

Ramboll
8 Village Way
Green Meadow Springs
Cardiff
United Kingdom
CF15 7NE



4225



Attention : Rob Hodgson

Date : 2nd July, 2024

Your reference : 1620016977

Our reference : Test Report 24/10630 Batch 1

Location : Worthing Gasworks

Date samples received : 21st June, 2024

Status : Final Report

Issue : 202407021435

Eight samples were received for analysis on 21st June, 2024 of which eight were scheduled for analysis. Please find attached our Test Report which should be read with notes at the end of the report and should include all sections if reproduced. Interpretations and opinions are outside the scope of any accreditation, and all results relate only to samples supplied.

All analysis is carried out on as received samples and reported on a dry weight basis unless stated otherwise. Results are not surrogate corrected.

The greenhouse gas emissions generated (in Carbon – Co2e) to obtain the results in this report are estimated as:

Scope 1&2 emissions - 18.028 kg of CO2

Scope 1&2&3 emissions - 42.604 kg of CO2

Authorised By:



Simon Gomery BSc

Senior Project Manager

Please include all sections of this report if it is reproduced

Element Materials Technology

Client Name: Ramboll
Reference: 1620016977
Location: Worthing Gasworks
Contact: Rob Hodgson
EMT Job No: 24/10630

Report : Liquid

Liquids/products: V=40ml vial, G=glass bottle, P=plastic bottle
H=H₂SO₄, Z=ZnAc, N=NaOH, HN=HN0₃

EMT Sample No.	1-8	9-16	17-24	25-26,29-34	27-28,35	36-43	44-51	52-57			Please see attached notes for all abbreviations and acronyms		
Sample ID	BH01	BH02	BH07	BH10	BH10A	BH11	BH12	BH14-01					
Depth													
COC No / misc													
Containers	V H H N H C L Z P G	V H H N H C L Z P G	V H H N H C L Z P G	V H H N H C L Z P G	V G	V H H N H C L Z P G	V H H N H C L Z P G	V H Z P G					
Sample Date	20/06/2024	20/06/2024	20/06/2024	20/06/2024	20/06/2024	20/06/2024	20/06/2024	20/06/2024					
Sample Type	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water					
Batch Number	1	1	1	1	1	1	1	1					
Date of Receipt	21/06/2024	21/06/2024	21/06/2024	21/06/2024	21/06/2024	21/06/2024	21/06/2024	21/06/2024			LOD/LOR	Units	Method No.
Dissolved Manganese #	1782	828	3787	1975	-	<2	27	664			<2	ug/l	TM30/PM14
PAH MS													
Naphthalene #	<0.1	3985.5 ^{AA}	<0.1	NDP	<0.1	<0.1	<0.1	0.5			<0.1	ug/l	TM4/PM30
Acenaphthylene #	0.733	49.782 ^{AA}	0.021	NDP	0.006	0.006	0.018	0.471			<0.005	ug/l	TM4/PM30
Acenaphthene #	2.914	10.078 ^{AA}	<0.005	NDP	<0.005	<0.005	<0.005	<0.005			<0.005	ug/l	TM4/PM30
Fluorene #	2.606	16.446 ^{AA}	<0.005	NDP	<0.005	<0.005	<0.005	0.013			<0.005	ug/l	TM4/PM30
Phenanthrene #	0.026	19.569 ^{AA}	0.025	NDP	0.011	<0.005	0.007	0.200			<0.005	ug/l	TM4/PM30
Anthracene #	0.122	5.270 ^{SV}	0.016	NDP	0.008	0.005	0.011	0.247			<0.005	ug/l	TM4/PM30
Fluoranthene #	0.482	7.490 ^{AA}	0.045	NDP	0.035	0.008	0.032	0.574			<0.005	ug/l	TM4/PM30
Pyrene #	0.325	4.784 ^{SV}	0.035	NDP	0.042	0.008	0.031	0.513			<0.005	ug/l	TM4/PM30
Benzo(a)anthracene #	0.029	2.636 ^{SV}	0.032	NDP	0.012	<0.005	0.016	0.386			<0.005	ug/l	TM4/PM30
Chrysene #	0.024	2.109 ^{SV}	0.026	NDP	0.017	<0.005	0.016	0.331			<0.005	ug/l	TM4/PM30
Benzo(k)fluoranthene #	0.028	3.046 ^{SV}	0.052	NDP	0.030	<0.008	0.031	0.524			<0.008	ug/l	TM4/PM30
Benzo(a)pyrene #	0.014	2.043 ^{SV}	0.030	NDP	0.013	0.008	0.026	0.331			<0.005	ug/l	TM4/PM30
Indeno(123cd)pyrene #	0.010	0.983 ^{SV}	0.023	NDP	0.013	<0.005	0.013	0.247			<0.005	ug/l	TM4/PM30
Dibenzo(ah)anthracene #	<0.005	0.428 ^{SV}	0.005	NDP	<0.005	<0.005	<0.005	0.048			<0.005	ug/l	TM4/PM30
Benzo(ghi)perylene #	0.008	0.847 ^{SV}	0.019	NDP	0.012	<0.005	<0.005	0.195			<0.005	ug/l	TM4/PM30
PAH 16 Total #	7.321	4111.011 ^{SV}	0.329	NDP	0.199	<0.173	0.201	4.580			<0.173	ug/l	TM4/PM30
Benzo(b)fluoranthene	0.020	2.193 ^{SV}	0.037	NDP	0.022	<0.008	0.022	0.377			<0.008	ug/l	TM4/PM30
Benzo(k)fluoranthene	<0.008	0.853 ^{SV}	0.015	NDP	0.008	<0.008	0.009	0.147			<0.008	ug/l	TM4/PM30
PAH Surrogate % Recovery	83	88 ^{SV AA}	78	NDP	79	91	91	79			<0	%	TM4/PM30
MTBE #	<5	<5	<5	<5	<5	<5	<5	<5			<5	ug/l	TM36/PM12
Benzene #	59	9075	<5	<5	<5	<5	<5	293			<5	ug/l	TM36/PM12
Toluene #	<5	3859	<5	<5	<5	<5	<5	36			<5	ug/l	TM36/PM12
Ethylbenzene #	<5	670	<5	<5	<5	<5	<5	<5			<5	ug/l	TM36/PM12
m/p-Xylene #	<5	3698	<5	<5	<5	<5	<5	16			<5	ug/l	TM36/PM12
o-Xylene #	<5	1397	<5	<5	<5	<5	<5	42			<5	ug/l	TM36/PM12
TPH CWG													
Aliphatics													
>C5-C6 (HS_1D_AL) #	<10	18	<10	<10	<10	<10	<10	<10			<10	ug/l	TM36/PM12
>C6-C8 (HS_1D_AL) #	16	3458	<10	<10	<10	<10	<10	76			<10	ug/l	TM36/PM12
>C8-C10 (HS_1D_AL) #	<10	1475	<10	<10	<10	<10	<10	23			<10	ug/l	TM36/PM12
>C10-C12 (EH_CU_1D_AL) #	<5	<5	<5	<5	<5	<5	<5	<5			<5	ug/l	TM5/PM16/PM30
>C12-C16 (EH_CU_1D_AL) #	<10	<10	<10	<10	<10	<10	<10	<10			<10	ug/l	TM5/PM16/PM30
>C16-C21 (EH_CU_1D_AL) #	<10	<10	<10	<10	<10	<10	<10	<10			<10	ug/l	TM5/PM16/PM30
>C21-C35 (EH_CU_1D_AL) #	<10	<10	<10	<10	90	<10	<10	<10			<10	ug/l	TM5/PM16/PM30
Total aliphatics C5-35 (EH_CU+HS_1D_AL) #	16	4951	<10	<10	90	<10	<10	99			<10	ug/l	TM5/PM16/PM30

Element Materials Technology

Client Name: Ramboll
Reference: 1620016977
Location: Worthing Gasworks
Contact: Rob Hodgson
EMT Job No: 24/10630

Report : Liquid

Liquids/products: V=40ml vial, G=glass bottle, P=plastic bottle
 H=H₂SO₄, Z=ZnAc, N=NaOH, HN=HNO₃

EMT Sample No.	1-8	9-16	17-24	25-26,29-34	27-28,35	36-43	44-51	52-57			Please see attached notes for all abbreviations and acronyms		
Sample ID	BH01	BH02	BH07	BH10	BH10A	BH11	BH12	BH14-01					
Depth													
COC No / misc													
Containers	V H HN HCL Z P G	V H HN HCL Z P G	V H HN HCL Z P G	V H HN HCL Z P G	V G	V H HN HCL Z P G	V H HN HCL Z P G	V H Z P G					
Sample Date	20/06/2024	20/06/2024	20/06/2024	20/06/2024	20/06/2024	20/06/2024	20/06/2024	20/06/2024					
Sample Type	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water					
Batch Number	1	1	1	1	1	1	1	1					
Date of Receipt	21/06/2024	21/06/2024	21/06/2024	21/06/2024	21/06/2024	21/06/2024	21/06/2024	21/06/2024			LOD/LOR	Units	Method No.
TPH CWG													
Aromatics													
>C5-EC7 (HS_1D_AR) #	59	9075	<10	<10	<10	<10	<10	293			<10	ug/l	TM36/PM12
>EC7-EC8 (HS_1D_AR) #	<10	3859	<10	<10	<10	<10	<10	36			<10	ug/l	TM36/PM12
>EC8-EC10 (HS_1D_AR) #	<10	5765	<10	<10	<10	<10	<10	61			<10	ug/l	TM36/PM12
>EC10-EC12 (EH_CU_1D_AR) #	41	7635	<5	<5	<5	<5	<5	<5			<5	ug/l	TM5/PM16/PM30
>EC12-EC16 (EH_CU_1D_AR) #	150	890	<10	<10	<10	<10	<10	<10			<10	ug/l	TM5/PM16/PM30
>EC16-EC21 (EH_CU_1D_AR) #	150	720	<10	<10	<10	<10	<10	<10			<10	ug/l	TM5/PM16/PM30
>EC21-EC35 (EH_CU_1D_AR) #	<10	450	<10	<10	<10	<10	<10	<10			<10	ug/l	TM5/PM16/PM30
Total aromatics C5-35 (EH_CU+HS_1D_AR) #	400	28394	<10	<10	<10	<10	<10	390			<10	ug/l	TM5/PM16/PM30
Total aliphatics and aromatics(C5-35) (EH_CU+HS_1D_Total) #	416	33345	<10	<10	90	<10	<10	489			<10	ug/l	TM5/PM16/PM30
Sulphate as SO ₄ #	63.1	14.1	526.9	62.5	-	28.8	55.4	102.7			<0.5	mg/l	TM38/PM0
Nitrate as N #	0.08	<0.05	3.66	0.39	-	2.76	0.34	<0.05			<0.05	mg/l	TM38/PM0
Nitrite as N #	0.006	<0.006	0.041	0.008	-	<0.006	<0.006	<0.006			<0.006	mg/l	TM38/PM0
Ammoniacal Nitrogen as NH ₄ #	40.57	57.42	36.52	0.08	-	<0.03	<0.03	8.26			<0.03	mg/l	TM38/PM0
Total Alkalinity as CaCO ₃ #	298	390	238	380	-	174	288	380			<1	mg/l	TM75/PM0
Sulphide	<0.01	<0.01	<0.01	<0.01	-	<0.01	<0.01	0.01			<0.01	mg/l	TM107/PM0
Dissolved Iron II	0.66	0.14	0.06	<0.02	-	0.02	<0.02	0.04			<0.02	mg/l	TM48/PM0
Dissolved Iron III	0.27	0.03	0.71	0.10	-	<0.02	<0.02	0.19			<0.02	mg/l	TM30/TM48/PM0
pH #	7.48	8.24	8.01	7.91	-	8.26	7.83	8.26			<0.01	pH units	TM73/PM0

Matrix : Liquid

[illegible]

Client Name:	Ramboll
Reference:	1620016977
Location:	Worthing Gasworks
Contact:	Rob Hodgson

[illegible]

Please note that only samples that are deviating are mentioned in this report. If no samples are listed it is because none were deviating. Only analyses which are accredited are recorded as deviating if set criteria are not met.

It is a requirement under ISO 17025 that we inform clients if samples are deviating i.e. outside what is expected. A deviating sample indicates that the sample 'may' be compromised but not necessarily will be compromised. The result is still accredited and our analytical reports will still show accreditation on the relevant analytes.

NOTES TO ACCOMPANY ALL SCHEDULES AND REPORTS

EMT Job No.: 24/10630

SOILS and ASH

Please note we are only MCERTS accredited (UK soils only) for sand, loam and clay and any other matrix is outside our scope of accreditation.

Where an MCERTS report has been requested, you will be notified within 48 hours of any samples that have been identified as being outside our MCERTS scope. As validation has been performed on clay, sand and loam, only samples that are predominantly these matrices, or combinations of them will be within our MCERTS scope. If samples are not one of a combination of the above matrices they will not be marked as MCERTS accredited.

It is assumed that you have taken representative samples on site and require analysis on a representative subsample. Stones will generally be included unless we are requested to remove them.

All samples will be discarded one month after the date of reporting, unless we are instructed to the contrary. Asbestos samples are retained for 6 months.

If you have not already done so, please send us a purchase order if this is required by your company.

Where appropriate please make sure that our detection limits are suitable for your needs, if they are not, please notify us immediately.

All analysis is reported on a dry weight basis unless stated otherwise. Limits of detection for analyses carried out on as received samples are not moisture content corrected. Results are not surrogate corrected. Samples are dried at 35°C ±5°C unless otherwise stated. Moisture content for CEN Leachate tests are dried at 105°C ±5°C. Ash samples are dried at 35°C ±5°C.

Where Mineral Oil is quoted, this refers to Total Aliphatics C10-C40.

Where a CEN 10:1 ZERO Headspace VOC test has been carried out, a 10:1 ratio of water to wet (as received) soil has been used.

% Asbestos in Asbestos Containing Materials (ACMs) is determined by reference to HSG 264 The Survey Guide - Appendix 2 : ACMs in buildings listed in order of ease of fibre release.

Sufficient amount of sample must be received to carry out the testing specified. Where an insufficient amount of sample has been received the testing may not meet the requirements of our accredited methods, as such accreditation may be removed.

Negative Neutralization Potential (NP) values are obtained when the volume of NaOH (0.1N) titrated (pH 8.3) is greater than the volume of HCl (1N) to reduce the pH of the sample to 2.0 - 2.5. Any negative NP values are corrected to 0.

The calculation of Pyrite content assumes that all oxidisable sulphides present in the sample are pyrite. This may not be the case. The calculation may be an overestimate when other sulphides such as Barite (Barium Sulphate) are present.

WATERS

Please note we are not a UK Drinking Water Inspectorate (DWI) Approved Laboratory .

ISO17025 accreditation applies to surface water and groundwater and usually one other matrix which is analysis specific, any other liquids are outside our scope of accreditation.

As surface waters require different sample preparation to groundwaters the laboratory must be informed of the water type when submitting samples.

Where Mineral Oil is quoted, this refers to Total Aliphatics C10-C40.

STACK EMISSIONS

Where an MCERTS report has been requested, you will be notified within 48 hours of any samples that have been identified as being outside our MCERTS scope. As validation for Dioxins and Furans and Dioxin like PCBs has been performed on XAD-2 Resin, only samples which use this resin will be within our MCERTS scope.

Where appropriate please make sure that our detection limits are suitable for your needs, if they are not, please notify us immediately.

DEVIATING SAMPLES

All samples should be submitted to the laboratory in suitable containers with sufficient ice packs to sustain an appropriate temperature for the requested analysis. The temperature of sample receipt is recorded on the confirmation schedules in order that the client can make an informed decision as to whether testing should still be undertaken.

SURROGATES

Surrogate compounds are added during the preparation process to monitor recovery of analytes. However low recovery in soils is often due to peat, clay or other organic rich matrices. For waters this can be due to oxidants, surfactants, organic rich sediments or remediation fluids. Acceptable limits for most organic methods are 70 - 130% and for VOCs are 50 - 150%. When surrogate recoveries are outside the performance criteria but the associated AQC passes this is assumed to be due to matrix effect. Results are not surrogate corrected.

DILUTIONS

A dilution suffix indicates a dilution has been performed and the reported result takes this into account. No further calculation is required.

BLANKS

Where analytes have been found in the blank, the sample will be treated in accordance with our laboratory procedure for dealing with contaminated blanks.

NOTE

Data is only reported if the laboratory is confident that the data is a true reflection of the samples analysed. Data is only reported as accredited when all the requirements of our Quality System have been met. In certain circumstances where all the requirements of the Quality System have not been met, for instance if the associated AQC has failed, the reason is fully investigated and documented. The sample data is then evaluated alongside the other quality control checks performed during analysis to determine its suitability. Following this evaluation, provided the sample results have not been effected, the data is reported but accreditation is removed. It is a requirement of our Accreditation Body for data not reported as accredited to be considered indicative only, but this does not mean the data is not valid.

Where possible, and if requested, samples will be re-extracted and a revised report issued with accredited results. Please do not hesitate to contact the laboratory if further details are required of the circumstances which have led to the removal of accreditation.

Laboratory records are kept for a period of no less than 6 years.

REPORTS FROM THE SOUTH AFRICA LABORATORY

Any method number not prefixed with SA has been undertaken in our UK laboratory unless reported as subcontracted.

Measurement Uncertainty

Measurement uncertainty defines the range of values that could reasonably be attributed to the measured quantity. This range of values has not been included within the reported results. Uncertainty expressed as a percentage can be provided upon request.

Customer Provided Information

Sample ID and depth is information provided by the customer.

Age of Diesel

The age of release estimation is based on the nC17/pristane ratio only as prescribed by Christensen and Larsen (1993) and Kaplan, Galperin, Alimi et al., (1996).

Age estimation should be treated with caution as it can be influenced by site specific factors of which the laboratory are not aware.

Tentatively Identified Compounds (TICs)

Where Tentatively Identified Compounds (TICs) are reported, up to 10 Tentatively Identified Compounds will be listed where there is found to be a greater than 80% match with the NIST library. The reported concentration is determined semi-quantitatively, with a matrix specific limit of detection.

Note, other compounds may be present but are not reported.

ABBREVIATIONS and ACRONYMS USED

#	ISO17025 (UKAS Ref No. 4225) accredited - UK.
SA	ISO17025 (SANAS Ref No.T0729) accredited - South Africa
B	Indicates analyte found in associated method blank.
DR	Dilution required.
M	MCERTS accredited.
NA	Not applicable
NAD	No Asbestos Detected.
ND	None Detected (usually refers to VOC and/SVOC TICs).
NDP	No Determination Possible
SS	Calibrated against a single substance
SV	Surrogate recovery outside performance criteria. This may be due to a matrix effect.
W	Results expressed on as received basis.
+	AQC failure, accreditation has been removed from this result, if appropriate, see 'Note' on previous page.
>>	Results above quantitative calibration range. The result should be considered the minimum value and is indicative only. The actual result could be significantly higher.
*	Analysis subcontracted to an Element Materials Technology approved laboratory.
CO	Suspected carry over
LOD/LOR	Limit of Detection (Limit of Reporting) in line with ISO 17025 and MCERTS
ME	Matrix Effect
NFD	No Fibres Detected
BS	AQC Sample
LB	Blank Sample
N	Client Sample
TB	Trip Blank Sample
OC	Outside Calibration Range
AA	x200 Dilution

HWOL ACRONYMS AND OPERATORS USED

HS	Headspace Analysis.
EH	Extractable Hydrocarbons - i.e. everything extracted by the solvent.
CU	Clean-up - e.g. by florisil, silica gel.
1D	GC - Single coil gas chromatography.
Total	Aliphatics & Aromatics.
AL	Aliphatics only.
AR	Aromatics only.
2D	GC-GC - Double coil gas chromatography.
#1	EH_Total but with humics mathematically subtracted
#2	EU_Total but with fatty acids mathematically subtracted
_	Operator - underscore to separate acronyms (exception for +).
+	Operator to indicate cumulative e.g. EH+HS_Total or EH_CU+HS_Total
MS	Mass Spectrometry.

EMT Job No: 24/10630

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS/ANAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
TM4	Modified USEPA 8270D v5:2014 method for the solvent extraction and determination of PAHs by GC-MS.	PM30	Water samples are extracted with solvent using a magnetic stirrer to create a vortex.				
TM4	Modified USEPA 8270D v5:2014 method for the solvent extraction and determination of PAHs by GC-MS.	PM30	Water samples are extracted with solvent using a magnetic stirrer to create a vortex.	Yes			
TM5	Modified 8015B v2:1996 method for the determination of solvent Extractable Petroleum Hydrocarbons (EPH) within the range C8-C40 by GCFID. For waters the solvent extracts dissolved phase plus a sheen if present.	PM16/PM30	Fractionation into aliphatic and aromatic fractions using a Rapid Trace SPE/Water samples are extracted with solvent using a magnetic stirrer to create a vortex.	Yes			
TM5/TM36	please refer to TM5 and TM36 for method details	PM12/PM16/PM30	please refer to PM16/PM30 and PM12 for method details	Yes			
TM30	Determination of Trace Metals by ICP-OES (Inductively Coupled Plasma – Optical Emission Spectrometry); WATERS by Modified USEPA Method 200.7, Rev. 4.4, 1994; Modified EPA Method 6010B, Rev.2, Dec 1996; Modified BS EN ISO 11885:2009: SOILS by Modified USEP 6010B, Rev.2, Dec.1996; Modified EPA Method 3050B, Rev.2, Dec.1996	PM14	Preparation of waters and leachates for metals by ICP OES/ICP MS. Samples are filtered for Dissolved metals, and remain unfiltered for Total metals then acidified	Yes			
TM30/TM48	Calculation of Fe (III) based on Iron and Fe(II)	PM0	No preparation is required.				
TM36	Modified US EPA method 8015B v2:1996. Determination of Gasoline Range Organics (GRO) in the carbon chain range of C4-12 by headspace GC-FID. MTBE by GCFID co-elutes with 3-methylpentane if present and therefore can give a false positive. Positive MTBE results will be re-run using GC-MS to double check, when requested.	PM12	Modified US EPA method 5021A v2:2014. Preparation of solid and liquid samples for GC headspace analysis.	Yes			
TM38	Soluble Ion analysis using Discrete Analyser. Modified US EPA methods: Chloride 325.2 (1978), Sulphate 375.4 (Rev.2 1993), o-Phosphate 365.2 (Rev.2 1993), TON 353.1 (Rev.2 1993), Nitrite 354.1 (1971), Hex Cr 7196A (1992), NH4+ 350.1 (Rev.2 1993) – All anions comparable to BS ISO 15923-1: 2013	PM0	No preparation is required.	Yes			
TM48	Determination of Ferrous Iron by reaction with Sodium Carbonate and Morfamquat Sulphate which is analysed spectrophotometrically.	PM0	No preparation is required.				
TM73	Modified US EPA methods 150.1 (1982) and 9045D Rev. 4 - 2004) and BS1377-3:1990. Determination of pH by Metrohm automated probe analyser.	PM0	No preparation is required.	Yes			

EMT Job No: 24/10630

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS/S ANAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
TM75	Modified US EPA method 310.1 (1978). Determination of Alkalinity by Metrohm automated titration analyser.	PM0	No preparation is required.	Yes			
TM107	Determination of Sulphide/Thiocyanate by Skalar Continuous Flow Analyser	PM0	No preparation is required.				

Ramboll
240 Blackfriars Road
London
United Kingdom
SE1 8NW



4225



Attention : Robert Hodgson
Date : 19th July, 2024
Your reference : 16200016977
Our reference : Test Report 24/11702 Batch 1
Location : Worthing Gas Works
Date samples received : 6th July, 2024
Status : Final Report
Issue : 202407191348

Eleven samples were received for analysis on 6th July, 2024 of which ten were scheduled for analysis. Please find attached our Test Report which should be read with notes at the end of the report and should include all sections if reproduced. Interpretations and opinions are outside the scope of any accreditation, and all results relate only to samples supplied.

All analysis is carried out on as received samples and reported on a dry weight basis unless stated otherwise. Results are not surrogate corrected.

The greenhouse gas emissions generated (in Carbon – Co2e) to obtain the results in this report are estimated as:

Scope 1&2 emissions - 20.417 kg of CO2

Scope 1&2&3 emissions - 48.25 kg of CO2

Authorised By:



Paul Boden BSc
Senior Project Manager

Please include all sections of this report if it is reproduced

Element Materials Technology

Client Name: Ramboll
Reference: 16200016977
Location: Worthing Gas Works
Contact: Robert Hodgson
EMT Job No: 24/11702

Report : Liquid

Liquids/products: V=40ml vial, G=glass bottle, P=plastic bottle
H=H₂SO₄, Z=ZnAc, N=NaOH, HN=HNO₃

EMT Sample No.	1-9	10-18	19-27	28-36	37-45	46-54	55-63	64-72	73-81	82-84	Please see attached notes for all abbreviations and acronyms		
Sample ID	BH11	BH07	BH12	BH10	BH11 (DUPLICATE)	MW14-01	BH01	BH02	TRIP BLANK	FIELD BLANK			
Depth													
COC No / misc													
Containers	V H H N HCL Z P G	V H H N HCL Z P G	V H H N HCL Z P G	V H H N HCL Z P G	V H H N HCL Z P G	V H H N HCL Z P G	V H H N HCL Z P G	V H H N HCL Z P G	V H H N HCL Z P G	V G			
Sample Date	05/07/2024	05/07/2024	05/07/2024	05/07/2024	05/07/2024	05/07/2024	05/07/2024	05/07/2024	05/07/2024	05/07/2024			
Sample Type	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water			
Batch Number	1	1	1	1	1	1	1	1	1	1			
Date of Receipt	06/07/2024	06/07/2024	06/07/2024	06/07/2024	06/07/2024	06/07/2024	06/07/2024	06/07/2024	06/07/2024	06/07/2024			
											LOD/LOR	Units	Method No.
Dissolved Manganese #	61	4164	525	977	-	1887	1474	792	-	-	<2	ug/l	TM30/PM14
PAH MS													
Naphthalene #	<0.1	<0.1	<0.1	<0.1	<0.1	137.1	<0.1	4257.5 ^{AA}	<0.1 ^{SV}	<0.1	<0.1	ug/l	TM4/PM30
Acenaphthylene #	<0.005	0.006	<0.005	<0.005	<0.005	3.719	0.066	444.341	<0.005 ^{SV}	<0.005	<0.005	ug/l	TM4/PM30
Acenaphthene #	<0.005	<0.005	<0.005	<0.005	<0.005	0.373	0.668	16.317	<0.005 ^{SV}	<0.005	<0.005	ug/l	TM4/PM30
Fluorene #	<0.005	<0.005	<0.005	<0.005	<0.005	0.442	1.444	27.520	<0.005 ^{SV}	<0.005	<0.005	ug/l	TM4/PM30
Phenanthrene #	<0.005	0.017	<0.005	<0.005	<0.005	0.128	0.005	19.742	<0.005 ^{SV}	<0.005	<0.005	ug/l	TM4/PM30
Anthracene #	<0.005	0.021	<0.005	<0.005	<0.005	0.241	0.065	6.071	<0.005 ^{SV}	<0.005	<0.005	ug/l	TM4/PM30
Fluoranthene #	0.005	0.030	<0.005	<0.005	<0.005	0.111	0.201	8.955	<0.005 ^{SV}	<0.005	<0.005	ug/l	TM4/PM30
Pyrene #	0.006	0.017	<0.005	<0.005	<0.005	0.116	0.127	6.687	<0.005 ^{SV}	<0.005	<0.005	ug/l	TM4/PM30
Benzo(a)anthracene #	<0.005	0.011	<0.005	<0.005	<0.005	0.053	<0.005	2.808	<0.005 ^{SV}	<0.005	<0.005	ug/l	TM4/PM30
Chrysene #	<0.005	0.013	<0.005	<0.005	<0.005	0.044	<0.005	2.214	<0.005 ^{SV}	<0.005	<0.005	ug/l	TM4/PM30
Benzo(k)fluoranthene #	<0.008	0.014	<0.008	<0.008	<0.008	0.071	<0.008	2.426	<0.008 ^{SV}	<0.008	<0.008	ug/l	TM4/PM30
Benzo(a)pyrene #	<0.005	0.005	<0.005	<0.005	<0.005	0.042	<0.005	1.448	<0.005 ^{SV}	<0.005	<0.005	ug/l	TM4/PM30
Indeno(123cd)pyrene #	<0.005	<0.005	<0.005	<0.005	<0.005	0.031	<0.005	0.742	<0.005 ^{SV}	<0.005	<0.005	ug/l	TM4/PM30
Dibenzo(ah)anthracene #	<0.005	<0.005	<0.005	<0.005	<0.005	0.008	<0.005	0.244	<0.005 ^{SV}	<0.005	<0.005	ug/l	TM4/PM30
Benzo(ghi)perylene #	<0.005	<0.005	<0.005	<0.005	<0.005	0.035	<0.005	0.669	<0.005 ^{SV}	<0.005	<0.005	ug/l	TM4/PM30
PAH 16 Total #	<0.173	<0.173	<0.173	<0.173	<0.173	142.514	2.576	4797.684	<0.173 ^{SV}	<0.173	<0.173	ug/l	TM4/PM30
Benzo(b)fluoranthene	<0.008	0.010	<0.008	<0.008	<0.008	0.051	<0.008	1.747	<0.008 ^{SV}	<0.008	<0.008	ug/l	TM4/PM30
Benzo(k)fluoranthene	<0.008	<0.008	<0.008	<0.008	<0.008	0.020	<0.008	0.679	<0.008 ^{SV}	<0.008	<0.008	ug/l	TM4/PM30
PAH Surrogate % Recovery	77	76	77	71	73	82	77	351	62 ^{SV}	79	<0	%	TM4/PM30
MTBE #	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	ug/l	TM36/PM12
Benzene #	<5	<5	<5	<5	<5	815	<5	10535	<5	<5	<5	ug/l	TM36/PM12
Toluene #	<5	<5	<5	<5	<5	296	<5	4910	<5	<5	<5	ug/l	TM36/PM12
Ethylbenzene #	<5	<5	<5	<5	<5	15	<5	715	<5	<5	<5	ug/l	TM36/PM12
m/p-Xylene #	<5	<5	<5	<5	<5	91	<5	4618	<5	<5	<5	ug/l	TM36/PM12
o-Xylene #	<5	<5	<5	<5	<5	97	<5	1797	<5	<5	<5	ug/l	TM36/PM12
TPH CWG													
Aliphatics													
>C5-C6 (HS_1D_AL) #	<10	<10	<10	<10	<10	<10	<10	23	<10	<10	<10	ug/l	TM36/PM12
>C6-C8 (HS_1D_AL) #	<10	<10	<10	<10	<10	301	<10	4028	<10	<10	<10	ug/l	TM36/PM12
>C8-C10 (HS_1D_AL) #	<10	<10	<10	<10	<10	60	<10	1726	<10	<10	<10	ug/l	TM36/PM12
>C10-C12 (EH_CU_1D_AL) #	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	ug/l	TM5/PM16/PM30
>C12-C16 (EH_CU_1D_AL) #	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	ug/l	TM5/PM16/PM30
>C16-C21 (EH_CU_1D_AL) #	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	ug/l	TM5/PM16/PM30
>C21-C35 (EH_CU_1D_AL) #	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	ug/l	TM5/PM16/PM30
Total aliphatics C5-35 (EH_CU+HS_1D_AL) #	<10	<10	<10	<10	<10	361	<10	5777	<10	<10	<10	ug/l	TM5/PM16/PM30

Element Materials Technology

Client Name: Ramboll
Reference: 16200016977
Location: Worthing Gas Works
Contact: Robert Hodgson
EMT Job No: 24/11702

Report : Liquid

Liquids/products: V=40ml vial, G=glass bottle, P=plastic bottle
 H=H₂SO₄, Z=ZnAc, N=NaOH, HN=HNO₃

EMT Sample No.	1-9	10-18	19-27	28-36	37-45	46-54	55-63	64-72	73-81	82-84	Please see attached notes for all abbreviations and acronyms		
Sample ID	BH11	BH07	BH12	BH10	BH11 (DUPLICATE)	MW14-01	BH01	BH02	TRIP BLANK	FIELD BLANK			
Depth													
COC No / misc													
Containers	V H HN HCL Z P G	V H HN HCL Z P G	V H HN HCL Z P G	V H HN HCL Z P G	V H HN HCL Z P G	V H HN HCL Z P G	V H HN HCL Z P G	V H HN HCL Z P G	V H HN HCL Z P G	V G			
Sample Date	05/07/2024	05/07/2024	05/07/2024	05/07/2024	05/07/2024	05/07/2024	05/07/2024	05/07/2024	05/07/2024	05/07/2024			
Sample Type	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water			
Batch Number	1	1	1	1	1	1	1	1	1	1			
Date of Receipt	06/07/2024	06/07/2024	06/07/2024	06/07/2024	06/07/2024	06/07/2024	06/07/2024	06/07/2024	06/07/2024	06/07/2024	LOD/LOR	Units	Method No.
TPH CWG													
Aromatics													
>C5-EC7 (HS_1D_AR) #	<10	<10	<10	<10	<10	815	<10	10535	<10	<10	<10	ug/l	TM36/PM12
>EC7-EC8 (HS_1D_AR) #	<10	<10	<10	<10	<10	296	<10	4910	<10	<10	<10	ug/l	TM36/PM12
>EC8-EC10 (HS_1D_AR) #	<10	<10	<10	<10	<10	203	<10	7130	<10	<10	<10	ug/l	TM36/PM12
>EC10-EC12 (EH_CU_1D_AR) #	<5	<5	<5	<5	<5	265	<5	9053	<5	<5	<5	ug/l	TM5/PM16/PM30
>EC12-EC16 (EH_CU_1D_AR) #	<10	<10	<10	<10	<10	150	<10	1090	<10	<10	<10	ug/l	TM5/PM16/PM30
>EC16-EC21 (EH_CU_1D_AR) #	<10	<10	<10	<10	<10	20	<10	970	<10	<10	<10	ug/l	TM5/PM16/PM30
>EC21-EC35 (EH_CU_1D_AR) #	<10	<10	<10	<10	<10	<10	<10	240	<10	<10	<10	ug/l	TM5/PM16/PM30
Total aromatics C5-35 (EH_CU+HS_1D_AR) #	<10	<10	<10	<10	<10	1749	<10	33928	<10	<10	<10	ug/l	TM5/PM16/PM30
Total aliphatics and aromatics(C5-35) (EH_CU+HS_1D_Total) #	<10	<10	<10	<10	<10	2110	<10	39705	<10	<10	<10	ug/l	TM5/PM16/PM30
Sulphate as SO ₄ #	53.9	526.2	52.0	81.9	-	87.2	66.5	18.7	-	-	<0.5	mg/l	TM38/PM0
Nitrate as NO ₃ #	9.1	<0.2	<0.2	7.2	-	<0.2	<0.2	<0.2	-	-	<0.2	mg/l	TM38/PM0
Nitrite as NO ₂ #	1.72	0.19	<0.02	0.35	-	<0.02	<0.02	<0.02	-	-	<0.02	mg/l	TM38/PM0
Ammoniacal Nitrogen as NH ₄ #	<0.03	42.78	<0.03	0.04	-	96.52	52.83	58.42	-	-	<0.03	mg/l	TM38/PM0
Total Alkalinity as CaCO ₃ #	486	348	1336	370	-	522	584	398	-	-	<1	mg/l	TM75/PM0
Sulphide	<0.01	<0.01	<0.01	<0.01	-	0.01	<0.01	<0.01	-	-	<0.01	mg/l	TM107/PM0
Dissolved Iron II	<1	<1	<1	<1	-	<1	<1	<1	-	-	<1	mg/l	TM213/PM31
Dissolved Iron III	<1	5	<1	<1	-	<1	<1	<1	-	-	<1	mg/l	TM30/TM213/PM0
pH #	7.49	7.45	7.54	7.54	-	7.68	7.68	7.69	-	-	<0.01	pH units	TM73/PM0

Client Name:	Ramboll
Reference:	16200016977
Location:	Worthing Gas Works
Contact:	Robert Hodgson

[illegible]

Please note that only samples that are deviating are mentioned in this report. If no samples are listed it is because none were deviating. Only analyses which are accredited are recorded as deviating if set criteria are not met.

It is a requirement under ISO 17025 that we inform clients if samples are deviating i.e. outside what is expected. A deviating sample indicates that the sample 'may' be compromised but not necessarily will be compromised. The result is still accredited and our analytical reports will still show accreditation on the relevant analytes.

NOTES TO ACCOMPANY ALL SCHEDULES AND REPORTS

EMT Job No.: 24/11702

SOILS and ASH

Please note we are only MCERTS accredited (UK soils only) for sand, loam and clay and any other matrix is outside our scope of accreditation.

Where an MCERTS report has been requested, you will be notified within 48 hours of any samples that have been identified as being outside our MCERTS scope. As validation has been performed on clay, sand and loam, only samples that are predominantly these matrices, or combinations of them will be within our MCERTS scope. If samples are not one of a combination of the above matrices they will not be marked as MCERTS accredited.

It is assumed that you have taken representative samples on site and require analysis on a representative subsample. Stones will generally be included unless we are requested to remove them.

All samples will be discarded one month after the date of reporting, unless we are instructed to the contrary. Asbestos samples are retained for 6 months.

If you have not already done so, please send us a purchase order if this is required by your company.

Where appropriate please make sure that our detection limits are suitable for your needs, if they are not, please notify us immediately.

All analysis is reported on a dry weight basis unless stated otherwise. Limits of detection for analyses carried out on as received samples are not moisture content corrected. Results are not surrogate corrected. Samples are dried at 35°C ±5°C unless otherwise stated. Moisture content for CEN Leachate tests are dried at 105°C ±5°C. Ash samples are dried at 35°C ±5°C.

Where Mineral Oil is quoted, this refers to Total Aliphatics C10-C40.

Where a CEN 10:1 ZERO Headspace VOC test has been carried out, a 10:1 ratio of water to wet (as received) soil has been used.

% Asbestos in Asbestos Containing Materials (ACMs) is determined by reference to HSG 264 The Survey Guide - Appendix 2 : ACMs in buildings listed in order of ease of fibre release.

Sufficient amount of sample must be received to carry out the testing specified. Where an insufficient amount of sample has been received the testing may not meet the requirements of our accredited methods, as such accreditation may be removed.

Negative Neutralization Potential (NP) values are obtained when the volume of NaOH (0.1N) titrated (pH 8.3) is greater than the volume of HCl (1N) to reduce the pH of the sample to 2.0 - 2.5. Any negative NP values are corrected to 0.

The calculation of Pyrite content assumes that all oxidisable sulphides present in the sample are pyrite. This may not be the case. The calculation may be an overestimate when other sulphides such as Barite (Barium Sulphate) are present.

WATERS

Please note we are not a UK Drinking Water Inspectorate (DWI) Approved Laboratory .

ISO17025 accreditation applies to surface water and groundwater and usually one other matrix which is analysis specific, any other liquids are outside our scope of accreditation.

As surface waters require different sample preparation to groundwaters the laboratory must be informed of the water type when submitting samples.

Where Mineral Oil is quoted, this refers to Total Aliphatics C10-C40.

STACK EMISSIONS

Where an MCERTS report has been requested, you will be notified within 48 hours of any samples that have been identified as being outside our MCERTS scope. As validation for Dioxins and Furans and Dioxin like PCBs has been performed on XAD-2 Resin, only samples which use this resin will be within our MCERTS scope.

Where appropriate please make sure that our detection limits are suitable for your needs, if they are not, please notify us immediately.

DEVIATING SAMPLES

All samples should be submitted to the laboratory in suitable containers with sufficient ice packs to sustain an appropriate temperature for the requested analysis. The temperature of sample receipt is recorded on the confirmation schedules in order that the client can make an informed decision as to whether testing should still be undertaken.

SURROGATES

Surrogate compounds are added during the preparation process to monitor recovery of analytes. However low recovery in soils is often due to peat, clay or other organic rich matrices. For waters this can be due to oxidants, surfactants, organic rich sediments or remediation fluids. Acceptable limits for most organic methods are 70 - 130% and for VOCs are 50 - 150%. When surrogate recoveries are outside the performance criteria but the associated AQC passes this is assumed to be due to matrix effect. Results are not surrogate corrected.

DILUTIONS

A dilution suffix indicates a dilution has been performed and the reported result takes this into account. No further calculation is required.

BLANKS

Where analytes have been found in the blank, the sample will be treated in accordance with our laboratory procedure for dealing with contaminated blanks.

NOTE

Data is only reported if the laboratory is confident that the data is a true reflection of the samples analysed. Data is only reported as accredited when all the requirements of our Quality System have been met. In certain circumstances where all the requirements of the Quality System have not been met, for instance if the associated AQC has failed, the reason is fully investigated and documented. The sample data is then evaluated alongside the other quality control checks performed during analysis to determine its suitability. Following this evaluation, provided the sample results have not been effected, the data is reported but accreditation is removed. It is a requirement of our Accreditation Body for data not reported as accredited to be considered indicative only, but this does not mean the data is not valid.

Where possible, and if requested, samples will be re-extracted and a revised report issued with accredited results. Please do not hesitate to contact the laboratory if further details are required of the circumstances which have led to the removal of accreditation.

Laboratory records are kept for a period of no less than 6 years.

REPORTS FROM THE SOUTH AFRICA LABORATORY

Any method number not prefixed with SA has been undertaken in our UK laboratory unless reported as subcontracted.

Measurement Uncertainty

Measurement uncertainty defines the range of values that could reasonably be attributed to the measured quantity. This range of values has not been included within the reported results. Uncertainty expressed as a percentage can be provided upon request.

Customer Provided Information

Sample ID and depth is information provided by the customer.

Age of Diesel

The age of release estimation is based on the nC17/pristane ratio only as prescribed by Christensen and Larsen (1993) and Kaplan, Galperin, Alimi et al., (1996).

Age estimation should be treated with caution as it can be influenced by site specific factors of which the laboratory are not aware.

Tentatively Identified Compounds (TICs)

Where Tentatively Identified Compounds (TICs) are reported, up to 10 Tentatively Identified Compounds will be listed where there is found to be a greater than 80% match with the NIST library. The reported concentration is determined semi-quantitatively, with a matrix specific limit of detection.

Note, other compounds may be present but are not reported.

ABBREVIATIONS and ACRONYMS USED

#	ISO17025 (UKAS Ref No. 4225) accredited - UK.
SA	ISO17025 (SANAS Ref No.T0729) accredited - South Africa
B	Indicates analyte found in associated method blank.
DR	Dilution required.
M	MCERTS accredited.
NA	Not applicable
NAD	No Asbestos Detected.
ND	None Detected (usually refers to VOC and/SVOC TICs).
NDP	No Determination Possible
SS	Calibrated against a single substance
SV	Surrogate recovery outside performance criteria. This may be due to a matrix effect.
W	Results expressed on as received basis.
+	AQC failure, accreditation has been removed from this result, if appropriate, see 'Note' on previous page.
>>	Results above quantitative calibration range. The result should be considered the minimum value and is indicative only. The actual result could be significantly higher.
*	Analysis subcontracted to an Element Materials Technology approved laboratory.
CO	Suspected carry over
LOD/LOR	Limit of Detection (Limit of Reporting) in line with ISO 17025 and MCERTS
ME	Matrix Effect
NFD	No Fibres Detected
BS	AQC Sample
LB	Blank Sample
N	Client Sample
TB	Trip Blank Sample
OC	Outside Calibration Range
AA	x200 Dilution

HWOL ACRONYMS AND OPERATORS USED

HS	Headspace Analysis.
EH	Extractable Hydrocarbons - i.e. everything extracted by the solvent.
CU	Clean-up - e.g. by florisil, silica gel.
1D	GC - Single coil gas chromatography.
Total	Aliphatics & Aromatics.
AL	Aliphatics only.
AR	Aromatics only.
2D	GC-GC - Double coil gas chromatography.
#1	EH_Total but with humics mathematically subtracted
#2	EU_Total but with fatty acids mathematically subtracted
_	Operator - underscore to separate acronyms (exception for +).
+	Operator to indicate cumulative e.g. EH+HS_Total or EH_CU+HS_Total
MS	Mass Spectrometry.

EMT Job No: 24/11702

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS/ANAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
TM4	Modified USEPA 8270D v5:2014 method for the solvent extraction and determination of PAHs by GC-MS.	PM30	Water samples are extracted with solvent using a magnetic stirrer to create a vortex.				
TM4	Modified USEPA 8270D v5:2014 method for the solvent extraction and determination of PAHs by GC-MS.	PM30	Water samples are extracted with solvent using a magnetic stirrer to create a vortex.	Yes			
TM5	Modified 8015B v2:1996 method for the determination of solvent Extractable Petroleum Hydrocarbons (EPH) within the range C8-C40 by GCFID. For waters the solvent extracts dissolved phase plus a sheen if present.	PM16/PM30	Fractionation into aliphatic and aromatic fractions using a Rapid Trace SPE/Water samples are extracted with solvent using a magnetic stirrer to create a vortex.	Yes			
TM5/TM36	please refer to TM5 and TM36 for method details	PM12/PM16/PM30	please refer to PM16/PM30 and PM12 for method details	Yes			
TM30	Determination of Trace Metals by ICP-OES (Inductively Coupled Plasma – Optical Emission Spectrometry); WATERS by Modified USEPA Method 200.7, Rev. 4.4, 1994; Modified EPA Method 6010B, Rev.2, Dec 1996; Modified BS EN ISO 11885:2009: SOILS by Modified USEP 6010B, Rev.2, Dec.1996; Modified EPA Method 3050B, Rev.2, Dec.1996	PM14	Preparation of waters and leachates for metals by ICP OES/ICP MS. Samples are filtered for Dissolved metals, and remain unfiltered for Total metals then acidified	Yes			
TM30/TM213	Calculation of Fe (III) based on Iron and Fe(II)	PM0	No preparation is required.				
TM36	Modified US EPA method 8015B v2:1996. Determination of Gasoline Range Organics (GRO) in the carbon chain range of C4-12 by headspace GC-FID. MTBE by GCFID co-elutes with 3-methylpentane if present and therefore can give a false positive. Positive MTBE results will be re-run using GC-MS to double check, when requested.	PM12	Modified US EPA method 5021A v2:2014. Preparation of solid and liquid samples for GC headspace analysis.	Yes			
TM38	Soluble Ion analysis using Discrete Analyser. Modified US EPA methods: Chloride 325.2 (1978), Sulphate 375.4 (Rev.2 1993), o-Phosphate 365.2 (Rev.2 1993), TON 353.1 (Rev.2 1993), Nitrite 354.1 (1971), Hex Cr 7196A (1992), NH4+ 350.1 (Rev.2 1993) – All anions comparable to BS ISO 15923-1: 2013l	PM0	No preparation is required.	Yes			
TM73	Modified US EPA methods 150.1 (1982) and 9045D Rev. 4 - 2004) and BS1377-3:1990. Determination of pH by Metrohm automated probe analyser.	PM0	No preparation is required.	Yes			
TM75	Modified US EPA method 310.1 (1978). Determination of Alkalinity by Metrohm automated titration analyser.	PM0	No preparation is required.	Yes			

EMT Job No: 24/11702

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS/S ANAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
TM107	Determination of Sulphide/Thiocyanate by Skalar Continuous Flow Analyser	PM0	No preparation is required.				
TM213	Fe(II) and Mn(II) by IC and Spectro	PM31	Prep of Waters for Inorganics				

Ramboll
240 Blackfriars Road
London
United Kingdom
SE1 8NW



4225



Attention : Robert Hodgson
Date : 13th August, 2024
Your reference : 1620016977
Our reference : Test Report 24/12513 Batch 1
Location : Worthing Gas Monitoring
Date samples received : 20th July, 2024
Status : Final Report
Issue : 202408131428

Ten samples were received for analysis on 20th July, 2024 of which ten were scheduled for analysis. Please find attached our Test Report which should be read with notes at the end of the report and should include all sections if reproduced. Interpretations and opinions are outside the scope of any accreditation, and all results relate only to samples supplied.

All analysis is carried out on as received samples and reported on a dry weight basis unless stated otherwise. Results are not surrogate corrected.

The greenhouse gas emissions generated (in Carbon – Co2e) to obtain the results in this report are estimated as:

Scope 1&2 emissions - 23.82 kg of CO2

Scope 1&2&3 emissions - 56.292 kg of CO2

Authorised By:



Paul Boden BSc
Senior Project Manager

Please include all sections of this report if it is reproduced

Element Materials Technology

Client Name: Ramboll
Reference: 1620016977
Location: Worthing Gas Monitoring
Contact: Robert Hodgson
EMT Job No: 24/12513

Report : Liquid

Liquids/products: V=40ml vial, G=glass bottle, P=plastic bottle
H=H₂SO₄, Z=ZnAc, N=NaOH, HN=HNO₃

EMT Sample No.	1-9	10-18	19-27	28-36	37-45	46-54	55-63	64-72	73-79	80-85	Please see attached notes for all abbreviations and acronyms		
Sample ID	BH01	BH02	BH07	BH07_A	BH10	BH11	BH12	MW14-01	FIELD BLANK	TRIP BLANK			
Depth													
COC No / misc													
Containers	V H H N HCL Z P G	V H H N HCL Z P G	V H H N HCL Z P G	V H H N HCL Z P G	V H H N HCL Z P G	V H H N HCL Z P G	V H H N HCL Z P G	V H H N HCL Z P G	H H N HCL Z P G	H H N HCL Z P			
Sample Date	19/07/2024	19/07/2024	19/07/2024	19/07/2024	19/07/2024	19/07/2024	19/07/2024	19/07/2024	19/07/2024	19/07/2024			
Sample Type	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Field Blank	Trip Blank (water)			
Batch Number	1	1	1	1	1	1	1	1	1	1			
Date of Receipt	20/07/2024	20/07/2024	20/07/2024	20/07/2024	20/07/2024	20/07/2024	20/07/2024	20/07/2024	20/07/2024	20/07/2024			
											LOD/LOR	Units	Method No.
Dissolved Manganese #	1016	759	1557	-	492	4	11	2494	-	-	<2	ug/l	TM30/PM14
PAH MS													
Naphthalene #	0.8	167.4 ^{AA}	<0.1	0.1	<2.0 ^{AB}	<0.1	<0.1	1202.7 ^{AC}	<0.1	<0.1	<0.1	ug/l	TM4/PM30
Acenaphthylene #	0.449	79.031 ^{AA}	0.070	0.400	<0.100 ^{AB}	0.015	<0.005	4.674	<0.005	<0.005	<0.005	ug/l	TM4/PM30
Acenaphthene #	1.559	21.567 ^{AA}	0.007	0.030	<0.100 ^{AB}	0.009	<0.005	0.498	<0.005	<0.005	<0.005	ug/l	TM4/PM30
Fluorene #	1.171	61.575 ^{AA}	0.026	0.126	<0.100 ^{AB}	<0.005	<0.005	0.544	<0.005	<0.005	<0.005	ug/l	TM4/PM30
Phenanthrene #	<0.005	85.590 ^{AA}	0.108	0.666	0.156 ^{AB}	0.081	<0.005	0.326	<0.005	<0.005	<0.005	ug/l	TM4/PM30
Anthracene #	0.043	24.727 ^{AA}	0.047	0.259	<0.100 ^{AB}	0.026	<0.005	0.336	<0.005	<0.005	<0.005	ug/l	TM4/PM30
Fluoranthene #	0.082	19.185 ^{AA}	0.186	1.265	0.252 ^{AB}	0.274	<0.005	0.455	<0.005	<0.005	<0.005	ug/l	TM4/PM30
Pyrene #	0.056	12.261 ^{AA}	0.141	0.935	0.223 ^{AB}	0.233	<0.005	0.418	<0.005	<0.005	<0.005	ug/l	TM4/PM30
Benzo(a)anthracene #	0.008	2.574 ^{AA}	0.116	0.721	0.179 ^{AB}	0.133	<0.005	0.223	<0.005	<0.005	<0.005	ug/l	TM4/PM30
Chrysene #	0.005	1.604 ^{AA}	0.102	0.665	0.167 ^{AB}	0.126	<0.005	0.205	<0.005	<0.005	<0.005	ug/l	TM4/PM30
Benzo(k)fluoranthene #	<0.008	0.942 ^{AA}	0.198	1.151	0.205 ^{AB}	0.247	<0.008	0.369	<0.008	<0.008	<0.008	ug/l	TM4/PM30
Benzo(a)pyrene #	<0.005	0.546 ^{AA}	0.119	0.765	<0.100 ^{AB}	0.139	<0.005	0.215	<0.005	<0.005	<0.005	ug/l	TM4/PM30
Indeno(123cd)pyrene #	<0.005	0.207 ^{AA}	0.076	0.444	<0.100 ^{AB}	0.101	<0.005	0.169	<0.005	<0.005	<0.005	ug/l	TM4/PM30
Dibenzo(ah)anthracene #	<0.005	0.070 ^{AA}	0.017	0.097	<0.100 ^{AB}	0.023	<0.005	0.036	<0.005	<0.005	<0.005	ug/l	TM4/PM30
Benzo(ghi)perylene #	<0.005	0.159 ^{AA}	0.068	0.415	<0.100 ^{AB}	0.095	<0.005	0.157	<0.005	<0.005	<0.005	ug/l	TM4/PM30
PAH 16 Total #	4.173	477.438 ^{AA}	1.281	8.039	<3.460 ^{AB}	1.502	<0.173	1211.325	<0.173	<0.173	<0.173	ug/l	TM4/PM30
Benzo(b)fluoranthene	<0.008	0.678 ^{AA}	0.143	0.829	<0.160 ^{AB}	0.178	<0.008	0.266	<0.008	<0.008	<0.008	ug/l	TM4/PM30
Benzo(k)fluoranthene	<0.008	0.264 ^{AA}	0.055	0.322	<0.160 ^{AB}	0.069	<0.008	0.103	<0.008	<0.008	<0.008	ug/l	TM4/PM30
PAH Surrogate % Recovery	76	60 ^{SV} ^{AA}	81	74	88 ^{AB}	76	78	97	74	78	<0	%	TM4/PM30
MTBE #	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	ug/l	TM36/PM12
Benzene #	<5	>>10083	<5	<5	<5	<5	<5	1755	<5	<5	<5	ug/l	TM36/PM12
Toluene #	<5	4614	<5	<5	<5	<5	<5	681	<5	<5	<5	ug/l	TM36/PM12
Ethylbenzene #	<5	566	<5	<5	<5	<5	<5	27	<5	<5	<5	ug/l	TM36/PM12
m/p-Xylene #	<5	4549	<5	<5	<5	<5	<5	216	<5	<5	<5	ug/l	TM36/PM12
o-Xylene #	<5	1824	<5	<5	<5	<5	<5	191	<5	<5	<5	ug/l	TM36/PM12
TPH CWG													
Aliphatics													
>C5-C6 (HS_1D_AL) #	<10	21	<10	<10	<10	<10	<10	10	<10	<10	<10	ug/l	TM36/PM12
>C6-C8 (HS_1D_AL) #	<10	3853	<10	<10	<10	<10	<10	654	<10	<10	<10	ug/l	TM36/PM12
>C8-C10 (HS_1D_AL) #	<10	1761	<10	<10	<10	<10	<10	147	<10	<10	<10	ug/l	TM36/PM12
>C10-C12 (EH_CU_1D_AL) #	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	ug/l	TM5/PM16/PM30
>C12-C16 (EH_CU_1D_AL) #	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	ug/l	TM5/PM16/PM30
>C16-C21 (EH_CU_1D_AL) #	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	ug/l	TM5/PM16/PM30
>C21-C35 (EH_CU_1D_AL) #	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	ug/l	TM5/PM16/PM30
Total aliphatics C5-35 (EH_CU+HS_1D_AL) #	<10	5635	<10	<10	<10	<10	<10	811	<10	<10	<10	ug/l	TM5/PM16/PM30

Element Materials Technology

Client Name: Ramboll
Reference: 1620016977
Location: Worthing Gas Monitoring
Contact: Robert Hodgson
EMT Job No: 24/12513

Report : Liquid

Liquids/products: V=40ml vial, G=glass bottle, P=plastic bottle
 H=H₂SO₄, Z=ZnAc, N=NaOH, HN=HNO₃

EMT Sample No.	1-9	10-18	19-27	28-36	37-45	46-54	55-63	64-72	73-79	80-85	Please see attached notes for all abbreviations and acronyms		
Sample ID	BH01	BH02	BH07	BH07_A	BH10	BH11	BH12	MW14-01	FIELD BLANK	TRIP BLANK			
Depth													
COC No / misc													
Containers	V H HN HCL Z P G	V H HN HCL Z P G	V H HN HCL Z P G	V H HN HCL Z P G	V H HN HCL Z P G	V H HN HCL Z P G	V H HN HCL Z P G	V H HN HCL Z P G	H HN HCL Z P G	H HN HCL Z P			
Sample Date	19/07/2024	19/07/2024	19/07/2024	19/07/2024	19/07/2024	19/07/2024	19/07/2024	19/07/2024	19/07/2024	19/07/2024			
Sample Type	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Field Blank	Trip Blank (water)			
Batch Number	1	1	1	1	1	1	1	1	1	1			
Date of Receipt	20/07/2024	20/07/2024	20/07/2024	20/07/2024	20/07/2024	20/07/2024	20/07/2024	20/07/2024	20/07/2024	20/07/2024	LOD/LOR	Units	Method No.
TPH CWG													
Aromatics													
>C5-EC7 (HS_1D_AR) #	<10	10083	<10	<10	<10	<10	<10	1755	<10	<10	<10	ug/l	TM36/PM12
>EC7-EC8 (HS_1D_AR) #	<10	4614	<10	<10	<10	<10	<10	681	<10	<10	<10	ug/l	TM36/PM12
>EC8-EC10 (HS_1D_AR) #	<10	6939	<10	<10	<10	<10	<10	433	<10	<10	<10	ug/l	TM36/PM12
>EC10-EC12 (EH_CU_1D_AR) #	<5	1785	<5	<5	<5	<5	<5	143	<5	<5	<5	ug/l	TM5/PM16/PM30
>EC12-EC16 (EH_CU_1D_AR) #	<10	2360	<10	<10	<10	<10	<10	130	<10	<10	<10	ug/l	TM5/PM16/PM30
>EC16-EC21 (EH_CU_1D_AR) #	<10	3950	<10	<10	<10	<10	<10	80	<10	<10	<10	ug/l	TM5/PM16/PM30
>EC21-EC35 (EH_CU_1D_AR) #	<10	1270	<10	<10	<10	<10	<10	<10	<10	<10	<10	ug/l	TM5/PM16/PM30
Total aromatics C5-35 (EH_CU+HS_1D_AR) #	<10	31001	<10	<10	<10	<10	<10	3222	<10	<10	<10	ug/l	TM5/PM16/PM30
Total aliphatics and aromatics(C5-35) (EH_CU+HS_1D_Total) #	<10	36636	<10	<10	<10	<10	<10	4033	<10	<10	<10	ug/l	TM5/PM16/PM30
Sulphate as SO ₄ #	61.2	19.4	485.2	-	34.8	15.8	21.2	66.6	-	-	<0.5	mg/l	TM38/PM0
Nitrate as NO ₃ #	0.8	<0.2	<0.2	-	<0.2	1.2	0.2	<0.2	-	-	<0.2	mg/l	TM38/PM0
Nitrite as NO ₂ #	1.17	<0.02	0.30	-	<0.02	<0.02	<0.02	<0.02	-	-	<0.02	mg/l	TM38/PM0
Ammoniacal Nitrogen as NH ₄ #	54.34	62.31	44.84	-	0.10	0.03	<0.03	149.45	-	-	<0.03	mg/l	TM38/PM0
Total Alkalinity as CaCO ₃ #	714	696	330	-	162	1214	552	594	-	-	<1	mg/l	TM75/PM0
Sulphide	<0.01	<0.01	<0.01	-	<0.01	<0.01	<0.01	<0.01	-	-	<0.01	mg/l	TM107/PM0
Dissolved Iron II	<1	<1	<1	-	<1	<1	<1	<1	-	-	<1	mg/l	TM213/PM31
Dissolved Iron III	<1	<1	3	-	<1	<1	<1	<1	-	-	<1	mg/l	TM30/TM213/PM0
pH #	7.41	7.38	7.24	-	7.15	7.23	7.40	7.76	-	-	<0.01	pH units	TM73/PM0

Element Materials Technology **Notification of Deviating Samples**

Notification of Deviating Samples

Client Name:	Ramboll
Reference:	1620016977
Location:	Worthing Gas Monitoring
Contact:	Robert Hodgson

Matrix : Liquid

[illegible]

Please note that only samples that are deviating are mentioned in this report. If no samples are listed it is because none were deviating. Only analyses which are accredited are recorded as deviating if set criteria are not met.

It is a requirement under ISO 17025 that we inform clients if samples are deviating i.e. outside what is expected. A deviating sample indicates that the sample 'may' be compromised but not necessarily will be compromised. The result is still accredited and our analytical reports will still show accreditation on the relevant analytes.

NOTES TO ACCOMPANY ALL SCHEDULES AND REPORTS

EMT Job No.: 24/12513

SOILS and ASH

Please note we are only MCERTS accredited (UK soils only) for sand, loam and clay and any other matrix is outside our scope of accreditation.

Where an MCERTS report has been requested, you will be notified within 48 hours of any samples that have been identified as being outside our MCERTS scope. As validation has been performed on clay, sand and loam, only samples that are predominantly these matrices, or combinations of them will be within our MCERTS scope. If samples are not one of a combination of the above matrices they will not be marked as MCERTS accredited.

It is assumed that you have taken representative samples on site and require analysis on a representative subsample. Stones will generally be included unless we are requested to remove them.

All samples will be discarded one month after the date of reporting, unless we are instructed to the contrary. Asbestos samples are retained for 6 months.

If you have not already done so, please send us a purchase order if this is required by your company.

Where appropriate please make sure that our detection limits are suitable for your needs, if they are not, please notify us immediately.

All analysis is reported on a dry weight basis unless stated otherwise. Limits of detection for analyses carried out on as received samples are not moisture content corrected. Results are not surrogate corrected. Samples are dried at 35°C ±5°C unless otherwise stated. Moisture content for CEN Leachate tests are dried at 105°C ±5°C. Ash samples are dried at 35°C ±5°C.

Where Mineral Oil is quoted, this refers to Total Aliphatics C10-C40.

Where a CEN 10:1 ZERO Headspace VOC test has been carried out, a 10:1 ratio of water to wet (as received) soil has been used.

% Asbestos in Asbestos Containing Materials (ACMs) is determined by reference to HSG 264 The Survey Guide - Appendix 2 : ACMs in buildings listed in order of ease of fibre release.

Sufficient amount of sample must be received to carry out the testing specified. Where an insufficient amount of sample has been received the testing may not meet the requirements of our accredited methods, as such accreditation may be removed.

Negative Neutralization Potential (NP) values are obtained when the volume of NaOH (0.1N) titrated (pH 8.3) is greater than the volume of HCl (1N) to reduce the pH of the sample to 2.0 - 2.5. Any negative NP values are corrected to 0.

The calculation of Pyrite content assumes that all oxidisable sulphides present in the sample are pyrite. This may not be the case. The calculation may be an overestimate when other sulphides such as Barite (Barium Sulphate) are present.

WATERS

Please note we are not a UK Drinking Water Inspectorate (DWI) Approved Laboratory .

ISO17025 accreditation applies to surface water and groundwater and usually one other matrix which is analysis specific, any other liquids are outside our scope of accreditation.

As surface waters require different sample preparation to groundwaters the laboratory must be informed of the water type when submitting samples.

Where Mineral Oil is quoted, this refers to Total Aliphatics C10-C40.

STACK EMISSIONS

Where an MCERTS report has been requested, you will be notified within 48 hours of any samples that have been identified as being outside our MCERTS scope. As validation for Dioxins and Furans and Dioxin like PCBs has been performed on XAD-2 Resin, only samples which use this resin will be within our MCERTS scope.

Where appropriate please make sure that our detection limits are suitable for your needs, if they are not, please notify us immediately.

DEVIATING SAMPLES

All samples should be submitted to the laboratory in suitable containers with sufficient ice packs to sustain an appropriate temperature for the requested analysis. The temperature of sample receipt is recorded on the confirmation schedules in order that the client can make an informed decision as to whether testing should still be undertaken.

SURROGATES

Surrogate compounds are added during the preparation process to monitor recovery of analytes. However low recovery in soils is often due to peat, clay or other organic rich matrices. For waters this can be due to oxidants, surfactants, organic rich sediments or remediation fluids. Acceptable limits for most organic methods are 70 - 130% and for VOCs are 50 - 150%. When surrogate recoveries are outside the performance criteria but the associated AQC passes this is assumed to be due to matrix effect. Results are not surrogate corrected.

DILUTIONS

A dilution suffix indicates a dilution has been performed and the reported result takes this into account. No further calculation is required.

BLANKS

Where analytes have been found in the blank, the sample will be treated in accordance with our laboratory procedure for dealing with contaminated blanks.

NOTE

Data is only reported if the laboratory is confident that the data is a true reflection of the samples analysed. Data is only reported as accredited when all the requirements of our Quality System have been met. In certain circumstances where all the requirements of the Quality System have not been met, for instance if the associated AQC has failed, the reason is fully investigated and documented. The sample data is then evaluated alongside the other quality control checks performed during analysis to determine its suitability. Following this evaluation, provided the sample results have not been effected, the data is reported but accreditation is removed. It is a requirement of our Accreditation Body for data not reported as accredited to be considered indicative only, but this does not mean the data is not valid.

Where possible, and if requested, samples will be re-extracted and a revised report issued with accredited results. Please do not hesitate to contact the laboratory if further details are required of the circumstances which have led to the removal of accreditation.

Laboratory records are kept for a period of no less than 6 years.

REPORTS FROM THE SOUTH AFRICA LABORATORY

Any method number not prefixed with SA has been undertaken in our UK laboratory unless reported as subcontracted.

Measurement Uncertainty

Measurement uncertainty defines the range of values that could reasonably be attributed to the measured quantity. This range of values has not been included within the reported results. Uncertainty expressed as a percentage can be provided upon request.

Customer Provided Information

Sample ID and depth is information provided by the customer.

Age of Diesel

The age of release estimation is based on the nC17/pristane ratio only as prescribed by Christensen and Larsen (1993) and Kaplan, Galperin, Alimi et al., (1996).

Age estimation should be treated with caution as it can be influenced by site specific factors of which the laboratory are not aware.

Tentatively Identified Compounds (TICs)

Where Tentatively Identified Compounds (TICs) are reported, up to 10 Tentatively Identified Compounds will be listed where there is found to be a greater than 80% match with the NIST library. The reported concentration is determined semi-quantitatively, with a matrix specific limit of detection.

Note, other compounds may be present but are not reported.

ABBREVIATIONS and ACRONYMS USED

#	ISO17025 (UKAS Ref No. 4225) accredited - UK.
SA	ISO17025 (SANAS Ref No.T0729) accredited - South Africa
B	Indicates analyte found in associated method blank.
DR	Dilution required.
M	MCERTS accredited.
NA	Not applicable
NAD	No Asbestos Detected.
ND	None Detected (usually refers to VOC and/SVOC TICs).
NDP	No Determination Possible
SS	Calibrated against a single substance
SV	Surrogate recovery outside performance criteria. This may be due to a matrix effect.
W	Results expressed on as received basis.
+	AQC failure, accreditation has been removed from this result, if appropriate, see 'Note' on previous page.
>>	Results above quantitative calibration range. The result should be considered the minimum value and is indicative only. The actual result could be significantly higher.
*	Analysis subcontracted to an Element Materials Technology approved laboratory.
CO	Suspected carry over
LOD/LOR	Limit of Detection (Limit of Reporting) in line with ISO 17025 and MCERTS
ME	Matrix Effect
NFD	No Fibres Detected
BS	AQC Sample
LB	Blank Sample
N	Client Sample
TB	Trip Blank Sample
OC	Outside Calibration Range
AA	x10 Dilution
AB	x20 Dilution
AC	x200 Dilution

HWOL ACRONYMS AND OPERATORS USED

HS	Headspace Analysis.
EH	Extractable Hydrocarbons - i.e. everything extracted by the solvent.
CU	Clean-up - e.g. by florisil, silica gel.
1D	GC - Single coil gas chromatography.
Total	Aliphatics & Aromatics.
AL	Aliphatics only.
AR	Aromatics only.
2D	GC-GC - Double coil gas chromatography.
#1	EH_Total but with humics mathematically subtracted
#2	EU_Total but with fatty acids mathematically subtracted
_	Operator - underscore to separate acronyms (exception for +).
+	Operator to indicate cumulative e.g. EH+HS_Total or EH_CU+HS_Total
MS	Mass Spectrometry.

EMT Job No: 24/12513

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS/ANAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
TM4	Modified USEPA 8270D v5:2014 method for the solvent extraction and determination of PAHs by GC-MS.	PM30	Water samples are extracted with solvent using a magnetic stirrer to create a vortex.				
TM4	Modified USEPA 8270D v5:2014 method for the solvent extraction and determination of PAHs by GC-MS.	PM30	Water samples are extracted with solvent using a magnetic stirrer to create a vortex.	Yes			
TM5	Modified 8015B v2:1996 method for the determination of solvent Extractable Petroleum Hydrocarbons (EPH) within the range C8-C40 by GCFID. For waters the solvent extracts dissolved phase plus a sheen if present.	PM16/PM30	Fractionation into aliphatic and aromatic fractions using a Rapid Trace SPE/Water samples are extracted with solvent using a magnetic stirrer to create a vortex.	Yes			
TM5/TM36	please refer to TM5 and TM36 for method details	PM12/PM16/PM30	please refer to PM16/PM30 and PM12 for method details	Yes			
TM30	Determination of Trace Metals by ICP-OES (Inductively Coupled Plasma – Optical Emission Spectrometry); WATERS by Modified USEPA Method 200.7, Rev. 4.4, 1994; Modified EPA Method 6010B, Rev.2, Dec 1996; Modified BS EN ISO 11885:2009: SOILS by Modified USEP 6010B, Rev.2, Dec.1996; Modified EPA Method 3050B, Rev.2, Dec.1996	PM14	Preparation of waters and leachates for metals by ICP OES/ICP MS. Samples are filtered for Dissolved metals, and remain unfiltered for Total metals then acidified	Yes			
TM30/TM213	Calculation of Fe (III) based on Iron and Fe(II)	PM0	No preparation is required.				
TM36	Modified US EPA method 8015B v2:1996. Determination of Gasoline Range Organics (GRO) in the carbon chain range of C4-12 by headspace GC-FID. MTBE by GCFID co-elutes with 3-methylpentane if present and therefore can give a false positive. Positive MTBE results will be re-run using GC-MS to double check, when requested.	PM12	Modified US EPA method 5021A v2:2014. Preparation of solid and liquid samples for GC headspace analysis.	Yes			
TM38	Soluble Ion analysis using Discrete Analyser. Modified US EPA methods: Chloride 325.2 (1978), Sulphate 375.4 (Rev.2 1993), o-Phosphate 365.2 (Rev.2 1993), TON 353.1 (Rev.2 1993), Nitrite 354.1 (1971), Hex Cr 7196A (1992), NH4+ 350.1 (Rev.2 1993) – All anions comparable to BS ISO 15923-1: 2013	PM0	No preparation is required.	Yes			
TM73	Modified US EPA methods 150.1 (1982) and 9045D Rev. 4 - 2004) and BS1377-3:1990. Determination of pH by Metrohm automated probe analyser.	PM0	No preparation is required.	Yes			
TM75	Modified US EPA method 310.1 (1978). Determination of Alkalinity by Metrohm automated titration analyser.	PM0	No preparation is required.	Yes			

EMT Job No: 24/12513

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS/S ANAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
TM107	Determination of Sulphide/Thiocyanate by Skalar Continuous Flow Analyser	PM0	No preparation is required.				
TM213	Fe(II) and Mn(II) by IC and Spectro	PM31	Prep of Waters for Inorganics				

Ramboll
8 Village Way
Green Meadow Springs
Cardiff
United Kingdom
CF15 7NE



4225



Attention : Rob Hodgson

Date : 9th September, 2024

Your reference : 16200016972

Our reference : Test Report 24/14242 Batch 1

Location : Worthing Gas Works

Date samples received : 20th August, 2024

Status : Final Report

Issue : 202409091206

Nine samples were received for analysis on 20th August, 2024 of which nine were scheduled for analysis. Please find attached our Test Report which should be read with notes at the end of the report and should include all sections if reproduced. Interpretations and opinions are outside the scope of any accreditation, and all results relate only to samples supplied.

All analysis is carried out on as received samples and reported on a dry weight basis unless stated otherwise. Results are not surrogate corrected.

The greenhouse gas emissions generated (in Carbon – Co2e) to obtain the results in this report are estimated as:

Scope 1&2 emissions - 19.765 kg of CO2

Scope 1&2&3 emissions - 46.71 kg of CO2

Authorised By:

Simon Gomery BSc
Senior Project Manager

Please include all sections of this report if it is reproduced

Element Materials Technology

Client Name: Ramboll
Reference: 16200016972
Location: Worthing Gas Works
Contact: Rob Hodgson
EMT Job No: 24/14242

Report : Liquid

Liquids/products: V=40ml vial, G=glass bottle, P=plastic bottle
H=H₂SO₄, Z=ZnAc, N=NaOH, HN=HN₃

EMT Sample No.	1-8	9-16	17-24	25-32	33-40	41-48	49-52	53-60	61-68		Please see attached notes for all abbreviations and acronyms		
Sample ID	BH01	BH02	BH07	BH10	MW 12-02	BH12	FIELD BLANK	TRIP BLANK	BH12XR				
Depth													
COC No / misc													
Containers	V H H N HCL Z P G	V H H N HCL Z P G	V H H N HCL Z P G	V H H N HCL Z P G	V H H N HCL Z P G	V H H N HCL Z P G	V P G	V H H N HCL Z P G	V H H N HCL Z P G				
Sample Date	19/08/2024	19/08/2024	19/08/2024	19/08/2024	19/08/2024	19/08/2024	19/08/2024	19/08/2024	19/08/2024				
Sample Type	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water				
Batch Number	1	1	1	1	1	1	1	1	1				
Date of Receipt	20/08/2024	20/08/2024	20/08/2024	20/08/2024	20/08/2024	20/08/2024	20/08/2024	20/08/2024	20/08/2024				
											LOD/LOR	Units	Method No.
Dissolved Manganese #	1288	783	3924	130	4	57	-	-	57		<2	ug/l	TM30/PM14
PAH MS													
Naphthalene #	<0.1	1218.1 ^{AA}	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1		<0.1	ug/l	TM4/PM30
Acenaphthylene #	0.060	247.131 ^{AA}	0.073	0.011	0.007	<0.005	<0.005	<0.005	<0.005		<0.005	ug/l	TM4/PM30
Acenaphthene #	0.025	65.658 ^{AA}	0.011	0.009	0.008	<0.005	<0.005	<0.005	<0.005		<0.005	ug/l	TM4/PM30
Fluorene #	0.017	187.925 ^{AA}	0.024	0.011	0.009	<0.005	<0.005	<0.005	<0.005		<0.005	ug/l	TM4/PM30
Phenanthrene #	0.040	219.977 ^{AA}	0.121	0.028	0.015	<0.005	<0.005	<0.005	<0.005		<0.005	ug/l	TM4/PM30
Anthracene #	0.037	60.926 ^{AA}	0.054	0.015	0.007	<0.005	<0.005	<0.005	<0.005		<0.005	ug/l	TM4/PM30
Fluoranthene #	0.118	64.023 ^{AA}	0.275	0.064	0.027	0.016	<0.005	<0.005	0.008		<0.005	ug/l	TM4/PM30
Pyrene #	0.111	45.140 ^{AA}	0.235	0.062	0.030	0.016	<0.005	<0.005	0.010		<0.005	ug/l	TM4/PM30
Benzo(a)anthracene #	0.046	10.857 ^{AA}	0.148	0.028	0.020	0.009	<0.005	<0.005	<0.005		<0.005	ug/l	TM4/PM30
Chrysene #	0.040	8.640 ^{AA}	0.140	0.025	0.015	0.008	<0.005	<0.005	<0.005		<0.005	ug/l	TM4/PM30
Benzo(k)fluoranthene #	0.093	5.316 ^{AA}	0.294	0.048	0.033	0.016	<0.008	<0.008	<0.008		<0.008	ug/l	TM4/PM30
Benzo(a)pyrene #	0.061	2.837 ^{AA}	0.180	0.023	0.018	0.008	<0.005	<0.005	0.006		<0.005	ug/l	TM4/PM30
Indeno(123cd)pyrene #	0.035	1.282 ^{AA}	0.114	0.015	0.012	0.006	<0.005	<0.005	0.005		<0.005	ug/l	TM4/PM30
Dibenzo(ah)anthracene #	0.008	<1.000 ^{AA}	0.025	0.006	<0.005	<0.005	<0.005	<0.005	<0.005		<0.005	ug/l	TM4/PM30
Benzo(ghi)perylene #	0.037	1.098 ^{AA}	0.111	0.019	0.012	0.006	<0.005	<0.005	0.005		<0.005	ug/l	TM4/PM30
PAH 16 Total #	0.728	2138.910 ^{AA}	1.805	0.364	0.213	<0.173	<0.173	<0.173	<0.173		<0.173	ug/l	TM4/PM30
Benzo(b)fluoranthene	0.067	3.828 ^{AA}	0.212	0.035	0.024	0.012	<0.008	<0.008	<0.008		<0.008	ug/l	TM4/PM30
Benzo(k)fluoranthene	0.026	<1.600 ^{AA}	0.082	0.013	0.009	<0.008	<0.008	<0.008	<0.008		<0.008	ug/l	TM4/PM30
PAH Surrogate % Recovery	88	104 ^{AA}	84	84	80	82	95	91	77		<0	%	TM4/PM30
MTBE #	<5	<5	<5	<5	<5	<5	<5	<5	<5		<5	ug/l	TM36/PM12
Benzene #	6	>>8387	<5	<5	<5	<5	<5	<5	<5		<5	ug/l	TM36/PM12
Toluene #	<5	4059	<5	<5	<5	<5	<5	<5	<5		<5	ug/l	TM36/PM12
Ethylbenzene #	<5	486	<5	<5	<5	<5	<5	<5	<5		<5	ug/l	TM36/PM12
m/p-Xylene #	<5	3929	<5	<5	<5	<5	<5	<5	<5		<5	ug/l	TM36/PM12
o-Xylene #	<5	1542	<5	<5	<5	<5	<5	<5	<5		<5	ug/l	TM36/PM12
TPH CWG													
Aliphatics													
>C5-C6 (HS_1D_AL) #	<10	20	14	<10	<10	<10	48	<10	<10		<10	ug/l	TM36/PM12
>C6-C8 (HS_1D_AL) #	<10	2852	<10	<10	<10	<10	<10	<10	<10		<10	ug/l	TM36/PM12
>C8-C10 (HS_1D_AL) #	<10	1611	<10	<10	<10	<10	<10	<10	<10		<10	ug/l	TM36/PM12
>C10-C12 (EH_CU_1D_AL) #	<5	<5	<5	<5	<5	<5	<5	<5	<5		<5	ug/l	TM5/PM16/PM30
>C12-C16 (EH_CU_1D_AL) #	<10	<10	<10	<10	<10	<10	<10	<10	<10		<10	ug/l	TM5/PM16/PM30
>C16-C21 (EH_CU_1D_AL) #	<10	<10	<10	<10	<10	<10	<10	<10	<10		<10	ug/l	TM5/PM16/PM30
>C21-C35 (EH_CU_1D_AL) #	<10	<10	<10	<10	<10	<10	<10	<10	<10		<10	ug/l	TM5/PM16/PM30
Total aliphatics C5-35 (EH_CU+HS_1D_AL) #	<10	4483	14	<10	<10	<10	48	<10	<10		<10	ug/l	TM5/PM16/PM30

Element Materials Technology

Client Name: Ramboll
Reference: 16200016972
Location: Worthing Gas Works
Contact: Rob Hodgson
EMT Job No: 24/14242

Report : Liquid

Liquids/products: V=40ml vial, G=glass bottle, P=plastic bottle
 H=H₂SO₄, Z=ZnAc, N=NaOH, HN=HNO₃

EMT Sample No.	1-8	9-16	17-24	25-32	33-40	41-48	49-52	53-60	61-68		Please see attached notes for all abbreviations and acronyms		
Sample ID	BH01	BH02	BH07	BH10	MW12-02	BH12	FIELD BLANK	TRIP BLANK	BH12XR				
Depth													
COC No / misc													
Containers	V H HN HCL Z P G	V H HN HCL Z P G	V H HN HCL Z P G	V H HN HCL Z P G	V H HN HCL Z P G	V H HN HCL Z P G	V P G	V H HN HCL Z P G	V H HN HCL Z P G				
Sample Date	19/08/2024	19/08/2024	19/08/2024	19/08/2024	19/08/2024	19/08/2024	19/08/2024	19/08/2024	19/08/2024				
Sample Type	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water				
Batch Number	1	1	1	1	1	1	1	1	1				
Date of Receipt	20/08/2024	20/08/2024	20/08/2024	20/08/2024	20/08/2024	20/08/2024	20/08/2024	20/08/2024	20/08/2024		LOD/LOR	Units	Method No.
TPH CWG													
Aromatics													
>C5-EC7 (HS_1D_AR) #	<10	>>8387	<10	<10	<10	<10	<10	<10	<10		<10	ug/l	TM36/PM12
>EC7-EC8 (HS_1D_AR) #	<10	4059	<10	<10	<10	<10	<10	<10	<10		<10	ug/l	TM36/PM12
>EC8-EC10 (HS_1D_AR) #	<10	5957	<10	<10	<10	<10	<10	<10	<10		<10	ug/l	TM36/PM12
>EC10-EC12 (EH_CU_1D_AR) #	32	20217	<5	<5	<5	<5	<5	<5	<5		<5	ug/l	TM5/PM16/PM30
>EC12-EC16 (EH_CU_1D_AR) #	150	4370	<10	<10	<10	<10	<10	<10	<10		<10	ug/l	TM5/PM16/PM30
>EC16-EC21 (EH_CU_1D_AR) #	<10	2530	<10	<10	<10	<10	<10	<10	<10		<10	ug/l	TM5/PM16/PM30
>EC21-EC35 (EH_CU_1D_AR) #	<10	50	<10	<10	<10	<10	<10	<10	<10		<10	ug/l	TM5/PM16/PM30
Total aromatics C5-35 (EH_CU+HS_1D_AR) #	182	45570	<10	<10	<10	<10	<10	<10	<10		<10	ug/l	TM5/PM16/PM30
Total aliphatics and aromatics(C5-35) (EH_CU+HS_1D_Total) #	182	50053	14	<10	<10	<10	48	<10	<10		<10	ug/l	TM5/PM16/PM30
Sulphate as SO ₄ #	59.5	17.5	504.0	67.0	21.1	46.8	-	-	47.4		<0.5	mg/l	TM38/PM0
Nitrate as N #	<0.05	<0.05	0.23	<0.05	2.08	<0.05	-	-	0.06		<0.05	mg/l	TM38/PM0
Nitrite as N #	<0.006	<0.006	0.161	<0.006	<0.006	<0.006	-	-	0.006		<0.006	mg/l	TM38/PM0
Ammoniacal Nitrogen as NH ₄ #	46.65	59.37	43.28	1.38	<0.03	0.04	-	-	0.05		<0.03	mg/l	TM38/PM0
Total Alkalinity as CaCO ₃ #	996	1156	594	218	682	1472	-	-	2618		<1	mg/l	TM75/PM0
Sulphide	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-	-	<0.01		<0.01	mg/l	TM107/PM0
Dissolved Iron II	1.23	0.15	0.52	0.05	0.02	0.19	-	-	0.11		<0.02	mg/l	TM48/PM0
Dissolved Iron III	0.05	0.22	3.69	0.08	<0.02	0.06	-	-	0.13		<0.02	mg/l	TM30/TM48/PM0
pH #	7.79	7.65	7.64	7.89	7.72	7.76	-	-	7.73		<0.01	pH units	TM73/PM0

Client Name:	Ramboll
Reference:	16200016972
Location:	Worthing Gas Works
Contact:	Rob Hodgson

Please note that only samples that are deviating are mentioned in this report. If no samples are listed it is because none were deviating. Only analyses which are accredited are recorded as deviating if set criteria are not met.

It is a requirement under ISO 17025 that we inform clients if samples are deviating i.e. outside what is expected. A deviating sample indicates that the sample 'may' be compromised but not necessarily will be compromised. The result is still accredited and our analytical reports will still show accreditation on the relevant analytes.

NOTES TO ACCOMPANY ALL SCHEDULES AND REPORTS

EMT Job No.: 24/14242

SOILS and ASH

Please note we are only MCERTS accredited (UK soils only) for sand, loam and clay and any other matrix is outside our scope of accreditation.

Where an MCERTS report has been requested, you will be notified within 48 hours of any samples that have been identified as being outside our MCERTS scope. As validation has been performed on clay, sand and loam, only samples that are predominantly these matrices, or combinations of them will be within our MCERTS scope. If samples are not one of a combination of the above matrices they will not be marked as MCERTS accredited.

It is assumed that you have taken representative samples on site and require analysis on a representative subsample. Stones will generally be included unless we are requested to remove them.

All samples will be discarded one month after the date of reporting, unless we are instructed to the contrary. Asbestos samples are retained for 6 months.

If you have not already done so, please send us a purchase order if this is required by your company.

Where appropriate please make sure that our detection limits are suitable for your needs, if they are not, please notify us immediately.

All analysis is reported on a dry weight basis unless stated otherwise. Limits of detection for analyses carried out on as received samples are not moisture content corrected. Results are not surrogate corrected. Samples are dried at 35°C ±5°C unless otherwise stated. Moisture content for CEN Leachate tests are dried at 105°C ±5°C. Ash samples are dried at 35°C ±5°C.

Where Mineral Oil is quoted, this refers to Total Aliphatics C10-C40.

Where a CEN 10:1 ZERO Headspace VOC test has been carried out, a 10:1 ratio of water to wet (as received) soil has been used.

% Asbestos in Asbestos Containing Materials (ACMs) is determined by reference to HSG 264 The Survey Guide - Appendix 2 : ACMs in buildings listed in order of ease of fibre release.

Sufficient amount of sample must be received to carry out the testing specified. Where an insufficient amount of sample has been received the testing may not meet the requirements of our accredited methods, as such accreditation may be removed.

Negative Neutralization Potential (NP) values are obtained when the volume of NaOH (0.1N) titrated (pH 8.3) is greater than the volume of HCl (1N) to reduce the pH of the sample to 2.0 - 2.5. Any negative NP values are corrected to 0.

The calculation of Pyrite content assumes that all oxidisable sulphides present in the sample are pyrite. This may not be the case. The calculation may be an overestimate when other sulphides such as Barite (Barium Sulphate) are present.

WATERS

Please note we are not a UK Drinking Water Inspectorate (DWI) Approved Laboratory .

ISO17025 accreditation applies to surface water and groundwater and usually one other matrix which is analysis specific, any other liquids are outside our scope of accreditation.

As surface waters require different sample preparation to groundwaters the laboratory must be informed of the water type when submitting samples.

Where Mineral Oil is quoted, this refers to Total Aliphatics C10-C40.

STACK EMISSIONS

Where an MCERTS report has been requested, you will be notified within 48 hours of any samples that have been identified as being outside our MCERTS scope. As validation for Dioxins and Furans and Dioxin like PCBs has been performed on XAD-2 Resin, only samples which use this resin will be within our MCERTS scope.

Where appropriate please make sure that our detection limits are suitable for your needs, if they are not, please notify us immediately.

DEVIATING SAMPLES

All samples should be submitted to the laboratory in suitable containers with sufficient ice packs to sustain an appropriate temperature for the requested analysis. The temperature of sample receipt is recorded on the confirmation schedules in order that the client can make an informed decision as to whether testing should still be undertaken.

SURROGATES

Surrogate compounds are added during the preparation process to monitor recovery of analytes. However low recovery in soils is often due to peat, clay or other organic rich matrices. For waters this can be due to oxidants, surfactants, organic rich sediments or remediation fluids. Acceptable limits for most organic methods are 70 - 130% and for VOCs are 50 - 150%. When surrogate recoveries are outside the performance criteria but the associated AQC passes this is assumed to be due to matrix effect. Results are not surrogate corrected.

DILUTIONS

A dilution suffix indicates a dilution has been performed and the reported result takes this into account. No further calculation is required.

BLANKS

Where analytes have been found in the blank, the sample will be treated in accordance with our laboratory procedure for dealing with contaminated blanks.

NOTE

Data is only reported if the laboratory is confident that the data is a true reflection of the samples analysed. Data is only reported as accredited when all the requirements of our Quality System have been met. In certain circumstances where all the requirements of the Quality System have not been met, for instance if the associated AQC has failed, the reason is fully investigated and documented. The sample data is then evaluated alongside the other quality control checks performed during analysis to determine its suitability. Following this evaluation, provided the sample results have not been effected, the data is reported but accreditation is removed. It is a requirement of our Accreditation Body for data not reported as accredited to be considered indicative only, but this does not mean the data is not valid.

Where possible, and if requested, samples will be re-extracted and a revised report issued with accredited results. Please do not hesitate to contact the laboratory if further details are required of the circumstances which have led to the removal of accreditation.

Laboratory records are kept for a period of no less than 6 years.

REPORTS FROM THE SOUTH AFRICA LABORATORY

Any method number not prefixed with SA has been undertaken in our UK laboratory unless reported as subcontracted.

Measurement Uncertainty

Measurement uncertainty defines the range of values that could reasonably be attributed to the measured quantity. This range of values has not been included within the reported results. Uncertainty expressed as a percentage can be provided upon request.

Customer Provided Information

Sample ID and depth is information provided by the customer.

Age of Diesel

The age of release estimation is based on the nC17/pristane ratio only as prescribed by Christensen and Larsen (1993) and Kaplan, Galperin, Alimi et al., (1996).

Age estimation should be treated with caution as it can be influenced by site specific factors of which the laboratory are not aware.

Tentatively Identified Compounds (TICs)

Where Tentatively Identified Compounds (TICs) are reported, up to 10 Tentatively Identified Compounds will be listed where there is found to be a greater than 80% match with the NIST library. The reported concentration is determined semi-quantitatively, with a matrix specific limit of detection.

Note, other compounds may be present but are not reported.

ABBREVIATIONS and ACRONYMS USED

#	ISO17025 (UKAS Ref No. 4225) accredited - UK.
SA	ISO17025 (SANAS Ref No.T0729) accredited - South Africa
B	Indicates analyte found in associated method blank.
DR	Dilution required.
M	MCERTS accredited.
NA	Not applicable
NAD	No Asbestos Detected.
ND	None Detected (usually refers to VOC and/SVOC TICs).
NDP	No Determination Possible
SS	Calibrated against a single substance
SV	Surrogate recovery outside performance criteria. This may be due to a matrix effect.
W	Results expressed on as received basis.
+	AQC failure, accreditation has been removed from this result, if appropriate, see 'Note' on previous page.
>>	Results above quantitative calibration range. The result should be considered the minimum value and is indicative only. The actual result could be significantly higher.
*	Analysis subcontracted to an Element Materials Technology approved laboratory.
CO	Suspected carry over
LOD/LOR	Limit of Detection (Limit of Reporting) in line with ISO 17025 and MCERTS
ME	Matrix Effect
NFD	No Fibres Detected
BS	AQC Sample
LB	Blank Sample
N	Client Sample
TB	Trip Blank Sample
OC	Outside Calibration Range
AA	x200 Dilution

HWOL ACRONYMS AND OPERATORS USED

HS	Headspace Analysis.
EH	Extractable Hydrocarbons - i.e. everything extracted by the solvent.
CU	Clean-up - e.g. by florisil, silica gel.
1D	GC - Single coil gas chromatography.
Total	Aliphatics & Aromatics.
AL	Aliphatics only.
AR	Aromatics only.
2D	GC-GC - Double coil gas chromatography.
#1	EH_Total but with humics mathematically subtracted
#2	EU_Total but with fatty acids mathematically subtracted
_	Operator - underscore to separate acronyms (exception for +).
+	Operator to indicate cumulative e.g. EH+HS_Total or EH_CU+HS_Total
MS	Mass Spectrometry.

EMT Job No: 24/14242

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS/ANAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
TM4	Modified USEPA 8270D v5:2014 method for the solvent extraction and determination of PAHs by GC-MS.	PM30	Water samples are extracted with solvent using a magnetic stirrer to create a vortex.				
TM4	Modified USEPA 8270D v5:2014 method for the solvent extraction and determination of PAHs by GC-MS.	PM30	Water samples are extracted with solvent using a magnetic stirrer to create a vortex.	Yes			
TM5	Modified 8015B v2:1996 method for the determination of solvent Extractable Petroleum Hydrocarbons (EPH) within the range C8-C40 by GCFID. For waters the solvent extracts dissolved phase plus a sheen if present.	PM16/PM30	Fractionation into aliphatic and aromatic fractions using a Rapid Trace SPE/Water samples are extracted with solvent using a magnetic stirrer to create a vortex.	Yes			
TM5/TM36	please refer to TM5 and TM36 for method details	PM12/PM16/PM30	please refer to PM16/PM30 and PM12 for method details	Yes			
TM30	Determination of Trace Metals by ICP-OES (Inductively Coupled Plasma – Optical Emission Spectrometry); WATERS by Modified USEPA Method 200.7, Rev. 4.4, 1994; Modified EPA Method 6010B, Rev.2, Dec 1996; Modified BS EN ISO 11885:2009: SOILS by Modified USEP 6010B, Rev.2, Dec.1996; Modified EPA Method 3050B, Rev.2, Dec.1996	PM14	Preparation of waters and leachates for metals by ICP OES/ICP MS. Samples are filtered for Dissolved metals, and remain unfiltered for Total metals then acidified	Yes			
TM30/TM48	Calculation of Fe (III) based on Iron and Fe(II)	PM0	No preparation is required.				
TM36	Modified US EPA method 8015B v2:1996. Determination of Gasoline Range Organics (GRO) in the carbon chain range of C4-12 by headspace GC-FID. MTBE by GCFID co-elutes with 3-methylpentane if present and therefore can give a false positive. Positive MTBE results will be re-run using GC-MS to double check, when requested.	PM12	Modified US EPA method 5021A v2:2014. Preparation of solid and liquid samples for GC headspace analysis.	Yes			
TM38	Soluble Ion analysis using Discrete Analyser. Modified US EPA methods: Chloride 325.2 (1978), Sulphate 375.4 (Rev.2 1993), o-Phosphate 365.2 (Rev.2 1993), TON 353.1 (Rev.2 1993), Nitrite 354.1 (1971), Hex Cr 7196A (1992), NH4+ 350.1 (Rev.2 1993) – All anions comparable to BS ISO 15923-1: 2013	PM0	No preparation is required.	Yes			
TM48	Determination of Ferrous Iron by reaction with Sodium Carbonate and Morfamquat Sulphate which is analysed spectrophotometrically.	PM0	No preparation is required.				
TM73	Modified US EPA methods 150.1 (1982) and 9045D Rev. 4 - 2004) and BS1377-3:1990. Determination of pH by Metrohm automated probe analyser.	PM0	No preparation is required.	Yes			

EMT Job No: 24/14242

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS/S ANAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
TM75	Modified US EPA method 310.1 (1978). Determination of Alkalinity by Metrohm automated titration analyser.	PM0	No preparation is required.	Yes			
TM107	Determination of Sulphide/Thiocyanate by Skalar Continuous Flow Analyser	PM0	No preparation is required.				

Ramboll
8 Village Way
Green Meadow Springs
Cardiff
United Kingdom
CF15 7NE



4225



Attention : Rob Hodgson
Date : 4th October, 2024
Your reference : 16200016972
Our reference : Test Report 24/15958 Batch 1
Location : Working Gas Works
Date samples received : 19th September, 2024
Status : Final Report
Issue : 202410041346

Eight samples were received for analysis on 19th September, 2024 of which eight were scheduled for analysis. Please find attached our Test Report which should be read with notes at the end of the report and should include all sections if reproduced. Interpretations and opinions are outside the scope of any accreditation, and all results relate only to samples supplied.

All analysis is carried out on as received samples and reported on a dry weight basis unless stated otherwise. Results are not surrogate corrected.

The greenhouse gas emissions generated (in Carbon – Co2e) to obtain the results in this report are estimated as:

Scope 1&2 emissions - 12.598 kg of CO2

Scope 1&2&3 emissions - 29.771 kg of CO2

Authorised By:



Simon Gomery BSc
Senior Project Manager

Please include all sections of this report if it is reproduced

Element Materials Technology

Client Name: Ramboll
Reference: 16200016972
Location: Working Gas Works
Contact: Rob Hodgson
EMT Job No: 24/15958

Report : Liquid

Liquids/products: V=40ml vial, G=glass bottle, P=plastic bottle
H=H₂SO₄, Z=ZnAc, N=NaOH, HN=HNO₃

EMT Sample No.	1-3	4-6	7-9	10-12	13-15	16-18	19-21	22-26			Please see attached notes for all abbreviations and acronyms		
Sample ID	BH01	BH07	BH10	BH12	MW 12-02	BH01_D	FIELD BLANK	TRIP BLANK					
Depth													
COC No / misc													
Containers	V G	V G	V G	V G	V G	V G	V G	P G					
Sample Date	18/09/2024	18/09/2024	18/09/2024	18/09/2024	18/09/2024	18/09/2024	18/09/2024	18/09/2024					
Sample Type	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water					
Batch Number	1	1	1	1	1	1	1	1					
Date of Receipt	19/09/2024	19/09/2024	19/09/2024	19/09/2024	19/09/2024	19/09/2024	19/09/2024	19/09/2024			LOD/LOR	Units	Method No.
PAH MS													
Naphthalene #	<0.1 ⁺	<0.1	<0.1 ⁺	<0.1	<0.1	<0.1	<0.1	<0.1			<0.1	ug/l	TM4/PM30
Acenaphthylene #	0.053 ⁺	<0.005	0.022 ⁺	<0.005	<0.005	0.043	<0.005	<0.005			<0.005	ug/l	TM4/PM30
Acenaphthene #	<0.005 ⁺	<0.005	<0.005 ⁺	<0.005	<0.005	0.145	<0.005	<0.005			<0.005	ug/l	TM4/PM30
Fluorene #	<0.005 ⁺	<0.005	<0.005 ⁺	<0.005	<0.005	0.033	<0.005	<0.005			<0.005	ug/l	TM4/PM30
Phenanthrene #	0.054 ⁺	0.005	0.048 ⁺	<0.005	<0.005	0.015	<0.005	<0.005			<0.005	ug/l	TM4/PM30
Anthracene #	0.049 ⁺	0.005	0.034 ⁺	<0.005	<0.005	0.031	<0.005	<0.005			<0.005	ug/l	TM4/PM30
Fluoranthene #	0.137 ⁺	0.013	0.133 ⁺	<0.005	<0.005	0.068	<0.005	<0.005			<0.005	ug/l	TM4/PM30
Pyrene #	0.129 ⁺	0.011	0.135 ⁺	<0.005	<0.005	0.072	<0.005	<0.005			<0.005	ug/l	TM4/PM30
Benzo(a)anthracene #	0.052 ⁺	0.005	0.073 ⁺	<0.005	<0.005	0.019	<0.005	<0.005			<0.005	ug/l	TM4/PM30
Chrysene #	0.060 ⁺	<0.005	0.077 ⁺	<0.005	<0.005	0.020	<0.005	<0.005			<0.005	ug/l	TM4/PM30
Benzo(b)fluoranthene #	0.122 ⁺	<0.008	0.186 ⁺	<0.008	<0.008	0.036	<0.008	<0.008			<0.008	ug/l	TM4/PM30
Benzo(a)pyrene #	0.073 ⁺	<0.005	0.100 ⁺	<0.005	<0.005	0.022	<0.005	<0.005			<0.005	ug/l	TM4/PM30
Indeno(123cd)pyrene #	0.050 ⁺	<0.005	0.080 ⁺	<0.005	<0.005	0.015	<0.005	<0.005			<0.005	ug/l	TM4/PM30
Dibenzo(ah)anthracene #	<0.005 ⁺	<0.005	<0.005 ⁺	<0.005	<0.005	<0.005	<0.005	<0.005			<0.005	ug/l	TM4/PM30
Benzo(ghi)perylene #	0.048 ⁺	<0.005	0.086 ⁺	<0.005	<0.005	0.017	<0.005	<0.005			<0.005	ug/l	TM4/PM30
PAH 16 Total #	0.827 ⁺	<0.173	0.974 ⁺	<0.173	<0.173	0.536	<0.173	<0.173			<0.173	ug/l	TM4/PM30
Benzo(b)fluoranthene	0.088 ⁺	<0.008	0.134 ⁺	<0.008	<0.008	0.026	<0.008	<0.008			<0.008	ug/l	TM4/PM30
Benzo(k)fluoranthene	0.034 ⁺	<0.008	0.052 ⁺	<0.008	<0.008	0.010	<0.008	<0.008			<0.008	ug/l	TM4/PM30
PAH Surrogate % Recovery	79 ⁺	67 ^{SV}	72 ⁺	59 ^{SV}	69 ^{SV}	67 ^{SV}	69 ^{SV}	70			<0	%	TM4/PM30
MTBE #	<5	<5	<5	<5	<5	<5	<5	<5			<5	ug/l	TM36/PM12
Benzene #	<5	<5	<5	<5	<5	<5	<5	<5			<5	ug/l	TM36/PM12
Toluene #	<5	<5	<5	<5	<5	<5	<5	<5			<5	ug/l	TM36/PM12
Ethylbenzene #	<5	<5	<5	<5	<5	<5	<5	<5			<5	ug/l	TM36/PM12
m/p-Xylene #	<5	<5	<5	<5	<5	<5	<5	<5			<5	ug/l	TM36/PM12
o-Xylene #	<5	<5	<5	<5	<5	<5	<5	<5			<5	ug/l	TM36/PM12
TPH CWG													
Aliphatics													
>C5-C6 (HS_1D_AL) #	<10	<10	<10	<10	<10	<10	<10	<10			<10	ug/l	TM36/PM12
>C6-C8 (HS_1D_AL) #	<10	<10	<10	<10	<10	<10	<10	<10			<10	ug/l	TM36/PM12
>C8-C10 (HS_1D_AL) #	<10	<10	<10	<10	<10	<10	<10	<10			<10	ug/l	TM36/PM12
>C10-C12 (EH_CU_1D_AL) #	<5	<5	<5	<5	<5	<5	<5	<5			<5	ug/l	TM5/PM16/PM30
>C12-C16 (EH_CU_1D_AL) #	<10	<10	<10	<10	<10	<10	<10	<10			<10	ug/l	TM5/PM16/PM30
>C16-C21 (EH_CU_1D_AL) #	<10	<10	<10	<10	<10	<10	<10	<10			<10	ug/l	TM5/PM16/PM30
>C21-C35 (EH_CU_1D_AL) #	<10	<10	<10	<10	<10	<10	<10	<10			<10	ug/l	TM5/PM16/PM30
Total aliphatics C5-35 (EH_CU+HS_1D_AL) #	<10	<10	<10	<10	<10	<10	<10	<10			<10	ug/l	TM5/PM16/PM12/PM16/PM30

Client Name:	Ramboll
Reference:	16200016972
Location:	Working Gas Works
Contact:	Rob Hodgson

[illegible]

Please note that only samples that are deviating are mentioned in this report. If no samples are listed it is because none were deviating. Only analyses which are accredited are recorded as deviating if set criteria are not met.

It is a requirement under ISO 17025 that we inform clients if samples are deviating i.e. outside what is expected. A deviating sample indicates that the sample 'may' be compromised but not necessarily will be compromised. The result is still accredited and our analytical reports will still show accreditation on the relevant analytes.

NOTES TO ACCOMPANY ALL SCHEDULES AND REPORTS

EMT Job No.: 24/15958

SOILS and ASH

Please note we are only MCERTS accredited (UK soils only) for sand, loam and clay and any other matrix is outside our scope of accreditation.

Where an MCERTS report has been requested, you will be notified within 48 hours of any samples that have been identified as being outside our MCERTS scope. As validation has been performed on clay, sand and loam, only samples that are predominantly these matrices, or combinations of them will be within our MCERTS scope. If samples are not one of a combination of the above matrices they will not be marked as MCERTS accredited.

It is assumed that you have taken representative samples on site and require analysis on a representative subsample. Stones will generally be included unless we are requested to remove them.

All samples will be discarded one month after the date of reporting, unless we are instructed to the contrary. Asbestos samples are retained for 6 months.

If you have not already done so, please send us a purchase order if this is required by your company.

Where appropriate please make sure that our detection limits are suitable for your needs, if they are not, please notify us immediately.

All analysis is reported on a dry weight basis unless stated otherwise. Limits of detection for analyses carried out on as received samples are not moisture content corrected. Results are not surrogate corrected. Samples are dried at 35°C ±5°C unless otherwise stated. Moisture content for CEN Leachate tests are dried at 105°C ±5°C. Ash samples are dried at 35°C ±5°C.

Where Mineral Oil is quoted, this refers to Total Aliphatics C10-C40.

Where a CEN 10:1 ZERO Headspace VOC test has been carried out, a 10:1 ratio of water to wet (as received) soil has been used.

% Asbestos in Asbestos Containing Materials (ACMs) is determined by reference to HSG 264 The Survey Guide - Appendix 2 : ACMs in buildings listed in order of ease of fibre release.

Sufficient amount of sample must be received to carry out the testing specified. Where an insufficient amount of sample has been received the testing may not meet the requirements of our accredited methods, as such accreditation may be removed.

Negative Neutralization Potential (NP) values are obtained when the volume of NaOH (0.1N) titrated (pH 8.3) is greater than the volume of HCl (1N) to reduce the pH of the sample to 2.0 - 2.5. Any negative NP values are corrected to 0.

The calculation of Pyrite content assumes that all oxidisable sulphides present in the sample are pyrite. This may not be the case. The calculation may be an overestimate when other sulphides such as Barite (Barium Sulphate) are present.

WATERS

Please note we are not a UK Drinking Water Inspectorate (DWI) Approved Laboratory .

ISO17025 accreditation applies to surface water and groundwater and usually one other matrix which is analysis specific, any other liquids are outside our scope of accreditation.

As surface waters require different sample preparation to groundwaters the laboratory must be informed of the water type when submitting samples.

Where Mineral Oil is quoted, this refers to Total Aliphatics C10-C40.

STACK EMISSIONS

Where an MCERTS report has been requested, you will be notified within 48 hours of any samples that have been identified as being outside our MCERTS scope. As validation for Dioxins and Furans and Dioxin like PCBs has been performed on XAD-2 Resin, only samples which use this resin will be within our MCERTS scope.

Where appropriate please make sure that our detection limits are suitable for your needs, if they are not, please notify us immediately.

DEVIATING SAMPLES

All samples should be submitted to the laboratory in suitable containers with sufficient ice packs to sustain an appropriate temperature for the requested analysis. The temperature of sample receipt is recorded on the confirmation schedules in order that the client can make an informed decision as to whether testing should still be undertaken.

SURROGATES

Surrogate compounds are added during the preparation process to monitor recovery of analytes. However low recovery in soils is often due to peat, clay or other organic rich matrices. For waters this can be due to oxidants, surfactants, organic rich sediments or remediation fluids. Acceptable limits for most organic methods are 70 - 130% and for VOCs are 50 - 150%. When surrogate recoveries are outside the performance criteria but the associated AQC passes this is assumed to be due to matrix effect. Results are not surrogate corrected.

DILUTIONS

A dilution suffix indicates a dilution has been performed and the reported result takes this into account. No further calculation is required.

BLANKS

Where analytes have been found in the blank, the sample will be treated in accordance with our laboratory procedure for dealing with contaminated blanks.

NOTE

Data is only reported if the laboratory is confident that the data is a true reflection of the samples analysed. Data is only reported as accredited when all the requirements of our Quality System have been met. In certain circumstances where all the requirements of the Quality System have not been met, for instance if the associated AQC has failed, the reason is fully investigated and documented. The sample data is then evaluated alongside the other quality control checks performed during analysis to determine its suitability. Following this evaluation, provided the sample results have not been effected, the data is reported but accreditation is removed. It is a requirement of our Accreditation Body for data not reported as accredited to be considered indicative only, but this does not mean the data is not valid.

Where possible, and if requested, samples will be re-extracted and a revised report issued with accredited results. Please do not hesitate to contact the laboratory if further details are required of the circumstances which have led to the removal of accreditation.

Laboratory records are kept for a period of no less than 6 years.

REPORTS FROM THE SOUTH AFRICA LABORATORY

Any method number not prefixed with SA has been undertaken in our UK laboratory unless reported as subcontracted.

Measurement Uncertainty

Measurement uncertainty defines the range of values that could reasonably be attributed to the measured quantity. This range of values has not been included within the reported results. Uncertainty expressed as a percentage can be provided upon request.

Customer Provided Information

Sample ID and depth is information provided by the customer.

Age of Diesel

The age of release estimation is based on the nC17/pristane ratio only as prescribed by Christensen and Larsen (1993) and Kaplan, Galperin, Alimi et al., (1996).

Age estimation should be treated with caution as it can be influenced by site specific factors of which the laboratory are not aware.

Tentatively Identified Compounds (TICs)

Where Tentatively Identified Compounds (TICs) are reported, up to 10 Tentatively Identified Compounds will be listed where there is found to be a greater than 80% match with the NIST library. The reported concentration is determined semi-quantitatively, with a matrix specific limit of detection.

Note, other compounds may be present but are not reported.

ABBREVIATIONS and ACRONYMS USED

#	ISO17025 (UKAS Ref No. 4225) accredited - UK.
SA	ISO17025 (SANAS Ref No.T0729) accredited - South Africa
B	Indicates analyte found in associated method blank.
DR	Dilution required.
M	MCERTS accredited.
NA	Not applicable
NAD	No Asbestos Detected.
ND	None Detected (usually refers to VOC and/SVOC TICs).
NDP	No Determination Possible
SS	Calibrated against a single substance
SV	Surrogate recovery outside performance criteria. This may be due to a matrix effect.
W	Results expressed on as received basis.
+	AQC failure, accreditation has been removed from this result, if appropriate, see 'Note' on previous page.
>>	Results above quantitative calibration range. The result should be considered the minimum value and is indicative only. The actual result could be significantly higher.
*	Analysis subcontracted to an Element Materials Technology approved laboratory.
CO	Suspected carry over
LOD/LOR	Limit of Detection (Limit of Reporting) in line with ISO 17025 and MCERTS
ME	Matrix Effect
NFD	No Fibres Detected
BS	AQC Sample
LB	Blank Sample
N	Client Sample
TB	Trip Blank Sample
OC	Outside Calibration Range

HWOL ACRONYMS AND OPERATORS USED

HS	Headspace Analysis.
EH	Extractable Hydrocarbons - i.e. everything extracted by the solvent.
CU	Clean-up - e.g. by florisil, silica gel.
1D	GC - Single coil gas chromatography.
Total	Aliphatics & Aromatics.
AL	Aliphatics only.
AR	Aromatics only.
2D	GC-GC - Double coil gas chromatography.
#1	EH_Total but with humics mathematically subtracted
#2	EU_Total but with fatty acids mathematically subtracted
_	Operator - underscore to separate acronyms (exception for +).
+	Operator to indicate cumulative e.g. EH+HS_Total or EH_CU+HS_Total
MS	Mass Spectrometry.

EMT Job No: 24/15958

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS/S ANAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
TM4	Modified USEPA 8270D v5:2014 method for the solvent extraction and determination of PAHs by GC-MS.	PM30	Water samples are extracted with solvent using a magnetic stirrer to create a vortex.				
TM4	Modified USEPA 8270D v5:2014 method for the solvent extraction and determination of PAHs by GC-MS.	PM30	Water samples are extracted with solvent using a magnetic stirrer to create a vortex.	Yes			
TM5	Modified 8015B v2:1996 method for the determination of solvent Extractable Petroleum Hydrocarbons (EPH) within the range C8-C40 by GCFID. For waters the solvent extracts dissolved phase plus a sheen if present.	PM16/PM30	Fractionation into aliphatic and aromatic fractions using a Rapid Trace SPE/Water samples are extracted with solvent using a magnetic stirrer to create a vortex.	Yes			
TM5/TM36	please refer to TM5 and TM36 for method details	PM12/PM16/PM30	please refer to PM16/PM30 and PM12 for method details	Yes			
TM36	Modified US EPA method 8015B v2:1996. Determination of Gasoline Range Organics (GRO) in the carbon chain range of C4-12 by headspace GC-FID. MTBE by GCFID co-elutes with 3-methylpentane if present and therefore can give a false positive. Positive MTBE results will be re-run using GC-MS to double check, when requested.	PM12	Modified US EPA method 5021A v2:2014. Preparation of solid and liquid samples for GC headspace analysis.	Yes			

Ramboll
23 Brunswick Place
Southampton
United Kingdom
SO15 2AQ



4225



Attention : Ben Stride
Date : 6th November, 2024
Your reference : 1620016977
Our reference : Test Report 24/18489 Batch 1
Location : Worthing Gasworks
Date samples received : 31st October, 2024
Status : Final Report
Issue : 202411060959

Eight samples were received for analysis on 31st October, 2024 of which eight were scheduled for analysis. Please find attached our Test Report which should be read with notes at the end of the report and should include all sections if reproduced. Interpretations and opinions are outside the scope of any accreditation, and all results relate only to samples supplied.

All analysis is carried out on as received samples and reported on a dry weight basis unless stated otherwise. Results are not surrogate corrected.

The greenhouse gas emissions generated (in Carbon – Co2e) to obtain the results in this report are estimated as:

Scope 1&2 emissions - 7.312 kg of CO2

Scope 1&2&3 emissions - 17.281 kg of CO2

Authorised By:

Simon Gomery BSc
Senior Project Manager

Please include all sections of this report if it is reproduced

Element Materials Technology

Client Name: Ramboll
Reference: 1620016977
Location: Worthing Gasworks
Contact: Ben Stride
EMT Job No: 24/18489

Report : Liquid

Liquids/products: V=40ml vial, G=glass bottle, P=plastic bottle
H=H₂SO₄, Z=ZnAc, N=NaOH, HN=HN₃

EMT Sample No.	1-3	4-6	7-9	10-12	13-15	16	17-19	20-22			Please see attached notes for all abbreviations and acronyms		
Sample ID	BH01	BH07	BH10	BH12	MW 12-02	TRIP BLANK	FIELD BLANK	BH01-D					
Depth													
COC No / misc													
Containers	V G	V G	V G	V G	V G	V	V G	V G					
Sample Date	30/10/2024	30/10/2024	30/10/2024	30/10/2024	30/10/2024	30/10/2024	30/10/2024	30/10/2024					
Sample Type	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water					
Batch Number	1	1	1	1	1	1	1	1					
Date of Receipt	31/10/2024	31/10/2024	31/10/2024	31/10/2024	31/10/2024	31/10/2024	31/10/2024	31/10/2024			LOD/LOR	Units	Method No.
PAH MS													
Naphthalene #	0.6	0.2	<0.1	<0.1	<0.1	-	<0.1	0.4			<0.1	ug/l	TM4/PM30
Acenaphthylene #	1.037	0.038	0.014	0.005	0.065	-	<0.005	1.176			<0.005	ug/l	TM4/PM30
Acenaphthene #	2.530	0.032	<0.005	<0.005	0.020	-	<0.005	3.101			<0.005	ug/l	TM4/PM30
Fluorene #	2.074	0.044	0.006	<0.005	0.028	-	<0.005	2.862			<0.005	ug/l	TM4/PM30
Phenanthrene #	0.090	0.171	0.036	0.012	0.213	-	<0.005	0.085			<0.005	ug/l	TM4/PM30
Anthracene #	0.141	0.073	0.019	0.006	0.109	-	<0.005	0.196			<0.005	ug/l	TM4/PM30
Fluoranthene #	0.455	0.409	0.112	0.034	0.719	-	<0.005	0.515			<0.005	ug/l	TM4/PM30
Pyrene #	0.333	0.357	0.106	0.032	0.638	-	<0.005	0.370			<0.005	ug/l	TM4/PM30
Benzo(a)anthracene #	0.108	0.194	0.052	0.015	0.371	-	<0.005	0.092			<0.005	ug/l	TM4/PM30
Chrysene #	0.097	0.182	0.056	0.014	0.359	-	<0.005	0.081			<0.005	ug/l	TM4/PM30
Benzo(b)fluoranthene #	0.192	0.372	0.106	0.032	0.752	-	<0.008	0.161			<0.008	ug/l	TM4/PM30
Benzo(a)pyrene #	0.115	0.208	0.058	0.016	0.440	-	<0.005	0.093			<0.005	ug/l	TM4/PM30
Indeno(123cd)pyrene #	0.089	0.138	0.043	0.013	0.297	-	<0.005	0.069			<0.005	ug/l	TM4/PM30
Dibenzo(ah)anthracene #	0.019	0.033	0.008	<0.005	0.054	-	<0.005	0.013			<0.005	ug/l	TM4/PM30
Benzo(ghi)perylene #	0.082	0.116	0.041	0.012	0.275	-	<0.005	0.066			<0.005	ug/l	TM4/PM30
PAH 16 Total #	7.962	2.567	0.657	0.191	4.340	-	<0.173	9.280			<0.173	ug/l	TM4/PM30
Benzo(b)fluoranthene	0.138	0.268	0.076	0.023	0.541	-	<0.008	0.116			<0.008	ug/l	TM4/PM30
Benzo(k)fluoranthene	0.054	0.104	0.030	0.009	0.211	-	<0.008	0.045			<0.008	ug/l	TM4/PM30
PAH Surrogate % Recovery	83	89	71	83	86	-	85	87			<0	%	TM4/PM30
MTBE #	<5	<5	<5	<5	<5	<5	<5	<5			<5	ug/l	TM36/PM12
Benzene #	7	<5	<5	<5	<5	<5	<5	<5			<5	ug/l	TM36/PM12
Toluene #	<5	<5	<5	<5	<5	<5	<5	<5			<5	ug/l	TM36/PM12
Ethylbenzene #	<5	<5	<5	<5	<5	<5	<5	<5			<5	ug/l	TM36/PM12
m/p-Xylene #	<5	<5	<5	<5	<5	<5	<5	<5			<5	ug/l	TM36/PM12
o-Xylene #	<5	<5	<5	<5	<5	<5	<5	<5			<5	ug/l	TM36/PM12
TPH CWG													
Aliphatics													
>C5-C6 (HS_1D_AL) #	<10	<10	<10	<10	<10	<10	<10	<10			<10	ug/l	TM36/PM12
>C6-C8 (HS_1D_AL) #	<10	<10	<10	<10	<10	<10	<10	<10			<10	ug/l	TM36/PM12
>C8-C10 (HS_1D_AL) #	<10	<10	<10	<10	<10	<10	<10	<10			<10	ug/l	TM36/PM12
>C10-C12 (EH_CU_1D_AL) #	<5	<5	<5	<5	<5	-	<5	<5			<5	ug/l	TM5/PM16/PM30
>C12-C16 (EH_CU_1D_AL) #	<10	<10	<10	<10	<10	-	<10	<10			<10	ug/l	TM5/PM16/PM30
>C16-C21 (EH_CU_1D_AL) #	<10	<10	<10	<10	<10	-	<10	<10			<10	ug/l	TM5/PM16/PM30
>C21-C35 (EH_CU_1D_AL) #	<10	<10	<10	<10	<10	-	<10	<10			<10	ug/l	TM5/PM16/PM30
Total aliphatics C5-35 (EH_CU+HS_1D_AL) #	<10	<10	<10	<10	<10	-	<10	<10			<10	ug/l	TM5/PM16/PM12/PM16/PM30
Total aliphatics >C5-C10 (HS_1D_AL) #	-	-	-	-	-	<10	-	-			<10	ug/l	TM36/PM12

Element Materials Technology

Client Name: Ramboll
Reference: 1620016977
Location: Worthing Gasworks
Contact: Ben Stride
EMT Job No: 24/18489

Report : Liquid

Liquids/products: V=40ml vial, G=glass bottle, P=plastic bottle
 H=H₂SO₄, Z=ZnAc, N=NaOH, HN=HNO₃

EMT Sample No.	1-3	4-6	7-9	10-12	13-15	16	17-19	20-22			Please see attached notes for all abbreviations and acronyms		
Sample ID	BH01	BH07	BH10	BH12	MW 12-02	TRIP BLANK	FIELD BLANK	BH01-D					
Depth													
COC No / misc													
Containers	V G	V G	V G	V G	V G	V	V G	V G					
Sample Date	30/10/2024	30/10/2024	30/10/2024	30/10/2024	30/10/2024	30/10/2024	30/10/2024	30/10/2024					
Sample Type	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water					
Batch Number	1	1	1	1	1	1	1	1					
Date of Receipt	31/10/2024	31/10/2024	31/10/2024	31/10/2024	31/10/2024	31/10/2024	31/10/2024	31/10/2024			LOD/LOR	Units	Method No.
TPH CWG													
Aromatics													
>C5-EC7 (HS_1D_AR) #	<10	<10	<10	<10	<10	<10	<10	<10			<10	ug/l	TM36/PM12
>EC7-EC8 (HS_1D_AR) #	<10	<10	<10	<10	<10	<10	<10	<10			<10	ug/l	TM36/PM12
>EC8-EC10 (HS_1D_AR) #	<10	<10	<10	<10	<10	<10	<10	<10			<10	ug/l	TM36/PM12
>EC10-EC12 (EH_CU_1D_AR) #	14	<5	<5	<5	<5	-	<5	<5			<5	ug/l	TM5/PM16/PM30
>EC12-EC16 (EH_CU_1D_AR) #	60	<10	<10	<10	<10	-	<10	<10			<10	ug/l	TM5/PM16/PM30
>EC16-EC21 (EH_CU_1D_AR) #	<10	<10	<10	<10	<10	-	<10	<10			<10	ug/l	TM5/PM16/PM30
>EC21-EC35 (EH_CU_1D_AR) #	<10	<10	<10	<10	<10	-	<10	<10			<10	ug/l	TM5/PM16/PM30
Total aromatics C5-35 (EH_CU+HS_1D_AR) #	74	<10	<10	<10	<10	-	<10	<10			<10	ug/l	TM5/PM16/PM30
Total aliphatics and aromatics (C5-35) (EH_CU+HS_1D_Total) #	74	<10	<10	<10	<10	-	<10	<10			<10	ug/l	TM5/PM16/PM30
Total aromatics >C5-C10 (HS_1D_AR) #	-	-	-	-	-	<10	-	-			<10	ug/l	TM36/PM12
Total aliphatics and aromatics >C5-C10 (HS_1D_Total) #	-	-	-	-	-	<10	-	-			<10	ug/l	TM36/PM12

Client Name:	Ramboll
Reference:	1620016977
Location:	Worthing Gasworks
Contact:	Ben Stride

[illegible]

Please note that only samples that are deviating are mentioned in this report. If no samples are listed it is because none were deviating. Only analyses which are accredited are recorded as deviating if set criteria are not met.

It is a requirement under ISO 17025 that we inform clients if samples are deviating i.e. outside what is expected. A deviating sample indicates that the sample 'may' be compromised but not necessarily will be compromised. The result is still accredited and our analytical reports will still show accreditation on the relevant analytes.

NOTES TO ACCOMPANY ALL SCHEDULES AND REPORTS

EMT Job No.: 24/18489

SOILS and ASH

Please note we are only MCERTS accredited (UK soils only) for sand, loam and clay and any other matrix is outside our scope of accreditation.

Where an MCERTS report has been requested, you will be notified within 48 hours of any samples that have been identified as being outside our MCERTS scope. As validation has been performed on clay, sand and loam, only samples that are predominantly these matrices, or combinations of them will be within our MCERTS scope. If samples are not one of a combination of the above matrices they will not be marked as MCERTS accredited.

It is assumed that you have taken representative samples on site and require analysis on a representative subsample. Stones will generally be included unless we are requested to remove them.

All samples will be discarded one month after the date of reporting, unless we are instructed to the contrary. Asbestos samples are retained for 6 months.

If you have not already done so, please send us a purchase order if this is required by your company.

Where appropriate please make sure that our detection limits are suitable for your needs, if they are not, please notify us immediately.

All analysis is reported on a dry weight basis unless stated otherwise. Limits of detection for analyses carried out on as received samples are not moisture content corrected. Results are not surrogate corrected. Samples are dried at 35°C ±5°C unless otherwise stated. Moisture content for CEN Leachate tests are dried at 105°C ±5°C. Ash samples are dried at 35°C ±5°C.

Where Mineral Oil is quoted, this refers to Total Aliphatics C10-C40.

Where a CEN 10:1 ZERO Headspace VOC test has been carried out, a 10:1 ratio of water to wet (as received) soil has been used.

% Asbestos in Asbestos Containing Materials (ACMs) is determined by reference to HSG 264 The Survey Guide - Appendix 2 : ACMs in buildings listed in order of ease of fibre release.

Sufficient amount of sample must be received to carry out the testing specified. Where an insufficient amount of sample has been received the testing may not meet the requirements of our accredited methods, as such accreditation may be removed.

Negative Neutralization Potential (NP) values are obtained when the volume of NaOH (0.1N) titrated (pH 8.3) is greater than the volume of HCl (1N) to reduce the pH of the sample to 2.0 - 2.5. Any negative NP values are corrected to 0.

The calculation of Pyrite content assumes that all oxidisable sulphides present in the sample are pyrite. This may not be the case. The calculation may be an overestimate when other sulphides such as Barite (Barium Sulphate) are present.

WATERS

Please note we are not a UK Drinking Water Inspectorate (DWI) Approved Laboratory .

ISO17025 accreditation applies to surface water and groundwater and usually one other matrix which is analysis specific, any other liquids are outside our scope of accreditation.

As surface waters require different sample preparation to groundwaters the laboratory must be informed of the water type when submitting samples.

Where Mineral Oil is quoted, this refers to Total Aliphatics C10-C40.

STACK EMISSIONS

Where an MCERTS report has been requested, you will be notified within 48 hours of any samples that have been identified as being outside our MCERTS scope. As validation for Dioxins and Furans and Dioxin like PCBs has been performed on XAD-2 Resin, only samples which use this resin will be within our MCERTS scope.

Where appropriate please make sure that our detection limits are suitable for your needs, if they are not, please notify us immediately.

DEVIATING SAMPLES

All samples should be submitted to the laboratory in suitable containers with sufficient ice packs to sustain an appropriate temperature for the requested analysis. The temperature of sample receipt is recorded on the confirmation schedules in order that the client can make an informed decision as to whether testing should still be undertaken.

SURROGATES

Surrogate compounds are added during the preparation process to monitor recovery of analytes. However low recovery in soils is often due to peat, clay or other organic rich matrices. For waters this can be due to oxidants, surfactants, organic rich sediments or remediation fluids. Acceptable limits for most organic methods are 70 - 130% and for VOCs are 50 - 150%. When surrogate recoveries are outside the performance criteria but the associated AQC passes this is assumed to be due to matrix effect. Results are not surrogate corrected.

DILUTIONS

A dilution suffix indicates a dilution has been performed and the reported result takes this into account. No further calculation is required.

BLANKS

Where analytes have been found in the blank, the sample will be treated in accordance with our laboratory procedure for dealing with contaminated blanks.

NOTE

Data is only reported if the laboratory is confident that the data is a true reflection of the samples analysed. Data is only reported as accredited when all the requirements of our Quality System have been met. In certain circumstances where all the requirements of the Quality System have not been met, for instance if the associated AQC has failed, the reason is fully investigated and documented. The sample data is then evaluated alongside the other quality control checks performed during analysis to determine its suitability. Following this evaluation, provided the sample results have not been effected, the data is reported but accreditation is removed. It is a requirement of our Accreditation Body for data not reported as accredited to be considered indicative only, but this does not mean the data is not valid.

Where possible, and if requested, samples will be re-extracted and a revised report issued with accredited results. Please do not hesitate to contact the laboratory if further details are required of the circumstances which have led to the removal of accreditation.

Laboratory records are kept for a period of no less than 6 years.

REPORTS FROM THE SOUTH AFRICA LABORATORY

Any method number not prefixed with SA has been undertaken in our UK laboratory unless reported as subcontracted.

Measurement Uncertainty

Measurement uncertainty defines the range of values that could reasonably be attributed to the measured quantity. This range of values has not been included within the reported results. Uncertainty expressed as a percentage can be provided upon request.

Customer Provided Information

Sample ID and depth is information provided by the customer.

Age of Diesel

The age of release estimation is based on the nC17/pristane ratio only as prescribed by Christensen and Larsen (1993) and Kaplan, Galperin, Alimi et al., (1996).

Age estimation should be treated with caution as it can be influenced by site specific factors of which the laboratory are not aware.

Tentatively Identified Compounds (TICs)

Where Tentatively Identified Compounds (TICs) are reported, up to 10 Tentatively Identified Compounds will be listed where there is found to be a greater than 80% match with the NIST library. The reported concentration is determined semi-quantitatively, with a matrix specific limit of detection.

Note, other compounds may be present but are not reported.

ABBREVIATIONS and ACRONYMS USED

#	ISO17025 (UKAS Ref No. 4225) accredited - UK.
SA	ISO17025 (SANAS Ref No.T0729) accredited - South Africa
B	Indicates analyte found in associated method blank.
DR	Dilution required.
M	MCERTS accredited.
NA	Not applicable
NAD	No Asbestos Detected.
ND	None Detected (usually refers to VOC and/SVOC TICs).
NDP	No Determination Possible
SS	Calibrated against a single substance
SV	Surrogate recovery outside performance criteria. This may be due to a matrix effect.
W	Results expressed on as received basis.
+	AQC failure, accreditation has been removed from this result, if appropriate, see 'Note' on previous page.
>>	Results above quantitative calibration range. The result should be considered the minimum value and is indicative only. The actual result could be significantly higher.
*	Analysis subcontracted to an Element Materials Technology approved laboratory.
CO	Suspected carry over
LOD/LOR	Limit of Detection (Limit of Reporting) in line with ISO 17025 and MCERTS
ME	Matrix Effect
NFD	No Fibres Detected
BS	AQC Sample
LB	Blank Sample
N	Client Sample
TB	Trip Blank Sample
OC	Outside Calibration Range

HWOL ACRONYMS AND OPERATORS USED

HS	Headspace Analysis.
EH	Extractable Hydrocarbons - i.e. everything extracted by the solvent.
CU	Clean-up - e.g. by florisil, silica gel.
1D	GC - Single coil gas chromatography.
Total	Aliphatics & Aromatics.
AL	Aliphatics only.
AR	Aromatics only.
2D	GC-GC - Double coil gas chromatography.
#1	EH_Total but with humics mathematically subtracted
#2	EU_Total but with fatty acids mathematically subtracted
_	Operator - underscore to separate acronyms (exception for +).
+	Operator to indicate cumulative e.g. EH+HS_Total or EH_CU+HS_Total
MS	Mass Spectrometry.

EMT Job No: 24/18489

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS/S ANAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
TM4	Modified USEPA 8270D v5:2014 method for the solvent extraction and determination of PAHs by GC-MS.	PM30	Water samples are extracted with solvent using a magnetic stirrer to create a vortex.				
TM4	Modified USEPA 8270D v5:2014 method for the solvent extraction and determination of PAHs by GC-MS.	PM30	Water samples are extracted with solvent using a magnetic stirrer to create a vortex.	Yes			
TM5	Modified 8015B v2:1996 method for the determination of solvent Extractable Petroleum Hydrocarbons (EPH) within the range C8-C40 by GCFID. For waters the solvent extracts dissolved phase plus a sheen if present.	PM16/PM30	Fractionation into aliphatic and aromatic fractions using a Rapid Trace SPE/Water samples are extracted with solvent using a magnetic stirrer to create a vortex.	Yes			
TM5/TM36	please refer to TM5 and TM36 for method details	PM12/PM16/PM30	please refer to PM16/PM30 and PM12 for method details	Yes			
TM36	Modified US EPA method 8015B v2:1996. Determination of Gasoline Range Organics (GRO) in the carbon chain range of C4-12 by headspace GC-FID. MTBE by GCFID co-elutes with 3-methylpentane if present and therefore can give a false positive. Positive MTBE results will be re-run using GC-MS to double check, when requested.	PM12	Modified US EPA method 5021A v2:2014. Preparation of solid and liquid samples for GC headspace analysis.	Yes			

Ramboll
23 Brunswick Place
Southampton
United Kingdom
SO15 2AQ



4225



Attention : Ben Stride
Date : 19th December, 2024
Your reference : 16200120016977
Our reference : Test Report 24/20505 Batch 1
Location : Worthing Gas Works
Date samples received : 3rd December, 2024
Status : Final Report
Issue : 202412191517

Eight samples were received for analysis on 3rd December, 2024 of which eight were scheduled for analysis. Please find attached our Test Report which should be read with notes at the end of the report and should include all sections if reproduced. Interpretations and opinions are outside the scope of any accreditation, and all results relate only to samples supplied.

All analysis is carried out on as received samples and reported on a dry weight basis unless stated otherwise. Results are not surrogate corrected.

The greenhouse gas emissions generated (in Carbon – Co2e) to obtain the results in this report are estimated as:

Scope 1&2 emissions - 10.426 kg of CO2

Scope 1&2&3 emissions - 24.638 kg of CO2

Authorised By:

Simon Gomery BSc
Senior Project Manager

Please include all sections of this report if it is reproduced

Element Materials Technology

Client Name: Ramboll
Reference: 16200120016977
Location: Worthing Gas Works
Contact: Ben Stride
EMT Job No: 24/20505

Report : Liquid

Liquids/products: V=40ml vial, G=glass bottle, P=plastic bottle
H=H₂SO₄, Z=ZnAc, N=NaOH, HN=HNO₃

EMT Sample No.	1-3	4-6	7-9	10-12	13-15	16-20	21-24	25-27			Please see attached notes for all abbreviations and acronyms		
Sample ID	BH01	BH07	BH10	BH12	MW12-02	TRIP BLANK	FIELD BLANK	MW12-02D					
Depth													
COC No / misc													
Containers	V G	V G	V G	V G	V G	V G	V G	V G					
Sample Date	02/12/2024	02/12/2024	02/12/2024	02/12/2024	02/12/2024	02/12/2024	02/12/2024	02/12/2024					
Sample Type	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Trip Blank	Field Blank	Ground Water					
Batch Number	1	1	1	1	1	1	1	1					
Date of Receipt	03/12/2024	03/12/2024	03/12/2024	03/12/2024	03/12/2024	03/12/2024	03/12/2024	03/12/2024			LOD/LOR	Units	Method No.
PAH MS													
Naphthalene #	<0.1	<0.1	0.1	<0.1	<0.1	<0.1	<0.1	<0.1			<0.1	ug/l	TM4/PM30
Acenaphthylene #	0.045	0.012	0.339	0.179	0.039	<0.005	<0.005	0.086			<0.005	ug/l	TM4/PM30
Acenaphthene #	0.162	<0.005	0.946	0.033	0.017	<0.005	<0.005	0.027			<0.005	ug/l	TM4/PM30
Fluorene #	0.038	<0.005	0.417	0.045	0.021	<0.005	<0.005	0.037			<0.005	ug/l	TM4/PM30
Phenanthrene #	0.014	0.041	1.111	0.569	0.202	<0.005	<0.005	0.356			<0.005	ug/l	TM4/PM30
Anthracene #	0.021	0.022	0.682	0.328	0.078	<0.005	<0.005	0.139			<0.005	ug/l	TM4/PM30
Fluoranthene #	0.054	0.167	2.626	1.443	0.521	<0.005	<0.005	0.991			<0.005	ug/l	TM4/PM30
Pyrene #	0.036	0.126	2.146	1.302	0.444	<0.005	<0.005	0.846			<0.005	ug/l	TM4/PM30
Benzo(a)anthracene #	0.021	0.083	1.158	1.010	0.258	<0.005	<0.005	0.515			<0.005	ug/l	TM4/PM30
Chrysene #	0.012	0.071	1.026	1.010	0.237	<0.005	<0.005	0.477			<0.005	ug/l	TM4/PM30
Benzo(b)fluoranthene #	0.018	0.119	1.720	2.079	0.443	<0.008	<0.008	0.919			<0.008	ug/l	TM4/PM30
Benzo(a)pyrene #	0.010	0.063	0.950	1.234	0.242	<0.005	<0.005	0.518			<0.005	ug/l	TM4/PM30
Indeno(123cd)pyrene #	0.006	0.041	0.522	0.818	0.178	<0.005	<0.005	0.339			<0.005	ug/l	TM4/PM30
Dibenzo(ah)anthracene #	<0.005	0.010	0.111	0.161	0.033	<0.005	<0.005	0.067			<0.005	ug/l	TM4/PM30
Benzo(ghi)perylene #	0.005	0.036	0.437	0.791	0.140	<0.005	<0.005	0.270			<0.005	ug/l	TM4/PM30
PAH 16 Total #	0.442	0.791	14.291	11.002	2.853	<0.173	<0.173	5.587			<0.173	ug/l	TM4/PM30
Benzo(b)fluoranthene	0.013	0.086	1.238	1.497	0.319	<0.008	<0.008	0.662			<0.008	ug/l	TM4/PM30
Benzo(k)fluoranthene	<0.008	0.033	0.482	0.582	0.124	<0.008	<0.008	0.257			<0.008	ug/l	TM4/PM30
PAH Surrogate % Recovery	74	88	80	102	76	92	97	101			<0	%	TM4/PM30
MTBE #	<5	<5	<5	<5	<5	<5	<5	<5			<5	ug/l	TM36/PM12
Benzene #	<5	<5	<5	<5	<5	<5	<5	<5			<5	ug/l	TM36/PM12
Toluene #	<5	<5	<5	<5	<5	<5	<5	<5			<5	ug/l	TM36/PM12
Ethylbenzene #	<5	<5	<5	<5	<5	<5	<5	<5			<5	ug/l	TM36/PM12
m/p-Xylene #	<5	<5	<5	<5	<5	<5	<5	<5			<5	ug/l	TM36/PM12
o-Xylene #	<5	<5	<5	<5	<5	<5	<5	<5			<5	ug/l	TM36/PM12
TPH CWG													
Aliphatics													
>C5-C6 (HS_1D_AL) #	<10	<10	<10	<10	<10	<10	<10	<10			<10	ug/l	TM36/PM12
>C6-C8 (HS_1D_AL) #	<10	<10	<10	<10	<10	<10	<10	<10			<10	ug/l	TM36/PM12
>C8-C10 (HS_1D_AL) #	<10	<10	<10	<10	<10	<10	<10	<10			<10	ug/l	TM36/PM12
>C10-C12 (EH_CU_1D_AL) #	<5	<5	<5	<5	<5	<5	<5	<5			<5	ug/l	TM5/PM16/PM30
>C12-C16 (EH_CU_1D_AL) #	<10	<10	<10	<10	<10	<10	<10	<10			<10	ug/l	TM5/PM16/PM30
>C16-C21 (EH_CU_1D_AL) #	<10	<10	<10	<10	<10	<10	<10	<10			<10	ug/l	TM5/PM16/PM30
>C21-C35 (EH_CU_1D_AL) #	<10	<10	<10	<10	<10	<10	<10	<10			<10	ug/l	TM5/PM16/PM30
Total aliphatics C5-35 (EH_CU+HS_1D_AL) #	<10	<10	<10	<10	<10	<10	<10	<10			<10	ug/l	TM5/PM16/PM12/PM16/PM30

Client Name:	Ramboll
Reference:	16200120016977
Location:	Worthing Gas Works
Contact:	Ben Stride

[illegible]

Please note that only samples that are deviating are mentioned in this report. If no samples are listed it is because none were deviating. Only analyses which are accredited are recorded as deviating if set criteria are not met.

It is a requirement under ISO 17025 that we inform clients if samples are deviating i.e. outside what is expected. A deviating sample indicates that the sample 'may' be compromised but not necessarily will be compromised. The result is still accredited and our analytical reports will still show accreditation on the relevant analytes.

NOTES TO ACCOMPANY ALL SCHEDULES AND REPORTS

EMT Job No.: 24/20505

SOILS and ASH

Please note we are only MCERTS accredited (UK soils only) for sand, loam and clay and any other matrix is outside our scope of accreditation.

Where an MCERTS report has been requested, you will be notified within 48 hours of any samples that have been identified as being outside our MCERTS scope. As validation has been performed on clay, sand and loam, only samples that are predominantly these matrices, or combinations of them will be within our MCERTS scope. If samples are not one of a combination of the above matrices they will not be marked as MCERTS accredited.

It is assumed that you have taken representative samples on site and require analysis on a representative subsample. Stones will generally be included unless we are requested to remove them.

All samples will be discarded one month after the date of reporting, unless we are instructed to the contrary. Asbestos samples are retained for 6 months.

If you have not already done so, please send us a purchase order if this is required by your company.

Where appropriate please make sure that our detection limits are suitable for your needs, if they are not, please notify us immediately.

All analysis is reported on a dry weight basis unless stated otherwise. Limits of detection for analyses carried out on as received samples are not moisture content corrected. Results are not surrogate corrected. Samples are dried at 35°C ±5°C unless otherwise stated. Moisture content for CEN Leachate tests are dried at 105°C ±5°C. Ash samples are dried at 35°C ±5°C.

Where Mineral Oil is quoted, this refers to Total Aliphatics C10-C40.

Where a CEN 10:1 ZERO Headspace VOC test has been carried out, a 10:1 ratio of water to wet (as received) soil has been used.

% Asbestos in Asbestos Containing Materials (ACMs) is determined by reference to HSG 264 The Survey Guide - Appendix 2 : ACMs in buildings listed in order of ease of fibre release.

Sufficient amount of sample must be received to carry out the testing specified. Where an insufficient amount of sample has been received the testing may not meet the requirements of our accredited methods, as such accreditation may be removed.

Negative Neutralization Potential (NP) values are obtained when the volume of NaOH (0.1N) titrated (pH 8.3) is greater than the volume of HCl (1N) to reduce the pH of the sample to 2.0 - 2.5. Any negative NP values are corrected to 0.

The calculation of Pyrite content assumes that all oxidisable sulphides present in the sample are pyrite. This may not be the case. The calculation may be an overestimate when other sulphides such as Barite (Barium Sulphate) are present.

WATERS

Please note we are not a UK Drinking Water Inspectorate (DWI) Approved Laboratory .

ISO17025 accreditation applies to surface water and groundwater and usually one other matrix which is analysis specific, any other liquids are outside our scope of accreditation.

As surface waters require different sample preparation to groundwaters the laboratory must be informed of the water type when submitting samples.

Where Mineral Oil is quoted, this refers to Total Aliphatics C10-C40.

STACK EMISSIONS

Where an MCERTS report has been requested, you will be notified within 48 hours of any samples that have been identified as being outside our MCERTS scope. As validation for Dioxins and Furans and Dioxin like PCBs has been performed on XAD-2 Resin, only samples which use this resin will be within our MCERTS scope.

Where appropriate please make sure that our detection limits are suitable for your needs, if they are not, please notify us immediately.

DEVIATING SAMPLES

All samples should be submitted to the laboratory in suitable containers with sufficient ice packs to sustain an appropriate temperature for the requested analysis. The temperature of sample receipt is recorded on the confirmation schedules in order that the client can make an informed decision as to whether testing should still be undertaken.

SURROGATES

Surrogate compounds are added during the preparation process to monitor recovery of analytes. However low recovery in soils is often due to peat, clay or other organic rich matrices. For waters this can be due to oxidants, surfactants, organic rich sediments or remediation fluids. Acceptable limits for most organic methods are 70 - 130% and for VOCs are 50 - 150%. When surrogate recoveries are outside the performance criteria but the associated AQC passes this is assumed to be due to matrix effect. Results are not surrogate corrected.

DILUTIONS

A dilution suffix indicates a dilution has been performed and the reported result takes this into account. No further calculation is required.

BLANKS

Where analytes have been found in the blank, the sample will be treated in accordance with our laboratory procedure for dealing with contaminated blanks.

NOTE

Data is only reported if the laboratory is confident that the data is a true reflection of the samples analysed. Data is only reported as accredited when all the requirements of our Quality System have been met. In certain circumstances where all the requirements of the Quality System have not been met, for instance if the associated AQC has failed, the reason is fully investigated and documented. The sample data is then evaluated alongside the other quality control checks performed during analysis to determine its suitability. Following this evaluation, provided the sample results have not been effected, the data is reported but accreditation is removed. It is a requirement of our Accreditation Body for data not reported as accredited to be considered indicative only, but this does not mean the data is not valid.

Where possible, and if requested, samples will be re-extracted and a revised report issued with accredited results. Please do not hesitate to contact the laboratory if further details are required of the circumstances which have led to the removal of accreditation.

Laboratory records are kept for a period of no less than 6 years.

REPORTS FROM THE SOUTH AFRICA LABORATORY

Any method number not prefixed with SA has been undertaken in our UK laboratory unless reported as subcontracted.

Measurement Uncertainty

Measurement uncertainty defines the range of values that could reasonably be attributed to the measured quantity. This range of values has not been included within the reported results. Uncertainty expressed as a percentage can be provided upon request.

Customer Provided Information

Sample ID and depth is information provided by the customer.

Age of Diesel

The age of release estimation is based on the nC17/pristane ratio only as prescribed by Christensen and Larsen (1993) and Kaplan, Galperin, Alimi et al., (1996).

Age estimation should be treated with caution as it can be influenced by site specific factors of which the laboratory are not aware.

Tentatively Identified Compounds (TICs)

Where Tentatively Identified Compounds (TICs) are reported, up to 10 Tentatively Identified Compounds will be listed where there is found to be a greater than 80% match with the NIST library. The reported concentration is determined semi-quantitatively, with a matrix specific limit of detection.

Note, other compounds may be present but are not reported.

ABBREVIATIONS and ACRONYMS USED

#	ISO17025 (UKAS Ref No. 4225) accredited - UK.
SA	ISO17025 (SANAS Ref No.T0729) accredited - South Africa
B	Indicates analyte found in associated method blank.
DR	Dilution required.
M	MCERTS accredited.
NA	Not applicable
NAD	No Asbestos Detected.
ND	None Detected (usually refers to VOC and/SVOC TICs).
NDP	No Determination Possible
SS	Calibrated against a single substance
SV	Surrogate recovery outside performance criteria. This may be due to a matrix effect.
W	Results expressed on as received basis.
+	AQC failure, accreditation has been removed from this result, if appropriate, see 'Note' on previous page.
>>	Results above quantitative calibration range. The result should be considered the minimum value and is indicative only. The actual result could be significantly higher.
*	Analysis subcontracted to an Element Materials Technology approved laboratory.
CO	Suspected carry over
LOD/LOR	Limit of Detection (Limit of Reporting) in line with ISO 17025 and MCERTS
ME	Matrix Effect
NFD	No Fibres Detected
BS	AQC Sample
LB	Blank Sample
N	Client Sample
TB	Trip Blank Sample
OC	Outside Calibration Range

HWOL ACRONYMS AND OPERATORS USED

HS	Headspace Analysis.
EH	Extractable Hydrocarbons - i.e. everything extracted by the solvent.
CU	Clean-up - e.g. by florisil, silica gel.
1D	GC - Single coil gas chromatography.
Total	Aliphatics & Aromatics.
AL	Aliphatics only.
AR	Aromatics only.
2D	GC-GC - Double coil gas chromatography.
#1	EH_Total but with humics mathematically subtracted
#2	EU_Total but with fatty acids mathematically subtracted
_	Operator - underscore to separate acronyms (exception for +).
+	Operator to indicate cumulative e.g. EH+HS_Total or EH_CU+HS_Total
MS	Mass Spectrometry.

EMT Job No: 24/20505

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS/S ANAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
TM4	Modified USEPA 8270D v5:2014 method for the solvent extraction and determination of PAHs by GC-MS.	PM30	Water samples are extracted with solvent using a magnetic stirrer to create a vortex.				
TM4	Modified USEPA 8270D v5:2014 method for the solvent extraction and determination of PAHs by GC-MS.	PM30	Water samples are extracted with solvent using a magnetic stirrer to create a vortex.	Yes			
TM5	Modified 8015B v2:1996 method for the determination of solvent Extractable Petroleum Hydrocarbons (EPH) within the range C8-C40 by GCFID. For waters the solvent extracts dissolved phase plus a sheen if present.	PM16/PM30	Fractionation into aliphatic and aromatic fractions using a Rapid Trace SPE/Water samples are extracted with solvent using a magnetic stirrer to create a vortex.	Yes			
TM5/TM36	please refer to TM5 and TM36 for method details	PM12/PM16/PM30	please refer to PM16/PM30 and PM12 for method details	Yes			
TM36	Modified US EPA method 8015B v2:1996. Determination of Gasoline Range Organics (GRO) in the carbon chain range of C4-12 by headspace GC-FID. MTBE by GCFID co-elutes with 3-methylpentane if present and therefore can give a false positive. Positive MTBE results will be re-run using GC-MS to double check, when requested.	PM12	Modified US EPA method 5021A v2:2014. Preparation of solid and liquid samples for GC headspace analysis.	Yes			

Ramboll
23 Brunswick Place
Southampton
United Kingdom
SO15 2AQ



4225



Attention : Ben Stride
Date : 25th November, 2024
Your reference : 1620016977
Our reference : Test Report 24/19236 Batch 1
Location : Worthing Gasworks
Date samples received : 13th November, 2024
Status : Final Report
Issue : 202411251554

Eight samples were received for analysis on 13th November, 2024 of which eight were scheduled for analysis. Please find attached our Test Report which should be read with notes at the end of the report and should include all sections if reproduced. Interpretations and opinions are outside the scope of any accreditation, and all results relate only to samples supplied.

All analysis is carried out on as received samples and reported on a dry weight basis unless stated otherwise. Results are not surrogate corrected.

The greenhouse gas emissions generated (in Carbon – Co2e) to obtain the results in this report are estimated as:

Scope 1&2 emissions - 12.163 kg of CO2

Scope 1&2&3 emissions - 28.745 kg of CO2

Authorised By:



Paul Boden BSc
Senior Project Manager

Please include all sections of this report if it is reproduced

Element Materials Technology

Client Name: Ramboll
Reference: 1620016977
Location: Worthing Gasworks
Contact: Ben Stride
EMT Job No: 24/19236

Report : Liquid

Liquids/products: V=40ml vial, G=glass bottle, P=plastic bottle
H=H₂SO₄, Z=ZnAc, N=NaOH, HN=HNO₃

EMT Sample No.	1-3	4-6	7-9	10-12	13-15	16-18	19-20,24	21-23			Please see attached notes for all abbreviations and acronyms		
Sample ID	BH01	BH07	BH10	BH12	MW 12-02	BH07-D	TRIP BLANK	FIELD BLANK					
Depth													
COC No / misc													
Containers	V G	V G	V G	V G	V G	V G	V G	V G					
Sample Date	12/11/2024	12/11/2024	12/11/2024	12/11/2024	12/11/2024	12/11/2024	12/11/2024	12/11/2024					
Sample Type	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Trip Blank (water)	Field Blank					
Batch Number	1	1	1	1	1	1	1	1					
Date of Receipt	13/11/2024	13/11/2024	13/11/2024	13/11/2024	13/11/2024	13/11/2024	13/11/2024	13/11/2024			LOD/LOR	Units	Method No.
PAH MS													
Naphthalene #	<0.1	<0.1	0.2	<6.0 _{AA}	<6.0 _{AA}	0.2	<0.1	<0.1			<0.1	ug/l	TM4/PM30
Acenaphthylene #	0.047	0.118	0.150	1.903 _{AA}	2.608 _{AA}	0.397	<0.005	<0.005			<0.005	ug/l	TM4/PM30
Acenaphthene #	0.131	0.043	0.084	0.383 _{AA}	0.927 _{AA}	0.097	<0.005	<0.005			<0.005	ug/l	TM4/PM30
Fluorene #	0.048	0.093	0.154	0.521 _{AA}	1.391 _{AA}	0.225	<0.005	<0.005			<0.005	ug/l	TM4/PM30
Phenanthrene #	0.022	0.699	1.190	7.572 _{AA}	11.847 _{AA}	2.050	<0.005	<0.005			<0.005	ug/l	TM4/PM30
Anthracene #	0.028	0.259	0.450	3.191 _{AA}	5.330 _{AA}	0.937	<0.005	<0.005			<0.005	ug/l	TM4/PM30
Fluoranthene #	0.067	2.244	2.689	29.313 _{AA}	40.635 _{AA}	7.319	<0.005	<0.005			<0.005	ug/l	TM4/PM30
Pyrene #	0.054	1.935	2.325	27.256 _{AA}	36.819 _{AA}	6.281	<0.005	<0.005			<0.005	ug/l	TM4/PM30
Benzo(a)anthracene #	0.023	0.892	1.032	11.684 _{AA}	16.789 _{AA}	3.025	<0.005	<0.005			<0.005	ug/l	TM4/PM30
Chrysene #	0.018	0.852	0.988	12.807 _{AA}	16.384 _{AA}	2.985	<0.005	<0.005			<0.005	ug/l	TM4/PM30
Benzo(bk)fluoranthene #	0.031	1.436	1.635	24.381 _{AA}	31.867 _{AA}	4.754	<0.008	<0.008			<0.008	ug/l	TM4/PM30
Benzo(a)pyrene #	0.017	0.828	0.896	13.001 _{AA}	17.387 _{AA}	2.872	<0.005	<0.005			<0.005	ug/l	TM4/PM30
Indeno(123cd)pyrene #	<0.005	0.544	0.576	9.984 _{AA}	12.290 _{AA}	1.817	<0.005	<0.005			<0.005	ug/l	TM4/PM30
Dibenzo(ah)anthracene #	<0.005	0.118	0.128	1.946 _{AA}	2.490 _{AA}	0.396	<0.005	<0.005			<0.005	ug/l	TM4/PM30
Benzo(ghi)perylene #	<0.005	0.521	0.572	9.992 _{AA}	11.628 _{AA}	1.803	<0.005	<0.005			<0.005	ug/l	TM4/PM30
PAH 16 Total #	0.486	10.582	13.069	153.934 _{AA}	208.392 _{AA}	35.158	<0.173	<0.173			<0.173	ug/l	TM4/PM30
Benzo(b)fluoranthene	0.022	1.034	1.177	17.554 _{AA}	22.944 _{AA}	3.423	<0.008	<0.008			<0.008	ug/l	TM4/PM30
Benzo(k)fluoranthene	0.009	0.402	0.458	6.827 _{AA}	8.923 _{AA}	1.331	<0.008	<0.008			<0.008	ug/l	TM4/PM30
PAH Surrogate % Recovery	83	90	94	100 _{AA}	105 _{AA}	83	98	98			<0	%	TM4/PM30
MTBE #	<5	<5	<5	<5	<5	<5	<5	<5			<5	ug/l	TM36/PM12
Benzene #	<5	<5	<5	<5	<5	<5	<5	<5			<5	ug/l	TM36/PM12
Toluene #	<5	<5	<5	<5	<5	<5	<5	<5			<5	ug/l	TM36/PM12
Ethylbenzene #	<5	<5	<5	<5	<5	<5	<5	<5			<5	ug/l	TM36/PM12
m/p-Xylene #	<5	<5	<5	<5	<5	<5	<5	<5			<5	ug/l	TM36/PM12
o-Xylene #	<5	<5	<5	<5	<5	<5	<5	<5			<5	ug/l	TM36/PM12
TPH CWG													
Aliphatics													
>C5-C6 (HS_1D_AL) #	<10	<10	<10	<10	<10	<10	<10	<10			<10	ug/l	TM36/PM12
>C6-C8 (HS_1D_AL) #	<10	<10	<10	<10	<10	<10	<10	<10			<10	ug/l	TM36/PM12
>C8-C10 (HS_1D_AL) #	<10	<10	<10	<10	<10	<10	<10	<10			<10	ug/l	TM36/PM12
>C10-C12 (EH_CU_1D_AL) #	<5	<5	<5	<5	<5	<5	<5	<5			<5	ug/l	TM5/PM16/PM30
>C12-C16 (EH_CU_1D_AL) #	<10	<10	<10	<10	<10	<10	<10	<10			<10	ug/l	TM5/PM16/PM30
>C16-C21 (EH_CU_1D_AL) #	<10	<10	<10	<10	<10	<10	<10	<10			<10	ug/l	TM5/PM16/PM30
>C21-C35 (EH_CU_1D_AL) #	<10	<10	<10	<10	<10	<10	<10	<10			<10	ug/l	TM5/PM16/PM30
Total aliphatics C5-35 (EH_CU+HS_1D_AL) #	<10	<10	<10	<10	<10	<10	<10	<10			<10	ug/l	TM5/PM16/PM12/PM16/PM30

Client Name:	Ramboll
Reference:	1620016977
Location:	Worthing Gasworks
Contact:	Ben Stride

[illegible]

Please note that only samples that are deviating are mentioned in this report. If no samples are listed it is because none were deviating. Only analyses which are accredited are recorded as deviating if set criteria are not met.

It is a requirement under ISO 17025 that we inform clients if samples are deviating i.e. outside what is expected. A deviating sample indicates that the sample 'may' be compromised but not necessarily will be compromised. The result is still accredited and our analytical reports will still show accreditation on the relevant analytes.

NOTES TO ACCOMPANY ALL SCHEDULES AND REPORTS

EMT Job No.: 24/19236

SOILS and ASH

Please note we are only MCERTS accredited (UK soils only) for sand, loam and clay and any other matrix is outside our scope of accreditation.

Where an MCERTS report has been requested, you will be notified within 48 hours of any samples that have been identified as being outside our MCERTS scope. As validation has been performed on clay, sand and loam, only samples that are predominantly these matrices, or combinations of them will be within our MCERTS scope. If samples are not one of a combination of the above matrices they will not be marked as MCERTS accredited.

It is assumed that you have taken representative samples on site and require analysis on a representative subsample. Stones will generally be included unless we are requested to remove them.

All samples will be discarded one month after the date of reporting, unless we are instructed to the contrary. Asbestos samples are retained for 6 months.

If you have not already done so, please send us a purchase order if this is required by your company.

Where appropriate please make sure that our detection limits are suitable for your needs, if they are not, please notify us immediately.

All analysis is reported on a dry weight basis unless stated otherwise. Limits of detection for analyses carried out on as received samples are not moisture content corrected. Results are not surrogate corrected. Samples are dried at 35°C ±5°C unless otherwise stated. Moisture content for CEN Leachate tests are dried at 105°C ±5°C. Ash samples are dried at 35°C ±5°C.

Where Mineral Oil is quoted, this refers to Total Aliphatics C10-C40.

Where a CEN 10:1 ZERO Headspace VOC test has been carried out, a 10:1 ratio of water to wet (as received) soil has been used.

% Asbestos in Asbestos Containing Materials (ACMs) is determined by reference to HSG 264 The Survey Guide - Appendix 2 : ACMs in buildings listed in order of ease of fibre release.

Sufficient amount of sample must be received to carry out the testing specified. Where an insufficient amount of sample has been received the testing may not meet the requirements of our accredited methods, as such accreditation may be removed.

Negative Neutralization Potential (NP) values are obtained when the volume of NaOH (0.1N) titrated (pH 8.3) is greater than the volume of HCl (1N) to reduce the pH of the sample to 2.0 - 2.5. Any negative NP values are corrected to 0.

The calculation of Pyrite content assumes that all oxidisable sulphides present in the sample are pyrite. This may not be the case. The calculation may be an overestimate when other sulphides such as Barite (Barium Sulphate) are present.

WATERS

Please note we are not a UK Drinking Water Inspectorate (DWI) Approved Laboratory .

ISO17025 accreditation applies to surface water and groundwater and usually one other matrix which is analysis specific, any other liquids are outside our scope of accreditation.

As surface waters require different sample preparation to groundwaters the laboratory must be informed of the water type when submitting samples.

Where Mineral Oil is quoted, this refers to Total Aliphatics C10-C40.

STACK EMISSIONS

Where an MCERTS report has been requested, you will be notified within 48 hours of any samples that have been identified as being outside our MCERTS scope. As validation for Dioxins and Furans and Dioxin like PCBs has been performed on XAD-2 Resin, only samples which use this resin will be within our MCERTS scope.

Where appropriate please make sure that our detection limits are suitable for your needs, if they are not, please notify us immediately.

DEVIATING SAMPLES

All samples should be submitted to the laboratory in suitable containers with sufficient ice packs to sustain an appropriate temperature for the requested analysis. The temperature of sample receipt is recorded on the confirmation schedules in order that the client can make an informed decision as to whether testing should still be undertaken.

SURROGATES

Surrogate compounds are added during the preparation process to monitor recovery of analytes. However low recovery in soils is often due to peat, clay or other organic rich matrices. For waters this can be due to oxidants, surfactants, organic rich sediments or remediation fluids. Acceptable limits for most organic methods are 70 - 130% and for VOCs are 50 - 150%. When surrogate recoveries are outside the performance criteria but the associated AQC passes this is assumed to be due to matrix effect. Results are not surrogate corrected.

DILUTIONS

A dilution suffix indicates a dilution has been performed and the reported result takes this into account. No further calculation is required.

BLANKS

Where analytes have been found in the blank, the sample will be treated in accordance with our laboratory procedure for dealing with contaminated blanks.

NOTE

Data is only reported if the laboratory is confident that the data is a true reflection of the samples analysed. Data is only reported as accredited when all the requirements of our Quality System have been met. In certain circumstances where all the requirements of the Quality System have not been met, for instance if the associated AQC has failed, the reason is fully investigated and documented. The sample data is then evaluated alongside the other quality control checks performed during analysis to determine its suitability. Following this evaluation, provided the sample results have not been effected, the data is reported but accreditation is removed. It is a requirement of our Accreditation Body for data not reported as accredited to be considered indicative only, but this does not mean the data is not valid.

Where possible, and if requested, samples will be re-extracted and a revised report issued with accredited results. Please do not hesitate to contact the laboratory if further details are required of the circumstances which have led to the removal of accreditation.

Laboratory records are kept for a period of no less than 6 years.

REPORTS FROM THE SOUTH AFRICA LABORATORY

Any method number not prefixed with SA has been undertaken in our UK laboratory unless reported as subcontracted.

Measurement Uncertainty

Measurement uncertainty defines the range of values that could reasonably be attributed to the measured quantity. This range of values has not been included within the reported results. Uncertainty expressed as a percentage can be provided upon request.

Customer Provided Information

Sample ID and depth is information provided by the customer.

Age of Diesel

The age of release estimation is based on the nC17/pristane ratio only as prescribed by Christensen and Larsen (1993) and Kaplan, Galperin, Alimi et al., (1996).

Age estimation should be treated with caution as it can be influenced by site specific factors of which the laboratory are not aware.

Tentatively Identified Compounds (TICs)

Where Tentatively Identified Compounds (TICs) are reported, up to 10 Tentatively Identified Compounds will be listed where there is found to be a greater than 80% match with the NIST library. The reported concentration is determined semi-quantitatively, with a matrix specific limit of detection.

Note, other compounds may be present but are not reported.

ABBREVIATIONS and ACRONYMS USED

#	ISO17025 (UKAS Ref No. 4225) accredited - UK.
SA	ISO17025 (SANAS Ref No.T0729) accredited - South Africa
B	Indicates analyte found in associated method blank.
DR	Dilution required.
M	MCERTS accredited.
NA	Not applicable
NAD	No Asbestos Detected.
ND	None Detected (usually refers to VOC and/SVOC TICs).
NDP	No Determination Possible
SS	Calibrated against a single substance
SV	Surrogate recovery outside performance criteria. This may be due to a matrix effect.
W	Results expressed on as received basis.
+	AQC failure, accreditation has been removed from this result, if appropriate, see 'Note' on previous page.
>>	Results above quantitative calibration range. The result should be considered the minimum value and is indicative only. The actual result could be significantly higher.
*	Analysis subcontracted to an Element Materials Technology approved laboratory.
CO	Suspected carry over
LOD/LOR	Limit of Detection (Limit of Reporting) in line with ISO 17025 and MCERTS
ME	Matrix Effect
NFD	No Fibres Detected
BS	AQC Sample
LB	Blank Sample
N	Client Sample
TB	Trip Blank Sample
OC	Outside Calibration Range
AA	x60 Dilution

HWOL ACRONYMS AND OPERATORS USED

HS	Headspace Analysis.
EH	Extractable Hydrocarbons - i.e. everything extracted by the solvent.
CU	Clean-up - e.g. by florisil, silica gel.
1D	GC - Single coil gas chromatography.
Total	Aliphatics & Aromatics.
AL	Aliphatics only.
AR	Aromatics only.
2D	GC-GC - Double coil gas chromatography.
#1	EH_Total but with humics mathematically subtracted
#2	EU_Total but with fatty acids mathematically subtracted
_	Operator - underscore to separate acronyms (exception for +).
+	Operator to indicate cumulative e.g. EH+HS_Total or EH_CU+HS_Total
MS	Mass Spectrometry.

EMT Job No: 24/19236

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS/S ANAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
TM4	Modified USEPA 8270D v5:2014 method for the solvent extraction and determination of PAHs by GC-MS.	PM30	Water samples are extracted with solvent using a magnetic stirrer to create a vortex.				
TM4	Modified USEPA 8270D v5:2014 method for the solvent extraction and determination of PAHs by GC-MS.	PM30	Water samples are extracted with solvent using a magnetic stirrer to create a vortex.	Yes			
TM5	Modified 8015B v2:1996 method for the determination of solvent Extractable Petroleum Hydrocarbons (EPH) within the range C8-C40 by GCFID. For waters the solvent extracts dissolved phase plus a sheen if present.	PM16/PM30	Fractionation into aliphatic and aromatic fractions using a Rapid Trace SPE/Water samples are extracted with solvent using a magnetic stirrer to create a vortex.	Yes			
TM5/TM36	please refer to TM5 and TM36 for method details	PM12/PM16/PM30	please refer to PM16/PM30 and PM12 for method details	Yes			
TM36	Modified US EPA method 8015B v2:1996. Determination of Gasoline Range Organics (GRO) in the carbon chain range of C4-12 by headspace GC-FID. MTBE by GCFID co-elutes with 3-methylpentane if present and therefore can give a false positive. Positive MTBE results will be re-run using GC-MS to double check, when requested.	PM12	Modified US EPA method 5021A v2:2014. Preparation of solid and liquid samples for GC headspace analysis.	Yes			

Ramboll
23 Brunswick Place
Southampton
United Kingdom
SO15 2AQ



4225



Attention : Ben Stride
Date : 27th December, 2024
Your reference : 16200 16977
Our reference : Test Report 24/21561 Batch 1
Location : Wothing Gasworks
Date samples received : 17th December, 2024
Status : Final Report
Issue : 202412271034

Eight samples were received for analysis on 17th December, 2024 of which eight were scheduled for analysis. Please find attached our Test Report which should be read with notes at the end of the report and should include all sections if reproduced. Interpretations and opinions are outside the scope of any accreditation, and all results relate only to samples supplied.

All analysis is carried out on as received samples and reported on a dry weight basis unless stated otherwise. Results are not surrogate corrected.

The greenhouse gas emissions generated (in Carbon – Co2e) to obtain the results in this report are estimated as:

Scope 1&2 emissions - 8.109 kg of CO2

Scope 1&2&3 emissions - 19.163 kg of CO2

Authorised By:

Paul Boden BSc

Senior Technical Account Manager

Please include all sections of this report if it is reproduced

Element Materials Technology

Client Name: Ramboll
Reference: 16200 16977
Location: Wothing Gasworks
Contact: Ben Stride
EMT Job No: 24/21561

Report : Liquid

Liquids/products: V=40ml vial, G=glass bottle, P=plastic bottle
H=H₂SO₄, Z=ZnAc, N=NaOH, HN=HNO₃

EMT Sample No.	1-3	4-6	7-9	10-12	13-15	16-19	20-22	23-25			Please see attached notes for all abbreviations and acronyms		
Sample ID	BH01	BH07	BH10	BH12	MW 12-02	TRIP-BLANK	FIELD-BLANK	BH10-D					
Depth													
COC No / misc													
Containers	V G	V G	V G	V G	V G	V G	V G	V G					
Sample Date	16/12/2024	16/12/2024	16/12/2024	16/12/2024	16/12/2024	16/12/2024	16/12/2024	16/12/2024					
Sample Type	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Trip Blank (water)	Field Blank	Field Blank					
Batch Number	1	1	1	1	1	1	1	1			LOD/LOR	Units	Method No.
Date of Receipt	17/12/2024	17/12/2024	17/12/2024	17/12/2024	17/12/2024	17/12/2024	17/12/2024	17/12/2024					
PAH MS													
Naphthalene #	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1			<0.1	ug/l	TM4/PM30
Acenaphthylene #	0.461	0.008	0.088	<0.005	<0.005	<0.005	<0.005	0.109			<0.005	ug/l	TM4/PM30
Acenaphthene #	1.361	0.012	0.107	<0.005	<0.005	<0.005	<0.005	0.128			<0.005	ug/l	TM4/PM30
Fluorene #	0.769	0.018	0.200	<0.005	<0.005	<0.005	<0.005	0.276			<0.005	ug/l	TM4/PM30
Phenanthrene #	0.082	0.051	0.437	<0.005	0.013	<0.005	<0.005	0.494			<0.005	ug/l	TM4/PM30
Anthracene #	0.082	0.019	0.280	<0.005	0.007	<0.005	<0.005	0.325			<0.005	ug/l	TM4/PM30
Fluoranthene #	0.289	0.030	0.862	<0.005	0.037	<0.005	<0.005	1.001			<0.005	ug/l	TM4/PM30
Pyrene #	0.234	0.026	0.711	<0.005	0.034	<0.005	<0.005	0.840			<0.005	ug/l	TM4/PM30
Benzo(a)anthracene #	0.080	0.016	0.412	<0.005	0.022	<0.005	<0.005	0.485			<0.005	ug/l	TM4/PM30
Chrysene #	0.076	0.014	0.382	<0.005	0.019	<0.005	<0.005	0.458			<0.005	ug/l	TM4/PM30
Benzo(b)fluoranthene #	0.112	0.024	0.653	<0.008	0.038	<0.008	<0.008	0.784			<0.008	ug/l	TM4/PM30
Benzo(a)pyrene #	0.065	0.013	0.364	<0.005	0.021	<0.005	<0.005	0.441			<0.005	ug/l	TM4/PM30
Indeno(123cd)pyrene #	0.044	0.011	0.271	<0.005	0.017	<0.005	<0.005	0.330			<0.005	ug/l	TM4/PM30
Dibenzo(ah)anthracene #	0.010	<0.005	0.052	<0.005	<0.005	<0.005	<0.005	0.068			<0.005	ug/l	TM4/PM30
Benzo(ghi)perylene #	0.038	0.010	0.227	<0.005	0.016	<0.005	<0.005	0.264			<0.005	ug/l	TM4/PM30
PAH 16 Total #	3.703	0.252	5.046	<0.173	0.224	<0.173	<0.173	6.003			<0.173	ug/l	TM4/PM30
Benzo(b)fluoranthene	0.081	0.017	0.470	<0.008	0.027	<0.008	<0.008	0.564			<0.008	ug/l	TM4/PM30
Benzo(k)fluoranthene	0.031	<0.008	0.183	<0.008	0.011	<0.008	<0.008	0.220			<0.008	ug/l	TM4/PM30
PAH Surrogate % Recovery	91	86	84	80	76	84	86	91			<0	%	TM4/PM30
MTBE #	<5	<5	<5	<5	<5	<5	<5	<5			<5	ug/l	TM36/PM12
Benzene #	<5	<5	<5	<5	<5	<5	<5	<5			<5	ug/l	TM36/PM12
Toluene #	<5	<5	<5	<5	<5	<5	<5	<5			<5	ug/l	TM36/PM12
Ethylbenzene #	<5	<5	<5	<5	<5	<5	<5	<5			<5	ug/l	TM36/PM12
m/p-Xylene #	<5	<5	<5	<5	<5	<5	<5	<5			<5	ug/l	TM36/PM12
o-Xylene #	<5	<5	<5	<5	<5	<5	<5	<5			<5	ug/l	TM36/PM12
TPH CWG													
Aliphatics													
>C5-C6 (HS_1D_AL) #	<10	<10	<10	<10	<10	<10	<10	<10			<10	ug/l	TM36/PM12
>C6-C8 (HS_1D_AL) #	<10	<10	<10	<10	<10	<10	<10	<10			<10	ug/l	TM36/PM12
>C8-C10 (HS_1D_AL) #	<10	<10	<10	<10	<10	<10	<10	<10			<10	ug/l	TM36/PM12
>C10-C12 (EH_CU_1D_AL) #	<5	<5	<5	<5	<5	<5	<5	<5			<5	ug/l	TM5/PM16/PM30
>C12-C16 (EH_CU_1D_AL) #	<10	<10	<10	<10	<10	<10	<10	<10			<10	ug/l	TM5/PM16/PM30
>C16-C21 (EH_CU_1D_AL) #	<10	<10	<10	<10	<10	<10	<10	<10			<10	ug/l	TM5/PM16/PM30
>C21-C35 (EH_CU_1D_AL) #	<10	<10	<10	<10	<10	<10	<10	<10			<10	ug/l	TM5/PM16/PM30
Total aliphatics C5-35 (EH_CU+HS_1D_AL) #	<10	<10	<10	<10	<10	<10	<10	<10			<10	ug/l	TM5/PM16/PM12/PM16/PM30

Client Name:	Ramboll
Reference:	16200 16977
Location:	Wothing Gasworks
Contact:	Ben Stride

[illegible]

Please note that only samples that are deviating are mentioned in this report. If no samples are listed it is because none were deviating. Only analyses which are accredited are recorded as deviating if set criteria are not met.

It is a requirement under ISO 17025 that we inform clients if samples are deviating i.e. outside what is expected. A deviating sample indicates that the sample 'may' be compromised but not necessarily will be compromised. The result is still accredited and our analytical reports will still show accreditation on the relevant analytes.

NOTES TO ACCOMPANY ALL SCHEDULES AND REPORTS

EMT Job No.: 24/21561

SOILS and ASH

Please note we are only MCERTS accredited (UK soils only) for sand, loam and clay and any other matrix is outside our scope of accreditation.

Where an MCERTS report has been requested, you will be notified within 48 hours of any samples that have been identified as being outside our MCERTS scope. As validation has been performed on clay, sand and loam, only samples that are predominantly these matrices, or combinations of them will be within our MCERTS scope. If samples are not one of a combination of the above matrices they will not be marked as MCERTS accredited.

It is assumed that you have taken representative samples on site and require analysis on a representative subsample. Stones will generally be included unless we are requested to remove them.

All samples will be discarded one month after the date of reporting, unless we are instructed to the contrary. Asbestos samples are retained for 6 months.

If you have not already done so, please send us a purchase order if this is required by your company.

Where appropriate please make sure that our detection limits are suitable for your needs, if they are not, please notify us immediately.

All analysis is reported on a dry weight basis unless stated otherwise. Limits of detection for analyses carried out on as received samples are not moisture content corrected. Results are not surrogate corrected. Samples are dried at 35°C ±5°C unless otherwise stated. Moisture content for CEN Leachate tests are dried at 105°C ±5°C. Ash samples are dried at 35°C ±5°C.

Where Mineral Oil is quoted, this refers to Total Aliphatics C10-C40.

Where a CEN 10:1 ZERO Headspace VOC test has been carried out, a 10:1 ratio of water to wet (as received) soil has been used.

% Asbestos in Asbestos Containing Materials (ACMs) is determined by reference to HSG 264 The Survey Guide - Appendix 2 : ACMs in buildings listed in order of ease of fibre release.

Sufficient amount of sample must be received to carry out the testing specified. Where an insufficient amount of sample has been received the testing may not meet the requirements of our accredited methods, as such accreditation may be removed.

Negative Neutralization Potential (NP) values are obtained when the volume of NaOH (0.1N) titrated (pH 8.3) is greater than the volume of HCl (1N) to reduce the pH of the sample to 2.0 - 2.5. Any negative NP values are corrected to 0.

The calculation of Pyrite content assumes that all oxidisable sulphides present in the sample are pyrite. This may not be the case. The calculation may be an overestimate when other sulphides such as Barite (Barium Sulphate) are present.

WATERS

Please note we are not a UK Drinking Water Inspectorate (DWI) Approved Laboratory .

ISO17025 accreditation applies to surface water and groundwater and usually one other matrix which is analysis specific, any other liquids are outside our scope of accreditation.

As surface waters require different sample preparation to groundwaters the laboratory must be informed of the water type when submitting samples.

Where Mineral Oil is quoted, this refers to Total Aliphatics C10-C40.

STACK EMISSIONS

Where an MCERTS report has been requested, you will be notified within 48 hours of any samples that have been identified as being outside our MCERTS scope. As validation for Dioxins and Furans and Dioxin like PCBs has been performed on XAD-2 Resin, only samples which use this resin will be within our MCERTS scope.

Where appropriate please make sure that our detection limits are suitable for your needs, if they are not, please notify us immediately.

DEVIATING SAMPLES

All samples should be submitted to the laboratory in suitable containers with sufficient ice packs to sustain an appropriate temperature for the requested analysis. The temperature of sample receipt is recorded on the confirmation schedules in order that the client can make an informed decision as to whether testing should still be undertaken.

SURROGATES

Surrogate compounds are added during the preparation process to monitor recovery of analytes. However low recovery in soils is often due to peat, clay or other organic rich matrices. For waters this can be due to oxidants, surfactants, organic rich sediments or remediation fluids. Acceptable limits for most organic methods are 70 - 130% and for VOCs are 50 - 150%. When surrogate recoveries are outside the performance criteria but the associated AQC passes this is assumed to be due to matrix effect. Results are not surrogate corrected.

DILUTIONS

A dilution suffix indicates a dilution has been performed and the reported result takes this into account. No further calculation is required.

BLANKS

Where analytes have been found in the blank, the sample will be treated in accordance with our laboratory procedure for dealing with contaminated blanks.

NOTE

Data is only reported if the laboratory is confident that the data is a true reflection of the samples analysed. Data is only reported as accredited when all the requirements of our Quality System have been met. In certain circumstances where all the requirements of the Quality System have not been met, for instance if the associated AQC has failed, the reason is fully investigated and documented. The sample data is then evaluated alongside the other quality control checks performed during analysis to determine its suitability. Following this evaluation, provided the sample results have not been effected, the data is reported but accreditation is removed. It is a requirement of our Accreditation Body for data not reported as accredited to be considered indicative only, but this does not mean the data is not valid.

Where possible, and if requested, samples will be re-extracted and a revised report issued with accredited results. Please do not hesitate to contact the laboratory if further details are required of the circumstances which have led to the removal of accreditation.

Laboratory records are kept for a period of no less than 6 years.

REPORTS FROM THE SOUTH AFRICA LABORATORY

Any method number not prefixed with SA has been undertaken in our UK laboratory unless reported as subcontracted.

Measurement Uncertainty

Measurement uncertainty defines the range of values that could reasonably be attributed to the measured quantity. This range of values has not been included within the reported results. Uncertainty expressed as a percentage can be provided upon request.

Customer Provided Information

Sample ID and depth is information provided by the customer.

Age of Diesel

The age of release estimation is based on the nC17/pristane ratio only as prescribed by Christensen and Larsen (1993) and Kaplan, Galperin, Alimi et al., (1996).

Age estimation should be treated with caution as it can be influenced by site specific factors of which the laboratory are not aware.

Tentatively Identified Compounds (TICs)

Where Tentatively Identified Compounds (TICs) are reported, up to 10 Tentatively Identified Compounds will be listed where there is found to be a greater than 80% match with the NIST library. The reported concentration is determined semi-quantitatively, with a matrix specific limit of detection.

Note, other compounds may be present but are not reported.

ABBREVIATIONS and ACRONYMS USED

#	ISO17025 (UKAS Ref No. 4225) accredited - UK.
SA	ISO17025 (SANAS Ref No.T0729) accredited - South Africa
B	Indicates analyte found in associated method blank.
DR	Dilution required.
M	MCERTS accredited.
NA	Not applicable
NAD	No Asbestos Detected.
ND	None Detected (usually refers to VOC and/SVOC TICs).
NDP	No Determination Possible
SS	Calibrated against a single substance
SV	Surrogate recovery outside performance criteria. This may be due to a matrix effect.
W	Results expressed on as received basis.
+	AQC failure, accreditation has been removed from this result, if appropriate, see 'Note' on previous page.
>>	Results above quantitative calibration range. The result should be considered the minimum value and is indicative only. The actual result could be significantly higher.
*	Analysis subcontracted to an Element Materials Technology approved laboratory.
CO	Suspected carry over
LOD/LOR	Limit of Detection (Limit of Reporting) in line with ISO 17025 and MCERTS
ME	Matrix Effect
NFD	No Fibres Detected
BS	AQC Sample
LB	Blank Sample
N	Client Sample
TB	Trip Blank Sample
OC	Outside Calibration Range

HWOL ACRONYMS AND OPERATORS USED

HS	Headspace Analysis.
EH	Extractable Hydrocarbons - i.e. everything extracted by the solvent.
CU	Clean-up - e.g. by florisil, silica gel.
1D	GC - Single coil gas chromatography.
Total	Aliphatics & Aromatics.
AL	Aliphatics only.
AR	Aromatics only.
2D	GC-GC - Double coil gas chromatography.
#1	EH_Total but with humics mathematically subtracted
#2	EU_Total but with fatty acids mathematically subtracted
_	Operator - underscore to separate acronyms (exception for +).
+	Operator to indicate cumulative e.g. EH+HS_Total or EH_CU+HS_Total
MS	Mass Spectrometry.

EMT Job No: 24/21561

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS/S ANAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
TM4	Modified USEPA 8270D v5:2014 method for the solvent extraction and determination of PAHs by GC-MS.	PM30	Water samples are extracted with solvent using a magnetic stirrer to create a vortex.				
TM4	Modified USEPA 8270D v5:2014 method for the solvent extraction and determination of PAHs by GC-MS.	PM30	Water samples are extracted with solvent using a magnetic stirrer to create a vortex.	Yes			
TM5	Modified 8015B v2:1996 method for the determination of solvent Extractable Petroleum Hydrocarbons (EPH) within the range C8-C40 by GCFID. For waters the solvent extracts dissolved phase plus a sheen if present.	PM16/PM30	Fractionation into aliphatic and aromatic fractions using a Rapid Trace SPE/Water samples are extracted with solvent using a magnetic stirrer to create a vortex.	Yes			
TM5/TM36	please refer to TM5 and TM36 for method details	PM12/PM16/PM30	please refer to PM16/PM30 and PM12 for method details	Yes			
TM36	Modified US EPA method 8015B v2:1996. Determination of Gasoline Range Organics (GRO) in the carbon chain range of C4-12 by headspace GC-FID. MTBE by GCFID co-elutes with 3-methylpentane if present and therefore can give a false positive. Positive MTBE results will be re-run using GC-MS to double check, when requested.	PM12	Modified US EPA method 5021A v2:2014. Preparation of solid and liquid samples for GC headspace analysis.	Yes			

Table 7

[illegible]

APPENDIX 5

CHEMICAL CRITERIA FOR RE-USE AND STOCKPILE ANALYTICAL CERTIFICATES

Table 9

Verification Criteria

Table A2.1: Verification Criteria for Excavation / Soil Re-Use (not for use in landscaped / garden areas)	
Analytical Determinand	Verification Target (mg/kg)
Inorganics	
Asbestos identification and quantification (analytical methods accredited to ISO17025)	No visual asbestos
Free cyanide	500
Ammoniacal Nitrogen	80
BTEX suite	
Benzene / Aromatic C5-7	6.56
Toluene	33
Ethylbenzene	34
Xylenes (sum)	250
Speciated Total Petroleum Hydrocarbons (TPH CWG Suite)	
Sum of all individual aliphatic TPH C5-35 fractions	5,000
Sum of all individual aromatic TPH C5-35 fractions	7,500
Polycyclic Aromatic Hydrocarbons	
Naphthalene (can be used anywhere across site)	18.6
Naphthalene (can only be used under roadways/car parking)	140
Volatile Hydrocarbons	
1,2,4 Trimethylbenzene (can be used anywhere across site)	5.56
1,2,4 Trimethylbenzene (can only be used under roadways/car parking)	7.5
1,3,5 Trimethylbenzene (can be used anywhere across site)	1.83
1,3,5 Trimethylbenzene (can only be used under roadways/car parking)	5
Styrene	250

Table A2.2: Verification Criteria for Imported Topsoil/Subsoil	
Analytical Determinand	Verification Target (mg/kg)
Inorganics	
Asbestos identification and quantification (analytical methods accredited to ISO17025)	No asbestos detected in screen
Arsenic	37
Beryllium	1.7
Boron	290
Cadmium	22
Hexavalent chromium	21
Total chromium	910
Copper ¹	100 at <pH6.0 / 135 at pH6.0 to 7.0 / 200 at pH>7.0
Lead	200
Mercury (inorganic)	40
Nickel ¹	60 at <pH6.0 / 75 at pH6.0 to 7.0 / 110 at pH>7.0
Selenium	250
Zinc ¹	200 at <pH6.0 / 300 pH >7.0
pH	5.5 to 8.5
Free Cyanide	26
BTEX suite	
Benzene	0.15
Toluene	100
Ethylbenzene	26
Xylenes (sum)	28
Speciated Total Petroleum Hydrocarbons (TPH CWG Suite)	
Aliphatic C5-6	24
Aliphatic C6-8	53
Aliphatic C8-C10	13
Aliphatic C10-C12	62
Aliphatic C12-C16	100 ³
Aliphatic C16-C21	100 ³
Aliphatic C21-C35	100 ³
Aromatic C8-C10	20
Aromatic C10-C12	100 ³
Aromatic C12-C16	100 ³

Table A2.2: Verification Criteria for Imported Topsoil/Subsoil

Aromatic C16-C21	100 ³
Aromatic C21-C35	100 ³
Sum of all individual aliphatic and aromatic TPH C5-35 fractions	500
Polycyclic Aromatic Hydrocarbons	
Acenaphthene	<100 ³
Acenaphthylene	<100 ³
Anthracene	<100 ³
Benzo(b)fluoranthene	2.6
Benzo(k)fluoranthene	77
Benzo(a)pyrene	5
Benzo(g,h,i)perylene	<100 ³
Benzo(a)anthracene	7.5
Chrysene	15
Dibenzo(a,h)anthracene	0.24
Fluorene	<100 ³
Fluoranthene	<100 ³
Indeno(1,2,3-cd)pyrene	27
Naphthalene	0.99
Phenanthrene	95
Pyrene	<100 ³
Sum of all PAHs (in addition to meeting the speciated PAH criteria listed above)	<100

Notes:

Except where stated, the topsoil/subsoil verification targets are based on Ramboll's risk based Generic Assessment Criteria (GAC) for residential use without plant (i.e. vegetable) uptake. This is considered to be protective of both human health and vegetation (for compounds where BS 3882:2015 does not provide targets).

¹ The verification targets for nickel, zinc and copper are based on the BS 3882:2015 Specification for Topsoil, which is below the risk based GAC for human health.

² The soil pH remedial target is based on the pH range for multipurpose topsoil as presented in BS 3882:2015 Specification for Topsoil.

³ The risk based GAC for these hydrocarbon fractions and PAHs are generally in excess of 1,000mg/kg (and are all in excess of 100mg/kg). Although the GAC concentrations do not present a risk to human health it is considered that a lower verification target is required to minimise the potential effects on vegetation growth when the topsoil is seeded. As such, a remedial target of 100mg/kg has been selected based on Ramboll's professional judgement. In addition, the sum of all TPH fractions should not exceed 500mg/kg and the sum of all PAH compounds should not exceed 100mg/kg.



Toureen Contractors Limited
25 Cecil Road
Harrow
Middlesex
HA3 5QY

t: 0208 424 7999

e: Mark.hosking@toureen.co.uk

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 : 24-039340

Project / Site name:	Worthing	Samples received on:	29/08/2024
Your job number:		Samples instructed on/ Analysis started on:	30/08/2024
Your order number:		Analysis completed by:	06/09/2024
Report Issue Number:	1	Report issued on:	06/09/2024
Samples Analysed:	10 soil samples - 2 bulk samples		

Signed

Joanna Szwarzak
Reporting 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: 24-039340

Project / Site name: Worthing

Lab Sample Number				301992	301993	301994	301995	301996
Sample Reference				A3-N	A3-E	A3-S	A3-W	A3-B
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Date Sampled				28/08/2024	28/08/2024	28/08/2024	28/08/2024	28/08/2024
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)				Units	Test Limit of detection	Test Accreditation Status		

Stone Content	%	0.1	NONE	45.1	< 0.1	< 0.1	< 0.1	< 0.1
Moisture Content	%	0.01	NONE	6.9	8.7	9.4	15	17
Total mass of sample received	kg	0.1	NONE	1.2	1.3	1.2	1.3	1.2

Asbestos

Asbestos in Soil Detected/Not Detected	Type	N/A	ISO 17025	Not-detected	Not-detected	Not-detected	Not-detected	Not-detected
Asbestos Analyst ID	N/A	N/A	N/A	DSA	DSA	DSA	DSA	DSA
Actinolite detected	Type	N/A	ISO 17025	-	-	-	-	-
Amosite detected	Type	N/A	ISO 17025	-	-	-	-	-
Anthophyllite detected	Type	N/A	ISO 17025	-	-	-	-	-
Chrysotile detected	Type	N/A	ISO 17025	-	-	-	-	-
Crocidolite detected	Type	N/A	ISO 17025	-	-	-	-	-
Tremolite detected	Type	N/A	ISO 17025	-	-	-	-	-

Asbestos % by hand picking/weighing	%	0.001	ISO 17025	-	-	-	-	-
-------------------------------------	---	-------	-----------	---	---	---	---	---

Asbestos Containing Material Types Detected (ACM)	Type	N/A	ISO 17025	-	-	-	-	-
---	------	-----	-----------	---	---	---	---	---

General Inorganics

Free Cyanide	mg/kg	1	MCERTS	< 1.0	2.7	< 1.0	2.4	< 1.0
Ammoniacal Nitrogen as N	mg/kg	0.5	MCERTS	< 0.5	< 0.5	< 0.5	3.3	< 0.5

Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	0.4	0.15	< 0.05	1.1	0.08
Acenaphthylene	mg/kg	0.05	MCERTS	0.74	0.27	< 0.05	2.1	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	0.16	0.07	< 0.05	0.71	< 0.05
Fluorene	mg/kg	0.05	MCERTS	0.31	0.19	< 0.05	3.5	< 0.05
Phenanthrene	mg/kg	0.05	MCERTS	3.7	3	0.33	35	0.08
Anthracene	mg/kg	0.05	MCERTS	2.3	1	0.11	13	< 0.05
Fluoranthene	mg/kg	0.05	MCERTS	12	6.3	0.57	59	0.21
Pyrene	mg/kg	0.05	MCERTS	13	5.2	0.49	48	0.19
Benzo(a)anthracene	mg/kg	0.05	MCERTS	7.9	2.8	0.25	25	0.1
Chrysene	mg/kg	0.05	MCERTS	8	2.3	0.26	22	0.1
Benzo(b)fluoranthene	mg/kg	0.05	ISO 17025	14	3	0.3	28	0.13
Benzo(k)fluoranthene	mg/kg	0.05	ISO 17025	5.6	1.1	0.17	11	0.08
Benzo(a)pyrene	mg/kg	0.05	MCERTS	13	2.5	0.22	25	0.09
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	7.6	1.4	0.19	14	0.11
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	1.6	0.33	0.05	3.1	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	9.2	1.6	0.25	14	0.11

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	ISO 17025	98.9	31.2	3.17	304	1.28
-----------------------------	-------	-----	-----------	------	------	------	-----	------



4041



Environmental Science

Analytical Report Number: 24-039340

Project / Site name: Worthing

Lab Sample Number				301992	301993	301994	301995	301996
Sample Reference				A3-N	A3-E	A3-S	A3-W	A3-B
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Date Sampled				28/08/2024	28/08/2024	28/08/2024	28/08/2024	28/08/2024
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Test Limit of detection	Test Accreditation Status					

Petroleum Hydrocarbons

TPHCWG - Aliphatic >EC5 - EC6 _{HS_1D_AL}	mg/kg	0.01	MCERTS	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
TPHCWG - Aliphatic >EC6 - EC8 _{HS_1D_AL}	mg/kg	0.01	MCERTS	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
TPHCWG - Aliphatic >EC8 - EC10 _{HS_1D_AL}	mg/kg	0.01	MCERTS	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
TPHCWG - Aliphatic >EC10 - EC12 _{EH_CU_1D_AL}	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPHCWG - Aliphatic >EC12 - EC16 _{EH_CU_1D_AL}	mg/kg	2	MCERTS	12	< 2.0	< 2.0	< 2.0	< 2.0
TPHCWG - Aliphatic >EC16 - EC21 _{EH_CU_1D_AL}	mg/kg	8	MCERTS	42	< 8.0	< 8.0	< 8.0	< 8.0
TPHCWG - Aliphatic >EC21 - EC35 _{EH_CU_1D_AL}	mg/kg	8	MCERTS	66	< 8.0	< 8.0	< 8.0	< 8.0
TPHCWG - Aliphatic >EC5 - EC35 _{EH_CU+HS_1D_AL}	mg/kg	10	NONE	120	< 10	< 10	< 10	< 10

TPHCWG - Aromatic >EC5 - EC7 _{HS_1D_AR}	mg/kg	0.01	MCERTS	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
TPHCWG - Aromatic >EC7 - EC8 _{HS_1D_AR}	mg/kg	0.01	MCERTS	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
TPHCWG - Aromatic >EC8 - EC10 _{HS_1D_AR}	mg/kg	0.02	MCERTS	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020
TPHCWG - Aromatic >EC10 - EC12 _{EH_CU_1D_AR}	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPHCWG - Aromatic >EC12 - EC16 _{EH_CU_1D_AR}	mg/kg	2	MCERTS	3.2	< 2.0	< 2.0	15	< 2.0
TPHCWG - Aromatic >EC16 - EC21 _{EH_CU_1D_AR}	mg/kg	10	MCERTS	42	19	< 10	180	< 10
TPHCWG - Aromatic >EC21 - EC35 _{EH_CU_1D_AR}	mg/kg	10	MCERTS	150	31	< 10	210	< 10
TPHCWG - Aromatic >EC5 - EC35 _{EH_CU+HS_1D_AR}	mg/kg	10	NONE	200	50	< 10	410	< 10

VOCs

Chloromethane	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Chloroethane	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Bromomethane	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Vinyl Chloride	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Trichlorofluoromethane	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,1-Dichloroethene	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,1,2-Trichloro 1,2,2-Trifluoroethane	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Trans 1,2-dichloroethylene	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,1-Dichloroethane	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
2,2-Dichloropropane	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Chloroform	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,1,1-Trichloroethane	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,2-Dichloroethane	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,1-Dichloropropene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Cis-1,2-dichloroethene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Benzene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Carbontetrachloride	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,2-Dichloropropane	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Trichloroethene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Dibromomethane	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Bromodichloromethane	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Cis-1,3-dichloropropene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Trans-1,3-dichloropropene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Toluene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,1,2-Trichloroethane	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,3-Dichloropropane	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Dibromochloromethane	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Tetrachloroethene	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,2-Dibromoethane	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Chlorobenzene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,1,1,2-Tetrachloroethane	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0



4041



Environmental Science

Analytical Report Number: 24-039340

Project / Site name: Worthing

Lab Sample Number				301992	301993	301994	301995	301996
Sample Reference				A3-N	A3-E	A3-S	A3-W	A3-B
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Date Sampled				28/08/2024	28/08/2024	28/08/2024	28/08/2024	28/08/2024
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Test Limit of detection	Test Accreditation Status					
Ethylbenzene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
p & m-Xylene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Styrene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Bromoform	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
o-Xylene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Isopropylbenzene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,1,2,2-Tetrachloroethane	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Bromobenzene	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
n-Propylbenzene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
2-Chlorotoluene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
4-Chlorotoluene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,3,5-Trimethylbenzene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
tert-Butylbenzene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,2,4-Trimethylbenzene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
sec-Butylbenzene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,3-Dichlorobenzene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
p-Isopropyltoluene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,4-Dichlorobenzene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,2-Dichlorobenzene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Butylbenzene	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,2-Dibromo-3-chloropropane	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,2,4-Trichlorobenzene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Hexachlorobutadiene	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,2,3-Trichlorobenzene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0

U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected

Analytical Report Number: 24-039340

Project / Site name: Worthing

Lab Sample Number				301997	301998	301999	302000	302001
Sample Reference				A3-HS	E3-1	E3-2	E4-1	E4-2
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Date Sampled				28/08/2024	28/08/2024	28/08/2024	28/08/2024	28/08/2024
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)				Units	Test Limit of detection	Test Accreditation Status		

Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	62
Moisture Content	%	0.01	NONE	18	4	6.6	8	4.6
Total mass of sample received	kg	0.1	NONE	1.2	1.3	1.2	1.3	1.2

Asbestos

Asbestos in Soil Detected/Not Detected	Type	N/A	ISO 17025	Not-detected	Detected	Detected	Detected	Detected
Asbestos Analyst ID	N/A	N/A	N/A	DSA	DSA	DSA	DSA	DSA
Actinolite detected	Type	N/A	ISO 17025	-	Not-detected	Not-detected	Not-detected	Not-detected
Amosite detected	Type	N/A	ISO 17025	-	Not-detected	Not-detected	Not-detected	Not-detected
Anthophyllite detected	Type	N/A	ISO 17025	-	Not-detected	Not-detected	Not-detected	Not-detected
Chrysotile detected	Type	N/A	ISO 17025	-	Detected	Detected	Detected	Detected
Crocidolite detected	Type	N/A	ISO 17025	-	Not-detected	Not-detected	Not-detected	Not-detected
Tremolite detected	Type	N/A	ISO 17025	-	Not-detected	Not-detected	Not-detected	Not-detected

Asbestos % by hand picking/weighing	%	0.001	ISO 17025	-	< 0.001	< 0.001	0.002	< 0.001
-------------------------------------	---	-------	-----------	---	---------	---------	-------	---------

Asbestos Containing Material Types Detected (ACM)	Type	N/A	ISO 17025	-	Loose Fibres	Loose Fibres	Loose Fibres	Loose Fibres
---	------	-----	-----------	---	--------------	--------------	--------------	--------------

General Inorganics

Free Cyanide	mg/kg	1	MCERTS	1.1	1.7	1.7	1.7	1.2
Ammoniacal Nitrogen as N	mg/kg	0.5	MCERTS	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5

Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	0.31	1.8	1.9	1.9	2.3
Acenaphthylene	mg/kg	0.05	MCERTS	0.17	3.2	2.5	2.9	2.3
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	0.66	0.7	0.65	0.58
Fluorene	mg/kg	0.05	MCERTS	0.05	1.7	1.1	1.5	1.1
Phenanthrene	mg/kg	0.05	MCERTS	0.8	27	19	18	14
Anthracene	mg/kg	0.05	MCERTS	0.26	7.4	6.5	5.4	4.4
Fluoranthene	mg/kg	0.05	MCERTS	2.7	54	48	43	31
Pyrene	mg/kg	0.05	MCERTS	2.5	48	43	37	28
Benzo(a)anthracene	mg/kg	0.05	MCERTS	1.9	25	23	21	15
Chrysene	mg/kg	0.05	MCERTS	2.2	23	22	19	14
Benzo(b)fluoranthene	mg/kg	0.05	ISO 17025	3.9	34	26	27	21
Benzo(k)fluoranthene	mg/kg	0.05	ISO 17025	1.4	13	15	11	7.4
Benzo(a)pyrene	mg/kg	0.05	MCERTS	3.3	28	25	22	17
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	2.1	18	17	14	11
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	0.59	4.6	4.2	3.2	2.3
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	2.6	19	19	15	12

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	ISO 17025	24.8	309	273	243	183
-----------------------------	-------	-----	-----------	------	-----	-----	-----	-----



4041



Environmental Science

Analytical Report Number: 24-039340

Project / Site name: Worthing

Lab Sample Number				301997	301998	301999	302000	302001
Sample Reference				A3-HS	E3-1	E3-2	E4-1	E4-2
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Date Sampled				28/08/2024	28/08/2024	28/08/2024	28/08/2024	28/08/2024
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)				Units	Test Limit of detection	Test Accreditation Status		

Petroleum Hydrocarbons

TPHCWG - Aliphatic >EC5 - EC6 _{HS_1D_AL}	mg/kg	0.01	MCERTS	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
TPHCWG - Aliphatic >EC6 - EC8 _{HS_1D_AL}	mg/kg	0.01	MCERTS	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
TPHCWG - Aliphatic >EC8 - EC10 _{HS_1D_AL}	mg/kg	0.01	MCERTS	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
TPHCWG - Aliphatic >EC10 - EC12 _{EH_CU_1D_AL}	mg/kg	1	MCERTS	< 1.0	1.7	< 1.0	1.9	5.5
TPHCWG - Aliphatic >EC12 - EC16 _{EH_CU_1D_AL}	mg/kg	2	MCERTS	< 2.0	11	14	13	19
TPHCWG - Aliphatic >EC16 - EC21 _{EH_CU_1D_AL}	mg/kg	8	MCERTS	< 8.0	33	34	31	20
TPHCWG - Aliphatic >EC21 - EC35 _{EH_CU_1D_AL}	mg/kg	8	MCERTS	< 8.0	150	110	130	65
TPHCWG - Aliphatic >EC5 - EC35 _{EH_CU+HS_1D_AL}	mg/kg	10	NONE	< 10	190	160	170	110

TPHCWG - Aromatic >EC5 - EC7 _{HS_1D_AR}	mg/kg	0.01	MCERTS	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
TPHCWG - Aromatic >EC7 - EC8 _{HS_1D_AR}	mg/kg	0.01	MCERTS	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
TPHCWG - Aromatic >EC8 - EC10 _{HS_1D_AR}	mg/kg	0.02	MCERTS	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020
TPHCWG - Aromatic >EC10 - EC12 _{EH_CU_1D_AR}	mg/kg	1	MCERTS	< 1.0	< 1.0	1.5	< 1.0	1.9
TPHCWG - Aromatic >EC12 - EC16 _{EH_CU_1D_AR}	mg/kg	2	MCERTS	< 2.0	10	12	9.8	10
TPHCWG - Aromatic >EC16 - EC21 _{EH_CU_1D_AR}	mg/kg	10	MCERTS	< 10	110	120	110	83
TPHCWG - Aromatic >EC21 - EC35 _{EH_CU_1D_AR}	mg/kg	10	MCERTS	24	220	240	220	170
TPHCWG - Aromatic >EC5 - EC35 _{EH_CU+HS_1D_AR}	mg/kg	10	NONE	24	340	370	340	270

VOCs

Chloromethane	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Chloroethane	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Bromomethane	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Vinyl Chloride	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Trichlorofluoromethane	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,1-Dichloroethene	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,1,2-Trichloro 1,2,2-Trifluoroethane	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Trans 1,2-dichloroethylene	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,1-Dichloroethane	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
2,2-Dichloropropane	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Chloroform	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,1,1-Trichloroethane	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,2-Dichloroethane	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,1-Dichloropropene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Cis-1,2-dichloroethene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Benzene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Carbontetrachloride	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,2-Dichloropropane	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Trichloroethene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Dibromomethane	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Bromodichloromethane	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Cis-1,3-dichloropropene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Trans-1,3-dichloropropene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Toluene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,1,2-Trichloroethane	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,3-Dichloropropane	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Dibromochloromethane	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Tetrachloroethene	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,2-Dibromoethane	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Chlorobenzene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,1,1,2-Tetrachloroethane	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0



Analytical Report Number: 24-039340

Project / Site name: Worthing

Lab Sample Number				301997	301998	301999	302000	302001
Sample Reference				A3-HS	E3-1	E3-2	E4-1	E4-2
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Date Sampled				28/08/2024	28/08/2024	28/08/2024	28/08/2024	28/08/2024
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Test Limit of detection	Test Accreditation Status					
Ethylbenzene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
p & m-Xylene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Styrene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Bromoform	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
o-Xylene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Isopropylbenzene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,1,2,2-Tetrachloroethane	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Bromobenzene	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
n-Propylbenzene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
2-Chlorotoluene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
4-Chlorotoluene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,3,5-Trimethylbenzene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
tert-Butylbenzene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,2,4-Trimethylbenzene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
sec-Butylbenzene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,3-Dichlorobenzene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
p-Isopropyltoluene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,4-Dichlorobenzene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,2-Dichlorobenzene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Butylbenzene	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,2-Dibromo-3-chloropropane	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,2,4-Trichlorobenzene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Hexachlorobutadiene	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,2,3-Trichlorobenzene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0

U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected



Analytical Report Number: 24-039340
Project / Site name: Worthing
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
301998	E3-1		176	Loose Fibres	Chrysotile	< 0.001	< 0.001
301999	E3-2		165	Loose Fibres	Chrysotile	< 0.001	< 0.001
302000	E4-1		166	Loose Fibres	Chrysotile	0.002	0.002
302001	E4-2		163	Loose Fibres	Chrysotile	< 0.001	< 0.001

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

Analytical Report Number: 24-039340

Project / Site name: Worthing

Lab Sample Number				302002	302003
Sample Reference				B5-PAC	C1-PAC
Sample Number				None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied
Date Sampled				28/08/2024	28/08/2024
Time Taken				None Supplied	None Supplied
Analytical Parameter (Bulk Analysis)				Units	Test Limit of detection
				Test Accreditation Status	

Asbestos

Asbestos in bulks	Type	N/A	ISO 17025	Detected	Not-detected
Asbestos Analyst ID	N/A	N/A	N/A	DSA	DSA
Actinolite detected	Type	N/A	ISO 17025	Not-detected	-
Amosite detected	Type	N/A	ISO 17025	Not-detected	-
Anthophyllite detected	Type	N/A	ISO 17025	Not-detected	-
Chrysotile detected	Type	N/A	ISO 17025	Detected	-
Crocidolite detected	Type	N/A	ISO 17025	Not-detected	-
Tremolite detected	Type	N/A	ISO 17025	Not-detected	-

Asbestos Containing Material Types Detected (ACM)	Type	N/A	ISO 17025	Woven Products (Rope, Felt)	-
---	------	-----	-----------	-----------------------------	---

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

Analytical Report Number : 24-039340

Project / Site name: Worthing

* 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 *
301992	A3-N	None Supplied	None Supplied	Brown sand with gravel and stones
301993	A3-E	None Supplied	None Supplied	Brown clay and sand with gravel
301994	A3-S	None Supplied	None Supplied	Brown clay and sand with gravel
301995	A3-W	None Supplied	None Supplied	Brown clay and sand with gravel
301996	A3-B	None Supplied	None Supplied	Brown clay and sand with gravel
301997	A3-HS	None Supplied	None Supplied	Brown clay and sand with gravel
301998	E3-1	None Supplied	None Supplied	Brown sandy loam with gravel
301999	E3-2	None Supplied	None Supplied	Brown sand with gravel
302000	E4-1	None Supplied	None Supplied	Brown sand with gravel
302001	E4-2	None Supplied	None Supplied	Brown sand with gravel and stones

Analytical Report Number : 24-039340

Project / Site name: Worthing

Water matrix abbreviations:

Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

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 dispersion staining techniques	In-house method based on HSG 248, 2021	A001B	D	ISO 17025
Asbestos identification in Bulks	Asbestos Identification in bulk material with the use of polarised light microscopy in conjunction with dispersion staining techniques	In-house method based on HSG 248, 2021	A001B	W	ISO 17025
Asbestos Quantification - Gravimetric	Asbestos quantification by gravimetric method - in house method based on references	HSE Report No: 83/1996, HSG 248 (2021), HSG 264 (2012) & SCA Blue Book (draft)	A006B	D	ISO 17025
Moisture Content	Moisture content, determined gravimetrically (up to 30°C)	In-house method	L019B	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.	L019B	D	NONE
Speciated PAHs and/or Semi-volatile organic compounds in soil	Determination of semi-volatile organic compounds (including PAH) in soil by extraction in dichloromethane and hexane followed by GC-MS	In-house method based on USEPA 8270	L064B	D	MCERTS
BTEX and/or Volatile organic compounds in soil	Determination of volatile organic compounds in soil by headspace GC-MS	In-house method based on USEPA 8260	L073B	W	MCERTS
Total petroleum hydrocarbons with carbon banding by GC-FID/GC-MS HS in soil	Determination of total petroleum hydrocarbons in soil by GC-FID/GC-MS HS with carbon banding aliphatic and aromatic	In-house method	L076B/L088-PL	D/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	L080-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	L082B	W	MCERTS

For method numbers ending in 'UK' or 'A' analysis have been carried out in our laboratory in the United Kingdom (Watford).

For method numbers ending in 'F' analysis have been carried out in our laboratory in the United Kingdom (East Kilbride).

For method numbers ending in 'PL' or 'B' 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.

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.

Quality control parameter failure associated with individual result applies to calculated sum of individuals.

The result for sum should be interpreted with caution



Toureen Contractors Limited
25 Cecil Road
Harrow
Middlesex
HA3 5QY

t: 0208 424 7999

e: Mark.hosking@toureen.co.uk

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 : 24-042141

Project / Site name:	Worthing	Samples received on:	16/09/2024
Your job number:		Samples instructed on/ Analysis started on:	16/09/2024
Your order number:		Analysis completed by:	25/09/2024
Report Issue Number:	1	Report issued on:	25/09/2024
Samples Analysed:	8 soil samples		

Signed:

Trevor Hill
Customer Service Advisor
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: 24-042141
Project / Site name: Worthing

Lab Sample Number	316794	316795	316796	316797	316798
Sample Reference	E1-1.0	E1-2.0	E2-1.0	E2-2.0	D1-1.0
Sample Number	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Date Sampled	16/09/2024	16/09/2024	16/09/2024	16/09/2024	16/09/2024
Time Taken	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Test Limit of detection	Test Accreditation Status		

Stone Content	%	0.1	NONE	1.9	20.8	6.5	< 0.1	< 0.1
Moisture Content	%	0.01	NONE	12	10	11	11	11
Total mass of sample received	kg	0.1	NONE	1.4	1.4	1.4	1.5	1.5

Asbestos

Asbestos in Soil Detected/Not Detected	Type	N/A	ISO 17025	Not-detected	Not-detected	Not-detected	Not-detected	Not-detected
Asbestos Analyst ID	N/A	N/A	N/A	MWI	MWI	MWI	MWI	MWI

General Inorganics

Free Cyanide	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Ammoniacal Nitrogen as N	mg/kg	0.5	MCERTS	< 0.5	51	73	< 0.5	< 0.5

Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	< 0.05	0.24	< 0.05	1.1	0.11
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	0.21	< 0.05	0.42	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	0.09	< 0.05	0.15	< 0.05
Fluorene	mg/kg	0.05	MCERTS	< 0.05	0.28	< 0.05	0.74	< 0.05
Phenanthrene	mg/kg	0.05	MCERTS	0.07	2.4	0.08	3	0.44
Anthracene	mg/kg	0.05	MCERTS	< 0.05	0.71	< 0.05	0.9	0.06
Fluoranthene	mg/kg	0.05	MCERTS	0.11	5	0.13	3.7	0.63
Pyrene	mg/kg	0.05	MCERTS	0.12	4.5	0.11	3.2	0.54
Benzo(a)anthracene	mg/kg	0.05	MCERTS	0.11	2.2	< 0.05	1.8	0.25
Chrysene	mg/kg	0.05	MCERTS	0.07	2.1	< 0.05	1.6	0.34
Benzo(b)fluoranthene	mg/kg	0.05	ISO 17025	< 0.05	2.3	< 0.05	2.2	0.33
Benzo(k)fluoranthene	mg/kg	0.05	ISO 17025	< 0.05	1.5	< 0.05	0.96	0.13
Benzo(a)pyrene	mg/kg	0.05	MCERTS	0.09	2.2	< 0.05	1.9	0.21
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	0.07	1.2	< 0.05	1.1	0.2
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05	0.27	< 0.05	0.21	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	0.09	1.3	< 0.05	1.4	0.25

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	ISO 17025	< 0.80	26.5	< 0.80	24.2	3.48
-----------------------------	-------	-----	-----------	--------	------	--------	------	------

Petroleum Hydrocarbons

TPHCWG - Aliphatic >EC5 - EC6 _{HS_1D_AL}	mg/kg	0.01	MCERTS	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
TPHCWG - Aliphatic >EC6 - EC8 _{HS_1D_AL}	mg/kg	0.01	MCERTS	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
TPHCWG - Aliphatic >EC8 - EC10 _{HS_1D_AL}	mg/kg	0.01	MCERTS	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
TPHCWG - Aliphatic >EC10 - EC12 _{EH_CU_1D_AL}	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	1.9	< 1.0
TPHCWG - Aliphatic >EC12 - EC16 _{EH_CU_1D_AL}	mg/kg	2	MCERTS	< 2.0	< 2.0	< 2.0	4.1	< 2.0
TPHCWG - Aliphatic >EC16 - EC21 _{EH_CU_1D_AL}	mg/kg	8	MCERTS	< 8.0	< 8.0	< 8.0	< 8.0	< 8.0
TPHCWG - Aliphatic >EC21 - EC35 _{EH_CU_1D_AL}	mg/kg	8	MCERTS	< 8.0	< 8.0	< 8.0	26	< 8.0
TPHCWG - Aliphatic >EC5 - EC35 _{EH_CU+HS_1D_AL}	mg/kg	10	NONE	< 10	< 10	< 10	32	< 10

TPHCWG - Aromatic >EC5 - EC7 _{HS_1D_AR}	mg/kg	0.01	MCERTS	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
TPHCWG - Aromatic >EC7 - EC8 _{HS_1D_AR}	mg/kg	0.01	MCERTS	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
TPHCWG - Aromatic >EC8 - EC10 _{HS_1D_AR}	mg/kg	0.02	MCERTS	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020
TPHCWG - Aromatic >EC10 - EC12 _{EH_CU_1D_AR}	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPHCWG - Aromatic >EC12 - EC16 _{EH_CU_1D_AR}	mg/kg	2	MCERTS	< 2.0	< 2.0	< 2.0	3.6	< 2.0
TPHCWG - Aromatic >EC16 - EC21 _{EH_CU_1D_AR}	mg/kg	10	MCERTS	< 10	< 10	< 10	12	< 10
TPHCWG - Aromatic >EC21 - EC35 _{EH_CU_1D_AR}	mg/kg	10	MCERTS	< 10	13	< 10	23	< 10
TPHCWG - Aromatic >EC5 - EC35 _{EH_CU+HS_1D_AR}	mg/kg	10	NONE	< 10	13	< 10	38	< 10

Analytical Report Number: 24-042141

Project / Site name: Worthing

Lab Sample Number				316794	316795	316796	316797	316798
Sample Reference				E1-1.0	E1-2.0	E2-1.0	E2-2.0	D1-1.0
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Date Sampled				16/09/2024	16/09/2024	16/09/2024	16/09/2024	16/09/2024
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)				Units	Test Limit of detection	Test Accreditation Status		

VOCs

Chloromethane	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Chloroethane	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Bromomethane	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Vinyl Chloride	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Trichlorofluoromethane	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,1-Dichloroethene	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,1,2-Trichloro 1,2,2-Trifluoroethane	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Trans 1,2-dichloroethylene	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,1-Dichloroethane	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
2,2-Dichloropropane	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Chloroform	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,1,1-Trichloroethane	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,2-Dichloroethane	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,1-Dichloropropene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Cis-1,2-dichloroethene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Benzene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Carbontetrachloride	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,2-Dichloropropane	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Trichloroethene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Dibromomethane	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Bromodichloromethane	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Cis-1,3-dichloropropene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Trans-1,3-dichloropropene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Toluene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,1,2-Trichloroethane	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,3-Dichloropropane	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Dibromochloromethane	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Tetrachloroethene	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,2-Dibromoethane	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Chlorobenzene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,1,1,2-Tetrachloroethane	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Ethylbenzene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
p & m-Xylene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Styrene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Bromoform	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
o-Xylene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Isopropylbenzene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,1,2,2-Tetrachloroethane	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Bromobenzene	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
n-Propylbenzene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
2-Chlorotoluene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
4-Chlorotoluene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,3,5-Trimethylbenzene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
tert-Butylbenzene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,2,4-Trimethylbenzene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
sec-Butylbenzene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,3-Dichlorobenzene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
p-Isopropyltoluene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,4-Dichlorobenzene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0

Analytical Report Number: 24-042141

Project / Site name: Worthing

Lab Sample Number				316794	316795	316796	316797	316798
Sample Reference				E1-1.0	E1-2.0	E2-1.0	E2-2.0	D1-1.0
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Date Sampled				16/09/2024	16/09/2024	16/09/2024	16/09/2024	16/09/2024
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Test Limit of detection	Test Accreditation Status					
1,2-Dichlorobenzene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Butylbenzene	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,2-Dibromo-3-chloropropane	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,2,4-Trichlorobenzene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Hexachlorobutadiene	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,2,3-Trichlorobenzene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0

U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected

Analytical Report Number: 24-042141

Project / Site name: Worthing

Lab Sample Number				316799	316800	316801
Sample Reference				D1-2.0	D2-1.0	D2-2.0
Sample Number				None Supplied	None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied	None Supplied
Date Sampled				16/09/2024	16/09/2024	16/09/2024
Time Taken				None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Test Limit of detection	Test Accreditation Status			

Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1
Moisture Content	%	0.01	NONE	14	14	9.1
Total mass of sample received	kg	0.1	NONE	1.4	1.5	1.4

Asbestos

Asbestos in Soil Detected/Not Detected	Type	N/A	ISO 17025	Not-detected	Not-detected	Not-detected
Asbestos Analyst ID	N/A	N/A	N/A	MWI	MWI	MWI

General Inorganics

Free Cyanide	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0
Ammoniacal Nitrogen as N	mg/kg	0.5	MCERTS	< 0.5	35	72

Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	0.08	< 0.05	< 0.05
Acenaphthylene	mg/kg	0.05	MCERTS	0.05	< 0.05	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05
Fluorene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05
Phenanthrene	mg/kg	0.05	MCERTS	0.46	0.11	< 0.05
Anthracene	mg/kg	0.05	MCERTS	0.12	< 0.05	< 0.05
Fluoranthene	mg/kg	0.05	MCERTS	0.88	0.22	< 0.05
Pyrene	mg/kg	0.05	MCERTS	0.8	0.2	< 0.05
Benzo(a)anthracene	mg/kg	0.05	MCERTS	0.41	0.08	< 0.05
Chrysene	mg/kg	0.05	MCERTS	0.48	0.12	< 0.05
Benzo(b)fluoranthene	mg/kg	0.05	ISO 17025	0.49	< 0.05	< 0.05
Benzo(k)fluoranthene	mg/kg	0.05	ISO 17025	0.3	< 0.05	< 0.05
Benzo(a)pyrene	mg/kg	0.05	MCERTS	0.43	< 0.05	< 0.05
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	0.29	< 0.05	< 0.05
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	0.38	< 0.05	< 0.05

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	ISO 17025	5.18	< 0.80	< 0.80
-----------------------------	-------	-----	-----------	------	--------	--------

Petroleum Hydrocarbons

TPHCWG - Aliphatic >EC5 - EC6 _{HS_1D_AL}	mg/kg	0.01	MCERTS	< 0.010	< 0.010	< 0.010
TPHCWG - Aliphatic >EC6 - EC8 _{HS_1D_AL}	mg/kg	0.01	MCERTS	< 0.010	< 0.010	< 0.010
TPHCWG - Aliphatic >EC8 - EC10 _{HS_1D_AL}	mg/kg	0.01	MCERTS	< 0.010	< 0.010	< 0.010
TPHCWG - Aliphatic >EC10 - EC12 _{EH_CU_1D_AL}	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0
TPHCWG - Aliphatic >EC12 - EC16 _{EH_CU_1D_AL}	mg/kg	2	MCERTS	< 2.0	< 2.0	< 2.0
TPHCWG - Aliphatic >EC16 - EC21 _{EH_CU_1D_AL}	mg/kg	8	MCERTS	< 8.0	< 8.0	< 8.0
TPHCWG - Aliphatic >EC21 - EC35 _{EH_CU_1D_AL}	mg/kg	8	MCERTS	< 8.0	< 8.0	< 8.0
TPHCWG - Aliphatic >EC5 - EC35 _{EH_CU+HS_1D_AL}	mg/kg	10	NONE	< 10	< 10	< 10

TPHCWG - Aromatic >EC5 - EC7 _{HS_1D_AR}	mg/kg	0.01	MCERTS	< 0.010	< 0.010	< 0.010
TPHCWG - Aromatic >EC7 - EC8 _{HS_1D_AR}	mg/kg	0.01	MCERTS	< 0.010	< 0.010	< 0.010
TPHCWG - Aromatic >EC8 - EC10 _{HS_1D_AR}	mg/kg	0.02	MCERTS	< 0.020	< 0.020	< 0.020
TPHCWG - Aromatic >EC10 - EC12 _{EH_CU_1D_AR}	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0
TPHCWG - Aromatic >EC12 - EC16 _{EH_CU_1D_AR}	mg/kg	2	MCERTS	< 2.0	< 2.0	< 2.0
TPHCWG - Aromatic >EC16 - EC21 _{EH_CU_1D_AR}	mg/kg	10	MCERTS	< 10	< 10	< 10
TPHCWG - Aromatic >EC21 - EC35 _{EH_CU_1D_AR}	mg/kg	10	MCERTS	< 10	< 10	< 10
TPHCWG - Aromatic >EC5 - EC35 _{EH_CU+HS_1D_AR}	mg/kg	10	NONE	< 10	< 10	< 10

Analytical Report Number: 24-042141

Project / Site name: Worthing

Lab Sample Number				316799	316800	316801
Sample Reference				D1-2.0	D2-1.0	D2-2.0
Sample Number				None Supplied	None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied	None Supplied
Date Sampled				16/09/2024	16/09/2024	16/09/2024
Time Taken				None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)				Units	Test Limit of detection	Test Accreditation Status

VOCs

Chloromethane	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0
Chloroethane	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0
Bromomethane	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0
Vinyl Chloride	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0
Trichlorofluoromethane	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0
1,1-Dichloroethene	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0
1,1,2-Trichloro 1,2,2-Trifluoroethane	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0
Trans 1,2-dichloroethylene	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0
1,1-Dichloroethane	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0
2,2-Dichloropropane	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0
Chloroform	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0
1,1,1-Trichloroethane	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0
1,2-Dichloroethane	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0
1,1-Dichloropropene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0
Cis-1,2-dichloroethene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0
Benzene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0
Carbontetrachloride	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0
1,2-Dichloropropane	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0
Trichloroethene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0
Dibromomethane	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0
Bromodichloromethane	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0
Cis-1,3-dichloropropene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0
Trans-1,3-dichloropropene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0
Toluene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0
1,1,2-Trichloroethane	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0
1,3-Dichloropropane	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0
Dibromochloromethane	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0
Tetrachloroethene	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0
1,2-Dibromoethane	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0
Chlorobenzene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0
1,1,1,2-Tetrachloroethane	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0
Ethylbenzene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0
p & m-Xylene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0
Styrene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0
Bromoform	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0
o-Xylene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0
Isopropylbenzene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0
1,1,2,2-Tetrachloroethane	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0
Bromobenzene	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0
n-Propylbenzene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0
2-Chlorotoluene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0
4-Chlorotoluene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0
1,3,5-Trimethylbenzene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0
tert-Butylbenzene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0
1,2,4-Trimethylbenzene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0
sec-Butylbenzene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0
1,3-Dichlorobenzene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0
p-Isopropyltoluene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0
1,4-Dichlorobenzene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0

Analytical Report Number: 24-042141

Project / Site name: Worthing

Lab Sample Number				316799	316800	316801
Sample Reference				D1-2.0	D2-1.0	D2-2.0
Sample Number				None Supplied	None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied	None Supplied
Date Sampled				16/09/2024	16/09/2024	16/09/2024
Time Taken				None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Test Limit of detection	Test Accreditation Status			
1,2-Dichlorobenzene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0
Butylbenzene	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0
1,2-Dibromo-3-chloropropane	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0
1,2,4-Trichlorobenzene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0
Hexachlorobutadiene	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0
1,2,3-Trichlorobenzene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0

U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected

Analytical Report Number : 24-042141
Project / Site name: Worthing

* 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 *
316794	E1-1.0	None Supplied	None Supplied	Brown clay and sand with vegetation and stones
316795	E1-2.0	None Supplied	None Supplied	Brown clay and sand with vegetation and stones
316796	E2-1.0	None Supplied	None Supplied	Brown clay and sand with vegetation and stones
316797	E2-2.0	None Supplied	None Supplied	Brown clay and sand with gravel
316798	D1-1.0	None Supplied	None Supplied	Brown clay and sand with gravel
316799	D1-2.0	None Supplied	None Supplied	Brown clay and sand with gravel and chalk
316800	D2-1.0	None Supplied	None Supplied	Brown clay and sand
316801	D2-2.0	None Supplied	None Supplied	Brown clay and sand

Analytical Report Number : 24-042141

Project / Site name: Worthing

Water matrix abbreviations:

Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

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 dispersion staining techniques	In-house method based on HSG 248, 2021	A001B	D	ISO 17025
Moisture Content	Moisture content, determined gravimetrically (up to 30°C)	In-house method	L019B	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.	L019B	D	NONE
Speciated PAHs and/or Semi-volatile organic compounds in soil	Determination of semi-volatile organic compounds (including PAH) in soil by extraction in dichloromethane and hexane followed by GC-MS	In-house method based on USEPA 8270	L064B	D	MCERTS
BTEX and/or Volatile organic compounds in soil	Determination of volatile organic compounds in soil by headspace GC-MS	In-house method based on USEPA 8260	L073B	W	MCERTS
Total petroleum hydrocarbons with carbon banding by GC-FID/GC-MS HS in soil	Determination of total petroleum hydrocarbons in soil by GC-FID/GC-MS HS with carbon banding aliphatic and aromatic	In-house method	L076B/L088-PL	D/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	L080-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	L082B	W	MCERTS

For method numbers ending in 'UK' or 'A' analysis have been carried out in our laboratory in the United Kingdom (Watford).

For method numbers ending in 'F' analysis have been carried out in our laboratory in the United Kingdom (East Kilbride).

For method numbers ending in 'PL' or 'B' 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.

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.

Analytical Report Number : 24-042141

Project / Site name: Worthing

Water matrix abbreviations:

Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
----------------------	-------------------------------	-----------------------------	---------------	--------------------	----------------------

Information in Support of Analytical Results

List of HWOL Acronyms and Operators

Acronym	Descriptions
HS	Headspace Analysis
MS	Mass spectrometry
FID	Flame Ionisation Detector
GC	Gas Chromatography
EH	Extractable Hydrocarbons (i.e. everything extracted by the solvent(s))
CU	Clean-up - e.g. by Florisil®, silica gel
1D	GC - Single coil/column gas chromatography
2D	GC-GC - Double coil/column gas chromatography
Total	Aliphatics & Aromatics
AL	Aliphatics
AR	Aromatics
#1	EH_2D_Total but with humics mathematically subtracted
#2	EH_2D_Total but with fatty acids mathematically subtracted
_	Operator - underscore to separate acronyms (exception for +)
+	Operator to indicate cumulative e.g. EH+HS_Total or EH_CU+HS_Total

Quality control parameter failure associated with individual result applies to calculated sum of individuals.

The result for sum should be interpreted with caution

Toureen Contractors Limited
25 Cecil Road
Harrow
Middlesex
HA3 5QY

t: 0208 424 7999

e: Mark.hosking@toureen.co.uk

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 : 24-043069

Replaces Analytical Report Number: 24-043069, issue no. 1

Report format change.

Report Split, as per client request

The report has been updated to the current Schedule of Accreditation in regards to VOC method

Project / Site name:	Worthing	Samples received on:	19/09/2024
Your job number:		Samples instructed on/ Analysis started on:	19/09/2024
Your order number:		Analysis completed by:	01/10/2024
Report Issue Number:	2B	Report issued on:	21/10/2024
Samples Analysed:	5 soil samples		

Signed:

Claire Bancroft
Customer Service Advisor
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: 24-043069
Project / Site name: Worthing

Lab Sample Number	321971	321972	321973	321974	321975
Sample Reference	D3--1.0	D3-2.0	F2-1.0	F2-2.0	F3-1.0
Sample Number	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Date Sampled	19/09/2024	19/09/2024	19/09/2024	19/09/2024	19/09/2024
Time Taken	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Test Limit of detection	Test Accreditation Status		

Stone Content	%	0.1	NONE	23.4	24.7	54.4	53.7	65.8
Moisture Content	%	0.01	NONE	7.2	8	1.3	3.1	1.8
Total mass of sample received	kg	0.1	NONE	1.1	1.2	1	1.2	1.3

Asbestos

Asbestos in Soil Detected/Not Detected	Type	N/A	ISO 17025	Detected	Detected	Not-detected	Not-detected	Not-detected
Asbestos Analyst ID	N/A	N/A	N/A	SSZ	SSZ	SSZ	SSZ	SSZ
Actinolite detected	Type	N/A	ISO 17025	Not-detected	Not-detected	-	-	-
Amosite detected	Type	N/A	ISO 17025	Not-detected	Detected	-	-	-
Anthophyllite detected	Type	N/A	ISO 17025	Not-detected	Not-detected	-	-	-
Chrysotile detected	Type	N/A	ISO 17025	Detected	Detected	-	-	-
Crocidolite detected	Type	N/A	ISO 17025	Not-detected	Not-detected	-	-	-
Tremolite detected	Type	N/A	ISO 17025	Not-detected	Not-detected	-	-	-

Asbestos % by hand picking/weighing	%	0.001	ISO 17025	< 0.001	0.014	-	-	-
-------------------------------------	---	-------	-----------	---------	-------	---	---	---

Asbestos Containing Material Types Detected (ACM)	Type	N/A	ISO 17025	Loose Fibres	Loose Fibrous Debris	-	-	-
---	------	-----	-----------	--------------	-------------------------	---	---	---

General Inorganics

Free Cyanide	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Ammoniacal Nitrogen as N	mg/kg	0.5	MCERTS	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5

Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	4.4	5.8	< 0.05	< 0.05	< 0.05
Acenaphthylene	mg/kg	0.05	MCERTS	6.2	8.1	< 0.05	< 0.05	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	6	8.5	< 0.05	< 0.05	< 0.05
Fluorene	mg/kg	0.05	MCERTS	6	9.8	< 0.05	< 0.05	< 0.05
Phenanthrene	mg/kg	0.05	MCERTS	120	110	0.24	0.14	0.12
Anthracene	mg/kg	0.05	MCERTS	26	35	< 0.05	< 0.05	< 0.05
Fluoranthene	mg/kg	0.05	MCERTS	280	250	0.36	0.22	0.25
Pyrene	mg/kg	0.05	MCERTS	240	210	0.35	0.18	0.24
Benzo(a)anthracene	mg/kg	0.05	MCERTS	120	110	0.18	0.08	0.14
Chrysene	mg/kg	0.05	MCERTS	100	95	0.18	0.09	0.11
Benzo(b)fluoranthene	mg/kg	0.05	ISO 17025	140	120	< 0.05	0.12	0.16
Benzo(k)fluoranthene	mg/kg	0.05	ISO 17025	39	46	< 0.05	< 0.05	< 0.05
Benzo(a)pyrene	mg/kg	0.05	MCERTS	120	110	< 0.05	0.09	< 0.05
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	61	48	0.1	0.09	0.08
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	11	9.5	< 0.05	< 0.05	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	69	49	0.12	0.09	0.1

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	ISO 17025	1350	1240	1.53	1.11	1.19
-----------------------------	-------	-----	-----------	------	------	------	------	------

Petroleum Hydrocarbons

TPHCWG - Aliphatic >EC5 - EC6 _{HS 1D AL}	mg/kg	0.01	MCERTS	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
TPHCWG - Aliphatic >EC6 - EC8 _{HS 1D AL}	mg/kg	0.01	MCERTS	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
TPHCWG - Aliphatic >EC8 - EC10 _{HS 1D AL}	mg/kg	0.01	MCERTS	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
TPHCWG - Aliphatic >EC10 - EC12 _{EH CU 1D AL}	mg/kg	1	MCERTS	2.6	2.2	< 1.0	< 1.0	< 1.0
TPHCWG - Aliphatic >EC12 - EC16 _{EH CU 1D AL}	mg/kg	2	MCERTS	19	16	< 2.0	< 2.0	< 2.0
TPHCWG - Aliphatic >EC16 - EC21 _{EH CU 1D AL}	mg/kg	8	MCERTS	38	32	< 8.0	< 8.0	< 8.0
TPHCWG - Aliphatic >EC21 - EC35 _{EH CU 1D AL}	mg/kg	8	MCERTS	130	120	< 8.0	< 8.0	< 8.0
TPHCWG - Aliphatic >EC5 - EC35 _{EH CU+HS 1D AL}	mg/kg	10	NONE	190	170	< 10	< 10	< 10

Analytical Report Number: 24-043069
Project / Site name: Worthing

Lab Sample Number				321971	321972	321973	321974	321975
Sample Reference				D3--1.0	D3-2.0	F2-1.0	F2-2.0	F3-1.0
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Date Sampled				19/09/2024	19/09/2024	19/09/2024	19/09/2024	19/09/2024
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Test Limit of detection	Test Accreditation Status					
TPHCWG - Aromatic >EC5 - EC7 HS_ID_AR	mg/kg	0.01	MCERTS	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
TPHCWG - Aromatic >EC7 - EC8 HS_ID_AR	mg/kg	0.01	MCERTS	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
TPHCWG - Aromatic >EC8 - EC10 HS_ID_AR	mg/kg	0.02	MCERTS	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020
TPHCWG - Aromatic >EC10 - EC12 EH_CU_ID_AR	mg/kg	1	MCERTS	2.3	3.7	< 1.0	< 1.0	< 1.0
TPHCWG - Aromatic >EC12 - EC16 EH_CU_ID_AR	mg/kg	2	MCERTS	54	58	< 2.0	< 2.0	< 2.0
TPHCWG - Aromatic >EC16 - EC21 EH_CU_ID_AR	mg/kg	10	MCERTS	510	530	< 10	< 10	< 10
TPHCWG - Aromatic >EC21 - EC35 EH_CU_ID_AR	mg/kg	10	MCERTS	870	900	< 10	< 10	< 10
TPHCWG - Aromatic >EC5 - EC35 EH_CU+HS_ID_AR	mg/kg	10	NONE	1400	1500	< 10	< 10	< 10

VOCs

Chloromethane	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Chloroethane	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Bromomethane	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Vinyl Chloride	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Trichlorofluoromethane	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,1-Dichloroethene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,1,2-Trichloro 1,2,2-Trifluoroethane	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Trans 1,2-dichloroethylene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,1-Dichloroethane	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
2,2-Dichloropropane	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Chloroform	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,1,1-Trichloroethane	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,2-Dichloroethane	µg/kg	7	MCERTS	< 7.0	< 7.0	< 7.0	< 7.0	< 7.0
1,1-Dichloropropene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Cis-1,2-dichloroethene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Benzene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Carbontetrachloride	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,2-Dichloropropane	µg/kg	6	MCERTS	< 6.0	< 6.0	< 6.0	< 6.0	< 6.0
Trichloroethene	µg/kg	10	MCERTS	< 10	< 10	< 10	< 10	< 10
Dibromomethane	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Bromodichloromethane	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Cis-1,3-dichloropropene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Trans-1,3-dichloropropene	µg/kg	10	MCERTS	< 10	< 10	< 10	< 10	< 10
Toluene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,1,2-Trichloroethane	µg/kg	6	MCERTS	< 6.0	< 6.0	< 6.0	< 6.0	< 6.0
1,3-Dichloropropane	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Dibromochloromethane	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Tetrachloroethene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,2-Dibromoethane	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Chlorobenzene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,1,1,2-Tetrachloroethane	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Ethylbenzene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
p & m-Xylene	µg/kg	8	MCERTS	< 8.0	< 8.0	< 8.0	< 8.0	< 8.0
Styrene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Bromoform	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
o-Xylene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Isopropylbenzene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,1,2,2-Tetrachloroethane	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Bromobenzene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
n-Propylbenzene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
2-Chlorotoluene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
4-Chlorotoluene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,3,5-Trimethylbenzene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
tert-Butylbenzene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0

Analytical Report Number: 24-043069

Project / Site name: Worthing

Lab Sample Number				321971	321972	321973	321974	321975
Sample Reference				D3--1.0	D3-2.0	F2-1.0	F2-2.0	F3-1.0
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Date Sampled				19/09/2024	19/09/2024	19/09/2024	19/09/2024	19/09/2024
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Test Limit of detection	Test Accreditation Status					
1,2,4-Trimethylbenzene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
sec-Butylbenzene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,3-Dichlorobenzene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
p-Isopropyltoluene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,4-Dichlorobenzene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,2-Dichlorobenzene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Butylbenzene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,2-Dibromo-3-chloropropane	µg/kg	8	MCERTS	< 8.0	< 8.0	< 8.0	< 8.0	< 8.0
1,2,4-Trichlorobenzene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Hexachlorobutadiene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,2,3-Trichlorobenzene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0

U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected



Analytical Report Number: 24-043069
Project / Site name: Worthing
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
321971	D3--1.0		171	Loose Fibres	Chrysotile	< 0.001	< 0.001
321972	D3-2.0		165	Loose Fibrous Debris	Amosite & Chrysotile	0.014	0.014

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

Analytical Report Number : 24-043069
Project / Site name: Worthing

* 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 *
321971	D3--1.0	None Supplied	None Supplied	Brown sand with gravel and stones
321972	D3-2.0	None Supplied	None Supplied	Brown sand with gravel and stones
321973	F2-1.0	None Supplied	None Supplied	Brown clay and sand with gravel and stones
321974	F2-2.0	None Supplied	None Supplied	Brown clay and sand with gravel and stones
321975	F3-1.0	None Supplied	None Supplied	Brown clay and sand with gravel and stones

Analytical Report Number : 24-043069

Project / Site name: Worthing

Water matrix abbreviations:

Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

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 dispersion staining techniques	In-house method based on HSG 248, 2021	A001B	D	ISO 17025
Asbestos Quantification - Gravimetric	Asbestos quantification by gravimetric method - in house method based on references	HSE Report No: 83/1996, HSG 248 (2021), HSG 264 (2012) & SCA Blue Book (draft)	A006B	D	ISO 17025
Moisture Content	Moisture content, determined gravimetrically (up to 30°C)	In-house method	L019B	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.	L019B	D	NONE
Speciated PAHs and/or Semi-volatile organic compounds in soil	Determination of semi-volatile organic compounds (including PAH) in soil by extraction in dichloromethane and hexane followed by GC-MS	In-house method based on USEPA 8270	L064B	D	MCERTS
BTEX and/or Volatile organic compounds in soil	Determination of volatile organic compounds in soil by headspace GC-MS	In-house method based on USEPA 8260	L073B	W	MCERTS
Total petroleum hydrocarbons with carbon banding by GC-FID/GC-MS HS in soil	Determination of total petroleum hydrocarbons in soil by GC-FID/GC-MS HS with carbon banding aliphatic and aromatic	In-house method	L076B/L088-PL	D/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	L080-PL	W	MCERTS

Analytical Report Number : 24-043069

Project / Site name: Worthing

Water matrix abbreviations:

Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

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	L082B	W	MCERTS

For method numbers ending in 'UK' or 'A' analysis have been carried out in our laboratory in the United Kingdom (Watford).

For method numbers ending in 'F' analysis have been carried out in our laboratory in the United Kingdom (East Kilbride).

For method numbers ending in 'PL' or 'B' 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.

Information in Support of Analytical Results

List of HWOL Acronyms and Operators

Acronym	Descriptions
HS	Headspace Analysis
MS	Mass spectrometry
FID	Flame Ionisation Detector
GC	Gas Chromatography
EH	Extractable Hydrocarbons (i.e. everything extracted by the solvent(s))
CU	Clean-up - e.g. by Florisil®, silica gel
1D	GC - Single coil/column gas chromatography
2D	GC-GC - Double coil/column gas chromatography
Total	Aliphatics & Aromatics
AL	Aliphatics
AR	Aromatics
#1	EH_2D_Total but with humics mathematically subtracted
#2	EH_2D_Total but with fatty acids mathematically subtracted
-	Operator - underscore to separate acronyms (exception for +)
+	Operator to indicate cumulative e.g. EH+HS_Total or EH_CU+HS_Total

Quality control parameter failure associated with individual result applies to calculated sum of individuals.

The result for sum should be interpreted with caution

Toureen Contractors Limited
25 Cecil Road
Harrow
Middlesex
HA3 5QY

t: 0208 424 7999

e: Mark.hosking@toureen.co.uk
david.skinner@toureen.co.uk
rick.willemsse@toureen.co.uk

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 : 24-047395

Project / Site name:	Worthing	Samples received on:	14/10/2024
Your job number:	TCL 1437	Samples instructed on/ Analysis started on:	14/10/2024
Your order number:		Analysis completed by:	28/10/2024
Report Issue Number:	1	Report issued on:	28/10/2024
Samples Analysed:	13 soil samples		

Signe

Matthew O'Connell
Key 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

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: 24-047395
Project / Site name: Worthing

Lab Sample Number	346731	346732	346733	346734	346735
Sample Reference	E4	F4	D5	E5	BH02-N
Sample Number	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Date Sampled	11/10/2024	11/10/2024	11/10/2024	11/10/2024	11/10/2024
Time Taken	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Test Limit of detection	Test Accreditation Status		

Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Moisture Content	%	0.01	NONE	18	11	17	18	18
Total mass of sample received	kg	0.1	NONE	0.8	0.8	0.8	0.8	0.8

Asbestos

Asbestos in Soil Detected/Not Detected	Type	N/A	ISO 17025	Not-detected	Not-detected	Detected	Not-detected	Not-detected
Asbestos Analyst ID	N/A	N/A	N/A	KWB	KWB	DSO	EWS	EWS
Actinolite detected	Type	N/A	ISO 17025	-	-	Not-detected	-	-
Amosite detected	Type	N/A	ISO 17025	-	-	Not-detected	-	-
Anthophyllite detected	Type	N/A	ISO 17025	-	-	Not-detected	-	-
Chrysotile detected	Type	N/A	ISO 17025	-	-	Detected	-	-
Crocidolite detected	Type	N/A	ISO 17025	-	-	Not-detected	-	-
Tremolite detected	Type	N/A	ISO 17025	-	-	Not-detected	-	-

Asbestos % by hand picking/weighing	%	0.001	ISO 17025	-	-	0.001	-	-
-------------------------------------	---	-------	-----------	---	---	-------	---	---

Asbestos Containing Material Types Detected (ACM)	Type	N/A	ISO 17025	-	-	Loose Fibres	-	-
---	------	-----	-----------	---	---	--------------	---	---

General Inorganics

Free Cyanide	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Ammoniacal Nitrogen as N	mg/kg	0.5	MCERTS	0.6	0.5	4.1	< 0.5	16

Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	1.3	1.7	12	5.5	3
Acenaphthylene	mg/kg	0.05	MCERTS	1.2	1.7	4.1	0.73	1.5
Acenaphthene	mg/kg	0.05	MCERTS	0.61	0.73	4.3	0.18	0.63
Fluorene	mg/kg	0.05	MCERTS	1.5	1.6	7.8	0.41	1.9
Phenanthrene	mg/kg	0.05	MCERTS	11	15	46	4.9	9.7
Anthracene	mg/kg	0.05	MCERTS	3.4	4.7	16	1.7	9
Fluoranthene	mg/kg	0.05	MCERTS	19	29	80	16	27
Pyrene	mg/kg	0.05	MCERTS	15	26	67	14	22
Benzo(a)anthracene	mg/kg	0.05	MCERTS	9	16	29	8.4	13
Chrysene	mg/kg	0.05	MCERTS	8.1	15	26	8.4	11
Benzo(b)fluoranthene	mg/kg	0.05	ISO 17025	11	21	35	12	13
Benzo(k)fluoranthene	mg/kg	0.05	ISO 17025	5.1	9.6	13	5.7	6
Benzo(a)pyrene	mg/kg	0.05	MCERTS	9.7	20	30	12	12
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	4.6	9.5	14	5.8	4.9
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	1.2	2.5	4.1	1.5	1.4
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	4.5	9.3	13	6	4.5

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	ISO 17025	106	182	401	104	141
-----------------------------	-------	-----	-----------	-----	-----	-----	-----	-----

Analytical Report Number: 24-047395
Project / Site name: Worthing

Lab Sample Number	346731	346732	346733	346734	346735
Sample Reference	E4	F4	D5	E5	BH02-N
Sample Number	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Date Sampled	11/10/2024	11/10/2024	11/10/2024	11/10/2024	11/10/2024
Time Taken	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Test Limit of detection	Test Accreditation Status		

Petroleum Hydrocarbons

TPHCWG - Aliphatic >EC5 - EC6 _{HS_1D_AL}	mg/kg	0.01	MCERTS	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
TPHCWG - Aliphatic >EC6 - EC8 _{HS_1D_AL}	mg/kg	0.01	MCERTS	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
TPHCWG - Aliphatic >EC8 - EC10 _{HS_1D_AL}	mg/kg	0.01	MCERTS	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
TPHCWG - Aliphatic >EC10 - EC12 _{EH_CU_1D_AL}	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPHCWG - Aliphatic >EC12 - EC16 _{EH_CU_1D_AL}	mg/kg	2	MCERTS	< 2.0	4.3	3.2	< 2.0	< 2.0
TPHCWG - Aliphatic >EC16 - EC21 _{EH_CU_1D_AL}	mg/kg	8	MCERTS	< 8.0	12	< 8.0	< 8.0	< 8.0
TPHCWG - Aliphatic >EC21 - EC35 _{EH_CU_1D_AL}	mg/kg	8	MCERTS	< 8.0	58	33	< 8.0	< 8.0
TPHCWG - Aliphatic >EC5 - EC35 _{EH_CU+HS_1D_AL}	mg/kg	10	NONE	< 10	75	36	< 10	< 10

TPHCWG - Aromatic >EC5 - EC7 _{HS_1D_AR}	mg/kg	0.01	MCERTS	0.015	< 0.010	0.062	< 0.010	< 0.010
TPHCWG - Aromatic >EC7 - EC8 _{HS_1D_AR}	mg/kg	0.01	MCERTS	0.012	< 0.010	0.051	< 0.010	< 0.010
TPHCWG - Aromatic >EC8 - EC10 _{HS_1D_AR}	mg/kg	0.02	MCERTS	< 0.020	< 0.020	0.12	< 0.020	< 0.020
TPHCWG - Aromatic >EC10 - EC12 _{EH_CU_1D_AR}	mg/kg	1	MCERTS	< 1.0	1.2	8.4	5.4	2.3
TPHCWG - Aromatic >EC12 - EC16 _{EH_CU_1D_AR}	mg/kg	2	MCERTS	5.2	11	31	< 2.0	7.1
TPHCWG - Aromatic >EC16 - EC21 _{EH_CU_1D_AR}	mg/kg	10	MCERTS	37	110	210	26	57
TPHCWG - Aromatic >EC21 - EC35 _{EH_CU_1D_AR}	mg/kg	10	MCERTS	46	200	200	39	40
TPHCWG - Aromatic >EC5 - EC35 _{EH_CU+HS_1D_AR}	mg/kg	10	NONE	88	320	450	71	110

VOCs

Chloromethane	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Chloroethane	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Bromomethane	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Vinyl Chloride	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Trichlorofluoromethane	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,1-Dichloroethene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,1,2-Trichloro 1,2,2-Trifluoroethane	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Trans 1,2-dichloroethylene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,1-Dichloroethane	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
2,2-Dichloropropane	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Chloroform	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,1,1-Trichloroethane	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,2-Dichloroethane	µg/kg	7	MCERTS	< 7.0	< 7.0	< 7.0	< 7.0	< 7.0
1,1-Dichloropropene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Cis-1,2-dichloroethene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Benzene	µg/kg	5	MCERTS	14	< 5.0	61	< 5.0	< 5.0
Carbontetrachloride	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,2-Dichloropropane	µg/kg	6	MCERTS	< 6.0	< 6.0	< 6.0	< 6.0	< 6.0
Trichloroethene	µg/kg	10	MCERTS	< 10	< 10	< 10	< 10	< 10
Dibromomethane	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Bromodichloromethane	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Cis-1,3-dichloropropene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Trans-1,3-dichloropropene	µg/kg	10	MCERTS	< 10	< 10	< 10	< 10	< 10
Toluene	µg/kg	5	MCERTS	13	< 5.0	56	< 5.0	< 5.0
1,1,2-Trichloroethane	µg/kg	6	MCERTS	< 6.0	< 6.0	< 6.0	< 6.0	< 6.0
1,3-Dichloropropane	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Dibromochloromethane	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Tetrachloroethene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,2-Dibromoethane	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Chlorobenzene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,1,1,2-Tetrachloroethane	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0

Analytical Report Number: 24-047395
Project / Site name: Worthing

Lab Sample Number				346731	346732	346733	346734	346735
Sample Reference				E4	F4	D5	E5	BH02-N
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Date Sampled				11/10/2024	11/10/2024	11/10/2024	11/10/2024	11/10/2024
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Test Limit of detection	Test Accreditation Status					
Ethylbenzene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
p & m-Xylene	µg/kg	8	MCERTS	< 8.0	< 8.0	67	< 8.0	< 8.0
Styrene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Bromoform	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
o-Xylene	µg/kg	5	MCERTS	< 5.0	< 5.0	29	< 5.0	< 5.0
Isopropylbenzene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,1,2,2-Tetrachloroethane	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Bromobenzene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
n-Propylbenzene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
2-Chlorotoluene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
4-Chlorotoluene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,3,5-Trimethylbenzene	µg/kg	5	MCERTS	< 5.0	< 5.0	20	< 5.0	< 5.0
tert-Butylbenzene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,2,4-Trimethylbenzene	µg/kg	5	MCERTS	< 5.0	< 5.0	36	< 5.0	< 5.0
sec-Butylbenzene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,3-Dichlorobenzene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
p-Isopropyltoluene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,4-Dichlorobenzene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,2-Dichlorobenzene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Butylbenzene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,2-Dibromo-3-chloropropane	µg/kg	8	MCERTS	< 8.0	< 8.0	< 8.0	< 8.0	< 8.0
1,2,4-Trichlorobenzene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Hexachlorobutadiene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,2,3-Trichlorobenzene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0

U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected

Analytical Report Number: 24-047395
Project / Site name: Worthing

Lab Sample Number	346736	346737	346738	346739	346740
Sample Reference	BH02-E	BH02-S	BH02-W	BH02-B	E4-WT
Sample Number	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Date Sampled	11/10/2024	11/10/2024	11/10/2024	11/10/2024	11/10/2024
Time Taken	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Test Limit of detection	Test Accreditation Status		

Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Moisture Content	%	0.01	NONE	17	19	18	18	15
Total mass of sample received	kg	0.1	NONE	0.8	0.8	0.8	0.8	0.8

Asbestos

Asbestos in Soil Detected/Not Detected	Type	N/A	ISO 17025	Not-detected	Not-detected	Not-detected	Not-detected	Not-detected
Asbestos Analyst ID	N/A	N/A	N/A	MBI	MBI	MBI	MBI	MBI
Actinolite detected	Type	N/A	ISO 17025	-	-	-	-	-
Amosite detected	Type	N/A	ISO 17025	-	-	-	-	-
Anthophyllite detected	Type	N/A	ISO 17025	-	-	-	-	-
Chrysotile detected	Type	N/A	ISO 17025	-	-	-	-	-
Crocidolite detected	Type	N/A	ISO 17025	-	-	-	-	-
Tremolite detected	Type	N/A	ISO 17025	-	-	-	-	-

Asbestos % by hand picking/weighing	%	0.001	ISO 17025	-	-	-	-	-
-------------------------------------	---	-------	-----------	---	---	---	---	---

Asbestos Containing Material Types Detected (ACM)	Type	N/A	ISO 17025	-	-	-	-	-
---	------	-----	-----------	---	---	---	---	---

General Inorganics

Free Cyanide	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Ammoniacal Nitrogen as N	mg/kg	0.5	MCERTS	< 0.5	< 0.5	1.8	25	< 0.5

Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	16	1.2	2.5	6	0.21
Acenaphthylene	mg/kg	0.05	MCERTS	11	0.74	1.7	4.2	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	11	0.32	1.7	2.5	< 0.05
Fluorene	mg/kg	0.05	MCERTS	21	0.67	2.9	6.8	< 0.05
Phenanthrene	mg/kg	0.05	MCERTS	120	8.9	18	37	0.24
Anthracene	mg/kg	0.05	MCERTS	39	4	6.4	13	< 0.05
Fluoranthene	mg/kg	0.05	MCERTS	140	19	29	49	0.32
Pyrene	mg/kg	0.05	MCERTS	120	15	25	41	0.27
Benzo(a)anthracene	mg/kg	0.05	MCERTS	57	11	14	23	0.12
Chrysene	mg/kg	0.05	MCERTS	52	9.8	12	21	0.16
Benzo(b)fluoranthene	mg/kg	0.05	ISO 17025	58	12	14	25	0.15
Benzo(k)fluoranthene	mg/kg	0.05	ISO 17025	21	4.9	5.7	8.8	0.06
Benzo(a)pyrene	mg/kg	0.05	MCERTS	51	9.2	12	19	0.1
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	22	4.4	5.2	8.3	0.24
Dibenzo(a,h)anthracene	mg/kg	0.05	MCERTS	6.2	1	1.2	1.7	0.21
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	21	4	5.7	8.8	0.45

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	ISO 17025	768	105	156	276	2.53
-----------------------------	-------	-----	-----------	-----	-----	-----	-----	------

Analytical Report Number: 24-047395
Project / Site name: Worthing

Lab Sample Number	346736	346737	346738	346739	346740
Sample Reference	BH02-E	BH02-S	BH02-W	BH02-B	E4-WT
Sample Number	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Date Sampled	11/10/2024	11/10/2024	11/10/2024	11/10/2024	11/10/2024
Time Taken	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Test Limit of detection	Test Accreditation Status		

Petroleum Hydrocarbons

TPHCWG - Aliphatic >EC5 - EC6 _{HS_1D_AL}	mg/kg	0.01	MCERTS	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
TPHCWG - Aliphatic >EC6 - EC8 _{HS_1D_AL}	mg/kg	0.01	MCERTS	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
TPHCWG - Aliphatic >EC8 - EC10 _{HS_1D_AL}	mg/kg	0.01	MCERTS	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
TPHCWG - Aliphatic >EC10 - EC12 _{EH_CU_1D_AL}	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPHCWG - Aliphatic >EC12 - EC16 _{EH_CU_1D_AL}	mg/kg	2	MCERTS	5.4	< 2.0	< 2.0	3.3	< 2.0
TPHCWG - Aliphatic >EC16 - EC21 _{EH_CU_1D_AL}	mg/kg	8	MCERTS	< 8.0	< 8.0	< 8.0	< 8.0	< 8.0
TPHCWG - Aliphatic >EC21 - EC35 _{EH_CU_1D_AL}	mg/kg	8	MCERTS	9.9	< 8.0	< 8.0	< 8.0	< 8.0
TPHCWG - Aliphatic >EC5 - EC35 _{EH_CU+HS_1D_AL}	mg/kg	10	NONE	15	< 10	< 10	< 10	< 10

TPHCWG - Aromatic >EC5 - EC7 _{HS_1D_AR}	mg/kg	0.01	MCERTS	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
TPHCWG - Aromatic >EC7 - EC8 _{HS_1D_AR}	mg/kg	0.01	MCERTS	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
TPHCWG - Aromatic >EC8 - EC10 _{HS_1D_AR}	mg/kg	0.02	MCERTS	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020
TPHCWG - Aromatic >EC10 - EC12 _{EH_CU_1D_AR}	mg/kg	1	MCERTS	8.5	< 1.0	1.5	2.1	< 1.0
TPHCWG - Aromatic >EC12 - EC16 _{EH_CU_1D_AR}	mg/kg	2	MCERTS	77	5	10	22	< 2.0
TPHCWG - Aromatic >EC16 - EC21 _{EH_CU_1D_AR}	mg/kg	10	MCERTS	290	26	37	95	< 10
TPHCWG - Aromatic >EC21 - EC35 _{EH_CU_1D_AR}	mg/kg	10	MCERTS	200	37	41	89	< 10
TPHCWG - Aromatic >EC5 - EC35 _{EH_CU+HS_1D_AR}	mg/kg	10	NONE	570	68	90	210	< 10

VOCs

Chloromethane	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Chloroethane	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Bromomethane	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Vinyl Chloride	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Trichlorofluoromethane	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,1-Dichloroethene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,1,2-Trichloro 1,2,2-Trifluoroethane	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Trans 1,2-dichloroethylene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,1-Dichloroethane	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
2,2-Dichloropropane	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Chloroform	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,1,1-Trichloroethane	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,2-Dichloroethane	µg/kg	7	MCERTS	< 7.0	< 7.0	< 7.0	< 7.0	< 7.0
1,1-Dichloropropene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Cis-1,2-dichloroethene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Benzene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Carbontetrachloride	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,2-Dichloropropane	µg/kg	6	MCERTS	< 6.0	< 6.0	< 6.0	< 6.0	< 6.0
Trichloroethene	µg/kg	10	MCERTS	< 10	< 10	< 10	< 10	< 10
Dibromomethane	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Bromodichloromethane	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Cis-1,3-dichloropropene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Trans-1,3-dichloropropene	µg/kg	10	MCERTS	< 10	< 10	< 10	< 10	< 10
Toluene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,1,2-Trichloroethane	µg/kg	6	MCERTS	< 6.0	< 6.0	< 6.0	< 6.0	< 6.0
1,3-Dichloropropane	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Dibromochloromethane	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Tetrachloroethene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,2-Dibromoethane	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Chlorobenzene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,1,1,2-Tetrachloroethane	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0

Analytical Report Number: 24-047395
Project / Site name: Worthing

Lab Sample Number				346736	346737	346738	346739	346740
Sample Reference				BH02-E	BH02-S	BH02-W	BH02-B	E4-WT
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Date Sampled				11/10/2024	11/10/2024	11/10/2024	11/10/2024	11/10/2024
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Test Limit of detection	Test Accreditation Status					
Ethylbenzene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
p & m-Xylene	µg/kg	8	MCERTS	< 8.0	< 8.0	< 8.0	< 8.0	< 8.0
Styrene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Bromoform	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
o-Xylene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Isopropylbenzene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,1,2,2-Tetrachloroethane	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Bromobenzene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
n-Propylbenzene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
2-Chlorotoluene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
4-Chlorotoluene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,3,5-Trimethylbenzene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
tert-Butylbenzene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,2,4-Trimethylbenzene	µg/kg	5	MCERTS	90	< 5.0	< 5.0	< 5.0	< 5.0
sec-Butylbenzene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,3-Dichlorobenzene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
p-Isopropyltoluene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,4-Dichlorobenzene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,2-Dichlorobenzene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Butylbenzene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,2-Dibromo-3-chloropropane	µg/kg	8	MCERTS	< 8.0	< 8.0	< 8.0	< 8.0	< 8.0
1,2,4-Trichlorobenzene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Hexachlorobutadiene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
1,2,3-Trichlorobenzene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0

U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected

Analytical Report Number: 24-047395
Project / Site name: Worthing

Lab Sample Number	346743	346744	346745
Sample Reference	NB C1	NB E1	NB F1
Sample Number	None Supplied	None Supplied	None Supplied
Depth (m)	None Supplied	None Supplied	None Supplied
Date Sampled	11/10/2024	11/10/2024	11/10/2024
Time Taken	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Test Limit of detection	Test Accreditation Status

Stone Content	%	0.1	NONE	59.3	34.7	33.7
Moisture Content	%	0.01	NONE	10	16	18
Total mass of sample received	kg	0.1	NONE	0.8	0.8	0.8

Asbestos

Asbestos in Soil Detected/Not Detected	Type	N/A	ISO 17025	Detected	Not-detected	Not-detected
Asbestos Analyst ID	N/A	N/A	N/A	MBI	JSW	JSW
Actinolite detected	Type	N/A	ISO 17025	Not-detected	-	-
Amosite detected	Type	N/A	ISO 17025	Not-detected	-	-
Anthophyllite detected	Type	N/A	ISO 17025	Not-detected	-	-
Chrysotile detected	Type	N/A	ISO 17025	Detected	-	-
Crocidolite detected	Type	N/A	ISO 17025	Not-detected	-	-
Tremolite detected	Type	N/A	ISO 17025	Not-detected	-	-

Asbestos % by hand picking/weighing	%	0.001	ISO 17025	0.691	-	-
-------------------------------------	---	-------	-----------	-------	---	---

Asbestos Containing Material Types Detected (ACM)	Type	N/A	ISO 17025	Loose Fibrous Debris, Paper/Gasket/Tape	-	-
---	------	-----	-----------	---	---	---

General Inorganics

Free Cyanide	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0
Ammoniacal Nitrogen as N	mg/kg	0.5	MCERTS	< 0.5	< 0.5	< 0.5

Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	0.76	1.9	0.8
Acenaphthylene	mg/kg	0.05	MCERTS	0.37	0.67	0.18
Acenaphthene	mg/kg	0.05	MCERTS	0.21	0.23	0.2
Fluorene	mg/kg	0.05	MCERTS	0.24	0.34	0.24
Phenanthrene	mg/kg	0.05	MCERTS	2.9	3.8	2.8
Anthracene	mg/kg	0.05	MCERTS	0.77	1.6	0.77
Fluoranthene	mg/kg	0.05	MCERTS	7.9	7.8	4.8
Pyrene	mg/kg	0.05	MCERTS	7.1	7.1	4.2
Benzo(a)anthracene	mg/kg	0.05	MCERTS	3.7	4.9	2.3
Chrysene	mg/kg	0.05	MCERTS	4.1	5.7	2.3
Benzo(b)fluoranthene	mg/kg	0.05	ISO 17025	4.8	7.2	3
Benzo(k)fluoranthene	mg/kg	0.05	ISO 17025	2	3.5	1.1
Benzo(a)pyrene	mg/kg	0.05	MCERTS	4	6.1	2.2
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	2	4.8	1.6
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	0.4	0.81	0.28
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	2.5	5.2	1.9

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	ISO 17025	43.7	61.6	28.5
-----------------------------	-------	-----	-----------	------	------	------

Analytical Report Number: 24-047395
Project / Site name: Worthing

Lab Sample Number	346743	346744	346745
Sample Reference	NB C1	NB E1	NB F1
Sample Number	None Supplied	None Supplied	None Supplied
Depth (m)	None Supplied	None Supplied	None Supplied
Date Sampled	11/10/2024	11/10/2024	11/10/2024
Time Taken	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Test Limit of detection	Test Accreditation Status

Petroleum Hydrocarbons

TPHCWG - Aliphatic >EC5 - EC6 _{HS_1D_AL}	mg/kg	0.01	MCERTS	< 0.010	< 0.010	< 0.010
TPHCWG - Aliphatic >EC6 - EC8 _{HS_1D_AL}	mg/kg	0.01	MCERTS	< 0.010	< 0.010	< 0.010
TPHCWG - Aliphatic >EC8 - EC10 _{HS_1D_AL}	mg/kg	0.01	MCERTS	< 0.010	< 0.010	< 0.010
TPHCWG - Aliphatic >EC10 - EC12 _{EH_CU_1D_AL}	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0
TPHCWG - Aliphatic >EC12 - EC16 _{EH_CU_1D_AL}	mg/kg	2	MCERTS	4.8	9.2	6.8
TPHCWG - Aliphatic >EC16 - EC21 _{EH_CU_1D_AL}	mg/kg	8	MCERTS	23	48	11
TPHCWG - Aliphatic >EC21 - EC35 _{EH_CU_1D_AL}	mg/kg	8	MCERTS	89	300	54
TPHCWG - Aliphatic >EC5 - EC35 _{EH_CU+HS_1D_AL}	mg/kg	10	NONE	120	350	71

TPHCWG - Aromatic >EC5 - EC7 _{HS_1D_AR}	mg/kg	0.01	MCERTS	< 0.010	< 0.010	< 0.010
TPHCWG - Aromatic >EC7 - EC8 _{HS_1D_AR}	mg/kg	0.01	MCERTS	< 0.010	< 0.010	< 0.010
TPHCWG - Aromatic >EC8 - EC10 _{HS_1D_AR}	mg/kg	0.02	MCERTS	< 0.020	< 0.020	< 0.020
TPHCWG - Aromatic >EC10 - EC12 _{EH_CU_1D_AR}	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0
TPHCWG - Aromatic >EC12 - EC16 _{EH_CU_1D_AR}	mg/kg	2	MCERTS	2.3	2.7	5.8
TPHCWG - Aromatic >EC16 - EC21 _{EH_CU_1D_AR}	mg/kg	10	MCERTS	22	31	21
TPHCWG - Aromatic >EC21 - EC35 _{EH_CU_1D_AR}	mg/kg	10	MCERTS	84	230	47
TPHCWG - Aromatic >EC5 - EC35 _{EH_CU+HS_1D_AR}	mg/kg	10	NONE	110	270	74

VOCs

Chloromethane	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0
Chloroethane	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0
Bromomethane	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0
Vinyl Chloride	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0
Trichlorofluoromethane	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0
1,1-Dichloroethene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0
1,1,2-Trichloro 1,2,2-Trifluoroethane	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0
Trans 1,2-dichloroethylene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0
1,1-Dichloroethane	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0
2,2-Dichloropropane	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0
Chloroform	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0
1,1,1-Trichloroethane	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0
1,2-Dichloroethane	µg/kg	7	MCERTS	< 7.0	< 7.0	< 7.0
1,1-Dichloropropene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0
Cis-1,2-dichloroethene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0
Benzene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0
Carbontetrachloride	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0
1,2-Dichloropropane	µg/kg	6	MCERTS	< 6.0	< 6.0	< 6.0
Trichloroethene	µg/kg	10	MCERTS	< 10	< 10	< 10
Dibromomethane	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0
Bromodichloromethane	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0
Cis-1,3-dichloropropene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0
Trans-1,3-dichloropropene	µg/kg	10	MCERTS	< 10	< 10	< 10
Toluene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0
1,1,2-Trichloroethane	µg/kg	6	MCERTS	< 6.0	< 6.0	< 6.0
1,3-Dichloropropane	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0
Dibromochloromethane	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0
Tetrachloroethene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0
1,2-Dibromoethane	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0
Chlorobenzene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0
1,1,1,2-Tetrachloroethane	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0

Analytical Report Number: 24-047395
Project / Site name: Worthing

Lab Sample Number				346743	346744	346745
Sample Reference				NB C1	NB E1	NB F1
Sample Number				None Supplied	None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied	None Supplied
Date Sampled				11/10/2024	11/10/2024	11/10/2024
Time Taken				None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Test Limit of detection	Test Accreditation Status			
Ethylbenzene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0
p & m-Xylene	µg/kg	8	MCERTS	< 8.0	< 8.0	< 8.0
Styrene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0
Bromoform	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0
o-Xylene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0
Isopropylbenzene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0
1,1,2,2-Tetrachloroethane	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0
Bromobenzene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0
n-Propylbenzene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0
2-Chlorotoluene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0
4-Chlorotoluene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0
1,3,5-Trimethylbenzene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0
tert-Butylbenzene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0
1,2,4-Trimethylbenzene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0
sec-Butylbenzene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0
1,3-Dichlorobenzene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0
p-Isopropyltoluene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0
1,4-Dichlorobenzene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0
1,2-Dichlorobenzene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0
Butylbenzene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0
1,2-Dibromo-3-chloropropane	µg/kg	8	MCERTS	< 8.0	< 8.0	< 8.0
1,2,4-Trichlorobenzene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0
Hexachlorobutadiene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0
1,2,3-Trichlorobenzene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0

U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected



Analytical Report Number: 24-047395
Project / Site name: Worthing
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
346733	D5		153	Loose Fibres	Chrysotile	0.001	0.001
346743	NB C1		122	Loose Fibrous Debris, Paper/Gasket/Tape	Chrysotile	0.691	0.691

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

Analytical Report Number : 24-047395

Project / Site name: Worthing

* 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 *
346731	E4	None Supplied	None Supplied	Brown clay and sand with gravel
346732	F4	None Supplied	None Supplied	Brown clay and sand with gravel
346733	D5	None Supplied	None Supplied	Brown clay and sand with gravel
346734	E5	None Supplied	None Supplied	Brown clay and sand with gravel
346735	BH02-N	None Supplied	None Supplied	Brown clay and sand with gravel
346736	BH02-E	None Supplied	None Supplied	Brown clay and sand with gravel
346737	BH02-S	None Supplied	None Supplied	Brown clay and sand with gravel
346738	BH02-W	None Supplied	None Supplied	Brown clay and sand with gravel
346739	BH02-B	None Supplied	None Supplied	Brown clay and sand with gravel
346740	E4-WT	None Supplied	None Supplied	Brown clay and sand with gravel
346743	NB C1	None Supplied	None Supplied	Brown sand with vegetation and stones
346744	NB E1	None Supplied	None Supplied	Brown sand with vegetation and stones
346745	NB F1	None Supplied	None Supplied	Brown sand with vegetation and stones

Analytical Report Number : 24-047395
Project / Site name: Worthing

Water matrix abbreviations:

Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

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 dispersion staining techniques	In-house method based on HSG 248, 2021	A001B	D	ISO 17025
Asbestos Quantification - Gravimetric	Asbestos quantification by gravimetric method - in house method based on references	HSE Report No: 83/1996, HSG 248 (2021), HSG 264 (2012) & SCA Blue Book (draft)	A006B	D	ISO 17025
Moisture Content	Moisture content, determined gravimetrically (up to 30°C)	In-house method	L019B	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.	L019B	D	NONE
Speciated PAHs and/or Semi-volatile organic compounds in soil	Determination of semi-volatile organic compounds (including PAH) in soil by extraction in dichloromethane and hexane followed by GC-MS	In-house method based on USEPA 8270	L064B	D	MCERTS
BTEX and/or Volatile organic compounds in soil	Determination of volatile organic compounds in soil by headspace GC-MS	In-house method based on USEPA 8260	L073B	W	MCERTS
Total petroleum hydrocarbons with carbon banding by GC-FID/GC-MS HS in soil	Determination of total petroleum hydrocarbons in soil by GC-FID/GC-MS HS with carbon banding aliphatic and aromatic	In-house method	L076B/L088-PL	D/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	L080-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	L082B	W	MCERTS

For method numbers ending in 'UK' or 'A' analysis have been carried out in our laboratory in the United Kingdom (Watford).

For method numbers ending in 'F' analysis have been carried out in our laboratory in the United Kingdom (East Kilbride).

For method numbers ending in 'PL' or 'B' 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.

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.

Analytical Report Number : 24-047395
Project / Site name: Worthing

Water matrix abbreviations:

Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
----------------------	-------------------------------	-----------------------------	---------------	--------------------	----------------------

Information in Support of Analytical Results

List of HWOL Acronyms and Operators

Acronym	Descriptions
HS	Headspace Analysis
MS	Mass spectrometry
FID	Flame Ionisation Detector
GC	Gas Chromatography
EH	Extractable Hydrocarbons (i.e. everything extracted by the solvent(s))
CU	Clean-up - e.g. by Florisil®, silica gel
1D	GC - Single coil/column gas chromatography
2D	GC-GC - Double coil/column gas chromatography
Total	Aliphatics & Aromatics
AL	Aliphatics
AR	Aromatics
#1	EH_2D_Total but with humics mathematically subtracted
#2	EH_2D_Total but with fatty acids mathematically subtracted
-	Operator - underscore to separate acronyms (exception for +)
+	Operator to indicate cumulative e.g. EH+HS_Total or EH_CU+HS_Total

Quality control parameter failure associated with individual result applies to calculated sum of individuals.
The result for sum should be interpreted with caution

Toureen Contractors Limited
25 Cecil Road
Harrow
Middlesex
HA3 5QY

t: 0208 424 7999

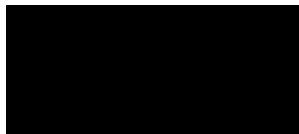
e: Mark.hosking@toureen.co.uk
david.skinner@toureen.co.uk
rick.willemse@toureen.co.uk

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 : 24-047813

Project / Site name:	Worthing	Samples received on:	15/10/2024
Your job number:	TCL1437	Samples instructed on/ Analysis started on:	15/10/2024
Your order number:	TCL1437	Analysis completed by:	25/10/2024
Report Issue Number:	1	Report issued on:	25/10/2024
Samples Analysed:	10 soil samples		


Signed:

Dominika Liana
Junior Reporting 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: 24-047813
Project / Site name: Worthing
Your Order No: TCL1437

Lab Sample Number	348865	348866	348867	348868
Sample Reference	A3 W	WS14-S	F5	F5 CP Chalk
Sample Number	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)	None Supplied	None Supplied	None Supplied	None Supplied
Date Sampled	15/10/2024	15/10/2024	15/10/2024	15/10/2024
Time Taken	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Test Limit of detection	Test Accreditation Status	

Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1
Moisture Content	%	0.01	NONE	19	19	13	19
Total mass of sample received	kg	0.1	NONE	0.8	0.8	0.8	0.8

Asbestos

Asbestos in Soil Detected/Not Detected	Type	N/A	ISO 17025	Not-detected	Not-detected	Not-detected	Not-detected
Asbestos Analyst ID	N/A	N/A	N/A	EWS	EWS	EWS	EWS

General Inorganics

Free Cyanide	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0
Ammoniacal Nitrogen as N	mg/kg	0.5	MCERTS	< 0.5	12	0.7	< 0.5

Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	0.1	0.22	1.9	0.15
Acenaphthylene	mg/kg	0.05	MCERTS	0.1	< 0.05	4.2	0.28
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	1.1	0.11
Fluorene	mg/kg	0.05	MCERTS	0.07	< 0.05	4.4	0.33
Phenanthrene	mg/kg	0.05	MCERTS	1	0.21	48	3.5
Anthracene	mg/kg	0.05	MCERTS	0.14	< 0.05	13	0.86
Fluoranthene	mg/kg	0.05	MCERTS	1.4	0.33	68	4.6
Pyrene	mg/kg	0.05	MCERTS	1.2	0.32	57	3.6
Benzo(a)anthracene	mg/kg	0.05	MCERTS	0.64	0.25	26	2
Chrysene	mg/kg	0.05	MCERTS	0.51	0.17	25	1.8
Benzo(b)fluoranthene	mg/kg	0.05	ISO 17025	0.63	0.25	34	2.3
Benzo(k)fluoranthene	mg/kg	0.05	ISO 17025	0.31	0.1	11	0.86
Benzo(a)pyrene	mg/kg	0.05	MCERTS	0.52	0.2	27	1.7
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	0.31	0.13	13	0.94
Dibenzo(a,h)anthracene	mg/kg	0.05	MCERTS	0.08	< 0.05	2.7	0.26
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	0.32	0.12	14	1

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	ISO 17025	7.36	2.3	349	24.3
-----------------------------	-------	-----	-----------	------	-----	-----	------

Petroleum Hydrocarbons

TPHCWG - Aliphatic >EC5 - EC6 HS_1D_AL	mg/kg	0.01	MCERTS	< 0.010	< 0.010	< 0.010	< 0.010
TPHCWG - Aliphatic >EC6 - EC8 HS_1D_AL	mg/kg	0.01	MCERTS	< 0.010	< 0.010	< 0.010	< 0.010
TPHCWG - Aliphatic >EC8 - EC10 HS_1D_AL	mg/kg	0.01	MCERTS	< 0.010	< 0.010	< 0.010	< 0.010
TPHCWG - Aliphatic >EC10 - EC12 EH_CU_1D_AL	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0
TPHCWG - Aliphatic >EC12 - EC16 EH_CU_1D_AL	mg/kg	2	MCERTS	< 2.0	< 2.0	3.7	< 2.0
TPHCWG - Aliphatic >EC16 - EC21 EH_CU_1D_AL	mg/kg	8	MCERTS	< 8.0	< 8.0	< 8.0	< 8.0
TPHCWG - Aliphatic >EC21 - EC35 EH_CU_1D_AL	mg/kg	8	MCERTS	< 8.0	< 8.0	20	< 8.0
TPHCWG - Aliphatic >EC5 - EC35 EH_CU+HS_1D_AL	mg/kg	10	NONE	< 10	< 10	24	< 10

TPHCWG - Aromatic >EC5 - EC7 HS_1D_AR	mg/kg	0.01	MCERTS	< 0.010	< 0.010	< 0.010	< 0.010
TPHCWG - Aromatic >EC7 - EC8 HS_1D_AR	mg/kg	0.01	MCERTS	< 0.010	< 0.010	< 0.010	< 0.010
TPHCWG - Aromatic >EC8 - EC10 HS_1D_AR	mg/kg	0.02	MCERTS	< 0.020	< 0.020	< 0.020	< 0.020
TPHCWG - Aromatic >EC10 - EC12 EH_CU_1D_AR	mg/kg	1	MCERTS	< 1.0	< 1.0	1.3	< 1.0
TPHCWG - Aromatic >EC12 - EC16 EH_CU_1D_AR	mg/kg	2	MCERTS	< 2.0	< 2.0	27	2.2
TPHCWG - Aromatic >EC16 - EC21 EH_CU_1D_AR	mg/kg	10	MCERTS	< 10	< 10	160	< 10
TPHCWG - Aromatic >EC21 - EC35 EH_CU_1D_AR	mg/kg	10	MCERTS	< 10	< 10	160	12
TPHCWG - Aromatic >EC5 - EC35 EH_CU+HS_1D_AR	mg/kg	10	NONE	< 10	< 10	360	14

Analytical Report Number: 24-047813
 Project / Site name: Worthing
 Your Order No: TCL1437

Lab Sample Number				348865	348866	348867	348868
Sample Reference				A3 W	WS14-S	F5	F5 CP Chalk
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied	None Supplied	None Supplied
Date Sampled				15/10/2024	15/10/2024	15/10/2024	15/10/2024
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)				Units	Test Limit of detection	Test Accreditation Status	

VOCs

Chloromethane	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0
Chloroethane	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0
Bromomethane	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0
Vinyl Chloride	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0	< 5.0
Trichlorofluoromethane	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0
1,1-Dichloroethene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0
1,1,2-Trichloro 1,2,2-Trifluoroethane	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0
Trans 1,2-dichloroethylene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0
1,1-Dichloroethane	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0
2,2-Dichloropropane	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0	< 5.0
Chloroform	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0
1,1,1-Trichloroethane	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0
1,2-Dichloroethane	µg/kg	7	MCERTS	< 7.0	< 7.0	< 7.0	< 7.0
1,1-Dichloropropene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0
Cis-1,2-dichloroethene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0
Benzene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0
Carbontetrachloride	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0
1,2-Dichloropropane	µg/kg	6	MCERTS	< 6.0	< 6.0	< 6.0	< 6.0
Trichloroethene	µg/kg	10	MCERTS	< 10	< 10	< 10	< 10
Dibromomethane	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0
Bromodichloromethane	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0
Cis-1,3-dichloropropene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0
Trans-1,3-dichloropropene	µg/kg	10	MCERTS	< 10	< 10	< 10	< 10
Toluene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0
1,1,2-Trichloroethane	µg/kg	6	MCERTS	< 6.0	< 6.0	< 6.0	< 6.0
1,3-Dichloropropane	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0
Dibromochloromethane	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0
Tetrachloroethene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0
1,2-Dibromoethane	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0
Chlorobenzene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0
1,1,1,2-Tetrachloroethane	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0
Ethylbenzene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0
p & m-Xylene	µg/kg	8	MCERTS	< 8.0	< 8.0	< 8.0	< 8.0
Styrene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0
Bromoform	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0
o-Xylene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0
Isopropylbenzene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0
1,1,2,2-Tetrachloroethane	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0	< 5.0
Bromobenzene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0
n-Propylbenzene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0
2-Chlorotoluene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0
4-Chlorotoluene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0
1,3,5-Trimethylbenzene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0
tert-Butylbenzene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0
1,2,4-Trimethylbenzene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0
sec-Butylbenzene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0
1,3-Dichlorobenzene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0
p-Isopropyltoluene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0
1,4-Dichlorobenzene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0

Analytical Report Number: 24-047813
 Project / Site name: Worthing
 Your Order No: TCL1437

Lab Sample Number				348865	348866	348867	348868
Sample Reference				A3 W	WS14-S	F5	F5 CP Chalk
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied	None Supplied	None Supplied
Date Sampled				15/10/2024	15/10/2024	15/10/2024	15/10/2024
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Test Limit of detection	Test Accreditation Status				
1,2-Dichlorobenzene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0
Butylbenzene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0
1,2-Dibromo-3-chloropropane	µg/kg	8	MCERTS	< 8.0	< 8.0	< 8.0	< 8.0
1,2,4-Trichlorobenzene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0
Hexachlorobutadiene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0
1,2,3-Trichlorobenzene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0

U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected

Analytical Report Number: 24-047813
Project / Site name: Worthing
Your Order No: TCL1437

Lab Sample Number				348869	348870	348871	348872
Sample Reference				E5 CP Chalk	G3	G4	E2 ST
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied	None Supplied	None Supplied
Date Sampled				15/10/2024	15/10/2024	15/10/2024	15/10/2024
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)				Units	Test Limit of detection	Test Accreditation Status	

Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1
Moisture Content	%	0.01	NONE	20	17	16	15
Total mass of sample received	kg	0.1	NONE	0.8	0.8	0.8	0.8

Asbestos

Asbestos in Soil Detected/Not Detected	Type	N/A	ISO 17025	Not-detected	Not-detected	Not-detected	Not-detected
Asbestos Analyst ID	N/A	N/A	N/A	EWS	EWS	EWS	EWS

General Inorganics

Free Cyanide	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0
Ammoniacal Nitrogen as N	mg/kg	0.5	MCERTS	< 0.5	0.6	< 0.5	0.8

Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	0.17	1.7	0.17	2.5
Acenaphthylene	mg/kg	0.05	MCERTS	0.07	0.71	0.13	4.9
Acenaphthene	mg/kg	0.05	MCERTS	0.14	0.85	0.2	1
Fluorene	mg/kg	0.05	MCERTS	0.42	1.5	0.13	5.1
Phenanthrene	mg/kg	0.05	MCERTS	1.1	11	2	49
Anthracene	mg/kg	0.05	MCERTS	0.79	3.4	0.62	17
Fluoranthene	mg/kg	0.05	MCERTS	2.7	17	4.8	70
Pyrene	mg/kg	0.05	MCERTS	2.4	16	4.4	60
Benzo(a)anthracene	mg/kg	0.05	MCERTS	1.4	7.1	2.6	< 0.05
Chrysene	mg/kg	0.05	MCERTS	1.4	6.5	2.7	34
Benzo(b)fluoranthene	mg/kg	0.05	ISO 17025	1.6	7.3	3.4	39
Benzo(k)fluoranthene	mg/kg	0.05	ISO 17025	0.91	3.4	1.8	21
Benzo(a)pyrene	mg/kg	0.05	MCERTS	1.7	7.1	4.2	37
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	0.93	3.2	1.8	18
Dibenzo(a,h)anthracene	mg/kg	0.05	MCERTS	0.22	0.82	< 0.05	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	1.1	3.4	1.8	17

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	ISO 17025	17	91.1	30.7	375
-----------------------------	-------	-----	-----------	----	------	------	-----

Petroleum Hydrocarbons

TPHCWG - Aliphatic >EC5 - EC6 HS_1D_AL	mg/kg	0.01	MCERTS	< 0.010	< 0.010	< 0.010	< 0.010
TPHCWG - Aliphatic >EC6 - EC8 HS_1D_AL	mg/kg	0.01	MCERTS	< 0.010	< 0.010	< 0.010	< 0.010
TPHCWG - Aliphatic >EC8 - EC10 HS_1D_AL	mg/kg	0.01	MCERTS	< 0.010	< 0.010	< 0.010	< 0.010
TPHCWG - Aliphatic >EC10 - EC12 EH_CU_1D_AL	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0
TPHCWG - Aliphatic >EC12 - EC16 EH_CU_1D_AL	mg/kg	2	MCERTS	< 2.0	< 2.0	< 2.0	5.3
TPHCWG - Aliphatic >EC16 - EC21 EH_CU_1D_AL	mg/kg	8	MCERTS	< 8.0	< 8.0	< 8.0	< 8.0
TPHCWG - Aliphatic >EC21 - EC35 EH_CU_1D_AL	mg/kg	8	MCERTS	< 8.0	< 8.0	< 8.0	18
TPHCWG - Aliphatic >EC5 - EC35 EH_CU+HS_1D_AL	mg/kg	10	NONE	< 10	< 10	< 10	24

TPHCWG - Aromatic >EC5 - EC7 HS_1D_AR	mg/kg	0.01	MCERTS	< 0.010	< 0.010	< 0.010	< 0.010
TPHCWG - Aromatic >EC7 - EC8 HS_1D_AR	mg/kg	0.01	MCERTS	< 0.010	< 0.010	< 0.010	< 0.010
TPHCWG - Aromatic >EC8 - EC10 HS_1D_AR	mg/kg	0.02	MCERTS	< 0.020	< 0.020	< 0.020	< 0.020
TPHCWG - Aromatic >EC10 - EC12 EH_CU_1D_AR	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0
TPHCWG - Aromatic >EC12 - EC16 EH_CU_1D_AR	mg/kg	2	MCERTS	< 2.0	8.2	< 2.0	13
TPHCWG - Aromatic >EC16 - EC21 EH_CU_1D_AR	mg/kg	10	MCERTS	< 10	30	11	120
TPHCWG - Aromatic >EC21 - EC35 EH_CU_1D_AR	mg/kg	10	MCERTS	12	35	11	150
TPHCWG - Aromatic >EC5 - EC35 EH_CU+HS_1D_AR	mg/kg	10	NONE	12	73	23	290

Analytical Report Number: 24-047813
Project / Site name: Worthing
Your Order No: TCL1437

Lab Sample Number				348869	348870	348871	348872
Sample Reference				E5 CP Chalk	G3	G4	E2 ST
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied	None Supplied	None Supplied
Date Sampled				15/10/2024	15/10/2024	15/10/2024	15/10/2024
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)				Units	Test Limit of detection	Test Accreditation Status	

VOCs

Chloromethane	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0
Chloroethane	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0
Bromomethane	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0
Vinyl Chloride	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0	< 5.0
Trichlorofluoromethane	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0
1,1-Dichloroethene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0
1,1,2-Trichloro 1,2,2-Trifluoroethane	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0
Trans 1,2-dichloroethylene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0
1,1-Dichloroethane	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0
2,2-Dichloropropane	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0	< 5.0
Chloroform	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0
1,1,1-Trichloroethane	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0
1,2-Dichloroethane	µg/kg	7	MCERTS	< 7.0	< 7.0	< 7.0	< 7.0
1,1-Dichloropropene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0
Cis-1,2-dichloroethene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0
Benzene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0
Carbontetrachloride	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0
1,2-Dichloropropane	µg/kg	6	MCERTS	< 6.0	< 6.0	< 6.0	< 6.0
Trichloroethene	µg/kg	10	MCERTS	< 10	< 10	< 10	< 10
Dibromomethane	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0
Bromodichloromethane	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0
Cis-1,3-dichloropropene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0
Trans-1,3-dichloropropene	µg/kg	10	MCERTS	< 10	< 10	< 10	< 10
Toluene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0
1,1,2-Trichloroethane	µg/kg	6	MCERTS	< 6.0	< 6.0	< 6.0	< 6.0
1,3-Dichloropropane	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0
Dibromochloromethane	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0
Tetrachloroethene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0
1,2-Dibromoethane	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0
Chlorobenzene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0
1,1,1,2-Tetrachloroethane	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0
Ethylbenzene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0
p & m-Xylene	µg/kg	8	MCERTS	< 8.0	< 8.0	< 8.0	< 8.0
Styrene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0
Bromoform	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0
o-Xylene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0
Isopropylbenzene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0
1,1,2,2-Tetrachloroethane	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0	< 5.0
Bromobenzene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0
n-Propylbenzene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0
2-Chlorotoluene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0
4-Chlorotoluene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0
1,3,5-Trimethylbenzene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0
tert-Butylbenzene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0
1,2,4-Trimethylbenzene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0
sec-Butylbenzene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0
1,3-Dichlorobenzene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0
p-Isopropyltoluene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0
1,4-Dichlorobenzene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0

Analytical Report Number: 24-047813
 Project / Site name: Worthing
 Your Order No: TCL1437

Lab Sample Number				348869	348870	348871	348872
Sample Reference				E5 CP Chalk	G3	G4	E2 ST
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied	None Supplied	None Supplied
Date Sampled				15/10/2024	15/10/2024	15/10/2024	15/10/2024
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Test Limit of detection	Test Accreditation Status				
1,2-Dichlorobenzene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0
Butylbenzene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0
1,2-Dibromo-3-chloropropane	µg/kg	8	MCERTS	< 8.0	< 8.0	< 8.0	< 8.0
1,2,4-Trichlorobenzene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0
Hexachlorobutadiene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0
1,2,3-Trichlorobenzene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0

U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected

Analytical Report Number: 24-047813
Project / Site name: Worthing
Your Order No: TCL1437

Lab Sample Number	348873	348874
Sample Reference	E3 ST	E4 ST
Sample Number	None Supplied	None Supplied
Depth (m)	None Supplied	None Supplied
Date Sampled	15/10/2024	15/10/2024
Time Taken	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Test Limit of detection
		Test Accreditation Status

Stone Content	%	0.1	NONE	< 0.1	4.6
Moisture Content	%	0.01	NONE	16	18
Total mass of sample received	kg	0.1	NONE	0.8	0.8

Asbestos

Asbestos in Soil Detected/Not Detected	Type	N/A	ISO 17025	Not-detected	Not-detected
Asbestos Analyst ID	N/A	N/A	N/A	EWS	EWS

General Inorganics

Free Cyanide	mg/kg	1	MCERTS	< 1.0	< 1.0
Ammoniacal Nitrogen as N	mg/kg	0.5	MCERTS	2.5	2.2

Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	2.4	5.5
Acenaphthylene	mg/kg	0.05	MCERTS	0.81	1.8
Acenaphthene	mg/kg	0.05	MCERTS	0.95	2
Fluorene	mg/kg	0.05	MCERTS	1.6	3.6
Phenanthrene	mg/kg	0.05	MCERTS	11	24
Anthracene	mg/kg	0.05	MCERTS	3.8	7.9
Fluoranthene	mg/kg	0.05	MCERTS	18	42
Pyrene	mg/kg	0.05	MCERTS	18	37
Benzo(a)anthracene	mg/kg	0.05	MCERTS	7.8	13
Chrysene	mg/kg	0.05	MCERTS	7.1	11
Benzo(b)fluoranthene	mg/kg	0.05	ISO 17025	9.1	14
Benzo(k)fluoranthene	mg/kg	0.05	ISO 17025	3.6	5.2
Benzo(a)pyrene	mg/kg	0.05	MCERTS	8.7	12
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	3.9	5.6
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	0.97	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	4.1	5.8

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	ISO 17025	102	190
-----------------------------	-------	-----	-----------	-----	-----

Petroleum Hydrocarbons

TPHCWG - Aliphatic >EC5 - EC6 HS_1D_AL	mg/kg	0.01	MCERTS	< 0.010	< 0.010
TPHCWG - Aliphatic >EC6 - EC8 HS_1D_AL	mg/kg	0.01	MCERTS	< 0.010	< 0.010
TPHCWG - Aliphatic >EC8 - EC10 HS_1D_AL	mg/kg	0.01	MCERTS	< 0.010	< 0.010
TPHCWG - Aliphatic >EC10 - EC12 EH_CU_1D_AL	mg/kg	1	MCERTS	< 1.0	< 1.0
TPHCWG - Aliphatic >EC12 - EC16 EH_CU_1D_AL	mg/kg	2	MCERTS	< 2.0	< 2.0
TPHCWG - Aliphatic >EC16 - EC21 EH_CU_1D_AL	mg/kg	8	MCERTS	< 8.0	< 8.0
TPHCWG - Aliphatic >EC21 - EC35 EH_CU_1D_AL	mg/kg	8	MCERTS	< 8.0	13
TPHCWG - Aliphatic >EC5 - EC35 EH_CU+HS_1D_AL	mg/kg	10	NONE	< 10	13

TPHCWG - Aromatic >EC5 - EC7 HS_1D_AR	mg/kg	0.01	MCERTS	< 0.010	< 0.010
TPHCWG - Aromatic >EC7 - EC8 HS_1D_AR	mg/kg	0.01	MCERTS	< 0.010	< 0.010
TPHCWG - Aromatic >EC8 - EC10 HS_1D_AR	mg/kg	0.02	MCERTS	< 0.020	< 0.020
TPHCWG - Aromatic >EC10 - EC12 EH_CU_1D_AR	mg/kg	1	MCERTS	1.6	1.9
TPHCWG - Aromatic >EC12 - EC16 EH_CU_1D_AR	mg/kg	2	MCERTS	7.6	13
TPHCWG - Aromatic >EC16 - EC21 EH_CU_1D_AR	mg/kg	10	MCERTS	31	59
TPHCWG - Aromatic >EC21 - EC35 EH_CU_1D_AR	mg/kg	10	MCERTS	34	54
TPHCWG - Aromatic >EC5 - EC35 EH_CU+HS_1D_AR	mg/kg	10	NONE	75	130

Analytical Report Number: 24-047813
Project / Site name: Worthing
Your Order No: TCL1437

Lab Sample Number				348873	348874
Sample Reference				E3 ST	E4 ST
Sample Number				None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied
Date Sampled				15/10/2024	15/10/2024
Time Taken				None Supplied	None Supplied
Analytical Parameter (Soil Analysis)				Units	Test Limit of detection
				Test Accreditation Status	

VOCs

Chloromethane	µg/kg	5	MCERTS	< 5.0	< 5.0
Chloroethane	µg/kg	5	MCERTS	< 5.0	< 5.0
Bromomethane	µg/kg	5	MCERTS	< 5.0	< 5.0
Vinyl Chloride	µg/kg	5	NONE	< 5.0	< 5.0
Trichlorofluoromethane	µg/kg	5	MCERTS	< 5.0	< 5.0
1,1-Dichloroethene	µg/kg	5	MCERTS	< 5.0	< 5.0
1,1,2-Trichloro 1,2,2-Trifluoroethane	µg/kg	5	MCERTS	< 5.0	< 5.0
Trans 1,2-dichloroethylene	µg/kg	5	MCERTS	< 5.0	< 5.0
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	5	MCERTS	< 5.0	< 5.0
1,1-Dichloroethane	µg/kg	5	MCERTS	< 5.0	< 5.0
2,2-Dichloropropane	µg/kg	5	NONE	< 5.0	< 5.0
Chloroform	µg/kg	5	MCERTS	< 5.0	< 5.0
1,1,1-Trichloroethane	µg/kg	5	MCERTS	< 5.0	< 5.0
1,2-Dichloroethane	µg/kg	7	MCERTS	< 7.0	< 7.0
1,1-Dichloropropene	µg/kg	5	MCERTS	< 5.0	< 5.0
Cis-1,2-dichloroethene	µg/kg	5	MCERTS	< 5.0	< 5.0
Benzene	µg/kg	5	MCERTS	< 5.0	< 5.0
Carbontetrachloride	µg/kg	5	MCERTS	< 5.0	< 5.0
1,2-Dichloropropane	µg/kg	6	MCERTS	< 6.0	< 6.0
Trichloroethene	µg/kg	10	MCERTS	< 10	< 10
Dibromomethane	µg/kg	5	MCERTS	< 5.0	< 5.0
Bromodichloromethane	µg/kg	5	MCERTS	< 5.0	< 5.0
Cis-1,3-dichloropropene	µg/kg	5	MCERTS	< 5.0	< 5.0
Trans-1,3-dichloropropene	µg/kg	10	MCERTS	< 10	< 10
Toluene	µg/kg	5	MCERTS	< 5.0	< 5.0
1,1,2-Trichloroethane	µg/kg	6	MCERTS	< 6.0	< 6.0
1,3-Dichloropropane	µg/kg	5	MCERTS	< 5.0	< 5.0
Dibromochloromethane	µg/kg	5	MCERTS	< 5.0	< 5.0
Tetrachloroethene	µg/kg	5	MCERTS	< 5.0	< 5.0
1,2-Dibromoethane	µg/kg	5	MCERTS	< 5.0	< 5.0
Chlorobenzene	µg/kg	5	MCERTS	< 5.0	< 5.0
1,1,1,2-Tetrachloroethane	µg/kg	5	MCERTS	< 5.0	< 5.0
Ethylbenzene	µg/kg	5	MCERTS	< 5.0	< 5.0
p & m-Xylene	µg/kg	8	MCERTS	< 8.0	< 8.0
Styrene	µg/kg	5	MCERTS	< 5.0	< 5.0
Bromoform	µg/kg	5	MCERTS	< 5.0	< 5.0
o-Xylene	µg/kg	5	MCERTS	< 5.0	< 5.0
Isopropylbenzene	µg/kg	5	MCERTS	< 5.0	< 5.0
1,1,2,2-Tetrachloroethane	µg/kg	5	NONE	< 5.0	< 5.0
Bromobenzene	µg/kg	5	MCERTS	< 5.0	< 5.0
n-Propylbenzene	µg/kg	5	MCERTS	< 5.0	< 5.0
2-Chlorotoluene	µg/kg	5	MCERTS	< 5.0	< 5.0
4-Chlorotoluene	µg/kg	5	MCERTS	< 5.0	< 5.0
1,3,5-Trimethylbenzene	µg/kg	5	MCERTS	< 5.0	< 5.0
tert-Butylbenzene	µg/kg	5	MCERTS	< 5.0	< 5.0
1,2,4-Trimethylbenzene	µg/kg	5	MCERTS	< 5.0	< 5.0
sec-Butylbenzene	µg/kg	5	MCERTS	< 5.0	< 5.0
1,3-Dichlorobenzene	µg/kg	5	MCERTS	< 5.0	< 5.0
p-Isopropyltoluene	µg/kg	5	MCERTS	< 5.0	< 5.0
1,4-Dichlorobenzene	µg/kg	5	MCERTS	< 5.0	< 5.0

Analytical Report Number: 24-047813
 Project / Site name: Worthing
 Your Order No: TCL1437

Lab Sample Number				348873	348874
Sample Reference				E3 ST	E4 ST
Sample Number				None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied
Date Sampled				15/10/2024	15/10/2024
Time Taken				None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Test Limit of detection	Test Accreditation Status		
1,2-Dichlorobenzene	µg/kg	5	MCERTS	< 5.0	< 5.0
Butylbenzene	µg/kg	5	MCERTS	< 5.0	< 5.0
1,2-Dibromo-3-chloropropane	µg/kg	8	MCERTS	< 8.0	< 8.0
1,2,4-Trichlorobenzene	µg/kg	5	MCERTS	< 5.0	< 5.0
Hexachlorobutadiene	µg/kg	5	MCERTS	< 5.0	< 5.0
1,2,3-Trichlorobenzene	µg/kg	5	MCERTS	< 5.0	< 5.0

U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected

Analytical Report Number : 24-047813

Project / Site name: Worthing

* 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 *
348865	A3 W	None Supplied	None Supplied	Brown clay and sand
348866	WS14-S	None Supplied	None Supplied	Brown clay
348867	F5	None Supplied	None Supplied	Brown clay with gravel
348868	F5 CP Chalk	None Supplied	None Supplied	Beige chalk ^{*9}
348869	E5 CP Chalk	None Supplied	None Supplied	Beige chalk with gravel ^{*9}
348870	G3	None Supplied	None Supplied	Brown clay with gravel
348871	G4	None Supplied	None Supplied	Brown clay with gravel
348872	E2 ST	None Supplied	None Supplied	Brown loam and clay with gravel
348873	E3 ST	None Supplied	None Supplied	Brown loam and clay with gravel
348874	E4 ST	None Supplied	None Supplied	Brown loam and clay with stones

Analytical Report Number : 24-047813
Project / Site name: Worthing

Water matrix abbreviations:

Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

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 dispersion staining techniques	In-house method based on HSG 248, 2021	A001B	D	ISO 17025
Moisture Content	Moisture content, determined gravimetrically (up to 30°C)	In-house method	L019B	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.	L019B	D	NONE
Speciated PAHs and/or Semi-volatile organic compounds in soil	Determination of semi-volatile organic compounds (including PAH) in soil by extraction in dichloromethane and hexane followed by GC-MS	In-house method based on USEPA 8270	L064B	D	MCERTS
BTEX and/or Volatile organic compounds in soil	Determination of volatile organic compounds in soil by headspace GC-MS	In-house method based on USEPA 8260	L073B	W	MCERTS
Total petroleum hydrocarbons with carbon banding by GC-FID/GC-MS HS in soil	Determination of total petroleum hydrocarbons in soil by GC-FID/GC-MS HS with carbon banding aliphatic and aromatic	In-house method	L076B/L088-PL	D/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	L080-PL	W	MCERTS

Analytical Report Number : 24-047813
Project / Site name: Worthing

Water matrix abbreviations:

Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

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	L082B	W	MCERTS

For method numbers ending in 'UK' or 'A' analysis have been carried out in our laboratory in the United Kingdom (Watford).

For method numbers ending in 'F' analysis have been carried out in our laboratory in the United Kingdom (East Kilbride).

For method numbers ending in 'PL' or 'B' 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.

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.

Information in Support of Analytical Results

List of HWOL Acronyms and Operators

Acronym	Descriptions
HS	Headspace Analysis
MS	Mass spectrometry
FID	Flame Ionisation Detector
GC	Gas Chromatography
EH	Extractable Hydrocarbons (i.e. everything extracted by the solvent(s))
CU	Clean-up - e.g. by Florisil®, silica gel
1D	GC - Single coil/column gas chromatography
2D	GC-GC - Double coil/column gas chromatography
Total	Aliphatics & Aromatics
AL	Aliphatics
AR	Aromatics
#1	EH_2D_Total but with humics mathematically subtracted
#2	EH_2D_Total but with fatty acids mathematically subtracted
_	Operator - underscore to separate acronyms (exception for +)
+	Operator to indicate cumulative e.g. EH+HS_Total or EH_CU+HS_Total

Quality control parameter failure associated with individual result applies to calculated sum of individuals.
The result for sum should be interpreted with caution

*g - Unaccredited sample matrix.

Toureen Contractors Limited
25 Cecil Road
Harrow
Middlesex
HA3 5QY

t: 0208 424 7999

e: Mark.hosking@toureen.co.uk
david.skinner@toureen.co.uk
rick.willemse@toureen.co.uk

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 : 24-043261

Project / Site name:	Worthing	Samples received on:	20/09/2024
Your job number:	TCL1437	Samples instructed on/ Analysis started on:	20/09/2024
Your order number:		Analysis completed by:	30/09/2024
Report Issue Number:	1	Report issued on:	01/10/2024
Samples Analysed:	3 soil samples		

Signed:

Anna Goc
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.

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: 24-043261
Project / Site name: Worthing

Lab Sample Number				322911	322912	322913
Sample Reference				SP-HC-Fines 1	SP-HC-Fines 2	SP-HC-Fines 3
Sample Number				None Supplied	None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied	None Supplied
Date Sampled				20/09/2024	20/09/2024	20/09/2024
Time Taken				None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)				Units	Test Limit of detection	Test Accreditation Status

Stone Content	%	0.1	NONE	38.8	67.1	48.6
Moisture Content	%	0.01	NONE	7	2.3	5.4
Total mass of sample received	kg	0.1	NONE	0.7	0.7	0.8

Asbestos

Asbestos in Soil Detected/Not Detected	Type	N/A	ISO 17025	Detected	Not-detected	Detected
Asbestos Analyst ID	N/A	N/A	N/A	SCA	SCA	SCA
Actinolite detected	Type	N/A	ISO 17025	Not-detected	-	Not-detected
Amosite detected	Type	N/A	ISO 17025	Detected	-	Not-detected
Anthophyllite detected	Type	N/A	ISO 17025	Not-detected	-	Not-detected
Chrysotile detected	Type	N/A	ISO 17025	Detected	-	Detected
Crocidolite detected	Type	N/A	ISO 17025	Detected	-	Not-detected
Tremolite detected	Type	N/A	ISO 17025	Not-detected	-	Not-detected

Asbestos % by hand picking/weighing	%	0.001	ISO 17025	0.008	-	0.002
-------------------------------------	---	-------	-----------	-------	---	-------

Asbestos Containing Material Types Detected (ACM)	Type	N/A	ISO 17025	Loose Fibrous Debris, Loose Fibres	-	Loose Fibrous Debris
---	------	-----	-----------	--	---	-------------------------

General Inorganics

Free Cyanide	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0
Ammoniacal Nitrogen as N	mg/kg	0.5	MCERTS	1.2	1.4	1.9

Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	4.4	48	2.8
Acenaphthylene	mg/kg	0.05	MCERTS	3.3	12	3
Acenaphthene	mg/kg	0.05	MCERTS	1.3	13	1.9
Fluorene	mg/kg	0.05	MCERTS	2.8	24	3.1
Phenanthrene	mg/kg	0.05	MCERTS	23	120	23
Anthracene	mg/kg	0.05	MCERTS	8.9	31	9.2
Fluoranthene	mg/kg	0.05	MCERTS	51	110	46
Pyrene	mg/kg	0.05	MCERTS	46	86	41
Benzo(a)anthracene	mg/kg	0.05	MCERTS	25	35	21
Chrysene	mg/kg	0.05	MCERTS	22	33	19
Benzo(b)fluoranthene	mg/kg	0.05	ISO 17025	29	38	23
Benzo(k)fluoranthene	mg/kg	0.05	ISO 17025	15	13	12
Benzo(a)pyrene	mg/kg	0.05	MCERTS	28	32	22
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	14	16	11
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	2.8	3.6	2.4
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	15	16	12

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	ISO 17025	293	634	252
-----------------------------	-------	-----	-----------	-----	-----	-----

Analytical Report Number: 24-043261

Project / Site name: Worthing

Lab Sample Number				322911	322912	322913
Sample Reference				SP-HC-Fines 1	SP-HC-Fines 2	SP-HC-Fines 3
Sample Number				None Supplied	None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied	None Supplied
Date Sampled				20/09/2024	20/09/2024	20/09/2024
Time Taken				None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Test Limit of detection	Test Accreditation Status			

Petroleum Hydrocarbons

TPHCWG - Aliphatic >EC5 - EC6 _{HS_1D_AL}	mg/kg	0.01	MCERTS	< 0.010	< 0.010	< 0.010
TPHCWG - Aliphatic >EC6 - EC8 _{HS_1D_AL}	mg/kg	0.01	MCERTS	< 0.010	< 0.010	< 0.010
TPHCWG - Aliphatic >EC8 - EC10 _{HS_1D_AL}	mg/kg	0.01	MCERTS	< 0.010	< 0.010	< 0.010
TPHCWG - Aliphatic >EC10 - EC12 _{EH_CU_1D_AL}	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0
TPHCWG - Aliphatic >EC12 - EC16 _{EH_CU_1D_AL}	mg/kg	2	MCERTS	14	4.7	6.4
TPHCWG - Aliphatic >EC16 - EC21 _{EH_CU_1D_AL}	mg/kg	8	MCERTS	34	22	20
TPHCWG - Aliphatic >EC21 - EC35 _{EH_CU_1D_AL}	mg/kg	8	MCERTS	100	94	130
TPHCWG - Aliphatic >EC5 - EC35 _{EH_CU+HS_1D_AL}	mg/kg	10	NONE	150	120	160

TPHCWG - Aromatic >EC5 - EC7 _{HS_1D_AR}	mg/kg	0.01	MCERTS	< 0.010	0.01	< 0.010
TPHCWG - Aromatic >EC7 - EC8 _{HS_1D_AR}	mg/kg	0.01	MCERTS	< 0.010	< 0.010	< 0.010
TPHCWG - Aromatic >EC8 - EC10 _{HS_1D_AR}	mg/kg	0.02	MCERTS	< 0.020	< 0.020	< 0.020
TPHCWG - Aromatic >EC10 - EC12 _{EH_CU_1D_AR}	mg/kg	1	MCERTS	4.3	60	2
TPHCWG - Aromatic >EC12 - EC16 _{EH_CU_1D_AR}	mg/kg	2	MCERTS	35	160	22
TPHCWG - Aromatic >EC16 - EC21 _{EH_CU_1D_AR}	mg/kg	10	MCERTS	260	490	190
TPHCWG - Aromatic >EC21 - EC35 _{EH_CU_1D_AR}	mg/kg	10	MCERTS	460	460	400
TPHCWG - Aromatic >EC5 - EC35 _{EH_CU+HS_1D_AR}	mg/kg	10	NONE	750	1200	620

VOCs

Chloromethane	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0
Chloroethane	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0
Bromomethane	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0
Vinyl Chloride	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0
Trichlorofluoromethane	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0
1,1-Dichloroethene	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0
1,1,2-Trichloro 1,2,2-Trifluoroethane	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0
Trans 1,2-dichloroethylene	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0
1,1-Dichloroethane	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0
2,2-Dichloropropane	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0
Chloroform	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0
1,1,1-Trichloroethane	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0
1,2-Dichloroethane	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0
1,1-Dichloropropene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0
Cis-1,2-dichloroethene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0
Benzene	µg/kg	5	MCERTS	< 5.0	9.6	7.3
Carbontetrachloride	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0
1,2-Dichloropropane	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0
Trichloroethene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0
Dibromomethane	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0
Bromodichloromethane	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0
Cis-1,3-dichloropropene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0
Trans-1,3-dichloropropene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0
Toluene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0
1,1,2-Trichloroethane	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0
1,3-Dichloropropane	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0
Dibromochloromethane	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0
Tetrachloroethene	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0
1,2-Dibromoethane	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0
Chlorobenzene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0
1,1,1,2-Tetrachloroethane	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0

Analytical Report Number: 24-043261

Project / Site name: Worthing

Lab Sample Number				322911	322912	322913
Sample Reference				SP-HC-Fines 1	SP-HC-Fines 2	SP-HC-Fines 3
Sample Number				None Supplied	None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied	None Supplied
Date Sampled				20/09/2024	20/09/2024	20/09/2024
Time Taken				None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Test Limit of detection	Test Accreditation Status			
Ethylbenzene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0
p & m-Xylene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0
Styrene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0
Bromoform	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0
o-Xylene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0
Isopropylbenzene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0
1,1,2,2-Tetrachloroethane	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0
Bromobenzene	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0
n-Propylbenzene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0
2-Chlorotoluene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0
4-Chlorotoluene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0
1,3,5-Trimethylbenzene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0
tert-Butylbenzene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0
1,2,4-Trimethylbenzene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0
sec-Butylbenzene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0
1,3-Dichlorobenzene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0
p-Isopropyltoluene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0
1,4-Dichlorobenzene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0
1,2-Dichlorobenzene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0
Butylbenzene	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0
1,2-Dibromo-3-chloropropane	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0
1,2,4-Trichlorobenzene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0
Hexachlorobutadiene	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0
1,2,3-Trichlorobenzene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0

U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected



Analytical Report Number: **24-043261**
Project / Site name: **Worthing**
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
322911	SP-HC-Fines 1		181	Loose Fibrous Debris, Loose Fibres	Amosite & Chrysotile & Crocidolite	0.008	0.008
322913	SP-HC-Fines 3		158	Loose Fibrous Debris	Chrysotile	0.002	0.002

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

Analytical Report Number : 24-043261

Project / Site name: Worthing

* 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 *
322911	SP-HC-Fines 1	None Supplied	None Supplied	Brown sand with gravel and stones
322912	SP-HC-Fines 2	None Supplied	None Supplied	Brown sand with gravel and stones
322913	SP-HC-Fines 3	None Supplied	None Supplied	Brown sand with gravel and stones

Analytical Report Number : 24-043261

Project / Site name: Worthing

Water matrix abbreviations:

Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

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 dispersion staining techniques	In-house method based on HSG 248, 2021	A001B	D	ISO 17025
Asbestos Quantification - Gravimetric	Asbestos quantification by gravimetric method - in house method based on references	HSE Report No: 83/1996, HSG 248 (2021), HSG 264 (2012) & SCA Blue Book (draft)	A006B	D	ISO 17025
Moisture Content	Moisture content, determined gravimetrically (up to 30°C)	In-house method	L019B	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.	L019B	D	NONE
Speciated PAHs and/or Semi-volatile organic compounds in soil	Determination of semi-volatile organic compounds (including PAH) in soil by extraction in dichloromethane and hexane followed by GC-MS	In-house method based on USEPA 8270	L064B	D	MCERTS
BTEX and/or Volatile organic compounds in soil	Determination of volatile organic compounds in soil by headspace GC-MS	In-house method based on USEPA 8260	L073B	W	MCERTS
Total petroleum hydrocarbons with carbon banding by GC-FID/GC-MS HS in soil	Determination of total petroleum hydrocarbons in soil by GC-FID/GC-MS HS with carbon banding aliphatic and aromatic	In-house method	L076B/L088-PL	D/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	L080-PL	W	MCERTS

Analytical Report Number : 24-043261

Project / Site name: Worthing

Water matrix abbreviations:

Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

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	L082B	W	MCERTS

For method numbers ending in 'UK' or 'A' analysis have been carried out in our laboratory in the United Kingdom (Watford).

For method numbers ending in 'F' analysis have been carried out in our laboratory in the United Kingdom (East Kilbride).

For method numbers ending in 'PL' or 'B' 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.

Information in Support of Analytical Results

List of HWOL Acronyms and Operators

Acronym	Descriptions
HS	Headspace Analysis
MS	Mass spectrometry
FID	Flame Ionisation Detector
GC	Gas Chromatography
EH	Extractable Hydrocarbons (i.e. everything extracted by the solvent(s))
CU	Clean-up - e.g. by Florisil®, silica gel
1D	GC - Single coil/column gas chromatography
2D	GC-GC - Double coil/column gas chromatography
Total	Aliphatics & Aromatics
AL	Aliphatics
AR	Aromatics
#1	EH_2D_Total but with humics mathematically subtracted
#2	EH_2D_Total but with fatty acids mathematically subtracted
_	Operator - underscore to separate acronyms (exception for +)
+	Operator to indicate cumulative e.g. EH+HS_Total or EH_CU+HS_Total

Quality control parameter failure associated with individual result applies to calculated sum of individuals.

The result for sum should be interpreted with caution

Toureen Contractors Limited
25 Cecil Road
Harrow
Middlesex
HA3 5QY

t: 0208 424 7999

e: Mark.hosking@toureen.co.uk
david.skinner@toureen.co.uk
rick.willemse@toureen.co.uk

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 : 24-043263

Project / Site name:	Worthing	Samples received on:	20/09/2024
Your job number:	TCL1437	Samples instructed on/ Analysis started on:	20/09/2024
Your order number:		Analysis completed by:	30/09/2024
Report Issue Number:	1	Report issued on:	01/10/2024
Samples Analysed:	3 soil samples		

Signed:

Claire Bancroft
Customer Service Advisor
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: 24-043263
Project / Site name: Worthing

Lab Sample Number				322914	322915	322916
Sample Reference				SP-SUB-(2)-A	SP-SUB-(2)-B	SP-SUB-(2)-C
Sample Number				None Supplied	None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied	None Supplied
Date Sampled				20/09/2024	20/09/2024	20/09/2024
Time Taken				None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)				Units	Test Limit of detection	Test Accreditation Status

Stone Content	%	0.1	NONE	< 0.1	78.1	< 0.1
Moisture Content	%	0.01	NONE	14	5.5	8.7
Total mass of sample received	kg	0.1	NONE	0.8	0.8	0.8

Asbestos

Asbestos in Soil Detected/Not Detected	Type	N/A	ISO 17025	Not-detected	Not-detected	Not-detected
Asbestos Analyst ID	N/A	N/A	N/A	SCA	SCA	SCA

General Inorganics

Free Cyanide	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0
Ammoniacal Nitrogen as N	mg/kg	0.5	MCERTS	< 0.5	2.1	4.4

Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	0.29	1.1	1.2
Acenaphthylene	mg/kg	0.05	MCERTS	0.64	1.4	1.7
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	0.76	0.61
Fluorene	mg/kg	0.05	MCERTS	0.21	1.4	1.3
Phenanthrene	mg/kg	0.05	MCERTS	2.3	12	13
Anthracene	mg/kg	0.05	MCERTS	0.95	4.4	4.3
Fluoranthene	mg/kg	0.05	MCERTS	8.1	24	33
Pyrene	mg/kg	0.05	MCERTS	7.7	21	30
Benzo(a)anthracene	mg/kg	0.05	MCERTS	4.7	11	17
Chrysene	mg/kg	0.05	MCERTS	4.6	9.4	15
Benzo(b)fluoranthene	mg/kg	0.05	ISO 17025	6.9	14	25
Benzo(k)fluoranthene	mg/kg	0.05	ISO 17025	2.6	4.7	8
Benzo(a)pyrene	mg/kg	0.05	MCERTS	5.6	12	20
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	3	6	9.3
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	0.67	1.3	2.9
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	3	6.5	9.8

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	ISO 17025	51.3	130	192
-----------------------------	-------	-----	-----------	------	-----	-----

Petroleum Hydrocarbons

TPHCWG - Aliphatic >EC5 - EC6 _{HS_1D_AL}	mg/kg	0.01	MCERTS	< 0.010	< 0.010	< 0.010
TPHCWG - Aliphatic >EC6 - EC8 _{HS_1D_AL}	mg/kg	0.01	MCERTS	< 0.010	< 0.010	< 0.010
TPHCWG - Aliphatic >EC8 - EC10 _{HS_1D_AL}	mg/kg	0.01	MCERTS	< 0.010	< 0.010	< 0.010
TPHCWG - Aliphatic >EC10 - EC12 _{EH_CU_1D_AL}	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0
TPHCWG - Aliphatic >EC12 - EC16 _{EH_CU_1D_AL}	mg/kg	2	MCERTS	< 2.0	< 2.0	9.3
TPHCWG - Aliphatic >EC16 - EC21 _{EH_CU_1D_AL}	mg/kg	8	MCERTS	< 8.0	8	48
TPHCWG - Aliphatic >EC21 - EC35 _{EH_CU_1D_AL}	mg/kg	8	MCERTS	< 8.0	58	140
TPHCWG - Aliphatic >EC5 - EC35 _{EH_CU+HS_1D_AL}	mg/kg	10	NONE	< 10	66	190

TPHCWG - Aromatic >EC5 - EC7 _{HS_1D_AR}	mg/kg	0.01	MCERTS	< 0.010	< 0.010	< 0.010
TPHCWG - Aromatic >EC7 - EC8 _{HS_1D_AR}	mg/kg	0.01	MCERTS	< 0.010	< 0.010	< 0.010
TPHCWG - Aromatic >EC8 - EC10 _{HS_1D_AR}	mg/kg	0.02	MCERTS	< 0.020	< 0.020	< 0.020
TPHCWG - Aromatic >EC10 - EC12 _{EH_CU_1D_AR}	mg/kg	1	MCERTS	1.8	1.7	2
TPHCWG - Aromatic >EC12 - EC16 _{EH_CU_1D_AR}	mg/kg	2	MCERTS	7.9	12	13
TPHCWG - Aromatic >EC16 - EC21 _{EH_CU_1D_AR}	mg/kg	10	MCERTS	40	71	110
TPHCWG - Aromatic >EC21 - EC35 _{EH_CU_1D_AR}	mg/kg	10	MCERTS	89	110	130
TPHCWG - Aromatic >EC5 - EC35 _{EH_CU+HS_1D_AR}	mg/kg	10	NONE	140	200	250



Analytical Report Number: 24-043263
 Project / Site name: Worthing

Lab Sample Number				322914	322915	322916
Sample Reference				SP-SUB-(2)-A	SP-SUB-(2)-B	SP-SUB-(2)-C
Sample Number				None Supplied	None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied	None Supplied
Date Sampled				20/09/2024	20/09/2024	20/09/2024
Time Taken				None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Test Limit of detection	Test Accreditation Status			

Analytical Report Number: 24-043263
Project / Site name: Worthing

Lab Sample Number				322914	322915	322916
Sample Reference				SP-SUB-(2)-A	SP-SUB-(2)-B	SP-SUB-(2)-C
Sample Number				None Supplied	None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied	None Supplied
Date Sampled				20/09/2024	20/09/2024	20/09/2024
Time Taken				None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)				Units	Test Limit of detection	Test Accreditation Status

VOCs

Chloromethane	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0
Chloroethane	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0
Bromomethane	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0
Vinyl Chloride	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0
Trichlorofluoromethane	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0
1,1-Dichloroethene	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0
1,1,2-Trichloro 1,2,2-Trifluoroethane	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0
Trans 1,2-dichloroethylene	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0
1,1-Dichloroethane	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0
2,2-Dichloropropane	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0
Chloroform	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0
1,1,1-Trichloroethane	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0
1,2-Dichloroethane	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0
1,1-Dichloropropene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0
Cis-1,2-dichloroethene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0
Benzene	µg/kg	5	MCERTS	5.6	< 5.0	< 5.0
Carbontetrachloride	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0
1,2-Dichloropropane	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0
Trichloroethene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0
Dibromomethane	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0
Bromodichloromethane	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0
Cis-1,3-dichloropropene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0
Trans-1,3-dichloropropene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0
Toluene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0
1,1,2-Trichloroethane	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0
1,3-Dichloropropane	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0
Dibromochloromethane	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0
Tetrachloroethene	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0
1,2-Dibromoethane	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0
Chlorobenzene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0
1,1,1,2-Tetrachloroethane	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0
Ethylbenzene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0
p & m-Xylene	µg/kg	5	MCERTS	7.2	< 5.0	< 5.0
Styrene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0
Bromoform	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0
o-Xylene	µg/kg	5	MCERTS	5.7	< 5.0	< 5.0
Isopropylbenzene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0
1,1,2,2-Tetrachloroethane	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0
Bromobenzene	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0
n-Propylbenzene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0
2-Chlorotoluene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0
4-Chlorotoluene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0
1,3,5-Trimethylbenzene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0
tert-Butylbenzene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0
1,2,4-Trimethylbenzene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0
sec-Butylbenzene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0
1,3-Dichlorobenzene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0
p-Isopropyltoluene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0
1,4-Dichlorobenzene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0
1,2-Dichlorobenzene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0

Analytical Report Number: 24-043263
Project / Site name: Worthing

Lab Sample Number				322914	322915	322916
Sample Reference				SP-SUB-(2)-A	SP-SUB-(2)-B	SP-SUB-(2)-C
Sample Number				None Supplied	None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied	None Supplied
Date Sampled				20/09/2024	20/09/2024	20/09/2024
Time Taken				None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Test Limit of detection	Test Accreditation Status			
Butylbenzene	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0
1,2-Dibromo-3-chloropropane	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0
1,2,4-Trichlorobenzene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0
Hexachlorobutadiene	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0
1,2,3-Trichlorobenzene	µg/kg	5	ISO 17025	< 5.0	< 5.0	< 5.0

U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected

Analytical Report Number : 24-043263
Project / Site name: Worthing

* 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 *
322914	SP-SUB-(2)-A	None Supplied	None Supplied	Non Soil. ¹⁹
322915	SP-SUB-(2)-B	None Supplied	None Supplied	Brown clay and sand with gravel and stones
322916	SP-SUB-(2)-C	None Supplied	None Supplied	Brown clay with gravel

Analytical Report Number : 24-043263

Project / Site name: Worthing

Water matrix abbreviations:

Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

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 dispersion staining techniques	In-house method based on HSG 248, 2021	A001B	D	ISO 17025
Moisture Content	Moisture content, determined gravimetrically (up to 30°C)	In-house method	L019B	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.	L019B	D	NONE
Speciated PAHs and/or Semi-volatile organic compounds in soil	Determination of semi-volatile organic compounds (including PAH) in soil by extraction in dichloromethane and hexane followed by GC-MS	In-house method based on USEPA 8270	L064B	D	MCERTS
BTEX and/or Volatile organic compounds in soil	Determination of volatile organic compounds in soil by headspace GC-MS	In-house method based on USEPA 8260	L073B	W	MCERTS
Total petroleum hydrocarbons with carbon banding by GC-FID/GC-MS HS in soil	Determination of total petroleum hydrocarbons in soil by GC-FID/GC-MS HS with carbon banding aliphatic and aromatic	In-house method	L076B/L088-PL	D/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	L080-PL	W	MCERTS

Analytical Report Number : 24-043263

Project / Site name: Worthing

Water matrix abbreviations:

Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

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	L082B	W	MCERTS

For method numbers ending in 'UK' or 'A' analysis have been carried out in our laboratory in the United Kingdom (Watford).

For method numbers ending in 'F' analysis have been carried out in our laboratory in the United Kingdom (East Kilbride).

For method numbers ending in 'PL' or 'B' 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.

Information in Support of Analytical Results

List of HWOL Acronyms and Operators

Acronym	Descriptions
HS	Headspace Analysis
MS	Mass spectrometry
FID	Flame Ionisation Detector
GC	Gas Chromatography
EH	Extractable Hydrocarbons (i.e. everything extracted by the solvent(s))
CU	Clean-up - e.g. by Florisil®, silica gel
1D	GC - Single coil/column gas chromatography
2D	GC-GC - Double coil/column gas chromatography
Total	Aliphatics & Aromatics
AL	Aliphatics
AR	Aromatics
#1	EH_2D_Total but with humics mathematically subtracted
#2	EH_2D_Total but with fatty acids mathematically subtracted
-	Operator - underscore to separate acronyms (exception for +)
+	Operator to indicate cumulative e.g. EH+HS_Total or EH_CU+HS_Total

Quality control parameter failure associated with individual result applies to calculated sum of individuals.

The result for sum should be interpreted with caution

*g - Unaccredited sample matrix.

Toureen Contractors Limited
25 Cecil Road
Harrow
Middlesex
HA3 5QY

t: 0208 424 7999

e: Mark.hosking@toureen.co.uk
david.skinner@toureen.co.uk
rick.willemsen@toureen.co.uk

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 : 24-048996

Project / Site name:	Worthing	Samples received on:	21/10/2024
Your job number:	TCL 1437	Samples instructed on/ Analysis started on:	21/10/2024
Your order number:	TCL 1437	Analysis completed by:	29/10/2024
Report Issue Number:	1	Report issued on:	30/10/2024
Samples Analysed:	3 soil samples		

Signed:

Anna Goc
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.

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: 24-048996

Project / Site name: Worthing

Your Order No: TCL 1437

Lab Sample Number				354700	354701	354702
Sample Reference				E2 ST Backfill	E3 ST Backfill	E4 ST Backfill
Sample Number				None Supplied	None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied	None Supplied
Date Sampled				21/10/2024	21/10/2024	21/10/2024
Time Taken				None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)				Units	Test Limit of detection	Test Accreditation Status

Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1
Moisture Content	%	0.01	NONE	13	11	12
Total mass of sample received	kg	0.1	NONE	0.8	0.9	0.8

Asbestos

Asbestos in Soil Detected/Not Detected	Type	N/A	ISO 17025	Not-detected	Not-detected	Not-detected
Asbestos Analyst ID	N/A	N/A	N/A	KWB	KWB	KWB
Actinolite detected	Type	N/A	ISO 17025	Not-detected	Not-detected	Not-detected
Amosite detected	Type	N/A	ISO 17025	Not-detected	Not-detected	Not-detected
Anthophyllite detected	Type	N/A	ISO 17025	Not-detected	Not-detected	Not-detected
Chrysotile detected	Type	N/A	ISO 17025	Not-detected	Not-detected	Not-detected
Crocidolite detected	Type	N/A	ISO 17025	Not-detected	Not-detected	Not-detected
Tremolite detected	Type	N/A	ISO 17025	Not-detected	Not-detected	Not-detected

Asbestos % by hand picking/weighing	%	0.001	ISO 17025	Not-detected	Not-detected	Not-detected
-------------------------------------	---	-------	-----------	--------------	--------------	--------------

Asbestos Containing Material Types Detected (ACM)	Type	N/A	ISO 17025	Not-detected	Not-detected	Not-detected
---	------	-----	-----------	--------------	--------------	--------------

General Inorganics

Free Cyanide	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0
Ammoniacal Nitrogen as N	mg/kg	0.5	MCERTS	5.2	11	10

Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	5.7	2.7	2.4
Acenaphthylene	mg/kg	0.05	MCERTS	2.4	2.2	1.9
Acenaphthene	mg/kg	0.05	MCERTS	0.94	1.3	0.64
Fluorene	mg/kg	0.05	MCERTS	2.8	3.1	1.9
Phenanthrene	mg/kg	0.05	MCERTS	20	18	12
Anthracene	mg/kg	0.05	MCERTS	6.3	5.9	4.3
Fluoranthene	mg/kg	0.05	MCERTS	29	29	23
Pyrene	mg/kg	0.05	MCERTS	25	25	20
Benzo(a)anthracene	mg/kg	0.05	MCERTS	13	12	12
Chrysene	mg/kg	0.05	MCERTS	12	11	10
Benzo(b)fluoranthene	mg/kg	0.05	ISO 17025	16	17	16
Benzo(k)fluoranthene	mg/kg	0.05	ISO 17025	6.8	5.4	5.2
Benzo(a)pyrene	mg/kg	0.05	MCERTS	14	14	13
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	7	7	6.9
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	1.8	1.8	1.6
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	7.1	7.2	7.8

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	ISO 17025	169	163	138
-----------------------------	-------	-----	-----------	-----	-----	-----

Analytical Report Number: 24-048996

Project / Site name: Worthing

Your Order No: TCL 1437

Lab Sample Number				354700	354701	354702
Sample Reference				E2 ST Backfill	E3 ST Backfill	E4 ST Backfill
Sample Number				None Supplied	None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied	None Supplied
Date Sampled				21/10/2024	21/10/2024	21/10/2024
Time Taken				None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Test Limit of detection	Test Accreditation Status			

Petroleum Hydrocarbons

TPHCWG - Aliphatic >EC5 - EC6 _{HS_1D_AL}	mg/kg	0.01	MCERTS	< 0.010	< 0.010	< 0.010
TPHCWG - Aliphatic >EC6 - EC8 _{HS_1D_AL}	mg/kg	0.01	MCERTS	< 0.010	< 0.010	< 0.010
TPHCWG - Aliphatic >EC8 - EC10 _{HS_1D_AL}	mg/kg	0.01	MCERTS	< 0.010	< 0.010	< 0.010
TPHCWG - Aliphatic >EC10 - EC12 _{EH_CU_1D_AL}	mg/kg	1	MCERTS	4.6	< 1.0	< 1.0
TPHCWG - Aliphatic >EC12 - EC16 _{EH_CU_1D_AL}	mg/kg	2	MCERTS	16	9.1	8.1
TPHCWG - Aliphatic >EC16 - EC21 _{EH_CU_1D_AL}	mg/kg	8	MCERTS	30	29	< 8.0
TPHCWG - Aliphatic >EC21 - EC35 _{EH_CU_1D_AL}	mg/kg	8	MCERTS	93	98	84
TPHCWG - Aliphatic >EC5 - EC35 _{EH_CU+HS_1D_AL}	mg/kg	10	NONE	140	140	92

TPHCWG - Aromatic >EC5 - EC7 _{HS_1D_AR}	mg/kg	0.01	MCERTS	< 0.010	< 0.010	0.016
TPHCWG - Aromatic >EC7 - EC8 _{HS_1D_AR}	mg/kg	0.01	MCERTS	< 0.010	< 0.010	< 0.010
TPHCWG - Aromatic >EC8 - EC10 _{HS_1D_AR}	mg/kg	0.02	MCERTS	< 0.020	< 0.020	< 0.020
TPHCWG - Aromatic >EC10 - EC12 _{EH_CU_1D_AR}	mg/kg	1	MCERTS	8.8	3.3	3.3
TPHCWG - Aromatic >EC12 - EC16 _{EH_CU_1D_AR}	mg/kg	2	MCERTS	24	25	13
TPHCWG - Aromatic >EC16 - EC21 _{EH_CU_1D_AR}	mg/kg	10	MCERTS	170	150	93
TPHCWG - Aromatic >EC21 - EC35 _{EH_CU_1D_AR}	mg/kg	10	MCERTS	210	210	160
TPHCWG - Aromatic >EC5 - EC35 _{EH_CU+HS_1D_AR}	mg/kg	10	NONE	410	390	270

VOCs

Chloromethane	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0
Chloroethane	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0
Bromomethane	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0
Vinyl Chloride	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0
Trichlorofluoromethane	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0
1,1-Dichloroethene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0
1,1,2-Trichloro 1,2,2-Trifluoroethane	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0
Trans 1,2-dichloroethylene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0
1,1-Dichloroethane	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0
2,2-Dichloropropane	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0
Chloroform	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0
1,1,1-Trichloroethane	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0
1,2-Dichloroethane	µg/kg	7	MCERTS	< 7.0	< 7.0	< 7.0
1,1-Dichloropropene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0
Cis-1,2-dichloroethene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0
Benzene	µg/kg	5	MCERTS	< 5.0	< 5.0	15
Carbontetrachloride	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0
1,2-Dichloropropane	µg/kg	6	MCERTS	< 6.0	< 6.0	< 6.0
Trichloroethene	µg/kg	10	MCERTS	< 10	< 10	< 10
Dibromomethane	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0
Bromodichloromethane	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0
Cis-1,3-dichloropropene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0
Trans-1,3-dichloropropene	µg/kg	10	MCERTS	< 10	< 10	< 10
Toluene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0
1,1,2-Trichloroethane	µg/kg	6	MCERTS	< 6.0	< 6.0	< 6.0
1,3-Dichloropropane	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0
Dibromochloromethane	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0
Tetrachloroethene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0
1,2-Dibromoethane	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0
Chlorobenzene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0
1,1,1,2-Tetrachloroethane	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0

Analytical Report Number: 24-048996

Project / Site name: Worthing

Your Order No: TCL 1437

Lab Sample Number				354700	354701	354702
Sample Reference				E2 ST Backfill	E3 ST Backfill	E4 ST Backfill
Sample Number				None Supplied	None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied	None Supplied
Date Sampled				21/10/2024	21/10/2024	21/10/2024
Time Taken				None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Test Limit of detection	Test Accreditation Status			
Ethylbenzene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0
p & m-Xylene	µg/kg	8	MCERTS	< 8.0	< 8.0	< 8.0
Styrene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0
Bromoform	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0
o-Xylene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0
Isopropylbenzene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0
1,1,1,2,2-Tetrachloroethane	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0
Bromobenzene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0
n-Propylbenzene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0
2-Chlorotoluene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0
4-Chlorotoluene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0
1,3,5-Trimethylbenzene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0
tert-Butylbenzene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0
1,2,4-Trimethylbenzene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0
sec-Butylbenzene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0
1,3-Dichlorobenzene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0
p-Isopropyltoluene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0
1,4-Dichlorobenzene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0
1,2-Dichlorobenzene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0
Butylbenzene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0
1,2-Dibromo-3-chloropropane	µg/kg	8	MCERTS	< 8.0	< 8.0	< 8.0
1,2,4-Trichlorobenzene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0
Hexachlorobutadiene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0
1,2,3-Trichlorobenzene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0

U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected



4041



Environmental Science

Analytical Report Number: 24-048996

Project / Site name: Worthing

Your Order No: TCL 1437

Certificate of Analysis - Asbestos Quantification

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
---------------	-----------	------------------	-------------------	---	-------------	---------------------------------------	----------------------------

Analytical Report Number : 24-048996

Project / Site name: Worthing

* 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 *
354700	E2 ST Backfill	None Supplied	None Supplied	Brown clay with gravel
354701	E3 ST Backfill	None Supplied	None Supplied	Brown clay with gravel
354702	E4 ST Backfill	None Supplied	None Supplied	Brown loam and clay with gravel and vegetation

Analytical Report Number : 24-048996

Project / Site name: Worthing

Water matrix abbreviations:

Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

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 dispersion staining techniques	In-house method based on HSG 248, 2021	A001B	D	ISO 17025
Asbestos Quantification - Gravimetric	Asbestos quantification by gravimetric method - in house method based on references	HSE Report No: 83/1996, HSG 248 (2021), HSG 264 (2012) & SCA Blue Book (draft)	A006B	D	ISO 17025
Moisture Content	Moisture content, determined gravimetrically (up to 30°C)	In-house method	L019B	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.	L019B	D	NONE
Speciated PAHs and/or Semi-volatile organic compounds in soil	Determination of semi-volatile organic compounds (including PAH) in soil by extraction in dichloromethane and hexane followed by GC-MS	In-house method based on USEPA 8270	L064B	D	MCERTS
BTEX and/or Volatile organic compounds in soil	Determination of volatile organic compounds in soil by headspace GC-MS	In-house method based on USEPA 8260	L073B	W	MCERTS
Total petroleum hydrocarbons with carbon banding by GC-FID/GC-MS HS in soil	Determination of total petroleum hydrocarbons in soil by GC-FID/GC-MS HS with carbon banding aliphatic and aromatic	In-house method	L076B/L088-PL	D/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	L080-PL	W	MCERTS

Analytical Report Number : 24-048996

Project / Site name: Worthing

Water matrix abbreviations:

Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

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	L082B	W	MCERTS

For method numbers ending in 'UK' or 'A' analysis have been carried out in our laboratory in the United Kingdom (Watford).

For method numbers ending in 'F' analysis have been carried out in our laboratory in the United Kingdom (East Kilbride).

For method numbers ending in 'PL' or 'B' 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.

Information in Support of Analytical Results

List of HWOL Acronyms and Operators

Acronym	Descriptions
HS	Headspace Analysis
MS	Mass spectrometry
FID	Flame Ionisation Detector
GC	Gas Chromatography
EH	Extractable Hydrocarbons (i.e. everything extracted by the solvent(s))
CU	Clean-up - e.g. by Florisil®, silica gel
1D	GC - Single coil/column gas chromatography
2D	GC-GC - Double coil/column gas chromatography
Total	Aliphatics & Aromatics
AL	Aliphatics
AR	Aromatics
#1	EH_2D_Total but with humics mathematically subtracted
#2	EH_2D_Total but with fatty acids mathematically subtracted
_	Operator - underscore to separate acronyms (exception for +)
+	Operator to indicate cumulative e.g. EH+HS_Total or EH_CU+HS_Total

Quality control parameter failure associated with individual result applies to calculated sum of individuals.

The result for sum should be interpreted with caution

Toureen Contractors Limited
25 Cecil Road
Harrow
Middlesex
HA3 5QY

t: 0208 424 7999

e: Mark.hosking@toureen.co.uk
david.skinner@toureen.co.uk
rick.willemse@toureen.co.uk

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 : 24-047817

Project / Site name:	Worthing	Samples received on:	15/10/2024
Your job number:	TCL1437	Samples instructed on/ Analysis started on:	15/10/2024
Your order number:	TCL1437	Analysis completed by:	24/10/2024
Report Issue Number:	1	Report issued on:	24/10/2024
Samples Analysed:	3 soil samples		

Signed:

Trevor Hill
Customer Service Advisor
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: 24-047817

Project / Site name: Worthing

Your Order No: TCL1437

Lab Sample Number	348881	348882	348883
Sample Reference	NB C1 W	NB D1	NB F1 W
Sample Number	None Supplied	None Supplied	None Supplied
Depth (m)	None Supplied	None Supplied	None Supplied
Date Sampled	15/10/2024	15/10/2024	15/10/2024
Time Taken	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Test Limit of detection	Test Accreditation Status

Stone Content	%	0.1	NONE	49.6	39.1	25.9
Moisture Content	%	0.01	NONE	12	14	16
Total mass of sample received	kg	0.1	NONE	0.8	0.8	0.8

Asbestos

Asbestos in Soil Detected/Not Detected	Type	N/A	ISO 17025	Detected	Detected	Detected
Asbestos Analyst ID	N/A	N/A	N/A	DSO	DSO	DSO
Actinolite detected	Type	N/A	ISO 17025	Not-detected	Not-detected	Not-detected
Amosite detected	Type	N/A	ISO 17025	Not-detected	Not-detected	Not-detected
Anthophyllite detected	Type	N/A	ISO 17025	Not-detected	Not-detected	Not-detected
Chrysotile detected	Type	N/A	ISO 17025	Detected	Detected	Detected
Crocidolite detected	Type	N/A	ISO 17025	Not-detected	Not-detected	Not-detected
Tremolite detected	Type	N/A	ISO 17025	Not-detected	Not-detected	Not-detected

Asbestos % by hand picking/weighing	%	0.001	ISO 17025	< 0.001	0.002	0.004
-------------------------------------	---	-------	-----------	---------	-------	-------

Asbestos Containing Material Types Detected (ACM)	Type	N/A	ISO 17025	Loose Fibres	Loose Fibres	Loose Fibres
---	------	-----	-----------	--------------	--------------	--------------

General Inorganics

Free Cyanide	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0
Ammoniacal Nitrogen as N	mg/kg	0.5	MCERTS	< 0.5	0.7	2.1

Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	1.8	4	7.5
Acenaphthylene	mg/kg	0.05	MCERTS	11	14	16
Acenaphthene	mg/kg	0.05	MCERTS	4.9	1	2.7
Fluorene	mg/kg	0.05	MCERTS	13	3	11
Phenanthrene	mg/kg	0.05	MCERTS	260	29	83
Anthracene	mg/kg	0.05	MCERTS	44	10	37
Fluoranthene	mg/kg	0.05	MCERTS	430	86	180
Pyrene	mg/kg	0.05	MCERTS	380	79	160
Benzo(a)anthracene	mg/kg	0.05	MCERTS	200	56	91
Chrysene	mg/kg	0.05	MCERTS	180	53	91
Benzo(b)fluoranthene	mg/kg	0.05	ISO 17025	230	87	120
Benzo(k)fluoranthene	mg/kg	0.05	ISO 17025	110	32	62
Benzo(a)pyrene	mg/kg	0.05	MCERTS	180	68	110
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	48	46	46
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	22	13	14
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	51	50	48

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	ISO 17025	2170	632	1060
-----------------------------	-------	-----	-----------	------	-----	------

Petroleum Hydrocarbons

TPHCWG - Aliphatic >EC5 - EC6 _{HS 1D AL}	mg/kg	0.01	MCERTS	< 0.010	< 0.010	< 0.010
TPHCWG - Aliphatic >EC6 - EC8 _{HS 1D AL}	mg/kg	0.01	MCERTS	< 0.010	< 0.010	< 0.010
TPHCWG - Aliphatic >EC8 - EC10 _{HS 1D AL}	mg/kg	0.01	MCERTS	< 0.010	< 0.010	< 0.010
TPHCWG - Aliphatic >EC10 - EC12 _{EH CU 1D AL}	mg/kg	1	MCERTS	2.1	8.5	4.6
TPHCWG - Aliphatic >EC12 - EC16 _{EH CU 1D AL}	mg/kg	2	MCERTS	19	45	40
TPHCWG - Aliphatic >EC16 - EC21 _{EH CU 1D AL}	mg/kg	8	MCERTS	31	30	45
TPHCWG - Aliphatic >EC21 - EC35 _{EH CU 1D AL}	mg/kg	8	MCERTS	70	58	150

Analytical Report Number: 24-047817

Project / Site name: Worthing

Your Order No: TCL1437

Lab Sample Number				348881	348882	348883
Sample Reference				NB C1 W	NB D1	NB F1 W
Sample Number				None Supplied	None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied	None Supplied
Date Sampled				15/10/2024	15/10/2024	15/10/2024
Time Taken				None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Test Limit of detection	Test Accreditation Status			
TPHCWG - Aliphatic >EC5 - EC35 _{EH_CU+HS_1D_AL}	mg/kg	10	NONE	120	140	240

TPHCWG - Aromatic >EC5 - EC7 _{HS_1D_AR}	mg/kg	0.01	MCERTS	< 0.010	< 0.010	< 0.010
TPHCWG - Aromatic >EC7 - EC8 _{HS_1D_AR}	mg/kg	0.01	MCERTS	< 0.010	< 0.010	< 0.010
TPHCWG - Aromatic >EC8 - EC10 _{HS_1D_AR}	mg/kg	0.02	MCERTS	< 0.020	< 0.020	< 0.020
TPHCWG - Aromatic >EC10 - EC12 _{EH_CU_1D_AR}	mg/kg	1	MCERTS	4.6	10	7.6
TPHCWG - Aromatic >EC12 - EC16 _{EH_CU_1D_AR}	mg/kg	2	MCERTS	99	36	74
TPHCWG - Aromatic >EC16 - EC21 _{EH_CU_1D_AR}	mg/kg	10	MCERTS	850	270	540
TPHCWG - Aromatic >EC21 - EC35 _{EH_CU_1D_AR}	mg/kg	10	MCERTS	1000	650	790
TPHCWG - Aromatic >EC5 - EC35 _{EH_CU+HS_1D_AR}	mg/kg	10	NONE	2000	970	1400

VOCs

Chloromethane	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0
Chloroethane	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0
Bromomethane	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0
Vinyl Chloride	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0
Trichlorofluoromethane	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0
1,1-Dichloroethene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0
1,1,2-Trichloro 1,2,2-Trifluoroethane	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0
Trans 1,2-dichloroethylene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0
1,1-Dichloroethane	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0
2,2-Dichloropropane	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0
Chloroform	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0
1,1,1-Trichloroethane	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0
1,2-Dichloroethane	µg/kg	7	MCERTS	< 7.0	< 7.0	< 7.0
1,1-Dichloropropene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0
Cis-1,2-dichloroethene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0
Benzene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0
Carbontetrachloride	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0
1,2-Dichloropropane	µg/kg	6	MCERTS	< 6.0	< 6.0	< 6.0
Trichloroethene	µg/kg	10	MCERTS	< 10	< 10	< 10
Dibromomethane	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0
Bromodichloromethane	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0
Cis-1,3-dichloropropene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0
Trans-1,3-dichloropropene	µg/kg	10	MCERTS	< 10	< 10	< 10
Toluene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0
1,1,2-Trichloroethane	µg/kg	6	MCERTS	< 6.0	< 6.0	< 6.0
1,3-Dichloropropane	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0
Dibromochloromethane	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0
Tetrachloroethene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0
1,2-Dibromoethane	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0
Chlorobenzene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0
1,1,1,2-Tetrachloroethane	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0
Ethylbenzene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0
p & m-Xylene	µg/kg	8	MCERTS	< 8.0	< 8.0	< 8.0
Styrene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0
Bromoform	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0
o-Xylene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0
Isopropylbenzene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0
1,1,1,2-Tetrachloroethane	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0
Bromobenzene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0

Analytical Report Number: 24-047817

Project / Site name: Worthing

Your Order No: TCL1437

Lab Sample Number				348881	348882	348883
Sample Reference				NB C1 W	NB D1	NB F1 W
Sample Number				None Supplied	None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied	None Supplied
Date Sampled				15/10/2024	15/10/2024	15/10/2024
Time Taken				None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Test Limit of detection	Test Accreditation Status			
n-Propylbenzene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0
2-Chlorotoluene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0
4-Chlorotoluene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0
1,3,5-Trimethylbenzene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0
tert-Butylbenzene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0
1,2,4-Trimethylbenzene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0
sec-Butylbenzene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0
1,3-Dichlorobenzene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0
p-Isopropyltoluene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0
1,4-Dichlorobenzene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0
1,2-Dichlorobenzene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0
Butylbenzene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0
1,2-Dibromo-3-chloropropane	µg/kg	8	MCERTS	< 8.0	< 8.0	< 8.0
1,2,4-Trichlorobenzene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0
Hexachlorobutadiene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0
1,2,3-Trichlorobenzene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0

U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected



Analytical Report Number: **24-047817**
Project / Site name: **Worthing**
Your Order No: **TCL1437**

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
348881	NB C1 W		143	Loose Fibres	Chrysotile	< 0.001	< 0.001
348882	NB D1		132	Loose Fibres	Chrysotile	0.002	0.002
348883	NB F1 W		128	Loose Fibres	Chrysotile	0.004	0.004

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

Analytical Report Number : 24-047817

Project / Site name: Worthing

* 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 *
348881	NB C1 W	None Supplied	None Supplied	Brown loam with vegetation and stones
348882	NB D1	None Supplied	None Supplied	Brown loam with vegetation and stones
348883	NB F1 W	None Supplied	None Supplied	Brown loam and clay with vegetation and stones

Analytical Report Number : 24-047817

Project / Site name: Worthing

Water matrix abbreviations:

Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

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 dispersion staining techniques	In-house method based on HSG 248, 2021	A001B	D	ISO 17025
Asbestos Quantification - Gravimetric	Asbestos quantification by gravimetric method - in house method based on references	HSE Report No: 83/1996, HSG 248 (2021), HSG 264 (2012) & SCA Blue Book (draft)	A006B	D	ISO 17025
Moisture Content	Moisture content, determined gravimetrically (up to 30°C)	In-house method	L019B	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.	L019B	D	NONE
Speciated PAHs and/or Semi-volatile organic compounds in soil	Determination of semi-volatile organic compounds (including PAH) in soil by extraction in dichloromethane and hexane followed by GC-MS	In-house method based on USEPA 8270	L064B	D	MCERTS
BTEX and/or Volatile organic compounds in soil	Determination of volatile organic compounds in soil by headspace GC-MS	In-house method based on USEPA 8260	L073B	W	MCERTS
Total petroleum hydrocarbons with carbon banding by GC-FID/GC-MS HS in soil	Determination of total petroleum hydrocarbons in soil by GC-FID/GC-MS HS with carbon banding aliphatic and aromatic	In-house method	L076B/L088-PL	D/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	L080-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	L082B	W	MCERTS

For method numbers ending in 'UK' or 'A' analysis have been carried out in our laboratory in the United Kingdom (Watford).

For method numbers ending in 'F' analysis have been carried out in our laboratory in the United Kingdom (East Kilbride).

For method numbers ending in 'PL' or 'B' 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.

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.

Information in Support of Analytical Results

List of HWOL Acronyms and Operators

Acronym	Descriptions
HS	Headspace Analysis
MS	Mass spectrometry
FID	Flame Ionisation Detector
GC	Gas Chromatography
EH	Extractable Hydrocarbons (i.e. everything extracted by the solvent(s))
CU	Clean-up - e.g. by Florisil®, silica gel
1D	GC - Single coil/column gas chromatography
2D	GC-GC - Double coil/column gas chromatography
Total	Aliphatics & Aromatics
AL	Aliphatics
AR	Aromatics
#1	EH_2D_Total but with humics mathematically subtracted

Analytical Report Number : 24-047817

Project / Site name: Worthing

Water matrix abbreviations:

Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
#2	EH_2D_Total but with fatty acids mathematically subtracted				
_	Operator - underscore to separate acronyms (exception for +)				
+	Operator to indicate cumulative e.g. EH+HS_Total or EH_CU+HS_Total				

Quality control parameter failure associated with individual result applies to calculated sum of individuals.

The result for sum should be interpreted with caution

Table 8



TCL1436 GRID AND STOCKPILE CHEMICAL TESTING SUMMARY

Report No.		Sample Number		Sample Reference		Date Received		Analytical Parameter (Ref Agency)		Use only Criteria for this report		20-00001		20-00002		20-00003		20-00004		20-00005		20-00006		20-00007		20-00008		20-00009		20-00010		20-00011		20-00012		20-00013		20-00014		20-00015		20-00016		20-00017		20-00018		20-00019		20-00020		20-00021		20-00022		20-00023		20-00024		20-00025		20-00026		20-00027		20-00028		20-00029		20-00030		20-00031		20-00032		20-00033		20-00034		20-00035		20-00036		20-00037		20-00038		20-00039		20-00040		20-00041		20-00042		20-00043		20-00044		20-00045		20-00046		20-00047		20-00048		20-00049		20-00050		20-00051		20-00052		20-00053		20-00054		20-00055		20-00056		20-00057		20-00058		20-00059		20-00060		20-00061		20-00062		20-00063		20-00064		20-00065		20-00066		20-00067		20-00068		20-00069		20-00070		20-00071		20-00072		20-00073		20-00074		20-00075		20-00076		20-00077		20-00078		20-00079		20-00080		20-00081		20-00082		20-00083		20-00084		20-00085		20-00086		20-00087		20-00088		20-00089		20-00090		20-00091		20-00092		20-00093		20-00094		20-00095		20-00096		20-00097		20-00098		20-00099		20-00100		20-00101		20-00102		20-00103		20-00104		20-00105		20-00106		20-00107		20-00108		20-00109		20-00110		20-00111		20-00112		20-00113		20-00114		20-00115		20-00116		20-00117		20-00118		20-00119		20-00120		20-00121		20-00122		20-00123		20-00124		20-00125		20-00126	
------------	--	---------------	--	------------------	--	---------------	--	-----------------------------------	--	-----------------------------------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--	----------	--

APPENDIX 6

BOREHOLE DECOMMISSIONING SUMMARY

Installed	Hole ID	Easting, Northing	Elevation m	Installation Type	Response Zone (m)	Geological Strata Targeted	Diameter & Well Material*	Total Depth (m)	Decommissioning Status
Ramboll 2020	BH01	515222, 102993	8.11	Dual	1.00 – 1.50 7.00 – 10.00	Made Ground Chalk	50mm, HDPE 50mm, HDPE	12.45	Decommissioned by grouting
Ramboll 2020	BH02	515265, 102982	7.84	Dual	0.50 – 1.50 7.50 – 10.50	Made Ground Chalk	50mm, HDPE 50mm, HDPE	12.05	Decommissioned by grouting
Ramboll 2020	BH03	515262, 102963	8.09	Dual	8.70 – 12.00 19.50 – 20.50	Chalk Chalk	50mm, HDPE NR	30	Unable to locate
Ramboll 2020	BH04	515206, 102952	8.14	Dual	6.00 – 9.00 24.5 – 25.5	Chalk Chalk	50mm, HDPE NR	34.7	Decommissioned by grouting
Ramboll 2020	BH05	515235, 102954	8.01	Single	9.00 – 12.00	Chalk	50mm, HDPE	12.65	Decommissioned by grouting
Ramboll 2020	BH07	515173, 102911	8	Single	6.00 – 9.00	Chalk	50mm, HDPE	10.45	Retained as groundwater monitoring well
Ramboll 2020	BH08	515215, 102919	8.03	Single	6.00 – 9.00	Chalk	50mm, HDPE	9.85	Decommissioned by grouting
Ramboll 2020	BH09	515254, 102934	7.97	Single	7.00 – 10.00	Chalk	50mm, HDPE	29.9	Unable to locate
Ramboll 2020	BH10	515272, 102925	7.56	Dual	0.50 – 1.50 7.00 – 10.00	Made Ground Chalk	50mm, HDPE 50mm, HDPE	12.16	Retained as groundwater monitoring well
Ramboll 2020	BH11	515188, 102877	8.06	Dual	7.00 – 10.00 29.5 – 30.5	Chalk Chalk	50mm, HDPE NR	35.1	Decommissioned by grouting
Ramboll 2020	BH12	515263, 102896	7.88	Dual	0.50 – 1.50 8.00 – 11.00	Made Ground Chalk	50mm, HDPE 50mm, HDPE	12.35	Decommissioned by grouting
Ramboll 2020	WS01	515217, 102979	8.13	Single	0.50 – 3.00	Made Ground	50mm, HDPE	3.16	Unable to locate
Ramboll 2020	WS02	515202, 102966	8.09	Single	0.50 – 2.00	Made Ground	50mm, HDPE	2.35	Unable to locate
Ramboll 2020	WS03A	515223, 102945	8.14	Single	0.50 – 1.00	Made Ground	50mm, HDPE	1.35	Unable to locate
Ramboll 2020	WS04	515200, 102945	8.04	Single	1.00 – 4.00	Made Ground	50mm, HDPE	4	Decommissioned by grouting
Ramboll 2020	WS05	515219, 102958	8.25	Single	0.50 – 2.00	Made Ground	50mm, HDPE	2	Unable to locate
Ramboll 2020	WS06	515196, 102927	8	Single	0.50 – 3.00	Made Ground	50mm, HDPE	4	Decommissioned by grouting
Ramboll 2020	WS07	515192, 102909	7.98	Single	0.50 – 2.00	Made Ground	50mm, HDPE	4	Decommissioned by grouting
Ramboll 2020	WS08	515226, 102909	7.83	Single	0.50 – 3.00	Made Ground	50mm, HDPE	3	Decommissioned by grouting
Ramboll 2020	WS14	515197, 102881	7.98	Single	0.50 – 1.50	Made Ground	50mm, HDPE	3	Decommissioned by grouting
Hydrock 2016	MW01	515220, 102992	8.1	Single	10.00 – 15.00	Chalk	NR	15	Decommissioned by grouting
Hydrock 2016	MW02	515264, 102966	8.07	Single	8.00 – 14.70	Chalk	NR	14.7	Unable to locate
Hydrock 2016	MW03	515232, 102936	7.95	Single	7.50 – 14.70	Chalk	NR	14.7	Unable to locate
Hydrock 2016	WS03	515224, 102957	8.17	Single	2.00 – 3.00	Superficial	NR	3	Unable to locate
Hydrock 2016	WS04	515252, 103002	7.68	Single	2.00 – 5.00	Superficial	NR	5.45	Unable to locate
Hydrock 2016	WS09	515255, 102951	8.01	Single	1.80 – 2.80	Made Ground	NR	3.2	Unable to locate
Worley Parsons 2014	MW14-01	515206, 102987	8.44	Single	12.90 – 14.90	Chalk	50mm, HDPE	15.41	Decommissioned by grouting
Worley Parsons 2014	MW14-02	515191, 102968	8.08	Single	8.00 – 9.00	Chalk	50mm, HDPE	9.5	Unable to locate
Worley Parsons 2014	MW14-03	515211, 102947	7.84	Single	5.00 – 7.00	Chalk	50mm, HDPE	6.9	Unable to locate
Worley Parsons 2014	MW14-04	515195, 102956	8.06	Single	2.50 – 4.50	Made Ground	50mm, HDPE	4.65	Decommissioned by grouting
Worley Parsons 2012	MW12-02	515181, 102871	8.04	Single	7.00 – 9.50	Chalk	50mm, HDPE	8.94	Retained as groundwater monitoring well
Worley Parsons 2012	MW12-03	515244, 102933	7.84	Single	7.00 – 10.00	Chalk	50mm, HDPE	9.87	Unable to locate
Worley Parsons 2012	MW12-04	515181, 102909	8.06	Single	8.00 – 10.00	Chalk	50mm, HDPE	9.79	Unable to locate
Worley Parsons 2012	MW12-05	515206, 102978	8.43	Single	8.50 – 9.50	Chalk	50mm, HDPE	9.54	Decommissioned by grouting
Waterman 1996	BH1	NR	NR	Single	9.00 – 12.00	Chalk	50mm, HDPE	12	Decommissioned by grouting
Waterman 1996	BH2	515265, 102893	7.83	Single	5.00 – 8.00	Chalk	50mm, HDPE	8	Decommissioned by grouting
Waterman 1996	BH3A	NR	NR	Single	3.00 – 5.00	Superficial	50mm, HDPE	12.5	Unable to locate

Additional shallow vapour wells discovered during decommissioning

Worley Parsons 2014	VW14-01	tbc	tbc	tbc	tbc	tbc	tbc	1.32	Decommissioned by grouting
Worley Parsons 2012	VW12-03	tbc	tbc	tbc	tbc	tbc	tbc	1.49	Decommissioned by grouting
Worley Parsons 2012	VW12-04	tbc	tbc	tbc	tbc	tbc	tbc	1.30	Decommissioned by grouting
Worley Parsons 2012	VW12-06	tbc	tbc	tbc	tbc	tbc	tbc	1.30	Decommissioned by grouting
Worley Parsons 2012	VW12-07	tbc	tbc	tbc	tbc	tbc	tbc	1.34	Decommissioned by grouting
Worley Parsons 2012	VW12-08	tbc	tbc	tbc	tbc	tbc	tbc	1.37	Decommissioned by grouting

APPENDIX 7

SOIL SAMPLING REGISTER

TABLE 1 - STOCKPILE/MATERIALS TRACKING

Live Stockpile
Closed Stockpile

Worthing Gasworks - Material Tracker			Quantification (m3)	INTERNAL MOVEMENTS	SAMPLE INFO	
Reference	MATERIAL ORIGIN Location / Grid Square	Date	Material Volume (m³)	Final Destination	SAMPLE ID	DESIGNATION
SP-HC	Concrete from breakout sitewide including 6F4	WC 05/08.2024	3411	Disposal	N/a	Broken Concrete
SP-SUB1	Material from D1 and E1	WC 12/08/2024	2,006.0	Re-use in the gasholder	D1-1.0, D1-2.0, E1-1.0 and E2-2.0	Soils
D2 & D3	Soils excavated from potential hotspot removal in grid D2	WC 26/08/2024	25	Disposal	D2	Soils
A3-HS	Soils excavated from Blue Billy hotspot removal in grid A3	WC 06/09/2024	21	Disposal	A3	Soils
WS14-HS	Soils excavated from hotspot removal at WS14	WC 06/09/2024	10	Disposal	WS14-HS	Soils
BH14-HS	Soils excavated from hotspot removal at BH14	WC 30/09/2024	25	Disposal	BH14-HS	Soils
E4, F4, E5, D5	Materials from E4, F4, E5, D5	WC 07/10/2024	1,000.0	Re-use in the gasholder	E4, F4, E5, D5	Soils
TP08-HS	Soils excavated from hotspot removal at TP08	WC 07/10/2024	25.0	Disposal	TP08HS	Soils
BH02-HS	Soils excavated from hotspot removal at BH02	WC 07/10/2024	25.0	Disposal	BH02-HS	Soils
F5	Materials from F5	WC 14/10/2024	30	Re-use in the gasholder	F5	Soils
Service Trench Northern Half	Soils excavated from northern half of service trench	WC 14/10/2024	450.0	Re-use in the gasholder	E2 ST, E3 ST, E4 ST	Soils
Subsoil Material Stockpile	Block A	WC 14/10/2024	540.0	Service trench - North	SP-SUB-(2)-A, SP-SUB-(2)-B, SP-SUB-(2)-C	Soils
Blocks E1 and D1	Blocks E1 and D1	WC 14/10/2024	660.0	Re-use in the gasholder	E4, F4, E5, D5	
Service Trench - South	Soils excavated from southern half of service trench	WC 21/10/2024	450.0	Service trench - South	E2 ST Backfill, E3 ST Backfill, E4 ST Backfill	Soils
Southern Car Park	Soils excavated from southern car park	WC 21/10/2024	348.0	Disposal	C6, E6	Soils
Car Park/site entrance - Hardcore	Hardcore excavated from southern car park and site entrance	WC 21/10/2024	286.0	Disposal	F5 Tarmac, E5 Tarmac	Soils
Site Entrance	Soils excavated from site entrance/new haul road	WC 28/10/2024	341.0	Disposal	F5, G4, F5 CP Chalk, E5 CP Chalk	Soils
G2-HS	Soils excavated from hotspot removal at G2	WC 06/11/2024	10.0	Disposal	G2-HS	Soils

APPENDIX 8

WASTE DOCUMENT TRACKER

Toureen Contractors Limited
25 Cecil Road
Harrow
Middlesex
HA3 5QY

t: 0208 424 7999

e: Mark.hosking@toureen.co.uk
david.skinner@toureen.co.uk
rick.willemse@toureen.co.uk

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 : 24-043265

Project / Site name:	Worthing	Samples received on:	20/09/2024
Your job number:	TCL1437	Samples instructed on/ Analysis started on:	20/09/2024
Your order number:		Analysis completed by:	01/10/2024
Report Issue Number:	1	Report issued on:	01/10/2024
Samples Analysed:	2 10:1 WAC Samples		

Signe

Claire Bancroft
Customer Service Advisor
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: 24-043265
Project / Site name: Worthing

Lab Sample Number				322929	322930
Sample Reference				6F4-A	6F4-C
Sample Number				None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied
Date Sampled				20/09/2024	20/09/2024
Time Taken				None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Test Limit of detection	Test Accreditation Status		

Stone Content	%	0.1	NONE	54.1	86.5
Moisture Content	%	0.01	NONE	0.83	0.63
Total mass of sample received	kg	0.1	NONE	0.8	0.8

General Inorganics

pH (L005B)	pH Units	N/A	MCERTS	7.9	8.1
Total Organic Carbon (TOC) - Automated	%	0.1	MCERTS	0.2	0.2
Loss on Ignition @ 450°C	%	0.2	MCERTS	1.3	1.2
Acid Neutralisation Capacity	mmol/kg	-9999	NONE	1.8	2.9

Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	0.23	0.14
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	0.1	< 0.05
Fluorene	mg/kg	0.05	MCERTS	0.13	< 0.05
Phenanthrene	mg/kg	0.05	MCERTS	0.91	0.09
Anthracene	mg/kg	0.05	MCERTS	0.26	< 0.05
Fluoranthene	mg/kg	0.05	MCERTS	1.4	0.12
Pyrene	mg/kg	0.05	MCERTS	1.2	0.11
Benzo(a)anthracene	mg/kg	0.05	MCERTS	0.53	< 0.05
Chrysene	mg/kg	0.05	MCERTS	0.57	< 0.05
Benzo(b)fluoranthene	mg/kg	0.05	ISO 17025	0.58	< 0.05
Benzo(k)fluoranthene	mg/kg	0.05	ISO 17025	0.22	< 0.05
Benzo(a)pyrene	mg/kg	0.05	MCERTS	0.44	< 0.05
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	0.22	< 0.05
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	0.23	< 0.05
Coronene	mg/kg	0.05	NONE	< 0.05	< 0.05

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	ISO 17025	6.93	< 0.80
Total WAC-17 PAHs	mg/kg	0.85	NONE	6.93	< 0.85

Petroleum Hydrocarbons

Mineral Oil (EC10 - EC40) EH_CU_1D_AL	mg/kg	10	NONE	< 10	< 10
---------------------------------------	-------	----	------	------	------

VOCs

Benzene	µg/kg	5	MCERTS	< 5.0	< 5.0
Toluene	µg/kg	5	MCERTS	< 5.0	< 5.0
Ethylbenzene	µg/kg	5	MCERTS	< 5.0	< 5.0
p & m-Xylene	µg/kg	5	MCERTS	< 5.0	< 5.0
o-Xylene	µg/kg	5	MCERTS	< 5.0	< 5.0

Total BTEX	µg/kg	5	MCERTS	< 5.0	< 5.0
------------	-------	---	--------	-------	-------

Analytical Report Number: 24-043265

Project / Site name: Worthing

Lab Sample Number				322929	322930
Sample Reference				6F4-A	6F4-C
Sample Number				None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied
Date Sampled				20/09/2024	20/09/2024
Time Taken				None Supplied	None Supplied
Analytical Parameter (Soil Analysis)				Units	Test Limit of detection
				Test Accreditation Status	

PCBs by GC-MS

PCB Congener 28	mg/kg	0.001	MCERTS	< 0.001	< 0.001
PCB Congener 52	mg/kg	0.001	MCERTS	< 0.001	< 0.001
PCB Congener 101	mg/kg	0.001	MCERTS	< 0.001	< 0.001
PCB Congener 118	mg/kg	0.001	MCERTS	< 0.001	< 0.001
PCB Congener 138	mg/kg	0.001	MCERTS	< 0.001	< 0.001
PCB Congener 153	mg/kg	0.001	MCERTS	< 0.001	< 0.001
PCB Congener 180	mg/kg	0.001	MCERTS	< 0.001	< 0.001

Total PCBs	mg/kg	0.007	MCERTS	< 0.007	< 0.007
------------	-------	-------	--------	---------	---------

U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected

i2 Analytical

7 Woodshots Meadow
Croxley Green Business Park
Watford, WD18 8YS

Telephone: 01923 225404
Fax: 01923 237404
email:reception@i2analytical.com

Waste Acceptance Criteria Analytical Results

Report No:	24-043265						
					Client: TOUREENMANG		
Location	Worthing						
Lab Reference (Sample Number)	322929				Landfill Waste Acceptance Criteria		
					Limits		
Sampling Date	20/09/2024				Inert Waste Landfill	Stable Non-reactive HAZARDOUS waste in non-hazardous Landfill	Hazardous Waste Landfill
Sample ID	6F4-A						
Depth (m)							
Solid Waste Analysis							
TOC (%)**	0.2				3%	5%	6%
Loss on Ignition (%) **	1.3				--	--	10%
BTEX (µg/kg) **	< 5.0				6000	--	--
Sum of PCBs (mg/kg) **	< 0.007				1	--	--
Mineral Oil (mg/kg) EH, ID, CU, AL	< 10				500	--	--
Total PAH (WAC-17) (mg/kg)	6.93				100	--	--
pH (units)**	7.9				--	>6	--
Acid Neutralisation Capacity (mmol / kg)	1.8				--	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)					using BS EN 12457-2 at L/S 10 l/kg (mg/kg)		
	mg/l			mg/kg			
Arsenic *	< 0.00100			< 0.0100	0.5	2	25
Barium *	0.0201			0.201	20	100	300
Cadmium *	< 0.000100			< 0.00100	0.04	1	5
Chromium *	0.00083			0.0083	0.5	10	70
Copper *	0.0023			0.023	2	50	100
Mercury *	< 0.000500			< 0.00500	0.01	0.2	2
Molybdenum *	0.000439			0.00439	0.5	10	30
Nickel *	< 0.00030			< 0.0030	0.4	10	40
Lead *	0.0025			0.025	0.5	10	50
Antimony *	< 0.0017			< 0.017	0.06	0.7	5
Selenium *	< 0.0040			< 0.040	0.1	0.5	7
Zinc *	0.0021			0.021	4	50	200
Chloride *	0.74			7.4	800	15000	25000
Fluoride*	< 0.050			< 0.50	10	150	500
Sulphate *	1.0			10	1000	20000	50000
TDS*	14			140	4000	60000	100000
Phenol Index (Monohydric Phenols) *	< 0.010			< 0.10	1	-	-
DOC	10.5			105	500	800	1000
Leach Test Information							
Stone Content (%)	54.1						
Sample Mass (kg)	0.8						
Dry Matter (%)	99						
Moisture (%)	0.83						
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.

i2 Analytical

7 Woodshots Meadow
Croxley Green Business Park
Watford, WD18 8YS

Telephone: 01923 225404
Fax: 01923 237404
email:reception@i2analytical.com

Waste Acceptance Criteria Analytical Results

Waste Analysis Criteria Analytical Results							
Report No:	24-043265						
					Client: TOUREENMANG		
Location	Worthing						
Lab Reference (Sample Number)	322930				Landfill Waste Acceptance Criteria		
Sampling Date	20/09/2024				Inert Waste Landfill	Stable Non-reactive HAZARDOUS waste in non-hazardous Landfill	Hazardous Waste Landfill
Sample ID	6F4-C						
Depth (m)							
Solid Waste Analysis							
TOC (%)**	0.2				3%	5%	6%
Loss on Ignition (%) **	1.2				--	--	10%
BTEX (µg/kg) **	< 5.0				6000	--	--
Sum of PCBs (mg/kg) **	< 0.007				1	--	--
Mineral Oil (mg/kg) EH, ID, CU, AL	< 10				500	--	--
Total PAH (WAC-17) (mg/kg)	< 0.85				100	--	--
pH (units)**	8.1				--	>6	--
Acid Neutralisation Capacity (mmol / kg)	2.9				--	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 *	0.00353			0.0353	0.5	2	25
Barium *	0.0290			0.290	20	100	300
Cadmium *	< 0.000100			< 0.00100	0.04	1	5
Chromium *	0.00043			0.0043	0.5	10	70
Copper *	0.0041			0.041	2	50	100
Mercury *	< 0.000500			< 0.00500	0.01	0.2	2
Molybdenum *	0.00174			0.0174	0.5	10	30
Nickel *	0.00045			0.0045	0.4	10	40
Lead *	0.0015			0.015	0.5	10	50
Antimony *	< 0.0017			< 0.017	0.06	0.7	5
Selenium *	< 0.0040			< 0.040	0.1	0.5	7
Zinc *	0.0032			0.032	4	50	200
Chloride *	0.36			3.6	800	15000	25000
Fluoride*	0.053			0.53	10	150	500
Sulphate *	1.6			16	1000	20000	50000
TDS*	23			230	4000	60000	100000
Phenol Index (Monohydric Phenols) *	< 0.010			< 0.10	1	-	-
DOC	11.8			118	500	800	1000
Leach Test Information							
Stone Content (%)	86.5						
Sample Mass (kg)	0.8						
Dry Matter (%)	99						
Moisture (%)	0.63						
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 : 24-043265

Project / Site name: Worthing

* 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 *
322929	6F4-A	None Supplied	None Supplied	Brown clay and sand with gravel and stones
322930	6F4-C	None Supplied	None Supplied	Brown clay and sand with gravel and stones

Analytical Report Number : 24-043265

Project / Site name: Worthing

Water matrix abbreviations:

Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
pH at 20°C in soil	Determination of pH in soil by addition of water followed by electrometric measurement	In-house method	L005B	W	MCERTS
Total organic carbon (Automated) in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate (Walkley Black Method)	In-house method	L009B	D	MCERTS
Moisture Content	Moisture content, determined gravimetrically (up to 30°C)	In-house method	L019B	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.	L019B	D	NONE
PCB's By GC-MS in soil	Determination of PCB by extraction with hexane followed by GC-MS	In-house method based on USEPA 8082	L027B	D	MCERTS
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	L031B	W	ISO 17025
Fluoride 10:1 WAC	Determination of fluoride in leachate by 1:1 ratio 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	W	ISO 17025
Dissolved organic carbon 10:1 WAC	Determination of dissolved organic carbon in leachate by TOC/DOC NDIR Analyser	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L037B	W	NONE
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	L039B	W	ISO 17025
Sample Preparation		In-house method	L043B	W	NONE
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	L046B	W	NONE
Loss on ignition of soil @ 450°C	Determination of loss on ignition in soil by gravimetrically with the sample being ignited in a muffle furnace	In-house method	L047-PL	D	MCERTS
Speciated PAHs and/or Semi-volatile organic compounds in soil	Determination of semi-volatile organic compounds (including PAH) in soil by extraction in dichloromethane and hexane followed by GC-MS	In-house method based on USEPA 8270	L064B	D	MCERTS
BTEX and/or Volatile organic compounds in soil	Determination of volatile organic compounds in soil by headspace GC-MS	In-house method based on USEPA 8260	L073B	W	MCERTS
Total petroleum hydrocarbons by GC-FID/GC-MS HS in soil	Determination of total petroleum hydrocarbons in soil by GC-FID/GC-MS HS	In-house method	L076B/L088-PL	D/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

Analytical Report Number : 24-043265

Project / Site name: Worthing

Water matrix abbreviations:

Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Chloride 10:1 WAC	Determination of Chloride colorimetrically by discrete analyser	In-house based on MEWAM Method ISBN 0117516260	L082B	W	ISO 17025

For method numbers ending in 'UK' or 'A' analysis have been carried out in our laboratory in the United Kingdom (Watford).

For method numbers ending in 'F' analysis have been carried out in our laboratory in the United Kingdom (East Kilbride).

For method numbers ending in 'PL' or 'B' 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.

Information in Support of Analytical Results

List of HWOL Acronyms and Operators

Acronym	Descriptions
HS	Headspace Analysis
MS	Mass spectrometry
FID	Flame Ionisation Detector
GC	Gas Chromatography
EH	Extractable Hydrocarbons (i.e. everything extracted by the solvent(s))
CU	Clean-up - e.g. by Florisil®, silica gel
1D	GC - Single coil/column gas chromatography
2D	GC-GC - Double coil/column gas chromatography
Total	Aliphatics & Aromatics
AL	Aliphatics
AR	Aromatics
#1	EH_2D_Total but with humics mathematically subtracted
#2	EH_2D_Total but with fatty acids mathematically subtracted
_	Operator - underscore to separate acronyms (exception for +)
+	Operator to indicate cumulative e.g. EH+HS_Total or EH_CU+HS_Total

Quality control parameter failure associated with individual result applies to calculated sum of individuals.

The result for sum should be interpreted with caution



Toureen Contractors Limited
25 Cecil Road
Harrow
Middlesex
HA3 5QY

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

t: 0208 424 7999

e: Mark.hosking@toureen.co.uk

t: 01923 225404

f: 01923 237404

e: reception@i2analytical.com

Analytical Report Number : 24-040000

Project / Site name: Worthing

Samples received on: 29/08/2024

Your job number:

**Samples instructed on/
Analysis started on:** 04/09/2024

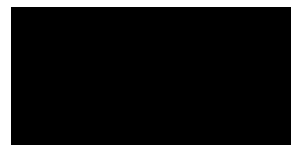
Your order number:

Analysis completed by: 10/09/2024

Report Issue Number: 1

Report issued on: 11/09/2024

Samples Analysed: 10:1 WAC sample



Signed: _____

Anna Goc
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.

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: 24-040000

Project / Site name: Worthing

Lab Sample Number				305540
Sample Reference				A3-HS
Sample Number				None Supplied
Depth (m)				None Supplied
Date Sampled				28/08/2024
Time Taken				None Supplied
Analytical Parameter (Soil Analysis)	Units	Test Limit of detection	Test Accreditation Status	

Stone Content	%	0.1	NONE	< 0.1
Moisture Content	%	0.01	NONE	18
Total mass of sample received	kg	0.1	NONE	0.8

General Inorganics

pH (L005B)	pH Units	N/A	MCERTS	6.7
Total Organic Carbon (TOC) - Automated	%	0.1	MCERTS	1.1
Loss on Ignition @ 450°C	%	0.2	MCERTS	3.6
Acid Neutralisation Capacity	mmol/kg	N/A	NONE	-0.66

Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	0.4
Acenaphthylene	mg/kg	0.05	MCERTS	0.29
Acenaphthene	mg/kg	0.05	MCERTS	0.06
Fluorene	mg/kg	0.05	MCERTS	0.17
Phenanthrene	mg/kg	0.05	MCERTS	1.1
Anthracene	mg/kg	0.05	MCERTS	0.36
Fluoranthene	mg/kg	0.05	MCERTS	3.4
Pyrene	mg/kg	0.05	MCERTS	3.1
Benzo(a)anthracene	mg/kg	0.05	MCERTS	2.5
Chrysene	mg/kg	0.05	MCERTS	2.3
Benzo(b)fluoranthene	mg/kg	0.05	ISO 17025	4
Benzo(k)fluoranthene	mg/kg	0.05	ISO 17025	1.7
Benzo(a)pyrene	mg/kg	0.05	MCERTS	3.4
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	2.5
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	0.54
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	2.9
Coronene	mg/kg	0.05	NONE	1

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	ISO 17025	28.7
Total WAC-17 PAHs	mg/kg	0.85	NONE	29.7

Petroleum Hydrocarbons

Mineral Oil (EC10 - EC40) EH_CU_10_AL	mg/kg	10	NONE	< 10
--	-------	----	------	------

VOCs

Benzene	µg/kg	5	MCERTS	< 5.0
Toluene	µg/kg	5	MCERTS	< 5.0
Ethylbenzene	µg/kg	5	MCERTS	< 5.0
p & m-Xylene	µg/kg	5	MCERTS	< 5.0
o-Xylene	µg/kg	5	MCERTS	< 5.0
Total BTEX	µg/kg	5	MCERTS	< 5.0

Analytical Report Number: 24-040000

Project / Site name: Worthing

Lab Sample Number				305540
Sample Reference				A3-HS
Sample Number				None Supplied
Depth (m)				None Supplied
Date Sampled				28/08/2024
Time Taken				None Supplied
Analytical Parameter (Soil Analysis)	Units	Test Limit of detection	Test Accreditation Status	

PCBs by GC-MS

PCB Congener 28	mg/kg	0.001	MCERTS	< 0.001
PCB Congener 52	mg/kg	0.001	MCERTS	< 0.001
PCB Congener 101	mg/kg	0.001	MCERTS	< 0.001
PCB Congener 118	mg/kg	0.001	MCERTS	< 0.001
PCB Congener 138	mg/kg	0.001	MCERTS	< 0.001
PCB Congener 153	mg/kg	0.001	MCERTS	< 0.001
PCB Congener 180	mg/kg	0.001	MCERTS	< 0.001

Total PCBs	mg/kg	0.007	MCERTS	< 0.007
------------	-------	-------	--------	---------

U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected

i2 Analytical

7 Woodshots Meadow
Croxley Green Business Park
Watford, WD18 8YS

Telephone: 01923 225404
Fax: 01923 237404
email:reception@i2analytical.com

Waste Acceptance Criteria Analytical Results

Report No:	24-040000					
				Client: TOUREENMANG		
Location	Worthing					
Lab Reference (Sample Number)	305540			Landfill Waste Acceptance Criteria		
				Limits		
Sampling Date	28/08/2024			Inert Waste Landfill	Stable Non-reactive HAZARDOUS waste in non-hazardous Landfill	Hazardous Waste Landfill
Sample ID	A3-HS					
Depth (m)						
Solid Waste Analysis						
TOC (%)**	1.1			3%	5%	6%
Loss on Ignition (%) **	3.6			--	--	10%
BTEX (µg/kg) **	< 5.0			6000	--	--
Sum of PCBs (mg/kg) **	< 0.007			1	--	--
Mineral Oil (mg/kg) EH, ID, CU, AL	< 10			500	--	--
Total PAH (WAC-17) (mg/kg)	29.7			100	--	--
pH (units)**	6.7			--	>6	--
Acid Neutralisation Capacity (mmol / kg)	-0.66			--	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)					using BS EN 12457-2 at L/S 10 l/kg (mg/kg)	
	mg/l			mg/kg		
Arsenic *	< 0.00100			< 0.0100	0.5	2
Barium *	0.0238			0.238	20	100
Cadmium *	< 0.000100			< 0.00100	0.04	1
Chromium *	0.0012			0.012	0.5	10
Copper *	0.029			0.29	2	50
Mercury *	< 0.000500			< 0.00500	0.01	0.2
Molybdenum *	0.000652			0.00652	0.5	10
Nickel *	0.0032			0.032	0.4	10
Lead *	< 0.0010			< 0.010	0.5	10
Antimony *	< 0.0017			< 0.017	0.06	0.7
Selenium *	< 0.0040			< 0.040	0.1	0.5
Zinc *	0.022			0.22	4	50
Chloride *	1.1			11	800	15000
Fluoride*	0.13			1.3	10	150
Sulphate *	210			2100	1000	20000
TDS*	240			2400	4000	60000
Phenol Index (Monohydric Phenols) *	< 0.010			< 0.10	1	-
DOC	7.88			78.8	500	800
Leach Test Information						
Stone Content (%)	< 0.1					
Sample Mass (kg)	0.8					
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 : 24-040000

Project / Site name: Worthing

* 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 *
305540	A3-HS	None Supplied	None Supplied	Brown clay and sand with gravel

Analytical Report Number : 24-040000

Project / Site name: Worthing

Water matrix abbreviations:

Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
pH at 20°C in soil	Determination of pH in soil by addition of water followed by electrometric measurement	In-house method	L005B	W	MCERTS
Total organic carbon (Automated) in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate (Walkley Black Method)	In-house method	L009B	D	MCERTS
Moisture Content	Moisture content, determined gravimetrically (up to 30°C)	In-house method	L019B	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.	L019B	D	NONE
PCB's By GC-MS in soil	Determination of PCB by extraction with hexane followed by GC-MS	In-house method based on USEPA 8082	L027B	D	MCERTS
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	L031B	W	ISO 17025
Fluoride 10:1 WAC	Determination of fluoride in leachate by 1:1 ratio 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	W	ISO 17025
Dissolved organic carbon 10:1 WAC	Determination of dissolved organic carbon in leachate by TOC/DOC NDIR Analyser	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L037B	W	NONE
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	L039B	W	ISO 17025
Sample Preparation		In-house method	L043B	W	NONE
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	L046B	W	NONE
Loss on ignition of soil @ 450°C	Determination of loss on ignition in soil by gravimetrically with the sample being ignited in a muffle furnace	In-house method	L047-PL	D	MCERTS
Speciated PAHs and/or Semi-volatile organic compounds in soil	Determination of semi-volatile organic compounds (including PAH) in soil by extraction in dichloromethane and hexane followed by GC-MS	In-house method based on USEPA 8270	L064B	D	MCERTS
BTEX and/or Volatile organic compounds in soil	Determination of volatile organic compounds in soil by headspace GC-MS	In-house method based on USEPA 8260	L073B	W	MCERTS
Total petroleum hydrocarbons by GC-FID/GC-MS HS in soil	Determination of total petroleum hydrocarbons in soil by GC-FID/GC-MS HS	In-house method	L076B/L088-PL	D/W	NONE

Analytical Report Number : 24-040000

Project / Site name: Worthing

Water matrix abbreviations:

Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
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
Chloride 10:1 WAC	Determination of Chloride colorimetrically by discrete analyser	In-house based on MEWAM Method ISBN 0117516260	L082B	W	ISO 17025

For method numbers ending in 'UK' or 'A' analysis have been carried out in our laboratory in the United Kingdom (Watford).

For method numbers ending in 'F' analysis have been carried out in our laboratory in the United Kingdom (East Kilbride).

For method numbers ending in 'PL' or 'B' 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.

Quality control parameter failure associated with individual result applies to calculated sum of individuals.

The result for sum should be interpreted with caution

Toureen Contractors Limited
25 Cecil Road
Harrow
Middlesex
HA3 5QY

t: 0208 424 7999

e: Mark.hosking@toureen.co.uk

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 : 24-040876

Project / Site name: Worthing

Samples received on: 06/09/2024

Your job number: TCL1437

**Samples instructed on/
Analysis started on:** 10/09/2024

Your order number:

Analysis completed by: 17/09/2024

Report Issue Number: 1

Report issued on: 17/09/2024

Samples Analysed: 10:1 WAC sample

Signature

Dominika Liana
Junior Reporting 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: 24-040876
Project / Site name: Worthing

Lab Sample Number				310627
Sample Reference				WS14-HS
Sample Number				None Supplied
Depth (m)				None Supplied
Date Sampled				05/09/2024
Time Taken				None Supplied
Analytical Parameter (Soil Analysis)	Units	Test Limit of detection	Test Accreditation Status	

Stone Content	%	0.1	NONE	58.6
Moisture Content	%	0.01	NONE	13
Total mass of sample received	kg	0.1	NONE	1.7

General Inorganics

pH (L005B)	pH Units	N/A	MCERTS	7.7
Total Organic Carbon (TOC) - Automated	%	0.1	MCERTS	4.6
Loss on Ignition @ 450°C	%	0.2	MCERTS	11
Acid Neutralisation Capacity	+/- mmol/kg	N/A	NONE	1.3

Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	29
Acenaphthylene	mg/kg	0.05	MCERTS	27
Acenaphthene	mg/kg	0.05	MCERTS	19
Fluorene	mg/kg	0.05	MCERTS	37
Phenanthrene	mg/kg	0.05	MCERTS	280
Anthracene	mg/kg	0.05	MCERTS	88
Fluoranthene	mg/kg	0.05	MCERTS	420
Pyrene	mg/kg	0.05	MCERTS	360
Benzo(a)anthracene	mg/kg	0.05	MCERTS	220
Chrysene	mg/kg	0.05	MCERTS	190
Benzo(b)fluoranthene	mg/kg	0.05	ISO 17025	260
Benzo(k)fluoranthene	mg/kg	0.05	ISO 17025	110
Benzo(a)pyrene	mg/kg	0.05	MCERTS	220
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	110
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	25
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	120
Coronene	mg/kg	0.05	NONE	50

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	ISO 17025	2520
Total WAC-17 PAHs	mg/kg	0.85	NONE	2570

Petroleum Hydrocarbons

Mineral Oil (EC10 - EC40) EH_CU_1D_AL	mg/kg	10	NONE	310
--	-------	----	------	-----

VOCs

Benzene	µg/kg	5	MCERTS	< 5.0
Toluene	µg/kg	5	MCERTS	< 5.0
Ethylbenzene	µg/kg	5	MCERTS	< 5.0
p & m-Xylene	µg/kg	5	MCERTS	< 5.0
o-Xylene	µg/kg	5	MCERTS	< 5.0

Total BTEX	µg/kg	5	MCERTS	< 5.0
------------	-------	---	--------	-------



Analytical Report Number: 24-040876
Project / Site name: Worthing

Lab Sample Number				310627
Sample Reference				WS14-HS
Sample Number				None Supplied
Depth (m)				None Supplied
Date Sampled				05/09/2024
Time Taken				None Supplied
Analytical Parameter (Soil Analysis)				
	Units	Test Limit of detection	Test Accreditation Status	

PCBs by GC-MS

PCB Congener 28	mg/kg	0.001	MCERTS	< 0.001
PCB Congener 52	mg/kg	0.001	MCERTS	< 0.001
PCB Congener 101	mg/kg	0.001	MCERTS	< 0.001
PCB Congener 118	mg/kg	0.001	MCERTS	< 0.001
PCB Congener 138	mg/kg	0.001	MCERTS	< 0.001
PCB Congener 153	mg/kg	0.001	MCERTS	< 0.001
PCB Congener 180	mg/kg	0.001	MCERTS	< 0.001

Total PCBs	mg/kg	0.007	MCERTS	< 0.007
------------	-------	-------	--------	---------

U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected



i2 Analytical

7 Woodshots Meadow
Croxley Green Business Park
Watford, WD18 8YS

Telephone: 01923 225404
Fax: 01923 237404
email:reception@i2analytical.com

Waste Acceptance Criteria Analytical Results							
Report No:	24-040876						
					Client: TOUREENMANG		
Location	Worthing						
Lab Reference (Sample Number)	310627				Landfill Waste Acceptance Criteria		
Sampling Date	05/09/2024				Inert Waste Landfill	Stable Non-reactive HAZARDOUS waste in non-hazardous Landfill	Hazardous Waste Landfill
Sample ID	WS14-HS						
Depth (m)							
Solid Waste Analysis							
TOC (%)**	4.6				3%	5%	6%
Loss on Ignition (%) **	11				--	--	10%
BTEX (µg/kg) **	< 5.0				6000	--	--
Sum of PCBs (mg/kg) **	< 0.007				1	--	--
Mineral Oil (mg/kg) EH_1D_CU_AL	310				500	--	--
Total PAH (WAC-17) (mg/kg)	2570				100	--	--
pH (units)**	7.7				--	>6	--
Acid Neutralisation Capacity (mmol / kg)	1.3				--	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		
					using BS EN 12457-2 at L/S 10 l/kg (mg/kg)		
	mg/l			mg/kg			
Arsenic *	0.00338			0.0338	0.5	2	25
Barium *	0.0809			0.809	20	100	300
Cadmium *	< 0.000100			< 0.00100	0.04	1	5
Chromium *	0.00081			0.0081	0.5	10	70
Copper *	0.019			0.19	2	50	100
Mercury *	< 0.000500			< 0.00500	0.01	0.2	2
Molybdenum *	0.00681			0.0681	0.5	10	30
Nickel *	0.0020			0.020	0.4	10	40
Lead *	0.0054			0.054	0.5	10	50
Antimony *	< 0.0017			< 0.017	0.06	0.7	5
Selenium *	< 0.0040			< 0.040	0.1	0.5	7
Zinc *	0.022			0.22	4	50	200
Chloride *	1.1			11	800	15000	25000
Fluoride*	0.97			9.7	10	150	500
Sulphate *	390			3900	1000	20000	50000
TTDS*	460			4600	4000	60000	100000
Phenol Index (Monohydric Phenols) *	< 0.010			< 0.10	1	-	-
DOC	6.30			63.0	500	800	1000
Leach Test Information							
Stone Content (%)	58.6						
Sample Mass (kg)	1.7						
Dry Matter (%)	87						
Moisture (%)	13						
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 : 24-040876
Project / Site name: Worthing

* 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 *
310627	WS14-HS	None Supplied	None Supplied	Brown sand with gravel and stones

Analytical Report Number : 24-040876

Project / Site name: Worthing

Water matrix abbreviations:

Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
pH at 20°C in soil	Determination of pH in soil by addition of water followed by electrometric measurement	In-house method	L005B	W	MCERTS
Total organic carbon (Automated) in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate (Walkley Black Method)	In-house method	L009B	D	MCERTS
Moisture Content	Moisture content, determined gravimetrically (up to 30°C)	In-house method	L019B	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.	L019B	D	NONE
PCB's By GC-MS in soil	Determination of PCB by extraction with hexane followed by GC-MS	In-house method based on USEPA 8082	L027B	D	MCERTS
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	L031B	W	ISO 17025
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	W	ISO 17025
Dissolved organic carbon 10:1 WAC	Determination of dissolved organic carbon in leachate by TOC/DOC NDIR Analyser	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L037B	W	NONE
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	L039B	W	ISO 17025
Sample Preparation		In-house method	L043B	W	NONE
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 an Sampling and Testing of Wastes to Meet Landfill Waste Acceptance	L046B	W	NONE
Loss on ignition of soil @ 450°C	Determination of loss on ignition in soil by gravimetrically with the sample being ignited in a muffle furnace	In-house method	L047-PL	D	MCERTS
Speciated PAHs and/or Semi-volatile organic compounds in soil	Determination of semi-volatile organic compounds (including PAH) in soil by extraction in dichloromethane and hexane followed by GC-MS	In-house method based on USEPA 8270	L064B	D	MCERTS
BTEX and/or Volatile organic compounds in soil	Determination of volatile organic compounds in soil by headspace GC-MS	In-house method based on USEPA 8260	L073B	W	MCERTS
Total petroleum hydrocarbons by GC-FID/GC-MS HS in soil	Determination of total petroleum hydrocarbons in soil by GC-FID/GC-MS HS	In-house method	L076B/L088-PL	D/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
Chloride 10:1 WAC	Determination of Chloride colorimetrically by discrete analyser	In-house based on MEWAM Method ISBN 0117516260	L082B	W	ISO 17025



Analytical Report Number : 24-040876
Project / Site name: Worthing

Water matrix abbreviations:
Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
----------------------	-------------------------------	-----------------------------	---------------	--------------------	----------------------

For method numbers ending in 'UK' or 'A' analysis have been carried out in our laboratory in the United Kingdom (Watford).
For method numbers ending in 'F' analysis have been carried out in our laboratory in the United Kingdom (East Kilbride).
For method numbers ending in 'PL' or 'B' 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.

Quality control parameter failure associated with individual result applies to calculated sum of individuals.
The result for sum should be interpreted with caution

Toureen Contractors Limited
25 Cecil Road
Harrow
Middlesex
HA3 5QY

t: 0208 424 7999

e: Mark.hosking@toureen.co.uk
david.skinner@toureen.co.uk

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 : 24-043374

Project / Site name:	Worthing	Samples received on:	20/09/2024
Your job number:	TCL1437	Samples instructed on/ Analysis started on:	20/09/2024
Your order number:		Analysis completed by:	01/10/2024
Report Issue Number:	1	Report issued on:	01/10/2024
Samples Analysed:	3 10:1 WAC Samples		

Signe

Claire Bancroft
Customer Service Advisor
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: 24-043374

Project / Site name: Worthing

Lab Sample Number	323545	323546	323547
Sample Reference	E1-HS-EX	D1-HS-E	D1-HS-W
Sample Number	None Supplied	None Supplied	None Supplied
Depth (m)	None Supplied	None Supplied	None Supplied
Date Sampled	20/09/2024	20/09/2024	20/09/2024
Time Taken	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Test Limit of detection	Test Accreditation Status

Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1
Moisture Content	%	0.01	NONE	20	14	17
Total mass of sample received	kg	0.1	NONE	1.3	1.3	1.3

General Inorganics

pH (L005B)	pH Units	N/A	MCERTS	7.3	7.9	7.5
Total Organic Carbon (TOC) - Automated	%	0.1	MCERTS	6.2	0.4	0.4
Loss on Ignition @ 450°C	%	0.2	MCERTS	11	1.6	1.8
Acid Neutralisation Capacity	mmol/kg	-9999	NONE	0.55	5.9	2.4

Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	4000 ^s	0.19	0.93
Acenaphthylene	mg/kg	0.05	MCERTS	340	0.43	0.74
Acenaphthene	mg/kg	0.05	MCERTS	240	0.15	0.5
Fluorene	mg/kg	0.05	MCERTS	580	0.16	0.46
Phenanthrene	mg/kg	0.05	MCERTS	1800 ^s	0.77	2.8
Anthracene	mg/kg	0.05	MCERTS	670	0.36	0.93
Fluoranthene	mg/kg	0.05	MCERTS	1200 ^s	2.5	6.5
Pyrene	mg/kg	0.05	MCERTS	1000 ^s	2.5	5.1
Benzo(a)anthracene	mg/kg	0.05	MCERTS	480	1.7	2.8
Chrysene	mg/kg	0.05	MCERTS	420	1.8	2.7
Benzo(b)fluoranthene	mg/kg	0.05	ISO 17025	430	3.3	4.8
Benzo(k)fluoranthene	mg/kg	0.05	ISO 17025	200	1	1.9
Benzo(a)pyrene	mg/kg	0.05	MCERTS	460	2.9	3.2
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	210	1.5	2.9
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	35	0.35	0.61
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	230	1.7	3.3
Coronene	mg/kg	0.05	NONE	80	0.58	1.2

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	ISO 17025	12300	21.2	40.1
Total WAC-17 PAHs	mg/kg	0.85	NONE	12400	21.8	41.2

Petroleum Hydrocarbons

Mineral Oil (EC10 - EC40) EH_CU_1D_AL	mg/kg	10	NONE	5800	< 10	75
---------------------------------------	-------	----	------	------	------	----

VOCs

Benzene	µg/kg	5	MCERTS	160000 ^{&+}	64	< 5.0
Toluene	µg/kg	5	MCERTS	120000 ^{&+}	120	< 5.0
Ethylbenzene	µg/kg	5	MCERTS	34000 ^{&%}	< 5.0	< 5.0
p & m-Xylene	µg/kg	5	MCERTS	120000 ^{&+}	87	< 5.0
o-Xylene	µg/kg	5	MCERTS	46000 ^{&%}	47	< 5.0

Total BTEX	µg/kg	5	MCERTS	490000	320	< 5.0
------------	-------	---	--------	--------	-----	-------

Analytical Report Number: 24-043374
Project / Site name: Worthing

Lab Sample Number				323545	323546	323547
Sample Reference				E1-HS-EX	D1-HS-E	D1-HS-W
Sample Number				None Supplied	None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied	None Supplied
Date Sampled				20/09/2024	20/09/2024	20/09/2024
Time Taken				None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)				Units	Test Limit of detection	Test Accreditation Status

PCBs by GC-MS

PCB Congener 28	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001
PCB Congener 52	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001
PCB Congener 101	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001
PCB Congener 118	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001
PCB Congener 138	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001
PCB Congener 153	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001
PCB Congener 180	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001
Total PCBs	mg/kg	0.007	MCERTS	< 0.007	< 0.007	< 0.007

U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected

i2 Analytical

7 Woodshots Meadow
Croxley Green Business Park
Watford, WD18 8YS

Telephone: 01923 225404
Fax: 01923 237404
email:reception@i2analytical.com

Waste Acceptance Criteria Analytical Results

Waste Acceptance Criteria Analytical Results							
Report No:	24-043374						
					Client: TOUREENMANG		
Location	Worthing						
Lab Reference (Sample Number)	323545				Landfill Waste Acceptance Criteria		
					Limits		
Sampling Date	20/09/2024				Inert Waste Landfill	Stable Non-reactive HAZARDOUS waste in non-hazardous Landfill	Hazardous Waste Landfill
Sample ID	E1-HS-EX						
Depth (m)							
Solid Waste Analysis							
TOC (%)**	6.2				3%	5%	6%
Loss on Ignition (%) **	11				--	--	10%
BTEX (µg/kg) **	490000				6000	--	--
Sum of PCBs (mg/kg) **	< 0.007				1	--	--
Mineral Oil (mg/kg) EH, ID, CU, AL	5800				500	--	--
Total PAH (WAC-17) (mg/kg)	12400				100	--	--
pH (units)**	7.3				--	>6	--
Acid Neutralisation Capacity (mmol / kg)	0.55				--	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 *	0.00442			0.0442	0.5	2	25
Barium *	0.0167			0.167	20	100	300
Cadmium *	< 0.000100			< 0.00100	0.04	1	5
Chromium *	0.0015			0.015	0.5	10	70
Copper *	0.018			0.18	2	50	100
Mercury *	< 0.000500			< 0.00500	0.01	0.2	2
Molybdenum *	0.00311			0.0311	0.5	10	30
Nickel *	0.0018			0.018	0.4	10	40
Lead *	0.0031			0.031	0.5	10	50
Antimony *	< 0.0017			< 0.017	0.06	0.7	5
Selenium *	< 0.0040			< 0.040	0.1	0.5	7
Zinc *	0.0070			0.070	4	50	200
Chloride *	31			310	800	15000	25000
Fluoride*	0.14			1.4	10	150	500
Sulphate *	320			3200	1000	20000	50000
TDS*	280			2800	4000	60000	100000
Phenol Index (Monohydric Phenols) *	11			110	1	-	-
DOC	70.6			706	500	800	1000
Leach Test Information							
Stone Content (%)	< 0.1						
Sample Mass (kg)	1.3						
Dry Matter (%)	80						
Moisture (%)	20						
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.

i2 Analytical

7 Woodshots Meadow
Croxley Green Business Park
Watford, WD18 8YS

Telephone: 01923 225404
Fax: 01923 237404
email:reception@i2analytical.com

Waste Acceptance Criteria Analytical Results

Waste Acceptance Criteria Analytical Results							
Report No:	24-043374						
					Client: TOUREENMANG		
Location	Worthing						
Lab Reference (Sample Number)	323546				Landfill Waste Acceptance Criteria		
Sampling Date	20/09/2024				Limits		
Sample ID	D1-HS-E				Inert Waste Landfill	Stable Non-reactive HAZARDOUS waste in non-hazardous Landfill	Hazardous Waste Landfill
Depth (m)							
Solid Waste Analysis							
TOC (%)**	0.4				3%	5%	6%
Loss on Ignition (%) **	1.6				--	--	10%
BTEX (µg/kg) **	320				6000	--	--
Sum of PCBs (mg/kg) **	< 0.007				1	--	--
Mineral Oil (mg/kg) EH, ID, CU, AL	< 10				500	--	--
Total PAH (WAC-17) (mg/kg)	21.8				100	--	--
pH (units)**	7.9				--	>6	--
Acid Neutralisation Capacity (mmol / kg)	5.9				--	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)	10:1			10:1	using BS EN 12457-2 at L/S 10 l/kg (mg/kg)		
	mg/l			mg/kg			
Arsenic *	< 0.00100			< 0.0100	0.5	2	25
Barium *	0.0117			0.117	20	100	300
Cadmium *	< 0.000100			< 0.00100	0.04	1	5
Chromium *	0.00098			0.0098	0.5	10	70
Copper *	0.0055			0.055	2	50	100
Mercury *	< 0.000500			< 0.00500	0.01	0.2	2
Molybdenum *	0.00665			0.0665	0.5	10	30
Nickel *	< 0.00030			< 0.0030	0.4	10	40
Lead *	0.0020			0.020	0.5	10	50
Antimony *	< 0.0017			< 0.017	0.06	0.7	5
Selenium *	< 0.0040			< 0.040	0.1	0.5	7
Zinc *	0.0016			0.016	4	50	200
Chloride *	1.7			17	800	15000	25000
Fluoride*	0.74			7.4	10	150	500
Sulphate *	14			140	1000	20000	50000
TDS*	72			720	4000	60000	100000
Phenol Index (Monohydric Phenols) *	< 0.010			< 0.10	1	-	-
DOC	14.8			148	500	800	1000
Leach Test Information							
Stone Content (%)	< 0.1						
Sample Mass (kg)	1.3						
Dry Matter (%)	86						
Moisture (%)	14						
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.



7 Woodshots Meadow
Croxley Green Business Park
Watford, WD18 8YS

Telephone: 01923 225404
Fax: 01923 237404
email: reception@i2analytical.com

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 : 24-043374
Project / Site name: Worthing

* 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 *
323545	E1-HS-EX	None Supplied	None Supplied	Black clay and sand with tar and gravel
323546	D1-HS-E	None Supplied	None Supplied	Brown clay and sand with gravel
323547	D1-HS-W	None Supplied	None Supplied	Brown clay and sand with gravel

Analytical Report Number : 24-043374

Project / Site name: Worthing

Water matrix abbreviations:

Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
pH at 20°C in soil	Determination of pH in soil by addition of water followed by electrometric measurement	In-house method	L005B	W	MCERTS
Total organic carbon (Automated) in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate (Walkley Black Method)	In-house method	L009B	D	MCERTS
Moisture Content	Moisture content, determined gravimetrically (up to 30°C)	In-house method	L019B	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.	L019B	D	NONE
PCB's By GC-MS in soil	Determination of PCB by extraction with hexane followed by GC-MS	In-house method based on USEPA 8082	L027B	D	MCERTS
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	L031B	W	ISO 17025
Fluoride 10:1 WAC	Determination of fluoride in leachate by 1:1 ratio 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	W	ISO 17025
Dissolved organic carbon 10:1 WAC	Determination of dissolved organic carbon in leachate by TOC/DOC NDIR Analyser	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L037B	W	NONE
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	L039B	W	ISO 17025
Sample Preparation		In-house method	L043B	W	NONE
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	L046B	W	NONE
Loss on ignition of soil @ 450°C	Determination of loss on ignition in soil by gravimetrically with the sample being ignited in a muffle furnace	In-house method	L047-PL	D	MCERTS
Speciated PAHs and/or Semi-volatile organic compounds in soil	Determination of semi-volatile organic compounds (including PAH) in soil by extraction in dichloromethane and hexane followed by GC-MS	In-house method based on USEPA 8270	L064B	D	MCERTS
BTEX and/or Volatile organic compounds in soil	Determination of volatile organic compounds in soil by headspace GC-MS	In-house method based on USEPA 8260	L073B	W	MCERTS
Total petroleum hydrocarbons by GC-FID/GC-MS HS in soil	Determination of total petroleum hydrocarbons in soil by GC-FID/GC-MS HS	In-house method	L076B/L088-PL	D/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

Analytical Report Number : 24-043374

Project / Site name: Worthing

Water matrix abbreviations:

Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Chloride 10:1 WAC	Determination of Chloride colorimetrically by discrete analyser	In-house based on MEWAM Method ISBN 0117516260	L082B	W	ISO 17025

For method numbers ending in 'UK' or 'A' analysis have been carried out in our laboratory in the United Kingdom (Watford).

For method numbers ending in 'F' analysis have been carried out in our laboratory in the United Kingdom (East Kilbride).

For method numbers ending in 'PL' or 'B' 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.

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.

Information in Support of Analytical Results

List of HWOL Acronyms and Operators

Acronym	Descriptions
HS	Headspace Analysis
MS	Mass spectrometry
FID	Flame Ionisation Detector
GC	Gas Chromatography
EH	Extractable Hydrocarbons (i.e. everything extracted by the solvent(s))
CU	Clean-up - e.g. by Florisil®, silica gel
1D	GC - Single coil/column gas chromatography
2D	GC-GC - Double coil/column gas chromatography
Total	Aliphatics & Aromatics
AL	Aliphatics
AR	Aromatics
#1	EH_2D_Total but with humics mathematically subtracted
#2	EH_2D_Total but with fatty acids mathematically subtracted
-	Operator - underscore to separate acronyms (exception for +)
+	Operator to indicate cumulative e.g. EH+HS_Total or EH_CU+HS_Total

Quality control parameter failure associated with individual result applies to calculated sum of individuals.

The result for sum should be interpreted with caution

\$ - Concentration has been determined by extrapolated calibration as analyte concentration is above the concentration range for the procedure after dilution. The result should be considered as deviating and should be interpreted with caution. The result is not accredited.

&+ - Result is above calibration range after the maximum dilution has been applied. The result should be considered the minimum value. The actual result could be significantly higher. This result is not accredited.

\$% - Concentration has been determined by extrapolated calibration as analyte concentration is above the concentration range for the procedure. The result should be considered as deviating and should be interpreted with caution. The result is not accredited.



4041



Toureen Contractors Limited
25 Cecil Road
Harrow
Middlesex
HA3 5QY

t: 0208 424 7999

e: Mark.hosking@toureen.co.uk
david.skinner@toureen.co.uk
rick.willemse@toureen.co.uk

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 : 24-043888

Project / Site name:	Worthing	Samples received on:	20/09/2024
Your job number:	TCL1437	Samples instructed on/ Analysis started on:	25/09/2024
Your order number:		Analysis completed by:	01/10/2024
Report Issue Number:	1	Report issued on:	01/10/2024
Samples Analysed:	1 10:1 WAC Sample		

Signed:

Claire Bancroft
Customer Service Advisor
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.



4041



Analytical Report Number: 24-043888

Project / Site name: Worthing

Lab Sample Number				326478
Sample Reference				SP-SUB-(2)-A
Sample Number				None Supplied
Depth (m)				None Supplied
Date Sampled				20/09/2024
Time Taken				None Supplied
Analytical Parameter (Soil Analysis)	Units	Test Limit of detection	Test Accreditation Status	

Stone Content	%	0.1	NONE	< 0.1
Moisture Content	%	0.01	NONE	14
Total mass of sample received	kg	0.1	NONE	0.8

General Inorganics

Total Organic Carbon (TOC) - Automated	%	0.1	NONE	0.3
--	---	-----	------	-----

Speciated PAHs

Naphthalene	mg/kg	0.05	NONE	0.56
Acenaphthylene	mg/kg	0.05	NONE	0.63
Acenaphthene	mg/kg	0.05	NONE	0.14
Fluorene	mg/kg	0.05	NONE	0.3
Phenanthrene	mg/kg	0.05	NONE	3.7
Anthracene	mg/kg	0.05	NONE	1.2
Fluoranthene	mg/kg	0.05	NONE	9.2
Pyrene	mg/kg	0.05	NONE	8.7
Benzo(a)anthracene	mg/kg	0.05	NONE	5.2
Chrysene	mg/kg	0.05	NONE	5.3
Benzo(b)fluoranthene	mg/kg	0.05	NONE	6.6
Benzo(k)fluoranthene	mg/kg	0.05	NONE	2.8
Benzo(a)pyrene	mg/kg	0.05	NONE	5
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	NONE	3.1
Dibenz(a,h)anthracene	mg/kg	0.05	NONE	0.8
Benzo(ghi)perylene	mg/kg	0.05	NONE	3.2
Coronene	mg/kg	0.05	NONE	< 0.05

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	NONE	56.4
Total WAC-17 PAHs	mg/kg	0.85	NONE	56.4

Petroleum Hydrocarbons

Mineral Oil (EC10 - EC40) EH_CU_1D_AL	mg/kg	10	NONE	< 10
--	-------	----	------	------

VOCs

Benzene	µg/kg	5	NONE	< 5.0
Toluene	µg/kg	5	NONE	< 5.0
Ethylbenzene	µg/kg	5	NONE	< 5.0
p & m-Xylene	µg/kg	5	NONE	< 5.0
o-Xylene	µg/kg	5	NONE	< 5.0

Total BTEX	µg/kg	5	NONE	< 5.0
------------	-------	---	------	-------

PCBs by GC-MS

PCB Congener 28	mg/kg	0.001	NONE	< 0.001
PCB Congener 52	mg/kg	0.001	NONE	< 0.001
PCB Congener 101	mg/kg	0.001	NONE	< 0.001
PCB Congener 118	mg/kg	0.001	NONE	< 0.001
PCB Congener 138	mg/kg	0.001	NONE	< 0.001
PCB Congener 153	mg/kg	0.001	NONE	< 0.001
PCB Congener 180	mg/kg	0.001	NONE	< 0.001



4041



Analytical Report Number: 24-043888

Project / Site name: Worthing

Lab Sample Number				326478
Sample Reference				SP-SUB-(2)-A
Sample Number				None Supplied
Depth (m)				None Supplied
Date Sampled				20/09/2024
Time Taken				None Supplied
Analytical Parameter (Soil Analysis)		Units	Test Limit of detection	Test Accreditation Status

Total PCBs	mg/kg	0.007	NONE	< 0.007
------------	-------	-------	------	---------

U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected

i2 Analytical

7 Woodshots Meadow
Croxley Green Business Park
Watford, WD18 8YS

Telephone: 01923 225404
Fax: 01923 237404
email:reception@i2analytical.com

Waste Acceptance Criteria Analytical Results

Report No:	24-043888						
					Client: TOUREENMANG		
Location	Worthing						
Lab Reference (Sample Number)	326478				Landfill Waste Acceptance Criteria		
Sampling Date	20/09/2024				Limits		
Sample ID	SP-SUB-(2)-A				Inert Waste Landfill	Stable Non-reactive HAZARDOUS waste in non-hazardous Landfill	Hazardous Waste Landfill
Depth (m)							
Solid Waste Analysis							
TOC (%)	0.3				3%	5%	6%
Loss on Ignition (%)	-				--	--	10%
BTEX (µg/kg)	< 5.0				6000	--	--
Sum of PCBs (mg/kg)	< 0.007				1	--	--
Mineral Oil (mg/kg) EH_1D_CU_AL	< 10				500	--	--
Total PAH (WAC-17) (mg/kg)	56.4				100	--	--
pH (units)	-				--	>6	--
Acid Neutralisation Capacity (mmol / kg)	-				--	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 *	< 0.00100			< 0.0100	0.5	2	25
Barium *	0.0177			0.177	20	100	300
Cadmium *	< 0.000100			< 0.00100	0.04	1	5
Chromium *	0.0030			0.030	0.5	10	70
Copper *	0.0066			0.066	2	50	100
Mercury *	< 0.000500			< 0.00500	0.01	0.2	2
Molybdenum *	0.000557			0.00557	0.5	10	30
Nickel *	< 0.00030			< 0.0030	0.4	10	40
Lead *	0.0031			0.031	0.5	10	50
Antimony *	0.0079			0.079	0.06	0.7	5
Selenium *	< 0.0040			< 0.040	0.1	0.5	7
Zinc *	0.0059			0.059	4	50	200
Chloride *	0.33			3.3	800	15000	25000
Fluoride*	0.19			1.9	10	150	500
Sulphate *	6.1			61	1000	20000	50000
TDS*	31			310	4000	60000	100000
Phenol Index (Monohydric Phenols) *	< 0.010			< 0.10	1	-	-
DOC	1.77			17.7	500	800	1000
Leach Test Information							
Stone Content (%)	< 0.1						
Sample Mass (kg)	0.8						
Dry Matter (%)	86						
Moisture (%)	14						
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.



4041



Analytical Report Number : 24-043888

Project / Site name: Worthing

* 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 *
326478	SP-SUB-(2)-A	None Supplied	None Supplied	Non Soil. ¹⁹



4041



Environmental Science

Analytical Report Number : 24-043888

Project / Site name: Worthing

Water matrix abbreviations:

Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

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 (Walkley Black Method)	In-house method	L009B	D	NONE
Moisture Content	Moisture content, determined gravimetrically (up to 30°C)	In-house method	L019B	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.	L019B	D	NONE
PCB's By GC-MS in soil	Determination of PCB by extraction with hexane followed by GC-MS	In-house method based on USEPA 8082	L027B	D	NONE
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	L031B	W	ISO 17025
Fluoride 10:1 WAC	Determination of fluoride in leachate by 1:1 ratio 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	W	ISO 17025
Dissolved organic carbon 10:1 WAC	Determination of dissolved organic carbon in leachate by TOC/DOC NDIR Analyser	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L037B	W	NONE
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	L039B	W	ISO 17025
Sample Preparation		In-house method	L043B	W	NONE
Speciated PAHs and/or Semi-volatile organic compounds in soil	Determination of semi-volatile organic compounds (including PAH) in soil by extraction in dichloromethane and hexane followed by GC-MS	In-house method based on USEPA 8270	L064B	D	NONE
BTEX and/or Volatile organic compounds in soil	Determination of volatile organic compounds in soil by headspace GC-MS	In-house method based on USEPA 8260	L073B	W	NONE
Total petroleum hydrocarbons by GC-FID/GC-MS HS in soil	Determination of total petroleum hydrocarbons in soil by GC-FID/GC-MS HS	In-house method	L076B/L088-PL	D/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

Analytical Report Number : 24-043888

Project / Site name: Worthing

Water matrix abbreviations:

Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Chloride 10:1 WAC	Determination of Chloride colorimetrically by discrete analyser	In-house based on MEWAM Method ISBN 0117516260	L082B	W	ISO 17025

For method numbers ending in 'UK' or 'A' analysis have been carried out in our laboratory in the United Kingdom (Watford).

For method numbers ending in 'F' analysis have been carried out in our laboratory in the United Kingdom (East Kilbride).

For method numbers ending in 'PL' or 'B' 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.

Information in Support of Analytical Results

List of HWOL Acronyms and Operators

Acronym	Descriptions
HS	Headspace Analysis
MS	Mass spectrometry
FID	Flame Ionisation Detector
GC	Gas Chromatography
EH	Extractable Hydrocarbons (i.e. everything extracted by the solvent(s))
CU	Clean-up - e.g. by Florisil®, silica gel
1D	GC - Single coil/column gas chromatography
2D	GC-GC - Double coil/column gas chromatography
Total	Aliphatics & Aromatics
AL	Aliphatics
AR	Aromatics
#1	EH_2D_Total but with humics mathematically subtracted
#2	EH_2D_Total but with fatty acids mathematically subtracted
-	Operator - underscore to separate acronyms (exception for +)
+	Operator to indicate cumulative e.g. EH+HS_Total or EH_CU+HS_Total

Quality control parameter failure associated with individual result applies to calculated sum of individuals.

The result for sum should be interpreted with caution

*g - Unaccredited sample matrix.



4041



Toureen Contractors Limited
25 Cecil Road
Harrow
Middlesex
HA3 5QY

t: 0208 424 7999

e: Mark.hosking@toureen.co.uk
david.skinner@toureen.co.uk
rick.willemse@toureen.co.uk

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 : 24-047815

Project / Site name:	Worthing	Samples received on:	15/10/2024
Your job number:	TCL1437	Samples instructed on/ Analysis started on:	15/10/2024
Your order number:	TCL1437	Analysis completed by:	24/10/2024
Report Issue Number:	1	Report issued on:	24/10/2024
Samples Analysed:	2 soil samples - 2 leachate samples		

Signed:

Anna Goc
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.

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.



4041



Analytical Report Number: 24-047815

Project / Site name: Worthing

Your Order No: TCL1437

Lab Sample Number				348875	348876
Sample Reference				F5 CP Chalk	E5 CP Chalk
Sample Number				None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied
Date Sampled				15/10/2024	15/10/2024
Time Taken				None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Test Limit of detection	Test Accreditation Status		

Stone Content	%	0.1	NONE	< 0.1	< 0.1
Moisture Content	%	0.01	NONE	19	20
Total mass of sample received	kg	0.1	NONE	0.8	0.8

General Inorganics

pH (L005B)	pH Units	N/A	NONE	8.3	7.5
Total Organic Carbon (TOC) - Automated	%	0.1	NONE	0.3	0.4
Loss on Ignition @ 450°C	%	0.2	NONE	1	1.4
Acid Neutralisation Capacity	mmol/kg	-9999	NONE	16	1.1

Speciated PAHs

Naphthalene	mg/kg	0.05	NONE	0.16	0.17
Acenaphthylene	mg/kg	0.05	NONE	0.33	0.1
Acenaphthene	mg/kg	0.05	NONE	0.1	0.13
Fluorene	mg/kg	0.05	NONE	0.34	0.44
Phenanthrene	mg/kg	0.05	NONE	3.4	1.1
Anthracene	mg/kg	0.05	NONE	0.95	0.81
Fluoranthene	mg/kg	0.05	NONE	4.8	2.8
Pyrene	mg/kg	0.05	NONE	3.8	2.4
Benzo(a)anthracene	mg/kg	0.05	NONE	< 0.05	1.5
Chrysene	mg/kg	0.05	NONE	1.9	1.5
Benzo(b)fluoranthene	mg/kg	0.05	NONE	2.4	1.7
Benzo(k)fluoranthene	mg/kg	0.05	NONE	0.93	0.88
Benzo(a)pyrene	mg/kg	0.05	NONE	2.3	1.8
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	NONE	0.87	1.1
Dibenz(a,h)anthracene	mg/kg	0.05	NONE	0.27	0.28
Benzo(ghi)perylene	mg/kg	0.05	NONE	0.84	1.1
Coronene	mg/kg	0.05	NONE	0.35	< 0.05

Total PAH

Total WAC-17 PAHs	mg/kg	0.85	NONE	23.7	17.8
-------------------	-------	------	------	------	------

Petroleum Hydrocarbons

Mineral Oil (EC10 - EC40) EH_CU_10_AL	mg/kg	10	NONE	< 10	< 10
--	-------	----	------	------	------

VOCs

Benzene	µg/kg	5	NONE	< 5.0	< 5.0
Toluene	µg/kg	5	NONE	< 5.0	< 5.0
Ethylbenzene	µg/kg	5	NONE	< 5.0	< 5.0
p & m-Xylene	µg/kg	8	NONE	< 8.0	< 8.0
o-Xylene	µg/kg	5	NONE	< 5.0	< 5.0

Total BTEX	µg/kg	10	NONE	< 10	< 10
------------	-------	----	------	------	------



4041



Analytical Report Number: 24-047815

Project / Site name: Worthing

Your Order No: TCL1437

Lab Sample Number				348875	348876
Sample Reference				F5 CP Chalk	E5 CP Chalk
Sample Number				None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied
Date Sampled				15/10/2024	15/10/2024
Time Taken				None Supplied	None Supplied
Analytical Parameter (Soil Analysis)				Units	Test Limit of detection
				Test Accreditation Status	

PCBs by GC-MS

PCB Congener 28	mg/kg	0.001	NONE	< 0.001	< 0.001
PCB Congener 52	mg/kg	0.001	NONE	< 0.001	< 0.001
PCB Congener 101	mg/kg	0.001	NONE	< 0.001	< 0.001
PCB Congener 118	mg/kg	0.001	NONE	< 0.001	< 0.001
PCB Congener 138	mg/kg	0.001	NONE	< 0.001	< 0.001
PCB Congener 153	mg/kg	0.001	NONE	< 0.001	< 0.001
PCB Congener 180	mg/kg	0.001	NONE	< 0.001	< 0.001

Total PCBs	mg/kg	0.007	NONE	< 0.007	< 0.007
------------	-------	-------	------	---------	---------

U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected

i2 Analytical

7 Woodshots Meadow
Croxtley Green Business Park
Watford, WD18 8YS

Telephone: 01923 225404
Fax: 01923 237404
email:reception@i2analytical.com

Waste Acceptance Criteria Analytical Results

Report No:	24-047815						
					Client: TOUREENMANG		
Location	Worthing						
Lab Reference (Sample Number)	348875				Landfill Waste Acceptance Criteria		
					Limits		
Sampling Date	15/10/2024				Inert Waste Landfill	Stable Non-reactive HAZARDOUS waste in non-hazardous Landfill	Hazardous Waste Landfill
Sample ID	F5 CP Chalk						
Depth (m)							
Solid Waste Analysis							
TOC (%)	0.3				3%	5%	6%
Loss on Ignition (%)	1.0				--	--	10%
BTEX (µg/kg)	< 10				6000	--	--
Sum of PCBs (mg/kg)	< 0.007				1	--	--
Mineral Oil (mg/kg) EH_1D_CU_AL	< 10				500	--	--
Total PAH (WAC-17) (mg/kg)	23.7				100	--	--
pH (units)	8.3				--	>6	--
Acid Neutralisation Capacity (mmol / kg)	16				--	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 *	< 0.00100			< 0.0100	0.5	2	25
Barium *	0.00873			0.0873	20	100	300
Cadmium *	< 0.000100			< 0.00100	0.04	1	5
Chromium *	< 0.00040			< 0.0040	0.5	10	70
Copper *	0.012			0.12	2	50	100
Mercury *	0.000514			0.00514	0.01	0.2	2
Molybdenum *	0.000659			0.00659	0.5	10	30
Nickel *	0.0018			0.018	0.4	10	40
Lead *	< 0.0010			< 0.010	0.5	10	50
Antimony *	< 0.0017			< 0.017	0.06	0.7	5
Selenium *	< 0.0040			< 0.040	0.1	0.5	7
Zinc *	0.0050			0.050	4	50	200
Chloride *	0.90			9.0	800	15000	25000
Fluoride*	0.12			1.2	10	150	500
Sulphate *	1.5			15	1000	20000	50000
TDS*	31			310	4000	60000	100000
Phenol Index (Monohydric Phenols) *	< 0.010			< 0.10	1	-	-
DOC	5.03			50.3	500	800	1000
Leach Test Information							
Stone Content (%)	< 0.1						
Sample Mass (kg)	0.8						
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							
** = MCERTS accredited							
* = UKAS accredited (liquid eluate analysis only)							

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.

i2 Analytical

7 Woodshots Meadow
Croxley Green Business Park
Watford, WD18 8YS

Telephone: 01923 225404
Fax: 01923 237404
email: reception@i2analytical.com

Waste Acceptance Criteria Analytical Results

Report No:	24-047815						
					Client: TOUREENMANG		
Location	Worthing						
Lab Reference (Sample Number)	348876				Landfill Waste Acceptance Criteria		
					Limits		
Sampling Date	15/10/2024				Inert Waste Landfill	Stable Non-reactive HAZARDOUS waste in non-hazardous Landfill	Hazardous Waste Landfill
Sample ID	E5 CP Chalk						
Depth (m)							
Solid Waste Analysis							
TOC (%)	0.4				3%	5%	6%
Loss on Ignition (%)	1.4				--	--	10%
BTEX (µg/kg)	< 10				6000	--	--
Sum of PCBs (mg/kg)	< 0.007				1	--	--
Mineral Oil (mg/kg) EH_1D_CU_AL	< 10				500	--	--
Total PAH (WAC-17) (mg/kg)	17.8				100	--	--
pH (units)	7.5				--	>6	--
Acid Neutralisation Capacity (mmol / kg)	1.1				--	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 *	< 0.00100			< 0.0100	0.5	2	25
Barium *	0.0133			0.133	20	100	300
Cadmium *	< 0.000100			< 0.00100	0.04	1	5
Chromium *	0.0011			0.011	0.5	10	70
Copper *	0.023			0.23	2	50	100
Mercury *	0.00138			0.0138	0.01	0.2	2
Molybdenum *	0.0371			0.371	0.5	10	30
Nickel *	0.0046			0.046	0.4	10	40
Lead *	< 0.0010			< 0.010	0.5	10	50
Antimony *	< 0.0017			< 0.017	0.06	0.7	5
Selenium *	< 0.0040			< 0.040	0.1	0.5	7
Zinc *	0.0079			0.079	4	50	200
Chloride *	1.7			17	800	15000	25000
Fluoride*	0.17			1.7	10	150	500
Sulphate *	12			120	1000	20000	50000
TDS*	51			510	4000	60000	100000
Phenol Index (Monohydric Phenols) *	< 0.010			< 0.10	1	-	-
DOC	7.00			70.0	500	800	1000
Leach Test Information							
Stone Content (%)	< 0.1						
Sample Mass (kg)	0.8						
Dry Matter (%)	80						
Moisture (%)	20						
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.



4041



Analytical Report Number : 24-047815

Project / Site name: Worthing

* 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 *
348875	F5 CP Chalk	None Supplied	None Supplied	Beige chalk ^{*g}
348876	E5 CP Chalk	None Supplied	None Supplied	Beige chalk with gravel ^{*g}



4041



Environmental Science

Analytical Report Number : 24-047815

Project / Site name: Worthing

Water matrix abbreviations:

Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
pH at 20°C in soil	Determination of pH in soil by addition of water followed by electrometric measurement	In-house method	L005B	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 (Walkley Black Method)	In-house method	L009B	D	NONE
Moisture Content	Moisture content, determined gravimetrically (up to 30°C)	In-house method	L019B	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.	L019B	D	NONE
PCB's By GC-MS in soil	Determination of PCB by extraction with hexane followed by GC-MS	In-house method based on USEPA 8082	L027B	D	NONE
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	L031B	W	ISO 17025
Fluoride 10:1 WAC	Determination of fluoride in leachate by 1:1 ratio 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	W	ISO 17025
Dissolved organic carbon 10:1 WAC	Determination of dissolved organic carbon in leachate by TOC/DOC NDIR Analyser	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L037B	W	NONE
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	L039B	W	ISO 17025
Sample Preparation		In-house method	L043B	W	NONE
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	L046B	W	NONE
Loss on ignition of soil @ 450°C	Determination of loss on ignition in soil by gravimetrically with the sample being ignited in a muffle furnace	In-house method	L047-PL	D	NONE
Speciated PAHs and/or Semi-volatile organic compounds in soil	Determination of semi-volatile organic compounds (including PAH) in soil by extraction in dichloromethane and hexane followed by GC-MS	In-house method based on USEPA 8270	L064B	D	NONE
BTEX and/or Volatile organic compounds in soil	Determination of volatile organic compounds in soil by headspace GC-MS	In-house method based on USEPA 8260	L073B	W	NONE
Total petroleum hydrocarbons by GC-FID/GC-MS HS in soil	Determination of total petroleum hydrocarbons in soil by GC-FID/GC-MS HS	In-house method	L076B/L088-PL	D/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

Analytical Report Number : 24-047815

Project / Site name: Worthing

Water matrix abbreviations:

Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Chloride 10:1 WAC	Determination of Chloride colorimetrically by discrete analyser	In-house based on MEWAM Method ISBN 0117516260	L082B	W	ISO 17025

For method numbers ending in 'UK' or 'A' analysis have been carried out in our laboratory in the United Kingdom (Watford).

For method numbers ending in 'F' analysis have been carried out in our laboratory in the United Kingdom (East Kilbride).

For method numbers ending in 'PL' or 'B' 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.

Information in Support of Analytical Results

List of HWOL Acronyms and Operators

Acronym	Descriptions
HS	Headspace Analysis
MS	Mass spectrometry
FID	Flame Ionisation Detector
GC	Gas Chromatography
EH	Extractable Hydrocarbons (i.e. everything extracted by the solvent(s))
CU	Clean-up - e.g. by Florisil®, silica gel
1D	GC - Single coil/column gas chromatography
2D	GC-GC - Double coil/column gas chromatography
Total	Aliphatics & Aromatics
AL	Aliphatics
AR	Aromatics
#1	EH_2D_Total but with humics mathematically subtracted
#2	EH_2D_Total but with fatty acids mathematically subtracted
-	Operator - underscore to separate acronyms (exception for +)
+	Operator to indicate cumulative e.g. EH+HS_Total or EH_CU+HS_Total

Quality control parameter failure associated with individual result applies to calculated sum of individuals.

The result for sum should be interpreted with caution

*g - Unaccredited sample matrix.

Toureen Contractors Limited
25 Cecil Road
Harrow
Middlesex
HA3 5QY

t: 0208 424 7999

e: Mark.hosking@toureen.co.uk
david.skinner@toureen.co.uk
rick.willemse@toureen.co.uk

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 : 24-047398

Project / Site name:	Worthing	Samples received on:	14/10/2024
Your job number:	TCL 1437	Samples instructed on/ Analysis started on:	14/10/2024
Your order number:		Analysis completed by:	23/10/2024
Report Issue Number:	1	Report issued on:	23/10/2024
Samples Analysed:	2 soil samples - 2 leachate samples		

Signed:

Trevor Hill
Customer Service Advisor
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: 24-047398

Project / Site name: Worthing

Lab Sample Number				346746	346747
Sample Reference				BH02-HS	F5 Tarmac
Sample Number				None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied
Date Sampled				11/10/2024	11/10/2024
Time Taken				None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Test Limit of detection	Test Accreditation Status		

Stone Content	%	0.1	NONE	< 0.1	< 0.1
Moisture Content	%	0.01	NONE	18	< 0.01
Total mass of sample received	kg	0.1	NONE	0.8	0.8

General Inorganics

pH (L005B)	pH Units	N/A	MCERTS	8	8.4
Total Organic Carbon (TOC) - Automated	%	0.1	MCERTS	0.8	4.8
Loss on Ignition @ 450°C	%	0.2	MCERTS	2.7	10
Acid Neutralisation Capacity	+/- mmol/kg	-9999	NONE	45	1.6

Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	140	0.15
Acenaphthylene	mg/kg	0.05	MCERTS	14	0.17
Acenaphthene	mg/kg	0.05	MCERTS	21	0.31
Fluorene	mg/kg	0.05	MCERTS	44	0.33
Phenanthrene	mg/kg	0.05	MCERTS	150	7.6
Anthracene	mg/kg	0.05	MCERTS	38	0.91
Fluoranthene	mg/kg	0.05	MCERTS	99	10
Pyrene	mg/kg	0.05	MCERTS	81	6.5
Benzo(a)anthracene	mg/kg	0.05	MCERTS	40	1.5
Chrysene	mg/kg	0.05	MCERTS	35	1.7
Benzo(b)fluoranthene	mg/kg	0.05	ISO 17025	38	1.1
Benzo(k)fluoranthene	mg/kg	0.05	ISO 17025	12	0.57
Benzo(a)pyrene	mg/kg	0.05	MCERTS	31	0.8
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	13	0.41
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	2	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	12	0.66
Coronene	mg/kg	0.05	NONE	2.4	< 0.05

Total PAH

Total WAC-17 PAHs	mg/kg	0.85	NONE	772	32.7
-------------------	-------	------	------	-----	------

Petroleum Hydrocarbons

Mineral Oil (EC10 - EC40) EH_CU_10_AL	mg/kg	10	NONE	1300	1600
--	-------	----	------	------	------

VOCs

Benzene	µg/kg	5	MCERTS	< 5.0	< 5.0
Toluene	µg/kg	5	MCERTS	< 5.0	< 5.0
Ethylbenzene	µg/kg	5	MCERTS	68	< 5.0
p & m-Xylene	µg/kg	8	MCERTS	470	< 8.0
o-Xylene	µg/kg	5	MCERTS	210	< 5.0

Total BTEX	µg/kg	10	MCERTS	750	< 10
------------	-------	----	--------	-----	------

Analytical Report Number: 24-047398

Project / Site name: Worthing

Lab Sample Number				346746	346747
Sample Reference				BH02-HS	F5 Tarmac
Sample Number				None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied
Date Sampled				11/10/2024	11/10/2024
Time Taken				None Supplied	None Supplied
Analytical Parameter (Soil Analysis)				Units	Test Limit of detection
				Test Accreditation Status	

PCBs by GC-MS

PCB Congener 28	mg/kg	0.001	MCERTS	< 0.001	< 0.001
PCB Congener 52	mg/kg	0.001	MCERTS	< 0.001	< 0.001
PCB Congener 101	mg/kg	0.001	MCERTS	< 0.001	< 0.001
PCB Congener 118	mg/kg	0.001	MCERTS	< 0.001	< 0.001
PCB Congener 138	mg/kg	0.001	MCERTS	< 0.001	< 0.001
PCB Congener 153	mg/kg	0.001	MCERTS	< 0.001	< 0.001
PCB Congener 180	mg/kg	0.001	MCERTS	< 0.001	< 0.001
Total PCBs	mg/kg	0.007	MCERTS	< 0.007	< 0.007

U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected

i2 Analytical

7 Woodshots Meadow
Croxley Green Business Park
Watford, WD18 8YS

Telephone: 01923 225404
Fax: 01923 237404
email:reception@i2analytical.com

Waste Acceptance Criteria Analytical Results

Report No:	24-047398					
					Client:	TOUREENMANG
Location	Worthing					
Lab Reference (Sample Number)	346746				Landfill Waste Acceptance Criteria	
Sampling Date	11/10/2024				Limits	
Sample ID	BH02-HS				Inert Waste Landfill	Stable Non- reactive HAZARDOUS waste in non- hazardous Landfill
Depth (m)						
Solid Waste Analysis						
TOC (%)**	0.8				3%	5%
Loss on Ignition (%) **	2.7				--	10%
BTEX (µg/kg) **	750				6000	--
Sum of PCBs (mg/kg) **	< 0.007				1	--
Mineral Oil (mg/kg) EH, ID, CU, AL	1300				500	--
Total PAH (WAC-17) (mg/kg)	772				100	--
pH (units)**	8.0				--	>6
Acid Neutralisation Capacity (mmol / kg)	45				--	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 *	< 0.00100			< 0.0100	0.5	2
Barium *	0.0271			0.271	20	100
Cadmium *	< 0.000100			< 0.00100	0.04	1
Chromium *	< 0.00040			< 0.0040	0.5	10
Copper *	0.015			0.15	2	50
Mercury *	< 0.000500			< 0.00500	0.01	0.2
Molybdenum *	0.0124			0.124	0.5	10
Nickel *	0.0023			0.023	0.4	10
Lead *	0.0018			0.018	0.5	10
Antimony *	0.0045			0.045	0.06	0.7
Selenium *	< 0.0040			< 0.040	0.1	0.5
Zinc *	0.0063			0.063	4	50
Chloride *	3.1			31	800	15000
Fluoride*	0.98			9.8	10	150
Sulphate *	40			400	1000	20000
TDS*	150			1500	4000	60000
Phenol Index (Monohydric Phenols) *	0.072			0.72	1	-
DOC	19.5			194	500	800
Leach Test Information						
Stone Content (%)	< 0.1					
Sample Mass (kg)	0.8					
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.



7 Woodshots Meadow
Croxley Green Business Park
Watford, WD18 8YS

Telephone: 01923 225404
Fax: 01923 237404
email:reception@i2analytical.com

Waste Evaluation Criteria Analytical Results								
Report No:		24-047398						
						Client: TOUREENMANG		
Location		Worthing						
Lab Reference (Sample Number)		346747				Landfill Waste Acceptance Criteria		
						Limits		
Sampling Date		11/10/2024				Inert Waste Landfill	Stable Non-reactive HAZARDOUS waste in non-hazardous Landfill	Hazardous Waste Landfill
Sample ID		F5 Tarmac						
Depth (m)								
Solid Waste Analysis								
TOC (%)		4.8				3%	5%	6%
Loss on Ignition (%)		10				--	--	10%
BTEX (µg/kg)		< 10				6000	--	--
Sum of PCBs (mg/kg)		< 0.007				1	--	--
Mineral Oil (mg/kg) EH_1D_CU_AL		1600				500	--	--
Total PAH (WAC-17) (mg/kg)		32.7				100	--	--
pH (units)		8.4				--	>6	--
Acid Neutralisation Capacity (mmol / kg)		1.6				--	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 *		< 0.00100			< 0.0100	0.5	2	25
Barium *		0.00570			0.0570	20	100	300
Cadmium *		< 0.000100			< 0.00100	0.04	1	5
Chromium *		< 0.00040			< 0.0040	0.5	10	70
Copper *		0.0079			0.079	2	50	100
Mercury *		< 0.000500			< 0.00500	0.01	0.2	2
Molybdenum *		0.000877			0.00877	0.5	10	30
Nickel *		< 0.00030			< 0.0030	0.4	10	40
Lead *		< 0.0010			< 0.010	0.5	10	50
Antimony *		< 0.0017			< 0.017	0.06	0.7	5
Selenium *		< 0.0040			< 0.040	0.1	0.5	7
Zinc *		0.0044			0.044	4	50	200
Chloride *		0.74			7.4	800	15000	25000
Fluoride*		< 0.050			< 0.50	10	150	500
Sulphate *		3.0			30	1000	20000	50000
TDS*		30			300	4000	60000	100000
Phenol Index (Monohydric Phenols) *		< 0.010			< 0.10	1	-	-
DOC		8.25			82.5	500	800	1000
Leach Test Information								
Stone Content (%)		< 0.1						
Sample Mass (kg)		0.8						
Dry Matter (%)		> 99.99						
Moisture (%)		< 0.01						
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.

Analytical Report Number : 24-047398

Project / Site name: Worthing

* 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 *
346746	BH02-HS	None Supplied	None Supplied	Brown clay and sand with gravel
346747	FS Tarmac	None Supplied	None Supplied	Non Soil. ⁹

Analytical Report Number : 24-047398

Project / Site name: Worthing

Water matrix abbreviations:

Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
pH at 20°C in soil	Determination of pH in soil by addition of water followed by electrometric measurement	In-house method	L005B	W	MCERTS
Total organic carbon (Automated) in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate (Walkley Black Method)	In-house method	L009B	D	MCERTS
Moisture Content	Moisture content, determined gravimetrically (up to 30°C)	In-house method	L019B	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.	L019B	D	NONE
PCB's By GC-MS in soil	Determination of PCB by extraction with hexane followed by GC-MS	In-house method based on USEPA 8082	L027B	D	MCERTS
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	L031B	W	ISO 17025
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	W	ISO 17025
Dissolved organic carbon 10:1 WAC	Determination of dissolved organic carbon in leachate by TOC/DOC NDIR Analyser	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L037B	W	NONE
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	L039B	W	ISO 17025
Sample Preparation		In-house method	L043B	W	NONE
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	L046B	W	NONE
Loss on ignition of soil @ 450°C	Determination of loss on ignition in soil by gravimetrically with the sample being ignited in a muffle furnace	In-house method	L047-PL	D	MCERTS
Speciated PAHs and/or Semi-volatile organic compounds in soil	Determination of semi-volatile organic compounds (including PAH) in soil by extraction in dichloromethane and hexane followed by GC-MS	In-house method based on USEPA 8270	L064B	D	MCERTS
BTEX and/or Volatile organic compounds in soil	Determination of volatile organic compounds in soil by headspace GC-MS	In-house method based on USEPA 8260	L073B	W	MCERTS
Total petroleum hydrocarbons by GC-FID/GC-MS HS in soil	Determination of total petroleum hydrocarbons in soil by GC-FID/GC-MS HS	In-house method	L076B/L088-PL	D/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

Analytical Report Number : 24-047398

Project / Site name: Worthing

Water matrix abbreviations:

Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Chloride 10:1 WAC	Determination of Chloride colorimetrically by discrete analyser	In-house based on MEWAM Method ISBN 0117516260	L082B	W	ISO 17025

For method numbers ending in 'UK' or 'A' analysis have been carried out in our laboratory in the United Kingdom (Watford).

For method numbers ending in 'F' analysis have been carried out in our laboratory in the United Kingdom (East Kilbride).

For method numbers ending in 'PL' or 'B' 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.

Information in Support of Analytical Results

List of HWOL Acronyms and Operators

Acronym	Descriptions
HS	Headspace Analysis
MS	Mass spectrometry
FID	Flame Ionisation Detector
GC	Gas Chromatography
EH	Extractable Hydrocarbons (i.e. everything extracted by the solvent(s))
CU	Clean-up - e.g. by Florisil®, silica gel
1D	GC - Single coil/column gas chromatography
2D	GC-GC - Double coil/column gas chromatography
Total	Aliphatics & Aromatics
AL	Aliphatics
AR	Aromatics
#1	EH_2D_Total but with humics mathematically subtracted
#2	EH_2D_Total but with fatty acids mathematically subtracted
_	Operator - underscore to separate acronyms (exception for +)
+	Operator to indicate cumulative e.g. EH+HS_Total or EH_CU+HS_Total

Quality control parameter failure associated with individual result applies to calculated sum of individuals.

The result for sum should be interpreted with caution

*g - Unaccredited sample matrix.

Toureen Contractors Limited
25 Cecil Road
Harrow
Middlesex
HA3 5QY

t: 0208 424 7999

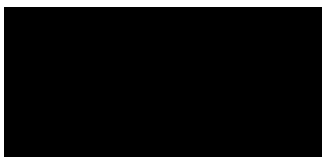
e: Mark.hosking@toureen.co.uk
david.skinner@toureen.co.uk
rick.willemse@toureen.co.uk

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 : 24-048999

Project / Site name:	Worthing	Samples received on:	21/10/2024
Your job number:	TCL 1437	Samples instructed on/ Analysis started on:	21/10/2024
Your order number:	TCL 1437	Analysis completed by:	29/10/2024
Report Issue Number:	1	Report issued on:	30/10/2024
Samples Analysed:	3 10:1 WAC samples		


Signed:

Anna Goc
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.

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: 24-048999

Project / Site name: Worthing

Your Order No: TCL 1437

Lab Sample Number				354725	354726	354727
Sample Reference				E2 ST Backfill	E3 ST Backfill	E4 ST Backfill
Sample Number				None Supplied	None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied	None Supplied
Date Sampled				21/10/2024	21/10/2024	21/10/2024
Time Taken				None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)				Units	Test Limit of detection	Test Accreditation Status

Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1
Moisture Content	%	0.01	NONE	13	11	12
Total mass of sample received	kg	0.1	NONE	0.8	0.9	0.8

General Inorganics

pH (L005B)	pH Units	N/A	MCERTS	9.2	9.3	7.5
Total Organic Carbon (TOC) - Automated	%	0.1	MCERTS	1	1	1
Loss on Ignition @ 450°C	%	0.2	MCERTS	2.8	2.5	2.5
Acid Neutralisation Capacity	mmol/kg	-9999	NONE	13	12	5.4

Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	3.4	2	2.4
Acenaphthylene	mg/kg	0.05	MCERTS	2.7	2.2	1.9
Acenaphthene	mg/kg	0.05	MCERTS	0.97	1.2	0.64
Fluorene	mg/kg	0.05	MCERTS	2.8	2.6	1.9
Phenanthrene	mg/kg	0.05	MCERTS	20	19	12
Anthracene	mg/kg	0.05	MCERTS	6.5	6.2	4.3
Fluoranthene	mg/kg	0.05	MCERTS	31	30	23
Pyrene	mg/kg	0.05	MCERTS	26	25	20
Benzo(a)anthracene	mg/kg	0.05	MCERTS	14	14	12
Chrysene	mg/kg	0.05	MCERTS	13	13	10
Benzo(b)fluoranthene	mg/kg	0.05	ISO 17025	20	17	16
Benzo(k)fluoranthene	mg/kg	0.05	ISO 17025	5.8	6.6	5.2
Benzo(a)pyrene	mg/kg	0.05	MCERTS	15	15	13
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	8.1	7.8	6.9
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	1.9	1.8	1.6
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	9.3	8.8	7.8
Coronene	mg/kg	0.05	NONE	4.3	3.9	3.5

Total PAH

Total WAC-17 PAHs	mg/kg	0.85	NONE	185	175	141
-------------------	-------	------	------	-----	-----	-----

Petroleum Hydrocarbons

Mineral Oil (EC10 - EC40) EH_CU_1D_AL	mg/kg	10	NONE	150	160	140
--	-------	----	------	-----	-----	-----

VOCs

Benzene	µg/kg	5	MCERTS	14	< 5.0	14
Toluene	µg/kg	5	MCERTS	14	< 5.0	< 5.0
Ethylbenzene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0
p & m-Xylene	µg/kg	8	MCERTS	< 8.0	< 8.0	< 8.0
o-Xylene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0
Total BTEX	µg/kg	10	MCERTS	28	< 10	14

Analytical Report Number: 24-048999

Project / Site name: Worthing

Your Order No: TCL 1437

Lab Sample Number				354725	354726	354727
Sample Reference				E2 ST Backfill	E3 ST Backfill	E4 ST Backfill
Sample Number				None Supplied	None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied	None Supplied
Date Sampled				21/10/2024	21/10/2024	21/10/2024
Time Taken				None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)				Units	Test Limit of detection	Test Accreditation Status

PCBs by GC-MS

PCB Congener 28	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001
PCB Congener 52	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001
PCB Congener 101	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001
PCB Congener 118	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001
PCB Congener 138	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001
PCB Congener 153	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001
PCB Congener 180	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001

Total PCBs	mg/kg	0.007	MCERTS	< 0.007	< 0.007	< 0.007
------------	-------	-------	--------	---------	---------	---------

U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected

i2 Analytical

7 Woodshots Meadow
Croxley Green Business Park
Watford, WD18 8YS

Telephone: 01923 225404
Fax: 01923 237404
email:reception@i2analytical.com

Waste Acceptance Criteria Analytical Results

Report No:	24-048999						
				Client: TOUREENMANG			
Location	Worthing						
Lab Reference (Sample Number)	354725			Landfill Waste Acceptance Criteria			
				Limits			
Sampling Date	21/10/2024			Inert Waste Landfill	Stable Non-reactive HAZARDOUS waste in non-hazardous Landfill	Hazardous Waste Landfill	
Sample ID	E2 ST Backfill						
Depth (m)							
Solid Waste Analysis							
TOC (%)**	1.0			3%	5%	6%	
Loss on Ignition (%) **	2.8			--	--	10%	
BTEX (µg/kg) **	28			6000	--	--	
Sum of PCBs (mg/kg) **	< 0.007			1	--	--	
Mineral Oil (mg/kg) EH, ID, CU, AL	150			500	--	--	
Total PAH (WAC-17) (mg/kg)	185			100	--	--	
pH (units)**	9.2			--	>6	--	
Acid Neutralisation Capacity (mmol / kg)	13			--	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 *	0.0155			0.155	0.5	2	25
Barium *	0.0121			0.121	20	100	300
Cadmium *	< 0.000100			< 0.00100	0.04	1	5
Chromium *	0.0026			0.026	0.5	10	70
Copper *	0.035			0.35	2	50	100
Mercury *	< 0.000500			< 0.00500	0.01	0.2	2
Molybdenum *	0.0140			0.140	0.5	10	30
Nickel *	0.0025			0.025	0.4	10	40
Lead *	0.0011			0.011	0.5	10	50
Antimony *	0.016			0.16	0.06	0.7	5
Selenium *	< 0.0040			< 0.040	0.1	0.5	7
Zinc *	0.0016			0.016	4	50	200
Chloride *	5.4			54	800	15000	25000
Fluoride*	0.36			3.6	10	150	500
Sulphate *	70			700	1000	20000	50000
TDS*	150			1500	4000	60000	100000
Phenol Index (Monohydric Phenols) *	0.022			0.22	1	-	-
DOC	11.7			117	500	800	1000
Leach Test Information							
Stone Content (%)	< 0.1						
Sample Mass (kg)	0.8						
Dry Matter (%)	87						
Moisture (%)	13						
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.

i2 Analytical

7 Woodshots Meadow
Croxley Green Business Park
Watford, WD18 8YS

Telephone: 01923 225404
Fax: 01923 237404
email:reception@i2analytical.com

Waste Acceptance Criteria Analytical Results

Report No:	24-048999						
				Client: TOUREENMANG			
Location	Worthing						
Lab Reference (Sample Number)	354726			Landfill Waste Acceptance Criteria			
				Limits			
Sampling Date	21/10/2024			Inert Waste Landfill	Stable Non-reactive HAZARDOUS waste in non-hazardous Landfill	Hazardous Waste Landfill	
Sample ID	E3 ST Backfill						
Depth (m)							
Solid Waste Analysis							
TOC (%)**	1.0			3%	5%	6%	
Loss on Ignition (%) **	2.5			--	--	10%	
BTEX (µg/kg) **	< 10			6000	--	--	
Sum of PCBs (mg/kg) **	< 0.007			1	--	--	
Mineral Oil (mg/kg) EH, ID, CU, AL	160			500	--	--	
Total PAH (WAC-17) (mg/kg)	175			100	--	--	
pH (units)**	9.3			--	>6	--	
Acid Neutralisation Capacity (mmol / kg)	12			--	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)				using BS EN 12457-2 at L/S 10 l/kg (mg/kg)			
	mg/l			mg/kg			
Arsenic *	0.0190			0.190	0.5	2	25
Barium *	0.0177			0.177	20	100	300
Cadmium *	< 0.000100			< 0.00100	0.04	1	5
Chromium *	0.0030			0.030	0.5	10	70
Copper *	0.032			0.32	2	50	100
Mercury *	< 0.000500			< 0.00500	0.01	0.2	2
Molybdenum *	0.0124			0.124	0.5	10	30
Nickel *	0.0032			0.032	0.4	10	40
Lead *	0.0060			0.060	0.5	10	50
Antimony *	0.020			0.20	0.06	0.7	5
Selenium *	< 0.0040			< 0.040	0.1	0.5	7
Zinc *	0.0081			0.081	4	50	200
Chloride *	2.5			25	800	15000	25000
Fluoride*	0.46			4.6	10	150	500
Sulphate *	69			690	1000	20000	50000
TDS*	130			1300	4000	60000	100000
Phenol Index (Monohydric Phenols) *	< 0.010			< 0.10	1	-	-
DOC	10.7			107	500	800	1000
Leach Test Information							
Stone Content (%)	< 0.1						
Sample Mass (kg)	0.9						
Dry Matter (%)	89						
Moisture (%)	11						
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.

i2 Analytical

7 Woodshots Meadow
Croxley Green Business Park
Watford, WD18 8YS

Telephone: 01923 225404
Fax: 01923 237404
email:reception@i2analytical.com

Waste Acceptance Criteria Analytical Results

Report No:	24-048999						
				Client: TOUREENMANG			
Location	Worthing						
Lab Reference (Sample Number)	354727			Landfill Waste Acceptance Criteria			
				Limits			
Sampling Date	21/10/2024			Inert Waste Landfill	Stable Non-reactive HAZARDOUS waste in non-hazardous Landfill	Hazardous Waste Landfill	
Sample ID	E4 ST Backfill						
Depth (m)							
Solid Waste Analysis							
TOC (%)**	1.0			3%	5%	6%	
Loss on Ignition (%) **	2.5			--	--	10%	
BTEX (µg/kg) **	14			6000	--	--	
Sum of PCBs (mg/kg) **	< 0.007			1	--	--	
Mineral Oil (mg/kg) EH, ID, CU, AL	140			500	--	--	
Total PAH (WAC-17) (mg/kg)	141			100	--	--	
pH (units)**	7.5			--	>6	--	
Acid Neutralisation Capacity (mmol / kg)	5.4			--	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)					using BS EN 12457-2 at L/S 10 l/kg (mg/kg)		
	mg/l			mg/kg			
Arsenic *	0.0158			0.158	0.5	2	25
Barium *	0.0154			0.154	20	100	300
Cadmium *	< 0.000100			< 0.00100	0.04	1	5
Chromium *	0.00062			0.0062	0.5	10	70
Copper *	0.019			0.19	2	50	100
Mercury *	< 0.000500			< 0.00500	0.01	0.2	2
Molybdenum *	0.00723			0.0723	0.5	10	30
Nickel *	0.0015			0.015	0.4	10	40
Lead *	0.0011			0.011	0.5	10	50
Antimony *	0.016			0.16	0.06	0.7	5
Selenium *	< 0.0040			< 0.040	0.1	0.5	7
Zinc *	0.0016			0.016	4	50	200
Chloride *	1.9			19	800	15000	25000
Fluoride*	0.35			3.5	10	150	500
Sulphate *	95			950	1000	20000	50000
TDS*	140			1400	4000	60000	100000
Phenol Index (Monohydric Phenols) *	< 0.010			< 0.10	1	-	-
DOC	8.78			87.8	500	800	1000
Leach Test Information							
Stone Content (%)	< 0.1						
Sample Mass (kg)	0.8						
Dry Matter (%)	88						
Moisture (%)	12						
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							
** = 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 : 24-048999

Project / Site name: Worthing

* 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 *
354725	E2 ST Backfill	None Supplied	None Supplied	Brown clay with gravel
354726	E3 ST Backfill	None Supplied	None Supplied	Brown clay with gravel
354727	E4 ST Backfill	None Supplied	None Supplied	Brown loam and clay with gravel and vegetation

Analytical Report Number : 24-048999

Project / Site name: Worthing

Water matrix abbreviations:

Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
pH at 20°C in soil	Determination of pH in soil by addition of water followed by electrometric measurement	In-house method	L005B	W	MCERTS
Total organic carbon (Automated) in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate (Walkley Black Method)	In-house method	L009B	D	MCERTS
Moisture Content	Moisture content, determined gravimetrically (up to 30°C)	In-house method	L019B	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.	L019B	D	NONE
PCB's By GC-MS in soil	Determination of PCB by extraction with hexane followed by GC-MS	In-house method based on USEPA 8082	L027B	D	MCERTS
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	L031B	W	ISO 17025
Fluoride 10:1 WAC	Determination of fluoride in leachate by 1:1 ratio 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	W	ISO 17025
Dissolved organic carbon 10:1 WAC	Determination of dissolved organic carbon in leachate by TOC/DOC NDIR Analyser	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L037B	W	NONE
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	L039B	W	ISO 17025
Sample Preparation		In-house method	L043B	W	NONE
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	L046B	W	NONE
Loss on ignition of soil @ 450°C	Determination of loss on ignition in soil by gravimetrically with the sample being ignited in a muffle furnace	In-house method	L047-PL	D	MCERTS
Speciated PAHs and/or Semi-volatile organic compounds in soil	Determination of semi-volatile organic compounds (including PAH) in soil by extraction in dichloromethane and hexane followed by GC-MS	In-house method based on USEPA 8270	L064B	D	MCERTS
BTEX and/or Volatile organic compounds in soil	Determination of volatile organic compounds in soil by headspace GC-MS	In-house method based on USEPA 8260	L073B	W	MCERTS
Total petroleum hydrocarbons by GC-FID/GC-MS HS in soil	Determination of total petroleum hydrocarbons in soil by GC-FID/GC-MS HS	In-house method	L076B/L088-PL	D/W	NONE

Analytical Report Number : 24-048999

Project / Site name: Worthing

Water matrix abbreviations:

Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
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
Chloride 10:1 WAC	Determination of Chloride colorimetrically by discrete analyser	In-house based on MEWAM Method ISBN 0117516260	L082B	W	ISO 17025

For method numbers ending in 'UK' or 'A' analysis have been carried out in our laboratory in the United Kingdom (Watford).

For method numbers ending in 'F' analysis have been carried out in our laboratory in the United Kingdom (East Kilbride).

For method numbers ending in 'PL' or 'B' 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.

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.

Information in Support of Analytical Results

List of HWOL Acronyms and Operators

Acronym	Descriptions
HS	Headspace Analysis
MS	Mass spectrometry
FID	Flame Ionisation Detector
GC	Gas Chromatography
EH	Extractable Hydrocarbons (i.e. everything extracted by the solvent(s))
CU	Clean-up - e.g. by Florisil®, silica gel
1D	GC - Single coil/column gas chromatography
2D	GC-GC - Double coil/column gas chromatography
Total	Aliphatics & Aromatics
AL	Aliphatics
AR	Aromatics
#1	EH_2D_Total but with humics mathematically subtracted
#2	EH_2D_Total but with fatty acids mathematically subtracted
_	Operator - underscore to separate acronyms (exception for +)
+	Operator to indicate cumulative e.g. EH+HS_Total or EH_CU+HS_Total

Quality control parameter failure associated with individual result applies to calculated sum of individuals.

The result for sum should be interpreted with caution

Toureen Group 

TCL1436 WAC SUMMARY

Report No:				24-043265	24-043265	24-040000	24-040876	24-043374	24-043374	24-043374	24-043888	24-047815	24-047815	24-047398	24-047398	24-048999	24-048999	24-048999
	Client:	TOUREENMANG																
Location				Worthing	Worthing	Worthing	Worthing	Worthing	Worthing	Worthing	Worthing	Worthing	Worthing	Worthing	Worthing	Worthing	Worthing	Worthing
Lab Reference (Sample Number)	Landfill Waste Acceptance Criteria Limits			322929	322930	305540	310627	323545	323546	323547	326478	348875	348876	346746	346747	354725	354726	354727
Sampling Date	Inert Waste Landfill	Stable Non-reactive HAZARDOUS waste in non-hazardous Landfill	Hazardous Waste Landfill	20/09/2024	20/09/2024	28/08/2024	05/09/2024	20/09/2024	20/09/2024	20/09/2024	20/09/2024	15/10/2024	15/10/2024	11/10/2024	11/10/2024	21/10/2024	21/10/2024	21/10/2024
Sample ID				6F4-A	6F4-C	A3-HS	WS14-HS	E1-HS-EX	D1-HS-E	D1-HS-W	SP-SUB-(2)-A	F5 CP Chalk	E5 CP Chalk	BH02-HS	F5 Tarmac	E2 ST Backfill	E3 ST Backfill	E4 ST Backfill
Depth (m)																		
Solid Waste Analysis																		
TOC (%)**	3%	5%	6%	0.2	0.2	1.1	4.6	6.2	0.4	0.4	0.3	0.3	0.4	0.8	4.8	1.0	1.0	1.0
Loss on Ignition (%) **	--	--	10%	1.3	1.2	3.6	11	11	1.6	1.8	-	1.0	1.4	2.7	10	2.8	2.5	2.5
BTEX (µg/kg) **	6000	--	--	< 5.0	< 5.0	< 5.0	< 5.0	490000	320	< 5.0	< 5.0	< 10	< 10	750	< 10	28	< 10	14
Sum of PCBs (mg/kg) **	1	--	--	< 0.007	< 0.007	< 0.007	< 0.007	< 0.007	< 0.007	< 0.007	< 0.007	< 0.007	< 0.007	< 0.007	< 0.007	< 0.007	< 0.007	< 0.007
Mineral Oil (mg/kg) BH_10_OIL_AL	500	--	--	< 10	< 10	< 10	310	5800	< 10	75	< 10	< 10	< 10	1300	1600	150	160	140
Total PAH (WAC-17) (mg/kg)	100	--	--	6.93	< 0.85	29.7	2570	12400	21.8	41.2	56.4	23.7	17.8	772	32.7	185	175	141
pH (units)**	--	>6	--	7.9	8.1	6.7	7.7	7.3	7.9	7.5	-	8.3	7.5	8.0	8.4	9.2	9.3	7.5
Acid Neutralisation Capacity (mmol / kg)	--	To be evaluated	To be evaluated	1.8	2.9	-0.66	1.3	0.55	5.9	2.4	-	16	1.1	45	1.6	13	12	5.4
Eluate Analysis				Limit values for compliance leaching test			10:1	10:1	10:1	10:1	10:1	10:1	10:1	10:1	10:1	10:1	10:1	10:1
(BS EN 12457 - 2 preparation utilising end over end leaching procedure)				using BS EN 12457-2 at L/S 10 l/kg (mg/kg)			mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l
				mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l
Arsenic *	0.5	2	25	< 0.00100	0.00353	< 0.00100	0.00338	0.00442	< 0.00100	0.00115	< 0.00100	< 0.00100	< 0.00100	< 0.00100	< 0.00100	0.0155	0.0190	0.0158
Barium *	20	100	300	0.0201	0.0290	0.0238	0.0809	0.0167	0.0117	0.0109	0.0177	0.00873	0.0133	0.0271	0.00570	0.0121	0.0177	0.0154
Cadmium *	0.04	1	5	< 0.000100	< 0.000100	< 0.000100	< 0.000100	< 0.000100	< 0.000100	< 0.000100	< 0.000100	< 0.000100	< 0.000100	< 0.000100	< 0.000100	< 0.000100	< 0.000100	< 0.000100
Chromium *	0.5	10	70	0.00083	0.00043	0.0012	0.00081	0.0015	0.00098	0.0015	0.0030	< 0.00040	0.0011	< 0.00040	< 0.00040	0.0026	0.0030	0.00062
Copper *	2	50	100	0.0023	0.0041	0.029	0.019	0.018	0.0055	0.0070	0.0066	0.012	0.023	0.015	0.0079	0.035	0.032	0.019
Mercury *	0.01	0.2	2	< 0.000500	< 0.000500	< 0.000500	< 0.000500	< 0.000500	< 0.000500	< 0.000500	< 0.000500	0.000514	0.00138	< 0.000500	< 0.000500	< 0.000500	< 0.000500	< 0.000500
Molybdenum *	0.5	10	30	0.000439	0.00174	0.000652	0.00681	0.00311	0.00665	0.00571	0.000557	0.000659	0.0371	0.0124	0.000877	0.0140	0.0124	0.00723
Nickel *	0.4	10	40	< 0.00030	0.00045	0.0032	0.0020	0.0018	< 0.00030	0.00074	< 0.00030	0.0018	0.0046	0.0023	< 0.00030	0.0025	0.0032	0.0015
Lead *	0.5	10	50	0.0025	0.0015	< 0.0010	0.0054	0.0031	0.0020	0.0035	< 0.0031	< 0.0010	< 0.0010	0.0018	< 0.0010	0.0011	0.0060	0.0011
Antimony *	0.06	0.7	5	< 0.0017	< 0.0017	< 0.0017	< 0.0017	< 0.0017	< 0.0017	< 0.0017	0.0079	< 0.0017	< 0.0017	0.0045	< 0.0017	0.016	0.020	0.016
Selenium *	0.1	0.5	7	< 0.0040	< 0.0040	< 0.0040	< 0.0040	< 0.0040	< 0.0040	< 0.0040	< 0.0040	< 0.0040	< 0.0040	< 0.0040	< 0.0040	< 0.0040	< 0.0040	< 0.0040
Zinc *	4	50	200	0.0021	0.0032	0.022	0.022	0.0070	0.0016	0.0027	0.0059	0.0050	0.0079	0.0063	0.0044	0.0016	0.0081	0.0016
Chloride *	800	15000	25000	0.74	0.36	1.1	1.1	31	1.7	1.2	0.33	0.90	1.7	3.1	0.74	5.4	2.5	1.9
Fluoride *	10	150	500	< 0.050	0.053	0.13	0.97	0.14	0.74	0.40	0.19	0.12	0.17	0.98	< 0.050	0.36	0.46	0.35
Sulphate *	1000	20000	50000	1.0	1.6	210	390	320	14	11	6.1	1.5	12	40	3.0	70	69	95
TDS*	4000	60000	100000	14	23	240	460	280	72	62	31	31	51	150	30	150	130	140
Phenol Index (Monohydric Phenols) *	1	-	-	< 0.010	< 0.010	< 0.010	< 0.010	11	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	0.072	< 0.010	0.022	< 0.010	< 0.010
DOC	500	800	1000	10.5	11.8	7.88	6.30	70.6	14.8	16.7	1.77	5.03	7.00	19.5	8.25	11.7	10.7	8.78
Leach Test Information																		
Stone Content (%)				54.1	86.5	< 0.1	58.6	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Sample Mass (kg)				0.8	0.8	0.8	1.7	1.3	1.3	1.3	0.8	0.8	0.8	0.8	0.8	0.8	0.9	0.8
Dry Matter (%)				99	99	82	87	80	86	83	86	81	80	82	> 99.99	87	89	88
Moisture (%)				0.83	0.63	18	13	20	14	17	14	19	20	18	< 0.01	13	11	12

Table 12

TCL1436 GEOTECHNICAL LAB SUMMARY

No./Ref	Description	Date of Sample	Test Type	Results	Analytical report No.
Calibration Subsoil	Subsoil	24/09/2024	OMC/MDD	1.68 Maximum Dry Density (Mg/m3), OMC 24%	EJ2063-L6515
6F5-1	Quarried Aggregate	20/08/2024	PSD	Complaint with 6F5	24-040234-2
6F5-2	Quarried Aggregate	20/08/2024	PSD	Complaint with 6F5	24-040234-2
6F5-3	Quarried Aggregate	20/08/2024	PSD	Complaint with 6F5	24-040234-2
6F5-4	Quarried Aggregate	20/08/2024	PSD	Complaint with 6F5 - Minor non conformance on 125mm scale. 97% as opposed to 100%. Not considered significant.	24-040234-2
6F5-1	Quarried Aggregate	20/08/2024	Constituent Parts	Less than 1% Class X - Compliant	24-040234-2
6F5-2	Quarried Aggregate	20/08/2024	Constituent Parts	Less than 1% Class X - Compliant	24-040234-2
6F5-3	Quarried Aggregate	20/08/2024	Constituent Parts	Less than 1% Class X - Compliant	24-040234-2
6F5-4	Quarried Aggregate	20/08/2024	Constituent Parts	Less than 1% Class X - Compliant	24-040234-2
6F5-1	Quarried Aggregate	20/08/2024	LA Coefficient	<50 - Compliant	24-040234-2
6F5-2	Quarried Aggregate	20/08/2024	LA Coefficient	<50 - Compliant	24-040234-2
6F5-3	Quarried Aggregate	20/08/2024	LA Coefficient	<50 - Compliant	24-040234-2
6F5-4	Quarried Aggregate	20/08/2024	LA Coefficient	<50 - Compliant	24-040234-2

APPENDIX 9

WASTE CONSIGNMENT AND TRANSFER NOTES

[illegible]

[illegible]