

Our ref: R2132-L01

24th July 2015

Mr Gerry Kellett
Real Planning

by email: info@realplanning.co.uk

Dear Gerry,

Results of Additional Soil Sampling Conducted at Bryn Gwyn, Chapel Street, Acrefair.

We previously carried out investigation of the above plot of land, and recommended some additional investigation of the former residential building following demolition, together with testing of representative soils. The plot is intended for redevelopment to residential use under planning consent P/2006/1207, granted by Wrexham County Borough Council (WCBC) in 2009; this included a standard contaminated land condition

The site was identified as being associated with adjacent colliery waste deposits, but backing onto the former ironworks tips. The former dwelling was a chalet style building with asbestos cement wall cladding. The building itself has been demolished for some time.

Proposals for the additional investigation were submitted to and agreed by the WCBC Contaminated Land Officer (Stacey Inglis) in an email dated 8th May 2015.

SGP Partner Dr A F Smith and Consultant J Swales attended Bryn Gwyn on the 3rd of June 2015 to collect additional soil samples to be submitted for chemical and calorific value testing.

Scope of Works

Due to the dense vegetation and poor site access, intrusive investigations for the purpose of collecting samples were limited to hand dug trial pits.

Works planned and executed on the site were as follows:

- excavation of 4 hand-dug trial pits to a depth of 0.6m, where possible, at points close to the previous buildings foot print and in possible future garden areas on the site;
- collection of 3 soil samples from the arisings, tested for: asbestos, metals, PAHs, pH and sulphate;
- collection of 2 soil samples tested for calorific value, to assess the potential for ground combustion.

Chemical analysis of soils was carried out by Jones Environmental Laboratories, Queensferry, respectively working where possible to MCERTS and / or ISO 17025 accreditation. Samples were stored in appropriate containers as advised by the laboratory, placed in a cool box, and delivered to the laboratory within 12 hours. Chain of custody documentation was completed and is retained by SGP.

Investigation Observations

The site was densely vegetated, with frequent litter around the footprint the former demolished house and outbuilding. A veneer of bark chippings was located around the building footprint, likely associated with tree felling prior to demolition of the structure. Ground conditions below this consisted of a made ground topsoil, generally a sandy loam with varying degrees of gravel and frequent roots and rootlets. Fissile siltstone and mudstones were encountered in TP4. Photos taken during the investigation are presented in Appendix A, and a full description of the soil profiles encountered can be found in the trial pit logs in Appendix B.

SGP staff noted abundant fractured asbestos cement sheeting across the former house footprint; it is thought this was left on the site following demolition of the previous structure.

TP1, TP2 and TP3 were situated around the footprint of the demolished structure; TP4 was located towards the back of the property. Drawing D01 shows the locations of the trial pits on the site.

TP3 was stopped at 0.3m bgl due to mineral wool lagging (suspected to contain asbestos) noticed in the immediate area of the trial pit. The trial pit was halted and immediately backfilled; no samples were collected from this trial pit.

Table 1.1: Summary of Soil Chemical Analysis

Strata	Description	Sample ref	Depth (m bgl)	Analytical suite
Made ground	made ground soil	TP1-ES1	0.0 - 0.4	Metals*, PAHs, sulphate, asbestos, pH
		TP2-ES1	0.0 - 0.05	
		TP3-ES1	0.0 – 0.4	
	made ground soil	TP1-ES2	0.0 – 0.4	Calorific Value
		TP2-ES2	0.0 – 0.5	

*Metal suite includes: Arsenic, Cadmium, Chromium, Copper, Lead, Mercury, Nickle, Selenium and Zinc

Results

The complete soil analytical data are presented in Appendix C.

The results of the soil analyses are compared to human health critical values (CVs) for initial screening purposes. The CVs adopted are appropriate to the environmental setting and proposed future residential use of the site, and are taken primarily from CLEA Soil Guideline Values (SGVs) published by the Environment Agency and the LQM/CIEH Generic Assessment Criteria (GACs). These criteria are generally derived using the CLEA v1.04 or 1.06 model under a standard default residential land-use scenario (sandy loam soil); with 1% soil organic matter as a conservative assumption. The LQM/CIEH guidelines have recently been revised and are published as 'S4UL'.

Where published human health critical values are unavailable or inappropriate (because the substance does not significantly affect human health but might have an effect on other receptors), then other commonly-used screening values are used, as noted below. Given the high sensitivity of the planned residential development, the presence of any detectable asbestos in shallow soils is unlikely to be acceptable so the limit of detection has been adopted as a screening value.

Table 1.1: Summary of Soils Analysis

Contaminant	Number of Samples	Range of Concentrations (mg/kg or indicated)	Soil standard adopted for a residential scenario (mg/kg or indicated)	Exceedances
Arsenic	3	11.5 – 26.6	CLEA SGV 32	None
Cadmium	3	<0.1 – 1.0	CLEA SGV 10	None
Chromium (total)	3	20.7 – 29.4	CLEA SGV 130	None
Chromium VI	3	<0.3	LQM/CIEH S4UL 6	None
Copper	3	57 – 60	LQM/CIEH S4UL 2400	None

Contaminant	Number of Samples	Range of Concentrations (mg/kg or indicated)	Soil standard adopted for a residential scenario (mg/kg or indicated)	Exceedances
Lead	3	35 – 111	C4SL 200	None
Mercury	3	<0.1	CLEA SGV 170	None
Nickel	3	38.2 – 51.5	CLEA SGV 130	None
Zinc	3	144 – 226	LQM/CIEH S4UL 3700	None
Asbestos screen	3	NFD – Fibres Detected	No Fibres Detected (NFD)	TP1 & TP2
Naphthalene	3	<0.04 – 0.6	LQM/CIEH S4UL 2.3	None
Acenaphthylene	3	<0.03 – 0.7	LQM/CIEH S4UL 170	None
Acenaphthene	3	0.5 – 0.45	LQM/CIEH S4UL 210	None
Fluorene	3	<0.04	LQM/CIEH S4UL 170	None
Phenanthrene	3	0.24 0.05 – 0.45	LQM/CIEH S4UL 95	None
Anthracene	3	<0.04 – 0.17	LQM/CIEH S4UL 2400	None
Fluoranthene	3	0.06 – 0.57	LQM/CIEH S4UL 280	None
Pyrene	3	0.05 – 0.5	LQM/CIEH S4UL 620	None
Benzo(a)anthracene	3	0.08 – 0.39	LQM/CIEH S4UL 7.2	None
Chrysene	3	0.03 – 0.35	LQM/CIEH S4UL 15	None
Benzo(b)fluoranthene	3	<0.05 – 0.35	LQM/CIEH S4UL 2.6	None
Benzo(k)fluoranthene	3	<0.02 – 0.14	LQM/CIEH S4UL 77	None
Benzo(a)pyrene	3	<0.04 – 0.3	LQM/CIEH S4UL 2.2	None
Indeno(123cd)pyrene	3	<0.04 – 0.16	LQM/CIEH S4UL 27	None
Dibenzo(ah)anthracene	3	<0.04	LQM/CIEH S4UL 0.24	None
Benzo(ghi)perylene	3	<0.04 - 0.16	LQM/CIEH S4UL 320	None
Calorific Value	2	2 - 3	10 MJ/kg	None

No contaminants relating to metals or PAHs were reported above the LQM/CIEH S4UL screening criteria for residential housing with plant uptake at 1% SOM (the most conservative screening criteria).

Asbestos was found in the soil samples in quantifiable levels in two of the three submitted samples (TP1 and TP2). These trial pits were located close to the demolished building foot print where the fractured asbestos cement sheeting was visually located.

The two samples submitted for calorific value testing both yielded results indicating a low potential for ground combustion. A value of 10 MJ/kg is typically referred to as indicating the material may be combustible and a value of 2 MJ/kg as indicating material that is unlikely to burn (ICRCL Guidance

Note 61/84, Notes on Fire Hazards of Contaminated Land, July 1986, 2nd Edition). The results were in the range 2 - 3 MJ/kg indicating low potential to support ground combustion.

Asbestos Removal

SGP has been provided with copies of a certificate of completion of works, carried out by A & D Environmental Services Ltd (dated 22nd July, 2015, and waste transfer notes confirming the removal of asbestos containing waste from the site (12/06/2015). Worked conducted by A & D Environmental Services Ltd included removal of visible asbestos cement debris, removing contaminated foliage and other asbestos debris excavated to a depth of 8 inches below ground level.

Post-remediation validation has not been carried out, and it should therefore be assumed that some of the residual soils around the building footprint could still contain asbestos cement fragments or loose fibres.

Conclusions and Recommendations

It is concluded from the intrusive works that there are no significant concentrations of contaminants relating to metals or PAHs found within soil samples taken from the site on the 3rd of June, 2015. On the basis of the tests carried out there is no significant risk of ground combustion at the site.

Asbestos contamination was noted to the site in the form of broken asbestos cement sheet; asbestos contamination was also noted in the soil samples collected from the site, which is likely related to fibres released from the broken asbestos sheeting from demolition.

Though asbestos cement sheeting and other asbestos related debris has been subsequently removed to a nominal depth of 8 inches (~200mm) below existing ground level, the ground surface is irregular, and it is likely that asbestos (as dispersed fibres or small sheet fragments) may still be present within the soil below and around the former building position. Asbestos is only a hazard if loose fibres are disturbed and enter the atmosphere in substantial amounts that may be inhaled by people on or adjacent to the site. The risk can be minimised by ensuring that dust and fibres are not released to the atmosphere as a consequence of ground disturbance; this is usually achieved by wetting down surfaces and any soil to be removed, careful handling of spoil, and covering over any remaining contamination, either below permanent hard-standing or building foundations, or below a suitable depth of cover soil (typically a minimum of 600mm of cover).

Any future development is likely to result in re-grading works and the removal of old foundations to facilitate new construction. As the former house area is likely to be where any proposed development

will take place, impacted soil could either be removed from the site as controlled waste, or retained below the development. With regard to construction works redeveloping the site, and to a lesser degree nearby residents/pedestrians, due diligence to prevent unnecessary liberation of asbestos fibres within the soil, such as damping down of soil prior to any mechanical disturbance during dry conditions, should be adhered to. Good work hygiene practises will also be required when working with/around the impacted soil to minimise potential fibre release and exposure. If residual asbestos fibre or asbestos cement sheet fragments are present in future garden areas these should be covered by a minimum thickness of 600mm of clean subsoil and topsoil.

Should the material be excavated, for example to be removed as general waste, it may require asbestos quantification testing to measure the volume of asbestos within the soil to assess if the material qualifies as hazardous waste under WM3 2015. Any visible fragments of asbestos cement waste are likely to be classified as hazardous waste by reason of containing >0.1% asbestos fibre. If such fragments are present within soil then the entire volume will be classified as hazardous waste, so it is generally cost-effective to seek to selectively remove asbestos cement fragments from soils and dispose of these separately. Any soil containing loose asbestos fibres will only be classified as hazardous waste due to asbestos where the asbestos content is 0.1% or more by weight.

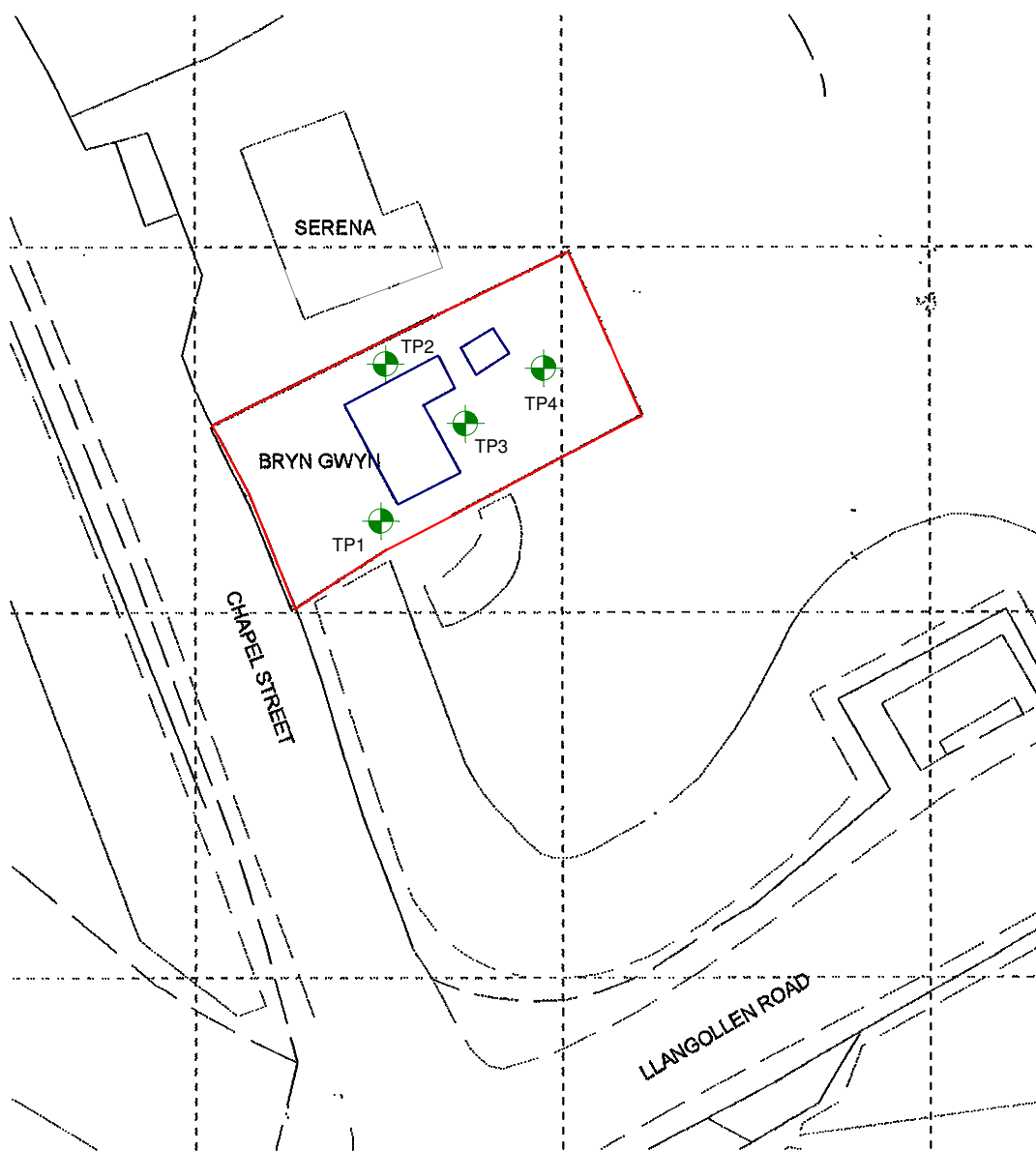
It is recommended that additional investigation be carried out prior to any new development to inform a construction and residential use risk assessment and remediation strategy. This should preferably involve the use of machine excavated trial pits provided that a preliminary inspection indicates that machine access to the site would not result in significant disturbance or mobilisation of asbestos fibre. A formal remediation strategy is expected to be required including details of methods to remove or isolate any remaining contamination hazards (possible asbestos), dust suppression and airborne fibre monitoring if necessary, together with methods for investigating and dealing with any unexpected contamination, validation testing of any placed soil cover to gardens, and provision for a remediation completion report.

Yours sincerely
for: Smith Grant LLP



Jordan Swales
Consultant

DRAWING



 - Footprint of Previous Structures On Site

 - Approximate Site Boundary

 - Hand Dug Trial Pit Location



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Project: Bryn Gwyn, Chappel Street
Acrefair

Drawing: Hand-Dug Trial Pit Locations

Drawn: JS

Date: 16/07/2015

Job No: R2132

Checked: ASF

Scale: 1:500 @ A4

Drg No: D01

APPENDIX A

Photographs

Bryn Gwyn Site Photographs, 3rd June 2015



general view over demolished house footprint



scattered cement sheet / tile fragments



view north towards adjacent dwelling



asbestos cement sheet fragments



view west across plot towards road



view onto rising ground to east of former building



hand dug pit TP1



hand dug pit TP2



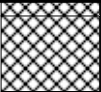
area of hand dug pit TP3, showing insulation type lagging / mineral wool



hand dug pit TP4

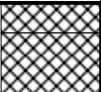
APPENDIX B

Site Investigation Logs

SHEET: 1 of 1	LOCATION: Acrefair	PROJECT: Bryn Gwyn, Chapel Street		ENGINEER: ASF	JOB NO. R2132	BOREHOLE NO. TP1
		EXCAVATED BY: Hand Dug Trial Pit		CLIENT: Mr John	DATE: 6/3/2015	
PHYSICAL TESTING	DEPTH (m)	SAMPLES/ TESTING	FIELD RECORDS	DEPTH (m)	DESCRIPTION OF STRATA	LEGEND
	0.4	TP1 - ES1 TP1 - ES2		0 0.1	MADE GROUND: Litter, bark chipping and broken asbestos containing sheet fragments and vegetation MADE GROUND: Dark brown black gravely sandy LOAM, gravel is angular mud and siltstone, occasional fragments of glass. Frequent roots and rootlets Excavation ended at 0.6m	
 SMITH GRANT Environmental Consultancy LLP Smith Grant LLP Station House, Station Road, Ruabon, Wrexham LL146DL Tel: 01978822367 Fax: 019788247182 www.smithgrant.co.uk email: consult@smithgrant.co.uk						
GROUND WATER: Not encountered						
REMARKS:						
SCALE: 1:250			LOGGED BY: ASF		FIGURE NO. 1	

SHEET: 1 of 1	LOCATION: Acrefair	PROJECT: Bryn Gwyn, Chapel Street		ENGINEER: ASF	JOB NO. R2132	BOREHOLE NO. TP2	
		EXCAVATED BY: Hand Dug Trial Pit		CLIENT: Mr John	DATE: 6/3/2015		
PHYSICAL TESTING		DEPTH (m)	SAMPLES/ TESTING	FIELD RECORDS	DEPTH (m)	DESCRIPTION OF STRATA	LEGEND
		0.5	TP2 - ES1 TP2 - ES2		0	MADE GROUND: Litter, bark chipping and broken asbestos containing sheet fragments and vegetation MADE GROUND: Dark gray black coarse ashy gravelly SAND, with coke fragments and rootlets MADE GROUND: Gray gravelly SAND, gravel comprises slate and gravels of unknown lithologies and coarse pieces of brick and ceramic fragments. Excavation ended at 0.6m	
					0.1		
					0.4		
Smith Grant LLP Station House, Station Road, Ruabon, Wrexham LL146DL Tel: 01978822367 Fax: 019788247182 www.smithgrant.co.uk email: consult@smithgrant.co.uk GROUND WATER: Not encountered REMARKS:							
SCALE: 1:250		LOGGED BY: ASF			FIGURE NO. 1		

SHEET: 1 of 1	LOCATION: Acrefair	PROJECT: Bryn Gwyn, Chapel Street		ENGINEER: ASF	JOB NO. R2132	BOREHOLE NO. TP3	
		EXCAVATED BY: Hand Dug Trial Pit		CLIENT: Mr John	DATE: 6/3/2015		
PHYSICAL TESTING		DEPTH (m)	SAMPLES/ TESTING	FIELD RECORDS	DEPTH (m)	DESCRIPTION OF STRATA	LEGEND
					0	MADE GROUND: Litter, bark chipping, broken asbestos containing sheet fragments, mineral wool suspected of containing asbestos and vegetation Excavation ended at 0.3m	
 Smith Grant LLP Station House, Station Road, Ruabon, Wrexham LL146DL Tel: 01978822367 Fax: 019788247182 www.smithgrant.co.uk email: consult@smithgrant.co.uk		GROUND WATER: Not encountered					
		REMARKS:					
		SCALE: 1:250	LOGGED BY: ASF		FIGURE NO. 1		

SHEET: 1 of 1	LOCATION: Acrefair	PROJECT: Bryn Gwyn, Chapel Street		ENGINEER: ASF	JOB NO. R2132	BOREHOLE NO. TP4
		EXCAVATED BY: Hand Dug Trial Pit		CLIENT: Mr John	DATE: 6/3/2015	
PHYSICAL TESTING	DEPTH (m)	SAMPLES/ TESTING	FIELD RECORDS	DEPTH (m)	DESCRIPTION OF STRATA	LEGEND
	0.4	TP4 - ES1		0	MADE GROUND: Dark gray back sandy LOAM with frequent rootlets MADE GROUND: Dark gray black cobbly GRAVEL, gravel comprises weathered fissile shale and mudstone with iron staining Excavation ended at 0.6m	
 GROUND WATER: Not encountered REMARKS: Stoped at 0.3m due to suspected asbestos conating mineral wool encountered, imidiatly backfilled						
SCALE: 1:250			LOGGED BY: ASF		FIGURE NO. 1	



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APPENDIX C

Chemical Analytical Results



Jones Environmental Laboratory

Registered Address : Unit 3 Deeside Point, Zone 3, Deeside Industrial Park, Deeside, CH5 2UA. UK

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Attention : Tony Smith
Date : 9th June, 2015
Your reference : R2132
Our reference : Test Report 15/8175 Batch 1
Location : Bryn Gwyn Chapple Street
Date samples received : 3rd June, 2015
Status : Final report
Issue : 1

Five samples were received for analysis on 3rd June, 2015 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.

Compiled By:

Phil Sommerton BSc
Project Manager

Bob Millward BSc FRSC
Principal Chemist

Jones Environmental Laboratory

Client Name: Smith Grant LLP
Reference: R2132
Location: Bryn Gwyn Chapple Street
Contact: Tony Smith
JE Job No.: 15/8175

Report : Solid

Solids: V=60g VOC jar, J=250g glass jar, T=plastic tub

J E Sample No.	1-2	3	4-5	6	7-8						Please see attached notes for all abbreviations and acronyms		
Sample ID	TP1 ES1	TP1 ES2	TP2 ES1	TP2 ES2	TP3 ES1								
Depth	0.0-0.4	0.0-0.4	0.0-0.5	0.0-0.5	0.0-0.4								
COC No / misc													
Containers	V J	T	V J	T	V J								
Sample Date	02/06/2015	03/06/2015	03/06/2015	03/06/2015	03/06/2015								
Sample Type	Soil	Soil	Soil	Soil	Soil								
Batch Number	1	1	1	1	1								
Date of Receipt	03/06/2015	03/06/2015	03/06/2015	03/06/2015	03/06/2015						LOD/LOR	Units	Method No.
Arsenic ^{#M}	-	-	-	-	11.5						<0.5	mg/kg	TM30/PM15
Arsenic	26.6	-	19.0	-	-						<0.5	mg/kg	TM30/PM62
Cadmium ^{#M}	-	-	-	-	<0.1						<0.1	mg/kg	TM30/PM15
Cadmium	1.0	-	0.5	-	-						<0.1	mg/kg	TM30/PM62
Chromium ^{#M}	-	-	-	-	29.4						<0.5	mg/kg	TM30/PM15
Chromium	21.1	-	20.7	-	-						<0.5	mg/kg	TM30/PM62
Copper ^{#M}	-	-	-	-	57						<1	mg/kg	TM30/PM15
Copper	60	-	57	-	-						<1	mg/kg	TM30/PM62
Lead ^{#M}	-	-	-	-	35						<5	mg/kg	TM30/PM15
Lead	82	-	111	-	-						<5	mg/kg	TM30/PM62
Mercury ^{#M}	-	-	-	-	<0.1						<0.1	mg/kg	TM30/PM15
Mercury	<0.1	-	<0.1	-	-						<0.1	mg/kg	TM30/PM62
Nickel ^{#M}	-	-	-	-	51.1						<0.7	mg/kg	TM30/PM15
Nickel	40.2	-	38.2	-	-						<0.7	mg/kg	TM30/PM62
Selenium ^{#M}	-	-	-	-	<1						<1	mg/kg	TM30/PM15
Selenium	1	-	1	-	-						<1	mg/kg	TM30/PM62
Zinc ^{#M}	-	-	-	-	144						<5	mg/kg	TM30/PM15
Zinc	226	-	187	-	-						<5	mg/kg	TM30/PM62
PAH MS													
Naphthalene ^{#M}	0.06	-	<0.04	-	<0.04						<0.04	mg/kg	TM4/PM8
Acenaphthylene	<0.03	-	0.07	-	<0.03						<0.03	mg/kg	TM4/PM8
Acenaphthene ^{#M}	<0.05	-	<0.05	-	<0.05						<0.05	mg/kg	TM4/PM8
Fluorene ^{#M}	<0.04	-	<0.04	-	<0.04						<0.04	mg/kg	TM4/PM8
Phenanthrene ^{#M}	0.08	-	0.45	-	0.05						<0.03	mg/kg	TM4/PM8
Anthracene [#]	<0.04	-	0.17	-	<0.04						<0.04	mg/kg	TM4/PM8
Fluoranthene ^{#M}	0.18	-	0.57	-	0.06						<0.03	mg/kg	TM4/PM8
Pyrene [#]	0.17	-	0.50	-	0.05						<0.03	mg/kg	TM4/PM8
Benzo(a)anthracene [#]	0.18	-	0.39	-	0.08						<0.06	mg/kg	TM4/PM8
Chrysene ^{#M}	0.12	-	0.35	-	0.03						<0.02	mg/kg	TM4/PM8
Benzo(bk)fluoranthene ^{#M}	0.24	-	0.49	-	<0.07						<0.07	mg/kg	TM4/PM8
Benzo(a)pyrene [#]	0.13	-	0.30	-	<0.04						<0.04	mg/kg	TM4/PM8
Indeno(123cd)pyrene ^{#M}	0.11	-	0.16	-	<0.04						<0.04	mg/kg	TM4/PM8
Dibenzo(ah)anthracene [#]	<0.04	-	<0.04	-	<0.04						<0.04	mg/kg	TM4/PM8
Benzo(ghi)perylene [#]	0.10	-	0.16	-	<0.04						<0.04	mg/kg	TM4/PM8
PAH 16 Total	1.4	-	3.6	-	<0.6						<0.6	mg/kg	TM4/PM8
Benzo(b)fluoranthene	0.17	-	0.35	-	<0.05						<0.05	mg/kg	TM4/PM8
Benzo(k)fluoranthene	0.07	-	0.14	-	<0.02						<0.02	mg/kg	TM4/PM8
PAH Surrogate % Recovery	113	-	104	-	90						<0	%	TM4/PM8
Natural Moisture Content	-	-	-	-	8.1						<0.1	%	PM4/PM0
Natural Moisture Content	20.8	-	24.7	-	-						<0.1	%	PM4/PM0
Hexavalent Chromium [#]	<0.3	-	<0.3	-	<0.3						<0.3	mg/kg	TM38/PM20

Please see attached notes for all abbreviations and acronyms

Client Name: Smith Grant LLP
Reference: R2132
Location: Bryn Gwyn Chapple Street
Contact: Tony Smith

Note:

Analysis was 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. Samples are retained for not less than 6 months from the date of analysis unless specifically requested.

Opinions lie outside the scope of our UKAS accreditation.

Where the sample is not taken by a Jones Environmental Laboratory consultant, Jones Environmental Laboratory cannot be responsible for inaccurate or unrepresentative sampling.

If asbestos fibres are reported at trace levels there will not be enough fibres to quantify and will be less than 0.001%.

Signed on behalf of Jones Environmental Laboratory:

[Signature]

Ryan Butterworth
Asbestos Team Leader

[illegible]

Matrix : Solid

[illegible]

Client Name: Smith Grant LLP
Reference: R2132
Location: Bryn Gwyn Chapple Street
Contact: Tony Smith

[illegible]

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

NOTES TO ACCOMPANY ALL SCHEDULES AND REPORTS

JE Job No.: 15/8175

SOILS

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.

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. 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.

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.

WATERS

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

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

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

Where Mineral Oil or Fats, Oils and Grease is quoted, this refers to Total Aliphatics C10-C40.

DEVIATING SAMPLES

Samples must be received in a condition appropriate to the requested analyses. All samples should be submitted to the laboratory in suitable containers with sufficient ice packs to sustain an appropriate temperature for the requested analysis. If this is not the case you will be informed and any test results that may be compromised highlighted on your deviating samples report.

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.

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 UKAS requirement 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.

ABBREVIATIONS and ACRONYMS USED

#	ISO17025 (UKAS) accredited - UK.
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.
++	Result outside calibration range, results should be considered as indicative only and are not accredited.
*	Analysis subcontracted to a Jones Environmental 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

JE Job No: 15/8175

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS)	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 and BS1377.	PM0	No preparation is required.				
PM4	Gravimetric measurement of Natural Moisture Content and % Moisture Content at either 35°C or 105°C. Calculation based on ISO 11465 and BS1377.	PM0	No preparation is required.			AR	Yes
PM4	Gravimetric measurement of Natural Moisture Content and % Moisture Content at either 35°C or 105°C. Calculation based on ISO 11465 and BS1377.	PM0	No preparation is required.			AR	
TM4	Modified USEPA 8270 method for the solvent extraction and determination of 16 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 8270 method for the solvent extraction and determination of 16 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 8270 method for the solvent extraction and determination of 16 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
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	
TM21	Modified USEPA 415.1. Determination of Total Organic Carbon or Total Carbon by combustion in an Eltra TOC furnace/analyser in the presence of oxygen. The CO ₂ generated is quantified using infra-red detection.	PM24	Dried and ground solid samples are washed with hydrochloric acid, then rinsed with deionised water to remove the mineral carbon before TOC analysis.			AD	Yes
TM30	Determination of Trace Metal elements by ICP-OES (Inductively Coupled Plasma - Optical Emission Spectrometry). Modified US EPA Method 200.7	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
TM30	Determination of Trace Metal elements by ICP-OES (Inductively Coupled Plasma - Optical Emission Spectrometry). Modified US EPA Method 200.7	PM62	Acid digestion of as received solid samples using Aqua Regia refluxed at 112.5 °C.			AR	Yes

JE Job No: 15/8175

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
TM38	Soluble Ion analysis using the Thermo Aquakem Photometric Automatic Analyser. Modified US EPA methods 325.2, 375.4, 365.2, 353.1, 354.1	PM20	Extraction of dried and ground samples with deionised water in a 2:1 water to solid ratio for anions. Extraction of as received samples with deionised water in a 2:1 water to solid ratio for ammoniacal nitrogen. Samples are extracted using an orbital shaker.	Yes	Yes	AD	Yes
TM38	Soluble Ion analysis using the Thermo Aquakem Photometric Automatic Analyser. Modified US EPA methods 325.2, 375.4, 365.2, 353.1, 354.1	PM20	Extraction of dried and ground samples with deionised water in a 2:1 water to solid ratio for anions. Extraction of as received samples with deionised water in a 2:1 water to solid ratio for ammoniacal nitrogen. Samples are extracted using an orbital shaker.	Yes		AR	Yes
TM38	Soluble Ion analysis using the Thermo Aquakem Photometric Automatic Analyser. Modified US EPA methods 325.2, 375.4, 365.2, 353.1, 354.1	PM60	As received solid samples are extracted with deionised water in a 2:1 ratio of water to solid.			AR	Yes
TM65	Asbestos Bulk Identification method based on HSG 248.	PM42	Solid samples undergo a thorough visual inspection for asbestos fibres prior to asbestos identification using TM065.			AR	
TM65	Asbestos Bulk Identification method based on HSG 248.	PM42	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 and 9045D. 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
NONE	No Method Code	NONE	No Method Code			AR	Yes