

APPENDIX V
CHEMICAL ANALYSIS RESULTS



Jones Environmental Laboratory

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Attention :	Tim Mitchell
Date :	6th September, 2016
Your reference :	A10708
Our reference :	Test Report 16/13688 Batch 1
Location :	Wessex Yard Havant
Date samples received :	31st August, 2016
Status :	Final report
Issue :	1

Four samples were received for analysis on 31st August, 2016 of which four 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

Client Name: Omnia
Reference: A10708
Location: Wessex Yard Havant
Contact: Tim Mitchell
JE Job No.: 16/13688

Report : Liquid

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

J E Sample No.	1-6	7-12	13-18	19-24							Please see attached notes for all abbreviations and acronyms		
Sample ID	WS104 WS2	BH101 WS2	BH102A WS2	BH103 WS2									
Depth			5.60	2.97									
COC No / misc													
Containers	V N P G	V N P G	V N P G	V N P G									
Sample Date	25/08/2016	25/08/2016	25/08/2016	25/08/2016									
Sample Type	Ground Water	Ground Water	Ground Water	Ground Water									
Batch Number	1	1	1	1									
Date of Receipt	31/08/2016	31/08/2016	31/08/2016	31/08/2016							LOD/LOR	Units	Method No.
Dissolved Arsenic #	<2.5	<2.5	<2.5	<2.5							<2.5	ug/l	TM30/PM14
Dissolved Barium #	194	98	95	79							<3	ug/l	TM30/PM14
Dissolved Beryllium	<0.5	<0.5	<0.5	<0.5							<0.5	ug/l	TM30/PM14
Dissolved Boron	439	75	39	44							<12	ug/l	TM30/PM14
Dissolved Cadmium #	<0.5	<0.5	<0.5	<0.5							<0.5	ug/l	TM30/PM14
Total Dissolved Chromium #	<1.5	<1.5	<1.5	<1.5							<1.5	ug/l	TM30/PM14
Dissolved Copper #	<7	<7	<7	<7							<7	ug/l	TM30/PM14
Dissolved Lead #	<5	<5	<5	<5							<5	ug/l	TM30/PM14
Dissolved Mercury #	<1	<1	<1	<1							<1	ug/l	TM30/PM14
Dissolved Nickel #	<2	12	5	<2							<2	ug/l	TM30/PM14
Dissolved Selenium #	<3	<3	<3	<3							<3	ug/l	TM30/PM14
Dissolved Vanadium #	3.5	<1.5	1.6	2.6							<1.5	ug/l	TM30/PM14
Dissolved Zinc #	5	16	3	<3							<3	ug/l	TM30/PM14
PAH MS													
Naphthalene	0.1	<0.1	<0.1	<0.1							<0.1	ug/l	TM4/PM30
Acenaphthylene	0.31	<0.01	<0.01	0.47							<0.01	ug/l	TM4/PM30
Acenaphthene	10.06 ^{AA}	<0.01	<0.01	0.04							<0.01	ug/l	TM4/PM30
Fluorene	0.78	<0.01	<0.01	0.20							<0.01	ug/l	TM4/PM30
Phenanthrene	0.19	<0.01	<0.01	1.50							<0.01	ug/l	TM4/PM30
Anthracene	0.26	<0.01	<0.01	0.77							<0.01	ug/l	TM4/PM30
Fluoranthene	2.48	0.05	<0.01	5.49							<0.01	ug/l	TM4/PM30
Pyrene	1.51	0.04	0.02	5.21							<0.01	ug/l	TM4/PM30
Benzo(a)anthracene	0.19	0.02	<0.01	3.43							<0.01	ug/l	TM4/PM30
Chrysene	0.18	0.03	<0.01	3.33							<0.01	ug/l	TM4/PM30
Benzo(bk)fluoranthene	0.18	0.05	<0.01	4.98							<0.01	ug/l	TM4/PM30
Benzo(a)pyrene	0.11	0.02	<0.01	2.75							<0.01	ug/l	TM4/PM30
Indeno(123cd)pyrene	0.04	<0.01	<0.01	1.17							<0.01	ug/l	TM4/PM30
Dibenzo(ah)anthracene	<0.01	<0.01	<0.01	0.25							<0.01	ug/l	TM4/PM30
Benzo(ghi)perylene	0.04	<0.01	<0.01	0.71							<0.01	ug/l	TM4/PM30
PAH 16 Total	16.4	0.2	<0.1	30.3							<0.1	ug/l	TM4/PM30
Benzo(b)fluoranthene	0.13	0.04	<0.01	3.59							<0.01	ug/l	TM4/PM30
Benzo(k)fluoranthene	0.05	0.01	<0.01	1.39							<0.01	ug/l	TM4/PM30
PAH Surrogate % Recovery	74	70	88	70							<0	%	TM4/PM30
EPH >C8-C10	50	<10	<10	<10							<10	ug/l	TM5/PM30
EPH >C10-C12 #	70	<10	<10	<10							<10	ug/l	TM5/PM30
EPH >C12-C16 #	140	<10	<10	<10							<10	ug/l	TM5/PM30
EPH >C16-C21 #	190	<10	<10	<10							<10	ug/l	TM5/PM30
EPH >C21-C35 #	590	<10	<10	<10							<10	ug/l	TM5/PM30
EPH >C21-C40 #	590	<10	<10	<10							<10	ug/l	TM5/PM30
EPH >C35-C40 #	<10	<10	<10	<10							<10	ug/l	TM5/PM30
EPH >C8-C40	1040	<10	<10	<10							<10	ug/l	TM5/PM30

Client Name: Omnia
Reference: A10708
Location: Wessex Yard Havant
Contact: Tim Mitchell
JE Job No.: 16/13688

Report : Liquid

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

J E Sample No.	1-6	7-12	13-18	19-24							Please see attached notes for all abbreviations and acronyms		
Sample ID	WS104 WS2	BH101 WS2	BH102A WS2	BH103 WS2									
Depth			5.60	2.97									
COC No / misc													
Containers	V N P G	V N P G	V N P G	V N P G									
Sample Date	25/08/2016	25/08/2016	25/08/2016	25/08/2016									
Sample Type	Ground Water	Ground Water	Ground Water	Ground Water									
Batch Number	1	1	1	1									
Date of Receipt	31/08/2016	31/08/2016	31/08/2016	31/08/2016							LOD/LOR	Units	Method No.
TPH CWG													
Aliphatics													
>C5-C6 #	-	-	-	<5							<5	ug/l	TM36/PM12
>C6-C8 #	-	-	-	<5							<5	ug/l	TM36/PM12
>C8-C10 #	-	-	-	<5							<5	ug/l	TM36/PM12
>C10-C12 #	-	-	-	<5							<5	ug/l	TM5/PM30
>C12-C16 #	-	-	-	<10							<10	ug/l	TM5/PM30
>C16-C21 #	-	-	-	<10							<10	ug/l	TM5/PM30
>C21-C35 #	-	-	-	<10							<10	ug/l	TM5/PM30
Total aliphatics C5-35 #	-	-	-	<10							<10	ug/l	TM5/TM36/PM30
Aromatics													
>C5-EC7 #	-	-	-	<5							<5	ug/l	TM36/PM12
>EC7-EC8 #	-	-	-	<5							<5	ug/l	TM36/PM12
>EC8-EC10 #	-	-	-	<5							<5	ug/l	TM36/PM12
>EC10-EC12 #	-	-	-	<5							<5	ug/l	TM5/PM30
>EC12-EC16 #	-	-	-	<10							<10	ug/l	TM5/PM30
>EC16-EC21 #	-	-	-	<10							<10	ug/l	TM5/PM30
>EC21-EC35 #	-	-	-	<10							<10	ug/l	TM5/PM30
Total aromatics C5-35 #	-	-	-	<10							<10	ug/l	TM5/PM30
Total aliphatics and aromatics(C5-35) #	-	-	-	<10							<10	ug/l	TM5/TM36/PM30
GRO (>C4-C6)	<10	<10	<10	<10							<10	ug/l	TM36/PM12
GRO (>C6-C8)	<10	<10	<10	<10							<10	ug/l	TM36/PM12
GRO (>C4-C8)	<10	<10	<10	<10							<10	ug/l	TM36/PM12
MTBE #	-	-	-	<5							<5	ug/l	TM31/PM12
Benzene #	-	-	-	<5							<5	ug/l	TM31/PM12
Toluene #	-	-	-	<5							<5	ug/l	TM31/PM12
Ethylbenzene #	-	-	-	<5							<5	ug/l	TM31/PM12
m/p-Xylene #	-	-	-	<5							<5	ug/l	TM31/PM12
o-Xylene #	-	-	-	<5							<5	ug/l	TM31/PM12
Total Phenols HPLC	<0.1	<0.1	<0.1	<0.1							<0.1	mg/l	TM26/PM0
Sulphate #	3.2	228.0	68.8	77.6							<0.5	mg/l	TM38/PM0
Total Cyanide #	0.17	0.03	0.02	0.04							<0.01	mg/l	TM89/PM0
Hexavalent Chromium #	<0.006	<0.006	<0.006	<0.006							<0.006	mg/l	TM38/PM0
Total Dissolved Chromium III	<6	<6	<6	<6							<6	ug/l	NONE/NONE
pH #	7.54	7.59	7.76	7.87							<0.01	pH units	TM73/PM0

Client Name: Omnia
Reference: A10708
Location: Wessex Yard Havant
Contact: Tim Mitchell

Matrix : Liquid

[illegible]

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

NOTES TO ACCOMPANY ALL SCHEDULES AND REPORTS

JE Job No.: 16/13688

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.

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.

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
AA	x2 Dilution

JE Job No: 16/13688

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
TM4	Modified USEPA 8270 method for the solvent extraction and determination of 16 PAHs by GC-MS.	PM30	Water samples are extracted with solvent using a magnetic stirrer to create a vortex.				
TM5	Modified USEPA 8015B method for the determination of solvent Extractable Petroleum Hydrocarbons (EPH) with carbon banding within the range C8-C40 GC-FID.	PM30	Water samples are extracted with solvent using a magnetic stirrer to create a vortex.				
TM5	Modified USEPA 8015B method for the determination of solvent Extractable Petroleum Hydrocarbons (EPH) with carbon banding within the range C8-C40 GC-FID.	PM30	Water samples are extracted with solvent using a magnetic stirrer to create a vortex.	Yes			
TM5/TM36	TM005: Modified USEPA 8015B. Determination of solvent Extractable Petroleum Hydrocarbons (EPH) including column fractionation in the carbon range of C10-35 into aliphatic and aromatic fractions by GC-FID. TM036: Modified USEPA 8015B. Determination of Gasoline Range Organics (GRO) in the carbon chain range of C5-10 by headspace GC-FID. Including determination of	PM30	Water samples are extracted with solvent using a magnetic stirrer to create a vortex.	Yes			
TM26	Determination of phenols by Reversed Phased High Performance Liquid Chromatography and Electro-Chemical Detection.	PM0	No preparation is required.				
TM30	Determination of Trace Metal elements by ICP-OES (Inductively Coupled Plasma - Optical Emission Spectrometry). Modified US EPA Method 200.7 and 6010B	PM14	Analysis of waters and leachates for metals by ICP OES. Samples are filtered for dissolved metals and acidified if required.				
TM30	Determination of Trace Metal elements by ICP-OES (Inductively Coupled Plasma - Optical Emission Spectrometry). Modified US EPA Method 200.7 and 6010B	PM14	Analysis of waters and leachates for metals by ICP OES. Samples are filtered for dissolved metals and acidified if required.	Yes			
TM31	Modified USEPA 8015B. Determination of Methyltertbutylether, Benzene, Toluene, Ethylbenzene and Xylene by headspace GC-FID.	PM12	Modified US EPA method 5021. Preparation of solid and liquid samples for GC headspace analysis.	Yes			
TM36	Modified US EPA method 8015B. Determination of Gasoline Range Organics (GRO) in the carbon chain range of C4-12 by headspace GC-FID.	PM12	Modified US EPA method 5021. Preparation of solid and liquid samples for GC headspace analysis.				
TM36	Modified US EPA method 8015B. Determination of Gasoline Range Organics (GRO) in the carbon chain range of C4-12 by headspace GC-FID.	PM12	Modified US EPA method 5021. Preparation of solid and liquid samples for GC headspace analysis.	Yes			

JE Job No: 16/13688

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	PM0	No preparation is required.	Yes			
TM73	Modified US EPA methods 150.1 and 9045D. Determination of pH by Metrohm automated probe analyser.	PM0	No preparation is required.	Yes			
TM89	Modified USEPA method OIA-1667. Determination of cyanide by Flow Injection Analyser. Where WAD cyanides are required a Ligand displacement step is carried out before analysis.	PM0	No preparation is required.	Yes			
NONE	No Method Code	NONE	No Method Code				



Jones Environmental Laboratory

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

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Attention :	Tim Mitchell
Date :	3rd October, 2016
Your reference :	A10708
Our reference :	Test Report 16/14077 Batch 1
Location :	Wessex Yard Havant
Date samples received :	8th September, 2016
Status :	Final report
Issue :	2

Four samples were received for analysis on 8th September, 2016 of which four 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:

Bruce Leslie
Project Co-ordinator

Client Name: Omnia
Reference: A10708
Location: Wessex Yard Havant
Contact: Tim Mitchell
JE Job No.: 16/14077

Report : Liquid

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

J E Sample No.	1-5,27-28	6-12	13-19	20-26							Please see attached notes for all abbreviations and acronyms		
Sample ID	BH101	BH2A	BH3	WS104									
Depth	9.50			2.20									
COC No / misc													
Containers	V P G H N N	V H N N P G	V H N N P G	V H N N P G									
Sample Date	07/09/2016	07/09/2016	07/09/2016	07/09/2016									
Sample Type	Ground Water	Ground Water	Ground Water	Ground Water									
Batch Number	1	1	1	1									
Date of Receipt	08/09/2016	08/09/2016	08/09/2016	08/09/2016							LOD/LOR	Units	Method No.
Dissolved Arsenic #	4.0	<2.5	<2.5	<2.5							<2.5	ug/l	TM30/PM14
Dissolved Barium #	63	94	76	103							<3	ug/l	TM30/PM14
Dissolved Beryllium	<0.5	<0.5	<0.5	<0.5							<0.5	ug/l	TM30/PM14
Dissolved Boron	84	47	49	384							<12	ug/l	TM30/PM14
Dissolved Cadmium #	<0.5	<0.5	<0.5	<0.5							<0.5	ug/l	TM30/PM14
Total Dissolved Chromium #	<1.5	<1.5	<1.5	<1.5							<1.5	ug/l	TM30/PM14
Dissolved Copper #	<7	<7	<7	<7							<7	ug/l	TM30/PM14
Dissolved Lead #	<5	<5	<5	<5							<5	ug/l	TM30/PM14
Dissolved Mercury #	<1	<1	<1	<1							<1	ug/l	TM30/PM14
Dissolved Nickel #	11	<2	<2	<2							<2	ug/l	TM30/PM14
Dissolved Selenium #	<3	<3	<3	<3							<3	ug/l	TM30/PM14
Dissolved Vanadium #	<1.5	<1.5	<1.5	<1.5							<1.5	ug/l	TM30/PM14
Dissolved Zinc #	9	<3	4	<3							<3	ug/l	TM30/PM14
Total Hardness Dissolved (as CaCO3)	472	329	295	559							<1	mg/l	TM30/PM14
PAH MS													
Naphthalene	<0.1	1.0	<0.1	0.5							<0.1	ug/l	TM4/PM30
Acenaphthylene	0.02	0.04	0.05	0.37							<0.01	ug/l	TM4/PM30
Acenaphthene	0.04	0.02	0.04	6.01							<0.01	ug/l	TM4/PM30
Fluorene	0.03	0.02	0.14	1.66							<0.01	ug/l	TM4/PM30
Phenanthrene	0.10	0.03	0.14	1.69							<0.01	ug/l	TM4/PM30
Anthracene	0.02	<0.01	0.06	0.27							<0.01	ug/l	TM4/PM30
Fluoranthene	0.10	0.01	0.18	0.59							<0.01	ug/l	TM4/PM30
Pyrene	0.08	0.01	0.13	0.35							<0.01	ug/l	TM4/PM30
Benzo(a)anthracene	0.03	0.01	0.09	0.02							<0.01	ug/l	TM4/PM30
Chrysene	0.02	<0.01	0.05	0.03							<0.01	ug/l	TM4/PM30
Benzo(b)fluoranthene	<0.01	<0.01	0.09	0.01							<0.01	ug/l	TM4/PM30
Benzo(a)pyrene	<0.01	<0.01	0.04	<0.01							<0.01	ug/l	TM4/PM30
Indeno(123cd)pyrene	<0.01	<0.01	0.01	<0.01							<0.01	ug/l	TM4/PM30
Dibenzo(ah)anthracene	<0.01	<0.01	<0.01	<0.01							<0.01	ug/l	TM4/PM30
Benzo(ghi)perylene	<0.01	<0.01	0.01	<0.01							<0.01	ug/l	TM4/PM30
PAH 16 Total	0.4	1.1	1.0	11.5							<0.1	ug/l	TM4/PM30
Benzo(b)fluoranthene	<0.01	<0.01	0.06	<0.01							<0.01	ug/l	TM4/PM30
Benzo(k)fluoranthene	<0.01	<0.01	0.03	<0.01							<0.01	ug/l	TM4/PM30
PAH Surrogate % Recovery	80	82	77	73							<0	%	TM4/PM30
EPH >C8-C10	<10	<10	<10	150							<10	ug/l	TM5/PM30
EPH >C10-C12 #	<10	<10	<10	140							<10	ug/l	TM5/PM30
EPH >C12-C16 #	<10	<10	<10	90							<10	ug/l	TM5/PM30
EPH >C16-C21 #	<10	<10	<10	<10							<10	ug/l	TM5/PM30
EPH >C21-C35 #	<10	<10	<10	<10							<10	ug/l	TM5/PM30
EPH >C21-C40 #	<10	<10	<10	<10							<10	ug/l	TM5/PM30
EPH >C35-C40 #	<10	<10	<10	<10							<10	ug/l	TM5/PM30
EPH >C8-C40	<10	<10	<10	380							<10	ug/l	TM5/PM30

Client Name: Omnia
Reference: A10708
Location: Wessex Yard Havant
Contact: Tim Mitchell
JE Job No.: 16/14077

Report : Liquid

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

J E Sample No.	1-5,27-28	6-12	13-19	20-26							Please see attached notes for all abbreviations and acronyms		
Sample ID	BH101	BH2A	BH3	WS104									
Depth	9.50			2.20									
COC No / misc													
Containers	V P G H N N	V H N N P G	V H N N P G	V H N N P G									
Sample Date	07/09/2016	07/09/2016	07/09/2016	07/09/2016									
Sample Type	Ground Water	Ground Water	Ground Water	Ground Water									
Batch Number	1	1	1	1									
Date of Receipt	08/09/2016	08/09/2016	08/09/2016	08/09/2016							LOD/LOR	Units	Method No.
TPH CWG													
Aliphatics													
>C5-C6 #	-	<5	-	<5							<5	ug/l	TM36/PM12
>C6-C8 #	-	46	-	<5							<5	ug/l	TM36/PM12
>C8-C10 #	-	32	-	<5							<5	ug/l	TM36/PM12
>C10-C12 #	-	<5	-	<5							<5	ug/l	TM5/PM30
>C12-C16 #	-	<10	-	<10							<10	ug/l	TM5/PM30
>C16-C21 #	-	<10	-	<10							<10	ug/l	TM5/PM30
>C21-C35 #	-	<10	-	<10							<10	ug/l	TM5/PM30
Total aliphatics C5-35 #	-	78	-	<10							<10	ug/l	TM5/TM36/PM30
Aromatics													
>C5-EC7 #	-	92	-	9							<5	ug/l	TM36/PM12
>EC7-EC8 #	-	<5	-	<5							<5	ug/l	TM36/PM12
>EC8-EC10 #	-	<5	-	<5							<5	ug/l	TM36/PM12
>EC10-EC12 #	-	<5	-	<5							<5	ug/l	TM5/PM30
>EC12-EC16 #	-	<10	-	<10							<10	ug/l	TM5/PM30
>EC16-EC21 #	-	<10	-	<10							<10	ug/l	TM5/PM30
>EC21-EC35 #	-	<10	-	<10							<10	ug/l	TM5/PM30
Total aromatics C5-35 #	-	92	-	<10							<10	ug/l	TM5/TM36/PM30
Total aliphatics and aromatics(C5-35) #	-	170	-	<10							<10	ug/l	TM5/TM36/PM30
GRO (>C4-C6)	<10	<10	<10	<10							<10	ug/l	TM36/PM12
GRO (>C6-C8)	<10	120	<10	11							<10	ug/l	TM36/PM12
GRO (>C4-C8)	<10	120	<10	11							<10	ug/l	TM36/PM12
Total Phenols HPLC	<0.1	<0.1	<0.1	<0.1							<0.1	mg/l	TM26/PM0
Sulphate #	212.8	104.9	96.6	10.1							<0.5	mg/l	TM38/PM0
Total Cyanide #	0.04	0.03	0.06	0.06							<0.01	mg/l	TM89/PM0
Hexavalent Chromium #	<0.006	<0.006	<0.006	<0.006							<0.006	mg/l	TM38/PM0
Total Dissolved Chromium III	<6	<6	<6	<6							<6	ug/l	NONE/NONE
pH #	7.22	7.52	7.44	7.40							<0.01	pH units	TM73/PM0

Matrix : Liquid

[illegible]

4 of 8

NOTES TO ACCOMPANY ALL SCHEDULES AND REPORTS

JE Job No.: 16/14077

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.

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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.

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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.

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.

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% 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.

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.

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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: 16/14077

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
TM4	Modified USEPA 8270 method for the solvent extraction and determination of 16 PAHs by GC-MS.	PM30	Water samples are extracted with solvent using a magnetic stirrer to create a vortex.				
TM5	Modified USEPA 8015B method for the determination of solvent Extractable Petroleum Hydrocarbons (EPH) with carbon banding within the range C8-C40 GC-FID.	PM30	Water samples are extracted with solvent using a magnetic stirrer to create a vortex.				
TM5	Modified USEPA 8015B method for the determination of solvent Extractable Petroleum Hydrocarbons (EPH) with carbon banding within the range C8-C40 GC-FID.	PM30	Water samples are extracted with solvent using a magnetic stirrer to create a vortex.	Yes			
TM5/TM36	TM005: Modified USEPA 8015B. Determination of solvent Extractable Petroleum Hydrocarbons (EPH) including column fractionation in the carbon range of C10-35 into aliphatic and aromatic fractions by GC-FID. TM036: Modified USEPA 8015B. Determination of Gasoline Range Organics (GRO) in the carbon chain range of C5-10 by headspace GC-FID. Including determination of	PM30	Water samples are extracted with solvent using a magnetic stirrer to create a vortex.	Yes			
TM26	Determination of phenols by Reversed Phased High Performance Liquid Chromatography and Electro-Chemical Detection.	PM0	No preparation is required.				
TM30	Determination of Trace Metal elements by ICP-OES (Inductively Coupled Plasma - Optical Emission Spectrometry). Modified US EPA Method 200.7 and 6010B	PM14	Analysis of waters and leachates for metals by ICP OES. Samples are filtered for dissolved metals and acidified if required.				
TM30	Determination of Trace Metal elements by ICP-OES (Inductively Coupled Plasma - Optical Emission Spectrometry). Modified US EPA Method 200.7 and 6010B	PM14	Analysis of waters and leachates for metals by ICP OES. Samples are filtered for dissolved metals and acidified if required.	Yes			
TM36	Modified US EPA method 8015B. Determination of Gasoline Range Organics (GRO) in the carbon chain range of C4-12 by headspace GC-FID.	PM12	Modified US EPA method 5021. Preparation of solid and liquid samples for GC headspace analysis.				
TM36	Modified US EPA method 8015B. Determination of Gasoline Range Organics (GRO) in the carbon chain range of C4-12 by headspace GC-FID.	PM12	Modified US EPA method 5021. Preparation of solid and liquid samples for GC headspace analysis.	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	PM0	No preparation is required.	Yes			

JE Job No: 16/14077

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
TM73	Modified US EPA methods 150.1 and 9045D. Determination of pH by Metrohm automated probe analyser.	PM0	No preparation is required.	Yes			
TM89	Modified USEPA method OIA-1667. Determination of cyanide by Flow Injection Analyser. Where WAD cyanides are required a Ligand displacement step is carried out before analysis.	PM0	No preparation is required.	Yes			
NONE	No Method Code	NONE	No Method Code				



Jones Environmental Laboratory

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

Unit 3 Deeside Point
Zone 3
Deeside Industrial Park
Deeside
CH5 2UA

Omnia
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2 Barnes Wallis Road
Segensworth
Fareham
PO15 5TH

Tel: +44 (0) 1244 833780

Fax: +44 (0) 1244 833781



Attention :	Kate Duggan
Date :	31st October, 2016
Your reference :	A10708
Our reference :	Test Report 16/16044 Batch 1
Location :	Wessex Yard Havant
Date samples received :	22nd October, 2016
Status :	Final report
Issue :	1

Five samples were received for analysis on 22nd October, 2016 of which four 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

Client Name: Omnia
Reference: A10708
Location: Wessex Yard Havant
Contact: Kate Duggan
JE Job No.: 16/16044

Report : Liquid

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

J E Sample No.	1-6	7-12	13-14,16-18	19-24							Please see attached notes for all abbreviations and acronyms		
Sample ID	BH101	BH102A	BH103	WS104									
Depth													
COC No / misc													
Containers	V H N N P G	V H N N P G	V N P G	V H N N P G									
Sample Date	19/10/2016	19/10/2016	19/10/2016	19/10/2016									
Sample Type	Ground Water	Ground Water	Ground Water	Ground Water									
Batch Number	1	1	1	1									
Date of Receipt	22/10/2016	22/10/2016	22/10/2016	22/10/2016							LOD/LOR	Units	Method No.
Dissolved Arsenic [#]	12.1	29.6	4.2	12.5							<2.5	ug/l	TM30/PM14
Dissolved Barium [#]	72	779	86	372							<3	ug/l	TM30/PM14
Dissolved Beryllium	<0.5	4.5	<0.5	<0.5							<0.5	ug/l	TM30/PM14
Dissolved Boron	90	32	45	409							<12	ug/l	TM30/PM14
Dissolved Cadmium [#]	<0.5	<0.5	<0.5	<0.5							<0.5	ug/l	TM30/PM14
Total Dissolved Chromium [#]	<1.5	62.7	<1.5	<1.5							<1.5	ug/l	TM30/PM14
Dissolved Copper [#]	<7	157	<7	<7							<7	ug/l	TM30/PM14
Dissolved Lead [#]	<5	95	<5	10							<5	ug/l	TM30/PM14
Dissolved Mercury [#]	<1	<1	<1	<1							<1	ug/l	TM30/PM14
Dissolved Nickel [#]	11	138	<2	6							<2	ug/l	TM30/PM14
Dissolved Selenium [#]	<3	<3	<3	<3							<3	ug/l	TM30/PM14
Dissolved Vanadium [#]	2.5	87.4	<1.5	2.5							<1.5	ug/l	TM30/PM14
Dissolved Zinc [#]	16	335	<3	32							<3	ug/l	TM30/PM14
Total Hardness Dissolved (as CaCO3)	474	260	340	472							<1	mg/l	TM30/PM14
PAH MS													
Naphthalene	<0.1 ^B	0.1 ^B	<0.1 ^B	1.6 ^B							<0.1	ug/l	TM4/PM30
Acenaphthylene	0.02	0.02	0.02	0.44							<0.01	ug/l	TM4/PM30
Acenaphthene	0.04	0.01	0.01	11.71							<0.01	ug/l	TM4/PM30
Fluorene	0.02	<0.01	0.02	5.18							<0.01	ug/l	TM4/PM30
Phenanthrene	0.03	<0.01	0.01	5.24							<0.01	ug/l	TM4/PM30
Anthracene	<0.01	<0.01	<0.01	0.75							<0.01	ug/l	TM4/PM30
Fluoranthene	<0.01	<0.01	<0.01	1.36							<0.01	ug/l	TM4/PM30
Pyrene	<0.01	<0.01	<0.01	0.79							<0.01	ug/l	TM4/PM30
Benzo(a)anthracene	<0.01	<0.01	<0.01	0.06							<0.01	ug/l	TM4/PM30
Chrysene	<0.01	<0.01	<0.01	0.06							<0.01	ug/l	TM4/PM30
Benzo(b)fluoranthene	<0.01	<0.01	<0.01	0.05							<0.01	ug/l	TM4/PM30
Benzo(a)pyrene	<0.01	<0.01	<0.01	0.02							<0.01	ug/l	TM4/PM30
Indeno(123cd)pyrene	<0.01	<0.01	<0.01	0.01							<0.01	ug/l	TM4/PM30
Dibenzo(ah)anthracene	<0.01	<0.01	<0.01	<0.01							<0.01	ug/l	TM4/PM30
Benzo(ghi)perylene	<0.01	<0.01	<0.01	0.01							<0.01	ug/l	TM4/PM30
PAH 16 Total	0.1	0.1	<0.1	27.3							<0.1	ug/l	TM4/PM30
Benzo(b)fluoranthene	<0.01	<0.01	<0.01	0.04							<0.01	ug/l	TM4/PM30
Benzo(k)fluoranthene	<0.01	<0.01	<0.01	0.01							<0.01	ug/l	TM4/PM30
PAH Surrogate % Recovery	94	95	94	96							<0	%	TM4/PM30

Client Name: Omnia
Reference: A10708
Location: Wessex Yard Havant
Contact: Kate Duggan
JE Job No.: 16/16044

Report : Liquid

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

J E Sample No.	1-6	7-12	13-14,16-18	19-24							Please see attached notes for all abbreviations and acronyms		
Sample ID	BH101	BH102A	BH103	WS104									
Depth													
COC No / misc													
Containers	V H N N P G	V H N N P G	V N P G	V H N N P G									
Sample Date	19/10/2016	19/10/2016	19/10/2016	19/10/2016									
Sample Type	Ground Water	Ground Water	Ground Water	Ground Water									
Batch Number	1	1	1	1									
Date of Receipt	22/10/2016	22/10/2016	22/10/2016	22/10/2016							LOD/LOR	Units	Method No.
TPH CWG													
Aliphatics													
>C5-C6 #	<5	<5	<5	<5							<5	ug/l	TM36/PM12
>C6-C8 #	<5	<5	<5	<5							<5	ug/l	TM36/PM12
>C8-C10 #	<5	<5	<5	<5							<5	ug/l	TM36/PM12
>C10-C12 #	<5	<5	<5	<5							<5	ug/l	TM5/PM30
>C12-C16 #	<10	<10	<10	<10							<10	ug/l	TM5/PM30
>C16-C21 #	<10	<10	<10	<10							<10	ug/l	TM5/PM30
>C21-C35 #	<10	<10	<10	<10							<10	ug/l	TM5/PM30
Total aliphatics C5-35 #	<10	<10	<10	<10							<10	ug/l	TM5/PM30/PM12
Aromatics													
>C5-EC7 #	<5	<5	<5	19							<5	ug/l	TM36/PM12
>EC7-EC8 #	<5	<5	<5	<5							<5	ug/l	TM36/PM12
>EC8-EC10 #	<5	<5	<5	<5							<5	ug/l	TM36/PM12
>EC10-EC12 #	<5	<5	<5	58							<5	ug/l	TM5/PM30
>EC12-EC16 #	<10	<10	<10	60							<10	ug/l	TM5/PM30
>EC16-EC21 #	<10	<10	<10	10							<10	ug/l	TM5/PM30
>EC21-EC35 #	<10	<10	<10	<10							<10	ug/l	TM5/PM30
Total aromatics C5-35 #	<10	<10	<10	147							<10	ug/l	TM5/PM30/PM12
Total aliphatics and aromatics(C5-35) #	<10	<10	<10	147							<10	ug/l	TM5/PM30/PM12
MTBE #	<5	<5	<5	<5							<5	ug/l	TM31/PM12
Benzene #	<5	<5	<5	19							<5	ug/l	TM31/PM12
Toluene #	<5	<5	<5	<5							<5	ug/l	TM31/PM12
Ethylbenzene #	<5	<5	<5	<5							<5	ug/l	TM31/PM12
m/p-Xylene #	<5	<5	<5	<5							<5	ug/l	TM31/PM12
o-Xylene #	<5	<5	<5	<5							<5	ug/l	TM31/PM12
Total Phenols HPLC	<0.1	<0.1	<0.1	<0.1							<0.1	mg/l	TM26/PM0
Sulphate #	262.0	93.6	72.0	0.6							<0.5	mg/l	TM38/PM0
Total Cyanide #	0.05	0.01	0.57	0.10							<0.01	mg/l	TM89/PM0
Hexavalent Chromium	<0.006	<0.006	<0.006	<0.006							<0.006	mg/l	TM38/PM0
Total Dissolved Chromium III	<6	63	<6	<6							<6	ug/l	NONE/NONE
pH #	7.55	7.87	7.82	7.49							<0.01	pH units	TM73/PM0

Client Name: Omnia
Reference: A10708
Location: Wessex Yard Havant
Contact: Kate Duggan

[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.: 16/16044

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DEVIATING SAMPLES

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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.

Please include all sections of this report if it is reproduced

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: 16/16044

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
TM4	Modified USEPA 8270 method for the solvent extraction and determination of 16 PAHs by GC-MS.	PM30	Water samples are extracted with solvent using a magnetic stirrer to create a vortex.				
TM5	Modified USEPA 8015B method for the determination of solvent Extractable Petroleum Hydrocarbons (EPH) with carbon banding within the range C8-C40 GC-FID.	PM30	Water samples are extracted with solvent using a magnetic stirrer to create a vortex.	Yes			
TM5/TM36	TM005: Modified USEPA 8015B. Determination of solvent Extractable Petroleum Hydrocarbons (EPH) including column fractionation in the carbon range of C10-35 into aliphatic and aromatic fractions by GC-FID. TM036: Modified USEPA 8015B. Determination of Gasoline Range Organics (GRO) in the carbon chain range of C5-10 by headspace GC-FID. Including determination of	PM30/PM12	CWG GC-FID	Yes			
TM26	Determination of phenols by Reversed Phased High Performance Liquid Chromatography and Electro-Chemical Detection.	PM0	No preparation is required.				
TM30	Determination of Trace Metal elements by ICP-OES (Inductively Coupled Plasma - Optical Emission Spectrometry). Modified US EPA Method 200.7 and 6010B	PM14	Analysis of waters and leachates for metals by ICP OES. Samples are filtered for dissolved metals and acidified if required.				
TM30	Determination of Trace Metal elements by ICP-OES (Inductively Coupled Plasma - Optical Emission Spectrometry). Modified US EPA Method 200.7 and 6010B	PM14	Analysis of waters and leachates for metals by ICP OES. Samples are filtered for dissolved metals and acidified if required.	Yes			
TM31	Modified USEPA 8015B. Determination of Methyltertbutylether, Benzene, Toluene, Ethylbenzene and Xylene by headspace GC-FID.	PM12	Modified US EPA method 5021. Preparation of solid and liquid samples for GC headspace analysis.	Yes			
TM36	Modified US EPA method 8015B. Determination of Gasoline Range Organics (GRO) in the carbon chain range of C4-12 by headspace GC-FID.	PM12	Modified US EPA method 5021. Preparation of solid and liquid samples for GC headspace analysis.	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	PM0	No preparation is required.				
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	PM0	No preparation is required.	Yes			

JE Job No: 16/16044

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
TM73	Modified US EPA methods 150.1 and 9045D. Determination of pH by Metrohm automated probe analyser.	PM0	No preparation is required.	Yes			
TM89	Modified USEPA method OIA-1667. Determination of cyanide by Flow Injection Analyser. Where WAD cyanides are required a Ligand displacement step is carried out before analysis.	PM0	No preparation is required.	Yes			
NONE	No Method Code	NONE	No Method Code				



Exova Jones Environmental

Registered Address : Exova (UK) Ltd, Lochend Industrial Estate, Newbridge, Midlothian, EH28 8PL

Unit 3 Deeside Point
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2 Barnes Wallis Road
Segensworth
Fareham
PO15 5TH

Tel: +44 (0) 1244 833780

Fax: +44 (0) 1244 833781

Attention :	Tim Mitchell
Date :	28th June, 2017
Your reference :	A10708
Our reference :	Test Report 17/10550 Batch 1
Location :	Wessex Yard, Havant
Date samples received :	17th June, 2017
Status :	Final report
Issue :	1

Six samples were received for analysis on 17th June, 2017 of which six 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:

A handwritten signature in blue ink, appearing to read 'B. Leslie', is written over a light blue horizontal line.

Bruce Leslie
Project Co-ordinator

Client Name: Omnia
Reference: A10708
Location: Wessex Yard, Havant
Contact: Tim Mitchell
JE Job No.: 17/10550

Report : Liquid

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

J E Sample No.	1-6	7-13	14-19	20-26	27-32	33-38					Please see attached notes for all abbreviations and acronyms		
Sample ID	CP101	CP102A	CP103	WS104	WS108	WS110							
Depth	3.10-10.72	6.69-9.82	2.62-8.90	1.03-3.48	2.17-2.54	2.54-2.79							
COC No / misc													
Containers	V H N N P G	V H H N N P G	V H N N P G	V H H N N P G	V H N N P G	V H N N P G							
Sample Date	15/06/2017	15/06/2017	15/06/2017	15/06/2017	16/06/2017	16/06/2017							
Sample Type	Liquid	Liquid	Liquid	Liquid	Liquid	Liquid							
Batch Number	1	1	1	1	1	1							
Date of Receipt	17/06/2017	17/06/2017	17/06/2017	17/06/2017	17/06/2017	17/06/2017					LOD/LOR	Units	Method No.
Dissolved Arsenic	<2.5	<2.5	<2.5	9.3	441.2	<2.5					<2.5	ug/l	TM30/PM14
Dissolved Barium	29	109	86	250	6	44					<3	ug/l	TM30/PM14
Dissolved Beryllium	<0.5	<0.5	<0.5	<0.5	26.6	<0.5					<0.5	ug/l	TM30/PM14
Dissolved Boron	104	54	32	361	193	42					<12	ug/l	TM30/PM14
Dissolved Cadmium	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5					<0.5	ug/l	TM30/PM14
Total Dissolved Chromium	<1.5	<1.5	<1.5	<1.5	502.6	<1.5					<1.5	ug/l	TM30/PM14
Dissolved Copper	<7	<7	<7	<7	546	<7					<7	ug/l	TM30/PM14
Dissolved Lead	<5	<5	<5	<5	<5	<5					<5	ug/l	TM30/PM14
Dissolved Mercury	<1	<1	<1	<1	<1	<1					<1	ug/l	TM30/PM14
Dissolved Nickel	14	2	<2	<2	394	<2					<2	ug/l	TM30/PM14
Dissolved Selenium	<3	<3	<3	<3	<3	<3					<3	ug/l	TM30/PM14
Dissolved Vanadium	<1.5	1.7	2.2	1.7	579.4	1.9					<1.5	ug/l	TM30/PM14
Dissolved Zinc	10	<3	<3	<3	1401	18					<3	ug/l	TM30/PM14
Total Hardness Dissolved (as CaCO3)	829 ^{AA}	326	332	526	1842 ^{AA}	436					<1	mg/l	TM30/PM14
PAH MS													
Naphthalene	<0.1	<0.1	<0.1	0.3	<0.1	<0.1					<0.1	ug/l	TM4/PM30
Acenaphthylene	<0.01	0.02	<0.01	0.30	0.01	<0.01					<0.01	ug/l	TM4/PM30
Acenaphthene	0.01	0.03	<0.01	11.16	0.01	<0.01					<0.01	ug/l	TM4/PM30
Fluorene	<0.01	0.02	<0.01	3.23	0.01	<0.01					<0.01	ug/l	TM4/PM30
Phenanthrene	0.01	0.02	<0.01	2.92	0.01	<0.01					<0.01	ug/l	TM4/PM30
Anthracene	0.01	<0.01	<0.01	0.40	0.07	<0.01					<0.01	ug/l	TM4/PM30
Fluoranthene	<0.01	<0.01	<0.01	1.05	0.02	<0.01					<0.01	ug/l	TM4/PM30
Pyrene	<0.01	<0.01	<0.01	0.58	<0.01	<0.01					<0.01	ug/l	TM4/PM30
Benzo(a)anthracene	<0.01	<0.01	<0.01	0.02	<0.01	<0.01					<0.01	ug/l	TM4/PM30
Chrysene	<0.01	<0.01	<0.01	0.04	<0.01	<0.01					<0.01	ug/l	TM4/PM30
Benzo(bk)fluoranthene	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01					<0.01	ug/l	TM4/PM30
Benzo(a)pyrene	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01					<0.01	ug/l	TM4/PM30
Indeno(123cd)pyrene	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01					<0.01	ug/l	TM4/PM30
Dibenzo(ah)anthracene	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01					<0.01	ug/l	TM4/PM30
Benzo(ghi)perylene	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01					<0.01	ug/l	TM4/PM30
PAH 16 Total	<0.1	<0.1	<0.1	20.0	0.1	<0.1					<0.1	ug/l	TM4/PM30
Benzo(b)fluoranthene	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01					<0.01	ug/l	TM4/PM30
Benzo(k)fluoranthene	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01					<0.01	ug/l	TM4/PM30
PAH Surrogate % Recovery	70	74	79	79	70	89					<0	%	TM4/PM30

Client Name: Omnia
Reference: A10708
Location: Wessex Yard, Havant
Contact: Tim Mitchell
JE Job No.: 17/10550

Report : Liquid

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

J E Sample No.	1-6	7-13	14-19	20-26	27-32	33-38					Please see attached notes for all abbreviations and acronyms		
Sample ID	CP101	CP102A	CP103	WS104	WS108	WS110							
Depth	3.10-10.72	6.69-9.82	2.62-8.90	1.03-3.48	2.17-2.54	2.54-2.79							
COC No / misc													
Containers	V H N P G	V H H N P G	V H N P G	V H H N P G	V H N P G	V H N P G							
Sample Date	15/06/2017	15/06/2017	15/06/2017	15/06/2017	16/06/2017	16/06/2017							
Sample Type	Liquid	Liquid	Liquid	Liquid	Liquid	Liquid							
Batch Number	1	1	1	1	1	1							
Date of Receipt	17/06/2017	17/06/2017	17/06/2017	17/06/2017	17/06/2017	17/06/2017					LOD/LOR	Units	Method No.
TPH CWG													
Aliphatics													
>C5-C6	<10	<10	<10	<10	<10	<10					<10	ug/l	TM36/PM12
>C6-C8	<10	<10	<10	<10	<10	<10					<10	ug/l	TM36/PM12
>C8-C10	<10	<10	<10	<10	<10	<10					<10	ug/l	TM36/PM12
>C10-C12	<5	<5	<5	<5	<5	<5					<5	ug/l	TM5/PM30
>C12-C16	<10	<10	<10	<10	<10	<10					<10	ug/l	TM5/PM30
>C16-C21	<10	<10	<10	<10	<10	<10					<10	ug/l	TM5/PM30
>C21-C35	<10	<10	<10	<10	<10	<10					<10	ug/l	TM5/PM30
Total aliphatics C5-35	<10	<10	<10	<10	<10	<10					<10	ug/l	TM5/PM30/PM12
Aromatics													
>C5-EC7	<10	<10	<10	<10	<10	<10					<10	ug/l	TM36/PM12
>EC7-EC8	<10	<10	<10	<10	<10	<10					<10	ug/l	TM36/PM12
>EC8-EC10	<10	<10	<10	<10	<10	<10					<10	ug/l	TM36/PM12
>EC10-EC12	<5	<5	<5	25	<5	<5					<5	ug/l	TM5/PM30
>EC12-EC16	<10	<10	<10	30	<10	<10					<10	ug/l	TM5/PM30
>EC16-EC21	<10	<10	<10	<10	<10	<10					<10	ug/l	TM5/PM30
>EC21-EC35	<10	<10	<10	<10	<10	<10					<10	ug/l	TM5/PM30
Total aromatics C5-35	<10	<10	<10	55	<10	<10					<10	ug/l	TM5/PM30/PM12
Total aliphatics and aromatics(C5-35)	<10	<10	<10	55	<10	<10					<10	ug/l	TM5/PM30/PM12
MTBE	<5	<5	<5	<5	<5	<5					<5	ug/l	TM31/PM12
Benzene	<5	<5	<5	<5	<5	<5					<5	ug/l	TM31/PM12
Toluene	<5	<5	<5	<5	<5	<5					<5	ug/l	TM31/PM12
Ethylbenzene	<5	<5	<5	<5	<5	<5					<5	ug/l	TM31/PM12
m/p-Xylene	<5	<5	<5	<5	<5	<5					<5	ug/l	TM31/PM12
o-Xylene	<5	<5	<5	<5	<5	<5					<5	ug/l	TM31/PM12
Total Phenols HPLC	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1					<0.1	mg/l	TM26/PM0
Sulphate as SO4	479.4	87.4	49.8	21.2	6821.1	154.4					<0.5	mg/l	TM38/PM0
Total Cyanide	0.13	0.13	0.01	0.04	0.15	0.25					<0.01	mg/l	TM89/PM0
Hexavalent Chromium	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006					<0.006	mg/l	TM38/PM0
Total Dissolved Chromium III	<6	<6	<6	<6	503	<6					<6	ug/l	NONE/NONE
pH	6.73	7.29	7.02	7.33	1.87	6.94					<0.01	pH units	TM73/PM0

Client Name: Omnia
Reference: A10708
Location: Wessex Yard, Havant
Contact: Tim Mitchell

[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.: 17/10550

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.

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

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

WATERS

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

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

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

Where Mineral Oil 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.

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 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.
SA	ISO17025 (SANAS) 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.
++	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
AA	x5 Dilution

JE Job No: 17/10550

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS/ANAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
TM4	Modified USEPA 8270 method for the solvent extraction and determination of 16 PAHs by GC-MS.	PM30	Water samples are extracted with solvent using a magnetic stirrer to create a vortex.				
TM5	Modified USEPA 8015B method for the determination of solvent Extractable Petroleum Hydrocarbons (EPH) with carbon banding within the range C8-C40 GC-FID.	PM30	Water samples are extracted with solvent using a magnetic stirrer to create a vortex.				
TM5/TM36	TM005: Modified USEPA 8015B. Determination of solvent Extractable Petroleum Hydrocarbons (EPH) including column fractionation in the carbon range of C10-35 into aliphatic and aromatic fractions by GC-FID. TM036: Modified USEPA 8015B. Determination of Gasoline Range Organics (GRO) in the carbon chain range of C5-10 by headspace GC-FID. Including determination of BTEX and calculation of Aliphatic fractions.	PM30/PM12	CWG GC-FID				
TM26	Determination of phenols by Reversed Phased High Performance Liquid Chromatography and Electro-Chemical Detection.	PM0	No preparation is required.				
TM30	Determination of Trace Metal elements by ICP-OES (Inductively Coupled Plasma - Optical Emission Spectrometry). Modified US EPA Method 200.7, 6010B and BS EN ISO 11885 2009	PM14	Analysis of waters and leachates for metals by ICP OES/ICP MS. Samples are filtered for dissolved metals and acidified if required.				
TM31	Modified USEPA 8015B. Determination of Methyltertbutylether, Benzene, Toluene, Ethylbenzene and Xylene by headspace GC-FID.	PM12	Modified US EPA method 5021. Preparation of solid and liquid samples for GC headspace analysis.				
TM36	Modified US EPA method 8015B. Determination of Gasoline Range Organics (GRO) in the carbon chain range of C4-12 by headspace GC-FID.	PM12	Modified US EPA method 5021. Preparation of solid and liquid samples for GC headspace analysis.				
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	PM0	No preparation is required.				
TM73	Modified US EPA methods 150.1 and 9045D and BS1377:1990. Determination of pH by Metrohm automated probe analyser.	PM0	No preparation is required.				
TM89	Modified USEPA method OIA-1667. Determination of cyanide by Flow Injection Analyser. Where WAD cyanides are required a Ligand displacement step is carried out before analysis.	PM0	No preparation is required.				

JE Job No: 17/10550

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
NONE	No Method Code	NONE	No Method Code				



Exova Jones Environmental

Registered Address : Exova (UK) Ltd, Lochend Industrial Estate, Newbridge, Midlothian, EH28 8PL

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PO15 5TH

Tel: +44 (0) 1244 833780

Fax: +44 (0) 1244 833781



4225

Attention :	Adrian King
Date :	28th July, 2017
Your reference :	A10708
Our reference :	Test Report 17/12436 Batch 1
Location :	Wessex Yard
Date samples received :	21st July, 2017
Status :	Final report
Issue :	1

Six samples were received for analysis on 21st July, 2017 of which six 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

Client Name: Omnia
Reference: A10708
Location: Wessex Yard
Contact: Adrian King
JE Job No.: 17/12436

Report : Liquid

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

J E Sample No.	1-6	7-12	13-18	19-24	25-29,36	30-35					Please see attached notes for all abbreviations and acronyms		
Sample ID	CP101	CP102A	CP103	WS104	WS108	TANK							
Depth													
COC No / misc													
Containers	V H N N P G	V H N N P G	V H N N P G	V H N N P G	V H N N P G	V H N N P G							
Sample Date	20/07/2017	20/07/2017	20/07/2017	20/07/2017	20/07/2017	20/07/2017							
Sample Type	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Liquid							
Batch Number	1	1	1	1	1	1							
Date of Receipt	21/07/2017	21/07/2017	21/07/2017	21/07/2017	21/07/2017	21/07/2017					LOD/LOR	Units	Method No.
Dissolved Arsenic	3.4	<2.5	<2.5	17.9	409.1	2.9					<2.5	ug/l	TM30/PM14
Dissolved Barium	46	86	78	175	10	51					<3	ug/l	TM30/PM14
Dissolved Beryllium	<0.5	<0.5	<0.5	<0.5	24.7	<0.5					<0.5	ug/l	TM30/PM14
Dissolved Boron	54	17	24	375	115	<12					<12	ug/l	TM30/PM14
Dissolved Cadmium	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5					<0.5	ug/l	TM30/PM14
Total Dissolved Chromium	<1.5	<1.5	<1.5	<1.5	487.9	<1.5					<1.5	ug/l	TM30/PM14
Dissolved Copper	<7	<7	<7	<7	729	<7					<7	ug/l	TM30/PM14
Dissolved Lead	<5	<5	<5	<5	<5	<5					<5	ug/l	TM30/PM14
Dissolved Mercury	<1	<1	<1	<1	<1	<1					<1	ug/l	TM30/PM14
Dissolved Nickel	8	<2	<2	<2	431	<2					<2	ug/l	TM30/PM14
Dissolved Selenium	<3	<3	<3	<3	<3	<3					<3	ug/l	TM30/PM14
Dissolved Vanadium	<1.5	<1.5	<1.5	<1.5	645.6	<1.5					<1.5	ug/l	TM30/PM14
Dissolved Zinc	4	<3	<3	<3	1481	129					<3	ug/l	TM30/PM14
Total Hardness Dissolved (as CaCO ₃)	460	250	323	493	1712	40					<1	mg/l	TM30/PM14
Total Dissolved Sulphur as S	-	-	-	5605	3149000 ^{AB}	-					<10	ug/l	TM30/PM14
PAH MS													
Naphthalene	0.1	10.1	<0.1	0.2	0.1	<1.0 ^{AA}					<0.1	ug/l	TM4/PM30
Acenaphthylene	0.01	0.07	<0.01	0.39	0.01	<0.10 ^{AA}					<0.01	ug/l	TM4/PM30
Acenaphthene	0.02	0.03	<0.01	14.01	0.01	<0.10 ^{AA}					<0.01	ug/l	TM4/PM30
Fluorene	0.02	0.02	0.01	3.04	0.01	<0.10 ^{AA}					<0.01	ug/l	TM4/PM30
Phenanthrene	<0.01	0.03	0.01	1.25	0.01	0.18 ^{AA}					<0.01	ug/l	TM4/PM30
Anthracene	<0.01	<0.01	0.01	0.53	0.10	0.24 ^{AA}					<0.01	ug/l	TM4/PM30
Fluoranthene	0.01	0.02	0.06	1.99	0.02	<0.10 ^{AA}					<0.01	ug/l	TM4/PM30
Pyrene	<0.01	0.04	0.05	1.09	0.02	0.16 ^{AA}					<0.01	ug/l	TM4/PM30
Benzo(a)anthracene	<0.01	<0.01	0.04	0.07	<0.01	<0.10 ^{AA}					<0.01	ug/l	TM4/PM30
Chrysene	<0.01	<0.01	0.04	0.07	0.01	0.26 ^{AA}					<0.01	ug/l	TM4/PM30
Benzo(bk)fluoranthene	<0.01	<0.01	0.04	0.04	<0.01	<0.10 ^{AA}					<0.01	ug/l	TM4/PM30
Benzo(a)pyrene	<0.01	<0.01	0.02	0.02	<0.01	<0.10 ^{AA}					<0.01	ug/l	TM4/PM30
Indeno(123cd)pyrene	<0.01	<0.01	<0.01	0.01	<0.01	<0.10 ^{AA}					<0.01	ug/l	TM4/PM30
Dibenzo(ah)anthracene	<0.01	<0.01	<0.01	<0.01	<0.01	<0.10 ^{AA}					<0.01	ug/l	TM4/PM30
Benzo(ghi)perylene	<0.01	<0.01	<0.01	<0.01	<0.01	<0.10 ^{AA}					<0.01	ug/l	TM4/PM30
PAH 16 Total	0.2	10.3	0.3	22.7	0.3	<1.0 ^{AA}					<0.1	ug/l	TM4/PM30
Benzo(b)fluoranthene	<0.01	<0.01	0.03	0.03	<0.01	<0.10 ^{AA}					<0.01	ug/l	TM4/PM30
Benzo(k)fluoranthene	<0.01	<0.01	0.01	0.01	<0.01	<0.10 ^{AA}					<0.01	ug/l	TM4/PM30
PAH Surrogate % Recovery	82	77	85	81	78	86 ^{AA}					<0	%	TM4/PM30

Client Name: Omnia
Reference: A10708
Location: Wessex Yard
Contact: Adrian King
JE Job No.: 17/12436

Report : Liquid

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

J E Sample No.	1-6	7-12	13-18	19-24	25-29,36	30-35					Please see attached notes for all abbreviations and acronyms		
Sample ID	CP101	CP102A	CP103	WS104	WS108	TANK							
Depth													
COC No / misc													
Containers	V H N N P G	V H N N P G	V H N N P G	V H N N P G	V H N N P G	V H N N P G							
Sample Date	20/07/2017	20/07/2017	20/07/2017	20/07/2017	20/07/2017	20/07/2017							
Sample Type	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Liquid							
Batch Number	1	1	1	1	1	1							
Date of Receipt	21/07/2017	21/07/2017	21/07/2017	21/07/2017	21/07/2017	21/07/2017					LOD/LOR	Units	Method No.
TPH CWG													
Aliphatics													
>C5-C6	<10	<10	<10	<10	<10	<10					<10	ug/l	TM36/PM12
>C6-C8	<10	<10	<10	<10	<10	<10					<10	ug/l	TM36/PM12
>C8-C10	<10	<10	<10	<10	<10	<10					<10	ug/l	TM36/PM12
>C10-C12	<5	<5	<5	<5	-	<5					<5	ug/l	TM5/PM30
>C10-C12 [#]	-	-	-	-	<5	-					<5	ug/l	TM5/PM30
>C12-C16	<10	<10	<10	<10	-	<10					<10	ug/l	TM5/PM30
>C12-C16 [#]	-	-	-	-	<10	-					<10	ug/l	TM5/PM30
>C16-C21	<10	<10	<10	<10	-	170					<10	ug/l	TM5/PM30
>C16-C21 [#]	-	-	-	-	<10	-					<10	ug/l	TM5/PM30
>C21-C35	<10	<10	<10	<10	-	50					<10	ug/l	TM5/PM30
>C21-C35 [#]	-	-	-	-	<10	-					<10	ug/l	TM5/PM30
Total aliphatics C5-35	<10	<10	<10	<10	-	220					<10	ug/l	TM5/PM30/PM12
Total aliphatics C5-35 [#]	-	-	-	-	<10	-					<10	ug/l	TM5/PM30/PM12
Aromatics													
>C5-EC7	<10	<10	<10	<10	<10	<10					<10	ug/l	TM36/PM12
>EC7-EC8	<10	<10	<10	<10	<10	<10					<10	ug/l	TM36/PM12
>EC8-EC10	<10	<10	<10	<10	<10	<10					<10	ug/l	TM36/PM12
>EC10-EC12	<5	<5	<5	<5	-	<5					<5	ug/l	TM5/PM30
>EC10-EC12 [#]	-	-	-	-	<5	-					<5	ug/l	TM5/PM30
>EC12-EC16	<10	<10	<10	<10	-	<10					<10	ug/l	TM5/PM30
>EC12-EC16 [#]	-	-	-	-	<10	-					<10	ug/l	TM5/PM30
>EC16-EC21	<10	<10	<10	<10	-	210					<10	ug/l	TM5/PM30
>EC16-EC21 [#]	-	-	-	-	<10	-					<10	ug/l	TM5/PM30
>EC21-EC35	<10	<10	<10	<10	-	40					<10	ug/l	TM5/PM30
>EC21-EC35 [#]	-	-	-	-	<10	-					<10	ug/l	TM5/PM30
Total aromatics C5-35	<10	<10	<10	<10	-	250					<10	ug/l	TM5/PM30/PM12
Total aromatics C5-35 [#]	-	-	-	-	<10	-					<10	ug/l	TM5/PM30/PM12
Total aliphatics and aromatics(C5-35)	<10	<10	<10	<10	-	470					<10	ug/l	TM5/PM30/PM12
Total aliphatics and aromatics(C5-35) [#]	-	-	-	-	<10	-					<10	ug/l	TM5/PM30/PM12
MTBE	<5	<5	<5	<5	<5	<5					<5	ug/l	TM31/PM12
Benzene	<5	<5	<5	6	<5	<5					<5	ug/l	TM31/PM12
Toluene	<5	<5	<5	<5	<5	<5					<5	ug/l	TM31/PM12
Ethylbenzene	<5	<5	<5	<5	<5	<5					<5	ug/l	TM31/PM12
m/p-Xylene	<5	<5	<5	<5	<5	<5					<5	ug/l	TM31/PM12
o-Xylene	<5	<5	<5	<5	<5	<5					<5	ug/l	TM31/PM12
Total Phenols HPLC	<0.1	<0.1	<0.1	<0.1	<0.1	0.1					<0.1	mg/l	TM26/PM0
Sulphate as SO4	254.8	58.8	57.6	-	-	<0.5					<0.5	mg/l	TM38/PM0
Chloride	-	-	-	67.0	57.2	-					<0.3	mg/l	TM38/PM0
Nitrate as NO3	-	-	-	<0.2	13.3	-					<0.2	mg/l	TM38/PM0

Client Name: Omnia
Reference: A10708
Location: Wessex Yard
Contact: Adrian King

Matrix : Liquid

[illegible]

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

NOTES TO ACCOMPANY ALL SCHEDULES AND REPORTS

JE Job No.: 17/12436

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.

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

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

WATERS

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

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

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

Where Mineral Oil 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.

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 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.
SA	ISO17025 (SANAS) 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.
++	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
AA	x10 Dilution
AB	x100 Dilution

JE Job No: 17/12436

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS/ANAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
TM4	Modified USEPA 8270 method for the solvent extraction and determination of 16 PAHs by GC-MS.	PM30	Water samples are extracted with solvent using a magnetic stirrer to create a vortex.				
TM5	Modified USEPA 8015B method for the determination of solvent Extractable Petroleum Hydrocarbons (EPH) with carbon banding within the range C8-C40 GC-FID.	PM30	Water samples are extracted with solvent using a magnetic stirrer to create a vortex.				
TM5	Modified USEPA 8015B method for the determination of solvent Extractable Petroleum Hydrocarbons (EPH) with carbon banding within the range C8-C40 GC-FID.	PM30	Water samples are extracted with solvent using a magnetic stirrer to create a vortex.	Yes			
TM5/TM36	TM005: Modified USEPA 8015B. Determination of solvent Extractable Petroleum Hydrocarbons (EPH) including column fractionation in the carbon range of C10-35 into aliphatic and aromatic fractions by GC-FID. TM036: Modified USEPA 8015B. Determination of Gasoline Range Organics (GRO) in the carbon chain range of C5-10 by headspace GC-FID. Including determination of	PM30/PM12	CWG GC-FID				
TM5/TM36	TM005: Modified USEPA 8015B. Determination of solvent Extractable Petroleum Hydrocarbons (EPH) including column fractionation in the carbon range of C10-35 into aliphatic and aromatic fractions by GC-FID. TM036: Modified USEPA 8015B. Determination of Gasoline Range Organics (GRO) in the carbon chain range of C5-10 by headspace GC-FID. Including determination of	PM30/PM12	CWG GC-FID	Yes			
TM26	Determination of phenols by Reversed Phased High Performance Liquid Chromatography and Electro-Chemical Detection.	PM0	No preparation is required.				
TM30	Determination of Trace Metal elements by ICP-OES (Inductively Coupled Plasma - Optical Emission Spectrometry). Modified US EPA Method 200.7, 6010B and BS EN ISO 11885 2009	PM14	Analysis of waters and leachates for metals by ICP OES/ICP MS. Samples are filtered for dissolved metals and acidified if required.				
TM30/TM48	Calculation of Fe (III) based on Iron and Fe(II)	PM0	No preparation is required.				
TM31	Modified USEPA 8015B. Determination of Methyltertbutylether, Benzene, Toluene, Ethylbenzene and Xylene by headspace GC-FID.	PM12	Modified US EPA method 5021. Preparation of solid and liquid samples for GC headspace analysis.				
TM36	Modified US EPA method 8015B. Determination of Gasoline Range Organics (GRO) in the carbon chain range of C4-12 by headspace GC-FID.	PM12	Modified US EPA method 5021. Preparation of solid and liquid samples for GC headspace analysis.				

JE Job No: 17/12436

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS/ANAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
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	PM0	No preparation is required.				
TM48	Determination of Ferrous Iron by reaction with Sodium Carbonate and Morfamquat Sulphate which is analysed spectrophotometrically.	PM0	No preparation is required.				
TM73	Modified US EPA methods 150.1 and 9045D and BS1377:1990. Determination of pH by Metrohm automated probe analyser.	PM0	No preparation is required.				
TM89	Modified USEPA method OIA-1667. Determination of cyanide by Flow Injection Analyser. Where WAD cyanides are required a Ligand displacement step is carried out before analysis.	PM0	No preparation is required.				
NONE	No Method Code	NONE	No Method Code				



Exova Jones Environmental

Registered Address : Exova (UK) Ltd, Lochend Industrial Estate, Newbridge, Midlothian, EH28 8PL

Unit 3 Deeside Point
Zone 3
Deeside Industrial Park
Deeside
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10 Manor Court
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Segensworth
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Tel: +44 (0) 1244 833780

Fax: +44 (0) 1244 833781

Attention :	Tim Mitchell
Date :	28th July, 2017
Your reference :	A10708
Our reference :	Test Report 17/12156 Batch 1
Location :	Wessex Yard Havant
Date samples received :	15th July, 2017
Status :	Final report
Issue :	1

Five samples were received for analysis on 15th July, 2017 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:

A handwritten signature in blue ink, appearing to read 'B. Leslie', is written over a light blue horizontal line.

Bruce Leslie
Project Co-ordinator

Client Name: Omnia
Reference: A10708
Location: Wessex Yard Havant
Contact: Tim Mitchell
JE Job No.: 17/12156

Report : Liquid

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

J E Sample No.	1-6	7-12	13-18	19-24	25-30						Please see attached notes for all abbreviations and acronyms		
Sample ID	BH101	BH102A	BH103	WS104	WS108								
Depth	7.35	6.80	5.74	2.50	2.20								
COC No / misc													
Containers	V H N P G	V H N N P G	V H N N P G	V H N N P G	V H N N P G								
Sample Date	13/07/2017	13/07/2017	13/07/2017	13/07/2017	13/07/2017								
Sample Type	Liquid	Liquid	Liquid	Liquid	Liquid								
Batch Number	1	1	1	1	1								
Date of Receipt	15/07/2017	15/07/2017	15/07/2017	15/07/2017	15/07/2017						LOD/LOR	Units	Method No.
Dissolved Arsenic	2.5	<2.5	<2.5	12.0	155.1						<2.5	ug/l	TM30/PM14
Dissolved Barium	44	90	84	285	<3						<3	ug/l	TM30/PM14
Dissolved Beryllium	<0.5	<0.5	<0.5	<0.5	13.0						<0.5	ug/l	TM30/PM14
Dissolved Boron	77	35	27	373	206						<12	ug/l	TM30/PM14
Dissolved Cadmium	<0.5	<0.5	<0.5	<0.5	<0.5						<0.5	ug/l	TM30/PM14
Total Dissolved Chromium	<1.5	<1.5	<1.5	<1.5	216.6						<1.5	ug/l	TM30/PM14
Dissolved Copper	<7	<7	<7	<7	328						<7	ug/l	TM30/PM14
Dissolved Lead	<5	<5	<5	<5	<5						<5	ug/l	TM30/PM14
Dissolved Mercury	<1	<1	<1	<1	<1						<1	ug/l	TM30/PM14
Dissolved Nickel	9	<2	<2	<2	202						<2	ug/l	TM30/PM14
Dissolved Selenium	<3	<3	<3	<3	<3						<3	ug/l	TM30/PM14
Dissolved Vanadium	<1.5	<1.5	<1.5	1.6	313.2						<1.5	ug/l	TM30/PM14
Dissolved Zinc	3	<3	<3	<3	710						<3	ug/l	TM30/PM14
Total Hardness Dissolved (as CaCO ₃)	473	294	319	510	1516 ^{AA}						<1	mg/l	TM30/PM14
PAH MS													
Naphthalene	<0.1	10.9 ⁺⁺	<0.1	0.6	<0.1						<0.1	ug/l	TM4/PM30
Acenaphthylene	0.01	0.08	<0.01	0.32	0.01						<0.01	ug/l	TM4/PM30
Acenaphthene	0.02	0.04	<0.01	10.86 ⁺⁺	<0.01						<0.01	ug/l	TM4/PM30
Fluorene	0.02	0.03	0.01	3.11	0.01						<0.01	ug/l	TM4/PM30
Phenanthrene	<0.01	0.04	0.02	2.29	0.01						<0.01	ug/l	TM4/PM30
Anthracene	0.01	<0.01	<0.01	0.38	0.08						<0.01	ug/l	TM4/PM30
Fluoranthene	0.02	0.02	0.01	0.74	0.02						<0.01	ug/l	TM4/PM30
Pyrene	0.01	0.02	0.01	0.38	0.01						<0.01	ug/l	TM4/PM30
Benzo(a)anthracene	<0.01	<0.01	<0.01	0.02	<0.01						<0.01	ug/l	TM4/PM30
Chrysene	<0.01	<0.01	<0.01	0.02	<0.01						<0.01	ug/l	TM4/PM30
Benzo(b)fluoranthene	<0.01	<0.01	<0.01	<0.01	<0.01						<0.01	ug/l	TM4/PM30
Benzo(a)pyrene	<0.01	<0.01	<0.01	<0.01	<0.01						<0.01	ug/l	TM4/PM30
Indeno(123cd)pyrene	<0.01	<0.01	<0.01	<0.01	<0.01						<0.01	ug/l	TM4/PM30
Dibenzo(ah)anthracene	<0.01	<0.01	<0.01	<0.01	<0.01						<0.01	ug/l	TM4/PM30
Benzo(ghi)perylene	<0.01	<0.01	<0.01	<0.01	<0.01						<0.01	ug/l	TM4/PM30
PAH 16 Total	<0.1	11.1	<0.1	18.7	0.1						<0.1	ug/l	TM4/PM30
Benzo(b)fluoranthene	<0.01	<0.01	<0.01	<0.01	<0.01						<0.01	ug/l	TM4/PM30
Benzo(k)fluoranthene	<0.01	<0.01	<0.01	<0.01	<0.01						<0.01	ug/l	TM4/PM30
PAH Surrogate % Recovery	90	81	80	95	83						<0	%	TM4/PM30

Client Name: Omnia
Reference: A10708
Location: Wessex Yard Havant
Contact: Tim Mitchell
JE Job No.: 17/12156

Report : Liquid

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

J E Sample No.	1-6	7-12	13-18	19-24	25-30						Please see attached notes for all abbreviations and acronyms		
Sample ID	BH101	BH102A	BH103	WS104	WS108								
Depth	7.35	6.80	5.74	2.50	2.20								
COC No / misc													
Containers	V H N N P G	V H N N P G	V H N N P G	V H N N P G	V H N N P G								
Sample Date	13/07/2017	13/07/2017	13/07/2017	13/07/2017	13/07/2017								
Sample Type	Liquid	Liquid	Liquid	Liquid	Liquid								
Batch Number	1	1	1	1	1								
Date of Receipt	15/07/2017	15/07/2017	15/07/2017	15/07/2017	15/07/2017						LOD/LOR	Units	Method No.
TPH CWG													
Aliphatics													
>C5-C6	<10	<10	<10	<10	<10						<10	ug/l	TM36/PM12
>C6-C8	<10	<10	<10	<10	<10						<10	ug/l	TM36/PM12
>C8-C10	<10	<10	<10	<10	<10						<10	ug/l	TM36/PM12
>C10-C12	<5	<5	<5	<5	<5						<5	ug/l	TM5/PM30
>C12-C16	<10	<10	<10	<10	<10						<10	ug/l	TM5/PM30
>C16-C21	<10	<10	<10	<10	<10						<10	ug/l	TM5/PM30
>C21-C35	<10	<10	<10	<10	<10						<10	ug/l	TM5/PM30
Total aliphatics C5-35	<10	<10	<10	<10	<10						<10	ug/l	TM5/PM30/PM12
Aromatics													
>C5-EC7	<10	12	<10	10	<10						<10	ug/l	TM36/PM12
>EC7-EC8	<10	<10	<10	<10	<10						<10	ug/l	TM36/PM12
>EC8-EC10	<10	12	<10	<10	<10						<10	ug/l	TM36/PM12
>EC10-EC12	<5	13	<5	29	<5						<5	ug/l	TM5/PM30
>EC12-EC16	<10	<10	<10	40	<10						<10	ug/l	TM5/PM30
>EC16-EC21	<10	<10	<10	10	<10						<10	ug/l	TM5/PM30
>EC21-EC35	<10	<10	<10	<10	<10						<10	ug/l	TM5/PM30
Total aromatics C5-35	<10	37	<10	89	<10						<10	ug/l	TM5/PM30/PM12
Total aliphatics and aromatics(C5-35)	<10	37	<10	89	<10						<10	ug/l	TM5/PM30/PM12
MTBE	<5	<5	<5	<5	<5						<5	ug/l	TM31/PM12
Benzene	<5	12	<5	10	<5						<5	ug/l	TM31/PM12
Toluene	<5	<5	<5	<5	<5						<5	ug/l	TM31/PM12
Ethylbenzene	<5	<5	<5	<5	<5						<5	ug/l	TM31/PM12
m/p-Xylene	<5	<5	<5	<5	<5						<5	ug/l	TM31/PM12
o-Xylene	<5	<5	<5	<5	<5						<5	ug/l	TM31/PM12
Total Phenols HPLC	<0.1	<0.1	<0.1	<0.1	<0.1						<0.1	mg/l	TM26/PM0
Sulphate as SO4	257.9	61.8	59.6	<0.5	4181.1						<0.5	mg/l	TM38/PM0
Total Cyanide	0.05	0.08	0.02	0.07	0.09						<0.01	mg/l	TM89/PM0
Hexavalent Chromium	<0.006	<0.006	<0.006	<0.006	<0.006						<0.006	mg/l	TM38/PM0
Total Dissolved Chromium III	<6	<6	<6	<6	<6						<6	ug/l	NONE/NONE
pH	7.10	7.57	7.48	7.53	1.99						<0.01	pH units	TM73/PM0

[illegible]

QF-PM 3.1.11 v3

NOTES TO ACCOMPANY ALL SCHEDULES AND REPORTS

JE Job No.: 17/12156

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.

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

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

WATERS

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

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

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

Where Mineral Oil 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.

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 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.
SA	ISO17025 (SANAS) 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.
++	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
AA	x5 Dilution

JE Job No: 17/12156

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS/ANAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
TM4	Modified USEPA 8270 method for the solvent extraction and determination of 16 PAHs by GC-MS.	PM30	Water samples are extracted with solvent using a magnetic stirrer to create a vortex.				
TM5	Modified USEPA 8015B method for the determination of solvent Extractable Petroleum Hydrocarbons (EPH) with carbon banding within the range C8-C40 GC-FID.	PM30	Water samples are extracted with solvent using a magnetic stirrer to create a vortex.				
TM5/TM36	TM005: Modified USEPA 8015B. Determination of solvent Extractable Petroleum Hydrocarbons (EPH) including column fractionation in the carbon range of C10-35 into aliphatic and aromatic fractions by GC-FID. TM036: Modified USEPA 8015B. Determination of Gasoline Range Organics (GRO) in the carbon chain range of C5-10 by headspace GC-FID. Including determination of BTEX and calculation of Aliphatic fractions.	PM30/PM12	CWG GC-FID				
TM26	Determination of phenols by Reversed Phased High Performance Liquid Chromatography and Electro-Chemical Detection.	PM0	No preparation is required.				
TM30	Determination of Trace Metal elements by ICP-OES (Inductively Coupled Plasma - Optical Emission Spectrometry). Modified US EPA Method 200.7, 6010B and BS EN ISO 11885 2009	PM14	Analysis of waters and leachates for metals by ICP OES/ICP MS. Samples are filtered for dissolved metals and acidified if required.				
TM31	Modified USEPA 8015B. Determination of Methyltertbutylether, Benzene, Toluene, Ethylbenzene and Xylene by headspace GC-FID.	PM12	Modified US EPA method 5021. Preparation of solid and liquid samples for GC headspace analysis.				
TM36	Modified US EPA method 8015B. Determination of Gasoline Range Organics (GRO) in the carbon chain range of C4-12 by headspace GC-FID.	PM12	Modified US EPA method 5021. Preparation of solid and liquid samples for GC headspace analysis.				
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	PM0	No preparation is required.				
TM73	Modified US EPA methods 150.1 and 9045D and BS1377:1990. Determination of pH by Metrohm automated probe analyser.	PM0	No preparation is required.				
TM89	Modified USEPA method OIA-1667. Determination of cyanide by Flow Injection Analyser. Where WAD cyanides are required a Ligand displacement step is carried out before analysis.	PM0	No preparation is required.				

JE Job No: 17/12156

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
NONE	No Method Code	NONE	No Method Code				



Jones Environmental Laboratory

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Attention :	Tim Mitchell
Date :	28th July, 2016
Your reference :	A10708
Our reference :	Test Report 16/11924 Batch 1
Location :	Wessex Yard Havant
Date samples received :	20th July, 2016
Status :	Final report
Issue :	1

Twenty four samples were received for analysis on 20th July, 2016 of which twenty two 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:

Bruce Leslie
Project Co-ordinator

Please see attached notes for all abbreviations and acronyms

Client Name: Omnia
Reference: A10708
Location: Wessex Yard Havant
Contact: Tim Mitchell
JE Job No.: 16/11924

Report : Solid

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

J E Sample No.	3-4	5-6	7-8	9-10	11-12	13-14	15-16	17-18	19-20	21-22	Please see attached notes for all abbreviations and acronyms		
Sample ID	WS103	WS103	WS104	WS104	WS105	WS105	WS106	WS107	WS107	WS108			
Depth	0.80	2.70	1.30	4.70	0.30	3.70	3.00	0.60	4.00	4.50			
COC No / misc													
Containers	V J	V J	V J	V J	V J	V J	V J	V J	V	V J			
Sample Date	14/07/2016	14/07/2016	13/07/2016	13/07/2016	13/07/2016	13/07/2016	14/07/2016	14/07/2016	14/07/2016	13/07/2016			
Sample Type	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil			
Batch Number	1	1	1	1	1	1	1	1	1	1			
Date of Receipt	20/07/2016	20/07/2016	20/07/2016	20/07/2016	20/07/2016	20/07/2016	20/07/2016	20/07/2016	20/07/2016	20/07/2016	LOD/LOR	Units	Method No.
PAH MS													
Naphthalene [#]	<0.04	<0.04	0.32	<0.04	3.32 ^{AA}	<0.04	1.09	<0.04	0.53	<0.04	<0.04	mg/kg	TM4/PM8
Acenaphthylene	<0.03	0.05	1.12	0.04	8.88 ^{AA}	<0.03	3.93	<0.03	0.04	<0.03	<0.03	mg/kg	TM4/PM8
Acenaphthene [#]	<0.05	0.25	0.28	0.07	0.52 ^{AA}	<0.05	0.36	<0.05	<0.05	<0.05	<0.05	mg/kg	TM4/PM8
Fluorene [#]	<0.04	0.19	0.57	0.10	1.13 ^{AA}	<0.04	0.43	<0.04	0.05	<0.04	<0.04	mg/kg	TM4/PM8
Phenanthrene [#]	0.05	0.21	8.50	0.41	14.19 ^{AA}	<0.03	3.58	0.23	0.40	<0.03	<0.03	mg/kg	TM4/PM8
Anthracene [#]	<0.04	0.10	3.42	0.07	10.79 ^{AA}	<0.04	3.09	0.07	0.05	<0.04	<0.04	mg/kg	TM4/PM8
Fluoranthene [#]	0.16	0.80	19.00	0.28	63.49 ^{AA}	<0.03	12.43	0.60	0.44	<0.03	<0.03	mg/kg	TM4/PM8
Pyrene [#]	0.14	0.46	15.06	0.18	61.52 ^{AA}	<0.03	12.30	0.49	0.33	<0.03	<0.03	mg/kg	TM4/PM8
Benzo(a)anthracene [#]	0.13	0.12	6.89	0.12	57.62 ^{AA}	<0.06	6.24	0.30	0.21	<0.06	<0.06	mg/kg	TM4/PM8
Chrysene [#]	0.10	0.09	7.30	0.11	52.40 ^{AA}	<0.02	6.87	0.30	0.21	<0.02	<0.02	mg/kg	TM4/PM8
Benzo(bk)fluoranthene [#]	0.19	0.09	12.93	0.17	112.68 ^{AA}	<0.07	13.46	0.48	0.30	<0.07	<0.07	mg/kg	TM4/PM8
Benzo(a)pyrene [#]	0.09	0.05	7.43	0.10	63.90 ^{AA}	<0.04	8.30	0.29	0.16	<0.04	<0.04	mg/kg	TM4/PM8
Indeno(123cd)pyrene [#]	0.07	<0.04	4.64	0.07	45.59 ^{AA}	<0.04	5.53	0.20	0.10	<0.04	<0.04	mg/kg	TM4/PM8
Dibenzo(ah)anthracene [#]	0.05	<0.04	0.87	<0.04	15.12 ^{AA}	<0.04	1.12	0.06	<0.04	<0.04	<0.04	mg/kg	TM4/PM8
Benzo(ghi)perylene [#]	0.08	<0.04	4.63	0.07	41.85 ^{AA}	<0.04	5.46	0.19	0.09	<0.04	<0.04	mg/kg	TM4/PM8
PAH 16 Total	1.1	2.4	93.0	1.8	553.0 ^{AA}	<0.6	84.2	3.2	2.9	<0.6	<0.6	mg/kg	TM4/PM8
Benzo(b)fluoranthene	0.14	0.06	9.31	0.12	81.13 ^{AA}	<0.05	9.69	0.35	0.22	<0.05	<0.05	mg/kg	TM4/PM8
Benzo(k)fluoranthene	0.05	0.03	3.62	0.05	31.55 ^{AA}	<0.02	3.77	0.13	0.08	<0.02	<0.02	mg/kg	TM4/PM8
PAH Surrogate % Recovery	81	102	94	95	110 ^{AA}	87	98	81	100	83	<0	%	TM4/PM8
EPH >C8-C10 [#]	<5	<5	<5	<5	<5	<5	34	<5	<5	<5	<5	mg/kg	TM5/PM8
EPH >C10-C12 [#]	<10	<10	<10	<10	<10	<10	18	<10	<10	<10	<10	mg/kg	TM5/PM8
EPH >C12-C16 [#]	<10	<10	<10	<10	17	<10	36	<10	<10	<10	<10	mg/kg	TM5/PM8
EPH >C16-C21 [#]	57	22	<10	17	314	<10	154	26	<10	<10	<10	mg/kg	TM5/PM8
EPH >C21-C40	87	<10	59	59	2554	75	622	167	165	<10	<10	mg/kg	TM5/PM8
EPH >C8-C40	144	<30	59	76	2885	75	864	193	165	<30	<30	mg/kg	TM5/PM8
GRO (>C4-C6)	<100	<100	<100	<100	<1000 ^{AB}	<100	<100	<100	<100	<100	<100	ug/kg	TM36/PM12
GRO (>C6-C8) [#]	<100	<100	<100	144	<1000 ^{AB}	<100	204	<100	228	<100	<100	ug/kg	TM36/PM12
GRO (>C4-C8)	<100	<100	<100	144	<1000 ^{AB}	<100	204	<100	228	<100	<100	ug/kg	TM36/PM12
Total Phenols HPLC	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	mg/kg	TM26/PM21
Natural Moisture Content	15.5	22.3	25.3	12.6	15.3	25.2	-	16.3	20.3	14.6	<0.1	%	PM4/PM0
Natural Moisture Content	-	-	-	-	-	-	20.7	-	-	-	<0.1	%	PM4/PM0
Hexavalent Chromium [#]	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	mg/kg	TM38/PM20
Sulphate as SO4 (2:1 Ext) [#]	0.0108	0.0979	0.1838	0.1069	0.5595	0.1728	-	0.0105	0.3262	0.1901	<0.0015	g/l	TM38/PM20
Sulphate as SO4 (2:1 Ext)	-	-	-	-	-	-	0.2672	-	-	-	<0.0015	g/l	TM38/PM60
Chromium III	81.6	52.9	50.4	57.1	39.9	39.9	-	46.2	127.7	46.5	<0.5	mg/kg	NONE/NONE
Chromium III	-	-	-	-	-	-	13.5	-	-	-	<0.5	mg/kg	NONE/NONE
Total Cyanide [#]	<0.5	0.9	<0.5	3.7	8.6	6.8	374.5 ^{AB}	1.9	8.0	<0.5	<0.5	mg/kg	TM89/PM45

Please see attached notes for all abbreviations and acronyms

Please see attached notes for all abbreviations and acronyms

Client Name: Omnia
Reference: A10708
Location: Wessex Yard Havant
Contact: Tim Mitchell
JE Job No.: 16/11924

Report : Solid

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

J E Sample No.	23-24	25-26	27-28	29-30	31-32	33-34	35-36	37-38	39-40	41-42	Please see attached notes for all abbreviations and acronyms		
Sample ID	WS109A	WS109A	WS110	BH101	BH102	BH103	BH103	TP101 INSIDE	BH101	BH102A			
Depth	0.60	1.50	3.00	11.00	6.50	8.00	9.50-9.60	1.60	0.50-0.60	2.50-2.60			
COC No / misc													
Containers	V J	V J	V J	V J	V J	V J	V J	V J	V J	V J			
Sample Date	15/07/2016	15/07/2016	15/07/2016	15/07/2016	13/07/2016	14/07/2016	14/07/2016	12/07/2016	15/07/2016	13/07/2016			
Sample Type	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil			
Batch Number	1	1	1	1	1	1	1	1	1	1			
Date of Receipt	20/07/2016	20/07/2016	20/07/2016	20/07/2016	20/07/2016	20/07/2016	20/07/2016	20/07/2016	20/07/2016	20/07/2016	LOD/LOR	Units	Method No.
PAH MS													
Naphthalene [#]	5.35 ^{AA}	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	-	-	<0.04	mg/kg	TM4/PM8
Acenaphthylene	28.73 ^{AA}	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	-	-	<0.03	mg/kg	TM4/PM8
Acenaphthene [#]	2.54 ^{AA}	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	-	-	<0.05	mg/kg	TM4/PM8
Fluorene [#]	6.05 ^{AA}	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	-	-	<0.04	mg/kg	TM4/PM8
Phenanthrene [#]	30.32 ^{AA}	0.04	<0.03	<0.03	<0.03	<0.03	<0.03	0.11	-	-	<0.03	mg/kg	TM4/PM8
Anthracene [#]	22.01 ^{AA}	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	-	-	<0.04	mg/kg	TM4/PM8
Fluoranthene [#]	136.87 ^{AA}	0.06	<0.03	<0.03	0.04	<0.03	<0.03	0.29	-	-	<0.03	mg/kg	TM4/PM8
Pyrene [#]	111.82 ^{AA}	0.05	<0.03	<0.03	0.04	<0.03	<0.03	0.27	-	-	<0.03	mg/kg	TM4/PM8
Benzo(a)anthracene [#]	86.61 ^{AA}	<0.06	<0.06	<0.06	<0.06	<0.06	<0.06	0.20	-	-	<0.06	mg/kg	TM4/PM8
Chrysene [#]	96.89 ^{AA}	0.06	<0.02	<0.02	0.02	<0.02	<0.02	0.19	-	-	<0.02	mg/kg	TM4/PM8
Benzo(bk)fluoranthene [#]	184.60 ^{AA}	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	0.37	-	-	<0.07	mg/kg	TM4/PM8
Benzo(a)pyrene [#]	64.59 ^{AA}	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	0.21	-	-	<0.04	mg/kg	TM4/PM8
Indeno(123cd)pyrene [#]	64.33 ^{AA}	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	0.16	-	-	<0.04	mg/kg	TM4/PM8
Dibenzo(ah)anthracene [#]	15.57 ^{AA}	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	-	-	<0.04	mg/kg	TM4/PM8
Benzo(ghi)perylene [#]	57.56 ^{AA}	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	0.15	-	-	<0.04	mg/kg	TM4/PM8
PAH 16 Total	913.8 ^{AA}	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	2.0	-	-	<0.6	mg/kg	TM4/PM8
Benzo(b)fluoranthene	132.91 ^{AA}	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.27	-	-	<0.05	mg/kg	TM4/PM8
Benzo(k)fluoranthene	51.69 ^{AA}	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.10	-	-	<0.02	mg/kg	TM4/PM8
PAH Surrogate % Recovery	103 ^{AA}	99	94	98	99	90	80	102	-	-	<0	%	TM4/PM8
EPH >C8-C10 [#]	244	<5	<5	<5	<5	<5	<5	<5	<5	-	<5	mg/kg	TM5/PM8
EPH >C10-C12 [#]	79	<10	<10	<10	<10	<10	<10	<10	<10	-	<10	mg/kg	TM5/PM8
EPH >C12-C16 [#]	305	<10	<10	<10	<10	<10	<10	<10	48	-	<10	mg/kg	TM5/PM8
EPH >C16-C21 [#]	1546	12	<10	<10	<10	<10	<10	<10	304	-	<10	mg/kg	TM5/PM8
EPH >C21-C40	5810	182	<10	16	29	21	<10	23	1494	-	<10	mg/kg	TM5/PM8
EPH >C8-C40	7984	194	<30	<30	<30	<30	<30	<30	1846	-	<30	mg/kg	TM5/PM8
GRO (>C4-C6)	<1000 ^{AB}	<100	<100	<100	<100	<100	<100	<100	<100	-	<100	ug/kg	TM36/PM12
GRO (>C6-C8) [#]	<1000 ^{AB}	<100	<100	<100	<100	<100	<100	<100	<100	-	<100	ug/kg	TM36/PM12
GRO (>C4-C8)	<1000 ^{AB}	<100	<100	<100	<100	<100	<100	<100	<100	-	<100	ug/kg	TM36/PM12
Total Phenols HPLC	0.68	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	-	-	<0.15	mg/kg	TM26/PM21
Natural Moisture Content	45.2	11.4	23.3	31.6	25.0	32.5	32.3	35.5	11.9	-	<0.1	%	PM4/PM0
Natural Moisture Content	-	-	-	-	-	-	-	-	-	-	<0.1	%	PM4/PM0
Hexavalent Chromium [#]	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	-	-	<0.3	mg/kg	TM38/PM20
Sulphate as SO4 (2:1 Ext) [#]	1.0041	1.5260	0.0150	0.0511	0.1848	0.1192	0.0553	0.0749	-	0.0214	<0.0015	g/l	TM38/PM20
Sulphate as SO4 (2:1 Ext)	-	-	-	-	-	-	-	-	-	-	<0.0015	g/l	TM38/PM60
Chromium III	37.0	101.1	16.3	7.1	48.1	50.4	12.8	42.5	-	-	<0.5	mg/kg	NONE/NONE
Chromium III	-	-	-	-	-	-	-	-	-	-	<0.5	mg/kg	NONE/NONE
Total Cyanide [#]	2502.6 ^{AC}	20.0	1.7	<0.5	<0.5	<0.5	<0.5	6.1	-	-	<0.5	mg/kg	TM89/PM45

Please see attached notes for all abbreviations and acronyms

Please see attached notes for all abbreviations and acronyms

Client Name: Omnia
Reference: A10708
Location: Wessex Yard Havant
Contact: Tim Mitchell
JE Job No.: 16/11924

Report : Solid

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

J E Sample No.	43	44-45									Please see attached notes for all abbreviations and acronyms		
Sample ID	BH101 D19	BH103											
Depth	10.30	1.50-1.60											
COC No / misc													
Containers	B	V J											
Sample Date	15/07/2016	14/07/2016											
Sample Type	Soil	Soil											
Batch Number	1	1											
Date of Receipt	20/07/2016	20/07/2016									LOD/LOR	Units	Method No.
PAH MS													
Naphthalene #	-	-									<0.04	mg/kg	TM4/PM8
Acenaphthylene	-	-									<0.03	mg/kg	TM4/PM8
Acenaphthene #	-	-									<0.05	mg/kg	TM4/PM8
Fluorene #	-	-									<0.04	mg/kg	TM4/PM8
Phenanthrene #	-	-									<0.03	mg/kg	TM4/PM8
Anthracene #	-	-									<0.04	mg/kg	TM4/PM8
Fluoranthene #	-	-									<0.03	mg/kg	TM4/PM8
Pyrene #	-	-									<0.03	mg/kg	TM4/PM8
Benzo(a)anthracene #	-	-									<0.06	mg/kg	TM4/PM8
Chrysene #	-	-									<0.02	mg/kg	TM4/PM8
Benzo(bk)fluoranthene #	-	-									<0.07	mg/kg	TM4/PM8
Benzo(a)pyrene #	-	-									<0.04	mg/kg	TM4/PM8
Indeno(123cd)pyrene #	-	-									<0.04	mg/kg	TM4/PM8
Dibenzo(ah)anthracene #	-	-									<0.04	mg/kg	TM4/PM8
Benzo(ghi)perylene #	-	-									<0.04	mg/kg	TM4/PM8
PAH 16 Total	-	-									<0.6	mg/kg	TM4/PM8
Benzo(b)fluoranthene	-	-									<0.05	mg/kg	TM4/PM8
Benzo(k)fluoranthene	-	-									<0.02	mg/kg	TM4/PM8
PAH Surrogate % Recovery	-	-									<0	%	TM4/PM8
EPH >C8-C10 #	-	-									<5	mg/kg	TM5/PM8
EPH >C10-C12 #	-	-									<10	mg/kg	TM5/PM8
EPH >C12-C16 #	-	-									<10	mg/kg	TM5/PM8
EPH >C16-C21 #	-	-									<10	mg/kg	TM5/PM8
EPH >C21-C40	-	-									<10	mg/kg	TM5/PM8
EPH >C8-C40	-	-									<30	mg/kg	TM5/PM8
GRO (>C4-C6)	-	-									<100	ug/kg	TM36/PM12
GRO (>C6-C8) #	-	-									<100	ug/kg	TM36/PM12
GRO (>C4-C8)	-	-									<100	ug/kg	TM36/PM12
Total Phenols HPLC	-	-									<0.15	mg/kg	TM26/PM21
Natural Moisture Content	-	-									<0.1	%	PM4/PM0
Natural Moisture Content	-	-									<0.1	%	PM4/PM0
Hexavalent Chromium #	-	-									<0.3	mg/kg	TM38/PM20
Sulphate as SO4 (2:1 Ext) #	0.1753	0.1205									<0.0015	g/l	TM38/PM20
Sulphate as SO4 (2:1 Ext)	-	-									<0.0015	g/l	TM38/PM60
Chromium III	-	-									<0.5	mg/kg	NONE/NONE
Chromium III	-	-									<0.5	mg/kg	NONE/NONE
Total Cyanide #	-	-									<0.5	mg/kg	TM89/PM45

Please see attached notes for all abbreviations and acronyms

Client Name: Omnia
Reference: A10708
Location: Wessex Yard Havant
Contact: Tim Mitchell

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.

Signed on behalf of Jones Environmental Laboratory:



Ryan Butterworth
 Asbestos Team Leader

J E Job No.	Batch	Sample ID	Depth	J E Sample No.	Date Of Analysis	Analysis	Result
16/11924	1	WS103	0.80	4	22/07/2016	Mass of Dry Sample	51.2 (g)
					22/07/2016	General Description (Bulk Analysis)	soil-stones
					22/07/2016	Asbestos Fibres	NAD
					22/07/2016	Asbestos Fibres (2)	NAD
					22/07/2016	Asbestos ACM	NAD
					22/07/2016	Asbestos ACM (2)	NAD
					22/07/2016	Asbestos Type	NAD
					22/07/2016	Asbestos Type (2)	NAD
					22/07/2016	Asbestos Level Screen	NAD
16/11924	1	WS103	2.70	6	22/07/2016	Mass of Dry Sample	44.7 (g)
					22/07/2016	General Description (Bulk Analysis)	soil-stones
					22/07/2016	Asbestos Fibres	NAD
					22/07/2016	Asbestos Fibres (2)	NAD
					22/07/2016	Asbestos ACM	NAD
					22/07/2016	Asbestos ACM (2)	NAD
					22/07/2016	Asbestos Type	NAD
					22/07/2016	Asbestos Type (2)	NAD
					22/07/2016	Asbestos Level Screen	NAD
16/11924	1	WS104	1.30	8	22/07/2016	Mass of Dry Sample	42.9 (g)
					22/07/2016	General Description (Bulk Analysis)	soil-stones
					22/07/2016	Asbestos Fibres	NAD
					22/07/2016	Asbestos Fibres (2)	NAD
					22/07/2016	Asbestos ACM	NAD
					22/07/2016	Asbestos ACM (2)	NAD
					22/07/2016	Asbestos Type	NAD
					22/07/2016	Asbestos Type (2)	NAD
					22/07/2016	Asbestos Level Screen	NAD
16/11924	1	WS104	4.70	10	22/07/2016	Mass of Dry Sample	51.1 (g)
					22/07/2016	General Description (Bulk Analysis)	soil-stones
					22/07/2016	Asbestos Fibres	NAD
					22/07/2016	Asbestos Fibres (2)	NAD
					22/07/2016	Asbestos ACM	NAD
					22/07/2016	Asbestos ACM (2)	NAD
					22/07/2016	Asbestos Type	NAD
					22/07/2016	Asbestos Type (2)	NAD
					22/07/2016	Asbestos Level Screen	NAD

Client Name: Omnia
Reference: A10708
Location: Wessex Yard Havant
Contact: Tim Mitchell

J E Job No.	Batch	Sample ID	Depth	J E Sample No.	Date Of Analysis	Analysis	Result
16/11924	1	WS105	0.30	12	22/07/2016	Mass of Dry Sample	50.9 (g)
					22/07/2016	General Description (Bulk Analysis)	Soil/Stone
					22/07/2016	Asbestos Fibres	NAD
					22/07/2016	Asbestos Fibres (2)	NAD
					22/07/2016	Asbestos ACM	NAD
					22/07/2016	Asbestos ACM (2)	NAD
					22/07/2016	Asbestos Type	NAD
					22/07/2016	Asbestos Type (2)	NAD
					22/07/2016	Asbestos Level Screen	NAD
16/11924	1	WS105	3.70	14	22/07/2016	Mass of Dry Sample	42.5 (g)
					22/07/2016	General Description (Bulk Analysis)	Soil/Stone
					22/07/2016	Asbestos Fibres	NAD
					22/07/2016	Asbestos Fibres (2)	NAD
					22/07/2016	Asbestos ACM	NAD
					22/07/2016	Asbestos ACM (2)	NAD
					22/07/2016	Asbestos Type	NAD
					22/07/2016	Asbestos Type (2)	NAD
					22/07/2016	Asbestos Level Screen	NAD
16/11924	1	WS106	3.00	16	22/07/2016	Mass of Dry Sample	47.2 (g)
					25/07/2016	General Description (Bulk Analysis)	Soil/Stones
					25/07/2016	Asbestos Fibres	Fibre Bundles
					25/07/2016	Asbestos ACM	NAD
					25/07/2016	Asbestos Type	Chrysotile
					25/07/2016	Asbestos Level Screen	<0.1%
					26/07/2016	Asbestos Gravimetric Quantification	<0.001 (mass %)
					26/07/2016	Asbestos PCOM Quantification (Fibres)	<0.001 (mass %)
					26/07/2016	Asbestos Gravimetric & PCOM Total	<0.001 (mass %)
16/11924	1	WS107	0.60	18	22/07/2016	Mass of Dry Sample	45.0 (g)
					25/07/2016	General Description (Bulk Analysis)	Soil/Stones/Clay
					25/07/2016	Asbestos Fibres	NAD
					25/07/2016	Asbestos Fibres (2)	NAD
					25/07/2016	Asbestos ACM	NAD
					25/07/2016	Asbestos ACM (2)	NAD
					25/07/2016	Asbestos Type	NAD
					25/07/2016	Asbestos Type (2)	NAD
					25/07/2016	Asbestos Level Screen	NAD
16/11924	1	WS107	4.00	20	22/07/2016	Mass of Dry Sample	42.3 (g)
					22/07/2016	General Description (Bulk Analysis)	soil-stones
					22/07/2016	Asbestos Fibres	NAD
					22/07/2016	Asbestos Fibres (2)	NAD
					22/07/2016	Asbestos ACM	NAD
					22/07/2016	Asbestos ACM (2)	NAD
					22/07/2016	Asbestos Type	NAD
					22/07/2016	Asbestos Type (2)	NAD
					22/07/2016	Asbestos Level Screen	NAD
16/11924	1	WS108	4.50	22	22/07/2016	Mass of Dry Sample	51.8 (g)
					22/07/2016	General Description (Bulk Analysis)	soil-stones
					22/07/2016	Asbestos Fibres	NAD

Client Name: Omnia
Reference: A10708
Location: Wessex Yard Havant
Contact: Tim Mitchell

J E Job No.	Batch	Sample ID	Depth	J E Sample No.	Date Of Analysis	Analysis	Result
16/11924	1	WS108	4.50	22	22/07/2016	Asbestos Fibres (2)	NAD
					22/07/2016	Asbestos ACM	NAD
					22/07/2016	Asbestos ACM (2)	NAD
					22/07/2016	Asbestos Type	NAD
					22/07/2016	Asbestos Type (2)	NAD
					22/07/2016	Asbestos Level Screen	NAD
16/11924	1	WS109A	0.60	24	22/07/2016	Mass of Dry Sample	37.4 (g)
					22/07/2016	General Description (Bulk Analysis)	soil-stones
					22/07/2016	Asbestos Fibres	NAD
					22/07/2016	Asbestos Fibres (2)	NAD
					22/07/2016	Asbestos ACM	NAD
					22/07/2016	Asbestos ACM (2)	NAD
					22/07/2016	Asbestos Type	NAD
					22/07/2016	Asbestos Type (2)	NAD
16/11924	1	WS109A	1.50	26	22/07/2016	Mass of Dry Sample	51.8 (g)
					22/07/2016	General Description (Bulk Analysis)	soil-stones
					22/07/2016	Asbestos Fibres	NAD
					22/07/2016	Asbestos Fibres (2)	NAD
					22/07/2016	Asbestos ACM	NAD
					22/07/2016	Asbestos ACM (2)	NAD
					22/07/2016	Asbestos Type	NAD
					22/07/2016	Asbestos Type (2)	NAD
16/11924	1	WS110	3.00	28	22/07/2016	Mass of Dry Sample	49.6 (g)
					25/07/2016	General Description (Bulk Analysis)	Soil-Silt/Stones
					25/07/2016	Asbestos Fibres	NAD
					25/07/2016	Asbestos Fibres (2)	NAD
					25/07/2016	Asbestos ACM	NAD
					25/07/2016	Asbestos ACM (2)	NAD
					25/07/2016	Asbestos Type	NAD
					25/07/2016	Asbestos Type (2)	NAD
16/11924	1	BH101	11.00	30	22/07/2016	Mass of Dry Sample	48.3 (g)
					25/07/2016	General Description (Bulk Analysis)	Soil-Silt/Stones
					25/07/2016	Asbestos Fibres	NAD
					25/07/2016	Asbestos Fibres (2)	NAD
					25/07/2016	Asbestos ACM	NAD
					25/07/2016	Asbestos ACM (2)	NAD
					25/07/2016	Asbestos Type	NAD
					25/07/2016	Asbestos Type (2)	NAD
16/11924	1	BH102	6.50	32	22/07/2016	Mass of Dry Sample	44.0 (g)
					22/07/2016	General Description (Bulk Analysis)	Soil/Clay
					22/07/2016	Asbestos Fibres	NAD
					22/07/2016	Asbestos Fibres (2)	NAD
					22/07/2016	Asbestos ACM	NAD
					22/07/2016	Asbestos ACM (2)	NAD

Client Name: Omnia
Reference: A10708
Location: Wessex Yard Havant
Contact: Tim Mitchell

J E Job No.	Batch	Sample ID	Depth	J E Sample No.	Date Of Analysis	Analysis	Result
16/11924	1	BH102	6.50	32	22/07/2016	Asbestos Type	NAD
					22/07/2016	Asbestos Type (2)	NAD
					22/07/2016	Asbestos Level Screen	NAD
16/11924	1	BH103	8.00	34	22/07/2016	Mass of Dry Sample	42.9 (g)
					22/07/2016	General Description (Bulk Analysis)	Soil/Stone
					22/07/2016	Asbestos Fibres	NAD
					22/07/2016	Asbestos Fibres (2)	NAD
					22/07/2016	Asbestos ACM	NAD
					22/07/2016	Asbestos ACM (2)	NAD
					22/07/2016	Asbestos Type	NAD
					22/07/2016	Asbestos Type (2)	NAD
					22/07/2016	Asbestos Level Screen	NAD
16/11924	1	BH103	9.50-9.60	36	22/07/2016	Mass of Dry Sample	43.9 (g)
					22/07/2016	General Description (Bulk Analysis)	Soil/Stone
					22/07/2016	Asbestos Fibres	NAD
					22/07/2016	Asbestos Fibres (2)	NAD
					22/07/2016	Asbestos ACM	NAD
					22/07/2016	Asbestos ACM (2)	NAD
					22/07/2016	Asbestos Type	NAD
					22/07/2016	Asbestos Type (2)	NAD
					22/07/2016	Asbestos Level Screen	NAD
16/11924	1	TP101 INSIDE	1.60	38	22/07/2016	Mass of Dry Sample	42.4 (g)
					22/07/2016	General Description (Bulk Analysis)	Soil/Stone
					22/07/2016	Asbestos Fibres	NAD
					22/07/2016	Asbestos Fibres (2)	NAD
					22/07/2016	Asbestos ACM	NAD
					22/07/2016	Asbestos ACM (2)	NAD
					22/07/2016	Asbestos Type	NAD
					22/07/2016	Asbestos Type (2)	NAD
					22/07/2016	Asbestos Level Screen	NAD

Matrix : Solid

[illegible]

Client Name: Omnia
Reference: A10708
Location: Wessex Yard Havant
Contact: Tim Mitchell

Matrix : Solid

J E Job No.	Batch	Sample ID	Depth	J E Sample No.	Analysis	Reason
16/11924	1	WS103	0.80	3-4	GRO	Solid Samples were received at a temperature above 9°C.
16/11924	1	WS103	2.70	5-6	GRO	Solid Samples were received at a temperature above 9°C.
16/11924	1	WS104	1.30	7-8	GRO	Solid Samples were received at a temperature above 9°C.
16/11924	1	WS104	4.70	9-10	GRO	Solid Samples were received at a temperature above 9°C.
16/11924	1	WS105	0.30	11-12	GRO	Solid Samples were received at a temperature above 9°C.
16/11924	1	WS105	3.70	13-14	GRO	Solid Samples were received at a temperature above 9°C.
16/11924	1	WS106	3.00	15-16	GRO	Solid Samples were received at a temperature above 9°C.
16/11924	1	WS107	0.60	17-18	GRO	Solid Samples were received at a temperature above 9°C.
16/11924	1	WS107	4.00	19-20	GRO	Solid Samples were received at a temperature above 9°C.
16/11924	1	WS108	4.50	21-22	GRO	Solid Samples were received at a temperature above 9°C.
16/11924	1	WS109A	0.60	23-24	GRO	Solid Samples were received at a temperature above 9°C.
16/11924	1	WS109A	1.50	25-26	GRO	Solid Samples were received at a temperature above 9°C.
16/11924	1	WS110	3.00	27-28	GRO	Solid Samples were received at a temperature above 9°C.
16/11924	1	BH101	11.00	29-30	GRO	Solid Samples were received at a temperature above 9°C.
16/11924	1	BH102	6.50	31-32	GRO	Solid Samples were received at a temperature above 9°C.
16/11924	1	BH103	8.00	33-34	GRO	Solid Samples were received at a temperature above 9°C.
16/11924	1	BH103	9.50-9.60	35-36	GRO	Solid Samples were received at a temperature above 9°C.
16/11924	1	TP101 INSIDE	1.60	37-38	GRO	Solid Samples were received at a temperature above 9°C.
16/11924	1	BH101	0.50-0.60	39-40	GRO	Solid Samples were received at a temperature above 9°C.

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.: 16/11924

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.

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.

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.

Please include all sections of this report if it is reproduced

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
AA	x5 Dilution
AB	x10 Dilution
AC	x50 Dilution

JE Job No: 16/11924

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
TM5	Modified USEPA 8015B method for the determination of solvent Extractable Petroleum Hydrocarbons (EPH) with carbon banding within the range C8-C40 GC-FID.	PM8	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required.			AR	Yes
TM5	Modified USEPA 8015B method for the determination of solvent Extractable Petroleum Hydrocarbons (EPH) with carbon banding within the range C8-C40 GC-FID.	PM8	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required.	Yes		AR	Yes
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.	Yes		AD	Yes
TM26	Determination of phenols by Reversed Phased High Performance Liquid Chromatography and Electro-Chemical Detection.	PM21	As received solid or water samples are extracted in Methanol: Sodium Hydroxide (0.1M NaOH) (60:40) by orbital shaker.			AR	Yes
TM30	Determination of Trace Metal elements by ICP-OES (Inductively Coupled Plasma - Optical Emission Spectrometry). Modified US EPA Method 200.7 and 6010B	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.			AD	Yes

JE Job No: 16/11924

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
TM30	Determination of Trace Metal elements by ICP-OES (Inductively Coupled Plasma - Optical Emission Spectrometry). Modified US EPA Method 200.7 and 6010B	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		AD	Yes
TM30	Determination of Trace Metal elements by ICP-OES (Inductively Coupled Plasma - Optical Emission Spectrometry). Modified US EPA Method 200.7 and 6010B	PM62	Acid digestion of as received solid samples using Aqua Regia refluxed at 112.5 °C.			AR	Yes
TM36	Modified US EPA method 8015B. Determination of Gasoline Range Organics (GRO) in the carbon chain range of C4-12 by headspace GC-FID.	PM12	Modified US EPA method 5021. Preparation of solid and liquid samples for GC headspace analysis.			AR	Yes
TM36	Modified US EPA method 8015B. Determination of Gasoline Range Organics (GRO) in the carbon chain range of C4-12 by headspace GC-FID.	PM12	Modified US EPA method 5021. Preparation of solid and liquid samples for GC headspace analysis.	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	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		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	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	

JE Job No: 16/11924

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
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		AR	No
TM74	Analysis of water soluble boron (20:1 extract) by ICP-OES.	PM32	Hot water soluble boron is extracted from dried and ground samples using a 20:1 ratio.	Yes		AD	Yes
TM74	Analysis of water soluble boron (20:1 extract) by ICP-OES.	PM61	As received solid samples are extracted with hot water in a 20:1 ratio of water to soil ready for analysis by ICP.			AR	Yes
TM89	Modified USEPA method OIA-1667. 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 and Thiocyanate analysis.	Yes		AR	Yes
NONE	No Method Code	NONE	No Method Code			AR	Yes

APPENDIX VI
ORIGIN OF GAC VALUES

Residential with Homegrown Products – OECv2 Oct 2015

Constituent	Unit	GAC	Origin of Risk Assessment Value
Arsenic	mg/kg	37	LQM CIEH Suitable for Use Levels (S4UL) 2015- Inorganic Arsenic
Beryllium	mg/kg	1.7	LQM CIEH Suitable for Use Levels (S4UL) 2015
Boron	mg/kg	290	
Cadmium	mg/kg	11	
Chromium VI	mg/kg	6	
Chromium III	mg/kg	910	
Lead	mg/kg	200	
Mercury	mg/kg	40	LQM CIEH Suitable for Use Levels (S4UL) 2015- Inorganic Mercury
Nickel	mg/kg	180	LQM CIEH Suitable for Use Levels (S4UL) 2015
Selenium	mg/kg	250	
Copper	mg/kg	2400	
Zinc	mg/kg	3700	
Vanadium	mg/kg	410	
Phenol	mg/kg	280	LQM CIEH Suitable for Use Levels (S4UL) 2015 1%SOM
Cyanide	mg/kg	791	CLEA 1.04 OEC Derived Value
Naphthalene	mg/kg	2.3	LQM CIEH Suitable for Use Levels (S4UL) 2015 based on a sandy loam as defined in SR3 (EA 2009) 1% SOM
Acenaphthylene	mg/kg	170	
Acenaphthene	mg/kg	210	
Fluorene	mg/kg	170	
Phenanthrene	mg/kg	95	
Anthracene	mg/kg	2400	
Fluoranthene	mg/kg	280	
Pyrene	mg/kg	620	
Benzo(a)Anthracene ^l	mg/kg	7.2	
Chrysene	mg/kg	15	
Benzo(b)Fluoranthene	mg/kg	2.6	
Benzo(k)Fluoranthene	mg/kg	77	
Benzo(a)Pyrene	mg/kg	2.2	
Indeno(123-cd)Pyrene	mg/kg	27	
Dibenzo(a,h)Anthracene	mg/kg	0.24	
Benzo(ghi)Perylene	mg/kg	320	
Benzene	mg/kg	0.087	LQM CIEH Suitable for Use Levels (S4UL) 2015 1%SOM
Toluene	mg/kg	130	
Ethylbenzene	mg/kg	47	
Xylenes	mg/kg	56	LQM CIEH Suitable for Use Levels (S4UL) 2015 1% SOM o-Xylene
TPH CWG (Speciated)			
Aliphatic			LQM CIEH Suitable for Use Levels (S4UL) 2015 based on a sandy loam as

Residential with Homegrown Products – OECv2 Oct 2015

Constituent	Unit	GAC	Origin of Risk Assessment Value
Aliphatic EC 5-6	mg/kg	42	defined in SR3 (EA 2009) 1% SOM
Aliphatic EC >6-8	mg/kg	100	
Aliphatic EC >8-10	mg/kg	27	
Aliphatic EC >10-12	mg/kg	130	
Aliphatic EC > 12-16	mg/kg	1100	
Aliphatic EC > 16-35	mg/kg	65000	
Aliphatic EC >35-44	mg/kg	65000	
Aromatic			LQM CIEH Suitable for Use Levels (S4UL) 2015 based on a sandy loam as defined in SR3 (EA 2009) 1% SOM
Aromatic EC 5-7	mg/kg	70	
Aromatic EC>7-8	mg/kg	130	
Aromatic EC> 8-10	mg/kg	34	
Aromatic EC> 10-12	mg/kg	74	
Aromatic EC> 12-16	mg/kg	140	
Aromatic EC> 16-21	mg/kg	260	
Aromatic EC> 21-35	mg/kg	1100	
Aromatic EC> 35-44	mg/kg	1100	
Banded TPH			
Aliphatic EC 5-6	mg/kg	42	LQM CIEH Suitable for Use Levels (S4UL) 2015 based on a sandy loam as defined in SR3 (EA 2009) 1% SOM, utilising the most conservative of the Ali/Aro chain lengths.
Aliphatic EC >6-8	mg/kg	100	
Aliphatic EC >8-10	mg/kg	27	
Aromatic EC> 10-12	mg/kg	74	
Aromatic EC> 12-16	mg/kg	140	
Aromatic EC> 16-21	mg/kg	260	
Aromatic EC> 21-35	mg/kg	1100	
Aromatic EC> 35-44	mg/kg	1100	

Determinand	Units	Hardness Banding (CaCO3 mg/l)	Freshwater EQS	Source
Arsenic	ug/l		50	WFD EQS 2010 (Freshwater in England & Wales)
Boron	ug/l		2000	Freshwater EQS (AA) - Dangerous Substances Directive (List II)
Cadmium	ug/l	<40	<0.08	WFD EQS 2010 (Freshwater in England & Wales)
		40-50	0.08	
		50-100	0.09	
		100-200	0.15	
		>200	0.25	
Chromium	ug/l		4.7	(AA) WFD EQS 2010 (Freshwater in England & Wales)
Copper	ug/l	0-50	1	WFD EQS 2010 (Freshwater in England & Wales)
		50-100	6	
		100-250	10	
		>250	28	
Cyanide (Free)	ug/l		1	(AA) WFD EQS 2010 (Freshwater in England & Wales)
Iron	ug/l		1000	(AA) WFD EQS 2010 (Freshwater in England & Wales)
Lead	ug/l		7.2	(AA) WFD EQS 2010 (Freshwater in England & Wales)
Mercury	ug/l		0.05	(AA) WFD EQS 2010 (Freshwater in England & Wales)
Nickel	ug/l		20	(AA) WFD EQS 2010 (Freshwater in England & Wales)
Selenium	ug/l		10	Drinking Water Directive
Sulphate	mg/l		400	Freshwater EQS (AA) - Dangerous Substances Directive (List II)
Zinc	ug/l	0-50	8	(AA) WFD EQS 2010 (Freshwater in England & Wales)
		50-100	50	
		100-250	75	
		>250	125	
pH			6 to 9	Freshwater EQS (AA) - Dangerous Substances Directive (List II)
Organics				
Phenol (total)	ug/l		7.7	(AA) WFD EQS 2010 (Freshwater in England & Wales)
MTBE	ug/l		30	Ireland (IGV)
TPH Aliphatic				
Aliphatic C5-C6	ug/l		15,000	WHO Petroleum Products in Drinking Water
Aliphatic C6-C8	ug/l		15,000	WHO Petroleum Products in Drinking Water
Aliphatic C8-C10	ug/l		300	WHO Petroleum Products in Drinking Water
Aliphatic C10-C12	ug/l		300	WHO Petroleum Products in Drinking Water
Aliphatic C12-C16	ug/l		300	WHO Petroleum Products in Drinking Water
Aliphatic C16-C21	ug/l		300	WHO Petroleum Products in Drinking Water
Aliphatic C21-C35	ug/l		300	WHO Petroleum Products in Drinking Water
TPH Aromatic				
Aromatic C5-C7	ug/l		10	(AA) WFD EQS 2010 (Freshwater in England & Wales)
Aromatic C7-C8	ug/l		50	Freshwater EQS (AA) - Dangerous Substances Directive (List II)
Aromatic C8-C10	ug/l		20	Freshwater EQS (AA) - Dangerous Substances Directive (List II)
Aromatic C10-C12	ug/l		100	WHO Petroleum Products in Drinking Water
Aromatic C12-C16	ug/l		100	WHO Petroleum Products in Drinking Water
Aromatic C16-C21	ug/l		90	WHO Petroleum Products in Drinking Water
Aromatic C21-C35	ug/l		90	WHO Petroleum Products in Drinking Water
BTEX				
Benzene	ug/l		10	(AA) WFD EQS 2010 (Freshwater in England & Wales)
Toluene	ug/l		50	(AA) WFD EQS 2010 (Freshwater in England & Wales)
Ethylbenzene	ug/l		20	Freshwater EQS (AA) - Dangerous Substances Directive (List II)
Xylenes	ug/l		30	(AA) WFD EQS 2010 (Freshwater in England & Wales)
PAH				
Anthracene	ug/l		0.1	(AA) WFD EQS 2010 (Freshwater in England & Wales)
Benzo(a)Pyrene	ug/l		0.005	(AA) WFD EQS 2010 (Freshwater in England & Wales)
Fluoranthene	ug/l		0.1	(AA) WFD EQS 2010 (Freshwater in England & Wales)
Naphthalene	ug/l		2.4	(AA) WFD EQS 2010 (Freshwater in England & Wales)
Benzo(b/k)fluoranthene	ug/l		0.003	(AA) WFD EQS 2010 (Freshwater in England & Wales)
Benzo(ghi)perylene & Indeno(1,2,3-cd)perylene	ug/l		0.002	(AA) WFD EQS 2010 (Freshwater in England & Wales)

APPENDIX VII
CONSULTEE RESPONSES

Head of Planning and Development
Havant Borough Council
Development Control
Civic Offices Civic Centre Road
Havant
Hampshire
PO9 2AX

Our ref: HA/2016/117926/01-L01
Your ref: APP/15/01425 |
Date: 11 February 2016

Dear Sir/Madam

PROPOSED RESIDENTIAL DEVELOPMENT COMPRISING 39 ONE AND TWO BED APARTMENTS WITH ASSOCIATED CAR PARKING, CYCLE AND REFUSE STORAGE, FOLLOWING DEMOLITION OF EXISTING BUILDINGS.

FORMER WESSEX SITE, 8 NEW LANE, HAVANT

Thank you for consulting the Environment Agency on the above application received on 25 January 2016.

Environment Agency position

We consider that planning permission could be granted to the proposed development as submitted if the following planning conditions are included as set out below. Without these conditions, the proposed development on this site poses an unacceptable risk to the environment and we would object to the application.

Condition 1

No development approved by this planning permission shall take place until a remediation strategy that includes the following components to deal with the risks of associated with the contamination of the site shall each be submitted to and approved, in writing, by the Local Planning Authority:

1. A preliminary risk assessment which has identified:
 - a. All previous uses
 - b. Potential contaminants associated with those uses
 - c. A conceptual model of the site indicating sources, pathways and receptors
 - d. Potentially unacceptable risks arising from contamination at the site
2. A site investigation scheme, based on (1) to provide information for a detailed assessment of the risk to all receptors that may be affected, including those off site.
3. The results of the site investigation and the detailed risk assessment referred to in (2) and, based on these, an options appraisal and remediation strategy giving

full details of the remediation measures required and how they are to be undertaken.

4. A verification plan providing details of the data that will be collected in order to demonstrate that the works set out in the remediation strategy in (3) are complete and identifying any requirements for longer-term monitoring of pollutant linkages, maintenance and arrangements for contingency actions

Any changes to these components require the express written consent of the Local Planning Authority. The scheme shall be implemented as approved.

Reasons

Information provided in support of the planning application indicates that the sites previous uses include the town gas works and other industrial uses. We are concerned that as a result of these uses contamination is likely to be present which may pose a risk to groundwater and surface water.

The site lies within the groundwater Source Protection Zone 1c for the Bedhampton and Havant springs, a public water supply. Preferential pathways could cause contamination to migrate downwards towards the Chalk (a principal aquifer) and pollute drinking water supplies.

We note that a desk study report (reference 15214/DS) has been provided. We do not currently believe that the information contained within this is sufficient to identify all sources. The desk study and preliminary risk assessment needs to be reviewed prior to the intrusive investigation strategy being developed, which we request that we are consulted on.

National Planning Policy Framework (NPPF) paragraph 109 states that the planning system should contribute to and enhance the natural and local environment by preventing both new and existing development from contributing to or being put at unacceptable risk from, or being adversely affected by unacceptable levels water pollution. Government policy also states that planning policies and decisions should also ensure that adequate site investigation information, prepared by a competent person, is presented (NPPF, paragraph 121).

Condition 2

The development hereby permitted shall not be commenced until such time as a scheme to investigate contamination has been submitted to, and approved in writing by, the Local Planning Authority. This should include:

- Detailed site investigation proposals
- Detailed methodology(s) for any intrusive investigation works (including pollution prevention measures)
- A site specific risk assessment

Reasons

Information provided in support of the planning application indicates that the sites previous uses include the town gas works and other industrial uses. We are concerned that as a result of these uses contamination is likely to be present which may pose a risk to groundwater and surface water. Prior to undertaking the intrusive site investigation the applicant should agree the investigation strategy with ourselves and Portsmouth Water before undertaking any investigative works.

The site lies within the groundwater Source Protection Zone 1c for the Bedhampton and Havant springs, a public water supply. Preferential pathways created as a result of the

investigation could cause contamination to migrate downwards towards the Chalk (a principal aquifer) and pollute drinking water supplies.

Condition 3

No occupation shall take place until a verification report demonstrating completion of works set out in the approved remediation strategy and the effectiveness of the remediation shall be submitted to and approved, in writing, by the Local Planning Authority. The report shall include results of sampling and monitoring carried out in accordance with the approved verification plan to demonstrate that the site remediation criteria have been met. It shall also include any plan (a “long-term monitoring and maintenance plan”) for longer-term monitoring of pollutant linkages, maintenance and arrangements for contingency action, as identified in the verification plan. The long-term monitoring and maintenance plan shall be implemented as approved.

Reasons

To demonstrate that remediation of the site has been carried out in accordance with the agreed strategy.

National Planning Policy Framework (NPPF) paragraph 109 states that the planning system should contribute to and enhance the natural and local environment by preventing both new and existing development from contributing to or being put at unacceptable risk from, or being adversely affected by unacceptable levels water pollution. Government policy also states that planning policies and decisions should ensure that adequate site investigation information, prepared by a competent person, is presented (NPPF, paragraph 121).

Condition 4

If, during development, contamination not previously identified is found to be present at the site then no further development (unless otherwise agreed in writing with the Local Planning Authority) shall be carried out until the developer has submitted a remediation strategy to the Local Planning Authority detailing how this unsuspected contamination shall be dealt with and obtained written approval from the Local Planning Authority. The remediation strategy shall be implemented as approved.

Reasons

Information provided in support of the planning application indicates that the sites previous uses include the town gas works and other industrial uses. We are concerned that as a result of these uses contamination is likely to be present which may pose a risk to groundwater and surface water.

The site lies within the groundwater Source Protection Zone 1c for the Bedhampton and Havant springs, a public water supply. Preferential pathways could cause contamination to migrate downwards towards the Chalk (a principal aquifer) and pollute drinking water supplies.

National Planning Policy Framework (NPPF) paragraph 109 states that the planning system should contribute to and enhance the natural and local environment by preventing both new and existing development from contributing to or being put at unacceptable risk from, or being adversely affected by unacceptable levels water pollution. Government policy also states that planning policies and decisions should ensure that adequate site investigation information, prepared by a competent person, is presented (NPPF, paragraph 121).

Condition 5

Cont/d..

No infiltration of surface water drainage into the ground is permitted other than with the express written consent of the Local Planning Authority, which may be given for those parts of the site where it has been demonstrated that there is no resultant unacceptable risk to controlled waters. The development shall be carried out in accordance with the approval details.

Reasons

Contamination is likely to be present as a result of the sites historical uses. Infiltration systems should not be used where contamination is present as pollutants can be mobilised and cause pollution of groundwater. Infiltration systems should not be used unless a risk assessment can demonstrate that the system would not cause pollution of groundwater.

National Planning Policy Framework paragraph 109 states that the planning system should contribute to and enhance the natural and local environment by preventing both new and existing development from contributing to or being put at unacceptable risk from, or being adversely affected by unacceptable levels water pollution.

Condition 6

Piling or any other foundation designs using penetrative methods shall not be permitted other than with the express written consent of the Local Planning Authority, which may be given for those parts of the site where it has been demonstrated that there is no resultant unacceptable risk to groundwater. The development shall be carried out in accordance with the approved details.

Reason

The site lies within the groundwater Source Protection Zone 1c for the Bedhampton and Havant springs, a public water supply. Preferential pathways could cause contamination to migrate downwards towards the Chalk (a principal aquifer) and pollute drinking water supplies.

Piling or any other foundation designs using penetrative methods can result in risks to potable supplies from, for example, risk of mobilising contamination, drilling through different aquifers and creating preferential pathways. Thus it should be demonstrated that any proposed piling will not result in contamination of groundwater.

The National Planning Policy Framework paragraph 109 states that the planning system should contribute to and enhance the natural and local environment by preventing both new and existing development from contributing to or being put at unacceptable risk from, or being adversely affected by unacceptable levels water pollution.

Condition 7

Prior to occupation of any part of the permitted development, any borehole installed for the investigation of soils, groundwater or geotechnical purposes should be decommissioned in accordance with a scheme to be agreed with the Local Planning Authority. Boreholes which need to be retained post-development for monitoring purposes must be securely locked, protected and inspected in accordance with a monitoring and maintenance plan which must be agreed with the Local Planning Authority.

Reason

To ensure that redundant boreholes are safe and secure, and do not cause groundwater pollution or loss of water supplies in line with paragraph 109 of the Cont/d..

National Planning Policy Framework.

The site lies within the groundwater Source Protection Zone 1c (SPZ1c) for the Bedhampton and Havant Springs. If these boreholes are not decommissioned correctly they can provide preferential pathways for contaminant movement which poses a risk to groundwater quality. Groundwater is particularly sensitive in this location because the proposed development site is within SPZ1c.

Additional Advice

The site lies within the groundwater Source Protection Zone 1c for the Bedhampton and Havant Springs. We strongly recommend that both the LPA and developer contacts Portsmouth Water to discuss the development proposals and any concerns which they may have in advance of any permission being granted.

We recommend that developers should:

1. Follow the risk management framework provided in CLR11, Model Procedures for the Management of Land Contamination, when dealing with land affected by contamination.
2. Refer to the Environment Agency Guiding principles for land contamination online for the type of information that we require in order to assess risks to controlled waters from the site. The Local Authority can advise on risk to other receptors, such as human health.

If the applicant would like any further details advice we would be happy to provide this subject to a charge.

As part of this service you would have a dedicated project manager to coordinate the advice from different teams within the Environment Agency. It would also include bespoke technical and planning advice if you request this. This will allow you to have greater clarity about the assessments you need to accompany your planning application and certainty about whether the development is acceptable to us before you resubmit.

Should you have any further queries please do not hesitate to contact me on the number below.

Kind regards,

Mr Jon Maskell
Planning Advisor, Environment Agency

Direct dial 01794 834 586
Direct e-mail PlanningSSD@environment-agency.gov.uk

HAVANT BOROUGH COUNCIL

Town & Country Planning Act 1990

Consultation on Planning Application

MEMORANDUM

From:	Environmental Health	To:	Development Control
Our Ref:	CONS/17/00343	Your Ref:	APP/15/01425
EH Case Officer Extn:	44 6677	Date:	17 March 2017
DC Case Officer:	Simon Kennedy		
DC Case Officer Extn:	44 6138		
Application Number:	APP/15/01425		
Site Address:	Wessex, 8 New Lane, Havant, PO9 2JH		
Proposed Development:	Proposed residential development comprising 41 one and two bed apartments with associated car parking, cycle and refuse storage, following demolition of existing buildings (Approved 07.07.16). Request to Discharge Condition 9 (11.01.17)		

Observations / Comments:

I have reviewed the Omnia Environmental Consulting Phase 2-3 Geo-Environmental Site Assessment for Wessex Yard, Ref: A10708, submitted in support of this application.

I note that neither the covering letter, nor the report makes clear what elements of condition 9 the application is aiming to address. I do not consider the report adequate to justify the discharge of c9 in full, as the report does not present either a detailed risk assessment or a detailed scheme of remediation / risk mitigation.

General Comments

A piling risk assessment is proposed in order to assess the risk of mobilising contaminants from the site to the underlying aquifer. Given that the depth of fill identified on site exceeds 5 metres below ground level, it is likely that piled foundations will be necessary, and that the required depth will be significant. whilst it is not considered likely that piles will terminate in the chalk (SPZ1c), an impact upon the principal aquifer is possible, and assessment is agreed to be prudent.

The report makes several references to the need for further assessment in respect of specific contaminants (e.g. where generic screening values exceeded), but does not present any further consideration of results as they relate to the preliminary conceptual site model, e.g. as they relate to the character of the strata type, the spatial extent, or association with an identified landuse / feature. Instead, results are treated as being representative of only the location sampled, and no extrapolation is attempted as to the likely nature, scale, or distribution of contamination across areas of the site not sampled.

Relatively few samples were analysed relative to the number collected, and the risk represented by this site. Whilst a rationale for the location of the trail hole is presented (and is reasonable), the rationale for the selection of samples to schedule for analysis is less clear (i.e.

from within the depth profile of that trial hole). Certainly, the samples scheduled present a fragmented conceptual picture, and do not lend themselves to the characterisation of the contamination identified at the site in terms of the units within which it is i) present, ii) capable of migrating, and iii) absent / incapable of breaching, or in terms of the origin and likely lateral extent of that contamination (e.g. as multiple isolated sources, or representing a contiguous plume of contamination with local variability). For example, some trial holes tested 'clean', as only natural clays were scheduled for analysis, where visually impacted soils were noted to be present, but were not subject to chemical testing.

Multiple contaminants have been identified at the site, and the conceptual model presented is weak in terms of identifying the provenance of the substances present, for example offering no particular comment on the presence of visual & olfactory evidence of hydrocarbon contamination, and Arsenic, Cyanide, TPH fractions & PAH16 members in the northern portion of the site, despite this area falling outside the curtilage of the former gas works site, and being up-hydraulic gradient of the identified on & off site sources with reference to the interpolated groundwater flow direction.

Groundwater

I note that no time-series / sequential groundwater surface plots are presented over the 6 monitoring visits, and consequently it has not been demonstrated that the indicated groundwater flow direction is consistent, nor that the inferred discontinuity of groundwater bodies is necessarily correct. In addition, the assertion that the clay strata represents a functional aquitard would appear to be contradicted by the visual & olfactory evidence noted within the available logs (noting staining & hydrocarbon odour associated with sands underlying the clay, and some staining & odour associated with clay itself). This indicates that contaminants are at least in places capable of vertical migration through the clay layers, and that there may be continuity between groundwater bodies identified as being physically separate.

Conclusions drawn with respect to the origin of contaminants identified within the underlying groundwater (i.e. associated with natural granular strata, at depths of around 7m BGL at the time of the OMNIA investigation) are consequently considered to be insufficiently supported by the presented data. The OMNIA report concludes that these are likely to be associated with filled land adjacent to the site, and not from made ground and contamination present within the subject site - however, in line with the above comment, the assumption that the clay functions as an effective aquitard is not been robustly justified, and it is notable that all identified contaminants identified within the underlying groundwater are present within made ground at the site (As, Cr, Pb, Zn, CN, PAH & TPH), meaning the local origin is at least possible, if not likely.

I also note that all gas & groundwater level monitoring visits were undertaken during summer conditions (July/August/early September), and as a result inferences as regards the hydraulic connectivity of various units under the full range of normal conditions has not been established. As a consequence, the conceptual site model has not been sufficiently well developed to permit robust conclusions to be drawn with respect to risks to controlled waters or off-site human receptors.

In order to adequately support groundwater conclusions (i.e. that the origin of dissolved phase contaminants is a source external to the site), it is considered necessary to better characterise the groundwater regime, to more clearly demonstrate the discontinuity of water bodies, and to directly assess the off-site groundwater quality up-hydraulic-gradient of the subject site.

Similarly, in order to appropriately consider the risks to off-site human receptors (via a groundwater vector), it is considered prudent to improve the groundwater environment characterisation (particularly the seasonal vertical range), as well as to consider additional migration pathways e.g. contaminants associated with suspended solids (indicated as being

likely), free product associated with the groundwater surface, or flow of DNAPL products with the surface topography of low permeability strata underlying granular material. There are reasons to expect that all of these migration modes are likely to be active to some degree.

The Soils Ltd. Phase 2 intrusive assessment may provide important additional context, however this has not been submitted to the Council previously, or with this application. I have located an intrusive site investigation from Mann Environmental (unfortunately incomplete) dating from 2007.. This report identifies significant concentrations of B(a)P, Ethylbenzene, Arsenic, Toluene and Petroleum Hydrocarbons; at concentrations of up to two orders of magnitude (1000%) greater than the screening criteria presented.

Sufficiency of remedial, risk mitigation and verification proposals

The OMNIA report proposes no contamination source removal or soil treatment, nor any works to improve the quality of groundwater or measure to prevent the off-site migration of contamination present at the site. The general proposals presented consider only the future residents of the consented scheme within the consented buildings, and rely upon the remainder of the site being covered by impermeable surfacing.

The consent provides for soft landscaping areas, and the consented scheme is directly referenced & depicted within the report - representing an inherent contradiction. In line with the recommendations of the submitted report, further refinement of the conceptual site model is therefore required, and further consideration of remedial measures should be undertaken.

Recommendations in respect of the contamination watching brief are similarly confusing - requiring that any evidence of contamination identified during development be further assessed to determine appropriate actions. Given the presence of >5m thickness of anthropogenic fill (full depth unproven), hydrocarbon staining & odour, and probable presence of free product at the site; the discovery / disturbance of contamination during groundworks is considered to be inevitable. In this way, the operation of an effective & meaningful watching brief without direct supervision of a suitably qualified environmental professional is likely to be unworkable in practical terms.

The remedial proposals that have been put forward are not fully developed, containing no structural schematics or technical detail (e.g. void height / volume, ventilation provision [area], vent location, or relative orientation [cross ventilation], membrane installation detailing, service penetration sealing etc.). Similarly, verification proposals for the proposed barrier membrane are generic, and do not indicate the verification procedures to be followed or the level of evidence required to adequately evidence the efficacy of the implemented measures (the content of the verification report).

No remedial or risk mitigation proposals are offered with respect to outdoor spaces, and no means of lateral containment is considered, either to prevent off-site contamination impacting the site further (if indeed this is the case) or to prevent contamination at the site from migrating over time to such an extent as to be likely to reach a contamination sensitive receptor.

As regards the exposure of future residents, no proposals have been put forward with respect to soils within areas of soft landscaping - there is a possibility, if not a likelihood that some soils would be classified as hazardous waste. and it is clear that soils are highly unlikely to be suitable for a residential landuse, and will need to be replaced. Imported topsoil criteria should form part of the remedial / risk mitigation proposals.

I do not consider that the remedial proposals put forward represent any material environmental betterment, and I note that the proposals are contrary to the conclusions of at

least one previous report (which recommended some form of removal, with pre-treatment prior to disposal). Acceptance of the proposals as-is would result in clearly mobile contaminants leaching from the site and impacting soils & groundwater of & beneath adjacent land, and would risk unacceptable exposure of future residents of the site in outdoor spaces, or via services (e.g. via penetration of the potable water supply pipework).

Conclusions

I do not consider that any further desk based assessment is likely to be beneficial. In this regard, I can recommend the discharge of part 1 of condition 9.

Considering the sum total of information contained within the 3 no. intrusive investigations of which I am aware, it is possible that sufficient site investigation has been undertaken to date upon which an appropriate assessment can be based. I would stress however that Havant Borough Council only hold partial results from the *Mann* Report, and whilst the results of the *Soils Ltd.* report are referenced within the *OMNIA assessment*, this report has not been previously submitted for appraisal. It remains possible that further investigation will prove to be necessary, and so it is not appropriate to discharge part 2 at this time.

The remedial proposals are not considered to be adequately supported by the presented data at this stage, and so it would not be appropriate to discharge part 3.

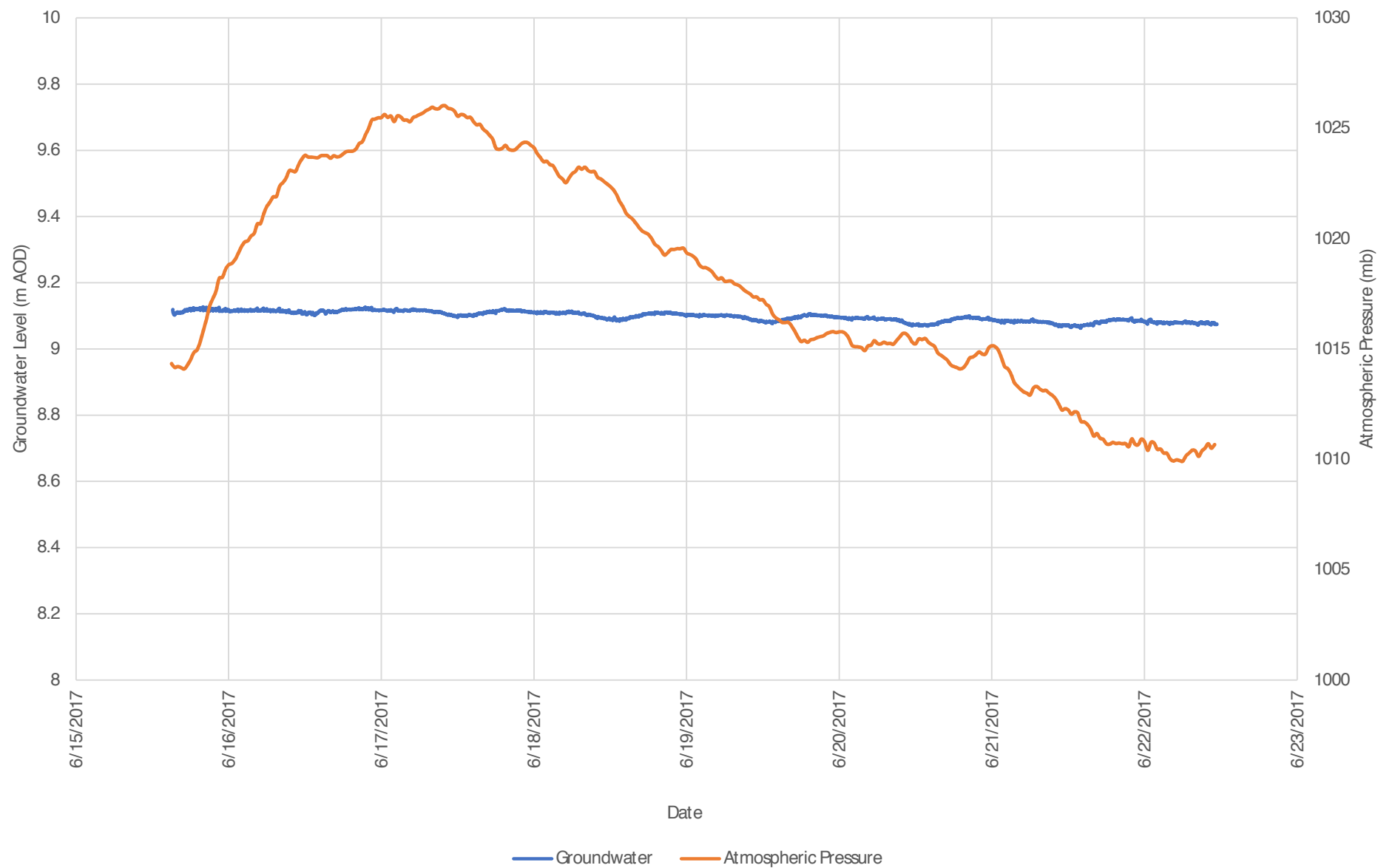
In the absence of an agreed remedial / risk mitigation scheme (and notwithstanding the lack of detailed proposals with respect to verification), it is not considered appropriate to discharge part 4 of condition 9.

I also consider that whilst there is uncertainty with respect to the need for further sampling, or monitoring of existing wells (e.g. to determine the range of groundwater surface gradient, and vertical range of groundwater movement), permitting commencement of development is not desirable. I would be open to the demolition & clearance of above ground structures to permit access, but commencement of groundworks should only follow the agreement of a remedial / risk mitigation scheme.

Mr. Jonathan Driver
Environmental Control Officer

APPENDIX VIII
LEVEL LOGGER DATA

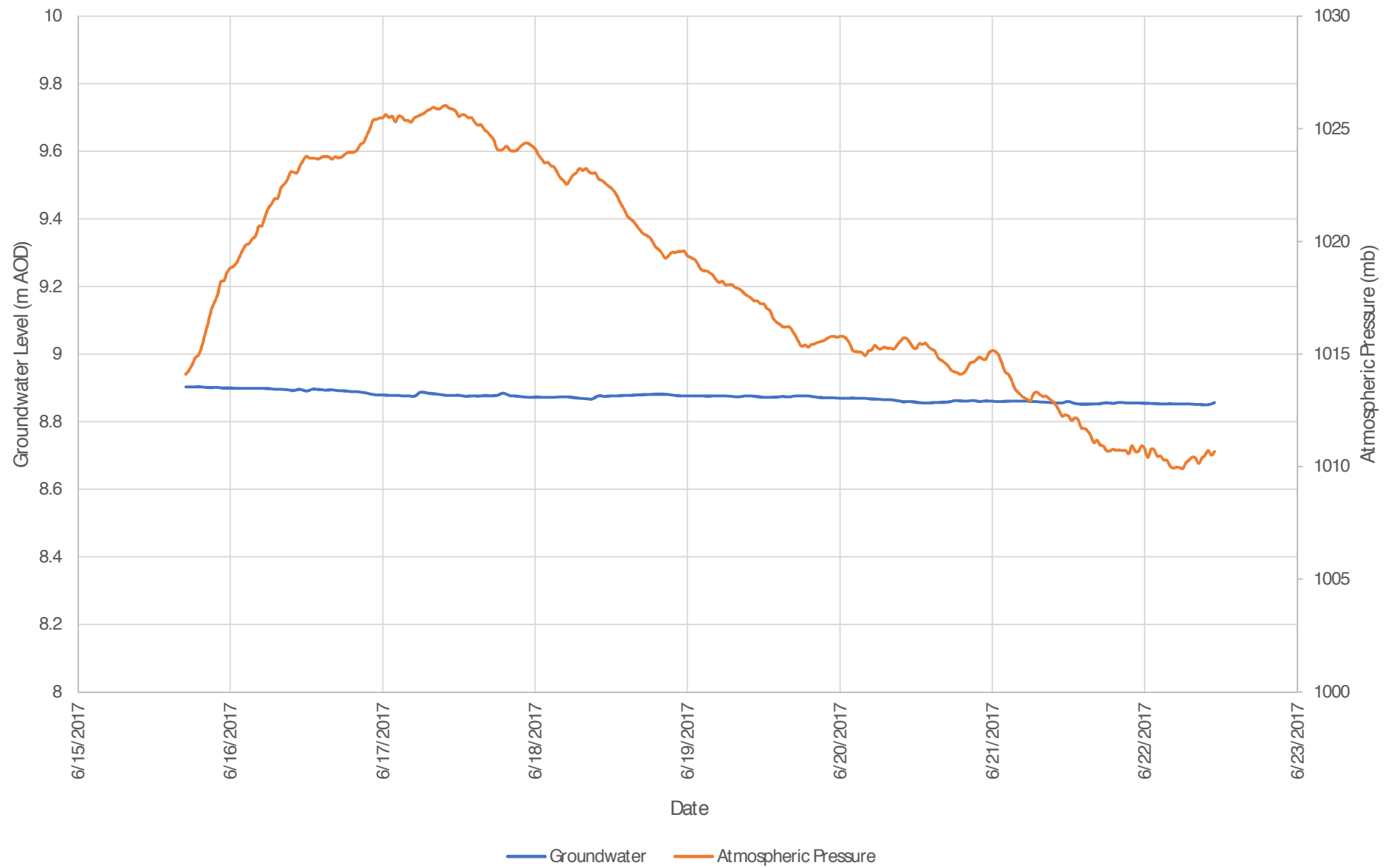
BH101 Groundwater



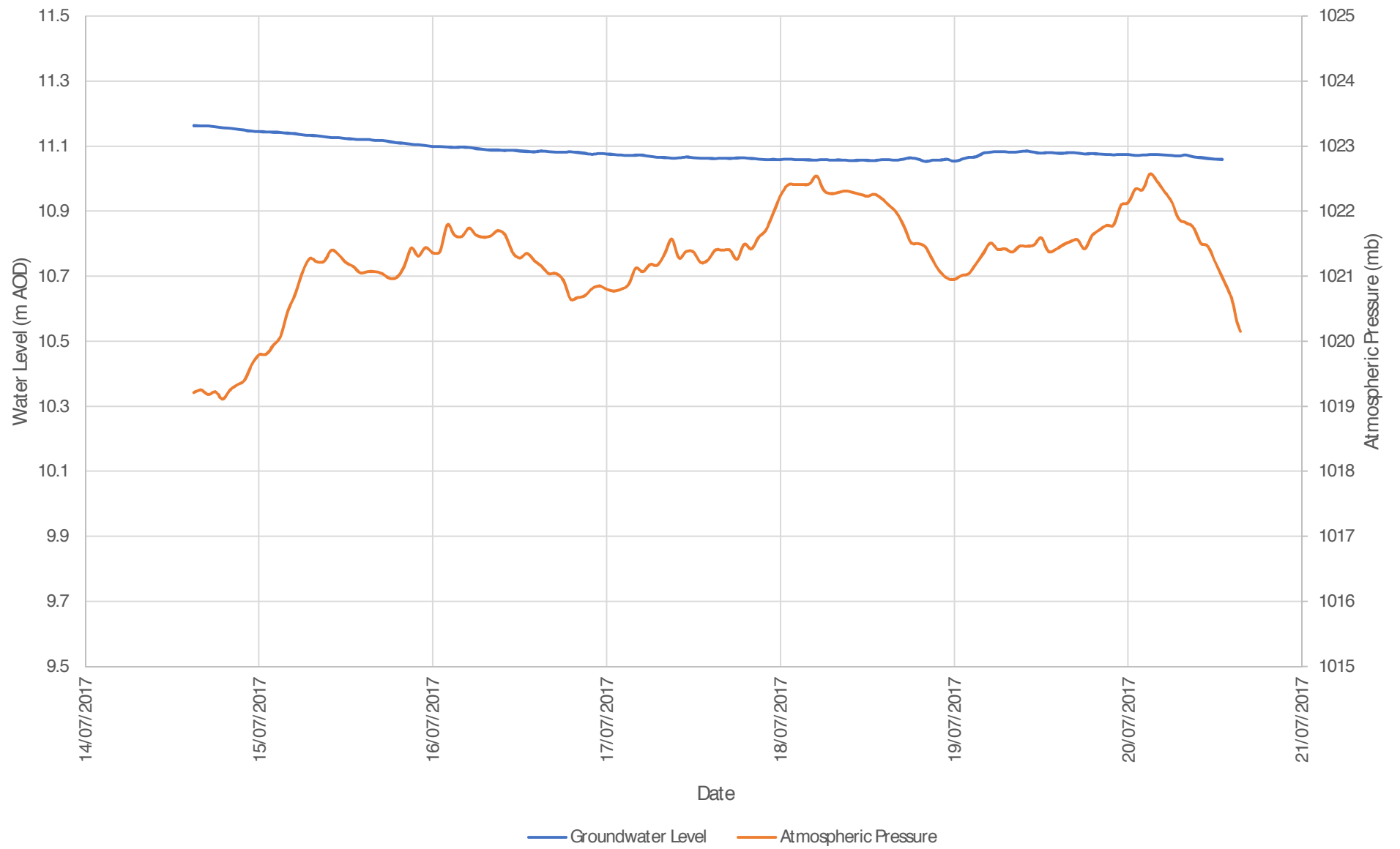
BH102A Groundwater



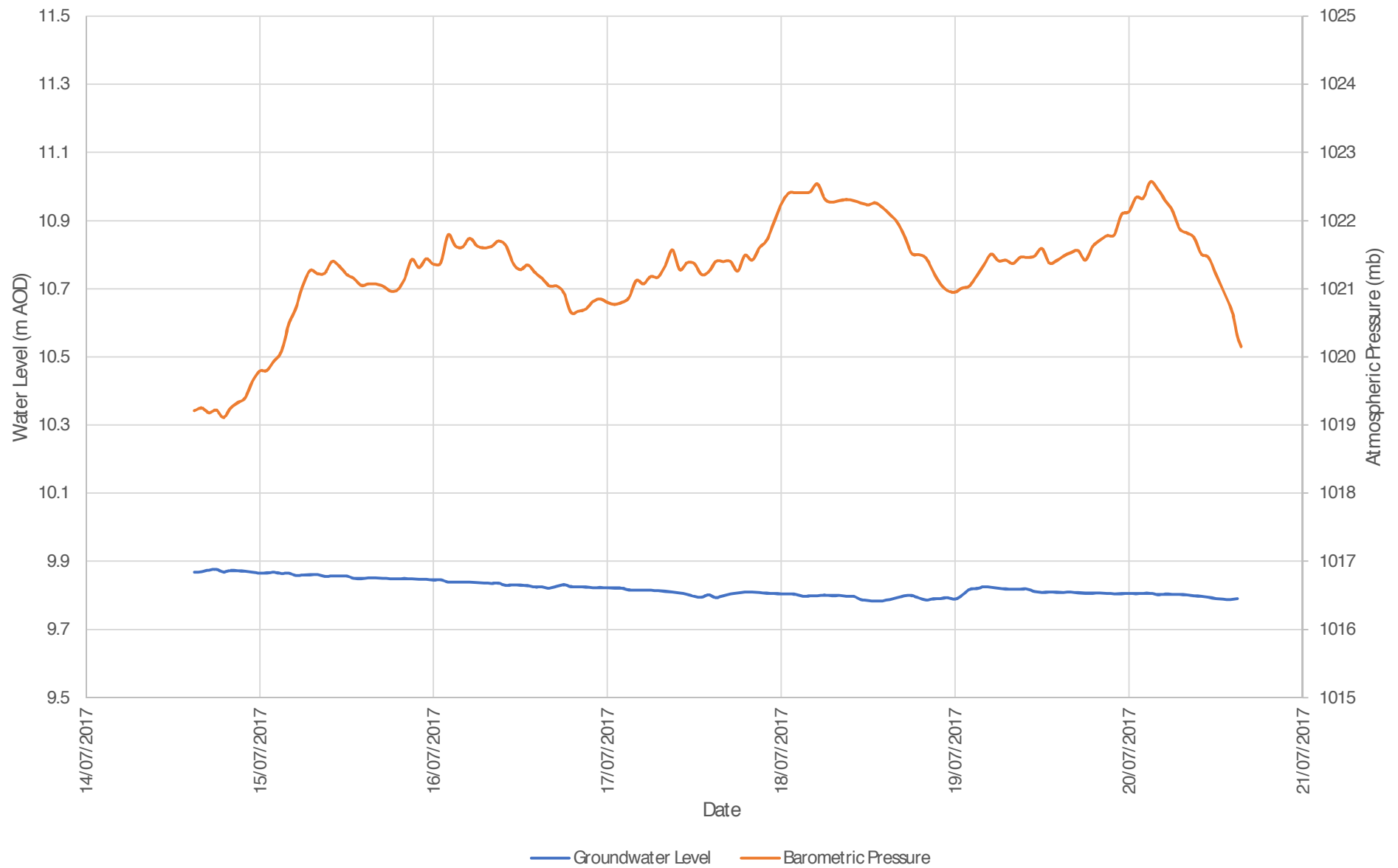
BH103 Groundwater



WS104 Perched Water



WS108 Perched Water



WS1 10 Perched Water

