/06/2021
Samples Analysed:	3 soil samples		

Signed: *Karolina Marek*

Karolina Marek
PL Head of Reporting Team
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.

Preliminary reports provided at the request of the client should be considered as incomplete and have not been through the complete quality control procedure.

Results contained in preliminary reports may be subject to change and therefore should not be used as a basis for decision making, except at the risk of the client.

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: 21-79838

Project / Site name: Vine Street

Your Order No: AS-14944B

Lab Sample Number				1896292	1896293	1896294
Sample Reference				SP101	SP102	SP103
Sample Number				None Supplied	None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied	None Supplied
Date Sampled				07/06/2021	07/06/2021	07/06/2021
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	%	0.01	NONE	9.0	2.4	3.3
Total mass of sample received	kg	0.001	NONE	0.40	0.40	0.40

Asbestos in Soil	Type	N/A	ISO 17025	Not-detected	Not-detected	Not-detected
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General Inorganics

pH - Automated	pH Units	N/A	MCERTS	7.8	8.0	8.1
Total Cyanide	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0
Total Sulphate as SO ₄	mg/kg	50	MCERTS	53000	6500	6600
Water Soluble SO ₄ (2:1 Leach. Equiv.) 1hr extraction	g/l	0.00125	MCERTS	1.8	1.6	1.8
Water Soluble SO ₄ (2:1 Leach. Equiv.) 1hr extraction	mg/kg	2.5	MCERTS	3700	3200	3600
Water Soluble SO ₄ (2:1 Leach. Equiv.) 1hr extraction	mg/l	1.25	MCERTS	1840	1610	1820
Sulphide	mg/kg	1	MCERTS	9.5	7.5	7.7
Total Sulphur	mg/kg	50	MCERTS	22000	2800	2500

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
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	0.22
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	0.64	3.0
Fluorene	mg/kg	0.05	MCERTS	< 0.05	0.47	4.3
Phenanthrene	mg/kg	0.05	MCERTS	1.6	4.6	50
Anthracene	mg/kg	0.05	MCERTS	0.42	1.1	15
Fluoranthene	mg/kg	0.05	MCERTS	3.7	6.2	54
Pyrene	mg/kg	0.05	MCERTS	3.4	5.5	43
Benzo(a)anthracene	mg/kg	0.05	MCERTS	2.0	3.3	22
Chrysene	mg/kg	0.05	MCERTS	1.4	2.1	16
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	2.0	3.2	16
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	0.70	1.1	7.9
Benzo(a)pyrene	mg/kg	0.05	MCERTS	1.6	2.7	15
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	1.2	1.8	9.4
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	0.33	0.54	2.8
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	1.4	2.2	10

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	MCERTS	19.8	35.4	270
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Heavy Metals / Metalloids

Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	13	14	15
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	0.5	0.5	0.6
Chromium (hexavalent)	mg/kg	4	MCERTS	< 4.0	< 4.0	< 4.0
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	21	27	26
Copper (aqua regia extractable)	mg/kg	1	MCERTS	45	52	51
Lead (aqua regia extractable)	mg/kg	1	MCERTS	150	140	120
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	20	31	28
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	150	130	160

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Lab Sample Number				1896292	1896293	1896294
Sample Reference				SP101	SP102	SP103
Sample Number				None Supplied	None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied	None Supplied
Date Sampled				07/06/2021	07/06/2021	07/06/2021
Time Taken				None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status			

Petroleum Hydrocarbons

TPH (C5 - C6)	mg/kg	1	NONE	< 1.0	< 1.0	< 1.0
TPH (C6 - C8)	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1
TPH (C8 - C10)	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1
TPH (C10 - C12)	mg/kg	2	MCERTS	5.9	2.8	< 2.0
TPH (C12 - C16)	mg/kg	4	MCERTS	14	10	21
TPH (C16 - C21)	mg/kg	1	MCERTS	26	37	180
TPH (C21 - C35)	mg/kg	1	MCERTS	220	190	280
TPH (C35 - C40)	mg/kg	10	MCERTS	62	65	73
TPH Total C5 - C40	mg/kg	10	MCERTS	330	300	560

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



Analytical Report Number : 21-79838

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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 *
1896292	SP101	None Supplied	None Supplied	Brown clay and sand with gravel and rubble.
1896293	SP102	None Supplied	None Supplied	Brown clay and sand with gravel.
1896294	SP103	None Supplied	None Supplied	Brown loam and sand with gravel and vegetation.

Analytical Report Number : 21-79838

Project / Site name: Vine Street

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
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
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
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
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
Moisture Content	Moisture content, determined gravimetrically. (30 oC)	In house method.	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
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement.	In house method.	L099-PL	D	MCERTS
Sulphide in soil	Determination of sulphide in soil by acidification and heating to liberate hydrogen sulphide, trapped in an alkaline solution then assayed by ion selective electrode.	In-house method	L010-PL	D	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.	L038-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
Total Sulphur in soil	Determination of total sulphur in soil by extraction with aqua-regia, potassium bromide/bromate followed by ICP-OES.	In house method.	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 in (Soil)	Determination of TPH bands by HS-GC-MS/GC-FID	In-house method, TPH with carbon banding and silica gel split/cleanup.	L076-PL	D	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
Sulphate, water soluble, in soil (1hr extraction)	Sulphate, water soluble, in soil (1hr extraction)	In-house method	L038-PL	D	MCERTS



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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.

Unless otherwise indicated, site information, order number, project number, sampling date, time, sample reference and depth are provided by the client. The instructed on date indicates the date on which this information was provided to the laboratory.