

Stacey Inglis
Wrexham County Borough Council
Ruthin Road
Wrexham
LL13 7TU

Dear Stacey,

RE: P/2020/0636 – Discharge of Condition 7 (Contamination) of Planning Permission P/2018/0675

In response to your memorandum dated 24th December 2020, we are now able to provide an update on the additional investigation carried out at Wrexham with regards to the:

- Former back-up fuel tank;
- Ground Gas Protection Measures;
- Stockpiled Material.

FUEL TANK

Following removal of the stockpile in the location of the former fuel tank, Remada attended site on 5th January 2021 and obtained two representative soil samples from the base (Nos 1 and 2). These were subsequently scheduled for the analysis of the TPHCWG and PAH16.

The results of the chemical analyses were compared with the Generic Assessment Criteria (GAC) for the assessment of potential risks to human health. In order to present a conservative assessment, the more stringent SOM content of 1% was adopted for a commercial land use.

None of the analytes tested for were detected at concentrations that exceeded the human health GAC protective of on-site workers. The updated GAC comparison table and corresponding laboratory report (21-00314-1) for these two samples are appended at the rear of this report.

GROUND GAS PROTECTION MEASURES

Proposed Membrane & Detail

The membrane being used within the store footprint is a Corden EPS 2000. This is a low permeability, highly robust, monolithic, thermoplastic LDPE membrane for use as a radon, carbon dioxide and methane barrier for NHBC Amber 1 situations. The datasheet for this membrane is appended at the rear of this report.

The membrane is being installed by Civils & Construction UK Limited, Unit 13, Vauxhall Industrial Estate, Ruabon, Wrexham, LL14 6HA.

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National Quality Mark Scheme

Due Diligence

Desk Study

Intrusive Ground Investigation

Human Health Risk Assessment

Water Resource Risk Assessment

Mining Risk Assessment

Preliminary Foundation Design Recommendations

Remediation Strategies & Method Statements

Pre-acquisition Advice

Abnormal Cost Assessment

Materials Management Plans & Declarations

UST Decommissioning

Soil Bio-remediation

Soil Stabilisation

In-situ Groundwater Remediation

EA Remediation Permit

Verification & Completion Reports

WAMITAB

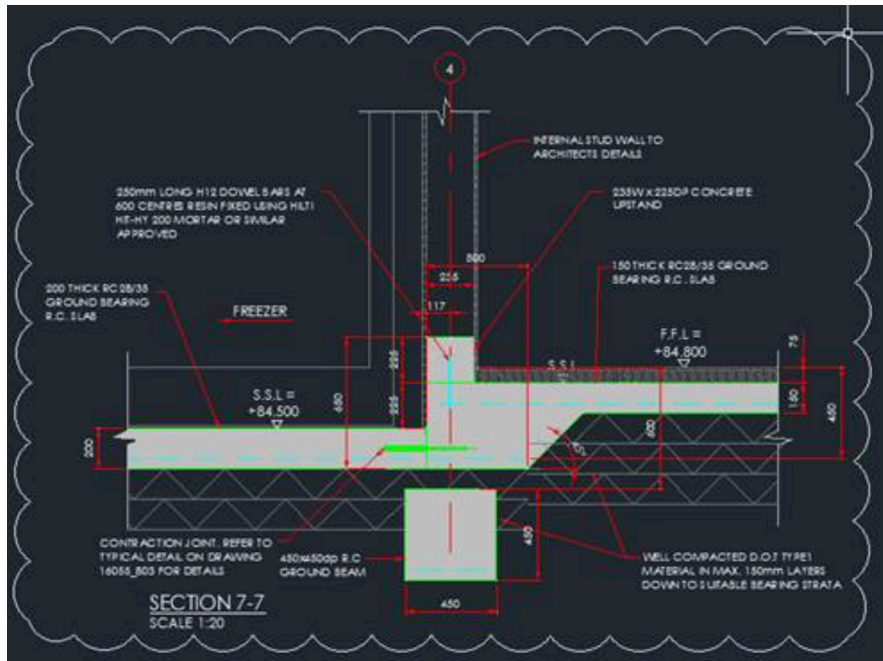
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17 High Street
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B95 5AA**

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Membrane to be installed beneath raft (section shown in image above) and as per the photos in the attached first site inspection.

Validation

The radon / ground gas membrane will be installed and verified in accordance with CIRIA C735 Good Practice on the Testing & Verification of Protection Systems for Buildings Against Hazardous Ground Gases (2014) which sets out industry good practice. Remada will undertake two site visits to independently verify the radon / ground gas membrane being installed within the proposed Lidl retail store.

Remada carried out the first site inspection on 19th February 2021, with the inspection record being appended.

STOCKPILED MATERIAL

Site won demolition material is being crushed and processed on-site for use as a capping and sub-base material and several stockpiles were observed by Remada's Engineer during a visit on 4th December. Four (4 No.) representative bulk samples and four (4 No.) soil samples were recovered from this stockpile and submitted for Particle Size Distribution (PSD) and asbestos analysis respectively.

The results of the PSD analysis are presented at the report of this report. Asbestos was identified within one of the four samples screened (sample B from samples A – D). The initial laboratory report indicates this to be fibres/clumps of amosite and chrysotile. Subsequent quantification analysis has confirmed the presence of these fibres/clumps but are present only at a total concentration of 0.005%. The updated laboratory report (ref: 20-33530-2) is appended.

Yours sincerely,

P. Dickinson

Peter Dickinson
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Remada Ltd
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Enclosures:

- Study Limitations
- Updated GAC Comparison Table
- Chemtest Laboratory Report 21-00314-1
- Membrane Datasheet
- Remada's Site Inspection Record – 19th February 2021
- Geotechnical Laboratory Results
- Chemtest Laboratory Report 20-33530-2

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Assessment**Water Resource Risk
Assessment**Mining Risk Assessment**Preliminary Foundation
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STUDY LIMITATIONS

IMPORTANT. This section should be read before reliance is placed on any of the information, opinions, advice, recommendations or conclusions contained in this report.

1. This report has been prepared by Remada, Ltd with all reasonable skill, care and diligence within the terms of the Appointment and with the resources and manpower agreed with (the 'Client'). Remada does not accept responsibility for any matters outside the agreed scope.

2. This report has been prepared for the sole benefit of the Client unless agreed otherwise in writing.

3. Unless stated otherwise, no consultations with authorities or funders or other interested third parties have been carried out. Remada is unable to give categorical assurance that the findings will be accepted by these third parties as such bodies may have published, more stringent objectives. Further work may be required by these parties.

4. All work carried out in preparing this report has used, and is based on, Remada's professional knowledge and understanding of current relevant legislation. Changes in legislation or regulatory guidance may cause the opinion or advice contained in this report to become inappropriate or incorrect. In giving opinions and advice pending changes in legislation, of which Remada is aware, have been considered. Following delivery of the report Remada has no obligation to advise the Client or any other party of such changes or their repercussions.

5. This report is only valid when used in its entirety. Any information or advice included in the report should not be relied upon until considered in the context of the whole report.

6. Whilst this report and the opinions made are to the best of Remada's belief, Remada cannot guarantee the accuracy or completeness of any information provided by third parties.

7. This report has been prepared based on the information reasonably available during the project programme. All information relevant to the scope may not have been received.

8. This report refers, within the limitations stated, to the condition of the site at the time of the inspections. No warranty is given as to the possibility of changes in the condition of the site since the time of the investigation.

9. The content of this report represents the professional opinion of experienced environmental consultants. Remada does not provide specialist legal or other professional advice. The advice of other professionals may be required.

10. Where intrusive investigation techniques have been employed they have been designed to provide a reasonable level of assurance on the conditions. Given the discrete nature of sampling, no investigation technique is capable of identifying all conditions present in all areas. In some cases the investigation is further limited by site operations, underground obstructions and above ground structures. Unless otherwise stated, areas beyond the boundary of the site have not been investigated.

11. If below ground intrusive investigations have been conducted as part of the scope, service tracing for safe location of exploratory holes has been carried out. The location of underground services shown on any drawing in this report has been determined by visual observations and electromagnetic techniques. No guarantee can be given that all services have been identified. Additional services, structures or other below ground obstructions, not indicated on the drawing, may be present on site.

12. Unless otherwise stated the report provides no comment on the nature of building materials, operational integrity of the facility or on any regulatory compliance issues.

13. Unless otherwise stated, samples from the site (soil, groundwater, building fabric or other samples) have NOT been analysed or assessed for waste classification purposes.

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GAC Comparison Table

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Table 1: Comparison of Soil Chemical Analyses with GAC

Laboratory ID						20-33530	20-33530	20-33530	20-33530	20-33530	20-33530	20-33530	21-00314	21-00314
Sample ID			Client Sample ID		Commercial GAC SOM	1109543	1109544	1109545	1109546	1109547	1109548	1109549	1121728	1121729
Borehole			Sample Location			ES1	ES2	ES3	ES4	ES5	ES6	ES7	Sample 1	Sample 2
Depth			Top Depth (m)			1.00 - 1.20	0.20 - 0.25	0.60 - 0.90	0.00 - 0.30	0.00 - 0.35	0.45 - 0.60	0.30 - 0.6	Stockpile	Stockpile
Sample Date			Date Sampled (\$)			04-Dec-2020	04-Dec-2020	04-Dec-2020	04-Dec-2020	04-Dec-2020	04-Dec-2020	04-Dec-2020	05-Jan-2021	05-Jan-2021
Determinand	Accred.	SOP	Units	LOD	(mg/kg unless stated)									
ACM Type	U	2192		N/A		-	-	-	-	-	-	-	-	-
Asbestos Identification	U	2192	%	0.001		-	-	-	No Asbestos Detected	-	-	No Asbestos Detected	-	-
ACM Detection Stage	U	2192		N/A		-	-	-	-	-	-	-	-	-
Moisture	N	2030	%	0.020		6.0	3.4	7.9	7.7	5.9	7.1	5.3	13	12
pH	M	2010		N/A		-	-	-	8.3	-	-	11.3	-	-
Arsenic	U	2450	mg/kg	1.0	640	9.3	23	9.6	13	16	18	22	-	-
Beryllium	U	2450	mg/kg	1.0	12	-	-	-	< 1.0	-	-	< 1.0	-	-
Cadmium	U	2450	mg/kg	0.10	190	< 0.10	0.18	< 0.10	0.24	0.23	0.38	0.22	-	-
Copper	U	2450	mg/kg	1.0	68000	14	16	15	36	12	13	12	-	-
Mercury	U	2450	mg/kg	0.50	58 ^{mg} (25.8)	< 0.10	< 0.10	< 0.10	0.31	< 0.10	0.54	< 0.10	-	-
Nickel	U	2450	mg/kg	0.10	980	18	5.6	17	19	13	9.6	15	-	-
Lead	U	2450	mg/kg	0.50	2300	78	32	61	170	78	70	60	-	-
Selenium	U	2450	mg/kg	0.50	12000	0.32	< 0.20	< 0.20	0.32	< 0.20	< 0.20	< 0.20	-	-
Vanadium	U	2450	mg/kg	0.20	9000	-	-	-	22	-	-	15	-	-
Zinc	U	2450	mg/kg	5.0	730000	47	14	52	100	37	64	40	-	-
Chromium	U	2450	mg/kg	0.50		14	6.4	17	-	13	8.9	-	-	-
Chromium (Trivalent)	N	2490	mg/kg	1.0	8600	-	-	-	15	-	-	14	-	-
Chromium (Hexavalent)	N	2490	mg/kg	0.50	33	-	-	-	< 0.50	-	-	< 0.50	-	-
Fraction of Organic Carbon	M	2625		0.0010		-	-	-	0.024	-	-	0.0052	-	-
Calculated SOM from FOC						-	-	-	4.138	-	-	0.897	-	-
Calculated TOC from FOC						-	-	-	2.400	-	-	0.520	-	-
Aliphatic TPH >C5-C6	N	2680	mg/kg	1.0	3200sol (304)	-	-	-	< 1.0	-	-	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C6-C8	N	2680	mg/kg	1.0	7800sol (144)	-	-	-	< 1.0	-	-	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C8-C10	M	2680	mg/kg	1.0	2000sol (78)	-	-	-	< 1.0	-	-	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C10-C12	M	2680	mg/kg	1.0	9700sol (48)	-	-	-	< 1.0	-	-	< 1.0	< 1.0	< 1.0
Aliphatic TPH >C12-C16	M	2680	mg/kg	1.0	59000sol (24)	-	-	-	< 1.0	-	-	15	4.2	< 1.0
Aliphatic TPH >C16-C21	M	2680	mg/kg	1.0		-	-	-	< 1.0	-	-	22	5.7	< 1.0
Aliphatic TPH >C21-C35	M	2680	mg/kg	1.0	1600000	-	-	-	< 1.0	-	-	120	33	< 1.0
Total Aliphatic Hydrocarbons:	N	2680	mg/kg	5.0		-	-	-	< 5.0	-	-	160	43	< 5.0
Aromatic TPH >C5-C7	N	2680	mg/kg	1.0	26000sol (1220)	-	-	-	< 1.0	-	-	< 1.0	< 1.0	< 1.0
Aromatic TPH >C7-C8	N	2680	mg/kg	1.0	56000vap (869)	-	-	-	< 1.0	-	-	< 1.0	< 1.0	< 1.0
Aromatic TPH >C8-C10	M	2680	mg/kg	1.0	3500vap (613)	-	-	-	< 1.0	-	-	< 1.0	< 1.0	< 1.0
Aromatic TPH >C10-C12	M	2680	mg/kg	1.0	16000sol (364)	-	-	-	< 1.0	-	-	< 1.0	< 1.0	< 1.0
Aromatic TPH >C12-C16	M	2680	mg/kg	1.0	36000sol (169)	-	-	-	< 1.0	-	-	< 1.0	< 1.0	< 1.0
Aromatic TPH >C16-C21	U	2680	mg/kg	1.0	28000	-	-	-	< 1.0	-	-	< 1.0	23	< 1.0
Aromatic TPH >C21-C35	M	2680	mg/kg	1.0	28000	-	-	-	< 1.0	-	-	580	170	< 1.0
Total Aromatic Hydrocarbons	N	2680	mg/kg	5.0		-	-	-	< 5.0	-	-	580	200	< 5.0
Total Petroleum Hydrocarbons	N	2680	mg/kg	10.0		-	-	-	< 10	-	-	740	250	< 10
Naphthalene	M	2700	mg/kg	0.10	190sol (76.4)	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Acenaphthylene	M	2700	mg/kg	0.10	83000sol (86.1)	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Acenaphthene	M	2700	mg/kg	0.10	84000sol (57)	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Fluorene	M	2700	mg/kg	0.10	63000sol (30.9)	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Phenanthrene	M	2700	mg/kg	0.10	22000	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	0.28	< 0.10
Anthracene	M	2700	mg/kg	0.10	520000	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Fluoranthene	M	2700	mg/kg	0.10	23000	< 0.10	0.25	< 0.10	0.22	0.40	0.53	< 0.10	0.11	< 0.10
Pyrene	M	2700	mg/kg	0.10	54000	< 0.10	0.28	< 0.10	0.24	0.44	0.54	< 0.10	0.40	< 0.10
Benzo[a]anthracene	M	2700	mg/kg	0.10	170	< 0.10	< 0.10	< 0.10	< 0.10	0.77	< 0.10	< 0.10	0.60	< 0.10
Chrysene	M	2700	mg/kg	0.10	350	< 0.10	< 0.10	< 0.10	< 0.10	1.4	< 0.10	< 0.10	0.79	< 0.10
Benzo[b]fluoranthene	M	2700	mg/kg	0.10	44	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo[k]fluoranthene	M	2700	mg/kg	0.10	1200	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo[a]pyrene	M	2700	mg/kg	0.10	35	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Indeno[1,2,3-c,d]Pyrene	M	2700	mg/kg	0.10	500	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Dibenz[a,h]Anthracene	M	2700	mg/kg	0.10	3.5	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo[g,h,i]perylene	M	2700	mg/kg	0.10	3900	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Total Of 16 PAH's	M	2700	mg/kg	2.0		-	-	-	< 2.0	-	-	< 2.0	2.2	< 2.0
Total of 17 PAH's	M	2700	mg/kg	2.0		< 2.0	< 2.0	< 2.0	-	3.0	< 2.0	-	-	-
Benzene	M	2760	µg/kg	1.0	27	-	-	-	<0.001	-	-	<0.001	-	-
Toluene	M	2760	µg/kg	1.0	56000vap (869)	-	-	-	<0.001	-	-	<0.001	-	-
Ethylbenzene	M	2760	µg/kg	1.0	5700vap (518)	-	-	-	<0.001	-	-	<0.001	-	-
m-Xylene	M	2760	µg/kg	1.0	6600sol (478)	-	-	-	<0.001	-	-	<0.001	-	-
p-Xylene	M	2760	µg/kg	1.0	6200vap (625)	-	-	-	<0.001	-	-	<0.001	-	-
o-Xylene	M	2760	µg/kg	1.0	5900sol (576)	-	-	-	<0.001	-	-	<0.001	-	-
Total Phenols	M	2920	mg/kg	0.30	4400dir 26000	-	-	-	< 0.30	-	-	< 0.30	-	-



Determinand concentration below the GAC
 Determinand concentration in exceedance of GAC
 Determinand concentration in exceedance of the vapour/solubility saturation limit.

NC: No published criteria

vap: Screening criteria presented exceed the vapour saturation limit, which is presented in brackets.

sol: Screening criteria presented exceed the solubility saturation limit, which is presented in brackets.

dir: Screening criteria based on threshold protective of direct skin contact (guideline in brackets based on health effects following long term exposure provided for illustration only).

(1): For assessment based on the use of the surrogate marker approach the GAC for Coal Tar must be used instead of benzo[a]pyrene.

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Chemtest Laboratory Report 21-00314-1



2183

Final Report

Report No.: 21-00314-1
Initial Date of Issue: 12-Jan-2021
Client Remada Ltd
Client Address: Forward House
17 High Street
Henley in Arden
B95 5AA
Contact(s): Greg Jones
Peter Dickinson
Project 5225.05 Wrexham

Quotation No.: **Date Received:** 08-Jan-2021

Order No.: **Date Instructed:** 08-Jan-2021

No. of Samples: 2

Turnaround (Wkdays): 5 **Results Due:** 14-Jan-2021

Date Approved: 12-Jan-2021

Approved By:



Details: Glynn Harvey, Technical Manager

Results - Soil

Project: 5225.05 Wrexham

Client: Remada Ltd	Chemtest Job No.:				21-00314	21-00314
Quotation No.:	Chemtest Sample ID.:				1121728	1121729
Order No.:	Client Sample Ref.:				Sample 1	Sample 2
	Client Sample ID.:				Sample 1	Sample 2
	Sample Location:				Stockpile	Stockpile
	Sample Type:				SOIL	SOIL
	Date Sampled:				05-Jan-2021	05-Jan-2021
Determinand	Accred.	SOP	Units	LOD		
Moisture	N	2030	%	0.020	13	12
Aliphatic TPH >C5-C6	N	2680	mg/kg	1.0	< 1.0	< 1.0
Aliphatic TPH >C6-C8	N	2680	mg/kg	1.0	< 1.0	< 1.0
Aliphatic TPH >C8-C10	U	2680	mg/kg	1.0	< 1.0	< 1.0
Aliphatic TPH >C10-C12	U	2680	mg/kg	1.0	< 1.0	< 1.0
Aliphatic TPH >C12-C16	U	2680	mg/kg	1.0	4.2	< 1.0
Aliphatic TPH >C16-C21	U	2680	mg/kg	1.0	5.7	< 1.0
Aliphatic TPH >C21-C35	U	2680	mg/kg	1.0	33	< 1.0
Aliphatic TPH >C35-C44	N	2680	mg/kg	1.0	< 1.0	< 1.0
Total Aliphatic Hydrocarbons	N	2680	mg/kg	5.0	43	< 5.0
Aromatic TPH >C5-C7	N	2680	mg/kg	1.0	< 1.0	< 1.0
Aromatic TPH >C7-C8	N	2680	mg/kg	1.0	< 1.0	< 1.0
Aromatic TPH >C8-C10	U	2680	mg/kg	1.0	< 1.0	< 1.0
Aromatic TPH >C10-C12	U	2680	mg/kg	1.0	< 1.0	< 1.0
Aromatic TPH >C12-C16	U	2680	mg/kg	1.0	10	< 1.0
Aromatic TPH >C16-C21	U	2680	mg/kg	1.0	23	< 1.0
Aromatic TPH >C21-C35	U	2680	mg/kg	1.0	170	< 1.0
Aromatic TPH >C35-C44	N	2680	mg/kg	1.0	< 1.0	< 1.0
Total Aromatic Hydrocarbons	N	2680	mg/kg	5.0	200	< 5.0
Total Petroleum Hydrocarbons	N	2680	mg/kg	10.0	250	< 10
Naphthalene	U	2700	mg/kg	0.10	< 0.10	< 0.10
Acenaphthylene	U	2700	mg/kg	0.10	< 0.10	< 0.10
Acenaphthene	U	2700	mg/kg	0.10	< 0.10	< 0.10
Fluorene	U	2700	mg/kg	0.10	< 0.10	< 0.10
Phenanthrene	U	2700	mg/kg	0.10	0.28	< 0.10
Anthracene	U	2700	mg/kg	0.10	< 0.10	< 0.10
Fluoranthene	U	2700	mg/kg	0.10	0.11	< 0.10
Pyrene	U	2700	mg/kg	0.10	0.40	< 0.10
Benzo[a]anthracene	U	2700	mg/kg	0.10	0.60	< 0.10
Chrysene	U	2700	mg/kg	0.10	0.79	< 0.10
Benzo[b]fluoranthene	U	2700	mg/kg	0.10	< 0.10	< 0.10
Benzo[k]fluoranthene	U	2700	mg/kg	0.10	< 0.10	< 0.10
Benzo[a]pyrene	U	2700	mg/kg	0.10	< 0.10	< 0.10
Indeno(1,2,3-c,d)Pyrene	U	2700	mg/kg	0.10	< 0.10	< 0.10
Dibenz(a,h)Anthracene	U	2700	mg/kg	0.10	< 0.10	< 0.10
Benzo[g,h,i]perylene	U	2700	mg/kg	0.10	< 0.10	< 0.10
Total Of 16 PAH's	U	2700	mg/kg	2.0	2.2	< 2.0

Test Methods

SOP	Title	Parameters included	Method summary
2030	Moisture and Stone Content of Soils(Requirement of MCERTS)	Moisture content	Determination of moisture content of soil as a percentage of its as received mass obtained at <37°C.
2040	Soil Description(Requirement of MCERTS)	Soil description	As received soil is described based upon BS5930
2680	TPH A/A Split	Aliphatics: >C5–C6, >C6–C8,>C8–C10, >C10–C12, >C12–C16, >C16–C21, >C21–C35, >C35– C44Aromatics: >C5–C7, >C7–C8, >C8– C10, >C10–C12, >C12–C16, >C16– C21, >C21– C35, >C35– C44	Dichloromethane extraction / GCxGC FID detection
2700	Speciated Polynuclear Aromatic Hydrocarbons (PAH) in Soil by GC-FID	Acenaphthene; Acenaphthylene; Anthracene; Benzo[a]Anthracene; Benzo[a]Pyrene; Benzo[b]Fluoranthene; Benzo[ghi]Perylene; Benzo[k]Fluoranthene; Chrysene; Dibenzo[ah]Anthracene; Fluoranthene; Fluorene; Indeno[123cd]Pyrene; Naphthalene; Phenanthrene; Pyrene	Dichloromethane extraction / GC-FID (GC-FID detection is non-selective and can be subject to interference from co-eluting compounds)

Report Information

Key

U	UKAS accredited
M	MCERTS and UKAS accredited
N	Unaccredited
S	This analysis has been subcontracted to a UKAS accredited laboratory that is accredited for this analysis
SN	This analysis has been subcontracted to a UKAS accredited laboratory that is not accredited for this analysis
T	This analysis has been subcontracted to an unaccredited laboratory
I/S	Insufficient Sample
U/S	Unsuitable Sample
N/E	not evaluated
<	"less than"
>	"greater than"

Comments or interpretations are beyond the scope of UKAS accreditation

The results relate only to the items tested

Uncertainty of measurement for the determinands tested are available upon request

None of the results in this report have been recovery corrected

All results are expressed on a dry weight basis

The following tests were analysed on samples as received and the results subsequently corrected to a dry weight basis TPH, BTEX, VOCs, SVOCs, PCBs, Phenols

For all other tests the samples were dried at < 37°C prior to analysis

All Asbestos testing is performed at the indicated laboratory

Issue numbers are sequential starting with 1 all subsequent reports are incremented by 1

Sample Deviation Codes

- A - Date of sampling not supplied
- B - Sample age exceeds stability time (sampling to extraction)
- C - Sample not received in appropriate containers
- D - Broken Container
- E - Insufficient Sample (Applies to LOI in Trommel Fines Only)

Sample Retention and Disposal

All soil samples will be retained for a period of 45 days from the date of receipt

All water samples will be retained for 14 days from the date of receipt

Charges may apply to extended sample storage

If you require extended retention of samples, please email your requirements to:
customerservices@chemtest.com

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Membrane Datasheet

Corden EPS 2000

A low permeability, highly robust, monolithic, thermoplastic LDPE membrane for use as a radon, carbon dioxide and methane barrier for NHBC Amber 1 situations.

Corden EPS 2000 prevents the transmission of harmful gases. Due to the nature of its construction; the membrane overcomes problems associated with membranes manufactured from post-consumer recycled waste.

Corden EPS 2000 also acts as a damp proof membrane and can be heat welded.

Corden EPS 2000 fully complies with the recommendations of the Building Research Establishment Document: 414 and with the requirements NHBC Guidance on methane and carbon dioxide report issue 20 for Amber 1 sites.

Advantages

- Suitable for use on sites contaminated with higher concentrations of Radon.
- 4 metre wide centre-fold membrane
- Premium DPM/vapour barrier
- Extremely tough with excellent resistance to tear and puncture.
- Compatible with vented systems
- Conforms to the requirements of BR211

Product Specification

Method	Test Unit	Mean Results
	Roll size	4m x 12.5m
	Thickness	500mu
	Density (Kg/m ²)	920
	Colour	Grey
MOAT 27 5.1 BS 2782 (360B)	Tear strength – Nail tear (N)	Long' Trans 215 185
BS 2782 (320) (12)	Elongation at break (%)	Long' Trans 500 525
MOAT 27 5.1.6.1	Dimensional stability (%) (4) at 80°C 72 hours	Long' Trans +0.17 0.37
MOAT 27 5.4.2	Low temperature flexibility (5) 20mm dia mandrel (-27°C)	Long' Trans No cracking
WVTR (g/m ² /day)	Resistance to water vapour	0.24
Radon Permeability		4 x 10 ⁻¹² m ² /s
CO ₂ Transmittance		26.53cc/m ² /hr
Methane Transmittance		6.43cc/m ² /hr
MVTR		0.16g/m ² /day

References

BR211 "Radon - Guidance on protective measures for new buildings"

BRE414 "Protective measures for housing on gas-contaminated land"

CIRA C735 2014 Good practice on the testing and verification of protection systems for buildings against hazardous ground gases.

BS8485: 2015 Code of Practice for the Characterization and Remediation from Ground Gas in Affected Developments

NHBC "Guidance on methane and carbon dioxide" and technical extra April 2016, issue 20.

NHBC expectations for verification to satisfy the Traffic Light gas regime classifications are as detailed in below.

Table 1: Typical NHBC expectations and verification requirements

Gas regime	Minimum gas protection expectations	Verification or information requirements
Green	N/A – but need to comply with BR211 radon requirements, where applicable	
Amber 1	Ventilation – subfloor venting to achieve at least one air exchange per day (minimum 150mm void height; 1500mm²/m air vent opening or 500mm²/m² floor area spaced at not more than 2m centres on at least two opposing sides). Membrane – must be suitable for purpose. Membrane installation/design - to achieve complete integrity across entire building footprint. Penetrations and joints sealed.	Construction drawings – showing position of membrane; sealing details and ventilation points to be provided. Membrane specification – technical data sheet(s) for gas membrane (including gas permeability data) to be provided. Installation – photographic evidence of installed membrane may be requested.

Note: Corden EPS 2000 is not suitable for “Amber 2” situations. See Corden EPS Total Gas Barrier for guidance.

Ancillary Products

- CORDEN EPS Gas and Lap Tape
- CORDEN EPS GRM Self-adhesive Gas Barrier
- CORDEN EPS Geo-Vent + venting components
- CORDEN EPS Liquid Vapour Membrane
- CORDEN EPS Top Hat Pipe Cloaks
- CORDEN EPS GR DPC. (Gas resistant DPC)
- CORDENEPS Radon Sump
- CORDEN EPS Pre-formed Cloaks, Internal / external corners, Door threshold cloaks, Party wall tray.

Corden EPS Can Offer:

- Design solutions offering the most cost effective system to comply with current legislation.
- Independent Integrity testing (site based)
- Independent Verification reports (site based)
- Bespoke systems to overcome difficult situations
- Supply and install service with on-site fabrication/welding



Remada's Site Inspection Record (19th February 2021)



CIRIA 735 Visual Inspection of Gas Protection Measures

Sheet
1 of 3

Remada

Site Name: Lidl Wrexham	Gas Characteristic Situation: 1 – 2 Basic Radon Protection Measures
Remada Job No: 525.05	Type of Development & Building / Block Checked: Ground Bearing Floor Slab.
Date: 19.02.2021	Building Description: New Build Construction.
Visit By: P Dickinson	Gas Protection Type: Passive

No.	Item	Comments
1 Gas Membrane		
1.1	Condition of subgrade and underside of gas membrane	150mm Type 1 subgrade material installed, with membrane laid on top.
1.2	Gas membrane type	Corden EP S2000
1.3	Gas membrane condition	No visible tears or damage where visible.
1.4	Joint tape product	Double sided joint tape.
1.5	Lapping design	Overlap approximately 100mm to give 200mm seal.
1.6	Laps, welds and joints seals	Visible entries through floor slab still require sealing
1.7	Service entries seals	
2 Passive Venting		
2.1	Sub-floor void	N/A
2.2	External wall airbricks	N/A
2.3	Internal sleeper wall	N/A
2.4	External vent trenches / duct	N/A
3 Active Venting		
3.1	System details	Not required
<u>Additional Notes</u> Laying of membrane still ongoing at time of inspection.		

No	Photograph	Description
1		Membrane laid below floor slab. Concrete pour still required.



CIRIA 735 Visual Inspection of Gas Protection Measures

Sheet
2 of 3

Remada

2		Gas/radon resistant membrane laid in the delivery area.
3		420mm overlap recorded between the membrane sheets, with one layer of double-sided tape being used to seal the joint.
4		Detail of cut area to allow the membrane's installation around the service entry pipes. This will require patching, with top hat covers required on all entry pipes.



CIRIA 735 Visual Inspection of Gas Protection Measures

Sheet
3 of 3

Remada

5		The store entrance area still requiring installation of membrane at the time of inspection.
6		Delivery label recorded on one of the rolls of membrane awaiting laying. Corden EPS 2000 membrane has been used.

The gas protection measures inspected	a. Acceptable and comply with the specification b. Are acceptable but attention is drawn to issues related to item Nos 1 - 6 (after completion of repairs) c. Are not acceptable due to the issues related to item(s) No.
---------------------------------------	---

Name: Peter Dickinson	Signature: 	Date: 23.02.2021
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GEOTECHNICAL LABORATORY RESULTS



LABORATORY REPORT



4043

Contract Number: PSL20/7159

Report Date: 27 January 2021

Client's Reference: 525.05

Client Name: Remada Ltd
Forward House
17 High Street
Henley-in-Arden
Warwickshire
B95 5AA

For the attention of: Peter Dickinson

Contract Title: Wrexham

Date Received: 8/12/2020

Date Commenced: 8/12/2020

Date Completed: 25/1/2021

Notes: Opinions and Interpretations are outside the UKAS Accreditation

A copy of the Laboratory Schedule of accredited tests as issued by UKAS is attached to this report. This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service. The results reported herein relate only to the material supplied to the laboratory. This certificate shall not be reproduced other than in full, without the prior written approval of the laboratory.

Checked and Approved Signatories:

H Daniels
(Senior Technician)

A Watkins
(Director)

R Berriman
(Quality Manager)

S Royle
(Laboratory Manager)

S Eyre
(Senior Technician)

L Knight
(Senior Technician)

5 – 7 Hexthorpe Road, Hexthorpe,
Doncaster DN4 0AR
tel: +44 (0)844 815 6641
fax: +44 (0)844 815 6642
e-mail: rgunson@prosoils.co.uk
awatkins@prosoils.co.uk

Page 1 of

SUMMARY OF LABORATORY SOIL DESCRIPTIONS

[illegible]

4043

PSL
Professional Soils Laboratory

Wrexham

Contract No:

PSL20/7159

Client Ref:

525.05

PARTICLE SIZE DISTRIBUTION TEST

BS1377 : Part 2 : 1990

Wet Sieve, Clause 9.2

Hole Number:

Stockpile

Top Depth (m):

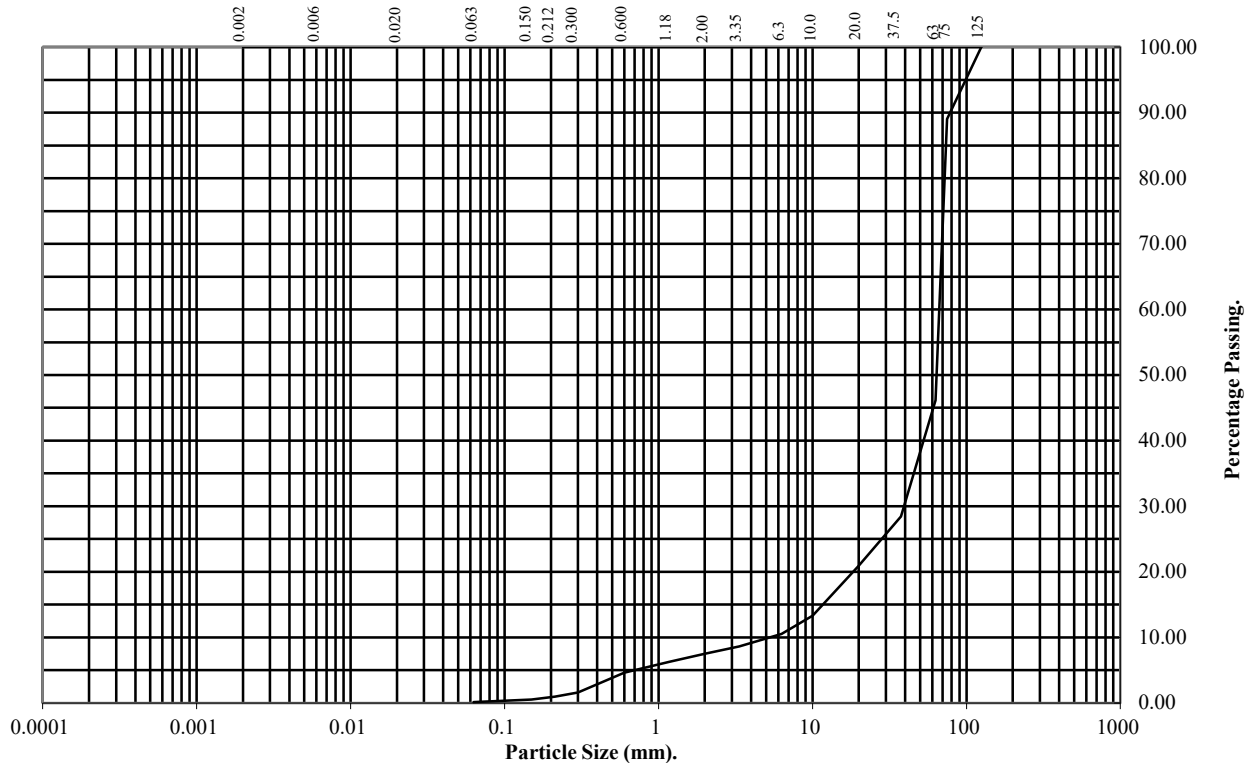
Sample Number:

A

Base Depth(m):

Sample Type:

Bulk



BS Test Sieve (mm)	Percentage Passing
125	100
75	89
63	46
37.5	28
20	21
10	13
6.3	11
3.35	9
2	7
1.18	6
0.6	5
0.3	2
0.212	1
0.15	1
0.063	0

Soil Fraction	Total Percentage
Cobbles	54
Gravel	39
Sand	7
Silt/Clay	0

Remarks:

See Summary of Soil Descriptions



PSL
Professional Soils Laboratory

Wrexham

Contract No:
PSL20/7159
Client Ref:
525.05

PARTICLE SIZE DISTRIBUTION TEST

BS1377 : Part 2 : 1990

Wet Sieve, Clause 9.2

Hole Number:

Stockpile

Top Depth (m):

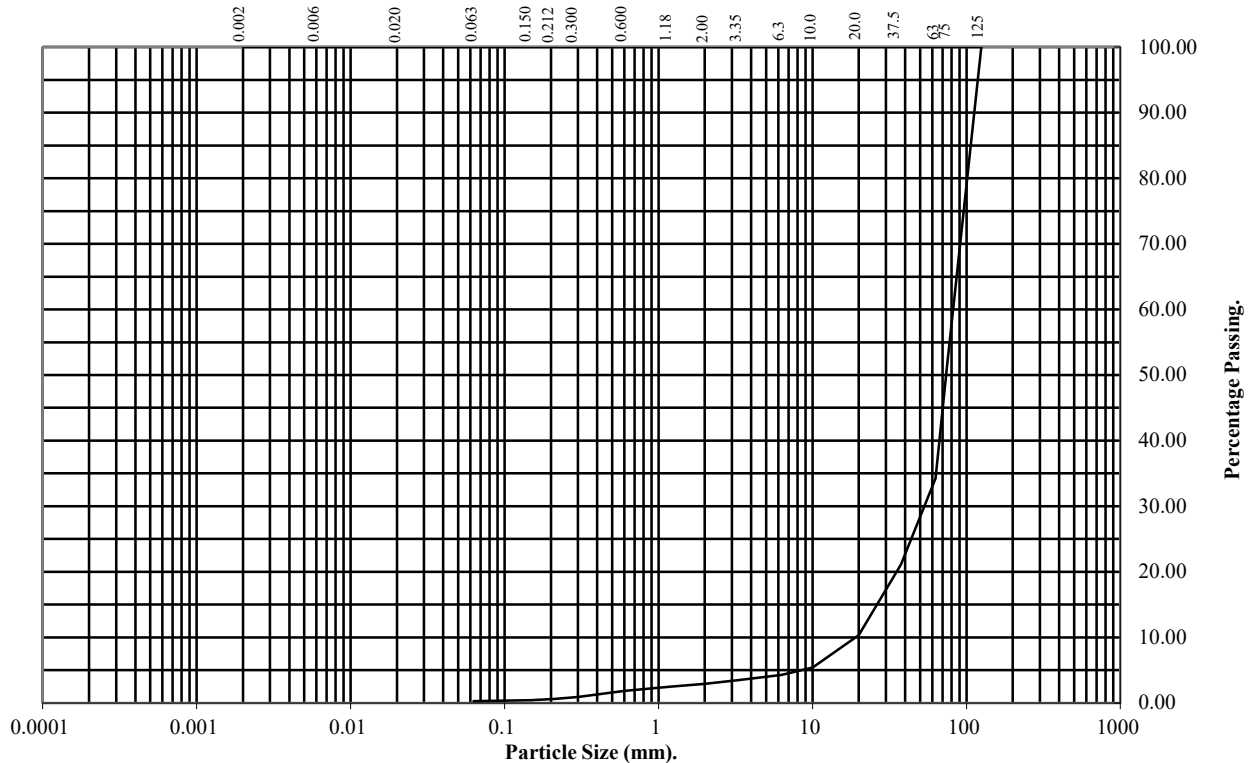
Sample Number:

B

Base Depth(m):

Sample Type:

Bulk



BS Test Sieve (mm)	Percentage Passing
125	100
75	51
63	34
37.5	21
20	10
10	5
6.3	4
3.35	3
2	3
1.18	2
0.6	2
0.3	1
0.212	1
0.15	0
0.063	0

Soil Fraction	Total Percentage
Cobbles	66
Gravel	31
Sand	3
Silt/Clay	0

Remarks:

See Summary of Soil Descriptions



PSL
Professional Soils Laboratory

Wrexham

Contract No:
PSL20/7159
Client Ref:
525.05

PARTICLE SIZE DISTRIBUTION TEST

BS1377 : Part 2 : 1990

Wet Sieve, Clause 9.2

Hole Number:

Stockpile

Top Depth (m):

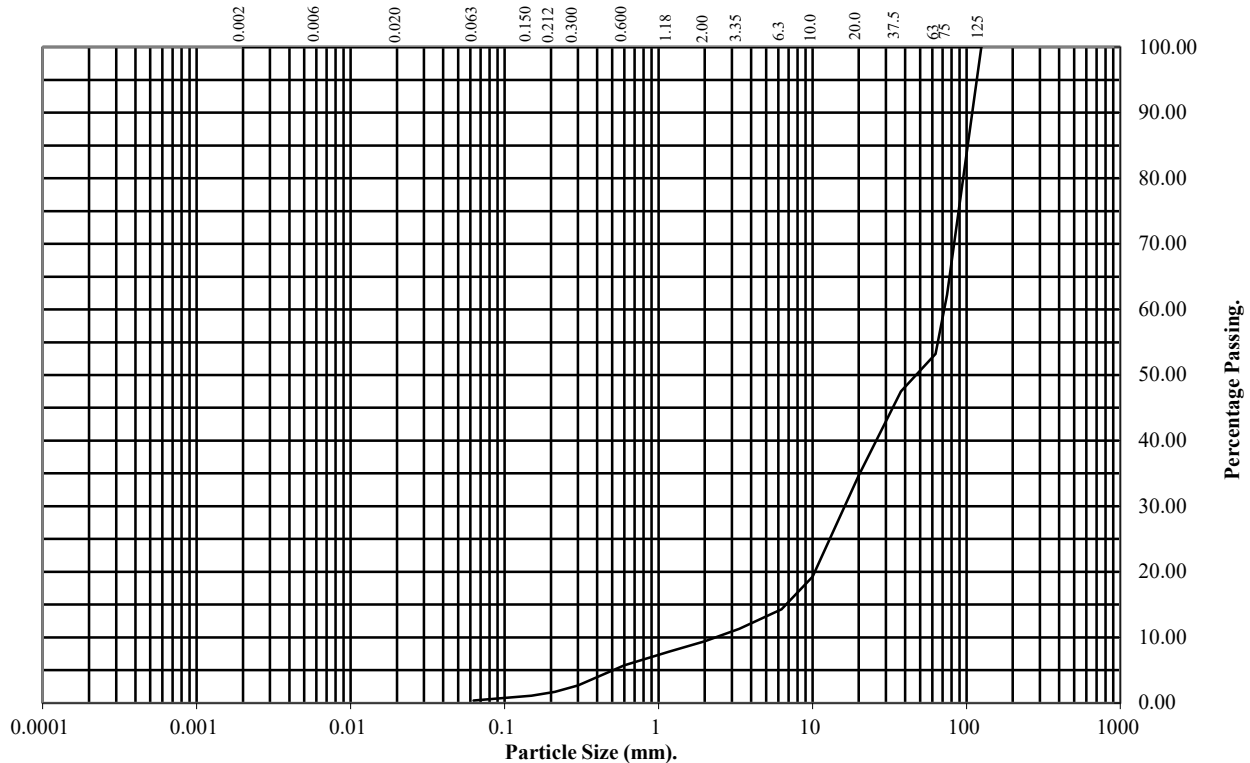
Sample Number:

C

Base Depth(m):

Sample Type:

Bulk



BS Test Sieve (mm)	Percentage Passing
125	100
75	62
63	53
37.5	48
20	35
10	19
6.3	14
3.35	11
2	9
1.18	8
0.6	6
0.3	3
0.212	2
0.15	1
0.063	0

Soil Fraction	Total Percentage
Cobbles	47
Gravel	44
Sand	9
Silt/Clay	0

Remarks:

See Summary of Soil Descriptions



PSL
Professional Soils Laboratory

Wrexham

Contract No:
PSL20/7159
Client Ref:
525.05

PARTICLE SIZE DISTRIBUTION TEST

BS1377 : Part 2 : 1990

Wet Sieve, Clause 9.2

Hole Number:

Stockpile

Top Depth (m):

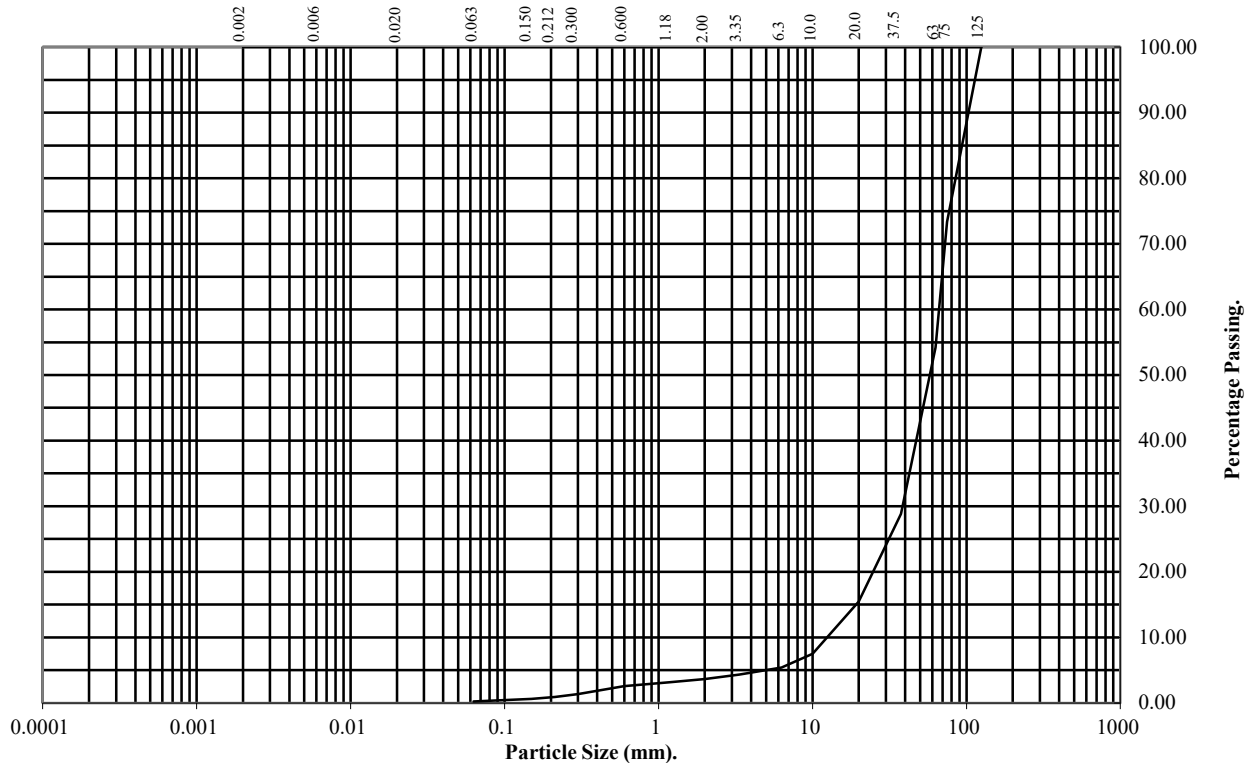
Sample Number:

D

Base Depth(m):

Sample Type:

Bulk



BS Test Sieve (mm)	Percentage Passing
125	100
75	73
63	54
37.5	29
20	15
10	7
6.3	5
3.35	4
2	4
1.18	3
0.6	3
0.3	1
0.212	1
0.15	1
0.063	0

Soil Fraction	Total Percentage
Cobbles	46
Gravel	50
Sand	4
Silt/Clay	0

Remarks:

See Summary of Soil Descriptions



PSL
Professional Soils Laboratory

Wrexham

Contract No:
PSL20/7159
Client Ref:
525.05

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Chemtest Laboratory Report 21-33530-2



2183

Amended Report

Report No.:	20-33530-2		
Initial Date of Issue:	14-Dec-2020	Date of Re-Issue:	18-Dec-2020
Client	Remada Ltd		
Client Address:	Forward House 17 High Street Henley in Arden B95 5AA		
Contact(s):	Greg Jones Peter Dickinson		
Project	525.05		
Quotation No.:		Date Received:	04-Dec-2020
Order No.:	525.05 Wrexham	Date Instructed:	07-Dec-2020
No. of Samples:	11		
Turnaround (Wkdays):	11	Results Due:	21-Dec-2020
Date Approved:	18-Dec-2020		
Approved By:			
Details:	Glynn Harvey, Technical Manager		

Results - Soil

Project: 525.05

Client: Remada Ltd	Chemtest Job No.:				20-33530	20-33530	20-33530	20-33530	20-33530	20-33530	20-33530	20-33530
Quotation No.:	Chemtest Sample ID.:				1109543	1109544	1109545	1109546	1109547	1109548	1109549	1109550
Order No.: 525.05 Wrexham	Client Sample Ref.:				ES1	ES2	ES3	ES4	ES5	ES6	ES7	A
	Sample Location:				TP1	TP2	TP3	TP4	TP5	TP6	TP7	Stockpile
	Sample Type:				SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	Top Depth (m):				1.00	0.20	0.60	0.00	0.00	0.45	0.30	
	Bottom Depth (m):				1.20	0.25	0.90	0.30	0.35	0.60	0.60	
	Date Sampled:				04-Dec-2020	04-Dec-2020	04-Dec-2020	04-Dec-2020	04-Dec-2020	04-Dec-2020	04-Dec-2020	04-Dec-2020
	Asbestos Lab:							COVENTRY			COVENTRY	COVENTRY
Determinand	Accred.	SOP	Units	LOD								
ACM Type	U	2192		N/A				-			-	-
Asbestos Identification	U	2192		N/A				No Asbestos Detected			No Asbestos Detected	No Asbestos Detected
ACM Detection Stage	U	2192		N/A				-			-	-
Asbestos by Gravimetry	U	2192	%	0.001								
Total Asbestos	U	2192	%	0.001								
Moisture	N	2030	%	0.020	6.0	3.4	7.9	7.7	5.9	7.1	5.3	
Chromatogram (TPH)	N			N/A				See Attached			See Attached	
pH	U	2010		4.0				8.3			11.3	
Boron (Hot Water Soluble)	U	2120	mg/kg	0.40				0.64			0.68	
Arsenic	U	2450	mg/kg	1.0	9.3	23	9.6	13	16	18	22	
Beryllium	U	2450	mg/kg	1.0				< 1.0			< 1.0	
Cadmium	U	2450	mg/kg	0.10	< 0.10	0.18	< 0.10	0.24	0.23	0.38	0.22	
Chromium	U	2450	mg/kg	1.0	14	6.4	17		13	8.9		
Copper	U	2450	mg/kg	0.50	14	16	15	36	12	13	12	
Mercury	U	2450	mg/kg	0.10	< 0.10	< 0.10	< 0.10	0.31	< 0.10	0.54	< 0.10	
Nickel	U	2450	mg/kg	0.50	18	5.6	17	19	13	9.6	15	
Lead	U	2450	mg/kg	0.50	78	32	61	170	78	70	60	
Selenium	U	2450	mg/kg	0.20	0.32	< 0.20	< 0.20	0.32	< 0.20	< 0.20	< 0.20	
Vanadium	U	2450	mg/kg	5.0				22			15	
Zinc	U	2450	mg/kg	0.50	47	14	52	100	37	64	40	
Chromium (Trivalent)	N	2490	mg/kg	1.0				15			14	
Chromium (Hexavalent)	N	2490	mg/kg	0.50				< 0.50			< 0.50	
Fraction of Organic Carbon	U	2625		0.0010				0.024			0.0052	
Aliphatic TPH >C5-C6	N	2680	mg/kg	1.0				< 1.0			< 1.0	
Aliphatic TPH >C6-C8	N	2680	mg/kg	1.0				< 1.0			< 1.0	
Aliphatic TPH >C8-C10	U	2680	mg/kg	1.0				< 1.0			< 1.0	
Aliphatic TPH >C10-C12	U	2680	mg/kg	1.0				< 1.0			< 1.0	
Aliphatic TPH >C12-C16	U	2680	mg/kg	1.0				< 1.0			15	
Aliphatic TPH >C16-C21	U	2680	mg/kg	1.0				< 1.0			22	
Aliphatic TPH >C21-C35	U	2680	mg/kg	1.0				< 1.0			120	
Aliphatic TPH >C35-C44	N	2680	mg/kg	1.0				< 1.0			< 1.0	
Total Aliphatic Hydrocarbons	N	2680	mg/kg	5.0				< 5.0			160	
Aromatic TPH >C5-C7	N	2680	mg/kg	1.0				< 1.0			< 1.0	
Aromatic TPH >C7-C8	N	2680	mg/kg	1.0				< 1.0			< 1.0	
Aromatic TPH >C8-C10	U	2680	mg/kg	1.0				< 1.0			< 1.0	

Results - Soil

Project: 525.05

Client: Remada Ltd	Chemtest Job No.: 20-33530 20-33530 20-33530 20-33530 20-33530 20-33530 20-33530 20-33530 20-33530 20-33530									
Quotation No.:	Chemtest Sample ID.: 1109543 1109544 1109545 1109546 1109547 1109548 1109549 1109550 1109551									
Order No.: 525.05 Wrexham	Client Sample Ref.: ES1 ES2 ES3 ES4 ES5 ES6 ES7 A B									
	Sample Location: TP1 TP2 TP3 TP4 TP5 TP6 TP7 Stockpile Stockpile									
	Sample Type: SOIL SOIL SOIL SOIL SOIL SOIL SOIL SOIL SOIL SOIL									
	Top Depth (m): 1.00 0.20 0.60 0.00 0.00 0.45 0.30									
	Bottom Depth (m): 1.20 0.25 0.90 0.30 0.35 0.60 0.60									
	Date Sampled: 04-Dec-2020 04-Dec-2020 04-Dec-2020 04-Dec-2020 04-Dec-2020 04-Dec-2020 04-Dec-2020 04-Dec-2020 04-Dec-2020 04-Dec-2020									
	Asbestos Lab: COVENTRY COVENTRY COVENTRY COVENTRY									
Determinand	Accred.	SOP	Units	LOD						
Aromatic TPH >C10-C12	U	2680	mg/kg	1.0				< 1.0		< 1.0
Aromatic TPH >C12-C16	U	2680	mg/kg	1.0				< 1.0		< 1.0
Aromatic TPH >C16-C21	U	2680	mg/kg	1.0				< 1.0		< 1.0
Aromatic TPH >C21-C35	U	2680	mg/kg	1.0				< 1.0		580
Aromatic TPH >C35-C44	N	2680	mg/kg	1.0				< 1.0		< 1.0
Total Aromatic Hydrocarbons	N	2680	mg/kg	5.0				< 5.0		580
Total Petroleum Hydrocarbons	N	2680	mg/kg	10.0				< 10		740
Naphthalene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Acenaphthylene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Acenaphthene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Fluorene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Phenanthrene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Anthracene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Fluoranthene	U	2700	mg/kg	0.10	< 0.10	0.25	< 0.10	0.22	0.40	< 0.10
Pyrene	U	2700	mg/kg	0.10	< 0.10	0.28	< 0.10	0.24	0.44	0.54
Benzo[a]anthracene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	0.77	< 0.10
Chrysene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	1.4	< 0.10
Benzo[b]fluoranthene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo[k]fluoranthene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo[a]pyrene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Indeno(1,2,3-c,d)Pyrene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Dibenz(a,h)Anthracene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo[g,h,i]perylene	U	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Coronene	N	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	
Total Of 16 PAH's	U	2700	mg/kg	2.0				< 2.0		< 2.0
Total Of 17 PAH's	N	2700	mg/kg	2.0	< 2.0	< 2.0	< 2.0	3.0	< 2.0	
Benzene	U	2760	µg/kg	1.0				< 1.0		< 1.0
Toluene	U	2760	µg/kg	1.0				< 1.0		< 1.0
Ethylbenzene	U	2760	µg/kg	1.0				< 1.0		< 1.0
m & p-Xylene	U	2760	µg/kg	1.0				< 1.0		< 1.0
o-Xylene	U	2760	µg/kg	1.0				< 1.0		< 1.0
Total Phenols	U	2920	mg/kg	0.30				< 0.30		< 0.30

Results - Soil

Project: 525.05

Client: Remada Ltd	Chemtest Job No.:				20-33530	20-33530
Quotation No.:	Chemtest Sample ID.:				1109552	1109553
Order No.: 525.05 Wrexham	Client Sample Ref.:				C	D
	Sample Location:				Stockpile	Stockpile
	Sample Type:				SOIL	SOIL
	Top Depth (m):					
	Bottom Depth (m):					
	Date Sampled:				04-Dec-2020	04-Dec-2020
	Asbestos Lab:				COVENTRY	COVENTRY
Determinand	Accred.	SOP	Units	LOD		
ACM Type	U	2192		N/A	-	-
Asbestos Identification	U	2192		N/A	No Asbestos Detected	No Asbestos Detected
ACM Detection Stage	U	2192		N/A	-	-
Asbestos by Gravimetry	U	2192	%	0.001		
Total Asbestos	U	2192	%	0.001		
Moisture	N	2030	%	0.020		
Chromatogram (TPH)	N			N/A		
pH	U	2010		4.0		
Boron (Hot Water Soluble)	U	2120	mg/kg	0.40		
Arsenic	U	2450	mg/kg	1.0		
Beryllium	U	2450	mg/kg	1.0		
Cadmium	U	2450	mg/kg	0.10		
Chromium	U	2450	mg/kg	1.0		
Copper	U	2450	mg/kg	0.50		
Mercury	U	2450	mg/kg	0.10		
Nickel	U	2450	mg/kg	0.50		
Lead	U	2450	mg/kg	0.50		
Selenium	U	2450	mg/kg	0.20		
Vanadium	U	2450	mg/kg	5.0		
Zinc	U	2450	mg/kg	0.50		
Chromium (Trivalent)	N	2490	mg/kg	1.0		
Chromium (Hexavalent)	N	2490	mg/kg	0.50		
Fraction of Organic Carbon	U	2625		0.0010		
Aliphatic TPH >C5-C6	N	2680	mg/kg	1.0		
Aliphatic TPH >C6-C8	N	2680	mg/kg	1.0		
Aliphatic TPH >C8-C10	U	2680	mg/kg	1.0		
Aliphatic TPH >C10-C12	U	2680	mg/kg	1.0		
Aliphatic TPH >C12-C16	U	2680	mg/kg	1.0		
Aliphatic TPH >C16-C21	U	2680	mg/kg	1.0		
Aliphatic TPH >C21-C35	U	2680	mg/kg	1.0		
Aliphatic TPH >C35-C44	N	2680	mg/kg	1.0		
Total Aliphatic Hydrocarbons	N	2680	mg/kg	5.0		
Aromatic TPH >C5-C7	N	2680	mg/kg	1.0		
Aromatic TPH >C7-C8	N	2680	mg/kg	1.0		
Aromatic TPH >C8-C10	U	2680	mg/kg	1.0		

Results - Soil

Project: 525.05

Client: Remada Ltd	Chemtest Job No.:				20-33530	20-33530
Quotation No.:	Chemtest Sample ID.:				1109552	1109553
Order No.: 525.05 Wrexham	Client Sample Ref.:				C	D
	Sample Location:				Stockpile	Stockpile
	Sample Type:				SOIL	SOIL
	Top Depth (m):					
	Bottom Depth (m):					
	Date Sampled:				04-Dec-2020	04-Dec-2020
	Asbestos Lab:				COVENTRY	COVENTRY
Determinand	Accred.	SOP	Units	LOD		
Aromatic TPH >C10-C12	U	2680	mg/kg	1.0		
Aromatic TPH >C12-C16	U	2680	mg/kg	1.0		
Aromatic TPH >C16-C21	U	2680	mg/kg	1.0		
Aromatic TPH >C21-C35	U	2680	mg/kg	1.0		
Aromatic TPH >C35-C44	N	2680	mg/kg	1.0		
Total Aromatic Hydrocarbons	N	2680	mg/kg	5.0		
Total Petroleum Hydrocarbons	N	2680	mg/kg	10.0		
Naphthalene	U	2700	mg/kg	0.10		
Acenaphthylene	U	2700	mg/kg	0.10		
Acenaphthene	U	2700	mg/kg	0.10		
Fluorene	U	2700	mg/kg	0.10		
Phenanthrene	U	2700	mg/kg	0.10		
Anthracene	U	2700	mg/kg	0.10		
Fluoranthene	U	2700	mg/kg	0.10		
Pyrene	U	2700	mg/kg	0.10		
Benzo[a]anthracene	U	2700	mg/kg	0.10		
Chrysene	U	2700	mg/kg	0.10		
Benzo[b]fluoranthene	U	2700	mg/kg	0.10		
Benzo[k]fluoranthene	U	2700	mg/kg	0.10		
Benzo[a]pyrene	U	2700	mg/kg	0.10		
Indeno(1,2,3-c,d)Pyrene	U	2700	mg/kg	0.10		
Dibenz(a,h)Anthracene	U	2700	mg/kg	0.10		
Benzo[g,h,i]perylene	U	2700	mg/kg	0.10		
Coronene	N	2700	mg/kg	0.10		
Total Of 16 PAH's	U	2700	mg/kg	2.0		
Total Of 17 PAH's	N	2700	mg/kg	2.0		
Benzene	U	2760	µg/kg	1.0		
Toluene	U	2760	µg/kg	1.0		
Ethylbenzene	U	2760	µg/kg	1.0		
m & p-Xylene	U	2760	µg/kg	1.0		
o-Xylene	U	2760	µg/kg	1.0		
Total Phenols	U	2920	mg/kg	0.30		

TPH Chromatogram on Soil Sample: 1109546

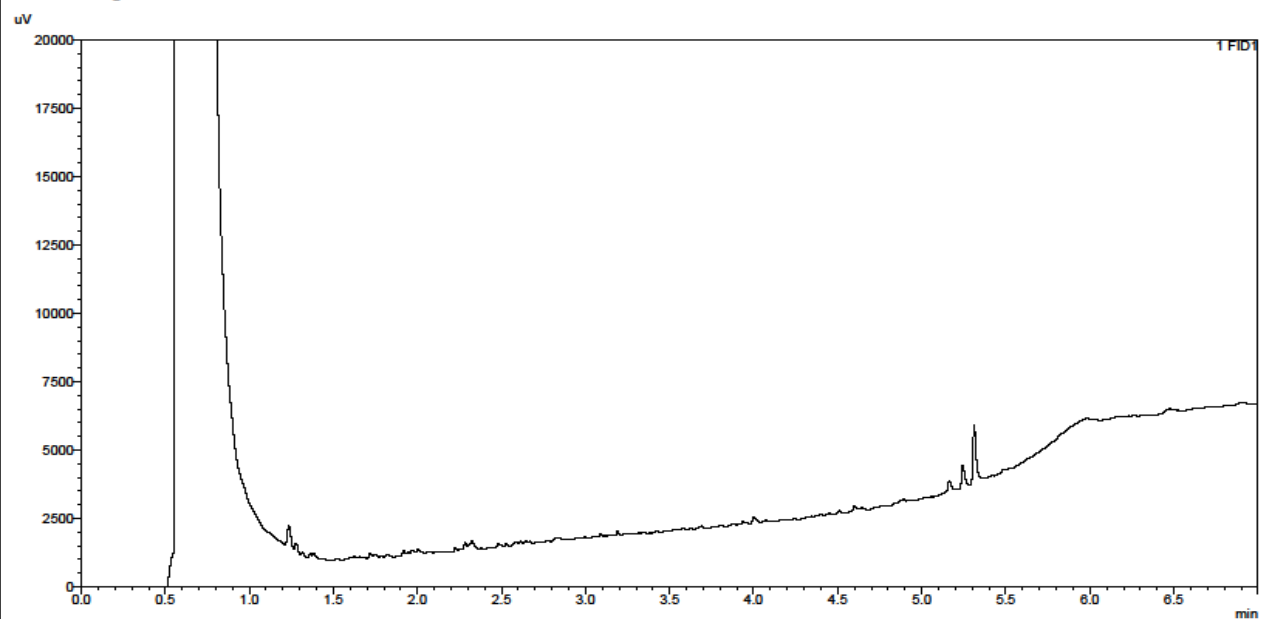
<Sample Information>

Sample Name : 1109546 20-33530
Data Filename : 09 December 2020_09122020_1109546 20-33530_031.gcd
Method Filename : TPH 12m Fast OSv2.gcm
Sample # : 18
Date Acquired : 09/12/2020 18:50:11
Date Processed : 09/12/2020



Chemtest

<Chromatogram>



TPH Chromatogram on Soil Sample: 1109549

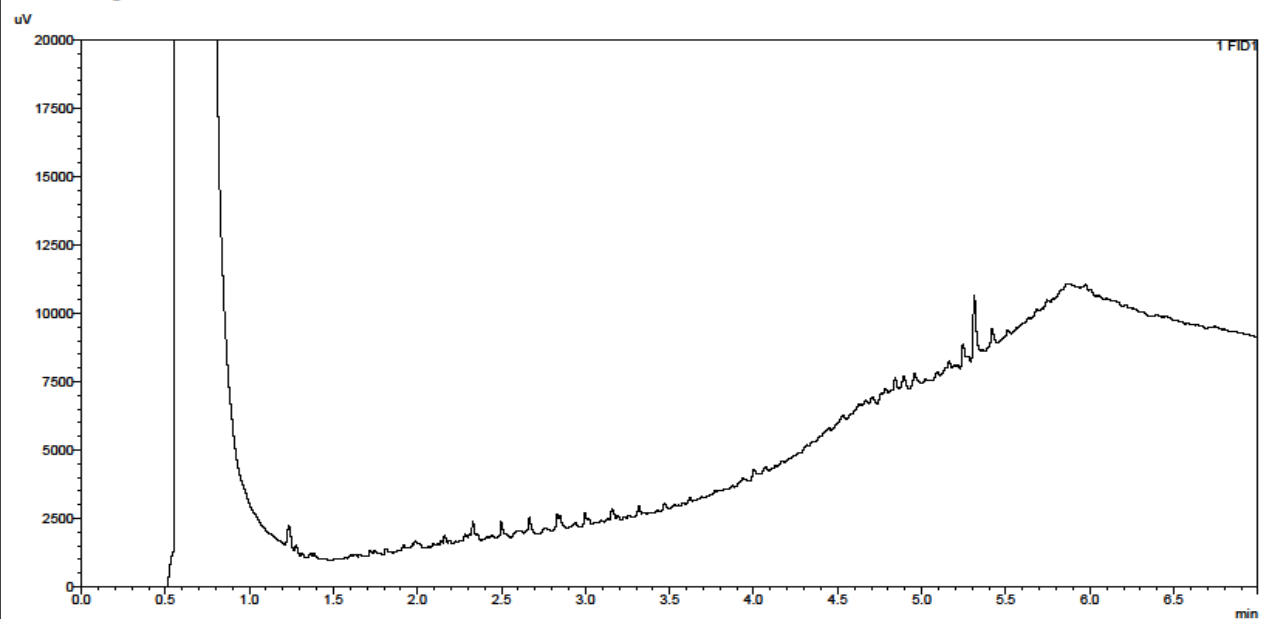
<Sample Information>

Sample Name : 1109549 20-33530
Data Filename : 09 December 2020_09122020_1109549 20-33530_033.gcd
Method Filename : TPH 12m Fast OSv2.gcm
Sample # : 17
Date Acquired : 09/12/2020 20:02:46
Date Processed : 09/12/2020



Chemtest

<Chromatogram>



Test Methods

SOP	Title	Parameters included	Method summary
2010	pH Value of Soils	pH	pH Meter
2030	Moisture and Stone Content of Soils(Requirement of MCERTS)	Moisture content	Determination of moisture content of soil as a percentage of its as received mass obtained at <37°C.
2040	Soil Description(Requirement of MCERTS)	Soil description	As received soil is described based upon BS5930
2120	Water Soluble Boron, Sulphate, Magnesium & Chromium	Boron; Sulphate; Magnesium; Chromium	Aqueous extraction / ICP-OES
2192	Asbestos	Asbestos	Polarised light microscopy / Gravimetry
2450	Acid Soluble Metals in Soils	Metals, including: Arsenic; Barium; Beryllium; Cadmium; Chromium; Cobalt; Copper; Lead; Manganese; Mercury; Molybdenum; Nickel; Selenium; Vanadium; Zinc	Acid digestion followed by determination of metals in extract by ICP-MS.
2490	Hexavalent Chromium in Soils	Chromium [VI]	Soil extracts are prepared by extracting dried and ground soil samples into boiling water. Chromium [VI] is determined by 'Aquakem 600' Discrete Analyser using 1,5-diphenylcarbazide.
2625	Total Organic Carbon in Soils	Total organic Carbon (TOC)	Determined by high temperature combustion under oxygen, using an Eltra elemental analyser.
2680	TPH A/A Split	Aliphatics: >C5–C6, >C6–C8,>C8–C10, >C10–C12, >C12–C16, >C16–C21, >C21–C35, >C35– C44Aromatics: >C5–C7, >C7–C8, >C8– C10, >C10–C12, >C12–C16, >C16– C21, >C21– C35, >C35– C44	Dichloromethane extraction / GCxGC FID detection
2700	Speciated Polynuclear Aromatic Hydrocarbons (PAH) in Soil by GC-FID	Acenaphthene; Acenaphthylene; Anthracene; Benzo[a]Anthracene; Benzo[a]Pyrene; Benzo[b]Fluoranthene; Benzo[ghi]Perylene; Benzo[k]Fluoranthene; Chrysene; Dibenzo[ah]Anthracene; Fluoranthene; Fluorene; Indeno[123cd]Pyrene; Naphthalene; Phenanthrene; Pyrene	Dichloromethane extraction / GC-FID (GC-FID detection is non-selective and can be subject to interference from co-eluting compounds)
2760	Volatile Organic Compounds (VOCs) in Soils by Headspace GC-MS	Volatile organic compounds, including BTEX and halogenated Aliphatic/Aromatics.(cf. USEPA Method 8260)*please refer to UKAS schedule	Automated headspace gas chromatographic (GC) analysis of a soil sample, as received, with mass spectrometric (MS) detection of volatile organic compounds.
2920	Phenols in Soils by HPLC	Phenolic compounds including Resorcinol, Phenol, Methylphenols, Dimethylphenols, 1-Naphthol and TrimethylphenolsNote: chlorophenols are excluded.	60:40 methanol/water mixture extraction, followed by HPLC determination using electrochemical detection.

Report Information

Key

U	UKAS accredited
M	MCERTS and UKAS accredited
N	Unaccredited
S	This analysis has been subcontracted to a UKAS accredited laboratory that is accredited for this analysis
SN	This analysis has been subcontracted to a UKAS accredited laboratory that is not accredited for this analysis
T	This analysis has been subcontracted to an unaccredited laboratory
I/S	Insufficient Sample
U/S	Unsuitable Sample
N/E	not evaluated
<	"less than"
>	"greater than"

Comments or interpretations are beyond the scope of UKAS accreditation

The results relate only to the items tested

Uncertainty of measurement for the determinands tested are available upon request

None of the results in this report have been recovery corrected

All results are expressed on a dry weight basis

The following tests were analysed on samples as received and the results subsequently corrected to a dry weight basis TPH, BTEX, VOCs, SVOCs, PCBs, Phenols

For all other tests the samples were dried at < 37°C prior to analysis

All Asbestos testing is performed at the indicated laboratory

Issue numbers are sequential starting with 1 all subsequent reports are incremented by 1

Sample Deviation Codes

- A - Date of sampling not supplied
- B - Sample age exceeds stability time (sampling to extraction)
- C - Sample not received in appropriate containers
- D - Broken Container
- E - Insufficient Sample (Applies to LOI in Trommel Fines Only)

Sample Retention and Disposal

All soil samples will be retained for a period of 45 days from the date of receipt

All water samples will be retained for 14 days from the date of receipt

Charges may apply to extended sample storage

If you require extended retention of samples, please email your requirements to:
customerservices@chemtest.com