



**Client Name:** EPS Ltd  
**Reference:** UK23.6613  
**Location:** Land at Burwash Manor, Barton  
**Contact:** Tom Androsiuk

**Note:**

Asbestos Screen analysis is carried out in accordance with our documented in-house methods PM042 and TM065 and HSG 248 by Stereo and Polarised Light Microscopy using Dispersion Staining Techniques and is covered by our UKAS accreditation. Detailed Gravimetric Quantification and PCOM Fibre Analysis is carried out in accordance with our documented in-house methods PM042 and TM131 and HSG 248 using Stereo and Polarised Light Microscopy and Phase Contrast Optical Microscopy (PCOM). Asbestos sub-samples are retained for not less than 6 months from the date of analysis unless specifically requested.

The LOQ of the Asbestos Quantification is 0.001% dry fibre of dry mass of sample.

Where the sample is not taken by a Element Materials Technology consultant, Element Materials Technology cannot be responsible for inaccurate or unrepresentative sampling.

Where trace asbestos is reported the amount of asbestos will be <0.1%.

EMT Job No.	Batch	Sample ID	Depth	EMT Sample No.	Analyst Name	Date Of Analysis	Analysis	Result
23/13896	1	WS01	0.40	3	Emily Anderton	30/08/2023	<b>General Description (Bulk Analysis)</b>	Beige soil with stones
					Emily Anderton	30/08/2023	<b>Asbestos Fibres</b>	NAD
					Emily Anderton	30/08/2023	<b>Asbestos ACM</b>	NAD
					Emily Anderton	30/08/2023	<b>Asbestos Type</b>	NAD
23/13896	1	WS02	0.30	6	Emily Anderton	30/08/2023	<b>General Description (Bulk Analysis)</b>	Brown soil with stones
					Emily Anderton	30/08/2023	<b>Asbestos Fibres</b>	NAD
					Emily Anderton	30/08/2023	<b>Asbestos ACM</b>	NAD
					Emily Anderton	30/08/2023	<b>Asbestos Type</b>	NAD
23/13896	1	WS03	1.00	12	Charlotte Taylor	30/08/2023	<b>General Description (Bulk Analysis)</b>	brown soil/stones
					Charlotte Taylor	30/08/2023	<b>Asbestos Fibres</b>	NAD
					Charlotte Taylor	30/08/2023	<b>Asbestos ACM</b>	NAD
					Charlotte Taylor	30/08/2023	<b>Asbestos Type</b>	NAD





# NOTES TO ACCOMPANY ALL SCHEDULES AND REPORTS

EMT Job No.: 23/13896

## 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 37°C ±5°C.

Where Mineral Oil or Fats, Oils and Grease 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.

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## STACK EMISSIONS

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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.

**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.
AD	Samples are dried at 35°C ±5°C
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	x5 Dilution
AB	x10 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: 23/13896

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
PM4	Gravimetric measurement of Natural Moisture Content and % Moisture Content at either 35°C or 105°C. Calculation based on ISO 11465:1993(E) and BS1377-2:1990.	PM0	No preparation is required.			AR	
TM4	Modified USEPA 8270D v5:2014 method for the solvent extraction and determination of PAHs by GC-MS.	PM8	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required.			AR	Yes
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TM4	Modified USEPA 8270D v5:2014 method for the solvent extraction and determination of PAHs by GC-MS.	PM8	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required.	Yes	Yes	AR	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.	PM8/PM16	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required/Fractionation into aliphatic and aromatic fractions using a Rapid Trace SPE.	Yes		AR	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.	PM8/PM16	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required/Fractionation into aliphatic and aromatic fractions using a Rapid Trace SPE.	Yes	Yes	AR	Yes
TM5/TM36	please refer to TM5 and TM36 for method details	PM8/PM12/PM16	please refer to PM8/PM16 and PM12 for method details			AR	Yes
TM5/TM36	please refer to TM5 and TM36 for method details	PM8/PM12/PM16	please refer to PM8/PM16 and PM12 for method details	Yes		AR	Yes
PM13	A visual examination of the solid sample is carried out to ascertain sample make up, colour and any other inclusions. This is not a geotechnical description.	PM0	No preparation is required.			AR	No
TM15	Modified USEPA 8260B v2:1996. Quantitative Determination of Volatile Organic Compounds (VOCs) by Headspace GC-MS.	PM10	Modified US EPA method 5021A v2:2014. Preparation of solid and liquid samples for GC headspace analysis.			AR	Yes

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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
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TM15	Modified USEPA 8260B v2:1996. Quantitative Determination of Volatile Organic Compounds (VOCs) by Headspace GC-MS.	PM10	Modified US EPA method 5021A v2:2014. Preparation of solid and liquid samples for GC headspace analysis.	Yes	Yes	AR	Yes
TM21	Modified BS 7755-3:1995, ISO10694:1995 Determination of Total Organic Carbon or Total Carbon by combustion in an Eltra TOC furnace/analyser in the presence of oxygen. The CO2 generated is quantified using infra-red detection. Organic Matter (SOM) calculated as per EA MCERTS Chemical Testing of Soil, March 2012 v4.	PM24	Preparation of Soil and Marine Sediment Samples for Total Organic Carbon.			AD	Yes
TM26	Determination of phenols by Reversed Phased High Performance Liquid Chromatography and Electro-Chemical Detection.	PM21B	As Received samples are extracted in Methanol: Water (60:40) by reciprocal shaker.			AR	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	PM15	Acid digestion of dried and ground solid samples using Aqua Regia refluxed at 112.5 °C. Samples containing asbestos are not dried and ground.	Yes	Yes	AD	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 GC/FID 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.			AR	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 GC/FID 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		AR	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 GC/FID 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	Yes	AR	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	PM20	Extraction of dried and ground or as received samples with deionised water in a 2:1 water to solid ratio using a reciprocal shaker for all analytes except hexavalent chromium. Extraction of as received sample using 10:1 ratio of 0.2M sodium hydroxide to soil for hexavalent chromium using a reciprocal shaker.	Yes	Yes	AD	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	PM20	Extraction of dried and ground or as received samples with deionised water in a 2:1 water to solid ratio using a reciprocal shaker for all analytes except hexavalent chromium. Extraction of as received sample using 10:1 ratio of 0.2M sodium hydroxide to soil for hexavalent chromium using a reciprocal shaker.	Yes		AR	Yes

EMT Job No: 23/13896

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
TM42	Modified US EPA method 8270D v5:2014. Pesticides and herbicides by GC-MS	PM8	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required.			AR	Yes
TM50	Acid soluble sulphate (Total Sulphate) analysed by ICP-OES	PM29	A hot hydrochloric acid digest is performed on a dried and ground sample, and the resulting liquor is analysed.	Yes	Yes	AD	Yes
TM65	Asbestos Bulk Identification method based on HSG 248 Second edition (2021)	PM42	Modified SCA Blue Book V.12 draft 2017 and WM3 1st Edition v1.1:2018. Solid samples undergo a thorough visual inspection for asbestos fibres prior to asbestos identification using TM065.	Yes		AR	
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.	PM11	Extraction of as received solid samples using one part solid to 2.5 parts deionised water.	Yes	Yes	AR	No
TM89	Modified USEPA method OIA-1667 (1999). Determination of cyanide by Flow Injection Analyser. Where WAD cyanides are required a Ligand displacement step is carried out before analysis.	PM45	As received solid samples are extracted with 1M NaOH by orbital shaker for Cyanide, Sulphide and Thiocyanate analysis.	Yes	Yes	AR	Yes
NONE	No Method Code	NONE	No Method Code			AD	Yes
TM15_A	Modified USEPA 8260B v2:1996. Quantitative Determination of Volatile Organic Compounds, Vinyl Chloride & Styrene by Headspace GC-MS.	PM10	Modified US EPA method 5021A v2:2014. Preparation of solid and liquid samples for GC headspace analysis.			AR	Yes



EPS Ltd  
7B Caxton House  
Broad Street  
Cambourne  
Cambridgeshire  
United Kingdom  
CB23 6JN



4225



**Attention :** Tom Androsiuk  
**Date :** 10th October, 2023  
**Your reference :** UK23.6613  
**Our reference :** Test Report 23/15978 Batch 1  
**Location :** Land at Burwash Manor, Barton  
**Date samples received :** 27th September, 2023  
**Status :** Final Report  
**Issue :** 1

Five samples were received for analysis on 27th September, 2023 of which five 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 - 19.114 kg of CO2

Scope 1&2&3 emissions - 45.17 kg of CO2

#### Authorised By:



**Bruce Leslie**  
Project Manager

Please include all sections of this report if it is reproduced









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**Location:** Land at Burwash Manor, Barton  
**Contact:** Tom Androsiuk

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The LOQ of the Asbestos Quantification is 0.001% dry fibre of dry mass of sample.

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EMT Job No.	Batch	Sample ID	Depth	EMT Sample No.	Analyst Name	Date Of Analysis	Analysis	Result
23/15978	1	HP01	0.00-0.50	3	Emily Anderton	09/10/2023	<b>General Description (Bulk Analysis)</b>	Brown soil with stones and vegetation
					Emily Anderton	09/10/2023	<b>Asbestos Fibres</b>	NAD
					Emily Anderton	09/10/2023	<b>Asbestos ACM</b>	NAD
					Emily Anderton	09/10/2023	<b>Asbestos Type</b>	NAD
23/15978	1	HP02	0.00-0.50	6	Bart Kuznicki	10/10/2023	<b>General Description (Bulk Analysis)</b>	Brown soil with stones
					Bart Kuznicki	10/10/2023	<b>Asbestos Fibres</b>	NAD
					Bart Kuznicki	10/10/2023	<b>Asbestos ACM</b>	NAD
					Bart Kuznicki	10/10/2023	<b>Asbestos Type</b>	NAD
23/15978	1	HP03	0.00-0.15	9	Catherine Coles	09/10/2023	<b>General Description (Bulk Analysis)</b>	brown vegetation
					Catherine Coles	09/10/2023	<b>Asbestos Fibres</b>	NAD
					Catherine Coles	09/10/2023	<b>Asbestos ACM</b>	NAD
					Catherine Coles	09/10/2023	<b>Asbestos Type</b>	NAD
23/15978	1	HP04	0.00-0.50	12	Bart Kuznicki	10/10/2023	<b>General Description (Bulk Analysis)</b>	Brown soil with stones
					Bart Kuznicki	10/10/2023	<b>Asbestos Fibres</b>	Fibre Bundles
					Bart Kuznicki	10/10/2023	<b>Asbestos ACM</b>	Asbestos Cement Debris
					Bart Kuznicki	10/10/2023	<b>Asbestos Type</b>	Chrysotile
23/15978	1	HP05	0.00-0.50	15	Bart Kuznicki	10/10/2023	<b>General Description (Bulk Analysis)</b>	Brown soil with stones
					Bart Kuznicki	10/10/2023	<b>Asbestos Fibres</b>	NAD
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Please include all sections of this report if it is reproduced

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**Customer Provided Information**

Sample ID and depth is information provided by the customer.

**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.
AD	Samples are dried at 35°C ±5°C
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	x5 Dilution
AB	x10 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: 23/15978

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
PM4	Gravimetric measurement of Natural Moisture Content and % Moisture Content at either 35°C or 105°C. Calculation based on ISO 11465:1993(E) and BS1377-2:1990.	PM0	No preparation is required.			AR	
TM4	Modified USEPA 8270D v5:2014 method for the solvent extraction and determination of PAHs by GC-MS.	PM8	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required.			AR	Yes
TM4	Modified USEPA 8270D v5:2014 method for the solvent extraction and determination of PAHs by GC-MS.	PM8	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required.	Yes		AR	Yes
TM4	Modified USEPA 8270D v5:2014 method for the solvent extraction and determination of PAHs by GC-MS.	PM8	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required.	Yes	Yes	AR	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	Fractionation into aliphatic and aromatic fractions using a Rapid Trace SPE.			AR	
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.	PM8/PM16	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required/Fractionation into aliphatic and aromatic fractions using a Rapid Trace SPE.			AR	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.	PM8/PM16	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required/Fractionation into aliphatic and aromatic fractions using a Rapid Trace SPE.	Yes		AR	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.	PM8/PM16	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required/Fractionation into aliphatic and aromatic fractions using a Rapid Trace SPE.	Yes	Yes	AR	Yes
TM5/TM36	please refer to TM5 and TM36 for method details	PM8/PM12/PM16	please refer to PM8/PM16 and PM12 for method details			AR	Yes
PM13	A visual examination of the solid sample is carried out to ascertain sample make up, colour and any other inclusions. This is not a geotechnical description.	PM0	No preparation is required.			AR	No

EMT Job No: 23/15978

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
TM21	Modified BS 7755-3:1995, ISO10694:1995 Determination of Total Organic Carbon or Total Carbon by combustion in an Eltra TOC furnace/analyser in the presence of oxygen. The CO2 generated is quantified using infra-red detection. Organic Matter (SOM) calculated as per EA MCERTS Chemical Testing of Soil, March 2012 v4.	PM24	Preparation of Soil and Marine Sediment Samples for Total Organic Carbon.			AD	Yes
TM26	Determination of phenols by Reversed Phased High Performance Liquid Chromatography and Electro-Chemical Detection.	PM21B	As Received samples are extracted in Methanol: Water (60:40) by reciprocal shaker.			AR	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	PM15	Acid digestion of dried and ground solid samples using Aqua Regia refluxed at 112.5 °C. Samples containing asbestos are not dried and ground.	Yes	Yes	AD	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.			AR	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		AR	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	Yes	AR	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: 2013I	PM20	Extraction of dried and ground or as received samples with deionised water in a 2:1 water to solid ratio using a reciprocal shaker for all analytes except hexavalent chromium. Extraction of as received sample using 10:1 ratio of 0.2M sodium hydroxide to soil for hexavalent chromium using a reciprocal shaker.	Yes	Yes	AD	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: 2013I	PM20	Extraction of dried and ground or as received samples with deionised water in a 2:1 water to solid ratio using a reciprocal shaker for all analytes except hexavalent chromium. Extraction of as received sample using 10:1 ratio of 0.2M sodium hydroxide to soil for hexavalent chromium using a reciprocal shaker.	Yes		AR	Yes
TM50	Acid soluble sulphate (Total Sulphate) analysed by ICP-OES	PM29	A hot hydrochloric acid digest is performed on a dried and ground sample, and the resulting liquor is analysed.	Yes	Yes	AD	Yes
TM65	Asbestos Bulk Identification method based on HSG 248 Second edition (2021)	PM42	Modified SCA Blue Book V.12 draft 2017 and WM3 1st Edition v1.1:2018. Solid samples undergo a thorough visual inspection for asbestos fibres prior to asbestos identification using TM065.	Yes		AR	







## **APPENDIX E**

### **Generic Screening Criteria**



## EPS Generic Quantitative Risk Assessment

### Generic Screening Criteria (C4SLs) - All Land Uses

Contaminant	Soil Targets					
	Residential		Allotments	Commercial	Public Open Spaces	
	With Home Grown Produce	Without Home Grown Produce			Residential	Parks
Unit	mg/kg					
Arsenic	37	40	49	640	79	168
Benzene	0.87	3.3	0.18	98	140	230
Benzo(a)pyrene	5	5.3	5.7	76	10	21
Cadmium	26	149	4.9	410	220	880
Chromium (VI)	21	21	170	49	23	250
Lead	200	310	80	2330	630	1300
Chloroethene (Vinyl Chloride)	0.017	0.029	0.0058	2.2	7.8	19
Trichloroethene (TCE)	0.043	0.045	0.16	3.4	79	69
Tetrachloroethene (PCE)	1.6	1.6	11	130	3400	2500

#### Notes:

Targets for Human Health have been taken from the publicly available Category 4 Screening Levels (C4SLs) for assessment of land affected by contamination issued by DEFRA/CL:AIRE in December 2013 and May 2021.

Within the modelling for C4SLs, a Soil Organic Matter content of 6% has been used. Reference to site-specific data should be made where possible.

The C4SLs for the contaminant benzene along with the three chlorinated solvents are the most susceptible to changes in SOM.

May-23

## EPS Generic Quantitative Risk Assessment - Residential Land Use

Contaminant	Soil Targets		
	Human Health	Controlled Waters	
		Surface Water	Groundwater
Unit	mg/kg		
Arsenic	See C4SL	n/c	n/c
Cadmium	See C4SL	n/c	n/c
Chromium III	910	n/c	n/c
Chromium VI	See C4SL	n/c	n/c
Copper	2400	n/c	n/c
Mercury (elemental)	1.2	0.085	1.22
Nickel	180	n/c	n/c
Lead	See C4SL	n/c	n/c
Selenium	250	n/c	n/c
Zinc	3700	n/c	n/c
Benzene	See C4SL	0.064	0.0064
Toluene	130	1.33	12.6
Ethylbenzene	47	0.77	11.5
Xylene (para)	56	1.18	19.6
MTBE#	49	4.41	0.026
Benzo(a)Pyrene	See C4SL	n/c	n/c
Naphthalene	2.3	0.11	0.11
Aliphatic C5-C6	42	4.06	0.81
Aliphatic C6-C8	100	17.8	3.57
Aliphatic C8-C10	27	n/c	n/c
Aliphatic C10-C12	130(48)*	n/c	n/c
Aliphatic C12-C16	1100(8.48)**	n/c	n/c
Aliphatic C16-C35	65000 (8.48)**	n/c	n/c
Aromatic C8-C10	34	6.71	1.34
Aromatic C10-C12	74	10.6	2.13
Aromatic C12-C16	140	21.2	4.23
Aromatic C16-C21	260	n/c	n/c
Aromatic C21-C35	1100	n/c	n/c
Tetrachloroethene	See C4SL	0.24	0.24
Trichloroethene	See C4SL	0.13	0.13
cis-1,2 Dichloroethene		0.21	0.21
Vinyl Chloride	See C4SL	0.0012	0.0012

Human Health	Groundwater Targets	
	Controlled Waters	
	Surface Water	Groundwater
Unit	µg/l	
n/c	50	10
n/c	2.5#	5
n/c	4.7	50
n/c	3.4	
n/c	93.1#	2000
1.1	1	1
n/c	14.8#	20
n/c	27.7#	10
n/c	10	10
n/c	373#	3000
210	10	1
230,000	74	700
10,000	20	300
9,900	30	500
83,000	2600	15
n/c	0.005 (0.00017)	0.01
220	2	2
1,900	50	10
1,500	50	10
57	50	10
37	50	10
n/c	50	10
n/c	50	10
1,900	50	10
6,800	50	10
39,000	50	10
n/c	50	10
n/c	50	10
34	10	10
5.7	10	10
130	50	50
0.62	0.5	0.5

### Notes:

f = Oral, dermal and inhalation exposure compared with oral HCV N/C = Not Calculated

\* = S4UL exceeds vapour saturation limit (in brackets)

\*\* = S4UL exceeds solubility saturation limit (in brackets)

n/c = not calculated. Under normal conditions contaminant exhibits low solubility /volatility, therefore risks from leaching and or vapour pathways are considered low.

# To establish suitable compliance criteria for Surface Water review of baseline groundwater quality in England and Wales was completed following research reported in Shand, P, Edmunds, W M, Lawrence, A R, Smedley, P L, and Burke, S, 2007. The natural (baseline) quality of groundwater in England and Wales. British Geological Survey Research Report No. RR/07/06. Where compliance criteria was found below the 97.7 percentile of baseline value, the latter was adopted as GAC.

### Soil Targets

Targets for Human Health have been taken from S4ULs 'Suitable For Use Levels for Human Health Risk Assessment' – LQM and CIEH (2014) derived using standard sandy loam soil with 1% SOM, except (#) = EIC/AGS/CL/AIRE GAC 'Soil Generic Assessment Criteria' (2010). For sites where ground conditions differ significantly from sandy loam or site-specific SOM and pH are available, the generic human health targets may be revised.

Targets for Controlled waters have been derived using EA Remedial Targets Worksheet (v3.1) - using standard Sandy Loam ground conditions as described in Science Report SC050021/SR3, assuming no degradation for a 10m compliance distance with criteria of EQS or UKDWS for Surface Water and Groundwater respectively (see notes for GW targets).

### Groundwater Targets

For Surface Water, targets have been taken as Freshwater EQS where available. For MTBE Predicted No Effect Concentration (European Risk Assessment Report, 2002) was used. For individual TPH fractions, in absence of UK EQS, a 5 times multiplier of UKDWS has been taken.

For Groundwater, targets have been taken as UKDWS where available. In the absence of UK targets internationally recognised criteria were adopted. For MTBE, WHO taste threshold has been adopted.

Targets for Human Health have been taken from Society of Brownfield Risk Assessment (SoBRA) 'Development of Generic Assessment Criteria for Assessing Vapour Risks to Human Health from Volatile Contaminants in Groundwater' - Version 1.0, February 2017, derived using sandy soil and 1%SOM. GAC were set up assuming source at 50cm below typical ground bearing slab of 15cm thickness. GAC were derived for vapour pathways only. For sites where ground conditions, or differ significantly from described above, the generic human health targets may be revised.

## EPS Generic Quantitative Risk Assessment - Public Open Space (Residential)

Contaminant	Tier 1 Soil Targets			Tier 1 Groundwater Targets	
	Human Health	Controlled Waters		Controlled Waters	
		Surface Water	Groundwater	Surface Water	Groundwater
Unit	mg/kg			µg/l	
Arsenic	See C4SL	n/c	n/c	50	10
Cadmium	See C4SL	n/c	n/c	2.5#	5
Chromium III	1500	n/c	n/c	4.7	50
Chromium VI	See C4SL	n/c	n/c	3.4	50
Copper	12000	n/c	n/c	93.1#	2000
Mercury (elemental)	16	0.085	1.22	1	1
Nickel	230	n/c	n/c	14.8#	20
Lead	See C4SL	n/c	n/c	27.7#	10
Selenium	1100	n/c	n/c	10	10
Zinc	81000	n/c	n/c	373#	3000
Benzene	See C4SL	0.064	0.0064	10	1
Toluene	56000	1.33	12.6	74	700
Ethylbenzene	24000	0.77	11.5	20	300
Xylene (para)	41000	1.18	19.6	30	500
MTBE#	73	4.41	0.026	2600	15
Benzo(a)Pyrene	See C4SL	n/c	n/c	0.005 (0.00017)	0.01
Naphthalene	4900f	0.11	0.11	2	2
Aliphatic C5-C6	570000(304)**	4.06	0.81	50	10
Aliphatic C6-C8	600000	17.8	3.57	50	10
Aliphatic C8-C10	13000	n/c	n/c	50	10
Aliphatic C10-C12	13000	n/c	n/c	50	10
Aliphatic C12-C16	13000	n/c	n/c	50	10
Aliphatic C16-C35	250000f	n/c	n/c	50	10
Aromatic C8-C10	5000	6.71	1.34	50	10
Aromatic C10-C12	5000	10.6	2.13	50	10
Aromatic C12-C16	5100	21.2	4.23	50	10
Aromatic C16-C21	3800f	n/c	n/c	50	10
Aromatic C21-C35	3800f	n/c	n/c	50	10
Tetrachloroethene	See C4SL	0.24	0.24	10	10
Trichloroethene	See C4SL	0.13	0.13	10	10
cis-1,2 Dichloroethene		0.21	0.21	50	50
Vinyl Chloride	See C4SL	0.0012	0.0012	0.5	0.5

### Notes:

f = Oral, dermal and inhalation exposure compared with oral HCV N/C = Not Calculated

\* = S4UL exceeds vapour saturation limit (in brackets)

\*\* = S4UL exceeds solubility saturation limit (in brackets)

n/c = not calculated. Under normal conditions contaminant exhibits low solubility /volatility, therefore risks from leaching and or vapour pathways are considered low.

# To establish suitable compliance criteria for Surface Water review of baseline groundwater quality in England and Wales was completed following research reported in Shand, P, Edmunds, W M, Lawrence, A R, Smedley, P L, and Burke, S. 2007. The natural (baseline) quality of groundwater in England and Wales. British Geological Survey Research Report No. RR/07/06. Where compliance criteria was found below the 97.7 percentile of baseline value, the latter was adopted as GAC.

### Soil Targets

Targets for Human Health have been taken from S4ULs 'Suitable For Use Levels for Human Health Risk Assessment' – LQM and CIEH (2014) derived using standard sandy loam soil with 1% SOM, except (#) = EIC/AGS/CL:AIRE GAC 'Soil Generic Assessment Criteria' (2010). For sites where ground conditions differ significantly from sandy loam or site-specific SOM and pH are available, the generic human health targets may be revised.

Targets for Controlled waters have been derived using EA Remedial Targets Worksheet (v3.1) - using standard Sandy Loam ground conditions as described in Science Report SC050021/SR3, assuming no degradation for a 10m compliance distance with criteria of EQS or UKDWS for Surface Water and Groundwater respectively (see notes for GW targets).

### Groundwater Targets

For Surface Water, targets have been taken as Freshwater EQS where available. For MTBE Predicted No Effect Concentration (European Risk Assessment Report, 2002) was used. For individual TPH fractions, in absence of UK EQS, a 5 times multiplier of UKDWS has been taken.

For Groundwater, targets have been taken as UKDWS where available. In the absence of UK targets internationally recognised criteria were adopted. For MTBE, WHO taste threshold has been adopted.

In the absence of recognised human health generic screening criteria for groundwater, it is generally industry's standard to adopt Groundwater targets, based on UKDWS for protection of human health. On this basis, the above Groundwater criteria are also considered protective of human health and further evaluation of these risks should be considered alongside any detailed quantitative risk assessments carried out for groundwater on a site specific basis.



## EPS Generic Quantitative Risk Assessment - Commercial Landuse

Contaminant	Soil Targets		
	Human Health	Controlled Waters	
		Surface Water	Groundwater
Unit		mg/kg	
Arsenic	See C4SL	n/c	n/c
Cadmium	See C4SL	n/c	n/c
Chromium III	8600	n/c	n/c
Chromium VI	See C4SL	n/c	n/c
Copper	68000	n/c	n/c
Mercury (elemental)	58	0.085	1.22
Nickel	980	n/c	n/c
Lead	See C4SL	n/c	n/c
Selenium	12000	n/c	n/c
Zinc	730000	n/c	n/c
Benzene	See C4SL	0.064	0.0064
Toluene	56000* (869)	1.33	12.6
Ethylbenzene	5700* (518)	0.77	11.5
Xylene (Para)	5900** (576)	1.18	19.6
MTBE#	7900	4.41	0.026
Benzo(a)Pyrene	see C4SL	n/c	n/c
Naphthalene	190** (76.4)	0.11	0.11
Aliphatic C5-C6	3200** (304)	4.06	0.81
Aliphatic C6-C8	7800** (144)	17.8	3.57
Aliphatic C8-C10	2000** (78)	n/c	n/c
Aliphatic C10-C12	9700** (48)	n/c	n/c
Aliphatic C12-C16	59000** (24)	n/c	n/c
Aliphatic C16-C35	1600000	n/c	n/c
Aromatic C8-C10	3500* (613)	6.71	1.34
Aromatic C10-C12	16000** (364)	10.6	2.13
Aromatic C12-C16	36000** (169)	21.2	4.23
Aromatic C16-C21	28000	n/c	n/c
Aromatic C21-C35	28000	n/c	n/c
Tetrachloroethene	See C4SL	0.24	0.24
Trichloroethene	See C4SL	0.13	0.13
cis-1,2 Dichloroethene		0.21	0.21
Vinyl Chloride	See C4SL	0.0012	0.0012

Contaminant	Groundwater Targets		
	Human Health	Controlled Waters	
		Surface Water	Groundwater
Unit		µg/l	
Arsenic	n/c	50	10
Cadmium	n/c	2.5#	5
Chromium III	n/c	4.7	50
Chromium VI	n/c	3.4	
Copper	n/c	93.1#	2000
Mercury (sol)	95 (sol)	1	1
Nickel	n/c	14.8#	20
Lead	n/c	27.7#	10
Selenium	n/c	10	10
Zinc	n/c	373#	3000
Benzene	20,000	10	1
Toluene (sol)	21,000,000 (sol)	74	700
Ethylbenzene (sol)	960,000 (sol)	20	300
Xylene (sol)	980,000 (sol)	30	500
MTBE	7,800,000	2600	15
Benzo(a)Pyrene	n/c	0.005 (0.00017)	0.01
Naphthalene (sol)	23,000 (sol)	2	2
Aliphatic C5-C6 (sol)	190,000 (sol)	50	10
Aliphatic C6-C8 (sol)	150,000 (sol)	50	10
Aliphatic C8-C10 (sol)	5,700 (sol)	50	10
Aliphatic C10-C12 (sol)	3,600 (sol)	50	10
Aliphatic C12-C16	n/c	50	10
Aliphatic C16-C35	n/c	50	10
Aromatic C8-C10 (sol)	190,000 (sol)	50	10
Aromatic C10-C12 (sol)	660,000 (sol)	50	10
Aromatic C12-C16 (sol)	3,700,000 (sol)	50	10
Aromatic C16-C21	n/c	50	10
Aromatic C21-C35	n/c	50	10
Tetrachloroethene	4,600	10	10
Trichloroethene	530	10	10
cis-1,2 Dichloroethene	13,000	50	50
Vinyl Chloride	63	0.5	0.5

### Notes:

f = Oral, dermal and inhalation exposure compared with oral HCV N/C = Not Calculated

\* = S4UL exceeds vapour saturation limit (in brackets) \*\* = S4UL exceeds solubility saturation limit (in brackets)

Human Health Groundwater GAC with (sol) exceed aqueous solubility

n/c = not calculated. Under normal conditions contaminant exhibits low solubility /volatility, therefore risks from leaching and or vapour pathways are considered low.

# To establish suitable compliance criteria for Surface Water review of baseline groundwater quality in England and Wales was completed following research reported in Shand, P, Edmunds, W M, Lawrence, A R, Smedley, P L, and Burke, S. 2007. The natural (baseline) quality of groundwater in England and Wales. British Geological Survey Research Report No. RR/07/06. Where compliance criteria was found below the 97.7 percentile of baseline value, the latter was adopted as GAC.

### Soil Targets

Targets for Human Health have been taken from S4ULs 'Suitable For Use Levels for Human Health Risk Assessment' – LQM and CIEH (2014) derived using standard sandy loam soil with 1% SOM, except (#) = EIC/AGS/CL:AIRE GAC 'Soil Generic Assessment Criteria' (2010). For sites where ground conditions differ significantly from sandy loam or site-specific SOM and pH are available, the generic human health targets may be revised.

Targets for Controlled waters have been derived using EA Remedial Targets Worksheet (v3.1) - using standard Sandy Loam ground conditions as described in Science Report SC050021/SR3, assuming no degradation for a 10m compliance distance with criteria of EQS or UKDWS for Surface Water and Groundwater respectively (see notes for GW targets).

### Groundwater Targets

For Surface Water, targets have been taken as Freshwater EQS where available. For MTBE Predicted No Effect Concentration (European Risk Assessment Report, 2002) was used. For individual TPH fractions, in absence of UK EQS, a 5 times multiplier of UKDWS has been taken.

For Groundwater, targets have been taken as UKDWS where available. In the absence of UK targets internationally recognised criteria were adopted. For MTBE, WHO taste threshold has been adopted.

Targets for Human Health have been taken from Society of Brownfield Risk Assessment (SoBRA) 'Development of Generic Assessment Criteria for Assessing Vapour Risks to Human Health from Volatile Contaminants in Groundwater' - Version 1.0, February 2017, derived using sandy soil and 1%SOM. GAC were set up assuming source at 50cm below typical ground bearing slab of 15cm thickness. GAC were derived for vapour pathways only. For sites where ground conditions, or differ significantly from described above, the generic human health targets may be revised.



## **APPENDIX F**

### **Cover Soils Checklist**



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## ADVISORY NOTE

### SOILS FOR USE IN COVER SYSTEMS

This note applies where there is a need for a control measure in the form of a defined thickness of clean soil to be used in gardens and soft landscaped areas in order to reduce risks from underlying contamination (a 'cover system'). Where a specific thickness has been presented, it is what EPS consider sufficient provided the soil forming the cover system is good quality, as it is assumed that over time this soil will become intermixed with the underlying soils and therefore needs to have the necessary 'dilution' effect. The aim being that an acceptable reduction in exposure to contamination is achieved, rather than absolute prevention.

These simple cover systems are designed in general accordance with the BRE 2004 guidance '*Cover Systems for Land Regeneration, Thickness of Cover Systems for Contaminated Land*'. In many cases guidance from a Local Planning Authority or NHBC/Approved Inspector may also apply and need to be taken into account. In most cases, to design the cover system EPS have to assume a certain quality of cover soils in advance. In these circumstances, we utilise what we consider to represent 'good quality soil' in that the soil could never be considered 'contaminated' but is also pragmatic and does not represent an unrealistic or unsustainable objective for much of the soils in the UK. In numerical terms, this standard typically equates to soil containing contaminants at around 25% of their adopted screening values in the risk assessment.

For the cover system itself, EPS would usually carry out a verification process of your site to demonstrate the control measure has been implemented as intended to satisfy all interested parties such as planning authorities, the NHBC and the future property owner. To document this process, EPS will prepare a Verification Report. If you wish for EPS to do this, we will need the following points confirmed relating to the soils preferably before they are installed in gardens.

If there are any queries, please contact EPS before purchasing any soil.

#### **EPS Contact Details:**

Tel: 01954 710666

Email: [info@epstrategies.co.uk](mailto:info@epstrategies.co.uk)



<b>Pre-Verification Cover System Checklist</b>		<b>Yes?</b>
<b>Soil Source</b>	The soil must not be a waste. Has it been confirmed that the soil is not a waste and has never been deemed as such in the past?	
	Has the source of the soil been provided?	
	Have all the delivery notes confirming the source, volume and type of soil been provided for all that is to be used? Where suppliers such as British Sugar are used, the soils should be delivered direct to site (not via an intermediary depot).	
<b>Soil Quality</b>	The soils are free of invasive plant species such as Japanese Knotweed, and have not been sourced from an affected area?	
	Do the soils look clean and of a high quality? I.e. the soil must not have an odour or contain any visual evidence of contamination, including oils, asbestos, glass, plastic, rubble, metal, ash, sharp objects or tarmac/bitumen?	
	Testing to 'BS 3882:2015 <i>Specification for topsoil and requirements for use</i> ' is preferable but generally not essential for public health regulation, provided you can confirm the soils comply with the above points, are suitable for their intended purpose and will provide an adequate growing medium?	
	Has the soil been chemically tested prior to it arriving at site?  Any soil test results presented to EPS by a third party must be current and clearly relate to the soil used, i.e. the testing must generally be dated within 6 weeks of delivery. The quantity of testing will be dependent on how much confidence is generated in the quality of the material, as well any specific local regulatory requirements. If the soil is clean soil from an established source such as British Sugar, the testing they provide at source may be sufficient alone without further testing (by EPS).  For other soils, EPS can advise on the likely testing frequencies but as a rule of thumb, anticipate at least one sample per average-sized plot. The testing would usually comprise the following: Heavy Metals, Poly Aromatic Hydrocarbons, Asbestos and Total Petroleum Hydrocarbons at an accredited lab. If adequate testing has not been completed, then EPS will need to test it from stockpiles prior to installation. Installing the soils into gardens without any testing data is not advised, as it may need to all be removed later.	
<b>Cover Thickness</b>	Are all excavations ready which will allow the necessary thickness of cover soils to be installed?	
	If yes, can you provide waste transfer documentation for any excavated soils?	



## **APPENDIX G**

# **Method Statement for Encountering Unexpected Contamination**





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## METHOD STATEMENT

### ACTIONS TO BE TAKEN IN THE EVENT OF DISCOVERING UNEXPECTED CONTAMINATION DURING INTRUSIVE GROUNDWORKS

If at any point during intrusive groundworks at a site, evidence of unforeseen contamination is encountered in the form of significant noxious odours, discolouration, or instability within soils or sheen/ discolouration in groundwater, the following actions will be taken:

- Intrusive works in the immediate area of the impacted ground will be suspended and the continuation of work in other areas of the site will be considered within the context of the site specific health & safety plan.
- Environmental Protection Strategies Ltd (EPS) will be contacted and appraised of the situation so that arrangements can be made to characterise the impact and determine what action may be necessary in addition to the scheduled site works. Where possible / health & safety plan permits, digital photographs of the impacted ground will be taken and emailed to EPS at the address below to assist in the initial assessment
- It may well be necessary for EPS to attend site to undertake visual inspection and obtain samples for field and/or laboratory analysis, although the actions taken will be dependent on the nature of what is encountered
- In cases where EPS consider the unforeseen contamination likely to pose a significant risk of significant harm to adjacent site users or local environmental receptors, the local authority and the Environment Agency will be informed of the situation and the actions being taken
- Once appropriate action has been agreed and undertaken, a written summary will be produced by EPS for submission to the Local Authority, (and where relevant, the Environment Agency) in accordance with planning requirements. The submission will include details of work undertaken, analytical results of investigative and validation samples obtained and conclusions and recommendations for any further actions considered necessary
- Where regulatory bodies have been involved, site works should only recommence following their agreement and in all cases should only recommence when the site manager considers it safe to do so within the context of the site specific health & safety plan.

#### EPS Contact Details:

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