

PHOTOGRAPHIC LOG

Site Location: Land at West End Nursery, Angmering

Photo No. 27	
Date: 23/04/2018	
SP3-2 stockpile sampling location.	

Photo No. 28	
Date: 23/04/2018	
View east of stockpile sampling location SP3- 3.	

PHOTOGRAPHIC LOG

Site Location: Land at West End Nursery, Angmering

Photo No.
29

Date:
23/04/2018

SP3-4
stockpile
sampling
location.





APPENDIX C

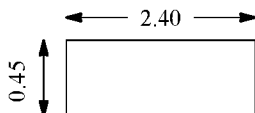
EXPLORATORY HOLE RECORDS AND STOCKPILE SAMPLE DESCRIPTIONS



FINAL TRIAL PIT LOG

Contract: Land at West End Nursery, Angmering		Client: CALA Homes (South Home Counties) Ltd		Trial Pit: TPP3-401
Contract Ref: 27621	Start: 20.04.18 End: 20.04.18	Ground Level: ---	Co-ordinates: ---	Sheet: 1 of 1

Samples and In-situ Tests				Water	Backfill	Description of Strata	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results					
0.20-0.30	1	ES				MADE GROUND: Greyish brown slightly sandy gravelly CLAY. Sand is fine to coarse. Gravel is angular to rounded fine to coarse 75 % flint, 20 % brick, 5 % concrete.	(0.35)	
0.40	2	ES				MADE GROUND: Greenish brown slightly sandy CLAY. Sand is fine. Rare black plastic bag and rootlets. Weak organic odour.	0.35	
						Orangish brown slightly sandy CLAY. Sand is fine. (RIVER TERRACE DEPOSITS)	0.50	
1.50	3	ES					(1.20)	
							1.70	
						Trial pit terminated at 1.70 m depth.		

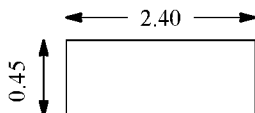
Plan (Not to Scale)		General Remarks		
		1. No fibrous or cement-based suspected ACM observed. 2. Trial pit remained dry and stable during excavation. 3. Trial pit backfilled with arisings in well-compacted layers in the approximate order of excavation.		
All dimensions in metres		Scale: 1:25		
Method Machine dug	Plant Used: Tracked excavator	Logged By: EHughes	Checked By:	



FINAL TRIAL PIT LOG

Contract: Land at West End Nursery, Angmering			Client: CALA Homes (South Home Counties) Ltd		Trial Pit: TPP3-402
Contract Ref: 27621	Start: 20.04.18 End: 20.04.18	Ground Level: ---	Co-ordinates: ---	Sheet: 1 of 1	

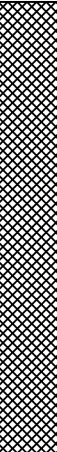
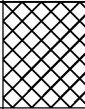
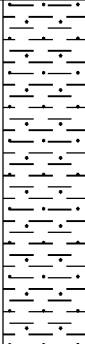
Samples and In-situ Tests				Water	Backfill	Description of Strata	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results					
0.00-0.50 0.00-0.50	1A 1B	ES ES				MADE GROUND: Greenish brown slightly sandy CLAY. Sand is fine. Occasional fragments of suspected ACM observed upto 150 mm in size. Rare glass fragments, metal pipe, black plastic bag, glass bottle, yellow fibreglass fragments and rootlets. Weak organic odour. 0.00-0.50m : Hydrocarbon odour and staining noted in northwest wall of trial pit. Impacted area approximately 0.35 m wide, 0.50 m thick.	(0.50) 0.50	
						Orangish brown slightly sandy CLAY. Sand is fine. Rare rootlets. (RIVER TERRACE DEPOSITS)	(1.20)	
1.50-1.60	2	ES					1.70	
						Trial pit terminated at 1.70 m depth.		

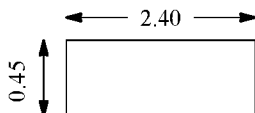
Plan (Not to Scale) 		General Remarks 1. Trial pit remained dry and stable during excavation. 2. Trial pit backfilled with arisings in well-compacted layers in the approximate order of excavation. 3. Hydrocarbon impact assessed in a previous phase of works (Plot 325 hotspot).			
		All dimensions in metres		Scale:	1:25
Method Machine dug	Plant Used: Tracked excavator	Logged By: EHughes	Checked By:		



FINAL TRIAL PIT LOG

Contract: Land at West End Nursery, Angmering		Client: CALA Homes (South Home Counties) Ltd		Trial Pit: TPP3-403
Contract Ref: 27621	Start: 20.04.18 End: 20.04.18	Ground Level: ---	Co-ordinates: ---	Sheet: 1 of 1

Samples and In-situ Tests				Water	Backfill	Description of Strata	Depth (Thickness)	Material Graphic Legend		
Depth	No	Type	Results							
0.00-0.35	1	ES				MADE GROUND: Greenish brown mottled dark grey slightly sandy gravelly CLAY. Sand is fine. Gravel is angular to rounded fine to medium 66 % flint and 33 % brick. Hydrocarbon odour noted. Occasional suspected fibrous ACM observed.	(0.35)			
0.00-0.35	2	ES						Orangish brown sandy CLAY. Sand is fine. Occasional roots and rootlets. (RIVER TERRACE DEPOSITS)	0.35	
0.00-0.35	3A	ES							(1.15)	
0.00-0.35	3B	ES								
1.30-1.50	4	ES					1.50			
						Trial pit terminated at 1.50 m depth.				

Plan (Not to Scale)		General Remarks		
		1. Suspected fibrous ACM identified by Economic Insulations and RSK. 2. Arisings impacted by suspected fibrous ACM left mounded adjacent to pit, as excavated. Soil mound covered by impermeable black membrane to prevent wind transport of potential asbestos fibres. 3. Trial pit remained dry and stable during excavation. 4. Trial pit backfilled with remaining arisings in well-compacted layers in approximate order of excavation. 5. Hydrocarbon impact assessed in a previous phase of works (Plot 325 hotspot).		
		All dimensions in metres	Scale:	1:25
Method Used:	Plant Used:	Logged By:	Checked By:	
Machine dug	Tracked excavator	EHughes		



FINAL TRIAL PIT LOG

Contract: Land at West End Nursery, Angmering		Client: CALA Homes (South Home Counties) Ltd		Trial Pit: TPP3-404
Contract Ref: 27621	Start: 20.04.18 End: 20.04.18	Ground Level: ---	Co-ordinates: ---	Sheet: 1 of 1

Samples and In-situ Tests				Water	Backfill	Description of Strata	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results					
0.00-0.35	1	ES				MADE GROUND: Greenish brown mottled dark greyish brown sandy gravelly CLAY. Sand is fine to medium. Gravel is angular to rounded fine to coarse 75 % flint and 25 % brick. Occasional roots and rootlets. Rare rope and organic remains. Weak organic odour.	(0.35)	
0.50-0.70	2	ES				Orangish brown sandy CLAY. Sand is fine. (RIVER TERRACE DEPOSITS)	(1.25)	
						Trial pit terminated at 1.60 m depth.	1.60	

Plan (Not to Scale)		General Remarks		
		1. No fibrous or cement-bound suspected ACM observed. 2. Trial pit remained dry and stable during excavation. 3. Trial pit backfilled with arisings in well-compacted layers in the approximate order of excavation.		
All dimensions in metres		Scale: 1:25		
Method Used: Machine dug	Plant Used: Tracked excavator	Logged By: EHughes	Checked By:	

Contract: Land at West End Nursery, Angmering		Client: CALA Homes (South Home Counties) Ltd		Trial Pit: TPP3-405
Contract Ref: 27621	Start: 20.04.18 End: 20.04.18	Ground Level: ---	Co-ordinates: ---	Sheet: 1 of 1

Samples and In-situ Tests				Water	Backfill	Description of Strata	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results					
0.00-0.20	1	ES				MADE GROUND: Dark yellowish brown mottled dark grey sandy gravelly CLAY. Sand is fine to coarse. Gravel is angular to rounded fine to medium 75 % flint and 25 % brick.	0.20	
0.40-0.60	2	ES				MADE GROUND: Orangish brown occasionally mottled brownish grey slightly sandy CLAY. Sand is fine.	(0.50)	
1.10-1.40	3	ES				MADE GROUND: Greenish brown slightly sandy slightly gravelly CLAY. Sand is fine. Gravel is angular to rounded fine to coarse flint and rare brick. Abundant black plastic sheeting, frequent plastic wrap pieces, metal wire, occasional concrete pipe, rare terracotta tile, large animal bone and rootlets. Suspected ACM upto 115 mm in size identified in arisings throughout the stratum.	0.70	
1.80-2.10	4	ES					(2.00)	
2.90-3.10	5	ES				Orangish brown gravelly very sandy CLAY. Sand is fine to medium. Gravel is angular to subrounded fine to coarse 90 % flint and 10 % chalk. Occasional pockets of soft light grey clay.	2.70	
							(0.45)	
						Structureless CHALK composed of firm light yellowish brown and yellowish white sandy slightly gravelly SILT with a low cobble content. Sand is fine to coarse chalk. Gravel is subangular fine to coarse weak medium density chalk. Cobbles are subangular chalk upto 80 mm. (Grade Dm). (LEWES NODULAR CHALK FORMATION)	3.15	
						Trial pit terminated at 3.25 m depth.	3.25	

Plan (Not to Scale)		General Remarks		
		1. Trial pit remained dry during excavation. 2. Due to the proportion of anthropogenic materials encountered between 0.7m - 2.7m made ground stratum was very unstable. 3. Natural soils encountered from 2.70 m were stable. 4. Trial pit backfilled with arisings in semi-compacted layers in approximate order of excavation.		
All dimensions in metres		Scale: 1:25		
Method Used: Machine dug	Plant Used: Tracked excavator	Logged By: EHughes	Checked By:	



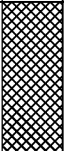
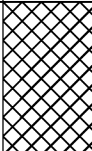
Samples and In-situ Tests				Water	Backfill	Description of Strata	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results					
0.10	1	ES				MADE GROUND: Brown dark brown and dark grey sandy very gravelly CLAY. Sand is fine to coarse. Gravel is angular to rounded fine to coarse 60% flint, 30% brick, 7% concrete and 3% glass.	(0.50)	
						Hand-excavated trial pit terminated at 0.50 m depth.	0.50	

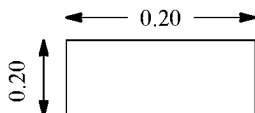
ARUN DISTRICT COUNCIL A/155/21/DOC



DRAFT HAND PIT LOG

Contract: Land at West End Nursery, Angmering		Client: CALA Homes (South Home Counties) Ltd		Trial Pit: TPP3-407
Contract Ref: 27621	Start: 24.04.18 End: 24.04.18	Ground Level: ---	Co-ordinates: ---	Sheet: 1 of 1

Samples and In-situ Tests				Water	Backfill	Description of Strata	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results					
0.20	1	ES				MADE GROUND: Brown dark brown and dark grey sandy very gravelly CLAY. Sand is fine to coarse. Gravel is angular to rounded fine to coarse 60% flint, 30% brick, 7% concrete and 3% glass.	(0.50)	
						Hand-excavated trial pit terminated at 0.50 m depth.	0.50	

Plan (Not to Scale) 		General Remarks		
		1. No fibrous or cement-bound suspected ACM observed. 2. Trial pit remained dry and stable during excavation. 3. Hand pit backfilled with arisings upon completion.		
Method Hand dug		Plant Used: Hand tools	Logged By: EHughes	Checked By: EHughes
All dimensions in metres		Scale: 1:25		
Method Hand dug		Plant Used: Hand tools	Logged By: EHughes	Checked By: EHughes



STOCKPILE SAMPLE DESCRIPTIONS

Logged By: Ed Hughes-Phillips

Logged Date: 23.4.2018

Top Depth (m)	Base Depth (m)	Sample Ref	Sample Type	Sample Description
0.0	0.17	SP3-1	ENV	MADE GROUND: Greenish brown mottled dark grey and orangish brown sandy gravelly CLAY. Sand is fine to coarse. Gravel is angular to rounded fine to coarse 70 % flint, 25 % brick, 5 % glass fragments. Occasional organic remains.
0.05	0.10	SP3-2	ENV	MADE GROUND: Brown slightly gravelly sandy CLAY. Sand is fine to coarse. Gravel is angular to rounded fine to coarse 85 % flint, 10 % brick and 5 % glass fragments. Single fragment of suspected cement ACM observed, 30 mm in size.
0.0	0.18	SP3-3	ENV	MADE GROUND: Dark grey mottled dark reddish brown and dark greenish brown slightly sandy very gravelly CLAY. Sand is fine to coarse. Gravel is angular to rounded fine to coarse 66 % flint, 30 % brick and 4 % glass fragments.
0.0	0.25	SP3-4	ENV	MADE GROUND: Dark grey mottled dark reddish brown, dark greenish brown and rarely light brown slightly sandy very gravelly CLAY. Sand is fine to coarse, Gravel is angular to rounded fine to coarse 66 % flint, 30 % brick and 4 % glass fragments.



Compiled By	Date	Checked By	Date
Ed Hughes-Phillips	23.4.18	Cathy Cussell	2.5.18
Contract: Former West End Nursery Angmering		Contract Ref: 27621	
		Page: 1 of 1	



APPENDIX D

LABORATORY RESULTS

FINAL ANALYTICAL TEST REPORT

SUPPLEMENT TO TEST REPORT 18/03138/1

Envirolab Job Number: 18/03138
Issue Number: 2
Date: 02 May, 2018

Client: RSK Environment Ltd Southampton
Unit 26
Basepoint Abbey Enterprise Centre
Premier Way
Romsey,
Hampshire
UK
SO51 9AQ

Project Manager: Catherine Cussell; All RSK Southampton/Ed Hughes;
Project Name: Angmering
Project Ref: 27621
Order No: N/A
Date Samples Received: 24/04/18
Date Instructions Received: 25/04/18
Date Analysis Completed: 02/05/18

Prepared by:

Approved by:



Laboratory Coordinator

Client Manager

Envirolab Job Number: 18/03138

Client Project Name: Angmering

Client Project Ref: 27621

Lab Sample ID	18/03138/1	18/03138/4	18/03138/8	18/03138/9	18/03138/10	18/03138/12	18/03138/16	18/03138/20	Units	Method ref
Client Sample No	1	1B	2	3A	3b	1	3	1		
Client Sample ID	TPP3-401	TPP3-402	TPP3-403	TPP3-403	TPP3-403	TPP3-404	TPP3-405	TPP3-406		
Depth to Top	0.20	0.00	0.00	0.00	0.00	0.00	1.10	0.10		
Depth To Bottom	0.30	0.50	0.35	0.35	0.35	0.35	1.40			
Date Sampled	20-Apr-18	20-Apr-18	20-Apr-18	20-Apr-18	20-Apr-18	20-Apr-18	20-Apr-18	24-Apr-18		
Sample Type	Soil - D	Soil - D	Soil - D	Solid - Fragment / Tile	Soil - D	Soil - D	Soil - D	Soil - D		
Sample Matrix Code	6A	6	6	8	6	6	6E	5A		
Asbestos in Soil (inc. matrix)										
Asbestos in soil _A [#]	NAD	NAD	Amosite	-	NAD	NAD	Amosite	NAD		A-T-045
Asbestos Matrix (visual) _A	-	-	Loose Insulation	-	-	-	-	-		A-T-045
Asbestos Matrix (microscope) _A	-	-	-	-	-	-	Loose fibres	-		A-T-045
Asbestos ACM - Suitable for Water Absorption Test?	N/A	N/A	N/A	-	N/A	N/A	N/A	N/A		
Asbestos in Soil Quantification % (Hand Picking & Weighing)										
Asbestos in soil % composition (hand picking and weighing) _D	-	-	2.292	-	-	-	0.002	-	% w/w	A-T-054
Bulk Fibre ID (inc. matrix)										
Bulk Fibre Identification _A [#]	-	-	-	NAD	-	-	-	-		A-T-045
Bulk Fibre Identification - Suitable for Water Absorption Test? _D	-	-	-	N/A	-	-	-	-		Gravimetry

Envirolab Job Number: 18/03138

Client Project Name: Angmering

Client Project Ref: 27621

Lab Sample ID	18/03138/21								Units	Method ref
Client Sample No	1									
Client Sample ID	TPP3-407									
Depth to Top	0.20									
Depth To Bottom										
Date Sampled	24-Apr-18									
Sample Type	Soil - D									
Sample Matrix Code	5A									
Asbestos in Soil (inc. matrix)										
Asbestos in soil [#]	NAD									A-T-045
Asbestos ACM - Suitable for Water Absorption Test?	N/A									

REPORT NOTES

General:

This report shall not be reproduced, except in full, without written approval from Envirolab.

All samples contained within this report, and any received with the same delivery, will be disposed of one month after the date of this report.

Analytical results reflect the quality of the sample at the time of analysis only.

Opinions and interpretations expressed are outside the scope of our accreditation.

If results are in italic font they are associated with an AQC failure and there is insufficient sample to repeat the analysis. These are not accredited and are unreliable.

A deviating samples report is appended and will indicate if samples or tests have been found to be deviating. Any test results affected may not be an accurate record of the concentration at the time of sampling and, as a result, may be invalid.

Soil chemical analysis:

All results are reported as dry weight (<40°C).

For samples with Matrix Codes 1 - 6 natural stones, brick and concrete fragments >10mm and any extraneous material (visible glass, metal or twigs) are removed and excluded from the sample prior to analysis and reported results corrected to a whole sample basis. This is reported as '% stones >10mm'.

For samples with Matrix Code 7 the whole sample is dried and crushed prior to analysis and this supersedes any "A" subscripts

All analysis is performed on the sample as received for soil samples which are positive for asbestos or the client has informed asbestos may be present and/or if they are from outside the European Union and this supersedes any "D" subscripts.

TPH analysis of water by method A-T-007:

Free and visible oils are excluded from the sample used for analysis so that the reported result represents the dissolved phase only.

Electrical Conductivity of water by Method A-T-037:

Results greater than 12900µS/cm @ 25°C / 11550µS/cm @ 20°C fall outside the calibration range and as such are unaccredited.

Asbestos:

Asbestos in soil analysis is performed on a dried aliquot of the submitted sample and cannot guarantee to identify asbestos if only present in small numbers as discrete fibres/fragments in the original sample.

Stones etc. are not removed from the sample prior to analysis.

Quantification of asbestos is a 3 stage process including visual identification, hand picking and weighing and fibre counting by sedimentation/phase contrast optical microscopy if required. If asbestos is identified as being present but is not in a form that is suitable for analysis by hand picking and weighing (normally if the asbestos is present as free fibres) quantification by sedimentation is performed. Where ACMs are found a percentage asbestos is assigned to each with reference to 'HSG264, Asbestos: The survey guide' and the calculated asbestos content is expressed as a percentage of the dried soil sample aliquot used.

Predominant Matrix Codes:

1 = SAND, 2 = LOAM, 3 = CLAY, 4 = LOAM/SAND, 5 = SAND/CLAY, 6 = CLAY/LOAM, 7 = OTHER, 8 = Asbestos bulk ID sample.

Samples with Matrix Code 7 & 8 are not predominantly a SAND/LOAM/CLAY mix and are not covered by our BSEN 17025 or MCERTS accreditations, with the exception of bulk asbestos which are BSEN 17025 accredited.

Secondary Matrix Codes:

A = contains stones, B = contains construction rubble, C = contains visible hydrocarbons, D = contains glass/metal,

E = contains roots/twigs.

Key:

IS indicates Insufficient Sample for analysis.

US indicates Unsuitable Sample for analysis.

NDP indicates No Determination Possible.

NAD indicates No Asbestos Detected.

N/A indicates Not Applicable.

Superscript # indicates method accredited to ISO 17025.

Superscript "M" indicates method accredited to MCERTS.

Subscript "A" indicates analysis performed on the sample as received.

Subscript "D" indicates analysis performed on the dried sample, crushed to pass a 2mm sieve

Please contact us if you need any further information.

Envirolab Deviating Samples Report

Units 7&8 Sandpits Business Park, Mottram Road, Hyde, SK14 3AR

Client: RSK Environment Ltd Southampton, Unit 26 , Basepoint Abbey Enterprise
Centre, Premier Way, Romsey,, Hampshire, UK, SO51 9AQ

Project No: 18/03138

Date Instructions Received: 25/04/2018 (am)

Project: Angmering

Cool Box Temperatures (°C): 12.9, 16.2

Clients Project No: 27621

NO DEVIATIONS IDENTIFIED

If, at any point before reaching the laboratory, the temperature of the samples has breached those set in published standards, e.g. BS-EN 5667-3, ISO 18400-102:2017, then the concentration of any affected analytes may differ from that at the time of sampling.

FINAL ANALYTICAL TEST REPORT

SUPPLEMENT TO TEST REPORT 18/03087/1

Envirolab Job Number: 18/03087
Issue Number: 2
Date: 09 May, 2018

Client: RSK Environment Ltd Southampton
Unit 26
Basepoint Abbey Enterprise Centre
Premier Way
Romsey,
Hampshire
UK
SO51 9AQ

Project Manager: Catherine Cussell; All RSK Southampton
Project Name: Angmering
Project Ref: 27621
Order No: N/A
Date Samples Received: 24/04/18
Date Instructions Received: 24/04/18
Date Analysis Completed: 08/05/18

Prepared by:

Approved by:

Melanie Marshall
Laboratory Coordinator

Danielle Brierley
Client Manager

Envirolab Job Number: 18/03087

Client Project Name: Angmering

Client Project Ref: 27621

Lab Sample ID	18/03087/1	18/03087/2	18/03087/3	18/03087/4					Units	Method ref
Client Sample No										
Client Sample ID	SP3-1	SP3-2	SP3-3	SP3-4						
Depth to Top	0.10	0.05	0.15	0.25						
Depth To Bottom	0.17	0.10	0.18							
Date Sampled	23-Apr-18	23-Apr-18	23-Apr-18	23-Apr-18						
Sample Type	Soil	Soil	Soil	Soil						
Sample Matrix Code	6A	6A	6A	6A						
Asbestos in Soil (inc. matrix)										
Asbestos in soil [#]	NAD	NAD	NAD	NAD						A-T-045
Asbestos ACM - Suitable for Water Absorption Test?	N/A	N/A	N/A	N/A						

REPORT NOTES

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Soil chemical analysis:

All results are reported as dry weight (<40°C).

For samples with Matrix Codes 1 - 6 natural stones, brick and concrete fragments >10mm and any extraneous material (visible glass, metal or twigs) are removed and excluded from the sample prior to analysis and reported results corrected to a whole sample basis. This is reported as '% stones >10mm'.

For samples with Matrix Code 7 the whole sample is dried and crushed prior to analysis and this supersedes any "A" subscripts

All analysis is performed on the sample as received for soil samples which are positive for asbestos or the client has informed asbestos may be present and/or if they are from outside the European Union and this supersedes any "D" subscripts.

TPH analysis of water by method A-T-007:

Free and visible oils are excluded from the sample used for analysis so that the reported result represents the dissolved phase only.

Electrical Conductivity of water by Method A-T-037:

Results greater than 12900µS/cm @ 25°C / 11550µS/cm @ 20°C fall outside the calibration range and as such are unaccredited.

Asbestos:

Asbestos in soil analysis is performed on a dried aliquot of the submitted sample and cannot guarantee to identify asbestos if only present in small numbers as discrete fibres/fragments in the original sample.

Stones etc. are not removed from the sample prior to analysis.

Quantification of asbestos is a 3 stage process including visual identification, hand picking and weighing and fibre counting by sedimentation/phase contrast optical microscopy if required. If asbestos is identified as being present but is not in a form that is suitable for analysis by hand picking and weighing (normally if the asbestos is present as free fibres) quantification by sedimentation is performed. Where ACMs are found a percentage asbestos is assigned to each with reference to 'HSG264, Asbestos: The survey guide' and the calculated asbestos content is expressed as a percentage of the dried soil sample aliquot used.

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Samples with Matrix Code 7 & 8 are not predominantly a SAND/LOAM/CLAY mix and are not covered by our BSEN 17025 or MCERTS accreditations, with the exception of bulk asbestos which are BSEN 17025 accredited.

Secondary Matrix Codes:

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Key:

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NAD indicates No Asbestos Detected.

N/A indicates Not Applicable.

Superscript # indicates method accredited to ISO 17025.

Superscript "M" indicates method accredited to MCERTS.

Subscript "A" indicates analysis performed on the sample as received.

Subscript "D" indicates analysis performed on the dried sample, crushed to pass a 2mm sieve

Please contact us if you need any further information.

Envirolab Deviating Samples Report

Units 789, Conduits Business Park, Melton Road, Huddersfield, West Yorkshire, UK, G64 4AP

Client: RSK Environment Ltd Southampton, Unit 26 , Basepoint Abbey Enterprise Centre, Premier Way, Romsey,, Hampshire, UK, SO51 9AQ

Project No: 18/03087

Date Instructions Received: 24/04/2018 (am)

Project: Angmering

Cool Box Temperatures (°C): 12.6

Clients Project No: 27621

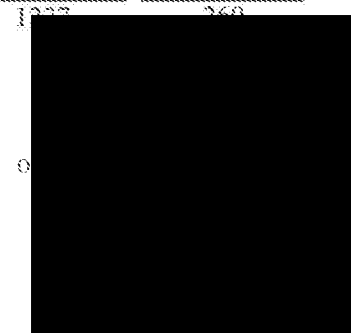
NO DEVIATIONS IDENTIFIED

If, at any point before reaching the laboratory, the temperature of the samples has breached those set in published standards, e.g. BS-EN 5667-3, ISO 18400-102:2017, then the concentration of any affected analytes may differ from that at the time of sampling.



Our Ref: J142019 FL: 7
Your Ref: 609/19307
Date: 30/04/2018

ENVIROCHEM
Analytical Laboratories Ltd.
12 The Gardens
Broadcut, Fareham
Hampshire
PO16 8SS



DEMOLITION ASBESTOS SURVEY
OF
WEST END NURSERY,
ROUNDSTONE LANE,
ANGMERING,
LITTLEHAMPTON
BN16 4AX
ON BEHALF OF
BLAZE CONSTRUCTION



DISCLAIMER

Envirochem completed this survey on the basis of a specified program of work and terms and conditions agreed with the Client. All reasonable skill and care, bearing in mind the project objectives and the agreed scope of work, have been exercised during the preparation of this survey report.

Following the issue of this survey report, responsibility to any parties for any matters arising, which may be considered outside of the agreed scope of work, will not be accepted by Envirochem.

This survey report is confidential. Envirochem will accept liability to no parties with the exception of the Client. Without the written agreement of Envirochem, no one with the exception of the Client, may rely upon or have the benefit of this survey report.

Envirochem asserts and retains all copyright, and other intellectual property rights, in and over the survey report and its contents unless these rights were specifically assigned or transferred within the terms of the agreement.

Any questions or matters arising from this survey report should be addressed to Envirochem.



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	Name	Signature	Date
Report Authorised By	Paul Gould (Lead Surveyor)		12/11/2018



SECTION 1 - Executive Summary

This report is based on the findings of a demolition asbestos survey (as defined by Health and Safety Executive (HSE) Guidance Note HSG264: Asbestos: The Survey Guide) carried out by Envirochem at West End Nursery, Roundstone Lane, Angmering, Littlehampton, BN16 4AX. The purpose of the survey was to determine the location, extent and product type of all reasonably accessible asbestos containing materials (ACM's) within the building.

Scope of work

Demolition Survey with limited access to specified areas only of a single story occupied projects office block

Asbestos identified

SAMPLE NUMBER	SAMPLE DESCRIPTION	PRODUCT TYPE
No asbestos containing materials were identified in this survey.		



Areas of no access

The following areas were not accessed at the time of the survey:

AREA	REASON FOR NON-ACCESS
West End Nursery, Angmering, Littlethampton Ground Floor. G.01 Induction Office	Limited access into all areas, building occupied during the survey
West End Nursery, Angmering, Littlethampton Ground Floor. G.02 Meeting Room	Limited access into all areas, building occupied during the survey.
West End Nursery, Angmering, Littlethampton Ground Floor. G.03 Showroom	Limited access into all areas, building occupied during the survey.
West End Nursery, Angmering, Littlethampton Ground Floor. G.04 Store Cupboard	Limited access into all areas, building occupied during the survey.
West End Nursery, Angmering, Littlethampton Ground Floor. G.05 2 X office	Limited access into all areas, building occupied during the survey.
West End Nursery, Angmering, Littlethampton Ground Floor. G.06 Office Kitchen	Limited access into all areas, building occupied during the survey.

Until the above locations are accessed, as stated within HSE Guidance Note HSG 264, it should be presumed that these areas contain ACMs.

Asbestos containing materials and actions required

SAMPLE NUMBER	SAMPLE DESCRIPTION	PRODUCT TYPE	ACTION REQUIRED
No asbestos containing materials were identified within this survey			

The purpose of this survey is to identify the asbestos containing materials that are present, with the assumption that during demolition, all ACM's discovered are to be removed.



SECTION 2 – Introduction

Envirochem Analytical Laboratories Ltd is a well established, independent organisation. We are United Kingdom Accreditation Service (UKAS) accredited as a testing laboratory (Number: 1227) and as an inspection body (Number: 260). This accreditation covers fibre identification of asbestos bulk samples, air monitoring for asbestos and asbestos building surveys. All asbestos lead surveyors hold, as a minimum qualification, the British Occupational Hygiene Society (BOHS) proficiency certificate in Building surveys and bulk sampling for asbestos (P402). Likewise, those employed in the other fields mentioned hold, as a minimum qualification, the relevant BOHS proficiency certificate.

We also have expertise and experience in setting up and monitoring asbestos management plans.

This report is based on the findings of a demolition (as defined by Health and Safety Executive (HSE) Guidance Note HSG264: Asbestos: The Survey Guide) survey carried out by Envirochem at West End Nursery, Roundstone Lane, Angmering, Littlehampton, BN16 4AX.

The survey was carried out on the 25th April 2018 by Paul Gould, Stefan Kitchener on behalf of Envirochem Analytical Laboratories Ltd, 12 The Gardens, Fareham, Hampshire, PO16 8SS, as instructed by Paul Broderick of Blaze Construction, 93 Leigh Rd, Eastleigh, SO50 9DQ.

The purpose of the survey was to determine the location, extent and product type of all asbestos containing materials (ACM's) within the areas covered by this survey report. This information should form part of the Health and Safety plan for any proposed demolition work, as required by the CDM Regulations and/or the Control of Asbestos Regulations 2012.

For further information with respect to the survey report or to arrange asbestos removal work or to arrange a free consultation at our premises please contact Mr Matthew Hurst or Mr Stuart White on 01329 287777.

The location and description, as far as was reasonably possible, of all suspected ACM's within all areas of the building were recorded. ACM's have not been disturbed or removed during the course of this survey. There is the possibility for additional ACM's to be present behind those identified, which may only be discovered during subsequent asbestos removal work.

Samples of each different type of suspected ACM were collected in accordance with HSE Guidance Note HSG264 for laboratory analysis. The samples were then analysed in accordance with HSE Guidance Note HSG248 to identify, which suspected ACM's, actually contained asbestos.

For sampled suspected ACM's, similar homogenous materials used in the same way throughout the building have not been sampled. In this instance the referenced suspected ACM can be strongly presumed to have the same make up as the sampled suspected ACM. Where a suspected ACM cannot be sampled but visually identified only there will be a presumption as to the make up of the material.

The survey is designed to be used as a basis for costing the removal of ACM's from the building prior to demolition. Any person or people using the report in this way must satisfy themselves as to the extent of the ACM's within the designated area and thereby ensure that their tender is sufficient in every respect to remove all the ACM's within these areas, including the possibility of any that may be hidden behind identified, strongly presumed or presumed ACM's.

Due to the situation in which the survey is required the condition of the asbestos is not assessed and an asbestos material assessment is not created, instead a list of asbestos containing materials is developed. It should be noted that even when there are no ACM's identified in any particular area this is not a guarantee that ACM's are not present in this area. For instance ACM's may be located within the structure of the building and not identified until demolition of the building. Due caution must always be taken when dealing with building materials and suspected ACM's must be reported and left undisturbed until further investigation proves it safe to proceed.



Each sample has been inspected by the surveyor with a visual assessment of the product type being made. In accordance with the CAR 2012, if a conclusive answer is required for purposes of asbestos removal whether a product is either an insulation board or a cement product type, then a separate water absorption test must be performed at the request of the client.

SECTION 3 - Initial Observations

A demolition asbestos survey was carried out at West End Nursery, Roundstone Lane, Angmering, Littlehampton, BN16 4AX. Demolition Survey with limited access to specified areas only of a single story occupied projects office block

Externally the building is constructed of Brick walls, wood and UPVC soffit and fascia boards, wood window frames, modern bitumen felt to flat roof, plastic rain water goods. .





SECTION 4 - Areas of No Access

During the course of this survey no ACM's have been disturbed or removed. There is the possibility that additional ACM's may be present behind those identified. These additional ACM's would only become evident during any subsequent asbestos removal work.

Specific Areas of No Access

AREA	REASON FOR NON-ACCESS
West End Nursery, Angmering, Littlethampton Ground Floor. G.01 Induction Office	Limited access into all areas, building occupied during the survey
West End Nursery, Angmering, Littlethampton Ground Floor. G.02 Meeting Room	Limited access into all areas, building occupied during the survey.
West End Nursery, Angmering, Littlethampton Ground Floor. G.03 Showroom	Limited access into all areas, building occupied during the survey.
West End Nursery, Angmering, Littlethampton Ground Floor. G.04 Store Cupboard	Limited access into all areas, building occupied during the survey.
West End Nursery, Angmering, Littlethampton Ground Floor. G.05 2 X office	Limited access into all areas, building occupied during the survey.
West End Nursery, Angmering, Littlethampton Ground Floor. G.06 Office Kitchen	Limited access into all areas, building occupied during the survey.

As stated within HSE Guidance Note HSG264 areas where access cannot be gained must be presumed to contain ACM's until evidence can prove otherwise. All areas listed above should be revisited prior to further works.

SECTION 5 - Method Statement

Sampling of Suspected Asbestos Containing Materials (ACM's)

Samples of each different type of suspected ACM were collected in accordance with HSE Guidance Note HSG264 for laboratory analysis.

- The surveyor(s) visited each area to identify the position and number of samples. Also they assessed the health and safety requirements both for the occupiers of the adjacent areas as well as the surveyors.
- During sampling, the surveyors wore the personal protective equipment as appropriate to the risk assessment. In critical areas, warning signs were posted to restrict access during sampling.
- Sampling locations were damped down to reduce the risk of fibre release and samples were collected with shadow vacuuming where necessary. Upon completion of the sampling any debris created was cleaned by either H-type vacuums or wet wiping.
- The sample was placed in a labelled plastic bag, sealed and then placed in a second bag. Where required the sampling position was made good to minimise fibre release and labelled.
- Details of the samples location, product type, extent were recorded to enable a list of asbestos containing materials to be prepared.

Fibre Identification of Suspected Asbestos Containing Materials (ACM's)

Each sampled suspected ACM was analysed in the laboratory in accordance with HSE Guidance Note HSG248. This analysis involved stereo microscopy and polarised light microscopy in association with dispersion staining techniques.

Using polarised light microscopy very fine asbestos fibres such as those present in some textured coatings may not always be identifiable.

SECTION 6 - Asbestos Removal and Disposal

Under the Control of Asbestos Regulations 2012, there are three categories of asbestos removal; licensed, non notifiable and notifiable non-licensed work. For licensed work, generally involving asbestos insulation, insulation board and coatings, only a HSE licensed asbestos removal specialist can carry out this work. This work would generally take place inside an enclosure incorporating a three-stage airlock and kept under negative pressure.

Licensable work can only occur once a 14-day period has passed since the HSE received notification from the HSE licensed asbestos removal specialist of the forthcoming asbestos work.

The other two categories, non notifiable and notifiable non-licensed work, trained operatives with the correct equipment should be used as a minimum, Envirochem would always recommend using a licensed contractor for this work. For the purpose of this survey report, all work that would fall into these two categories have been classified as, removal (non-licensed). If these materials are to be removed, a risk assessment should be carried out by the removal operatives on the condition of the material at the time of pre removal and the expected fibre levels from similar work to allow the material to be categorised as non notifiable or notifiable non-licensed work. If the material is classified as notifiable non-licensed work, the local authority should be informed of the removal works prior to it commencing.

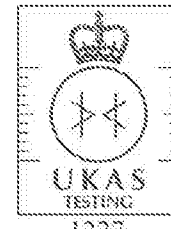
All waste with an asbestos content in excess of 0.1% of the total weight is classified as special waste and therefore must be deposited at a site which is licensed to accept special waste.

It is the recommendation of Envirochem that all work involving ACM's is undertaken by a HSE licensed asbestos removal specialist to ensure all legislation and guidelines are adhered to.

For information regarding work with asbestos or to arrange work with asbestos please contact Mr Matthew Hurst or Mr Stuart White on 01329 287777.



ENVIROCHEM
Analytical Laboratories Ltd.
12 The Gardens
Broadcut, Fareham
Hampshire
PO16 8SS



Our Ref: J142019 FL: 7
Your Ref: 609/19307
Date: 30/04/2018

Asbestos Fibre Identification Report

Client: Blaze Construction
93 Leigh Rd, Eastleigh, SO50 9DQ

Site Address: West End Nursery, Roundstone Lane, Angmering, Littlehampton, BN16 4AX

Sampled By: Paul Gould, Envirochem

Date sampled/received: 25th April 2018

Date analysed: 26th April 2018

Analyst/s: Raphael Mirzaian

Analysis Location: 12 The Gardens, Broadcut, Fareham, Hampshire, PO16 8SS

ANALYTICAL PROCEDURE

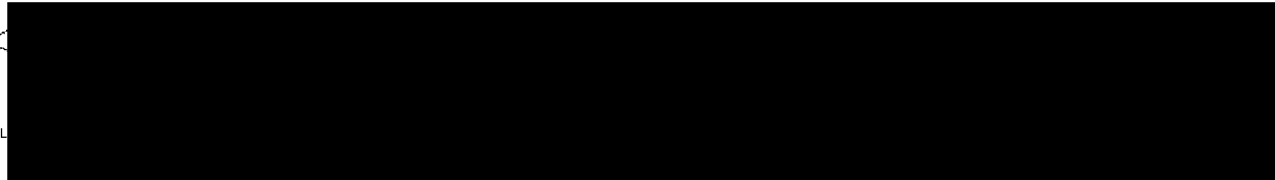
Fibre identification was carried out in accordance with the documented 'in-house' methods based on the HSE Guidance Note HSG 248. These employed stereo microscopy, polarized microscopy and dispersion staining techniques.

RESULTS

Sample No.	Sample Ref.	Location	Asbestos Detected	Asbestos Type
Sample 1	AJ012614	West End Nursery, Angmering, Littlehampton, Ground Floor Induction Office, Insulation board ceiling panels	No	
Sample 2	AJ012615	West End Nursery, Angmering, Littlehampton, Ground Floor Induction Office, Insulation board wall panels	No	
Sample 3	AJ012616	West End Nursery, Angmering, Littlehampton, Ground Floor Induction Office, Insulation board corner boxing panels	No	
Sample 4	AJ012617	West End Nursery, Angmering, Littlehampton, Ground Floor Showroom, Insulation board ceiling panels	No	

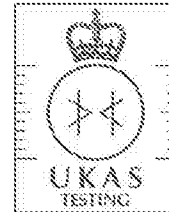
NOTES:

1. Sample(s) were examined for the presence of 6 types of asbestos fibres: crocidolite (blue), amosite (brown), chrysotile (white), anthophyllite, actinolite and tremolite.
2. Samples collected by the client are evaluated using information provided by the client. For samples collected by the client the date of receipt is deemed to be the same as the date sampled.
3. Envirochem is a UKAS accredited laboratory for sampling and identification of asbestos containing materials.
4. Comments, observations and opinions are outside the scope of UKAS accreditation.
5. The analytical method in the HSG248 does not quantify the amount of asbestos present, therefore UKAS accreditation does not permit quantification.
6. If, during fibre identification, only 1 or 2 fibres are seen and identified as asbestos, then the term 'trace asbestos identified' is used.

SIGNATURE: 



ENVIROCHEM
Analytical Laboratories Ltd.
12 The Gardens
Broadcut, Fareham
Hampshire
PO16 8SS



Our Ref: J142019 FL: 7
Your Ref: 609/19307
Date: 30/04/2018

Asbestos Fibre Identification Report

Client: Blaze Construction
93 Leigh Rd, Eastleigh, SO50 9DQ

Site Address: West End Nursery, Roundstone Lane, Angmering, Littlehampton, BN16 4AX

Sampled By: Paul Gould, Envirochem

Date sampled/received: 25th April 2018

Date analysed: 26th April 2018

Analyst/s: Raphael Mirzaians

Analysis Location: 12 The Gardens, Broadcut, Fareham, Hampshire, PO16 8SS

ANALYTICAL PROCEDURE

Fibre identification was carried out in accordance with the documented 'in-house' methods based on the HSE Guidance Note HSG 248. These employed stereo microscopy, polarized microscopy and dispersion staining techniques.

RESULTS

Sample No.	Sample Ref.	Location	Asbestos Detected	Asbestos Type
Sample 5	AJ012618	West End Nursery, Angmering, Littlehampton, Ground Floor Showroom, Insulation board wall panels	No	
Sample 6	AJ012619	West End Nursery, Angmering, Littlehampton, Ground Floor Showroom, Vinyl floor lay	No	
Sample 7	AJ012620	West End Nursery, Angmering, Littlehampton, Ground Floor 2 X office, Insulation board ceiling tiles	No	

NOTES:

1. Sample(s) were examined for the presence of 6 types of asbestos fibres: crocidolite (blue), amosite (brown), chrysotile (white), anthophyllite, actinolite and tremolite.
2. Samples collected by the client are evaluated using information provided by the client. For samples collected by the client the date of receipt is deemed to be the same as the date sampled.
3. Envirochem is a UKAS accredited laboratory for sampling and identification of asbestos containing materials.
4. Comments, observations and opinions are outside the scope of UKAS accreditation.
5. The analytical method in the HSG248 does not quantify the amount of asbestos present, therefore UKAS accreditation does not permit quantification.
6. If, during fibre identification, only 1 or 2 fibres are seen and identified as asbestos, then the term 'trace asbestos identified' is used.

SIGNATURE

Authorised signatory

PRINT NAME: Raphael Mirzaians

Reg. No. 2378228 England. Registered Office: Envirochem, 12 The Gardens, Broadcut, Fareham, Hampshire, PO16 8SS.

Envirochem Analytical Laboratories Ltd.

List of Asbestos Containing Materials

Site Address West End Nursery, Roundstone Lane, Angmering, Littlehampton, BN16 4AX
Date of Survey 25th April 2018
Reference Number J142019

Sample No.	Location	Level of Identification	Product Type	Asbestos Type	Extent
------------	----------	-------------------------	--------------	---------------	--------

There were no positive samples identified.

Envirochem Analytical Laboratories Ltd.

Appendix 3 - List of Negative Samples

Page 15 of 17

Site Address West End Nursery, Roundstone Lane, Angmering, Littlehampton, BN16 4AX
Date of Survey 25th April 2018
Reference Number J142019
Surveyors Paul Gould

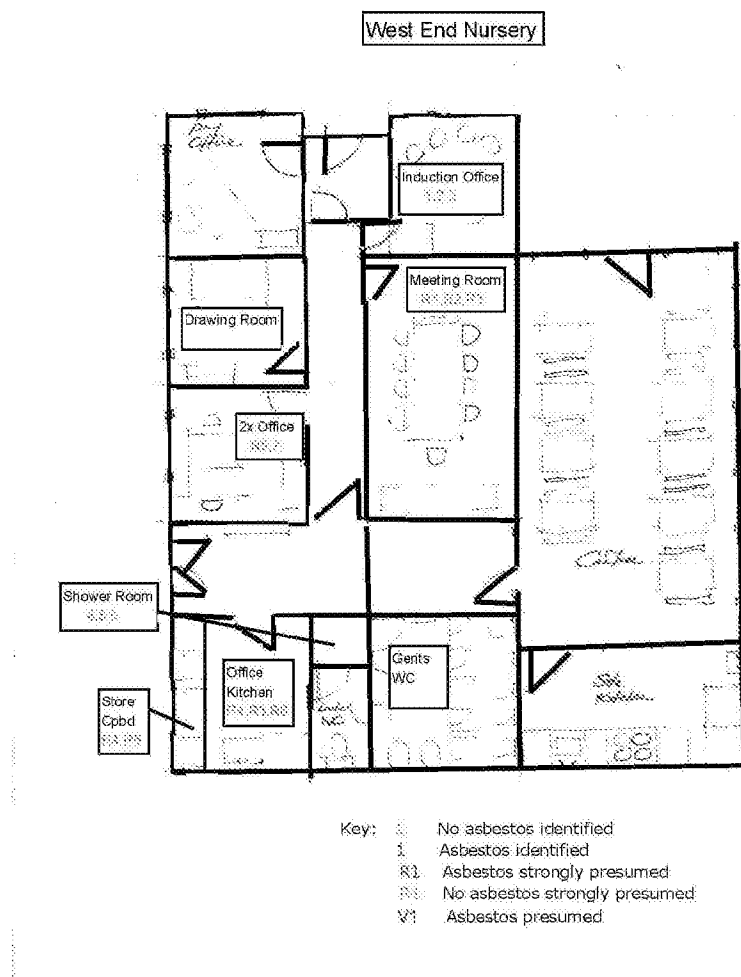
Sample No.	Location	Product Type
Sample 1	West End Nursery, Angmering, Littlehampton, Ground Floor Induction Office, Insulation board ceiling panels	Artex
Ref. Sample 1	West End Nursery, Angmering, Littlehampton, Ground Floor Meeting Room, Insulation board ceiling panels	Artex
Sample 2	West End Nursery, Angmering, Littlehampton, Ground Floor Induction Office, Insulation board wall panels	Non Asbestos Insulating Board
Ref. Sample 2	West End Nursery, Angmering, Littlehampton, Ground Floor Meeting Room, Insulation board wall panels	Non Asbestos Insulating Board
Sample 3	West End Nursery, Angmering, Littlehampton, Ground Floor Induction Office, Insulation board corner boxing panels	Non Asbestos Insulating Board
Ref. Sample 3	West End Nursery, Angmering, Littlehampton, Ground Floor Meeting Room, Insulation board corner boxing panels	Non Asbestos Insulating Board
Sample 4	West End Nursery, Angmering, Littlehampton, Ground Floor Showroom, Insulation board ceiling panels	Non Asbestos Insulating Board
Ref. Sample 4	West End Nursery, Angmering, Littlehampton, Ground Floor Store Cupboard, Insulation board ceiling panels	Non Asbestos Insulating Board
Ref. Sample 4	West End Nursery, Angmering, Littlehampton, Ground Floor Office Kitchen, Insulation board ceiling panels	Non Asbestos Insulating Board
Sample 5	West End Nursery, Angmering, Littlehampton, Ground Floor Showroom, Insulation board wall panels	Non Asbestos Insulating Board
Ref. Sample 5	West End Nursery, Angmering, Littlehampton, Ground Floor Office Kitchen, Insulation board wall panels	Non Asbestos Insulating Board
Ref. Sample 5	West End Nursery, Angmering, Littlehampton, Ground Floor Store Cupboard, Insulation board wall panels	Non Asbestos Insulating Board
Ref. Sample 5	West End Nursery, Angmering, Littlehampton, Ground Floor 2 X office, Insulation board wall panels	Non Asbestos Insulating Board
Sample 6	West End Nursery, Angmering, Littlehampton, Ground Floor Showroom, Vinyl floor lay	Vinyl tile
Ref. Sample 6	West End Nursery, Angmering, Littlehampton, Ground Floor Office Kitchen, Vinyl floor lay	Vinyl tile
Sample 7	West End Nursery, Angmering, Littlehampton, Ground Floor 2 X office, Insulation board ceiling tiles	Non Asbestos Insulating Board

APPENDIX 4 - Photographs

There were no photos taken.

APPENDIX 5 - Marked Plans

Client: Blaze Construction
Site: West End Nursery
Roundstone Lane
Angmering
Littlehampton
BN16 4AX



APPENDIX C

REGULATORY CORRESPONDENCE

Catherine Latimer

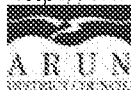
From: Matthew Kennett [REDACTED]
Sent: 30 June 2016 11:37
To: Catherine Latimer
Subject: RE: Angmering Clarifications

Hi Cathy,

We agree that a frequency of 250m³ is sufficient coverage for validation purposes in the public open space areas.

thanks

Matthew Kennett
Pollution Officer
Environmental Health Department
01903 737696 (direct line)
Arun Civic Centre, Maltrovers Road, Littlehampton BN17 5LF
<http://www.arun.gov.uk/eh>



From: CLatimer@rsk.co.uk [REDACTED]
Sent: 30 June 2016 10:47
To: Matthew Kennett
Cc: ajames@rsk.co.uk
Subject: FW: Angmering Clarifications

Hi Matthew,

Our client Cala Homes have requested we get in touch to discuss the below comment you made in regards to the validation sample coverage of the public open space areas proposed at the Angmering site.

Based on Figure 6 included within the recent remedial strategy report (27621 R03 (01), there is approximately 21 942m² of public open space areas which requires a 600mm capping layer to be placed upon it. This would equate to 53 validation samples in total assuming a 250m³ frequency. This calculation includes the bunded areas for which I have calculated the number of samples required per bund for your information:

NW bund area = 2009.09m² * 0.6 m² – 5 samples
SWA bund area = 1379 m² * 0.6 m² - 4 samples
SWB bund area = 482 m² * 0.6 m² – 2 samples
NE bund area = 1482 m² * 0.6 m² – 4 samples
SE bund area = 137 m² * 0.6 m² – 1 sample
(All rounded up to the nearest whole number)

There is approximately 10 127m² of public open space requiring a 450mm capping layer to placed upon it this would equate to 19 validation samples from these areas in total.

On review we consider that a frequency of 250m³ is sufficient coverage for validation purposes in the public open space areas. Please confirm whether you are in agreement with this?

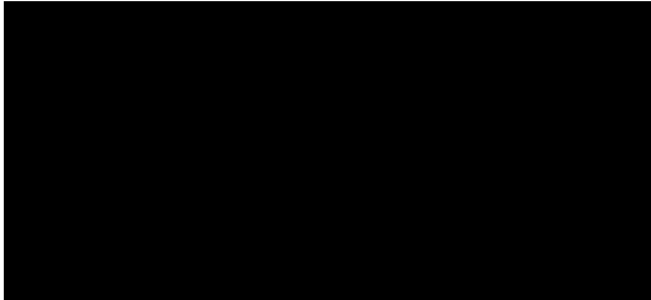
If you have any questions please do not hesitate to contact myself or Andrew James.

Kind regards,

Cathy

Cathy Latimer
Senior Geo-Environmental Consultant

RSK
Unit 16, Basepoint Abbey Enterprise Centre, Premier Way, Romsey, Hampshire, SO51 9AQ, UK



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From: Matthew Kennett [<mailto:Matthew.Kennett@arun.gov.uk>]
Sent: 25 April 2016 14:04
To: Gary Biggs
Subject: RE: Angmering Clarifications

Hi Gary,

The method statement and risk assessments are acceptable.

The Deployment Form that I have had seen details 1 in 250m3 for asbestos control, the remedial strategy details 1 in 50m3 for verification. How many samples at 1 in 50m3 do you anticipate in the communal landscaping. If 1 in 250m3 provides sufficient coverage/information then it would be acceptable.

thanks

Matthew Kennett
Pollution Officer
Environmental Health Department
01903 737696 (direct line)
Arun Civic Centre, Maltravers Road, Littlehampton BN17 5LF
<http://www.arun.gov.uk/eh>



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Catherine Latimer

From: Matthew Kennett [Matthew.Kennett@arun.gov.uk]
Sent: 28 February 2017 09:07
To: Catherine Latimer
Subject: RE: Angmering PP-05292458

Hi Cathy,

If it is covered in the verification report that will be fine,

thanks

Matthew Kennett
Pollution Officer
Environmental Health Department
01903 737696 (direct line)
Arun Civic Centre, Maltrovers Road, Littlehampton BN17 5LF
<http://www.arun.gov.uk/eh>



From: CLatimer@rsk.co.uk [redacted]
Sent: 27 February 2017 19:00
To: Matthew Kennett
C: [redacted]
Subject: RE: Angmering PP-05292458

Hi Matthew,

Thank you for your time yesterday. As discussed the site manager at Angmering has concerns regarding any investigation works being undertaken in the southwest bund B at the Angmering site due to its proximity to neighbouring residents. We had discussed during our last meeting undertaking some hand pits in this area to check if the bund contained asbestos containing materials.

Given the site managers concerns and that they have now confirmed they will be unable to cap this area due to the over head cables, we propose to assume a worst case scenario and fence this area off from the public and plant prickly vegetation to deter trespassers. Photographic evidence confirming these measures have been incorporated shall be included in the verification report for this area of the site.

Please let me know if you have any issues or questions associated with this approach.

Kind regards,

Cathy

Cathy Latimer
Principal Geo-Environmental Consultant
(Please note I work Monday to Thursday, should you have any urgent queries on a Friday please call the Southampton office number)

RSK
Unit 26, Basepoint Abbey Enterprise Centre, Premier Way, Romsey, Hampshire, SO51 9AQ, UK



**WINNER OF THE QUEEN'S
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Registered number: 116530

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DX 57406 Littlehampton

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Catherine Latimer

From: Matthew Kennett [Matthew.Kennett@arun.gov.uk]
Sent: 21 November 2017 10:37
To: David Jacob
Cc: GBIGGS@cala.co.uk; JRwodzi@cala.co.uk; JSlater@cala.co.uk; Catherine Latimer; BGraham@nhbc.co.uk
Subject: RE: 27621 - Cresswell Park, Angmering - Letter to Downgrade Gas Regime on Site

Dear David,

I have read all the information in the letter report and looked at the monitoring data. I can see that the gassing regime in the sub-floor voids is suitable for a CS1 development with this additional information.

Kind Regards

Matthew Kennett
Snr. Pollution Officer
Environmental Health Department
01903 737696 (direct line)
Arun Civic Centre, Maltravers Road, Littlehampton BN17 5LF
<http://www.arun.gov.uk/eh>



From: [REDACTED]
Sent: 21 November 2017 08:55
To: Matthew Kennett; [REDACTED]
Cc: [REDACTED]
S: [REDACTED]
Matthew Kennett

I hope both of you are well since we last spoke.

We have completed the void monitoring of the original seven plots on Phase 1A as proposed. Three further plots were monitored to provide some additional data due to Plots 44, 48 and 55 not being quite ready enough for void monitoring. With residents taking occupation in the area of these plots the additional data gave us further comfort on top of the existing gas resistant membrane and ventilated sub floor void.

In total we collected just over 3400 hours worth of ground gas void monitoring data and an additional 600 hours from the three extra plots.

A review of the data collected under differing temporal conditions has shown consistent very low concentrations of ground gas (no greater than 0.1% V/V) and our further site works to provide the gardens on site with a cover system and foundation excavation supervision has not encountered any significant sources of organic material that would give rise to the potential for ongoing ground gas generation.

Please find attached our letter to CALA Homes that formalises this process and further lines of evidence that demonstrate that the site is exhibiting a Green/CS1 ground gas regime.

As such, we would appreciate your review of this letter and request that both Arun District Council and the NHBC support our assessment that the Cresswell Park development site is now to be classified as Green/CS1 and that no special ground gas protective measures are required from this point on.

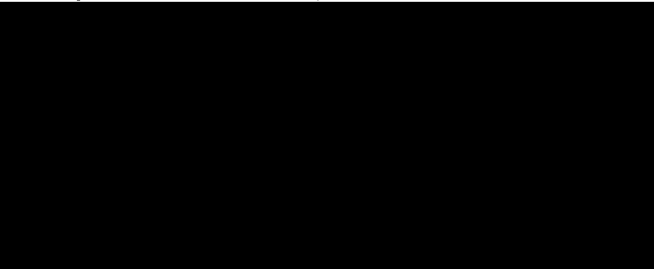
Please let me know if you have any queries

Kind Regards

Dave

David Jacob
Technical Director

RSK
18 Frogmore Road, Hemel Hempstead, Hertfordshire, HP3 9RT, UK



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Catherine Latimer

Subject: FW: 27621 - Cresswell Park, Angmering - Confirmation in regards to downgrade gas regime on site FYI
Attachments: RE: 27621 - Cresswell Park, Angmering - Letter to Downgrade Gas Regime on Site
Importance: High

From: Brian Graham [REDACTED]
Sent: 04 December 2017 11:31
To: David Jacob
Subject: RE: 27621 - Cresswell Park, Angmering - Letter to Downgrade Gas Regime on Site

David

It got reviewed last week and gas condition has been removed, so this should make things easier going forward

Brian

Brian Graham BSc, MSc, MRSC, FCIWEM, CWEM, CSci, CEnv
Senior Geo-Environmental Engineer
Technical Services Department

[REDACTED]
brian.graham@nhbc.co.uk



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[REDACTED]

Are you signed up to the NHBC Portal yet? With access to key management information such as conditions, reportable items, plot registration and much more, plus a fast and easy way to submit information, working with NHBC couldn't be easier. For more information or to sign up go to www.nhbc.co.uk/Portallogin.

Free NHBC Webinars - Our in-house industry experts deliver impactful, insightful and practical free webinars, across a broad range of topics. For more information click [here](#)

From: D.Jacob@rsk. [REDACTED]

Sent: 21 November 2017 08:53

To: [REDACTED]

Cc: [REDACTED]

Subject: [REDACTED]

Message: [REDACTED]

I hope both of you are well since we last spoke.

We have completed the void monitoring of the original seven plots on Phase 1A as proposed. Three further plots were monitored to provide some additional data due to Plots 44, 48 and 55 not being quite ready enough for void monitoring. With residents taking occupation in the area of these plots the additional data gave us further comfort on top of the existing gas resistant membrane and ventilated sub floor void.

In total we collected just over 3400 hours worth of ground gas void monitoring data and an additional 600 hours from the three extra plots.

A review of the data collected under differing temporal conditions has shown consistent very low concentrations of ground gas (no greater than 0.1% V/V) and our further site works to provide the gardens on site with a cover system and foundation excavation supervision has not encountered any significant sources of organic material that would give rise to the potential for ongoing ground gas generation.

Please find attached our letter to CALA Homes that formalises this process and further lines of evidence that demonstrate that the site is exhibiting a Green/CS1 ground gas regime.

As such, we would appreciate your review of this letter and request that both Arun District Council and the NHBC support our assessment that the Cresswell Park development site is now to be classified as Green/CS1 and that no special ground gas protective measures are required from this point on.

Please let me know if you have any queries

Kind Regards

Dave

David Jacob
Technical Director

RSK
18 Frogmore Road, Hemel Hempstead, Hertfordshire, HP3 9RT, UK



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Catherine Cussell

Subject: RE: 27621 Angmering hydrocarbon hotspots Phase 3 - Plots 325 and 317

From: Matthew Kennett <Matthew.Kennett@arun.gov.uk>

Sent: 09 April 2018 14:51

To: Catherine Cussell <CCussell@rsk.co.uk>

Cc: Anna Appleton <Anna.Appleton@arun.gov.uk>; Christopher Davis <Christopher.Davis@arun.gov.uk>

Subject: RE: 27621 Angmering hydrocarbon hotspots Phase 3

Hi Cathy,

My last day at Arun is the 19th April. So if the results are not back by then please send them to Anna and Chris (CC'd in).

Thanks

Matthew Kennett
Snr. Pollution Officer
Environmental Health Department
01903 737696 (direct line)
Arun Civic Centre, Maltravers Road, Littlehampton BN17 5LF
<http://www.arun.gov.uk/eh>



From: [REDACTED]
Sent: 09 April 2018 10:23
To: Matthew Kennett
Cc: [REDACTED]
Subject: RE: 27621 Angmering hydrocarbon hotspots Phase 3

Hi Matthew,

As discussed, a couple of possible hydrocarbon hotspots have been identified in Phase 3 in the former car park area. There are no obvious historic contamination sources in these areas to which we can attribute the contamination to.

We have conducted some in-situ screening and sampling in the affected areas.

- In the vicinity of plot 325 oily deposits were observed, however in-situ screening showed low levels of volatiles (max 7.7ppmV). Two validation samples were collected to determine whether the affected material can remain in-situ. Whilst awaiting the results the area was covered over with impermeable geo-membrane. The results are attached and indicate that primarily heavy end hydrocarbons are present. All measured concentrations are below the human health GAC. As discussed and agreed, the material may remain in-situ beneath the cover layers and/or buildings/hardstanding. Should any of the material in this area be required to be removed in association with excavations of footings etc. it shall need to be disposed of appropriately off-site. Any impacted material from this area (if required to be removed) will be segregated and stockpiled on hardstanding/impermeable membrane and covered by impermeable membrane before off-site disposal. Copies of waste disposal notes (if applicable) will be included in the final verification report.

- In the vicinity of Plot 317 (front car parking area), during service excavations black staining and bitumen cobble sized fragments were observed in the southern section. Volatiles screening reported concentrations up to approximately 90ppmV and hydrocarbon odours were observed. The extent of the impact has been proven to the west, east and north. Due to the absence of an obvious source we need to delineate the impact extent to the south and collect further validation samples, which is planned to be completed later this week. We shall keep you updated once the results are received.

The above validation works shall be formally documented in the verification report for this area of the site, which shall include plans showing where the samples were collected and the laboratory results etc.

If you have any questions please do not hesitate to contact us.

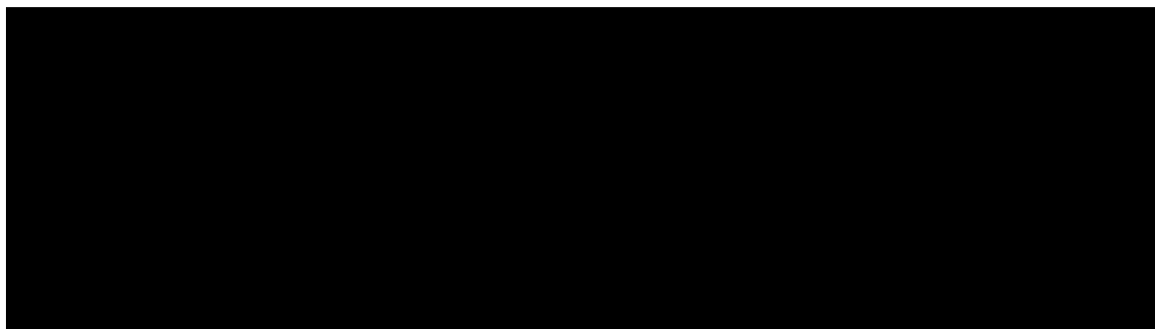
Kind regards,

Cathy

Cathy Cussell MSc, BA (Hons), CSci FGS

Principal Geo-Environmental Consultant

(Please note my change in surname from Latimer to Cussell and that I work Monday to Thursday, should you have any urgent queries on a Friday please call the Southampton office number)



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Catherine Cussell

Subject: RE: 27621 Hydrocarbon hotspots encountered Plot 317 & 325 and isolated amosite ACM noted at the surface Phase 2A

From: Matthew Kennett [<mailto:Matthew.Kennett@arun.gov.uk>]
Sent: 19 April 2018 14:47
To: Catherine Cussell
Subject: RE: 27621 Hydrocarbon hotspot results

Hi Cathy,

Environmental Health are happy with the below decision and testing suite for the septic tank area.

Thanks

Matthew Kennett
Snr. Pollution Officer
Environmental Health Department
01903 737696 (direct line)
Arun Civic Centre, Maltravers Road, Littlehampton BN17 5LF
<http://www.arun.gov.uk/eh>



Brilliant thanks Matthew.

We have now received the results back associated with the hydrocarbon hotspot in the vicinity of plot 325 (where oily deposits were observed) and service excavation in the vicinity of plot 317 (black staining and bitumen cobble sized fragments). The results indicate that the impacts are below GAC applicable to residential end-use without home grown produce (also attached). As such, we conclude that the material in these areas are suitable to remaining in-situ (if not required to be excavated) below the garden cover layer/or building/hardstanding without posing a risk to human health.

However, should any of the impacted material from either area be removed in accordance with footings etc. this material cannot be placed within the borrow pit as it may pose a risk to controlled waters. This is not a concern in their currently locations due to the cohesive nature of the superficial deposits across the site as demonstrated via the ground water monitoring results reported previously. We could complete a controlled waters DQRA to calculate criteria suitable for reuse to determine if they may be placed in the borrow pit (which would require EA consultation), however given the timeframes involved with the development program and the relative small quantity of impacted material our client is likely to prefer to send the impacted off-site for disposal under appropriate duty of care.

Are you in agreement with the above?

We shall report the hydrocarbon hotspot results formally in the Phase 3 verification report and documentation pertaining to any materials disposed off-site shall be included in the report also.

For information, the amosite results contained in laboratory report 18-02669-1 relate to a small fragment observed in Phase 3 at the surface following surfacing removal, the entirety of the suspected ACM observed was removed during the sampling process. It appeared to be a very small localised fragment, however a watching brief is being closely maintained to ensure that if any further fragments of this material is observed the asbestos specialist on site is consulted to deal with the removal of the materials appropriately. Quantification tests are currently underway for this material.

Finally we came across an old septic tank yesterday that had leaked slightly in Phase 3. The impacted materials (removed based on olfactory and visual observations) have been stockpiled on hardstanding temporarily and we have collected three samples for testing of TOC, ammonium, total coliforms, e coli and asbestos to determine if these materials need to be disposed off site or may be placed in the borrow pit. Are you happy with the testing suite proposed? Again any results shall be formally reported in the verification report for phase 3.

Apologies for the long list just before your departure. If you do not have time to look through this and want me to talk through with your replacement please let me know.

Kind regards,

Cathy

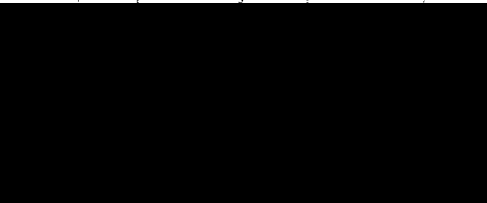
Cathy Cussell MSc, BA (Hons), CSci FGS

Principal Geo-Environmental Consultant

(Please note my change in surname from Latimer to Cussell and that I work Monday to Thursday, should you have any urgent queries on a Friday please call the Southampton office number)

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Catherine Cussell

Subject: FW: 27621 Angmering NAPL/hydrocarbon hotspot removal works

From: Christopher Davis <Christopher.Davis@arun.gov.uk>

Sent: 06 June 2018 09:29

To: Catherine Cussell <CCussell@rsk.co.uk>; Anna Appleton <Anna.Appleton@arun.gov.uk>

Cc: Kirsten Fairall <KFairall@rsk.co.uk>; Ikearsey@cala.co.uk; Gary.Biggs@cala.co.uk

Subject: RE: 27621 Angmering NAPL/hydrocarbon hotspot removal works

Dear Cathy

Thank you for this information / update

I am satisfied with the course of action taken following your reporting of the contamination and look forward to receiving the final verification report for the site in due course

Kind regards

Christopher Davis
Environmental Health Officer

Environmental Health Department
(01903) 737695 (direct line)

Arun Civic Centre | Maltravers Road | Littlehampton | BN17 5LF

www.arun.gov.uk/eh



From: CCussell [REDACTED]
Sent: 04 June 2018 16:35
To: Christopher Davis; Anna Appleton
Cc: [REDACTED]
Subject: RE: 27621 Angmering NAPL/hydrocarbon hotspot removal works

Hi Chris,

We have now completed the NAPL/hydrocarbon hotspot removal works in the vicinity of Plot 325 in Phase 3.

The works were conducted on the 17th May. As agreed the arisings were placed on and covered by polythene sheeting to prohibit hydrocarbon impacts leaching to ground. Fragments of rusted corroded metal were observed in the vicinity of the impacts which appear to be what remains of historic oil drums buried in this area.

Validation samples were collected from the sides and base of the excavation and submitted for laboratory analysis of total petroleum hydrocarbons (TPH CWG) polycyclic aromatic hydrocarbons (PAHs) and asbestos. The results were all below the applicable RSK GAC for residential end use demonstrating that the extent of the hotspot has been removed. The laboratory results are attached.

Two waste acceptance criteria (WAC) samples were collected from the stockpiled materials to inform the potential waste classification status. Once the receiving landfill have confirmed they have sufficient information, the impacted materials shall be disposed of appropriately off-site in accordance with best practice and waste disposal tickets shall be included in the final verification report for Phase 3.

As previously agreed the results of the hotspot assessment works shall be formally reported in the final verification report for the site.

If you require any further information please do not hesitate to contact me.

Kind regards,

Cathy

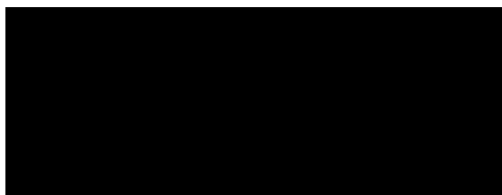
Cathy Cussell MSc, BA (Hons), CSci FGS

Principal Geo-Environmental Consultant

(Please note that I work Monday to Thursday, should you have any urgent queries on a Friday please call the Southampton office number)

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Catherine Cussell

From: Christopher Davis <[REDACTED]>
Sent: 15 May 2018 17:36
To: Catherine Latimer; Anna Appleton
Cc: Kirsten Fairall; Andrew Denton; Craig Lewis; Edward Hughes; Josh Laite
Subject: RE: 27621 Angmering septic tank results and proposed remedial actions

Dear Cathy

I am satisfied with the approach you are proposing as there are little alternatives

Please keep me updated with progress / developments as they occur in the project

Kind regards

Christopher Davis
Environmental Health Officer

Environmental Health Department
(01903) 737695 (direct line)

Arun Civic Centre | Maltravers Road | Littlehampton | BN17 5LF

www.arun.gov.uk/eh



From: CCussell@rsk.c[REDACTED]
Sent: 15 May 2018 15:48

[REDACTED]

Prior to leaving I discussed some impacts encountered in Phase 3 of the Angmering site with Matt. We have now received the septic tank sampling results, collected from the approximate vicinity of Plot nos. 320 to 323 parking areas. Measured concentrations of total coliforms in two of the three samples and ammonium in all three of the samples were measured at least 2 orders of magnitude greater than their respective laboratory detection limits.

There are no readily available generic assessment criteria to demonstrate that measured concentrations of contaminants associated with these impacts do not pose a risk to human health, and further to this these contaminants were not included in the historic groundwater analysis suite.

Therefore, in the interest of minimising disruption/delays to works in this area, we recommend that localised hotspot removal work be completed i.e. any remaining visually or olfactory impacted materials in the vicinity of the former septic tank be removed under a watching brief from our on-site engineer and validation samples be collected from the resulting excavation (base and sides of the excavation) to demonstrate that all impacted material has been removed.

Impacted materials removed so far are currently stockpiled on geo-textile membrane and fenced off in Phase 3, additional impacted materials removed shall be added to this stockpile or stockpiled separately on geo-marker membrane, a sample of the impacted material shall be collected for WAC testing purposes if required by the receiving landfill. The impacted materials shall be disposed off-site.

Once the receiving landfill have confirmed they have sufficient information the impacted materials, they shall be disposed of appropriately off-site in accordance with best practice and waste disposal tickets shall be included in the final verification report for Phase 3.

The results of the hotspot assessment works shall be communicated by email and formally reported in the final verification report for the site.

Please confirm by email return that you are satisfied with the proposed remedial actions detailed above. Alternatively should you have any questions or concerns please do not hesitate to contact me.

Kind regards,

Cathy

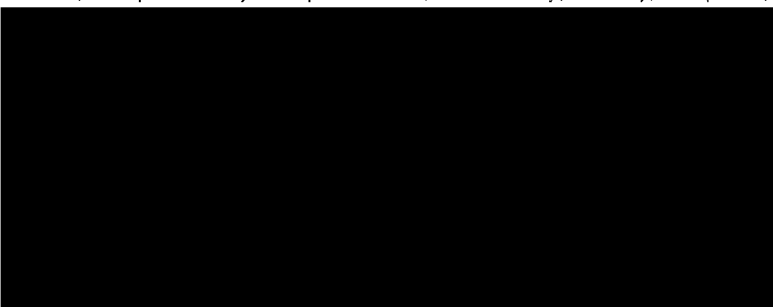
Cathy Cussell MSc, BA (Hons), CSci FGS

Principal Geo-Environmental Consultant

(Please note that I work Monday to Thursday, should you have any urgent queries on a Friday please call the Southampton office number)

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Catherine Cussell

Subject: RE: 27621 Former West End Nursery Angmering - septic tank hotspot removal and validation works

From: Christopher Davis <Christopher.Davis@arun.gov.uk>

Sent: 24 September 2018 09:44

To: Catherine Cussell <CCussell@rsk.co.uk>

Subject: RE: 27621 Former West End Nursery Angmering - septic tank hotspot removal and validation works -
Apologies please disregard the word document attached to the last email

Good Morning Cathy

Apologies.... Although I read through your comprehensive email and attached data at the time of receiving them, I don't remember sending you a confirmation email.

I can confirm that I have fully read and accepted your findings as well as agree to your "no further remediation or investigation is required" statement within your email conclusions

Kind regards

Christopher Davis
Environmental Health Officer

Environmental Health Department
(01903) 737695 (direct line)

Arun Civic Centre | Maltravers Road | Littlehampton | BN17 5LF

www.arun.gov.uk/eh



From: Catherine Cussell

Sent: 03 September 2018 09:52

To: 'Christopher Davis'

Cc: Kirsten Fairall; Craig Lewis; 'Anna Appleton'

Subject: RE: 27621 Former West End Nursery Angmering - septic tank hotspot removal and validation works

Hi Chris,

We have now completed the septic tank hotspots assessment/removal works in Phase 2 (formerly referred to as Phase 3).

Plot 320-323

On 12th July 2018, a total of 5 validation samples were collected from the base and sides of the excavation of the septic tank area, previously located underneath Plots 320 to 323. A photographic log of the validation works is presented in **Appendix A (320-323, photographs 1-6)** and samples descriptions contained in **Appendix B (320-323)**.

The validation samples were submitted for laboratory analysis of ammonium, nitrogen, total organic carbon, coliforms, E.coli and asbestos screen the results are reported in attached laboratory certificate 18-05665-1.

Plot 319

During the excavation of footings for Plot 319 on 20th June, a further historic septic tank and a flint gravel soakaway feature in a state of disrepair was discovered. Excavation works to delineate and remove these features and the surrounding soils of visually and olfactory septic tank impacts was undertaken in stages between 20th June 2018 and 17th July 2018, with the excavation extent spreading across the entire footprint of Plot 319. Photographs taken during

these works are presented in **Appendix A (319, photographs 7-17)**. Due to the size of the resulting excavation an alternative foundation solution was designed involving the placement of concrete rings filled with concrete and surrounded by site won natural soils as shown in photograph 17 of **Appendix A**.

Validation samples were collected from the sides and base of the excavation underlying Plot 319 on 17th July 2018. The validation samples were submitted for laboratory analysis of ammonium, nitrogen, total organic carbon, coliforms, E.coli and asbestos screen. The results are reported in attached laboratory certificate 18-05769-1. The sample descriptions are contained in **Appendix B (319)**.

Results

The results for total coliforms and ecoli, the two key microbiological contaminants of concern in relation to septic tank impacts, were all below laboratory method detection limits in the validation samples collected from Plots 320-323 (certificate 18-05665-1) and 319 (certificate 18-05769-1). It is noted that total coliforms were previously recorded up to 1600mg/kg in samples collected from the impacted material removed from Plots 320-323 (refer to laboratory certificate 18-02971-1). Low level concentrations of ammonium (reported as NH₄) were recorded in the validation samples at between <LMDL and 11.1mg/kg, which is ten times lower than the concentrations recorded in the impacted materials removed from Plot 320-323, refer PDF 18-02971-1.

Asbestos fibres were also not detected in any of the validation samples collected.

Although low residual concentrations of ammonium are present in soils the extent of the septic tank hotspots are considered to have been removed and further remediation is not deemed necessary. It is noted that wider site concentrations of ammonium / ammoniacal nitrogen in soil (i.e. background levels) are not known.

We have reached the conclusion that no further remediation or investigation is required based on the following lines of evidence:

- The tanks were present at depth, with potentially impacted areas (i.e. base and sides) at a depth beyond which there is likely to be any contact by future site users.
- Total coliforms and E.coli have been reported below laboratory levels of detection in the validation samples collected, indicating that the septic tank has not previously leaked extensively as following localised removal of visually and olfactory impacted soils there is no remaining microbiological impact at the site . Furthermore, background concentrations of ammonia (NH₃) in the US are comparable to the residual concentrations, typical US soils range between 1 to 5mg/kg (ATSDR, (2004). Toxicological profile for Ammonia.) Please note no background data for UK soils has been identified.

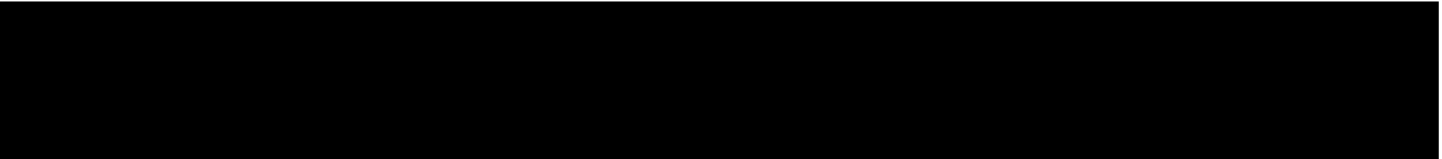
As agreed the arisings from both hotspots were stockpiled separately on polythene sheeting to prohibit any potential septic tank impacts leaching to ground, prior to offsite disposal. Following the works waste acceptance criteria (WAC) results and testing results for the materials impacted by the septic tank contaminants of concern (laboratory certificate 18-04950-1 and 18-02971-1) were forwarded to the chosen landfill site by the principal contractor and the materials subsequently disposed off-site in accordance with best practice.

As previously agreed the results of the hotspot assessment works shall be formally reported in the final verification report for the site.

We trust the above is acceptable to you however, if you require any further information please do not hesitate to contact me.

Kind regards,

Cathy


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APPENDIX D

RSK GUIDELINE VALUES

Generic assessment criteria for human health: residential scenario with home-grown produce

Background

RSK's generic assessment criteria (GAC) were initially prepared following the publication by the Environment Agency (EA) of soil guideline value (SGV) and toxicological (TOX) reports, and associated publications in 2009⁽¹⁾. RSK GAC were updated following the publication of GAC by LQM/CIEH in 2009⁽²⁾. RSK GAC are periodically revised when updated information on toxicological, land use or receptor parameters is published.

Updates to the RSK GAC: 2015

In 2014, the publication of Category 4 Screening Levels (C4SL)^(3,4), as part of the Defra-funded research project SP1010, included modifications to certain exposure assumptions documented within EA Science Report SC050221/SR3 (herein after referred to as SR3)⁽⁵⁾ used in the generation of SGVs.

C4SL were published for six substances (cadmium, arsenic, benzene, benzo(a)pyrene, chromium VI and lead) for a sandy loam soil type with 6% soil organic matter, based on a low level of toxicological concern (LLTC; see Section 2.3 of research project report SP1010⁽³⁾). Where a C4SL has been published, the RSK GAC duplicates the C4SL published values using all input parameters within the SP1010 final project report⁽³⁾ and associated appendices⁽⁶⁾, and adopts them as GAC for these six substances.

For all other substances the C4SL exposure modifications, with the exception of the "top two" produce type approach taken in the C4SL, have been applied to the current RSK GAC. These include alterations to daily inhalation rates for residential and commercial scenarios, reducing soil adherence factors in children (age classes 1 to 12 only) for residential land use, reducing exposure frequency for dermal contact outdoors for residential land use, and updated produce type consumption rates (90th percentile) based on recent data from the National Diet and Nutrition Survey.

The RSK GAC have also been revised with updated toxicology published by LQM/CIEH in 2015⁽⁷⁾, where a C4SL has not been published.

RSK GAC derivation for metals and organic compounds

Model selection

Soil assessment criteria (SAC) were calculated using the Contaminated Land Exposure Assessment (CLEA) tool v1.06, supporting EA guidance^(5,8,9) and revised exposure scenarios published for the C4SL⁽³⁾. Groundwater assessment criteria (GrAC) protective of human health via the inhalation pathway were derived using the RBCA 1.3b model. RSK has updated the inputs within RBCA to reflect EA guidance^(1,5,8,9). The SAC and GrAC collectively are termed GAC.

Conceptual model

In accordance with SR3⁽⁵⁾, the residential with home-grown produce scenario considers risks to a female child between the ages of 0 and 6 years old as the highest risk scenario. In accordance

with Box 3.1 of SR3⁽⁵⁾, the pathways considered for production of the SAC in the residential with home-grown produce scenario are

- direct soil and dust ingestion
- consumption of home-grown produce
- consumption of soil attached to home-grown produce
- dermal contact with soil and indoor dust
- inhalation of indoor and outdoor dust and vapours.

Figure 1 is a conceptual model illustrating these linkages.

In line with guidance in the EA SGV report for cadmium⁽¹⁾, the RSK GAC for cadmium has been derived based on estimates representative of lifetime exposure. Although young children are generally more likely to have higher exposures to soil contaminants, the renal toxicity of cadmium, and the derivation of the TDI_{oral} and TDI_{inh} , are based on considerations of the kidney burden accumulated over 50 years or so. It is therefore reasonable to consider exposure not just in childhood but averaged over a longer period.

The pathway considered in production of the GrAC is the volatilisation of compounds from groundwater and subsequent vapour inhalation by residents while indoors. Figure 2 illustrates this linkage. Although the outdoor air inhalation pathway is also valid, this contributes little to the overall risks owing to the dilution in outdoor air. Within RBCA, the solubility limit of the chemical restricts the extent of volatilisation, which in turn drives the indoor air inhalation pathway. While the same restriction is not built into the CLEA model, the CLEA model output cells are flagged red where the soil saturation limit has been exceeded.

With respect to volatilisation, the CLEA model assumes a simple linear partitioning of a chemical in the soil between the sorbed, dissolved and vapour phase⁽⁹⁾. The upper boundaries of this partitioning are represented by the maximum aqueous solubility and pure saturated vapour concentration of the chemical. The CLEA model estimates saturated soil concentrations where these limits are reached⁽⁹⁾. The CLEA software uses a traffic light system to identify when individual and/or combined assessment criteria exceed the lower of either the aqueous- or vapour-based soil saturation limits. Model output cells are flagged red where the saturated soil concentration has been exceeded and the contribution of the indoor and outdoor vapour pathway to total exposure is greater than 10%. In this case, further consideration of the following is required⁽⁹⁾:

- Free phase contamination may be present.
- Exposure from the vapour pathways will be over-predicted by the model, as in reality the vapour phase concentration will not increase at concentrations above saturation limits
- Where the vapour pathway contribution is greater than 90%, it is unlikely the relevant health criteria value (HCV) will be exceeded at soil concentrations at least a factor of ten higher than the relevant HCV.

Where the vapour pathway is the predominant pathway (contributes greater than 90% of exposure) or the only exposure route considered and the cell is highlighted red (SAC exceeds saturation limit), the risk based on the assumed conceptual model is likely to be negligible as the vapour risk is assumed to be tolerable at maximum possible soil concentrations. In such circumstances, the vapour pathway exposure should be considered based on the presence of free phase or non-aqueous phase liquid sources and the measured concentrations of volatile organic compounds (VOC) in the vapour phase. Screening could be considered based on setting

the SAC as the modelled soil saturation limits. However, as stated within the CLEA handbook⁽⁹⁾, this is likely to not be practical in many cases because of the very low saturation limits and, in any case, is highly conservative.

It should also be noted that for mixtures of compounds, free phase may be present where soil (or groundwater) concentrations are well below saturation limits for individual compounds.

Where the vapour pathway is only one of the exposure pathways considered, an additional approach can then be utilised as detailed within Section 4.12 of the CLEA model handbook⁽⁹⁾, which explains how to calculate an effective assessment criterion manually.

SR3⁽⁵⁾ states that, as a general rule of thumb, it is recognised that estimating vapour phase concentrations from dissolved and sorbed phase contamination by petroleum hydrocarbons are at least a factor of ten higher than those likely to be measured on-site. RSK has therefore applied an empirical subsurface to indoor air correction factor of 10 into the CLEA model chemical database for all petroleum hydrocarbon fractions (including BTEX, trimethylbenzenes and the polycyclic aromatic hydrocarbons (PAH) naphthalene, acenaphthene and acenaphthylene) to reduce this conservatism.

Input selection

The most up-to-date published chemical and toxicological data was obtained from EA Report SC050021/SR7⁽¹⁰⁾, the EA TOX⁽¹¹⁾ reports, the C4SL SP1010 project report and associated appendices^(3,6) or the 2015 LQM/CIEH report⁽⁷⁾. Where a C4SL has been published, the RSK GAC have duplicated the C4SL published values using all input parameters within the SP1010 final project report⁽³⁾ and associated appendices⁽⁶⁾, and has adopted them as GAC for these six substances. Toxicological and specific chemical parameters for aromatic hydrocarbon C₈–C₉ (styrene), 1,2,4-trimethylbenzene and methyl tertiary-butyl ether (MTBE) were obtained from the CL:AIRE Soil Generic Assessment Criteria report⁽¹¹⁾.

For TPH, aromatic hydrocarbons C₅–C₈ were not modelled, as this range comprises benzene and toluene, which are modelled separately. The aromatic C₈–C₉ hydrocarbon fraction comprises ethylbenzene, xylene and styrene. As ethylbenzene and xylene are being modelled separately, the physical, chemical and toxicological data for aromatic C₈–C₉ have been taken from styrene.

For the GrAC, owing to the lack of UK-specific data, default information in the RBCA model was used to evaluate MTBE. No published UK data was available for 1,3,5-trimethylbenzene, so information was obtained from the RBCA model. RBCA uses toxicity data for the inhalation pathway in different units to the CLEA model and cannot consider separately the mean daily intake (MDI), occupancy periods or breathing rates. Therefore, the HCV in RBCA was amended to take account of

- amendments to the MDI using Table 3.4 of SR2⁽⁸⁾
- a child weighing 13.3kg (average of 0–6 year old female in accordance with Table 4.6 of SR3⁽⁵⁾) and breathing 11.85m³ (average daily inhalation rate for a 0–6-year old female in accordance with Table 4.14 of SR3⁽⁵⁾). Inhalation rates used in the derivation of the GrAC have not been updated in line with the 2011 USEPA published values⁽¹²⁾; these will be updated in subsequent revisions of the RSK GAC. The lower inhalation rates presented by the USEPA in 2011 for ages classes 1 to 11 (values are higher for age classes 12 to 18) are not considered to make a significant difference.
- the 50% rule (for petroleum hydrocarbons, trimethylbenzenes and MTBE)^(8,9) where MDI data is not available but background exposure is considered important in the overall exposure.

Physical parameters

For the residential with home-grown produce scenario, the CLEA default building is a small, two-storey terrace house with a concrete ground-bearing slab. The house is assumed to have a 100m² private garden consisting of lawn and flowerbeds, incorporating a 20m² plot for growing fruit and vegetables consumed by the residents. SR3⁽⁵⁾ notes this residential building type to be the most conservative in terms of potential for vapour intrusion. The building parameters used in the production of the RSK GACs are the default CLEA v1.06 inputs presented in Table 3.3 of SR3⁽³⁾, with a dust loading factor detailed in Section 9.3 of SR3⁽⁵⁾. The parameters for a sandy loam soil type were used in line with Table 4.4 of SR3⁽⁵⁾. This includes a value of 6% for the percentage of soil organic matter (SOM) within the soil. In RSK's experience, this is rather high for many sites. To avoid undertaking site-specific risk assessments for SOM, RSK has produced an additional set of GAC for SOM of 1% and 2.5% for all substances using the CLEA tool.

For the GrAC, the depth to groundwater was taken as 2.5m based on RSK's experience of assessing the volatilisation pathway from groundwater. The GrAC were produced using the input parameters in Table 4.

Summary of modifications to the default CLEA 1.06/SR3⁽⁵⁾ input parameters for residential with home-grown produce land-use scenario

In summary, the RSK GAC were produced using the default input parameters for soil properties, the air dispersion model, building properties and the vapour model detailed in SR3⁽⁵⁾. Modifications to the default SR3⁽⁵⁾ exposure scenarios based on the C4SL exposure scenarios⁽³⁾ are presented in Tables 2 and 3 below.

The final selected GAC are presented by pathway in Table 5 and the combined GAC in Table 6.

Figure 1: Conceptual model for residential scenario with home-grown produce

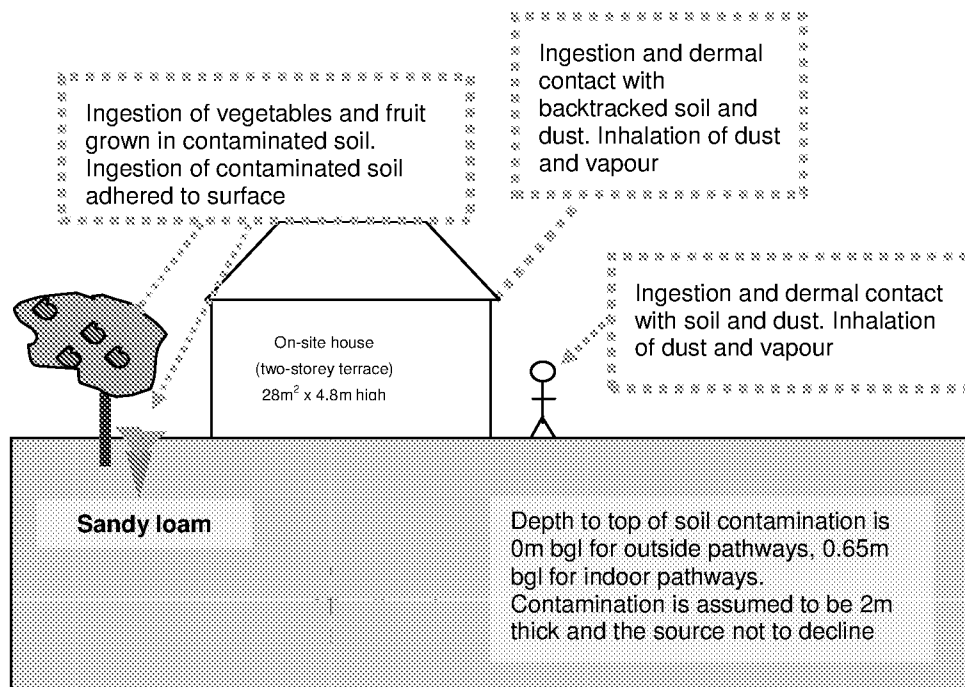


Table 1: Exposure assessment parameters for residential scenario with home-grown produce – inputs for CLEA model

Parameter	Value	Justification
Land use	Residential with homegrown produce	Chosen land use
Receptor	Female child age 1 to 6	Key generic assumption given in Box 3.1, SR3 ⁽⁵⁾
Building	Small terraced house	Key generic assumption given in Box 3.1, SR3. Small, two-storey terraced house chosen, as it is the most conservative residential building type in terms of protection from vapor intrusion (Section 3.4.6, SR3) ⁽⁵⁾
Soil type	Sandy Loam	Most common UK soil type (Section 4.3.1, from Table 3.1, SR3) ⁽⁵⁾
Start AC (age class)	1	Range of age classes corresponding to key generic assumption that the critical receptor is a young female child aged 0–6. From Box 3.1, SR3 ⁽⁵⁾
End AC (age class)	6	
SOM (%)	6	Representative of sandy loamy soil according to EA guidance note dated January 2009 entitled 'Changes We Have Made to the CLEA Framework Documents' ⁽¹³⁾
	1	To provide SAC for sites where SOM <6% as often observed by RSK
	2.5	
pH	7	Model default

Table 2: Residential with home-grown produce – modified home-grown produce data

Name	Consumption rate 90 th percentile (g FW kg ⁻¹ BW day ⁻¹) by age class						Dry weight conversion factor (g DW g ⁻¹ FW)	Home-grown fraction (average)	Home-grown fraction (high end)	Soil loading factor (g g ⁻¹ DW)	Preparation correction factor
	1	2	3	4	5	6					
Green vegetables	7.12	5.87	5.87	5.87	4.53	4.53	0.096	0.05	0.33	1.00E-03	2.00E-01
Root vegetables	10.7	2.83	2.83	2.83	2.14	2.14	0.103	0.06	0.4	1.00E-03	1.00E+00
Tuber vegetables	16	6.6	6.6	6.6	4.95	4.95	0.21	0.02	0.13	1.00E-03	1.00E+00
Herbaceous fruit	1.83	3.39	3.39	3.39	2.24	2.24	0.058	0.06	0.4	1.00E-03	6.00E-01
Shrub fruit	2.23	0.46	0.46	0.46	0.19	0.19	0.166	0.09	0.6	1.00E-03	6.00E-01
Tree fruit	3.82	10.3	10.3	10.3	5.16	5.16	0.157	0.04	0.27	1.00E-03	6.00E-01
Justification	Table 3.4, SP1010 ⁽³⁾						Table 6.3, SR3 ⁽⁵⁾	Table 4.19, SR3 ⁽⁵⁾		Table 6.3, SR3 ⁽⁵⁾	

Table 3: Residential with home-grown produce – modified and use and receptor data

Parameter	Unit	Age class					
		1	2	3	4	5	6
EF (soil and dust ingestion)	day yr ⁻¹	180	365	365	365	365	365
EF (consumption of home-grown produce)	day yr ⁻¹	180	365	365	365	365	365
EF (skin contact, indoor)	day yr ⁻¹	180	365	365	365	365	365
EF (skin contact, outdoor)	day yr ⁻¹	170	170	170	170	170	170
EF (inhalation of dust and vapour, indoor)	day yr ⁻¹	365	365	365	365	365	365
EF (inhalation of dust and vapour, outdoor)	day yr ⁻¹	365	365	365	365	365	365
Justification		Table 3.5, SP1010 ⁽³⁾ ; Table 3.1, SR3 ⁽⁵⁾					
Soil to skin adherence factor (outdoor)	mg cm ⁻² day ⁻¹	0.1	0.1	0.1	0.1	0.1	0.1
Justification		Table 3.5, SP1010 ⁽³⁾					
Inhalation rate	m ³ day ⁻¹	5.4	8.0	8.9	10.1	10.1	10.1
Justification		Mean value USEPA, 2011 ⁽¹²⁾ ; Table 3.2, SP1010 ⁽³⁾					
Notes: For cadmium , the exposure assessment for a residential land use is based on estimates representative of lifetime exposure AC1-18. This is because the TDI _{oral} and TDI _{inh} are based on considerations of the kidney burden accumulated over 50 years. It is therefore reasonable to consider exposure not just in childhood but averaged over a longer period. See the Environment Agency Science Report SC05002/ TOX 3 ⁽¹⁾ , Science Report SC050021/Cadmium SGV ⁽¹⁾ and the project report SP1010 ⁽³⁾ for more information.							

Figure 2: GrAC conceptual model for RBCA residential with home-grown produce scenario

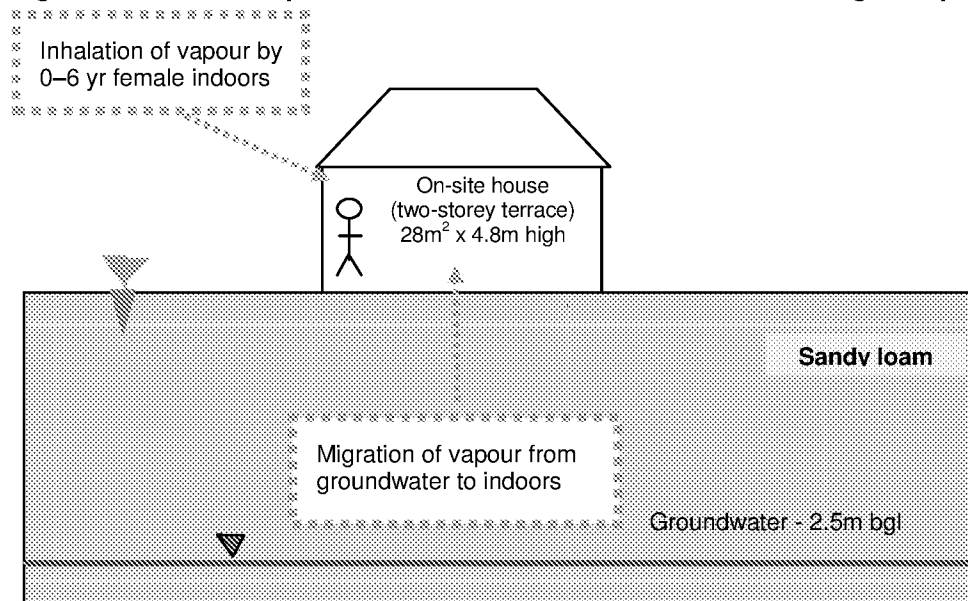


Table 4: Residential with home-grown produce – RBCA inputs

Parameter	Unit	Value	Justification
Receptor			
Averaging time	Years	6	From Box 3.1, SR3 ⁽⁵⁾
Receptor weight	kg	13.3	Average of CLEA 0–6 year old female data, Table 4.6, SR3 ⁽⁵⁾
Exposure duration	Years	6	From Box 3.1, report, SR3 ⁽⁵⁾
Exposure frequency	Days/yr	350	Weighted using occupancy period of 23 hours per day for 365 days of the year
Soil type – sandy loam			
Total porosity	-	0.53	CLEA value for sandy loam. Parameters for sandy loam from Table 4.4, SR3 ⁽⁵⁾
Volumetric water content	-	0.33	
Volumetric air content	-	0.20	
Dry bulk density	g cm ⁻³	1.21	
Vertical hydraulic conductivity	cm s ⁻¹	3.56E-3	CLEA value for saturated conductivity of sandy loam, Table 4.4, SR3 ⁽⁵⁾
Vapour permeability	m ²	3.05E-12	Calculated for sandy loam using equations in Appendix 1, SR3 ⁽⁵⁾
Capillary zone thickness	m	0.1	Professional judgement
Fraction organic carbon	%	0.0348	Representative of sandy loam according to EA guidance note dated January 2009 entitled 'Changes We Have Made to the CLEA Framework Documents' ⁽¹³⁾
Building			
Building volume/area ratio	m	4.8	Table 3.3, SR3 ⁽⁵⁾
Foundation area	m ²	28	
Foundation perimeter	m	22	Calculated assuming building measures 7m x 4m to give 28m ² foundation area
Building air exchange rate	d ⁻¹	12	Table 3.3, SR3 ⁽⁵⁾
Depth to bottom of foundation slab	m	0.15	
Foundation thickness	m	0.15	
Foundation crack fraction	-	0.0151	Calculated from floor crack area of 423 cm ² and building footprint of 28m ² in Table 4.21, SR3 ⁽⁵⁾
Volumetric water content of cracks	-	0.33	Assumed equal to underlying soil type in assumption that cracks become filled with soil over time. Parameters for sandy loam from Table 4.4, SR3 ⁽⁵⁾
Volumetric air content of cracks	-	0.2	
Indoor/outdoor differential pressure	Pa	3.1	From Table 3.3, SR3 ⁽⁵⁾

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GENERIC ASSESSMENT CRITERIA FOR HUMAN HEALTH - RESIDENTIAL WITH HOME-GROWN PRODUCE



Table 5

Human Health Generic Assessment Criteria by Pathway for Residential With Home-Grown Produce Scenario

Compound	Notes	GrAC (mg/l)	SAC Appropriate to Pathway SOM 1% (mg/kg)			Soil Saturation Limit (mg/kg)	SAC Appropriate to Pathway SOM 2.5% (mg/kg)			Soil Saturation Limit (mg/kg)	SAC Appropriate to Pathway SOM 6% (mg/kg)			Soil Saturation Limit (mg/kg)
			Oral	Inhalation	Combined		Oral	Inhalation	Combined		Oral	Inhalation	Combined	
Metals														
Arsenic	(a,b)	-	3.71E+01	5.28E+02	NR	NR	3.71E+01	5.28E+02	NR	NR	3.71E+01	5.28E+02	NR	NR
Cadmium	(a)	-	NR	NR	2.69E+01	NR	NR	NR	2.69E+01	NR	NR	NR	2.69E+01	NR
Chromium (III) - trivalent	(c)	-	1.84E+04	9.07E+02	8.85E+02	NR	1.84E+04	9.07E+02	8.85E+02	NR	1.84E+04	9.07E+02	8.85E+02	NR
Chromium (VI) - hexavalent	(a,d)	-	2.32E+01	2.06E+01	NR	NR	2.32E+01	2.06E+01	NR	NR	2.32E+01	2.06E+01	NR	NR
Copper	-	-	2.73E+03	1.41E+04	8.47E+03	NR	2.73E+03	1.41E+04	8.47E+03	NR	2.73E+03	1.41E+04	8.47E+03	NR
Lead	(a)	-	2.81E+02	NR	NR	NR	2.81E+02	NR	NR	NR	2.81E+02	NR	NR	NR
Elemental Mercury (Hg ⁰)	(d)	9.40E-03	NR	2.95E+01	NR	4.31E+00	NR	9.80E+01	NR	1.07E+01	NR	1.22E+00	NR	2.58E+01
Inorganic Mercury (Hg ²⁺)	-	-	3.95E+01	3.69E+03	2.31E+01	NR	3.95E+01	3.69E+03	2.31E+01	NR	3.95E+01	3.69E+03	2.31E+01	NR
Methyl Mercury (Hg ⁴⁺)	-	2.00E+01	1.29E+01	1.87E+01	7.33E+00	7.33E+01	1.29E+01	2.68E+01	3.24E+00	1.42E+02	1.29E+01	2.68E+01	1.86E+01	3.04E+02
Nickel	(d)	-	1.27E+02	1.81E+02	NR	NR	1.27E+02	1.81E+02	NR	NR	1.27E+02	1.81E+02	NR	NR
Selenium	(b)	-	2.69E+02	NR	NR	NR	2.69E+02	NR	NR	NR	2.69E+02	NR	NR	NR
Zinc	(b)	-	2.89E+03	3.69E+07	NR	NR	3.89E+03	3.62E+07	NR	NR	2.89E+03	3.69E+07	NR	NR
Cyanide	-	-	2.74E+01	4.09E+00	3.79E+00	NR	2.74E+01	4.09E+00	3.79E+00	NR	2.74E+01	4.09E+00	3.79E+00	NR
Volatile Organic Compounds														
Benzene	(a)	7.20E+00	3.82E+01	8.01E+01	2.03E+01	1.22E+03	5.39E+01	1.88E+00	4.06E+01	2.26E+03	1.16E+00	3.46E+00	8.72E+01	4.71E+03
Toluene	-	8.90E+02	1.63E+02	9.08E+02	1.31E+02	8.69E+02	3.49E+02	2.00E+03	2.97E+02	1.92E+03	7.95E+02	4.55E+03	6.77E+02	4.36E+03
Ethylbenzene	-	1.60E+02	1.10E+02	3.34E+01	4.74E+01	5.18E+02	2.61E+02	1.99E+02	1.12E+02	1.22E+03	8.00E+02	4.59E+02	2.90E+02	2.84E+03
Xylene - m	-	8.40E+01	2.10E+02	8.25E+01	5.92E+01	6.25E+02	5.01E+02	1.46E+02	1.40E+02	1.47E+03	1.18E+03	4.59E+02	3.27E+02	3.46E+03
Xylene - o	-	1.60E+02	1.89E+02	6.67E+01	6.07E+01	4.78E+02	1.58E+02	2.08E+02	1.45E+02	1.12E+03	1.05E+03	4.89E+02	3.12E+02	2.62E+03
Xylene - p	-	8.70E+01	1.89E+02	7.98E+01	6.69E+01	5.76E+02	4.70E+02	1.96E+02	1.38E+02	1.35E+03	1.09E+03	4.89E+02	3.10E+02	3.17E+03
Total xylene	-	8.40E+01	1.82E+02	7.89E+01	5.86E+01	6.25E+02	4.56E+02	1.96E+02	1.39E+02	1.47E+03	1.05E+03	4.59E+02	3.10E+02	3.46E+03
Methyl tertiary-Butyl ether (MTBE)	-	2.20E+03	1.54E+02	1.04E+02	1.84E+02	2.04E+04	2.97E+02	1.69E+03	2.53E+02	3.31E+04	6.09E+02	3.21E+03	3.08E+02	6.27E+04
Trichloroethene	-	1.80E+00	2.83E+01	1.72E+02	1.62E+02	1.54E+03	8.38E+01	3.59E+02	3.40E+02	3.22E+03	1.44E+00	1.96E+02	7.95E+02	7.14E+03
Tetrachloroethene	-	3.60E+00	4.49E+00	1.79E+01	1.79E+01	4.24E+02	1.04E+01	4.02E+01	3.94E+01	9.51E+02	2.39E+01	8.21E+01	8.04E+01	2.18E+03
1,1,1-Trichloroethane	-	2.60E+01	3.39E+02	8.01E+00	8.77E+00	1.43E+03	7.89E+02	1.84E+01	1.89E+01	2.92E+03	1.62E+03	4.94E+01	3.94E+01	6.39E+03
1,1,1,2-Tetrachloroethane	-	1.40E+01	5.29E+00	1.94E+00	1.80E+00	2.60E+03	1.27E+01	3.56E+00	2.79E+00	6.02E+03	2.98E+01	8.29E+00	8.49E+00	1.40E+04
1,1,2,2-Tetrachloroethane	-	1.40E+01	2.81E+00	2.95E+00	1.64E+00	2.67E+03	5.09E+00	3.04E+00	3.47E+00	5.46E+03	1.26E+01	1.79E+01	7.87E+00	1.20E+04
Carbon Tetrachloride	-	5.50E+02	3.19E+04	5.39E+03	2.57E+02	1.52E+03	1.11E+00	5.69E+02	5.98E+02	3.32E+03	1.82E+01	1.89E+01	1.27E+01	7.54E+03
1,2-Dichloroethane	-	3.00E+01	2.13E+02	5.20E+03	7.19E+02	3.41E+03	3.79E+02	1.39E+02	1.98E+02	4.91E+03	1.09E+01	3.39E+02	1.89E+02	8.43E+03
Vinyl Chloride	-	1.90E+02	3.82E+03	7.79E+04	8.43E+04	1.36E+03	6.87E+03	1.06E+03	8.73E+04	1.76E+03	1.25E+02	1.53E+03	1.39E+03	2.69E+03
1,2,4-Trimethylbenzene	-	7.50E+02	NR	1.75E+00	NR	4.74E+02	NR	4.38E+00	NR	1.16E+03	NR	3.72E+00	NR	2.76E+03
1,3,5-Trimethylbenzene	(e)	4.70E+02	NR	NR	NR	2.30E+02	NR	NR	NR	5.52E+02	NR	NR	NR	1.30E+03
Semi-Volatile Organic Compounds														
Acenaphthene	-	3.26E+00	2.27E+02	4.86E+04	2.28E+02	5.70E+01	5.41E+02	1.18E+05	5.38E+02	1.41E+02	1.16E+03	2.88E+05	1.17E+05	3.36E+02
Acenaphthylene	-	4.20E+00	1.85E+02	4.59E+04	1.84E+02	8.61E+01	4.42E+02	1.11E+05	4.40E+02	2.12E+02	9.78E+02	2.53E+05	9.74E+02	5.06E+02
Acridene	-	2.10E+02	2.43E+03	1.59E+05	3.39E+03	1.17E+00	5.53E+02	3.77E+05	5.45E+03	2.91E+00	1.10E+04	8.76E+05	1.09E+04	6.96E+00
Benzo[a]anthracene	-	3.80E+03	1.01E+01	2.47E+01	7.18E+00	1.71E+00	1.42E+01	4.37E+01	1.07E+01	4.28E+00	1.89E+01	6.29E+01	1.39E+01	1.03E+01
Benzo[b]fluoranthene	-	2.00E+03	2.96E+00	1.89E+01	2.56E+00	1.22E+00	3.89E+00	2.13E+01	3.29E+00	3.04E+00	4.45E+00	2.22E+01	2.69E+00	7.29E+00
Benzo[g,h,i]perylene	-	2.80E+04	3.77E+02	1.87E+03	3.14E+02	1.54E+02	4.09E+02	1.94E+03	3.38E+02	3.85E+02	4.23E+02	1.97E+03	2.48E+02	9.23E+02
Benzo[k]fluoranthene	-	8.00E+04	8.92E+01	5.41E+02	7.86E+01	6.87E+01	1.10E+02	9.76E+02	9.22E+01	1.72E+00	1.21E+02	5.91E+02	1.00E+02	4.12E+00
Chrysene	-	2.00E+03	1.66E+01	1.19E+02	1.46E+01	4.40E+01	2.84E+01	1.49E+02	2.17E+01	1.10E+00	3.19E+01	1.66E+02	2.87E+01	2.64E+00
Dibenz[a,h]anthracene	-	8.00E+04	2.90E+01	1.45E+00	2.41E+01	3.93E+03	2.43E+01	1.64E+00	2.84E+01	9.82E+03	5.69E+01	1.74E+00	3.04E+01	2.36E+02
Fluoranthene	-	2.30E+01	2.87E+02	3.89E+04	2.85E+02	1.89E+01	5.63E+02	6.87E+04	5.60E+02	4.73E+01	9.00E+02	1.83E+05	8.90E+02	1.13E+02
Fluorene	-	1.80E+00	1.77E+02	6.20E+03	1.72E+02	3.09E+01	4.13E+02	1.53E+04	4.07E+02	7.65E+01	8.86E+02	3.69E+04	8.78E+02	1.83E+02
Indeno[1,2,3-cd]pyrene	-	2.00E+04	3.09E+01	2.12E+02	2.78E+01	6.13E+02	4.22E+01	2.38E+02	3.59E+01	1.53E+01	4.92E+01	2.50E+02	4.11E+01	3.68E+01
Phenanthrene	-	5.30E+01	8.85E+01	7.17E+03	9.72E+01	3.60E+01	2.24E+02	1.76E+04	2.22E+02	8.96E+01	4.48E+02	4.07E+04	4.43E+02	2.14E+02
Pyrene	-	1.30E+01	6.29E+02	8.79E+04	6.20E+02	2.20E+00	1.25E+02	2.04E+05	1.24E+03	5.49E+00	2.05E+03	4.23E+05	2.04E+03	1.32E+01
Benzo[a]pyrene	(a)	3.80E+03	4.91E+00	3.51E+01	4.30E+00	9.11E+01	4.91E+00	3.77E+01	4.34E+00	2.28E+00	4.91E+00	3.89E+01	4.39E+00	5.46E+00
Naphthalene	-	1.80E+01	2.78E+01	2.39E+01	1.37E+01	7.64E+01	8.89E+01	3.56E+01	3.04E+01	1.83E+02	1.50E+02	1.21E+02	2.96E+01	4.32E+02
Phenol	-	-	1.80E+02	4.96E+02	1.30E+02	2.42E+04	2.98E+02	8.99E+02	8.79E+02	3.81E+04	5.89E+02	1.19E+03	2.89E+02	7.03E+04

GENERIC ASSESSMENT CRITERIA FOR HUMAN HEALTH - RESIDENTIAL WITH HOME-GROWN PRODUCE



Table 5

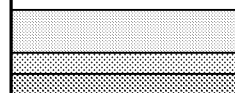
Human Health Generic Assessment Criteria by Pathway for Residential With Home-Grown Produce Scenario

Compound	Notes	GrAC (mg/l)	SAC Appropriate to Pathway SOM 1% (mg/kg)			Soil Saturation Limit (mg/kg)	SAC Appropriate to Pathway SOM 2.5% (mg/kg)			Soil Saturation Limit (mg/kg)	SAC Appropriate to Pathway SOM 6% (mg/kg)			Soil Saturation Limit (mg/kg)
			Oral	Inhalation	Combined		Oral	Inhalation	Combined		Oral	Inhalation	Combined	
Total Petroleum Hydrocarbons														
Aliphatic hydrocarbons <EC ₉ -EC ₃		1.00E+01	4.96E+03	4.24E+01	4.23E+01	3.04E+02	1.12E+04	7.79E+01	7.78E+01	5.58E+02	2.41E+04	1.81E+02	1.80E+02	1.15E+03
Aliphatic hydrocarbons >EC ₉ -EC ₅		5.40E+00	1.46E+04	1.04E+02	1.03E+02	1.44E+02	3.27E+04	3.31E+02	3.31E+02	3.22E+02	6.47E+04	3.39E+02	3.38E+02	7.36E+02
Aliphatic hydrocarbons >EC ₉ -EC ₁₀		2.30E+01	1.45E+03	2.66E+03	3.87E+01	7.77E+01	2.42E+03	6.59E+01	6.59E+01	1.90E+02	3.29E+03	1.36E+02	1.34E+02	4.51E+02
Aliphatic hydrocarbons >EC ₁₀ -EC ₁₂		3.40E+02	3.47E+03	1.33E+02	1.32E+02	4.75E+01	3.98E+03	3.31E+02	3.24E+02	1.18E+02	4.23E+03	7.93E+02	7.52E+02	2.83E+02
Aliphatic hydrocarbons >EC ₁₇ -EC ₁₆		7.60E+04	4.36E+03	1.11E+03	1.03E+03	2.37E+01	4.40E+03	2.78E+03	2.22E+03	5.91E+01	4.41E+03	6.67E+03	3.47E+03	1.42E+02
Aliphatic hydrocarbons >EC ₁₆ -EC ₃₅	(b)	-	5.28E+04	NR	NR	8.48E+00	6.95E+04	NR	NR	2.12E+01	7.94E+04	NR	NR	5.09E+01
Aliphatic hydrocarbons >EC ₃₅ -EC ₄₄	(b)	-	5.28E+04	NR	NR	8.48E+00	6.95E+04	NR	NR	2.12E+01	7.94E+04	NR	NR	5.09E+01
Aromatic hydrocarbons >EC ₉ -EC ₉ (styrene)		7.40E+00	1.67E+01	5.22E+02	1.05E+01	6.26E+02	2.51E+01	1.30E+03	2.46E+01	1.44E+03	5.73E+01	3.79E+03	5.80E+01	3.35E+03
Aromatic hydrocarbons >EC ₉ -EC ₁₀		7.40E+00	6.71E+01	4.74E+04	3.44E+01	6.13E+02	1.96E+02	1.16E+02	8.39E+01	1.50E+03	2.81E+03	2.77E+02	1.69E+02	3.58E+02
Aromatic hydrocarbons >EC ₁₀ -EC ₁₂		2.50E+01	8.17E+01	2.59E+02	7.42E+01	3.64E+02	1.90E+02	6.39E+02	1.74E+02	8.99E+02	3.95E+02	1.58E+03	3.67E+02	2.15E+03
Aromatic hydrocarbons >EC ₁₂ -EC ₁₉		5.60E+00	1.42E+02	2.85E+03	1.41E+02	1.69E+02	3.18E+02	7.07E+03	3.14E+02	4.19E+02	6.06E+02	1.68E+04	6.03E+02	1.00E+03
Aromatic hydrocarbons >EC ₁₉ -EC ₂₁	(b)	-	2.46E+02	NR	NR	5.37E+01	4.84E+02	NR	NR	1.34E+02	7.69E+02	NR	NR	3.21E+02
Aromatic hydrocarbons >EC ₂₁ -EC ₂₅	(b)	-	8.72E+02	NR	NR	4.83E+00	1.10E+03	NR	NR	1.21E+01	1.22E+03	NR	NR	2.90E+01
Aromatic hydrocarbons >EC ₂₅ -EC ₄₄	(b)	-	8.72E+02	NR	NR	4.83E+00	1.10E+03	NR	NR	1.21E+01	1.22E+03	NR	NR	2.90E+01

Notes:

EC - equivalent carbon; GrAC - groundwater assessment criteria; SAC - soil assessment criteria.

The CLEA model output is colour coded depending upon whether the soil saturation limit has been exceeded.



Calculated SAC exceeds soil saturation limit and may significantly affect the interpretation of any exceedances since the contribution of the indoor and outdoor vapour pathway to total exposure is >10%. This shading has also been used for the RSCA output where the theoretical solubility limit has been exceeded.

Calculated SAC exceeds soil saturation limit but will not effect the SSV significantly since the contribution of the indoor and outdoor vapour pathway to total exposure is <10%.

Calculated SAC does not exceed the soil saturation limit.

For consistency where the theoretical solubility limit within RSCA has been exceeded in production of the GrAC, these cells have also been hatched red.

The SAC for organic compounds are dependent upon soil organic matter (SOM) (%) content. To obtain SOM from total organic carbon (TOC) (%) divide by 0.58. 1% SOM is 0.58% TOC. DL Rowell Soil Science: Methods and Applications, Longmans, 1994.

SAC for TPH fractions, polycyclic aromatic hydrocarbons, MTBE, BTEX and trimethylbenzene compounds were produced using an attenuation factor for the indoor air inhalation pathway of 10 to reduce conservatism associated with the vapour inhalation pathway (Section 10.1.1, SR3)

(a) SAC for arsenic, benzenes, benzo(a)pyrene, cadmium, chromium VI and lead are derived using the C4SL toxicology data.

(b) SAC for selenium should not include the inhalation pathway as no expert group HCV has been derived; aliphatic and aromatic hydrocarbons >EC16 should not include inhalation pathway due to their non-volatile nature and inhalation exposure being minimal (oral, dermal and inhalation exposure is compared to the oral HCV); arsenic should only be based on oral contribution (rather than combined) owing to the relative small contribution from inhalation in accordance with the SGV report. The Oral SAC should be adopted for zinc and benzo(a)pyrene.

(c) SAC for CrIII should be based on the lower of the oral and inhalation SAC (see LQM/CIEH 2015 Section 6.8)

(d) SAC for elemental mercury, chromium VI and nickel should be based on the inhalation pathway only.

(e) SAC for 1,3,5-trimethylbenzene is not recorded owing to the lack of toxicological data, SAC for 1,2,4 trimethylbenzene may be used.

GENERIC ASSESSMENT CRITERIA FOR HUMAN HEALTH - RESIDENTIAL WITH HOME-GROWN PRODUCE



Table 6
Human Health Generic Assessment Criteria for Residential with home-grown produce

Compound	GrAC for Groundwater (mg/l)	SAC for Soil SOM 1% (mg/kg)	SAC for Soil SOM 2.5% (mg/kg)	SAC for Soil SOM 6% (mg/kg)
Metals				
Arsenic	-	37	37	37
Cadmium	-	30	30	30
Chromium (III) - trivalent	-	910	910	910
Chromium (VI) - hexavalent	-	21	21	21
Copper	-	2,500	2,500	2,500
Lead	-	200	200	200
Elemental Mercury (Hg ⁰)	0.0094	0.2	0.6	1.2
Inorganic Mercury (Hg ²⁺)	-	39	39	39
Methyl Mercury (Hg ⁴⁺)	20	10	10	10
Nickel	-	130	130	130
Selenium	-	258	258	258
Zinc	-	3,900	3,900	3,900
Cyanide	-	3.8	3.8	3.8
Volatile Organic Compounds				
Benzene	7.2	0.20	0.41	0.87
Toluene	590	130	300	680
Ethylbenzene	180	50	110	260
Xylene - m	84	59	140	327
Xylene - o	100	61	143	332
Xylene - p	87	57	133	310
Total xylene	84	57	133	310
Methyl tertiary-Butyl ether (MTBE)	2200	130	250	510
Trichloroethene	1.8	0.02	0.03	0.08
Tetrachloroethene	3.6	0.2	0.4	0.9
1,1,1-Trichloroethane	26	9	18	39
1,1,1,2-Tetrachloroethane	14	1.2	2.8	6.5
1,1,2,2-Tetrachloroethane	14	1.6	3.5	7.7
Carbon Tetrachloride	0.055	0.026	0.056	0.127
1,2-Dichloroethane	0.3	0.007	0.011	0.019
Vinyl Chloride	0.019	0.0006	0.0009	0.0014
1,2,4-Trimethylbenzene	0.075	1.8	4.3	9.7
1,3,5-Trimethylbenzene	0.047	NR	NR	NR
Semi-Volatile Organic Compounds				
Acenaphthene	3.2	230	540	1,170
Acenaphthylene	4.2	180	440	970
Anthracene	0.021	2,400	5,500	10,900
Benzo(a)anthracene	0.0038	7	11	13
Benzo(b)fluoranthene	0.002	2.6	3.3	3.7
Benzo(g,h,i)perylene	0.00026	310	340	350
Benzo(k)fluoranthene	0.0008	77	92	100
Chrysene	0.002	15	22	27
Dibenzo(a,h)anthracene	0.0006	0.24	0.28	0.30
Fluoranthene	0.23	280	560	900
Fluorene	1.9	170	410	880
Indeno(1,2,3-cd)pyrene	0.0002	27	36	41
Phenanthrene	0.53	100	220	440
Pyrene	0.13	620	1,240	2,040
Benzo(a)pyrene	0.0038	5	5	5
Naphthalene	19	13	30	71
Phenol	-	120	210	390
Total Petroleum Hydrocarbons				
Aliphatic hydrocarbons EC ₅ -EC ₈	10	42	78	160
Aliphatic hydrocarbons >EC ₈ -EC ₈	5.4	100	230	530
Aliphatic hydrocarbons >EC ₈ -EC ₁₀	0.23	27	65	154
Aliphatic hydrocarbons >EC ₁₀ -EC ₁₂	0.034	130 (48)	320 (118)	750 (283)
Aliphatic hydrocarbons >EC ₁₂ -EC ₁₆	0.00076	1,000 (24)	2,200 (59)	3,500 (142)
Aliphatic hydrocarbons >EC ₁₆ -EC ₃₅	-	53,000 (8)	70,000 (21)	79,000
Aliphatic hydrocarbons >EC ₃₅ -EC ₄₄	-	53,000 (8)	70,000 (21)	79,000
Aromatic hydrocarbons >EC ₈ -EC ₉ (styrene)	7.4	11	25	56
Aromatic hydrocarbons >EC ₉ -EC ₁₀	7.4	34	83	189
Aromatic hydrocarbons >EC ₁₀ -EC ₁₂	25	74	174	367
Aromatic hydrocarbons >EC ₁₂ -EC ₁₆	5.8	100	300	600
Aromatic hydrocarbons >EC ₁₆ -EC ₂₁	-	200	500	800
Aromatic hydrocarbons >EC ₂₁ -EC ₃₅	-	900	1,100	1,200
Aromatic hydrocarbons >EC ₃₅ -EC ₄₄	-	900	1,100	1,200
Minerals				
Asbestos	-	No asbestos detected with ID or <0.001% dry weight ¹		

Notes:

¹ Generic assessment criteria not calculated owing to low volatility of substance and therefore no pathway, or an absence of toxicological data.

NR - SAC for 1,3,5-trimethylbenzene is not recorded owing to the lack of toxicological data, SAC for 1,2,4-trimethylbenzene may be used

EC - equivalent carbon, GrAC - groundwater assessment criteria, SAC - soil assessment criteria.

¹ LOD for weight of asbestos per unit weight of soil calculated on a dry weight basis using PLM, handpicking and gravimetry.

The SAC for organic compounds are dependent on Soil Organic Matter (SOM) (%) content. To obtain SOM from total organic carbon (TOC) (%) divide by 0.58.

1% SOM is 0.58% TOC. DL Rowell Soil Science: Methods and Applications, Longmans, 1994.

SAC for TPH fractions, polycyclic aromatic hydrocarbons, MTBE, BTEX and trimethylbenzene compounds were produced using an attenuation factor for the indoor air inhalation pathway of 10 to reduce conservatism associated with the vapour inhalation pathway, section 10.1.1, SR3.

(VALUE IN BRACKETS) The SAC has been set as the model calculated SAC with the saturation limit shown in brackets.

RSK has adopted an approach for petroleum hydrocarbons in accordance with LQM/CIEH whereby the concentration modelled for each petroleum hydrocarbon fraction has been tabulated as the SAC with the corresponding solubility or vapour saturation limits given in brackets.

(VALUE IN BRACKETS) For consistency where the GrAC exceeds the solubility limit, GrAC has been set at the solubility limit. The GrAC is conservative since concentrations of the chemical are very unlikely to be at sufficient concentration to result in an exceedance of the health criteria value at the point of exposure (i.e. indoor air) provided free-phase product is absent.

APPENDIX E

LABORATORY ANALYSIS RESULTS

FINAL ANALYTICAL TEST REPORT

Envirolab Job Number: 16/03957
Issue Number: 1

Date: 06 July, 2016

Client: RSK Environment Ltd Hemel
18 Frogmore Road
Hemel Hempstead
Hertfordshire
UK
HP3 9RT

Project Manager: Andrew James/Edward Hughes/Nigel Austin
Project Name: Angmering
Project Ref: 27621
Order No: N/A
Date Samples Received: 28/06/16
Date Instructions Received: 28/06/16
Date Analysis Completed: 06/07/16

Prepared by:

Approved by:


Danielle Brierley
Administrative Assistant


Gill Walker
Laboratory Manager

Envirolab Job Number: 16/03957

Client Project Name: Angmering

Client Project Ref: 27621

Lab Sample ID	16/03957/1	16/03957/2	16/03957/3	16/03957/4					Units	Method ref
Client Sample No										
Client Sample ID	SWBV1	SWBV2	SWBV3	SWBV4						
Depth to Top	0.30	0.10	0.20	0.10						
Depth To Bottom	0.50	0.30	0.40	0.30						
Date Sampled	23-Jun-16	23-Jun-16	23-Jun-16	23-Jun-16						
Sample Type	Soil - ES	Soil - ES	Soil - ES	Soil - ES						
Sample Matrix Code	6	5	3	3						
% Stones >10mm _A [#]	<0.1	<0.1	<0.1	<0.1					% w/w	A-T-044
pH _D ^{M#}	7.72	7.14	6.99	7.28					pH	A-T-031s
Sulphate (water sol 2:1) _D ^{M#}	0.05	0.05	0.09	0.13					g/l	A-T-026s
Sulphate (acid soluble) _D ^{M#}	230	220	320	430					mg/kg	A-T-028s
Arsenic _D ^{M#}	7	8	5	9					mg/kg	A-T-024s
Cadmium _D ^{M#}	1.6	3.4	1.6	2.4					mg/kg	A-T-024s
Copper _D ^{M#}	20	14	9	10					mg/kg	A-T-024s
Chromium _D ^{M#}	27	35	31	29					mg/kg	A-T-024s
Lead _D ^{M#}	27	14	12	14					mg/kg	A-T-024s
Mercury _D	<0.17	<0.17	<0.17	<0.17					mg/kg	A-T-024s
Nickel _D ^{M#}	19	25	21	21					mg/kg	A-T-024s
Selenium _D	<1	3	<1	2					mg/kg	A-T-024s
Zinc _D ^{M#}	51	47	42	43					mg/kg	A-T-024s

Envirolab Job Number: 16/03957

Client Project Name: Angmering

Client Project Ref: 27621

Lab Sample ID	16/03957/1	16/03957/2	16/03957/3	16/03957/4					Units	Method ref
Client Sample No										
Client Sample ID	SWBV1	SWBV2	SWBV3	SWBV4						
Depth to Top	0.30	0.10	0.20	0.10						
Depth To Bottom	0.50	0.30	0.40	0.30						
Date Sampled	23-Jun-16	23-Jun-16	23-Jun-16	23-Jun-16						
Sample Type	Soil - ES	Soil - ES	Soil - ES	Soil - ES						
Sample Matrix Code	6	5	3	3						
Asbestos in Soil (inc. matrix)										
Asbestos in soil [#]	NAD	NAD	NAD	NAD						A-T-045
Asbestos ACM - Suitable for Water Absorption Test? _D	N/A	N/A	N/A	N/A						Gravimetry

Envirolab Job Number: 16/03957

Client Project Name: Angmering

Client Project Ref: 27621

Lab Sample ID	16/03957/1	16/03957/2	16/03957/3	16/03957/4					Units	Method ref
Client Sample No										
Client Sample ID	SWBV1	SWBV2	SWBV3	SWBV4						
Depth to Top	0.30	0.10	0.20	0.10						
Depth To Bottom	0.50	0.30	0.40	0.30						
Date Sampled	23-Jun-16	23-Jun-16	23-Jun-16	23-Jun-16						
Sample Type	Soil - ES	Soil - ES	Soil - ES	Soil - ES						
Sample Matrix Code	6	5	3	3						
PAH 16										
Acenaphthene _A ^{M#}	<0.01	<0.01	<0.01	<0.01					mg/kg	A-T-019s
Acenaphthylene _A ^{M#}	<0.01	<0.01	<0.01	<0.01					mg/kg	A-T-019s
Anthracene _A ^{M#}	<0.02	<0.02	<0.02	<0.02					mg/kg	A-T-019s
Benzo(a)anthracene _A ^{M#}	<0.04	<0.04	<0.04	<0.04					mg/kg	A-T-019s
Benzo(a)pyrene _A ^{M#}	<0.04	<0.04	<0.04	<0.04					mg/kg	A-T-019s
Benzo(b)fluoranthene _A ^{M#}	<0.05	<0.05	<0.05	<0.05					mg/kg	A-T-019s
Benzo(ghi)perylene _A ^{M#}	<0.05	<0.05	<0.05	<0.05					mg/kg	A-T-019s
Benzo(k)fluoranthene _A ^{M#}	<0.07	<0.07	<0.07	<0.07					mg/kg	A-T-019s
Chrysene _A ^{M#}	<0.06	<0.06	<0.06	<0.06					mg/kg	A-T-019s
Dibenzo(ah)anthracene _A ^{M#}	<0.04	<0.04	<0.04	<0.04					mg/kg	A-T-019s
Fluoranthene _A ^{M#}	<0.08	<0.08	<0.08	<0.08					mg/kg	A-T-019s
Fluorene _A ^{M#}	<0.01	<0.01	<0.01	<0.01					mg/kg	A-T-019s
Indeno(123-cd)pyrene _A ^{M#}	<0.03	<0.03	<0.03	<0.03					mg/kg	A-T-019s
Naphthalene _A ^{M#}	<0.03	<0.03	<0.03	<0.03					mg/kg	A-T-019s
Phenanthrene _A ^{M#}	<0.03	<0.03	<0.03	<0.03					mg/kg	A-T-019s
Pyrene _A ^{M#}	<0.07	<0.07	<0.07	<0.07					mg/kg	A-T-019s
PAH (total 16) _A ^{M#}	<0.08	<0.08	<0.08	<0.08					mg/kg	A-T-019s

Envirolab Job Number: 16/03957

Client Project Name: Angmering

Client Project Ref: 27621

Lab Sample ID	16/03957/1	16/03957/2	16/03957/3	16/03957/4					Units	Method ref
Client Sample No										
Client Sample ID	SWBV1	SWBV2	SWBV3	SWBV4						
Depth to Top	0.30	0.10	0.20	0.10						
Depth To Bottom	0.50	0.30	0.40	0.30						
Date Sampled	23-Jun-16	23-Jun-16	23-Jun-16	23-Jun-16						
Sample Type	Soil - ES	Soil - ES	Soil - ES	Soil - ES						
Sample Matrix Code	6	5	3	3						
TPH CWG										
Ali >C5-C6 _A [#]	<0.01	<0.01	<0.01	<0.01					mg/kg	A-T-022s
Ali >C6-C8 _A [#]	<0.01	<0.01	<0.01	<0.01					mg/kg	A-T-022s
Ali >C8-C10 _A [#]	<0.01	<0.01	<0.01	<0.01					mg/kg	A-T-022s
Ali >C10-C12 _A [#]	<0.1	<0.1	<0.1	<0.1					mg/kg	A-T-023s
Ali >C12-C16 _A [#]	<0.1	<0.1	<0.1	<0.1					mg/kg	A-T-023s
Ali >C16-C21 _A [#]	<0.1	<0.1	<0.1	<0.1					mg/kg	A-T-023s
Ali >C21-C35 _A [#]	<0.1	<0.1	<0.1	<0.1					mg/kg	A-T-023s
Total Aliphatics _A	<0.1	<0.1	<0.1	<0.1					mg/kg	A-T-022+23s
Aro >C5-C7 _A [#]	<0.01	<0.01	<0.01	<0.01					mg/kg	A-T-022s
Aro >C7-C8 _A [#]	<0.01	<0.01	<0.01	<0.01					mg/kg	A-T-022s
Aro >C8-C9 _A [#]	<0.01	<0.01	<0.01	<0.01					mg/kg	A-T-022s
Aro >C9-C10 _A [#]	<0.01	<0.01	<0.01	<0.01					mg/kg	A-T-022s
Aro >C10-C12 _A [#]	<0.1	<0.1	<0.1	<0.1					mg/kg	A-T-023s
Aro >C12-C16 _A [#]	<0.1	<0.1	<0.1	<0.1					mg/kg	A-T-023s
Aro >C16-C21 _A [#]	<0.1	<0.1	<0.1	<0.1					mg/kg	A-T-023s
Aro >C21-C35 _A [#]	<0.1	<0.1	<0.1	<0.1					mg/kg	A-T-023s
Total Aromatics _A	<0.1	<0.1	<0.1	<0.1					mg/kg	A-T-022+23s
TPH (Ali & Aro) _A	<0.1	<0.1	<0.1	<0.1					mg/kg	A-T-022+23s
BTEX - Benzene _A [#]	<0.01	<0.01	<0.01	<0.01					mg/kg	A-T-022s
BTEX - Toluene _A [#]	<0.01	<0.01	<0.01	<0.01					mg/kg	A-T-022s
BTEX - Ethyl Benzene _A [#]	<0.01	<0.01	<0.01	<0.01					mg/kg	A-T-022s
BTEX - m & p Xylene _A [#]	<0.01	<0.01	<0.01	<0.01					mg/kg	A-T-022s
BTEX - o Xylene _A [#]	<0.01	<0.01	<0.01	<0.01					mg/kg	A-T-022s
MTBE _A [#]	<0.01	<0.01	<0.01	<0.01					mg/kg	A-T-022s

REPORT NOTES

Notes - Soil chemical analysis

All results are reported as dry weight (<40°C).

For samples with Matrix Codes 1 - 6 natural stones and brick and concrete fragments >10mm are removed or excluded from the sample prior to analysis and reported results corrected to a whole sample basis. For samples with Matrix Code 7 the whole sample is dried and crushed prior to analysis.

Notes - General

This report shall not be reproduced, except in full, without written approval from Envirolab.

Subscript "A" indicates analysis performed on the sample as received. "D" indicates analysis performed on the dried sample, crushed to pass a 2mm sieve, unless asbestos is found to be present in which case all analysis is performed on the sample as received.

All analysis is performed on the dried and crushed sample for samples with Matrix Code 7 and this supersedes any "A" subscripts.

All analysis is performed on the sample as received for soil samples which are positive for asbestos and/or if they are from outside the European Union and this supersedes any "D" subscripts.

Superscript "M" indicates method accredited to MCERTS.

If results are in italic font they are associated with an AQC failure. These are not accredited and are unreliable.

A deviating samples report is appended and will indicate if samples or tests have been found to be deviating. Any test results affected may not be an accurate record of the concentration at the time of sampling and, as a result, may be invalid.

TPH analysis of water by method A-T-007

Free and visible oils are excluded from the sample used for analysis so that the reported result represents the dissolved phase only.

Asbestos in soil

Asbestos in soil analysis is performed on a dried aliquot of the submitted sample and cannot guarantee to identify asbestos if present as discrete fibres/fragments. Stones etc. are not removed from the sample prior to analysis.

Quantification of asbestos is a 3 stage process including visual identification, hand picking and weighing and fibre counting by sedimentation/phase contrast optical microscopy if required. If asbestos is identified as being present but is not in a form that is suitable for analysis by hand picking and weighing (normally if the asbestos is present as free fibres) quantification by sedimentation is performed. Where ACMs are found a percentage asbestos is assigned to each with reference to 'HSG264, Asbestos: The survey guide' and the calculated asbestos content is expressed as a percentage of the dried soil sample aliquot used.

Predominant Matrix Codes:

1 = SAND, 2 = LOAM, 3 = CLAY, 4 = LOAM/SAND, 5 = SAND/CLAY, 6 = CLAY/LOAM, 7 = OTHER, 8 = Asbestos bulk ID sample. Samples with Matrix Code 7 are not predominantly a SAND/LOAM/CLAY mix and are not covered by our BSEN 17025 or MCERTS accreditations.

Secondary Matrix Codes:

A = contains stones, B = contains construction rubble, C = contains visible hydrocarbons, D = contains glass/metal, E = contains roots/twigs.

IS indicates Insufficient Sample for analysis.

US indicates Unsuitable Sample for analysis.

NDP indicates No Determination Possible.

NAD indicates No Asbestos Detected.

N/A indicates Not Applicable.

Superscript # indicates method accredited to ISO 17025.

Analytical results reflect the quality of the sample at the time of analysis only. Opinions and interpretations expressed are outside the scope of our accreditation.

Please contact us if you need any further information.

FINAL ANALYTICAL TEST REPORT

Envirolab Job Number: 18/02433
Issue Number: 1
Date: 06 April, 2018

Client: RSK Environment Ltd Southampton
Unit 26
Basepoint Abbey Enterprise Centre
Premier Way
Romsey,
Hampshire
UK
SO51 9AQ

Project Manager: Catherine Latimer; All RSK Southampton
Project Name: Former West End Nursery, Angmering
Project Ref: 27621
Order No: N/A
Date Samples Received: 04/04/18
Date Instructions Received: 04/04/18
Date Analysis Completed: 06/04/18

Prepared by:

Approved by:

Melanie Marshall
Laboratory Coordinator

Richard Wong
Client Manager

Envirolab Job Number: 18/02433

Client Project Name: Former West End Nursery, Angmering

Client Project Ref: 27621

Lab Sample ID	18/02433/1	18/02433/2							Units	Method ref
Client Sample No										
Client Sample ID	P3-A1	P3-A2								
Depth to Top										
Depth To Bottom										
Date Sampled	29-Mar-18	29-Mar-18								
Sample Type	Soil - ES	Soil - ES								
Sample Matrix Code	6	6A								
% Stones >10mm _A	<0.1	7.7							% w/w	A-T-044

Envirolab Job Number: 18/02433

Client Project Name: Former West End Nursery, Angmering

Client Project Ref: 27621

Lab Sample ID	18/02433/1	18/02433/2							Units	Method ref
Client Sample No										
Client Sample ID	P3-A1	P3-A2								
Depth to Top										
Depth To Bottom										
Date Sampled	29-Mar-18	29-Mar-18								
Sample Type	Soil - ES	Soil - ES								
Sample Matrix Code	6	6A								
TPH CWG										
Ali >C5-C6 _A [#]	0.02	0.08							mg/kg	A-T-022s
Ali >C6-C8 _A [#]	0.24	1.27							mg/kg	A-T-022s
Ali >C8-C10 _A [#]	0.80	8.35							mg/kg	A-T-022s
Ali >C10-C12 _A [#]	165	173							mg/kg	A-T-023s
Ali >C12-C16 _A [#]	285	315							mg/kg	A-T-023s
Ali >C16-C21 _A [#]	367	417							mg/kg	A-T-023s
Ali >C21-C35 _A [#]	736	1020							mg/kg	A-T-023s
Total Aliphatics _A	1560	1930							mg/kg	A-T-023s
Aro >C5-C7 _A [#]	0.05	0.08							mg/kg	A-T-022s
Aro >C7-C8 _A [#]	<0.01	<0.02							mg/kg	A-T-022s
Aro >C8-C9 _A [#]	0.94	3.55							mg/kg	A-T-022s
Aro >C9-C10 _A [#]	2.49	11.5							mg/kg	A-T-022s
Aro >C10-C12 _A [#]	170	189							mg/kg	A-T-023s
Aro >C12-C16 _A [#]	572	608							mg/kg	A-T-023s
Aro >C16-C21 _A [#]	634	630							mg/kg	A-T-023s
Aro >C21-C35 _A [#]	819	790							mg/kg	A-T-023s
Total Aromatics _A	2200	2230							mg/kg	A-T-023s
TPH (Ali & Aro) _A	3750	4170							mg/kg	A-T-023s
BTEX - Benzene _A [#]	0.05	0.08							mg/kg	A-T-022s
BTEX - Toluene _A [#]	<0.01	<0.02							mg/kg	A-T-022s
BTEX - Ethyl Benzene _A [#]	0.19	0.59							mg/kg	A-T-022s
BTEX - m & p Xylene _A [#]	0.33	1.53							mg/kg	A-T-022s
BTEX - o Xylene _A [#]	0.45	1.49							mg/kg	A-T-022s
MTBE _A [#]	<0.01	<0.02							mg/kg	A-T-022s

REPORT NOTES

General:

This report shall not be reproduced, except in full, without written approval from Envirolab.

All samples contained within this report, and any received with the same delivery, will be disposed of one month after the date of this report.

Analytical results reflect the quality of the sample at the time of analysis only.

Opinions and interpretations expressed are outside the scope of our accreditation.

If results are in italic font they are associated with an AQC failure and there is insufficient sample to repeat the analysis. These are not accredited and are unreliable.

A deviating samples report is appended and will indicate if samples or tests have been found to be deviating. Any test results affected may not be an accurate record of the concentration at the time of sampling and, as a result, may be invalid.

Soil chemical analysis:

All results are reported as dry weight (<40°C).

For samples with Matrix Codes 1 - 6 natural stones, brick and concrete fragments >10mm and any extraneous material (visible glass, metal or twigs) are removed and excluded from the sample prior to analysis and reported results corrected to a whole sample basis. This is reported as '% stones >10mm'.

For samples with Matrix Code 7 the whole sample is dried and crushed prior to analysis and this supersedes any "A" subscripts

All analysis is performed on the sample as received for soil samples which are positive for asbestos or the client has informed asbestos may be present and/or if they are from outside the European Union and this supersedes any "D" subscripts.

TPH analysis of water by method A-T-007:

Free and visible oils are excluded from the sample used for analysis so that the reported result represents the dissolved phase only.

Electrical Conductivity of water by Method A-T-037:

Results greater than 12900µS/cm @ 25°C / 11550µS/cm @ 20°C fall outside the calibration range and as such are unaccredited.

Asbestos:

Asbestos in soil analysis is performed on a dried aliquot of the submitted sample and cannot guarantee to identify asbestos if only present in small numbers as discrete fibres/fragments in the original sample.

Stones etc. are not removed from the sample prior to analysis.

Quantification of asbestos is a 3 stage process including visual identification, hand picking and weighing and fibre counting by sedimentation/phase contrast optical microscopy if required. If asbestos is identified as being present but is not in a form that is suitable for analysis by hand picking and weighing (normally if the asbestos is present as free fibres) quantification by sedimentation is performed. Where ACMs are found a percentage asbestos is assigned to each with reference to 'HSG264, Asbestos: The survey guide' and the calculated asbestos content is expressed as a percentage of the dried soil sample aliquot used.

Predominant Matrix Codes:

1 = SAND, 2 = LOAM, 3 = CLAY, 4 = LOAM/SAND, 5 = SAND/CLAY, 6 = CLAY/LOAM, 7 = OTHER, 8 = Asbestos bulk ID sample.

Samples with Matrix Code 7 & 8 are not predominantly a SAND/LOAM/CLAY mix and are not covered by our BSEN 17025 or MCERTS accreditations, with the exception of bulk asbestos which are BSEN 17025 accredited.

Secondary Matrix Codes:

A = contains stones, B = contains construction rubble, C = contains visible hydrocarbons, D = contains glass/metal,

E = contains roots/twigs.

Key:

IS indicates Insufficient Sample for analysis.

US indicates Unsuitable Sample for analysis.

NDP indicates No Determination Possible.

NAD indicates No Asbestos Detected.

N/A indicates Not Applicable.

Superscript # indicates method accredited to ISO 17025.

Superscript "M" indicates method accredited to MCERTS.

Subscript "A" indicates analysis performed on the sample as received.

Subscript "D" indicates analysis performed on the dried sample, crushed to pass a 2mm sieve

Please contact us if you need any further information.

FINAL ANALYTICAL TEST REPORT

SUPPLEMENT TO TEST REPORT 18/02669/3

Envirolab Job Number: 18/02669
Issue Number: 4
Date: 26 February, 2019

Client: RSK Environment Ltd Southampton
Unit 26
Basepoint Abbey Enterprise Centre
Premier Way
Romsey,
Hampshire
UK
SO51 9AQ

Project Manager: Catherine Latimer; All RSK Southampton
Project Name: Former West End Nursery, Angmering
Project Ref: 27621
Order No: N/A
Date Samples Received: 11/04/18
Date Instructions Received: 12/04/18
Date Analysis Completed: 01/05/18

Prepared by: **Approved by:**

[Redacted Signature Area]

Client Manager

Client Manager



Envirolab Job Number: 18/02669

Client Project Name: Former West End Nursery, Angmering

Client Project Ref: 27621

Lab Sample ID	18/02669/1	18/02669/3	18/02669/4						Units	Method ref
Client Sample No	1	3	1							
Client Sample ID	C- Plot 317 Service Trench	D- Plot 317 Service Trench	Plot 325 Suspected ACM insulation							
Depth to Top	0.70	0.80	0.00							
Depth To Bottom	0.80									
Date Sampled	03-Apr-18	09-Apr-18	10-Apr-18							
Sample Type	Soil - ES	Soil - ES	Soil - ES							
Sample Matrix Code	6A	4A	5							
% Stones >10mm _A	25.7	<0.1	-						% w/w	A-T-044

Envirolab Job Number: 18/02669

Client Project Name: Former West End Nursery, Angmering

Client Project Ref: 27621

Lab Sample ID	18/02669/1	18/02669/3	18/02669/4						Units	Method ref
Client Sample No	1	3	1							
Client Sample ID	C- Plot 317 Service Trench	D- Plot 317 Service Trench	Plot 325 Suspected ACM insulation							
Depth to Top	0.70	0.80	0.00							
Depth To Bottom	0.80									
Date Sampled	03-Apr-18	09-Apr-18	10-Apr-18							
Sample Type	Soil - ES	Soil - ES	Soil - ES							
Sample Matrix Code	6A	4A	5							
Asbestos in Soil (inc. matrix)										
Asbestos in soil [#]	NAD	Chrysotile	Amosite							A-T-045
Asbestos Matrix (visual) _A	-	-	Loose Insulation							A-T-045
Asbestos Matrix (microscope) _A	-	Loose fibres	-							A-T-045
Asbestos ACM - Suitable for Water Absorption Test?	N/A	N/A	N/A							
Asbestos in Soil Quantification % (Hand Picking & Weighing)										
Asbestos in soil % composition (hand picking and weighing) _o	-	<0.001	14.87						% w/w	A-T-054

Envirolab Job Number: 18/02669

Client Project Name: Former West End Nursery, Angmering

Client Project Ref: 27621

Lab Sample ID	18/02669/1	18/02669/3	18/02669/4						Units	Method ref
Client Sample No	1	3	1							
Client Sample ID	C- Plot 317 Service Trench	D- Plot 317 Service Trench	Plot 325 Suspected ACM insulation							
Depth to Top	0.70	0.80	0.00							
Depth To Bottom	0.80									
Date Sampled	03-Apr-18	09-Apr-18	10-Apr-18							
Sample Type	Soil - ES	Soil - ES	Soil - ES							
Sample Matrix Code	6A	4A	5							
TPH CWG										
Ali >C5-C6 _A [#]	0.03	<0.01	-						mg/kg	A-T-022s
Ali >C6-C8 _A [#]	0.05	0.04	-						mg/kg	A-T-022s
Ali >C8-C10 _A [#]	2.34	1.73	-						mg/kg	A-T-022s
Ali >C10-C12 _A [#]	44.3	65.8	-						mg/kg	A-T-023s
Ali >C12-C16 _A [#]	245	326	-						mg/kg	A-T-023s
Ali >C16-C21 _A [#]	415	502	-						mg/kg	A-T-023s
Ali >C21-C35 _A [#]	126	139	-						mg/kg	A-T-023s
Total Aliphatics _A	833	1030	-						mg/kg	A-T-023s
Aro >C5-C7 _A [#]	<0.01	<0.01	-						mg/kg	A-T-022s
Aro >C7-C8 _A [#]	<0.01	<0.01	-						mg/kg	A-T-022s
Aro >C8-C9 _A [#]	0.05	0.02	-						mg/kg	A-T-022s
Aro >C9-C10 _A [#]	0.74	0.58	-						mg/kg	A-T-022s
Aro >C10-C12 _A [#]	11.7	25.9	-						mg/kg	A-T-023s
Aro >C12-C16 _A [#]	103	159	-						mg/kg	A-T-023s
Aro >C16-C21 _A [#]	180	219	-						mg/kg	A-T-023s
Aro >C21-C35 _A [#]	67.8	78.1	-						mg/kg	A-T-023s
Total Aromatics _A	363	482	-						mg/kg	A-T-023s
TPH (Ali & Aro) _A	1200	1520	-						mg/kg	A-T-023s
BTEX - Benzene _A [#]	<0.01	<0.01	-						mg/kg	A-T-022s
BTEX - Toluene _A [#]	<0.01	<0.01	-						mg/kg	A-T-022s
BTEX - Ethyl Benzene _A [#]	0.02	<0.01	-						mg/kg	A-T-022s
BTEX - m & p Xylene _A [#]	<0.01	<0.01	-						mg/kg	A-T-022s
BTEX - o Xylene _A [#]	0.03	<0.01	-						mg/kg	A-T-022s
MTBE _A [#]	<0.01	<0.01	-						mg/kg	A-T-022s

REPORT NOTES

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Soil chemical analysis:

All results are reported as dry weight (<40°C).

For samples with Matrix Codes 1 - 6 natural stones, brick and concrete fragments >10mm and any extraneous material (visible glass, metal or twigs) are removed and excluded from the sample prior to analysis and reported results corrected to a whole sample basis. This is reported as '% stones >10mm'.

For samples with Matrix Code 7 the whole sample is dried and crushed prior to analysis and this supersedes any "A" subscripts

All analysis is performed on the sample as received for soil samples which are positive for asbestos or the client has informed asbestos may be present and/or if they are from outside the European Union and this supersedes any "D" subscripts.

TPH analysis of water by method A-T-007:

Free and visible oils are excluded from the sample used for analysis so that the reported result represents the dissolved phase only.

Electrical Conductivity of water by Method A-T-037:

Results greater than 12900µS/cm @ 25°C / 11550µS/cm @ 20°C fall outside the calibration range and as such are unaccredited.

Asbestos:

Asbestos in soil analysis is performed on a dried aliquot of the submitted sample and cannot guarantee to identify asbestos if only present in small numbers as discrete fibres/fragments in the original sample.

Stones etc. are not removed from the sample prior to analysis.

Quantification of asbestos is a 3 stage process including visual identification, hand picking and weighing and fibre counting by sedimentation/phase contrast optical microscopy if required. If asbestos is identified as being present but is not in a form that is suitable for analysis by hand picking and weighing (normally if the asbestos is present as free fibres) quantification by sedimentation is performed.

Where ACMs are found a percentage asbestos is assigned to each with reference to 'HSG264, Asbestos: The survey guide' and the calculated asbestos content is expressed as a percentage of the dried soil sample aliquot used.

Predominant Matrix Codes:

1 = SAND, 2 = LOAM, 3 = CLAY, 4 = LOAM/SAND, 5 = SAND/CLAY, 6 = CLAY/LOAM, 7 = OTHER, 8 = Asbestos bulk ID sample.

Samples with Matrix Code 7 & 8 are not predominantly a SAND/LOAM/CLAY mix and are not covered by our BSEN 17025 or MCERTS accreditations, with the exception of bulk asbestos which are BSEN 17025 accredited.

Secondary Matrix Codes:

A = contains stones, B = contains construction rubble, C = contains visible hydrocarbons, D = contains glass/metal,

E = contains roots/twigs.

Key:

IS indicates Insufficient Sample for analysis.

US indicates Unsuitable Sample for analysis.

NDP indicates No Determination Possible.

NAD indicates No Asbestos Detected.

N/A indicates Not Applicable.

Superscript # indicates method accredited to ISO 17025.

Superscript "M" indicates method accredited to MCERTS.

Subscript "A" indicates analysis performed on the sample as received.

Subscript "D" indicates analysis performed on the dried sample, crushed to pass a 2mm sieve

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FINAL ANALYTICAL TEST REPORT

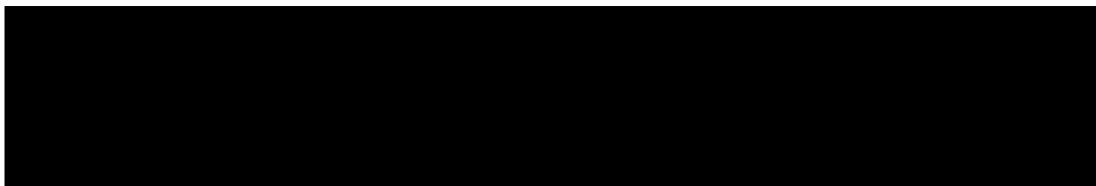
Envirolab Job Number: 18/02971
Issue Number: 1
Date: 03 May, 2018

Client: RSK Environment Ltd Southampton
Unit 26
Basepoint Abbey Enterprise Centre
Premier Way
Romsey,
Hampshire
UK
SO51 9AQ

Project Manager: Catherine Cussell
Project Name: Former West End Nursery, Angmering
Project Ref: 27621
Order No: N/A
Date Samples Received: 20/04/18
Date Instructions Received: 20/04/18
Date Analysis Completed: 02/05/18

Prepared by:

Approved by:



Holly Neary-King
Administrative Assistant

Richard Wong
Client Manager

Envirolab Job Number: 18/02971

Client Project Name: Former West End Nursery, Angmering

Client Project Ref: 27621

Lab Sample ID	18/02971/1	18/02971/2	18/02971/3						Units	Method ref
Client Sample No										
Client Sample ID	Septic Tank 1 Base	Septic Tank 1 Wall (East)	Septic Tank 1 Wall (South)							
Depth to Top	2.50	2.00	2.00							
Depth To Bottom										
Date Sampled	17-Apr-18	17-Apr-18	17-Apr-18							
Sample Type	Soil - ES	Soil - ES	Soil - ES							
Sample Matrix Code	6AE	6A	6A							
% Stones >10mm _A	2.1	11.3	12.2						% w/w	A-T-044
Ammonium / Ammoniacal Nitrogen as NH ₄ D	115	128	231						mg/kg	A-T-033s
Total Organic Carbon _D ^{M#}	3.15	4.14	3.76						% w/w	A-T-032s
Coliforms (total) _A	<10	1600	300						cfu/g	Subcon Mercian
E-Coli (Faecal Coliforms) _A	<10	<10	<10						cfu/g	Subcon Mercian

Envirolab Job Number: 18/02971

Client Project Name: Former West End Nursery, Angmering

Client Project Ref: 27621

Lab Sample ID	18/02971/1	18/02971/2	18/02971/3						Units	Method ref
Client Sample No										
Client Sample ID	Septic Tank 1 Base	Septic Tank 1 Wall (East)	Septic Tank 1 Wall (South)							
Depth to Top	2.50	2.00	2.00							
Depth To Bottom										
Date Sampled	17-Apr-18	17-Apr-18	17-Apr-18							
Sample Type	Soil - ES	Soil - ES	Soil - ES							
Sample Matrix Code	6AE	6A	6A							
Asbestos in Soil (inc. matrix)										
Asbestos in soil [#]	NAD	NAD	NAD							A-T-045
Asbestos ACM - Suitable for Water Absorption Test?	N/A	N/A	N/A							

REPORT NOTES

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Soil chemical analysis:

All results are reported as dry weight (<40°C).

For samples with Matrix Codes 1 - 6 natural stones, brick and concrete fragments >10mm and any extraneous material (visible glass, metal or twigs) are removed and excluded from the sample prior to analysis and reported results corrected to a whole sample basis. This is reported as '% stones >10mm'.

For samples with Matrix Code 7 the whole sample is dried and crushed prior to analysis and this supersedes any "A" subscripts

All analysis is performed on the sample as received for soil samples which are positive for asbestos or the client has informed asbestos may be present and/or if they are from outside the European Union and this supersedes any "D" subscripts.

TPH analysis of water by method A-T-007:

Free and visible oils are excluded from the sample used for analysis so that the reported result represents the dissolved phase only.

Electrical Conductivity of water by Method A-T-037:

Results greater than 12900µS/cm @ 25°C / 11550µS/cm @ 20°C fall outside the calibration range and as such are unaccredited.

Asbestos:

Asbestos in soil analysis is performed on a dried aliquot of the submitted sample and cannot guarantee to identify asbestos if only present in small numbers as discrete fibres/fragments in the original sample.

Stones etc. are not removed from the sample prior to analysis.

Quantification of asbestos is a 3 stage process including visual identification, hand picking and weighing and fibre counting by sedimentation/phase contrast optical microscopy if required. If asbestos is identified as being present but is not in a form that is suitable for analysis by hand picking and weighing (normally if the asbestos is present as free fibres) quantification by sedimentation is performed. Where ACMs are found a percentage asbestos is assigned to each with reference to 'HSG264, Asbestos: The survey guide' and the calculated asbestos content is expressed as a percentage of the dried soil sample aliquot used.

Predominant Matrix Codes:

1 = SAND, 2 = LOAM, 3 = CLAY, 4 = LOAM/SAND, 5 = SAND/CLAY, 6 = CLAY/LOAM, 7 = OTHER, 8 = Asbestos bulk ID sample.

Samples with Matrix Code 7 & 8 are not predominantly a SAND/LOAM/CLAY mix and are not covered by our BSEN 17025 or MCERTS accreditations, with the exception of bulk asbestos which are BSEN 17025 accredited.

Secondary Matrix Codes:

A = contains stones, B = contains construction rubble, C = contains visible hydrocarbons, D = contains glass/metal,

E = contains roots/twigs.

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Please contact us if you need any further information.

FINAL ANALYTICAL TEST REPORT

Envirolab Job Number: 18/03643
Issue Number: 1
Date: 16 May, 2018

Client: RSK Environment Ltd Southampton
Unit 26
Basepoint Abbey Enterprise Centre
Premier Way
Romsey,
Hampshire
UK
SO51 9AQ

Project Manager: Catherine Cussell; All RSK Southampton/Ed Hughes;
Project Name: Angmering
Project Ref: 27621
Order No: N/A
Date Samples Received: 11/05/18
Date Instructions Received: 11/05/18
Date Analysis Completed: 16/05/18

Prepared by:

Approved by:

Holly Neary-King
Administrative Assistant

John Gustafson
Managing Director

Envirolab Job Number: 18/03643

Client Project Name: Angmering

Client Project Ref: 27621

Lab Sample ID	18/03643/1								Units	Method ref
Client Sample No	1									
Client Sample ID	Plot 325-Oil									
Depth to Top										
Depth To Bottom										
Date Sampled	10-May-18									
Sample Type	Liquid - Product / Oil									
Sample Matrix Code	N/A									
Product (Oil) ID										
Product (Oil) ID (for FID characterisation) _A	Unresolved complex mixture circa nC12-nC44									A-T-007w
Carbon range _A	C12-C44									A-T-007w
Product (Oil) Density _A	0.629								g/ml	A-T-018

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Soil chemical analysis:

All results are reported as dry weight (<40°C).

For samples with Matrix Codes 1 - 6 natural stones, brick and concrete fragments >10mm and any extraneous material (visible glass, metal or twigs) are removed and excluded from the sample prior to analysis and reported results corrected to a whole sample basis. This is reported as '% stones >10mm'.

For samples with Matrix Code 7 the whole sample is dried and crushed prior to analysis and this supersedes any "A" subscripts

All analysis is performed on the sample as received for soil samples which are positive for asbestos or the client has informed asbestos may be present and/or if they are from outside the European Union and this supersedes any "D" subscripts.

TPH analysis of water by method A-T-007:

Free and visible oils are excluded from the sample used for analysis so that the reported result represents the dissolved phase only.

Electrical Conductivity of water by Method A-T-037:

Results greater than 12900µS/cm @ 25°C / 11550µS/cm @ 20°C fall outside the calibration range and as such are unaccredited.

Asbestos:

Asbestos in soil analysis is performed on a dried aliquot of the submitted sample and cannot guarantee to identify asbestos if only present in small numbers as discrete fibres/fragments in the original sample.

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Quantification of asbestos is a 3 stage process including visual identification, hand picking and weighing and fibre counting by sedimentation/phase contrast optical microscopy if required. If asbestos is identified as being present but is not in a form that is suitable for analysis by hand picking and weighing (normally if the asbestos is present as free fibres) quantification by sedimentation is performed. Where ACMs are found a percentage asbestos is assigned to each with reference to 'HSG264, Asbestos: The survey guide' and the calculated asbestos content is expressed as a percentage of the dried soil sample aliquot used.

Predominant Matrix Codes:

1 = SAND, 2 = LOAM, 3 = CLAY, 4 = LOAM/SAND, 5 = SAND/CLAY, 6 = CLAY/LOAM, 7 = OTHER, 8 = Asbestos bulk ID sample.

Samples with Matrix Code 7 & 8 are not predominantly a SAND/LOAM/CLAY mix and are not covered by our BSEN 17025 or MCERTS accreditations, with the exception of bulk asbestos which are BSEN 17025 accredited.

Secondary Matrix Codes:

A = contains stones, B = contains construction rubble, C = contains visible hydrocarbons, D = contains glass/metal,

E = contains roots/twigs.

Key:

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US indicates Unsuitable Sample for analysis.

NDP indicates No Determination Possible.

NAD indicates No Asbestos Detected.

N/A indicates Not Applicable.

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Superscript "M" indicates method accredited to MCERTS.

Subscript "A" indicates analysis performed on the sample as received.

Subscript "D" indicates analysis performed on the dried sample, crushed to pass a 2mm sieve

Please contact us if you need any further information.

FINAL ANALYTICAL TEST REPORT

Envirolab Job Number: 18/03945
Issue Number: 1

Date: 25 May, 2018

Client: RSK Environment Ltd Southampton
Unit 26
Basepoint Abbey Enterprise Centre
Premier Way
Romsey,
Hampshire
UK
SO51 9AQ

Project Manager: Catherine Cussell; All RSK Southampton
Project Name: Angmering
Project Ref: 27621
Order No: N/A
Date Samples Received: 21/05/18
Date Instructions Received: 21/05/18
Date Analysis Completed: 25/05/18

Prepared by:

Approved by:

Gill Walker
Director/Laboratory Manager

Iain Haslock
Analytical Consultant

Envirolab Job Number: 18/03945

Client Project Name: Angmering

Client Project Ref: 27621

Lab Sample ID	18/03945/1	18/03945/2	18/03945/3	18/03945/4	18/03945/5	18/03945/6	18/03945/7		Units	Method ref
Client Sample No										
Client Sample ID	HC Hotspot Plot 325 Base	HC Hotspot Plot 325 N Side	HC Hotspot Plot 325 E Side	HC Hotspot Plot 325 S Side	HC Hotspot Plot 325 W Side	HC Hotspot 1 Plot 325	HC Hotspot 2 Plot 325			
Depth to Top	3.00	1.80	1.60	2.00	1.30					
Depth To Bottom	3.10	1.90	1.70	2.10	1.40					
Date Sampled	17-May-18	17-May-18	17-May-18	17-May-18	17-May-18	17-May-18	17-May-18			
Sample Type	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES			
Sample Matrix Code	5A	5	5	5	5	6A	5A			
% Stones >10mm _A	48.4	<0.1	<0.1	<0.1	<0.1	3.5	2.5		% w/w	A-T-044
Total Organic Carbon _D ^{MF}	0.15	-	0.26	-	0.28	4.49	4.42		% w/w	A-T-032s

Envirolab Job Number: 18/03945

Client Project Name: Angmering

Client Project Ref: 27621

Lab Sample ID	18/03945/1	18/03945/2	18/03945/3	18/03945/4	18/03945/5	18/03945/6	18/03945/7		Units	Method ref
Client Sample No										
Client Sample ID	HC Hotspot Plot 325 Base	HC Hotspot Plot 325 N Side	HC Hotspot Plot 325 E Side	HC Hotspot Plot 325 S Side	HC Hotspot Plot 325 W Side	HC Hotspot 1 Plot 325	HC Hotspot 2 Plot 325			
Depth to Top	3.00	1.80	1.60	2.00	1.30					
Depth To Bottom	3.10	1.90	1.70	2.10	1.40					
Date Sampled	17-May-18	17-May-18	17-May-18	17-May-18	17-May-18	17-May-18	17-May-18			
Sample Type	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES			
Sample Matrix Code	5A	5	5	5	5	6A	5A			
Asbestos in Soil (inc. matrix)										
Asbestos in soil _A [#]	NAD	NAD	NAD	NAD	NAD	NAD	NAD			A-T-045
Asbestos ACM - Suitable for Water Absorption Test?	N/A	N/A	N/A	N/A	N/A	N/A	N/A			

Envirolab Job Number: 18/03945

Client Project Name: Angmering

Client Project Ref: 27621

Lab Sample ID	18/03945/1	18/03945/2	18/03945/3	18/03945/4	18/03945/5	18/03945/6	18/03945/7		Units	Method ref
Client Sample No										
Client Sample ID	HC Hotspot Plot 325 Base	HC Hotspot Plot 325 N Side	HC Hotspot Plot 325 E Side	HC Hotspot Plot 325 S Side	HC Hotspot Plot 325 W Side	HC Hotspot 1 Plot 325	HC Hotspot 2 Plot 325			
Depth to Top	3.00	1.80	1.60	2.00	1.30					
Depth To Bottom	3.10	1.90	1.70	2.10	1.40					
Date Sampled	17-May-18	17-May-18	17-May-18	17-May-18	17-May-18	17-May-18	17-May-18			
Sample Type	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES			
Sample Matrix Code	5A	5	5	5	5	6A	5A			
PAH-16MS										
Acenaphthene _A ^{M#}	0.06	<0.01	<0.01	<0.01	<0.01	-	-		mg/kg	A-T-019s
Acenaphthylene _A ^{M#}	0.03	<0.01	<0.01	<0.01	<0.01	-	-		mg/kg	A-T-019s
Anthracene _A ^{M#}	0.03	<0.02	<0.02	<0.02	<0.02	-	-		mg/kg	A-T-019s
Benzo(a)anthracene _A ^{M#}	<0.04	<0.04	<0.04	<0.04	<0.04	-	-		mg/kg	A-T-019s
Benzo(a)pyrene _A ^{M#}	<0.04	<0.04	<0.04	<0.04	<0.04	-	-		mg/kg	A-T-019s
Benzo(b)fluoranthene _A ^{M#}	<0.05	<0.05	<0.05	<0.05	<0.05	-	-		mg/kg	A-T-019s
Benzo(ghi)perylene _A ^{M#}	<0.05	<0.05	<0.05	<0.05	<0.05	-	-		mg/kg	A-T-019s
Benzo(k)fluoranthene _A ^{M#}	<0.07	<0.07	<0.07	<0.07	<0.07	-	-		mg/kg	A-T-019s
Chrysene _A ^{M#}	<0.06	<0.06	<0.06	<0.06	<0.06	-	-		mg/kg	A-T-019s
Dibenzo(ah)anthracene _A ^{M#}	<0.04	<0.04	<0.04	<0.04	<0.04	-	-		mg/kg	A-T-019s
Fluoranthene _A ^{M#}	<0.08	<0.08	<0.08	<0.08	<0.08	-	-		mg/kg	A-T-019s
Fluorene _A ^{M#}	0.08	<0.01	<0.01	<0.01	<0.01	-	-		mg/kg	A-T-019s
Indeno(123-cd)pyrene _A ^{M#}	<0.03	<0.03	<0.03	<0.03	<0.03	-	-		mg/kg	A-T-019s
Naphthalene _A ^{M#}	<0.03	<0.03	0.03	<0.03	<0.03	-	-		mg/kg	A-T-019s
Phenanthrene _A ^{M#}	0.26	<0.03	<0.03	<0.03	<0.03	-	-		mg/kg	A-T-019s
Pyrene _A ^{M#}	<0.07	<0.07	<0.07	<0.07	<0.07	-	-		mg/kg	A-T-019s
PAH (total 16) _A ^{M#}	0.57	<0.08	<0.08	<0.08	<0.08	-	-		mg/kg	A-T-019s

Envirolab Job Number: 18/03945

Client Project Name: Angmering

Client Project Ref: 27621

Lab Sample ID	18/03945/1	18/03945/2	18/03945/3	18/03945/4	18/03945/5	18/03945/6	18/03945/7		Units	Method ref
Client Sample No										
Client Sample ID	HC Hotspot Plot 325 Base	HC Hotspot Plot 325 N Side	HC Hotspot Plot 325 E Side	HC Hotspot Plot 325 S Side	HC Hotspot Plot 325 W Side	HC Hotspot 1 Plot 325	HC Hotspot 2 Plot 325			
Depth to Top	3.00	1.80	1.60	2.00	1.30					
Depth To Bottom	3.10	1.90	1.70	2.10	1.40					
Date Sampled	17-May-18	17-May-18	17-May-18	17-May-18	17-May-18	17-May-18	17-May-18			
Sample Type	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES			
Sample Matrix Code	5A	5	5	5	5	6A	5A			
TPH CWG										
Ali >C5-C6 _A [#]	<0.01	<0.01	<0.01	<0.01	<0.01	-	-		mg/kg	A-T-022s
Ali >C6-C8 _A [#]	<0.01	<0.01	<0.01	<0.01	<0.01	-	-		mg/kg	A-T-022s
Ali >C8-C10 _A ^{M#}	1	<1	<1	<1	<1	-	-		mg/kg	A-T-055s
Ali >C10-C12 _A ^{M#}	3	<1	<1	<1	<1	-	-		mg/kg	A-T-055s
Ali >C12-C16 _A ^{M#}	6	<1	<1	<1	<1	-	-		mg/kg	A-T-055s
Ali >C16-C21 _A ^{M#}	6	<1	<1	<1	<1	-	-		mg/kg	A-T-055s
Ali >C21-C35 _A ^{M#}	10	<1	<1	<1	<1	-	-		mg/kg	A-T-055s
Total Aliphatics >C5-C35 _A [#]	26	<1	<1	<1	<1	-	-		mg/kg	A-T-055s
Aro >C5-C7 _A [#]	<0.01	<0.01	<0.01	<0.01	<0.01	-	-		mg/kg	A-T-022s
Aro >C7-C8 _A [#]	<0.01	<0.01	<0.01	<0.01	<0.01	-	-		mg/kg	A-T-022s
Aro >C8-C10 _A ^{M#}	1	<1	<1	<1	<1	-	-		mg/kg	A-T-055s
Aro >C10-C12 _A ^{M#}	3	<1	<1	<1	<1	-	-		mg/kg	A-T-055s
Aro >C12-C16 _A ^{M#}	14	<1	<1	<1	<1	-	-		mg/kg	A-T-055s
Aro >C16-C21 _A ^{M#}	15	<1	<1	<1	<1	-	-		mg/kg	A-T-055s
Aro >C21-C35 _A ^{M#}	13	<1	<1	<1	<1	-	-		mg/kg	A-T-055s
Total Aromatics >C5-C35 _A [#]	47	<1	<1	<1	<1	-	-		mg/kg	A-T-055s
TPH (Ali & Aro >C5-C35) _A [#]	74	<1	<1	<1	<1	-	-		mg/kg	A-T-055s
BTEX - Benzene _A [#]	<0.01	<0.01	<0.01	<0.01	<0.01	-	-		mg/kg	A-T-022s
BTEX - Toluene _A [#]	<0.01	<0.01	<0.01	<0.01	<0.01	-	-		mg/kg	A-T-022s
BTEX - Ethyl Benzene _A [#]	<0.01	<0.01	<0.01	<0.01	<0.01	-	-		mg/kg	A-T-022s
BTEX - m & p Xylene _A [#]	<0.01	<0.01	<0.01	<0.01	<0.01	-	-		mg/kg	A-T-022s
BTEX - o Xylene _A [#]	<0.01	<0.01	<0.01	<0.01	<0.01	-	-		mg/kg	A-T-022s
MTBE _A [#]	<0.01	<0.01	<0.01	<0.01	<0.01	-	-		mg/kg	A-T-022s

REPORT NOTES

General:

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If results are in italic font they are associated with an AQC failure and there is insufficient sample to repeat the analysis. These are not accredited and are unreliable.

A deviating samples report is appended and will indicate if samples or tests have been found to be deviating. Any test results affected may not be an accurate record of the concentration at the time of sampling and, as a result, may be invalid.

Soil chemical analysis:

All results are reported as dry weight (<40°C).

For samples with Matrix Codes 1 - 6 natural stones, brick and concrete fragments >10mm and any extraneous material (visible glass, metal or twigs) are removed and excluded from the sample prior to analysis and reported results corrected to a whole sample basis. This is reported as '% stones >10mm'.

For samples with Matrix Code 7 the whole sample is dried and crushed prior to analysis and this supersedes any "A" subscripts

All analysis is performed on the sample as received for soil samples which are positive for asbestos or the client has informed asbestos may be present and/or if they are from outside the European Union and this supersedes any "D" subscripts.

TPH analysis of water by method A-T-007:

Free and visible oils are excluded from the sample used for analysis so that the reported result represents the dissolved phase only.

Electrical Conductivity of water by Method A-T-037:

Results greater than 12900µS/cm @ 25°C / 11550µS/cm @ 20°C fall outside the calibration range and as such are unaccredited.

Asbestos:

Asbestos in soil analysis is performed on a dried aliquot of the submitted sample and cannot guarantee to identify asbestos if only present in small numbers as discrete fibres/fragments in the original sample.

Stones etc. are not removed from the sample prior to analysis.

Quantification of asbestos is a 3 stage process including visual identification, hand picking and weighing and fibre counting by sedimentation/phase contrast optical microscopy if required. If asbestos is identified as being present but is not in a form that is suitable for analysis by hand picking and weighing (normally if the asbestos is present as free fibres) quantification by sedimentation is performed. Where ACMs are found a percentage asbestos is assigned to each with reference to 'HSG264, Asbestos: The survey guide' and the calculated asbestos content is expressed as a percentage of the dried soil sample aliquot used.

Predominant Matrix Codes:

1 = SAND, 2 = LOAM, 3 = CLAY, 4 = LOAM/SAND, 5 = SAND/CLAY, 6 = CLAY/LOAM, 7 = OTHER, 8 = Asbestos bulk ID sample.

Samples with Matrix Code 7 & 8 are not predominantly a SAND/LOAM/CLAY mix and are not covered by our BSEN 17025 or MCERTS accreditations, with the exception of bulk asbestos which are BSEN 17025 accredited.

Secondary Matrix Codes:

A = contains stones, B = contains construction rubble, C = contains visible hydrocarbons, D = contains glass/metal,

E = contains roots/twigs.

Key:

IS indicates Insufficient Sample for analysis.

US indicates Unsuitable Sample for analysis.

NDP indicates No Determination Possible.

NAD indicates No Asbestos Detected.

N/A indicates Not Applicable.

Superscript # indicates method accredited to ISO 17025.

Superscript "M" indicates method accredited to MCERTS.

Subscript "A" indicates analysis performed on the sample as received.

Subscript "D" indicates analysis performed on the dried sample, crushed to pass a 2mm sieve

Please contact us if you need any further information.

Final Test Report

SUPPLEMENT TO TEST REPORT 18/03945/1

Envirolab Job Number:	18/03945	
Issue Number:	2	Date: 31-May-18
Client:	RSK Environment Ltd Southampton Unit 26 Basepoint Abbey Enterprise Centre Premier Way Romsey, Hampshire, UK, SO51 9AQ	
Project Manager:	Catherine Cussell; All RSK Southampton	
Project Name:	Angmering	
Project Ref:	27621	
Order No:	N/A	
Date Samples Received:	21-May-18	
Date Instructions Received:	21-May-18	
Date Analysis Completed:	25-May-18	

Notes - Soil analysis

All results are reported as dry weight (<40°C).

For samples with Matrix Codes 1 - 6 natural stones >10mm are removed or excluded from the sample prior to analysis and reported results corrected to a whole sample basis.

For samples with Matrix Code 7 the whole sample is dried and crushed prior to analysis.

Notes - General

This report shall not be reproduced, except in full, without written approval from Envirolab.

Subscript "A" indicates analysis performed on the sample as received. "D" indicates analysis performed on the dried sample, crushed to pass a 2mm sieve, unless asbestos is found to be present in which case all analysis is performed on the sample as received.

All analysis is performed on the dried and crushed sample for samples with Matrix Code 7 and this supercedes any "A" subscripts.

All analysis is performed on the sample as received for soil samples from outside the European Union and this supercedes any "D" subscripts

Superscript "M" indicates method accredited to MCERTS.

For complex, multi-compound analysis, quality control results do not always fall within chart limits for every compound and we have criteria for reporting in these situations.

If results are in *italic font* they are associated with such quality control failures and may be unreliable.

A deviating samples report is appended and will indicate if samples or tests have been found to be deviating. Any test results affected may not be an accurate record of the concentration at the time of sampling and, as a result, may be invalid

Predominant Matrix Codes: 1 = SAND, 2 = LOAM, 3 = CLAY, 4 = LOAM/SAND, 5 = SAND/CLAY, 6 = CLAY/LOAM, 7 = OTHER, 8 = Asbestos bulk ID sample

Samples with Matrix Code 7 & 8 are not predominantly a SAND/LOAM/CLAY mix and are not covered by our BSEN 17025 or MCERTS accreditations, with the exception of bulk asbestos which are BSEN 17025 accredited

Secondary Matrix Codes: A = contains stones, B = contains construction rubble, C = contains visible hydrocarbons, D = contains glass/metal, E = contains roots/twigs.

IS indicates Insufficient sample for analysis, NDP indicates No Determination Possible and NAD indicates No Asbestos Detected.

Superscript # indicates method accredited to ISO 17025.

Analytical results reflect the quality of the sample at the time of analysis only. Opinions and interpretations expressed are outside the scope of our accreditation.

Please contact us if you need any further information.

Prepared by:

Approved by:

Danielle Brierley
Client Manager

Richard Wong
Client Manager



Sample Details					Landfill Waste Acceptance Criteria Limits			
Lab Sample ID	Method	ISO17025	MCERTS	18/03945/6				
Client Sample Number					Inert Waste Landfill	Stable Non-reactive Hazardous Waste in Non-Hazardous Landfill	Hazardous Waste Landfill	
Client Sample ID				HC Hotspot 1 Plot 325				
Depth to Top								
Depth to Bottom								
Date Sampled				17/05/2018				
Sample Type				Soil - ES				
Sample Matrix Code				6A				
Solid Waste Analysis								
pH (pH Units) _D	A-T-031	Y	Y	7.36	-	>6	-	
ANC to pH 4 (mol/kg) _D	A-T-ANC	N	N	0.04	-	to be evaluated	to be evaluated	
ANC to pH 6 (mol/kg) _D	A-T-ANC	N	N	0.04	-	to be evaluated	to be evaluated	
Loss on Ignition (%) _D	A-T-030	Y	N	6.7	-	-	10	
Total Organic Carbon (%) _D	A-T-032	Y	Y	4.49	3	5	6	
PAH Sum of 17 (mg/kg) _A	A-T-019	N	N	34.2	100	-	-	
Mineral Oil (mg/kg) _A	A-T-007	N	N	1450	500	-	-	
Sum of 7 PCBs (mg/kg) _D	A-T-004	N	N	<0.070	1	-	-	
Sum of BTEX (mg/kg) _A	A-T-022	N	N	0.06	6	-	-	
Eluate Analysis				10:1 mg/l	10:1 mg/kg	Limit values for compliance leaching test using BS EN 12457-2 at L/S 10 l/kg (mg/kg)		
Arsenic	A-T-025	Y	N	0.003	0.030	0.5	2	25
Barium	A-T-025	Y	N	0.020	0.200	20	100	300
Cadmium	A-T-025	Y	N	<0.001	<0.01	0.04	1	5
Chromium	A-T-025	Y	N	<0.001	<0.01	0.5	10	70
Copper	A-T-025	Y	N	0.003	0.030	2	50	100
Mercury	A-T-025	Y	N	<0.0005	<0.005	0.01	0.2	2
Molybdenum	A-T-025	Y	N	0.002	0.020	0.5	10	30
Nickel	A-T-025	Y	N	0.001	0.010	0.4	10	40
Lead	A-T-025	Y	N	0.001	0.010	0.5	10	50
Antimony	A-T-025	Y	N	0.005	0.050	0.06	0.7	5
Selenium	A-T-025	Y	N	<0.001	<0.01	0.1	0.5	7
Zinc	A-T-025	Y	N	0.013	0.130	4	50	200
Chloride	A-T-026	Y	N	2	25	800	15000	25000
Fluoride	A-T-026	Y	N	0.2	2.0	10	150	500
Sulphate as SO ₄	A-T-026	Y	N	3	30	1000	20000	50000
Total Dissolved Solids	A-T-035	N	N	170	1700	4000	60000	100000
Phenol Index	A-T-050	N	N	<0.01	<0.1	1	-	-
Dissolved Organic Carbon	A-T-032	N	N	<0.2	<200	500	800	1000
Leach Test Information								
pH (pH Units)	A-T-031	N	Y	7.5				
Conductivity (µS/cm)	A-T-037	N	N	339				
Mass Sample (kg)				0.196				
Dry Matter (%)	A-T-044	N	N	89.1				
Stated acceptance limits are for guidance only and Envirolab cannot be held responsible for any discrepancies with current legislation								

Sample Details					Landfill Waste Acceptance Criteria Limits			
Lab Sample ID	Method	ISO17025	MCERTS	18/03945/7				
Client Sample Number					Inert Waste Landfill	Stable Non-reactive Hazardous Waste in Non-Hazardous Landfill	Hazardous Waste Landfill	
Client Sample ID				HC Hotspot 2 Plot 325				
Depth to Top								
Depth to Bottom								
Date Sampled				17/05/2018				
Sample Type				Soil - ES				
Sample Matrix Code				5A				
Solid Waste Analysis								
pH (pH Units) _D	A-T-031	Y	Y	7.44	-	>6	-	
ANC to pH 4 (mol/kg) _D	A-T-ANC	N	N	0.06	-	to be evaluated	to be evaluated	
ANC to pH 6 (mol/kg) _D	A-T-ANC	N	N	0.04	-	to be evaluated	to be evaluated	
Loss on Ignition (%) _D	A-T-030	Y	N	8.3	-	-	10	
Total Organic Carbon (%) _D	A-T-032	Y	Y	4.42	3	5	6	
PAH Sum of 17 (mg/kg) _A	A-T-019	N	N	573	100	-	-	
Mineral Oil (mg/kg) _A	A-T-007	N	N	14000	500	-	-	
Sum of 7 PCBs (mg/kg) _D	A-T-004	N	N	<0.070	1	-	-	
Sum of BTEX (mg/kg) _A	A-T-022	N	N	1.27	6	-	-	
Eluate Analysis				10:1	10:1	Limit values for compliance leaching test using BS EN 12457-2 at L/S 10 l/kg (mg/kg)		
				mg/l	mg/kg			
Arsenic	A-T-025	Y	N	0.003	0.030	0.5	2	25
Barium	A-T-025	Y	N	0.015	0.150	20	100	300
Cadmium	A-T-025	Y	N	<0.001	<0.01	0.04	1	5
Chromium	A-T-025	Y	N	<0.001	<0.01	0.5	10	70
Copper	A-T-025	Y	N	0.002	0.020	2	50	100
Mercury	A-T-025	Y	N	<0.0005	<0.005	0.01	0.2	2
Molybdenum	A-T-025	Y	N	0.001	0.010	0.5	10	30
Nickel	A-T-025	Y	N	0.001	0.010	0.4	10	40
Lead	A-T-025	Y	N	<0.001	<0.01	0.5	10	50
Antimony	A-T-025	Y	N	0.005	0.050	0.06	0.7	5
Selenium	A-T-025	Y	N	<0.001	<0.01	0.1	0.5	7
Zinc	A-T-025	Y	N	0.012	0.120	4	50	200
Chloride	A-T-026	Y	N	2	16	800	15000	25000
Fluoride	A-T-026	Y	N	0.3	3.0	10	150	500
Sulphate as SO ₄	A-T-026	Y	N	2	24	1000	20000	50000
Total Dissolved Solids	A-T-035	N	N	63	630	4000	60000	100000
Phenol Index	A-T-050	N	N	<0.01	<0.1	1	-	-
Dissolved Organic Carbon	A-T-032	N	N	<0.2	<200	500	800	1000
Leach Test Information								
pH (pH Units)	A-T-031	N	Y	7.2				
Conductivity (µS/cm)	A-T-037	N	N	127				
Mass Sample (kg)				0.186				
Dry Matter (%)	A-T-044	N	N	93.8				
Stated acceptance limits are for guidance only and Envirolab cannot be held responsible for any discrepancies with current legislation								



Certificate of Analysis

Certificate Number 18-15339

29-Jun-18

Client Envirolab Ltd
Units 7&8
Sandpits,
Business Park
Mottram Road
Hyde
SK14 3AR

Our Reference 18-15339

Client Reference (not supplied)

Order No PO738374

Contract Title 22-06-18

Description 24 Soil samples.

Date Received 25-Jun-18

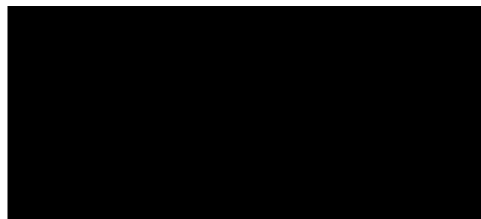
Date Started 26-Jun-18

Date Completed 29-Jun-18

Test Procedures Identified by prefix DETSn (details on request).

Notes Opinions and interpretations are outside the laboratory's scope of ISO 17025 accreditation. This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service. The results reported herein relate only to the material supplied to the laboratory. This certificate shall not be reproduced except in full, without the prior written approval of the laboratory.

Approved By



Derwentside Environmental Testing Services Limited



Summary of Asbestos Analysis Soil Samples

Our Ref 18-15339

Client Ref

Contract Title 22-06-18

Lab No	Sample ID	Material Type	Result	Comment*	Analyst
1357885	18-04950-1 Plot 319 Stockpile 1 Composite	SOIL	NAD	none	Colin Patrick
1357886	18-04950-2 Plot 319 Stockpile 2 Composite	SOIL	NAD	none	Colin Patrick

Crocidolite = Blue Asbestos, Amosite = Brown Asbestos, Chrysotile = White Asbestos. Anthophyllite, Actinolite and Tremolite are other forms of Asbestos. Samples are analysed by DETSC 1101 using polarised light microscopy in accordance with HSG248 and documented in-house methods. NAD = No Asbestos Detected. Where a sample is NAD, the result is based on analysis of at least 2 sub-samples and should be taken to mean 'no asbestos detected in sample'. Key: * - not included in laboratory scope of accreditation.

Information in Support of the Analytical Results

Our Ref 18-15339

Client Ref

Contract 22-06-18

Containers Received & Deviating Samples

Lab No	Sample ID	Date Sampled	Containers Received	Holding time exceeded for tests	Inappropriate container for tests
1357883	18-04952-1 0.50-1.00 SOIL	18/06/18	GJ 250ml		
1357884	18-04952-2 0.10-0.50 SOIL	21/06/18	GJ 250ml		
1357885	18-04950-1 Plot 319 Stockpile 1 SOIL	22/06/18	GJ 250ml		
1357886	18-04950-2 Plot 319 Stockpile 2 SOIL	22/06/18	GJ 250ml		
1357887	18-04945-1 1.30 SOIL	15/06/18	GJ 250ml		
1357888	18-04945-3 0.60 SOIL	15/06/18	GJ 250ml		
1357889	18-04945-5 0.60 SOIL	15/06/18	GJ 250ml		
1357890	18-04945-6 1.70 SOIL	15/06/18	GJ 250ml		
1357891	18-04960-1 0.15-0.30 SOIL	20/06/18	GJ 250ml		
1357892	18-04960-2 0.15-0.30 SOIL	20/06/18	GJ 250ml		
1357893	18-04960-3 0.15-0.30 SOIL	20/06/18	GJ 250ml		
1357894	18-04960-4 0.15-0.30 SOIL	20/06/18	GJ 250ml		
1357895	18-04960-5 0.15-0.30 SOIL	20/06/18	GJ 250ml		
1357896	18-04942-3 North Skip Sample A SOIL	18/06/18	GJ 250ml		
1357897	18-04942-5 South Skip Sample A SOIL	18/06/18	GJ 250ml		
1357898	18-04906-1 Lostock Skip SOIL	19/06/18	GJ 250ml		
1357899	18-04906-2 James Dickenson SOIL	19/06/18	GJ 250ml		
1357900	18-04906-3 BJ Skips SOIL	19/06/18	GJ 250ml		
1357901	18-04906-4 Taylor SOIL	19/06/18	GJ 250ml		
1357902	18-04966-1 SOIL	21/06/18	GJ 250ml		
1357903	18-04966-2 SOIL	21/06/18	GJ 250ml		
1357904	18-04966-3 SOIL	21/06/18	GJ 250ml		
1357905	18-04966-4 SOIL	21/06/18	GJ 250ml		
1357906	18-04966-5 SOIL	21/06/18	GJ 250ml		

Key: G-Glass J-Jar

DETS cannot be held responsible for the integrity of samples received whereby the laboratory did not undertake the sampling. In this instance samples received may be deviating. Deviating Sample criteria are based on British and International standards and laboratory trials in conjunction with the UKAS note 'Guidance on Deviating Samples'. All samples received are listed above. However, those samples that have additional comments in relation to hold time, inappropriate containers etc are deviating due to the reasons stated. This means that the analysis is accredited where applicable, but results may be compromised due to sample deviations. If no sampled date (soils) or date+time (waters) has been supplied then samples are deviating. However, if you are able to supply a sampled date (and time for waters) this will prevent samples being reported as deviating where specific hold times are not exceeded and where the container supplied is suitable.

Information in Support of the Analytical Results

Our Ref 18-15339
Client Ref
Contract 22-06-18

Disposal

From the issue date of this test certificate, samples will be held for the following times prior to disposal :-
Soils - 1 month, Liquids - 2 weeks, Asbestos (test portion) - 6 months

FINAL ANALYTICAL TEST REPORT

Envirolab Job Number: 18/04950
Issue Number: 1
Date: 09 July, 2018

Client: RSK Environment Ltd Southampton
Unit 26
Basepoint Abbey Enterprise Centre
Premier Way
Romsey,
Hampshire
UK
SO51 9AQ

Project Manager: Catherine Cussell
Project Name: Angmering
Project Ref: 27621
Order No: N/A
Date Samples Received: 22/06/18
Date Instructions Received: 22/06/18
Date Analysis Completed: 09/07/18

Prepared by:

Approved by:

Richard Wong
Client Manager

Danielle Brierley
Client Manager

Envirolab Job Number: 18/04950

Client Project Name: Angmering

Client Project Ref: 27621

Lab Sample ID	18/04950/1	18/04950/2							Units	Method ref
Client Sample No	Composite	Composite								
Client Sample ID	Plot 319 Stockpile 1	Plot 319 Stockpile 2								
Depth to Top										
Depth To Bottom										
Date Sampled	22-Jun-18	22-Jun-18								
Sample Type	Solid	Solid								
Sample Matrix Code	7	7								
% Stones >10mm _A	<0.1	<0.1							% w/w	A-T-044
Asbestos in soil (+concrete, ballast, rocks and aggregates) _A [#]	Appended	Appended								Subcon DETS

REPORT NOTES

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A deviating samples report is appended and will indicate if samples or tests have been found to be deviating. Any test results affected may not be an accurate record of the concentration at the time of sampling and, as a result, may be invalid.

Soil chemical analysis:

All results are reported as dry weight (<40°C).

For samples with Matrix Codes 1 - 6 natural stones, brick and concrete fragments >10mm and any extraneous material (visible glass, metal or twigs) are removed and excluded from the sample prior to analysis and reported results corrected to a whole sample basis. This is reported as '% stones >10mm'.

For samples with Matrix Code 7 the whole sample is dried and crushed prior to analysis and this supersedes any "A" subscripts

All analysis is performed on the sample as received for soil samples which are positive for asbestos or the client has informed asbestos may be present and/or if they are from outside the European Union and this supersedes any "D" subscripts.

TPH analysis of water by method A-T-007:

Free and visible oils are excluded from the sample used for analysis so that the reported result represents the dissolved phase only.

Electrical Conductivity of water by Method A-T-037:

Results greater than 12900µS/cm @ 25°C / 11550µS/cm @ 20°C fall outside the calibration range and as such are unaccredited.

Asbestos:

Asbestos in soil analysis is performed on a dried aliquot of the submitted sample and cannot guarantee to identify asbestos if only present in small numbers as discrete fibres/fragments in the original sample.

Stones etc. are not removed from the sample prior to analysis.

Quantification of asbestos is a 3 stage process including visual identification, hand picking and weighing and fibre counting by sedimentation/phase contrast optical microscopy if required. If asbestos is identified as being present but is not in a form that is suitable for analysis by hand picking and weighing (normally if the asbestos is present as free fibres) quantification by sedimentation is performed. Where ACMs are found a percentage asbestos is assigned to each with reference to 'HSG264, Asbestos: The survey guide' and the calculated asbestos content is expressed as a percentage of the dried soil sample aliquot used.

Predominant Matrix Codes:

1 = SAND, 2 = LOAM, 3 = CLAY, 4 = LOAM/SAND, 5 = SAND/CLAY, 6 = CLAY/LOAM, 7 = OTHER, 8 = Asbestos bulk ID sample.

Samples with Matrix Code 7 & 8 are not predominantly a SAND/LOAM/CLAY mix and are not covered by our BSEN 17025 or MCERTS accreditations, with the exception of bulk asbestos which are BSEN 17025 accredited.

Secondary Matrix Codes:

A = contains stones, B = contains construction rubble, C = contains visible hydrocarbons, D = contains glass/metal,

E = contains roots/twigs.

Key:

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US indicates Unsuitable Sample for analysis.

NDP indicates No Determination Possible.

NAD indicates No Asbestos Detected.

N/A indicates Not Applicable.

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Superscript "M" indicates method accredited to MCERTS.

Subscript "A" indicates analysis performed on the sample as received.

Subscript "D" indicates analysis performed on the dried sample, crushed to pass a 2mm sieve

Please contact us if you need any further information.

Final Test Report

Envirolab Job Number: 18/04950
Issue Number: 1

Date: 9-Jul-18

Client: RSK Environment Ltd Southampton
Unit 26
Basepoint Abbey Enterprise Centre
Premier Way
Romsey,
Hampshire, UK, SO51 9AQ

Project Manager: Catherine Cussell
Project Name: Angmering
Project Ref: 27621
Order No: N/A

Date Samples Received: 22-Jun-18
Date Instructions Received: 22-Jun-18
Date Analysis Completed: 9-Jul-18

Notes - Soil analysis

All results are reported as dry weight (<40°C).

For samples with Matrix Codes 1 - 6 natural stones >10mm are removed or excluded from the sample prior to analysis and reported results corrected to a whole sample basis.

For samples with Matrix Code 7 the whole sample is dried and crushed prior to analysis.

Notes - General

This report shall not be reproduced, except in full, without written approval from Envirolab.

Subscript "A" indicates analysis performed on the sample as received. "D" indicates analysis performed on the dried sample, crushed to pass a 2mm sieve, unless asbestos is found to be present in which case all analysis is performed on the sample as received.

All analysis is performed on the dried and crushed sample for samples with Matrix Code 7 and this supercedes any "A" subscripts.

All analysis is performed on the sample as received for soil samples from outside the European Union and this supercedes any "D" subscripts

Superscript "M" indicates method accredited to MCERTS.

For complex, multi-compound analysis, quality control results do not always fall within chart limits for every compound and we have criteria for reporting in these situations.

If results are in *italic font* they are associated with such quality control failures and may be unreliable.

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Samples with Matrix Code 7 & 8 are not predominantly a SAND/LOAM/CLAY mix and are not covered by our BSEN 17025 or MCERTS accreditations, with the exception of bulk asbestos which are BSEN 17025 accredited

Secondary Matrix Codes: A = contains stones, B = contains construction rubble, C = contains visible hydrocarbons, D = contains glass/metal, E = contains roots/twigs.

IS indicates Insufficient sample for analysis, NDP indicates No Determination Possible and NAD indicates No Asbestos Detected.

Superscript # indicates method accredited to ISO 17025.

Analytical results reflect the quality of the sample at the time of analysis only. Opinions and interpretations expressed are outside the scope of our accreditation.

Please contact us if you need any further information.

Prepared by:

Approved by:

Richard Wong
Client Manager

Danielle Brierley
Client Manager



Sample Details					Landfill Waste Acceptance Criteria Limits			
Lab Sample ID	Method	ISO17025	MCERTS	18/04950/1				
Client Sample Number				Composite	Inert Waste Landfill	Stable Non-reactive Hazardous Waste in Non-Hazardous Landfill	Hazardous Waste Landfill	
Client Sample ID				Plot 319 Stockpile 1				
Depth to Top								
Depth to Bottom								
Date Sampled				22/06/2018				
Sample Type				Solid				
Sample Matrix Code				7				
Solid Waste Analysis								
pH (pH Units) _D	A-T-031	Y	Y	7.56	-	>6	-	
ANC to pH 4 (mol/kg) _D	A-T-ANC	N	N	0.15	-	to be evaluated	to be evaluated	
ANC to pH 6 (mol/kg) _D	A-T-ANC	N	N	0.01	-	to be evaluated	to be evaluated	
Loss on Ignition (%) _D	A-T-030	Y	N	1.7	-	-	10	
Total Organic Carbon (%) _D	A-T-032	Y	Y	0.49	3	5	6	
PAH Sum of 17 (mg/kg) _A	A-T-019	N	N	9.05	100	-	-	
Mineral Oil (mg/kg) _A	A-T-007	N	N	150	500	-	-	
Sum of 7 PCBs (mg/kg) _D	A-T-004	N	N	<0.007	1	-	-	
Sum of BTEX (mg/kg) _A	A-T-022	N	N	<0.01	6	-	-	
Eluate Analysis				10:1 mg/l	10:1 mg/kg	Limit values for compliance leaching test using BS EN 12457-2 at L/S 10 l/kg (mg/kg)		
Arsenic	A-T-025	Y	N	0.004	0.040	0.5	2	25
Barium	A-T-025	Y	N	0.009	0.090	20	100	300
Cadmium	A-T-025	Y	N	<0.001	<0.01	0.04	1	5
Chromium	A-T-025	Y	N	<0.001	<0.01	0.5	10	70
Copper	A-T-025	Y	N	0.002	0.020	2	50	100
Mercury	A-T-025	Y	N	<0.0005	<0.005	0.01	0.2	2
Molybdenum	A-T-025	Y	N	0.008	0.080	0.5	10	30
Nickel	A-T-025	Y	N	0.004	0.040	0.4	10	40
Lead	A-T-025	Y	N	<0.001	<0.01	0.5	10	50
Antimony	A-T-025	Y	N	0.002	0.020	0.06	0.7	5
Selenium	A-T-025	Y	N	<0.001	<0.01	0.1	0.5	7
Zinc	A-T-025	Y	N	0.010	0.100	4	50	200
Chloride	A-T-026	Y	N	<1.00	<10	800	15000	25000
Fluoride	A-T-026	Y	N	0.2	2.0	10	150	500
Sulphate as SO ₄	A-T-026	Y	N	31	309	1000	20000	50000
Total Dissolved Solids	A-T-035	N	N	79	790	4000	60000	100000
Phenol Index	A-T-050	N	N	<0.01	<0.1	1	-	-
Dissolved Organic Carbon	A-T-032	N	N	<0.2	<200	500	800	1000
Leach Test Information								
pH (pH Units)	A-T-031	N	Y	7.1				
Conductivity (µS/cm)	A-T-037	N	N	157				
Mass Sample (kg)				0.194				
Dry Matter (%)	A-T-044	N	N	90.2				
Stated acceptance limits are for guidance only and Envirolab cannot be held responsible for any discrepancies with current legislation								

Sample Details					Landfill Waste Acceptance Criteria Limits			
Lab Sample ID	Method	ISO17025	MCERTS	18/04950/2				
Client Sample Number				Composite	Inert Waste Landfill	Stable Non-reactive Hazardous Waste in Non-Hazardous Landfill	Hazardous Waste Landfill	
Client Sample ID				Plot 319 Stockpile 2				
Depth to Top								
Depth to Bottom								
Date Sampled				22/06/2018				
Sample Type				Solid				
Sample Matrix Code				7				
Solid Waste Analysis								
pH (pH Units) _D	A-T-031	Y	Y	7.76	-	>6	-	
ANC to pH 4 (mol/kg) _D	A-T-ANC	N	N	0.7	-	to be evaluated	to be evaluated	
ANC to pH 6 (mol/kg) _D	A-T-ANC	N	N	0.05	-	to be evaluated	to be evaluated	
Loss on Ignition (%) _D	A-T-030	Y	N	2.4	-	-	10	
Total Organic Carbon (%) _D	A-T-032	Y	Y	0.57	3	5	6	
PAH Sum of 17 (mg/kg) _A	A-T-019	N	N	6.98	100	-	-	
Mineral Oil (mg/kg) _A	A-T-007	N	N	378	500	-	-	
Sum of 7 PCBs (mg/kg) _D	A-T-004	N	N	<0.007	1	-	-	
Sum of BTEX (mg/kg) _A	A-T-022	N	N	<0.01	6	-	-	
Eluate Analysis					10:1 mg/l	10:1 mg/kg	Limit values for compliance leaching test using BS EN 12457-2 at L/S 10 l/kg (mg/kg)	
Arsenic	A-T-025	Y	N	0.003	0.030	0.5	2	25
Barium	A-T-025	Y	N	0.008	0.080	20	100	300
Cadmium	A-T-025	Y	N	<0.001	<0.01	0.04	1	5
Chromium	A-T-025	Y	N	0.002	0.020	0.5	10	70
Copper	A-T-025	Y	N	0.002	0.020	2	50	100
Mercury	A-T-025	Y	N	<0.0005	<0.005	0.01	0.2	2
Molybdenum	A-T-025	Y	N	0.006	0.060	0.5	10	30
Nickel	A-T-025	Y	N	0.004	0.040	0.4	10	40
Lead	A-T-025	Y	N	0.001	0.010	0.5	10	50
Antimony	A-T-025	Y	N	0.002	0.020	0.06	0.7	5
Selenium	A-T-025	Y	N	<0.001	<0.01	0.1	0.5	7
Zinc	A-T-025	Y	N	0.009	0.100	4	50	200
Chloride	A-T-026	Y	N	<1.00	<10	800	15000	25000
Fluoride	A-T-026	Y	N	0.2	2.0	10	150	500
Sulphate as SO ₄	A-T-026	Y	N	26	258	1000	20000	50000
Total Dissolved Solids	A-T-035	N	N	80	800	4000	60000	100000
Phenol Index	A-T-050	N	N	<0.01	<0.1	1	-	-
Dissolved Organic Carbon	A-T-032	N	N	<0.2	<200	500	800	1000
Leach Test Information								
pH (pH Units)	A-T-031	N	Y	7.2				
Conductivity (µS/cm)	A-T-037	N	N	159				
Mass Sample (kg)				0.191				
Dry Matter (%)	A-T-044	N	N	91.5				
Stated acceptance limits are for guidance only and Envirolab cannot be held responsible for any discrepancies with current legislation								

FINAL ANALYTICAL TEST REPORT

Envirolab Job Number: 18/05463
Issue Number: 1

Date: 18 July, 2018

Client: RSK Environment Ltd Southampton
Unit 26
Basepoint Abbey Enterprise Centre
Premier Way
Romsey,
Hampshire
UK
SO51 9AQ

Project Manager: Catherine Cussell; All RSK Southampton/Josh Laite;
Project Name: Angmering
Project Ref: 27621
Order No: N/A
Date Samples Received: 06/07/18
Date Instructions Received: 09/07/18
Date Analysis Completed: 18/07/18

Prepared by:

Approved by:

Melanie Marshall
Laboratory Coordinator

Richard Wong
Client Manager

Envirolab Job Number: 18/05463

Client Project Name: Angmering

Client Project Ref: 27621

Lab Sample ID	18/05463/1	18/05463/2	18/05463/3	18/05463/4	18/05463/5	18/05463/6	18/05463/7		Units	Method ref
Client Sample No	Stockpile									
Client Sample ID	NE Bund	Potential ACM	Plot 317 Base	Plot 317 North	Plot 317 East	Plot 317 South	Plot 317 West			
Depth to Top			1.30	0.30	0.80	0.60	1.10			
Depth To Bottom										
Date Sampled	04-Jul-18		02-Jul-18	02-Jul-18	02-Jul-18	02-Jul-18	02-Jul-18			
Sample Type	Soil	Solid - Fibres	Soil	Soil	Soil	Soil	Soil			
Sample Matrix Code	6A	8	6A	6A	4AB	4AB	4AB			
% Stones >10mm _A	7.4	-	<0.1	26.9	<0.1	48.5	<0.1		% w/w	A-T-044

Envirolab Job Number: 18/05463

Client Project Name: Angmering

Client Project Ref: 27621

Lab Sample ID	18/05463/1	18/05463/2	18/05463/3	18/05463/4	18/05463/5	18/05463/6	18/05463/7		Units	Method ref
Client Sample No	Stockpile									
Client Sample ID	NE Bund	Potential ACM	Plot 317 Base	Plot 317 North	Plot 317 East	Plot 317 South	Plot 317 West			
Depth to Top			1.30	0.30	0.80	0.60	1.10			
Depth To Bottom										
Date Sampled	04-Jul-18		02-Jul-18	02-Jul-18	02-Jul-18	02-Jul-18	02-Jul-18			
Sample Type	Soil	Solid - Fibres	Soil	Soil	Soil	Soil	Soil			
Sample Matrix Code	6A	8	6A	6A	4AB	4AB	4AB			
Asbestos in Soil (inc. matrix)										
Asbestos in soil _A [#]	NAD	-	NAD	NAD	Chrysotile	NAD	Amosite			A-T-045
Asbestos Matrix (visual) _A	-	-	-	-	Loose fibres	-	-			A-T-045
Asbestos Matrix (microscope) _A	-	-	-	-	-	-	Loose fibres			A-T-045
Asbestos ACM - Suitable for Water Absorption Test?	N/A	-	N/A	N/A	N/A	N/A	N/A			
Asbestos in Soil Quantification % (Hand Picking & Weighing)										
Asbestos in soil % composition (hand picking and weighing) _D	-	-	-	-	0.006	-	<0.001		% w/w	A-T-054
Bulk Fibre ID (inc. matrix)										
Bulk Fibre Identification _A [#]	-	NAD	-	-	-	-	-			A-T-045
Bulk Fibre Identification - Suitable for Water Absorption Test? _D	-	N/A	-	-	-	-	-			Gravimetry

Envirolab Job Number: 18/05463

Client Project Name: Angmering

Client Project Ref: 27621

Lab Sample ID	18/05463/1	18/05463/2	18/05463/3	18/05463/4	18/05463/5	18/05463/6	18/05463/7		Units	Method ref
Client Sample No	Stockpile									
Client Sample ID	NE Bund	Potential ACM	Plot 317 Base	Plot 317 North	Plot 317 East	Plot 317 South	Plot 317 West			
Depth to Top			1.30	0.30	0.80	0.60	1.10			
Depth To Bottom										
Date Sampled	04-Jul-18		02-Jul-18	02-Jul-18	02-Jul-18	02-Jul-18	02-Jul-18			
Sample Type	Soil	Solid - Fibres	Soil	Soil	Soil	Soil	Soil			
Sample Matrix Code	6A	8	6A	6A	4AB	4AB	4AB			
TPH CWG										
Ali >C5-C6 _A [#]	0.35	-	<0.01	<0.01	<0.01	<0.01	<0.01		mg/kg	A-T-022s
Ali >C6-C8 _A [#]	2.06	-	<0.01	<0.01	<0.01	<0.01	<0.01		mg/kg	A-T-022s
Ali >C8-C10 _A ^{M#}	146	-	<1	<1	<1	<1	<1		mg/kg	A-T-055s
Ali >C10-C12 _A ^{M#}	334	-	<1	<1	<1	<1	<1		mg/kg	A-T-055s
Ali >C12-C16 _A ^{M#}	1890	-	2	<1	13	4	2		mg/kg	A-T-055s
Ali >C16-C21 _A ^{M#}	5270	-	10	1	46	16	6		mg/kg	A-T-055s
Ali >C21-C35 _A ^{M#}	21600	-	13	4	83	30	12		mg/kg	A-T-055s
Total Aliphatics >C5-C35 _A [#]	29300	-	25	7	141	51	20		mg/kg	A-T-055s
Aro >C5-C7 _A [#]	<0.05	-	<0.01	<0.01	<0.01	<0.01	<0.01		mg/kg	A-T-022s
Aro >C7-C8 _A [#]	0.12	-	<0.01	<0.01	<0.01	<0.01	<0.01		mg/kg	A-T-022s
Aro >C8-C10 _A ^{M#}	193	-	1	<1	3	1	1		mg/kg	A-T-055s
Aro >C10-C12 _A ^{M#}	348	-	1	<1	8	2	2		mg/kg	A-T-055s
Aro >C12-C16 _A ^{M#}	1220	-	4	1	32	11	6		mg/kg	A-T-055s
Aro >C16-C21 _A ^{M#}	2190	-	8	<1	89	30	8		mg/kg	A-T-055s
Aro >C21-C35 _A ^{M#}	7850	-	22	3	235	80	29		mg/kg	A-T-055s
Total Aromatics >C5-C35 _A [#]	11800	-	36	7	368	124	47		mg/kg	A-T-055s
TPH (Ali & Aro >C5-C35) _A [#]	41100	-	61	13	508	175	66		mg/kg	A-T-055s
BTEX - Benzene _A [#]	<0.05	-	<0.01	<0.01	<0.01	<0.01	<0.01		mg/kg	A-T-022s
BTEX - Toluene _A [#]	0.12	-	<0.01	<0.01	<0.01	<0.01	<0.01		mg/kg	A-T-022s
BTEX - Ethyl Benzene _A [#]	0.08	-	<0.01	<0.01	<0.01	<0.01	<0.01		mg/kg	A-T-022s
BTEX - m & p Xylene _A [#]	0.46	-	<0.01	<0.01	<0.01	<0.01	<0.01		mg/kg	A-T-022s
BTEX - o Xylene _A [#]	0.41	-	<0.01	<0.01	<0.01	<0.01	<0.01		mg/kg	A-T-022s
MTBE _A [#]	<0.05	-	<0.01	<0.01	<0.01	<0.01	<0.01		mg/kg	A-T-022s

REPORT NOTES

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Analytical results reflect the quality of the sample at the time of analysis only.

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If results are in italic font they are associated with an AQC failure and there is insufficient sample to repeat the analysis. These are not accredited and are unreliable.

A deviating samples report is appended and will indicate if samples or tests have been found to be deviating. Any test results affected may not be an accurate record of the concentration at the time of sampling and, as a result, may be invalid.

Soil chemical analysis:

All results are reported as dry weight (<40°C).

For samples with Matrix Codes 1 - 6 natural stones, brick and concrete fragments >10mm and any extraneous material (visible glass, metal or twigs) are removed and excluded from the sample prior to analysis and reported results corrected to a whole sample basis. This is reported as '% stones >10mm'.

For samples with Matrix Code 7 the whole sample is dried and crushed prior to analysis and this supersedes any "A" subscripts

All analysis is performed on the sample as received for soil samples which are positive for asbestos or the client has informed asbestos may be present and/or if they are from outside the European Union and this supersedes any "D" subscripts.

TPH analysis of water by method A-T-007:

Free and visible oils are excluded from the sample used for analysis so that the reported result represents the dissolved phase only.

Electrical Conductivity of water by Method A-T-037:

Results greater than 12900µS/cm @ 25°C / 11550µS/cm @ 20°C fall outside the calibration range and as such are unaccredited.

Asbestos:

Asbestos in soil analysis is performed on a dried aliquot of the submitted sample and cannot guarantee to identify asbestos if only present in small numbers as discrete fibres/fragments in the original sample.

Stones etc. are not removed from the sample prior to analysis.

Quantification of asbestos is a 3 stage process including visual identification, hand picking and weighing and fibre counting by sedimentation/phase contrast optical microscopy if required. If asbestos is identified as being present but is not in a form that is suitable for analysis by hand picking and weighing (normally if the asbestos is present as free fibres) quantification by sedimentation is performed. Where ACMs are found a percentage asbestos is assigned to each with reference to 'HSG264, Asbestos: The survey guide' and the calculated asbestos content is expressed as a percentage of the dried soil sample aliquot used.

Predominant Matrix Codes:

1 = SAND, 2 = LOAM, 3 = CLAY, 4 = LOAM/SAND, 5 = SAND/CLAY, 6 = CLAY/LOAM, 7 = OTHER, 8 = Asbestos bulk ID sample.

Samples with Matrix Code 7 & 8 are not predominantly a SAND/LOAM/CLAY mix and are not covered by our BSEN 17025 or MCERTS accreditations, with the exception of bulk asbestos which are BSEN 17025 accredited.

Secondary Matrix Codes:

A = contains stones, B = contains construction rubble, C = contains visible hydrocarbons, D = contains glass/metal,

E = contains roots/twigs.

Key:

IS indicates Insufficient Sample for analysis.

US indicates Unsuitable Sample for analysis.

NDP indicates No Determination Possible.

NAD indicates No Asbestos Detected.

N/A indicates Not Applicable.

Superscript # indicates method accredited to ISO 17025.

Superscript "M" indicates method accredited to MCERTS.

Subscript "A" indicates analysis performed on the sample as received.

Subscript "D" indicates analysis performed on the dried sample, crushed to pass a 2mm sieve

Please contact us if you need any further information.

FINAL ANALYTICAL TEST REPORT

Envirolab Job Number: 18/05665
Issue Number: 1
Date: 25 July, 2018

Client: RSK Environment Ltd Southampton
Unit 26
Basepoint Abbey Enterprise Centre
Premier Way
Romsey,
Hampshire
UK
SO51 9AQ

Project Manager: Catherine Cussell; All RSK Southampton
Project Name: Former West End Nursery, Angmering
Project Ref: 305021
Order No: N/A
Date Samples Received: 16/07/18
Date Instructions Received: 16/07/18
Date Analysis Completed: 23/07/18

Prepared by:

Approved by:

[Redacted Signature Area]

Laboratory Coordinator

Client Manager

Envirolab Job Number: 18/05665

Client Project Name: Former West End Nursery, Angmering

Client Project Ref: 305021

Lab Sample ID	18/05665/1	18/05665/2	18/05665/3	18/05665/4	18/05665/5				Units	Method ref
Client Sample No										
Client Sample ID	Plot 320-323 Septic Tank Base	Plot 320-323 Septic Tank North Wall	Plot 320-323 Septic Tank South Wall	Plot 320-323 Septic Tank East Wall	Plot 320-323 Septic Tank West Wall					
Depth to Top	3.60	2.50	1.70	2.00	1.50					
Depth To Bottom										
Date Sampled	12-Jul-18	12-Jul-18	12-Jul-18	12-Jul-18	12-Jul-18					
Sample Type	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES					
Sample Matrix Code	3	3A	3A	3A	5A					
% Stones >10mm _A	<0.1	19.5	38.2	16.0	6.4				% w/w	A-T-044
Ammonium / Ammoniacal Nitrogen as NH ₄ D	1.03	<0.26	0.60	0.27	<0.26				mg/kg	A-T-033s
Total Organic Carbon _D ^{M#}	0.11	2.28	0.13	0.34	0.15				% w/w	A-T-032s
E-Coli (Faecal Coliforms) _A	<10	<10	<10	<10	<10				cfu/g	Subcon Mercian
Coliforms (total) _A	<10	<10	<10	<10	<10				cfu/g	Subcon Mercian

Envirolab Job Number: 18/05665

Client Project Name: Former West End Nursery, Angmering

Client Project Ref: 305021

Lab Sample ID	18/05665/1	18/05665/2	18/05665/3	18/05665/4	18/05665/5				Units	Method ref
Client Sample No										
Client Sample ID	Plot 320-323 Septic Tank Base	Plot 320-323 Septic Tank North Wall	Plot 320-323 Septic Tank South Wall	Plot 320-323 Septic Tank East Wall	Plot 320-323 Septic Tank West Wall					
Depth to Top	3.60	2.50	1.70	2.00	1.50					
Depth To Bottom										
Date Sampled	12-Jul-18	12-Jul-18	12-Jul-18	12-Jul-18	12-Jul-18					
Sample Type	Soil - ES	Soil - ES	Soil - ES	Soil - ES	Soil - ES					
Sample Matrix Code	3	3A	3A	3A	5A					
Asbestos in Soil (inc. matrix)										
Asbestos in soil [#]	NAD	NAD	NAD	NAD	NAD					A-T-045
Asbestos ACM - Suitable for Water Absorption Test?	N/A	N/A	N/A	N/A	N/A					

REPORT NOTES

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Soil chemical analysis:

All results are reported as dry weight (<40°C).

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For samples with Matrix Code 7 the whole sample is dried and crushed prior to analysis and this supersedes any "A" subscripts

All analysis is performed on the sample as received for soil samples which are positive for asbestos or the client has informed asbestos may be present and/or if they are from outside the European Union and this supersedes any "D" subscripts.

TPH analysis of water by method A-T-007:

Free and visible oils are excluded from the sample used for analysis so that the reported result represents the dissolved phase only.

Electrical Conductivity of water by Method A-T-037:

Results greater than 12900µS/cm @ 25°C / 11550µS/cm @ 20°C fall outside the calibration range and as such are unaccredited.

Asbestos:

Asbestos in soil analysis is performed on a dried aliquot of the submitted sample and cannot guarantee to identify asbestos if only present in small numbers as discrete fibres/fragments in the original sample.

Stones etc. are not removed from the sample prior to analysis.

Quantification of asbestos is a 3 stage process including visual identification, hand picking and weighing and fibre counting by sedimentation/phase contrast optical microscopy if required. If asbestos is identified as being present but is not in a form that is suitable for analysis by hand picking and weighing (normally if the asbestos is present as free fibres) quantification by sedimentation is performed. Where ACMs are found a percentage asbestos is assigned to each with reference to 'HSG264, Asbestos: The survey guide' and the calculated asbestos content is expressed as a percentage of the dried soil sample aliquot used.

Predominant Matrix Codes:

1 = SAND, 2 = LOAM, 3 = CLAY, 4 = LOAM/SAND, 5 = SAND/CLAY, 6 = CLAY/LOAM, 7 = OTHER, 8 = Asbestos bulk ID sample.

Samples with Matrix Code 7 & 8 are not predominantly a SAND/LOAM/CLAY mix and are not covered by our BSEN 17025 or MCERTS accreditations, with the exception of bulk asbestos which are BSEN 17025 accredited.

Secondary Matrix Codes:

A = contains stones, B = contains construction rubble, C = contains visible hydrocarbons, D = contains glass/metal,

E = contains roots/twigs.

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Superscript "M" indicates method accredited to MCERTS.

Subscript "A" indicates analysis performed on the sample as received.

Subscript "D" indicates analysis performed on the dried sample, crushed to pass a 2mm sieve

Please contact us if you need any further information.

FINAL ANALYTICAL TEST REPORT

SUPPLEMENT TO TEST REPORT 18/05769/2

Envirolab Job Number: 18/05769

Issue Number: 3

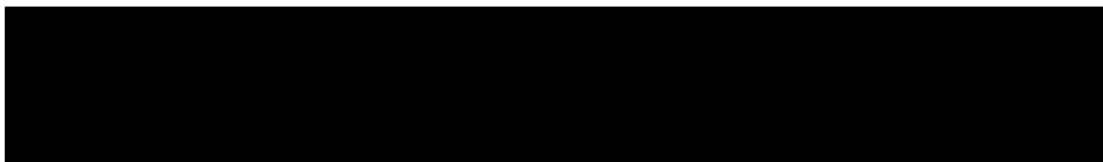
Date: 26 February, 2019

Client: RSK Environment Ltd Southampton
Unit 26
Basepoint Abbey Enterprise Centre
Premier Way
Romsey,
Hampshire
UK
SO51 9AQ

Project Manager: Catherine Cussell
Project Name: Former West End Nursery, Angmering
Project Ref: 305021
Order No: N/A
Date Samples Received: 19/07/18
Date Instructions Received: 19/07/18
Date Analysis Completed: 30/07/18

Prepared by:

Approved by:



Danielle Brierley
Client Manager

Richard Wong
Client Manager

Envirolab Job Number: 18/05769

Client Project Name: Former West End Nursery, Angmering

Client Project Ref: 305021

Lab Sample ID	18/05769/1	18/05769/2	18/05769/3	18/05769/4	18/05769/5				Units	Method ref
Client Sample No										
Client Sample ID	Plot 319 Base V Sample	Plot 319 East Wall V Sample	Plot 319 West Wall V Sample	Plot 319 North Wall V Sample	Plot 319 South Wall V Sample					
Depth to Top	6.00	3.00	2.20	3.80	2.00					
Depth To Bottom										
Date Sampled	17-Jul-18	17-Jul-18	17-Jul-18	17-Jul-18	17-Jul-18					
Sample Type	Solid	Soil - ES	Soil - ES	Soil - ES	Soil - ES					
Sample Matrix Code	7	4A	5	5A	5A					
% Stones >10mm _A	<0.1	1.8	<0.1	14.9	64.6				% w/w	A-T-044
Ammonium / Ammoniacal Nitrogen as NH ₄ D	3.74	5.82	0.77	0.88	11.1				mg/kg	A-T-033s
Total Organic Carbon _D ^{M#}	0.09	-	0.22	-	0.04				% w/w	A-T-032s
E-Coli (Faecal Coliforms) _A	<10	<10	<10	<10	<10				cfu/g	Subcon Mercian
Coliforms (total) _A	<10	<10	<10	<10	<10				cfu/g	Subcon Mercian

Envirolab Job Number: 18/05769

Client Project Name: Former West End Nursery, Angmering

Client Project Ref: 305021

Lab Sample ID	18/05769/1	18/05769/2	18/05769/3	18/05769/4	18/05769/5				Units	Method ref
Client Sample No										
Client Sample ID	Plot 319 Base V Sample	Plot 319 East Wall V Sample	Plot 319 West Wall V Sample	Plot 319 North Wall V Sample	Plot 319 South Wall V Sample					
Depth to Top	6.00	3.00	2.20	3.80	2.00					
Depth To Bottom										
Date Sampled	17-Jul-18	17-Jul-18	17-Jul-18	17-Jul-18	17-Jul-18					
Sample Type	Solid	Soil - ES	Soil - ES	Soil - ES	Soil - ES					
Sample Matrix Code	7	4A	5	5A	5A					
Asbestos in Soil (inc. matrix)										
Asbestos in soil [#]	NAD	NAD	NAD	NAD	NAD					A-T-045
Asbestos ACM - Suitable for Water Absorption Test?	N/A	N/A	N/A	N/A	N/A					

REPORT NOTES

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Analytical results reflect the quality of the sample at the time of analysis only.

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If results are in italic font they are associated with an AQC failure, these are not accredited and are unreliable.

A deviating samples report is appended and will indicate if samples or tests have been found to be deviating. Any test results affected may not be an accurate record of the concentration at the time of sampling and, as a result, may be invalid.

Soil chemical analysis:

All results are reported as dry weight (<40°C).

For samples with Matrix Codes 1 - 6 natural stones, brick and concrete fragments >10mm and any extraneous material (visible glass, metal or twigs) are removed and excluded from the sample prior to analysis and reported results corrected to a whole sample basis. This is reported as '% stones >10mm'.

For samples with Matrix Code 7 the whole sample is dried and crushed prior to analysis and this supersedes any "A" subscripts

All analysis is performed on the sample as received for soil samples which are positive for asbestos or the client has informed asbestos may be present and/or if they are from outside the European Union and this supersedes any "D" subscripts.

TPH analysis of water by method A-T-007:

Free and visible oils are excluded from the sample used for analysis so that the reported result represents the dissolved phase only.

Electrical Conductivity of water by Method A-T-037:

Results greater than 12900µS/cm @ 25°C / 11550µS/cm @ 20°C fall outside the calibration range and as such are unaccredited.

Asbestos:

Asbestos in soil analysis is performed on a dried aliquot of the submitted sample and cannot guarantee to identify asbestos if only present in small numbers as discrete fibres/fragments in the original sample.

Stones etc. are not removed from the sample prior to analysis.

Quantification of asbestos is a 3 stage process including visual identification, hand picking and weighing and fibre counting by sedimentation/phase contrast optical microscopy if required. If asbestos is identified as being present but is not in a form that is suitable for analysis by hand picking and weighing (normally if the asbestos is present as free fibres) quantification by sedimentation is performed.

Where ACMs are found a percentage asbestos is assigned to each with reference to 'HSG264, Asbestos: The survey guide' and the calculated asbestos content is expressed as a percentage of the dried soil sample aliquot used.

Predominant Matrix Codes:

1 = SAND, 2 = LOAM, 3 = CLAY, 4 = LOAM/SAND, 5 = SAND/CLAY, 6 = CLAY/LOAM, 7 = OTHER, 8 = Asbestos bulk ID sample.

Samples with Matrix Code 7 & 8 are not predominantly a SAND/LOAM/CLAY mix and are not covered by our BSEN 17025 or MCERTS accreditations, with the exception of bulk asbestos which are BSEN 17025 accredited.

Secondary Matrix Codes:

A = contains stones, B = contains construction rubble, C = contains visible hydrocarbons, D = contains glass/metal,

E = contains roots/twigs.

Key:

IS indicates Insufficient Sample for analysis.

US indicates Unsuitable Sample for analysis.

NDP indicates No Determination Possible.

NAD indicates No Asbestos Detected.

N/A indicates Not Applicable.

Superscript # indicates method accredited to ISO 17025.

Superscript "M" indicates method accredited to MCERTS.

Subscript "A" indicates analysis performed on the sample as received.

Subscript "D" indicates analysis performed on the dried sample, crushed to pass a 2mm sieve

Please contact us if you need any further information.

FINAL ANALYTICAL TEST REPORT

Envirolab Job Number: 18/09273
Issue Number: 1

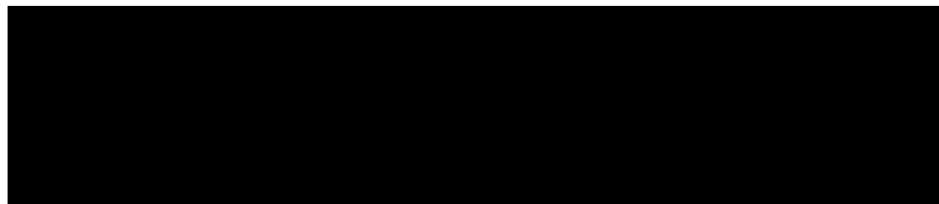
Date: 22 November, 2018

Client: RSK Environment Ltd Southampton
Unit 26
Basepoint Abbey Enterprise Centre
Premier Way
Romsey,
Hampshire
UK
SO51 9AQ

Project Manager: Josh Laite; All RSK Southampton
Project Name: Not specified
Project Ref: 305021
Order No: N/A
Date Samples Received: 05/11/18
Date Instructions Received: 08/11/18
Date Analysis Completed: 22/11/18

Prepared by:

Approved by:



Elisha Hartley
Admin Assistant

Iain Haslock
Analytical Consultant

Envirolab Job Number: 18/09273

Client Project Name: Not specified

Client Project Ref: 305021

Lab Sample ID	18/09273/1	18/09273/2	18/09273/3	18/09273/4	18/09273/5				Units	Method ref
Client Sample No										
Client Sample ID	SWBV1TS	SWBV1SS	SWBV2SS	VSS1	VSS2					
Depth to Top	0.20	0.40	0.40	0.10	0.10					
Depth To Bottom				0.20						
Date Sampled	01-Nov-18	01-Nov-18	01-Nov-18	06-Nov-18	06-Nov-18					
Sample Type	Soil	Soil	Soil	Soil	Soil					
Sample Matrix Code	4AE	5A	5A	4A	5A					
% Stones >10mm _A	10.0	7.5	17.2	<0.1	<0.1				% w/w	A-T-044
pH _D ^{M#}	7.80	7.71	7.93	-	-				pH	A-T-031s
Sulphate (water sol 2:1) _D ^{M#}	<0.01	0.04	0.02	-	-				g/l	A-T-025s
Sulphate (acid soluble) _D ^{M#}	560	500	540	-	-				mg/kg	A-T-028s
Arsenic _D ^{M#}	2	3	4	-	-				mg/kg	A-T-024s
Cadmium _D ^{M#}	0.6	1.0	1.6	-	-				mg/kg	A-T-024s
Copper _D ^{M#}	16	9	9	-	-				mg/kg	A-T-024s
Chromium _D ^{M#}	16	20	22	-	-				mg/kg	A-T-024s
Chromium (hexavalent) _D	<1	<1	<1	-	-				mg/kg	A-T-040s
Lead _D ^{M#}	14	13	12	-	-				mg/kg	A-T-024s
Mercury _D	<0.17	<0.17	<0.17	-	-				mg/kg	A-T-024s
Nickel _D ^{M#}	14	16	19	-	-				mg/kg	A-T-024s
Selenium _D [#]	<1	<1	<1	-	-				mg/kg	A-T-024s
Zinc _D ^{M#}	40	45	65	-	-				mg/kg	A-T-024s

Envirolab Job Number: 18/09273

Client Project Name: Not specified

Client Project Ref: 305021

Lab Sample ID	18/09273/1	18/09273/2	18/09273/3	18/09273/4	18/09273/5				Units	Method ref
Client Sample No										
Client Sample ID	SWBV1TS	SWBV1SS	SWBV2SS	VSS1	VSS2					
Depth to Top	0.20	0.40	0.40	0.10	0.10					
Depth To Bottom				0.20						
Date Sampled	01-Nov-18	01-Nov-18	01-Nov-18	06-Nov-18	06-Nov-18					
Sample Type	Soil	Soil	Soil	Soil	Soil					
Sample Matrix Code	4AE	5A	5A	4A	5A					
Asbestos in Soil (inc. matrix)										
Asbestos in soil [#]	NAD	NAD	NAD	Chrysotile	Chrysotile					A-T-045
Asbestos Matrix (microscope) ^A	-	-	-	loose fibres	loose fibres					A-T-045
Asbestos ACM - Suitable for Water Absorption Test?	N/A	N/A	N/A	N/A	N/A					
Asbestos in Soil Quantification % (Hand Picking & Weighing)										
Asbestos in soil % composition (hand picking and weighing) ^B	-	-	-	<0.001	<0.001				% w/w	A-T-054

Envirolab Job Number: 18/09273

Client Project Name: Not specified

Client Project Ref: 305021

Lab Sample ID	18/09273/1	18/09273/2	18/09273/3	18/09273/4	18/09273/5				Units	Method ref
Client Sample No										
Client Sample ID	SWBV1TS	SWBV1SS	SWBV2SS	VSS1	VSS2					
Depth to Top	0.20	0.40	0.40	0.10	0.10					
Depth To Bottom				0.20						
Date Sampled	01-Nov-18	01-Nov-18	01-Nov-18	06-Nov-18	06-Nov-18					
Sample Type	Soil	Soil	Soil	Soil	Soil					
Sample Matrix Code	4AE	5A	5A	4A	5A					
PAH-16MS										
Acenaphthene _A ^{M#}	<0.01	<0.01	<0.01	-	-				mg/kg	A-T-019s
Acenaphthylene _A ^{M#}	<0.01	<0.01	<0.01	-	-				mg/kg	A-T-019s
Anthracene _A ^{M#}	<0.02	<0.02	<0.02	-	-				mg/kg	A-T-019s
Benzo(a)anthracene _A ^{M#}	<0.04	<0.04	<0.04	-	-				mg/kg	A-T-019s
Benzo(a)pyrene _A ^{M#}	0.05	<0.04	<0.04	-	-				mg/kg	A-T-019s
Benzo(b)fluoranthene _A ^{M#}	0.08	<0.05	<0.05	-	-				mg/kg	A-T-019s
Benzo(ghi)perylene _A ^{M#}	<0.05	<0.05	<0.05	-	-				mg/kg	A-T-019s
Benzo(k)fluoranthene _A ^{M#}	<0.07	<0.07	<0.07	-	-				mg/kg	A-T-019s
Chrysene _A ^{M#}	0.09	<0.06	<0.06	-	-				mg/kg	A-T-019s
Dibenzo(ah)anthracene _A ^{M#}	<0.04	<0.04	<0.04	-	-				mg/kg	A-T-019s
Fluoranthene _A ^{M#}	<0.08	<0.08	<0.08	-	-				mg/kg	A-T-019s
Fluorene _A ^{M#}	<0.01	<0.01	<0.01	-	-				mg/kg	A-T-019s
Indeno(123-cd)pyrene _A ^{M#}	0.05	<0.03	<0.03	-	-				mg/kg	A-T-019s
Naphthalene _A ^{M#}	<0.03	<0.03	<0.03	-	-				mg/kg	A-T-019s
Phenanthrene _A ^{M#}	<0.03	<0.03	<0.03	-	-				mg/kg	A-T-019s
Pyrene _A ^{M#}	<0.07	<0.07	<0.07	-	-				mg/kg	A-T-019s
Total PAH-16MS _A ^{M#}	0.27	<0.08	<0.08	-	-				mg/kg	A-T-019s

Envirolab Job Number: 18/09273

Client Project Name: Not specified

Client Project Ref: 305021

Lab Sample ID	18/09273/1	18/09273/2	18/09273/3	18/09273/4	18/09273/5				Units	Method ref
Client Sample No										
Client Sample ID	SWBV1TS	SWBV1SS	SWBV2SS	VSS1	VSS2					
Depth to Top	0.20	0.40	0.40	0.10	0.10					
Depth To Bottom				0.20						
Date Sampled	01-Nov-18	01-Nov-18	01-Nov-18	06-Nov-18	06-Nov-18					
Sample Type	Soil	Soil	Soil	Soil	Soil					
Sample Matrix Code	4AE	5A	5A	4A	5A					
Speciated PCB-EC7 & WHO12										
PCB BZ 28 _A ^{M#}	-	-	-	<0.002	<0.002				mg/kg	A-T-004s
PCB BZ 52 _A ^{M#}	-	-	-	<0.002	<0.002				mg/kg	A-T-004s
PCB BZ 81 _A	-	-	-	<0.005	<0.005				mg/kg	A-T-004s
PCB BZ 101 _A ^{M#}	-	-	-	<0.004	<0.004				mg/kg	A-T-004s
PCB BZ 105 _A	-	-	-	<0.005	<0.005				mg/kg	A-T-004s
PCB BZ 114 _A	-	-	-	<0.005	<0.005				mg/kg	A-T-004s
PCB BZ 118 _A ^{M#}	-	-	-	<0.007	<0.007				mg/kg	A-T-004s
PCB BZ 123 _A	-	-	-	<0.005	<0.005				mg/kg	A-T-004s
PCB BZ 126 _A	-	-	-	<0.005	<0.005				mg/kg	A-T-004s
PCB BZ 138 _A ^{M#}	-	-	-	<0.006	<0.006				mg/kg	A-T-004s
PCB BZ 153 _A ^{M#}	-	-	-	<0.004	<0.004				mg/kg	A-T-004s
PCB BZ 156 _A	-	-	-	<0.005	<0.005				mg/kg	A-T-004s
PCB BZ 157 _A	-	-	-	<0.005	<0.005				mg/kg	A-T-004s
PCB BZ 167 _A	-	-	-	<0.005	<0.005				mg/kg	A-T-004s
PCB BZ 169 _A	-	-	-	<0.005	<0.005				mg/kg	A-T-004s
PCB BZ 180 _A ^{M#}	-	-	-	<0.004	<0.004				mg/kg	A-T-004s
PCB BZ 189 _A	-	-	-	<0.005	<0.005				mg/kg	A-T-004s
PCB BZ 77 _A	-	-	-	<0.005	<0.005				mg/kg	A-T-004s
Total Speciated PCB-EC7 & WHO12 _A	-	-	-	<0.007	<0.007				mg/kg	A-T-004s

Envirolab Job Number: 18/09273

Client Project Name: Not specified

Client Project Ref: 305021

Lab Sample ID	18/09273/1	18/09273/2	18/09273/3	18/09273/4	18/09273/5				Units	Method ref
Client Sample No										
Client Sample ID	SWBV1TS	SWBV1SS	SWBV2SS	VSS1	VSS2					
Depth to Top	0.20	0.40	0.40	0.10	0.10					
Depth To Bottom				0.20						
Date Sampled	01-Nov-18	01-Nov-18	01-Nov-18	06-Nov-18	06-Nov-18					
Sample Type	Soil	Soil	Soil	Soil	Soil					
Sample Matrix Code	4AE	5A	5A	4A	5A					
TPH CWG										
Ali >C5-C6 _A [#]	<0.01	<0.01	<0.01	<0.01	<0.01				mg/kg	A-T-022s
Ali >C6-C8 _A [#]	<0.01	<0.01	<0.01	<0.01	<0.01				mg/kg	A-T-022s
Ali >C8-C10 _A ^{M#}	<1	<1	<1	<1	<1				mg/kg	A-T-055s
Ali >C10-C12 _A ^{M#}	<1	<1	<1	<1	<1				mg/kg	A-T-055s
Ali >C12-C16 _A ^{M#}	<1	<1	<1	<1	<1				mg/kg	A-T-055s
Ali >C16-C21 _A ^{M#}	1	<1	<1	3	4				mg/kg	A-T-055s
Ali >C21-C35 _A	7	<1	<1	6	20				mg/kg	A-T-055s
Total Aliphatics >C5-C35 _A	9	<1	<1	10	25				mg/kg	A-T-055s
Aro >C5-C7 _A [#]	<0.01	<0.01	<0.01	<0.01	<0.01				mg/kg	A-T-022s
Aro >C7-C8 _A [#]	<0.01	<0.01	<0.01	<0.01	<0.01				mg/kg	A-T-022s
Aro >C8-C10 _A ^{M#}	<1	<1	<1	3	8				mg/kg	A-T-055s
Aro >C10-C12 _A ^{M#}	<1	<1	<1	<1	<1				mg/kg	A-T-055s
Aro >C12-C16 _A	<1	<1	<1	3	3				mg/kg	A-T-055s
Aro >C16-C21 _A ^{M#}	3	<1	<1	19	15				mg/kg	A-T-055s
Aro >C21-C35 _A ^{M#}	62	1	2	103	88				mg/kg	A-T-055s
Total Aromatics >C5-C35 _A	65	1	2	126	113				mg/kg	A-T-055s
TPH (Ali & Aro >C5-C35) _A	74	1	3	136	136				mg/kg	A-T-055s
BTEX - Benzene _A [#]	<0.01	<0.01	<0.01	<0.01	<0.01				mg/kg	A-T-022s
BTEX - Toluene _A [#]	<0.01	<0.01	<0.01	<0.01	<0.01				mg/kg	A-T-022s
BTEX - Ethyl Benzene _A [#]	<0.01	<0.01	<0.01	<0.01	<0.01				mg/kg	A-T-022s
BTEX - m & p Xylene _A [#]	<0.01	<0.01	<0.01	<0.01	<0.01				mg/kg	A-T-022s
BTEX - o Xylene _A [#]	<0.01	<0.01	<0.01	<0.01	<0.01				mg/kg	A-T-022s
MTBE _A [#]	<0.01	<0.01	<0.01	<0.01	<0.01				mg/kg	A-T-022s

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Soil chemical analysis:

All results are reported as dry weight (<40°C).

For samples with Matrix Codes 1 - 6 natural stones, brick and concrete fragments >10mm and any extraneous material (visible glass, metal or twigs) are removed and excluded from the sample prior to analysis and reported results corrected to a whole sample basis. This is reported as '% stones >10mm'.

For samples with Matrix Code 7 the whole sample is dried and crushed prior to analysis and this supersedes any "A" subscripts

All analysis is performed on the sample as received for soil samples which are positive for asbestos or the client has informed asbestos may be present and/or if they are from outside the European Union and this supersedes any "D" subscripts.

TPH analysis of water by method A-T-007:

Free and visible oils are excluded from the sample used for analysis so that the reported result represents the dissolved phase only.

Electrical Conductivity of water by Method A-T-037:

Results greater than 12900µS/cm @ 25°C / 11550µS/cm @ 20°C fall outside the calibration range and as such are unaccredited.

Asbestos:

Asbestos in soil analysis is performed on a dried aliquot of the submitted sample and cannot guarantee to identify asbestos if only present in small numbers as discrete fibres/fragments in the original sample.

Stones etc. are not removed from the sample prior to analysis.

Quantification of asbestos is a 3 stage process including visual identification, hand picking and weighing and fibre counting by sedimentation/phase contrast optical microscopy if required. If asbestos is identified as being present but is not in a form that is suitable for analysis by hand picking and weighing (normally if the asbestos is present as free fibres) quantification by sedimentation is performed. Where ACMs are found a percentage asbestos is assigned to each with reference to 'HSG264, Asbestos: The survey guide' and the calculated asbestos content is expressed as a percentage of the dried soil sample aliquot used.

Predominant Matrix Codes:

1 = SAND, 2 = LOAM, 3 = CLAY, 4 = LOAM/SAND, 5 = SAND/CLAY, 6 = CLAY/LOAM, 7 = OTHER, 8 = Asbestos bulk ID sample.

Samples with Matrix Code 7 & 8 are not predominantly a SAND/LOAM/CLAY mix and are not covered by our BSEN 17025 or MCERTS accreditations, with the exception of bulk asbestos which are BSEN 17025 accredited.

Secondary Matrix Codes:

A = contains stones, B = contains construction rubble, C = contains visible hydrocarbons, D = contains glass/metal,

E = contains roots/twigs.

Key:

IS indicates Insufficient Sample for analysis.

US indicates Unsuitable Sample for analysis.

NDP indicates No Determination Possible.

NAD indicates No Asbestos Detected.

N/A indicates Not Applicable.

Superscript # indicates method accredited to ISO 17025.

Superscript "M" indicates method accredited to MCERTS.

Subscript "A" indicates analysis performed on the sample as received.

Subscript "D" indicates analysis performed on the dried sample, crushed to pass a 2mm sieve

Please contact us if you need any further information.

FINAL ANALYTICAL TEST REPORT

Envirolab Job Number: 19/01308
Issue Number: 1

Date: 19 February, 2019

Client: RSK Environment Ltd Southampton
Unit 26
Basepoint Abbey Enterprise Centre
Premier Way
Romsey,
Hampshire
UK
SO51 9AQ

Project Manager: Josh Laite; All RSK Southampton
Project Name: Angmering
Project Ref: 305021
Order No: N/A
Date Samples Received: 11/02/19
Date Instructions Received: 12/02/19
Date Analysis Completed: 19/02/19

Prepared by:

Approved by:

Kate Keningale
Sales Executive

Richard Wong
Client Manager

Envirolab Job Number: 19/01308

Client Project Name: Angmering

Client Project Ref: 305021

Lab Sample ID	19/01308/1	19/01308/2	19/01308/3	19/01308/4	19/01308/5	19/01308/9			Units	Method ref
Client Sample No										
Client Sample ID	V2 Validation East	V2 Validation South	V2 Validation West	V2 Validation North	V2 Validation Base 3	V2 Validation Base 1				
Depth to Top	0.60	0.80	0.70	0.90	2.00	1.00				
Depth To Bottom										
Date Sampled	07-Feb-19	07-Feb-19	07-Feb-19	07-Feb-19	07-Feb-19	07-Feb-19				
Sample Type	Soil	Soil	Soil	Soil	Soil	Soil				
Sample Matrix Code	5AB	5AB	5AB	5AB	5	5				
% Stones >10mm _A	2.6	10.0	12.7	29.5	<0.1	<0.1			% w/w	A-T-044

Envirolab Job Number: 19/01308

Client Project Name: Angmering

Client Project Ref: 305021

Lab Sample ID	19/01308/1	19/01308/2	19/01308/3	19/01308/4	19/01308/5	19/01308/9			Units	Method ref
Client Sample No										
Client Sample ID	V2 Validation East	V2 Validation South	V2 Validation West	V2 Validation North	V2 Validation Base 3	V2 Validation Base 1				
Depth to Top	0.60	0.80	0.70	0.90	2.00	1.00				
Depth To Bottom										
Date Sampled	07-Feb-19	07-Feb-19	07-Feb-19	07-Feb-19	07-Feb-19	07-Feb-19				
Sample Type	Soil	Soil	Soil	Soil	Soil	Soil				
Sample Matrix Code	5AB	5AB	5AB	5AB	5	5				
Asbestos in Soil (inc. matrix)										
Asbestos in soil [#]	NAD	NAD	NAD	NAD	NAD	NAD				A-T-045
Asbestos ACM - Suitable for Water Absorption Test?	N/A	N/A	N/A	N/A	N/A	N/A				

Envirolab Job Number: 19/01308

Client Project Name: Angmering

Client Project Ref: 305021

Lab Sample ID	19/01308/1	19/01308/2	19/01308/3	19/01308/4	19/01308/5	19/01308/9			Units	Method ref
Client Sample No										
Client Sample ID	V2 Validation East	V2 Validation South	V2 Validation West	V2 Validation North	V2 Validation Base 3	V2 Validation Base 1				
Depth to Top	0.60	0.80	0.70	0.90	2.00	1.00				
Depth To Bottom										
Date Sampled	07-Feb-19	07-Feb-19	07-Feb-19	07-Feb-19	07-Feb-19	07-Feb-19				
Sample Type	Soil	Soil	Soil	Soil	Soil	Soil				
Sample Matrix Code	5AB	5AB	5AB	5AB	5	5				
TPH CWG										
Ali >C5-C6 _A [#]	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01			mg/kg	A-T-022s
Ali >C6-C8 _A [#]	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01			mg/kg	A-T-022s
Ali >C8-C10 _A ^{M#}	<1	<1	<1	<1	<1	<1			mg/kg	A-T-055s
Ali >C10-C12 _A ^{M#}	<1	<1	<1	<1	<1	<1			mg/kg	A-T-055s
Ali >C12-C16 _A ^{M#}	<1	<1	1	<1	<1	<1			mg/kg	A-T-055s
Ali >C16-C21 _A ^{M#}	2	<1	2	<1	<1	<1			mg/kg	A-T-055s
Ali >C21-C35 _A	5	4	8	6	<1	1			mg/kg	A-T-055s
Total Aliphatics _A	6	4	12	7	<1	1			mg/kg	A-T-055s
Aro >C5-C7 _A [#]	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01			mg/kg	A-T-022s
Aro >C7-C8 _A [#]	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01			mg/kg	A-T-022s
Aro >C8-C10 _A ^{M#}	<4	<4	<4	<4	<4	<1			mg/kg	A-T-055s
Aro >C10-C12 _A ^{M#}	<1	<1	<1	<1	<1	<1			mg/kg	A-T-055s
Aro >C12-C16 _A	2	2	3	2	<1	<1			mg/kg	A-T-055s
Aro >C16-C21 _A ^{M#}	4	3	5	3	<1	<1			mg/kg	A-T-055s
Aro >C21-C35 _A ^{M#}	8	12	13	18	<1	2			mg/kg	A-T-055s
Total Aromatics _A	20	19	25	24	<1	2			mg/kg	A-T-055s
TPH (Ali & Aro >C5-C35) _A	26	23	38	31	<1	4			mg/kg	A-T-055s
BTEX - Benzene _A [#]	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01			mg/kg	A-T-022s
BTEX - Toluene _A [#]	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01			mg/kg	A-T-022s
BTEX - Ethyl Benzene _A [#]	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01			mg/kg	A-T-022s
BTEX - m & p Xylene _A [#]	<0.01	<0.01	<0.01	<0.01	<0.01	0.01			mg/kg	A-T-022s
BTEX - o Xylene _A [#]	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01			mg/kg	A-T-022s
MTBE _A [#]	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01			mg/kg	A-T-022s

REPORT NOTES

General:

This report shall not be reproduced, except in full, without written approval from Envirolab.

All samples contained within this report, and any received with the same delivery, will be disposed of one month after the date of this report.

Analytical results reflect the quality of the sample at the time of analysis only.

Opinions and interpretations expressed are outside the scope of our accreditation.

If results are in italic font they are associated with an AQC failure, these are not accredited and are unreliable.

A deviating samples report is appended and will indicate if samples or tests have been found to be deviating. Any test results affected may not be an accurate record of the concentration at the time of sampling and, as a result, may be invalid.

Soil chemical analysis:

All results are reported as dry weight (<40°C).

For samples with Matrix Codes 1 - 6 natural stones, brick and concrete fragments >10mm and any extraneous material (visible glass, metal or twigs) are removed and excluded from the sample prior to analysis and reported results corrected to a whole sample basis. This is reported as '% stones >10mm'.

For samples with Matrix Code 7 the whole sample is dried and crushed prior to analysis and this supersedes any "A" subscripts

All analysis is performed on the sample as received for soil samples which are positive for asbestos or the client has informed asbestos may be present and/or if they are from outside the European Union and this supersedes any "D" subscripts.

TPH analysis of water by method A-T-007:

Free and visible oils are excluded from the sample used for analysis so that the reported result represents the dissolved phase only.

Electrical Conductivity of water by Method A-T-037:

Results greater than 12900µS/cm @ 25°C / 11550µS/cm @ 20°C fall outside the calibration range and as such are unaccredited.

Asbestos:

Asbestos in soil analysis is performed on a dried aliquot of the submitted sample and cannot guarantee to identify asbestos if only present in small numbers as discrete fibres/fragments in the original sample.

Stones etc. are not removed from the sample prior to analysis.

Quantification of asbestos is a 3 stage process including visual identification, hand picking and weighing and fibre counting by sedimentation/phase contrast optical microscopy if required. If asbestos is identified as being present but is not in a form that is suitable for analysis by hand picking and weighing (normally if the asbestos is present as free fibres) quantification by sedimentation is performed.

Where ACMs are found a percentage asbestos is assigned to each with reference to 'HSG264, Asbestos: The survey guide' and the calculated asbestos content is expressed as a percentage of the dried soil sample aliquot used.

Predominant Matrix Codes:

1 = SAND, 2 = LOAM, 3 = CLAY, 4 = LOAM/SAND, 5 = SAND/CLAY, 6 = CLAY/LOAM, 7 = OTHER, 8 = Asbestos bulk ID sample.

Samples with Matrix Code 7 & 8 are not predominantly a SAND/LOAM/CLAY mix and are not covered by our BSEN 17025 or MCERTS accreditations, with the exception of bulk asbestos which are BSEN 17025 accredited.

Secondary Matrix Codes:

A = contains stones, B = contains construction rubble, C = contains visible hydrocarbons, D = contains glass/metal,

E = contains roots/twigs.

Key:

IS indicates Insufficient Sample for analysis.

US indicates Unsuitable Sample for analysis.

NDP indicates No Determination Possible.

NAD indicates No Asbestos Detected.

N/A indicates Not Applicable.

Superscript # indicates method accredited to ISO 17025.

Superscript "M" indicates method accredited to MCERTS.

Subscript "A" indicates analysis performed on the sample as received.

Subscript "D" indicates analysis performed on the dried sample, crushed to pass a 2mm sieve

Please contact us if you need any further information.

APPENDIX F

VALIDATION SAMPLE DESCRIPTIONS AND IN-SITU SCREENING RESULTS

Exploratory Position ID:

Plot 317 samples

SAMPLE DESCRIPTIONS

Logged By: EHP

Logged Date: 03/04/2018

Top Depth (m)	Base Depth (m)	Sample Ref	Sample Type	Sample Description
0.0	1.0	A	ES for PID	0.0 m to 1.0 m MADE GROUND: Greyish brown gravelly CLAY. Gravel is subangular to rounded fine to coarse flint, with frequent brick and concrete. PID 1.2 ppmV
0.5	1.0	B	ES for PID	0.5 m to 1.0 m Light brown slightly sandy gravelly CLAY. Sand is fine. Gravel is subangular to rounded fine to coarse flint. (Reworked River Terrace Deposits). PID 3.1 ppmV
0.7	0.8	C	ES	0.5 m to 0.8 m MADE GROUND: Dark grey slightly sandy CLAY. Abundant anthropogenic materials, including seeding trays, metal strip and plastic. Occasional pieces of bitumen 50 mm to 200 mm in size. Hydrocarbon odours noted. PID 82.5 ppmV
0.8	-	D	ES	0.0 m to 1.0 m Orangish brown fine to coarse SAND. (Sand placed around new water main plastic pipe) PID 51.4 ppmV



Compiled By

Date

Checked By

Date

Ed Hughes Phillips

26/02/19

Cathy Cussell

27/02/19

Contract:

Land at West End Nursery, Angmering

Contract Ref: 27621

Page:

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Exploratory Position ID:

Plot 317

SAMPLE DESCRIPTIONS

Logged By: JL

Logged Date: 2/07/2018

Top Depth (m)	Base Depth (m)	Sample Ref	Sample Type	Sample Description
0.3	0.3	Plot 317 North	ES	Made Ground: Brown slightly sandy very gravelly silty CLAY. Sand is fine. Gravel is angular to subrounded, fine to coarse flint, brick, concrete, pipe, metal and plastic.
0.6	0.6	Plot 317 South	ES	Made Ground: Brown slightly sandy very gravelly silty CLAY. Sand is fine. Gravel is angular to subrounded, fine to coarse flint, brick, concrete, pipe, metal and plastic.
1.10	1.10	Plot 317 West	ES	Made Ground: Brown gravelly silty clayey fine SAND. Gravel is angular to subrounded, fine to coarse flint, brick, concrete, pipe, metal and plastic.
0.50	0.50	Plot 317 East	ES	Made Ground: Brown slightly sandy very gravelly silty CLAY. Sand is fine. Gravel is angular to subrounded, fine to coarse flint, brick, concrete, pipe, metal and plastic.
1.30	1.30	Plot 317 Base	ES	Light brown slightly sandy silty CLAY. Sand is fine. Gravel is subangular to subrounded, fine to medium flint.



Compiled By

Date

Checked By

Date

Andy Denton

11/07/18

Cathy Cussell

12/07/18

Contract:

Land at West End Nursery, Angmering

Contract Ref: 27621

Page:

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Exploratory Position ID:

Plot 325 surface samples

SAMPLE DESCRIPTIONS

Logged By: JL

Logged Date: 29/03/2018

Top Depth (m)	Base Depth (m)	Sample Ref	Sample Type	Sample Description
Ground level	-	P3-A1	ES	Made Ground: Brown slightly gravelly CLAY. Sand is medium, gravel is subangular to subrounded, fine to medium flint and brick. Hydrocarbon odours noted with oily deposits resting on the ground surface.
Ground level	-	P3-A2	ES	Made Ground: Brown slightly gravelly CLAY. Sand is medium, gravel is subangular to subrounded, fine to medium flint and brick. Hydrocarbon odours noted with oily deposits resting on the ground surface.
				Maximum PID reading 7.70 pppV for the impacted material



Compiled By

Date

Checked By

Date

Josh Laite

29/03/18

Cathy Cussell

26/07/19

Contract:

Land at West End Nursery, Angmering

Contract Ref: 27621

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Exploratory Position ID:

Plot 325 Hydrocarbon hotspot

SAMPLE DESCRIPTIONS

Logged By: AD

Logged Date: 17/05/2018

Top Depth (m)	Base Depth (m)	Sample Ref	Sample Type	Sample Description
Composite		HC Hotspot 1	WAC	Made Ground: Brown slightly gravelly CLAY. Sand is medium, gravel is subangular to subrounded, fine to medium flint and brick. Hydrocarbon odours noted. PID 78.7 ppmV
Composite		HC Hotspot 2	WAC	Made Ground: Brown slightly gravelly CLAY. Sand is medium, gravel is subangular to subrounded, fine to medium flint and brick. Hydrocarbon odours noted. PID 65.2 ppmV
3.0	3.1	BASE	ES	Orangey brown slightly sandy clayey GRAVEL. Sand is medium. Gravel is subangular to subrounded fine to medium flint. PID 0.1 ppmV
2.0	2.1	S SIDE	ES	Orangey brown sandy CLAY. Sand is fine to medium. PID 0.2 ppmV
1.6	1.7	E SIDE	ES	Orange and grey brown sandy CLAY. Sand is fine to medium. PID 0.1 ppmV
1.3	1.4	W SIDE	ES	Orangey brown sandy CLAY. Sand is fine to medium. PID 1.2 ppmV
1.8	1.9	N SIDE	ES	Orangey brown sandy CLAY. Sand is fine to medium. PID 1.2 ppmV



Compiled By

Date

Checked By

Date

Andy Denton

21/06/18

Cathy Cussell

20/5/18

Contract:

Land at West End Nursery, Angmering

Contract Ref: 27621

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Plot 320-323 Septic Tank

SAMPLE DESCRIPTIONS

Logged Date: 12/07/2018

Top Depth (m)	Base Depth (m)	Sample Ref	Sample Type	Sample Description
2.5		320-323 ST North Wall	ES	Brown sandy gravelly CLAY. Sand is fine to medium. Gravel is subangular to subrounded, fine to medium flint. PID - 0.3 ppmV.
1.7		320-323 ST South Wall	ES	Brown sandy gravelly CLAY. Sand is fine to medium. Gravel is subangular to subrounded, fine to medium flint. PID - 0.2 ppmV.
2.0		320-323 ST East Wall	ES	Brown sandy gravelly CLAY. Sand is fine to medium. Gravel is subangular to subrounded, fine to medium flint. PID - 0.0 ppmV.
1.5		320-323 ST West Wall	ES	Brown sandy gravelly CLAY. Sand is fine to medium. Gravel is subangular to subrounded, fine to medium flint. PID - 0.1 ppmV.
3.7		320-323 ST Base	ES	Light whitish brown sandy very gravelly CLAY. Sand is medium to coarse. Gravel is subangular to subrounded, fine to medium flint and chalk. PID - 0.1 ppmV



Date _____

12/07/18

24.7.18

Contract Ref: 27621

Page:

1 of 2

Exploratory Position ID:

Plot 319 Stockpile

SAMPLE DESCRIPTIONS

Logged By: AD

Logged Date: 21/06/18

Top Depth (m)	Base Depth (m)	Sample Ref	Sample Type	Sample Description
Composite		1	ES	Made Ground: Dark brown to grey slightly sandy slightly clayey subangular, fine to medium GRAVEL of flint with an organic odour. PID 1.9 ppmV
Composite		2	ES	Made Ground: Dark brown to grey slightly sandy slightly clayey subangular, fine to medium GRAVEL of flint with an organic odour. PID 2.1 ppmV

Exploratory Position ID:

Plot 319 Validation Sampling

SAMPLE DESCRIPTIONS

Logged By: AD

Logged Date: 17/07/2018

Top Depth (m)	Base Depth (m)	Sample Ref	Sample Type	Sample Description
6.00		Base	ES	Structureless CHALK of off-white very sandy clayey GRAVEL. Sand is coarse. Gravel is subangular to subrounded, fine to medium intact chalk fragments. PID = 0.4 ppmV.
3.00		East Wall	ES	Light whitish brown slightly clayey very sandy GRAVEL. Sand is medium to coarse. Gravel is subangular to subrounded, fine to medium flint and intact chalk fragments. PID = 0.8 ppmV.
2.20		West Wall	ES	Brown slightly gravelly CLAY. Gravel is subangular to subrounded, fine to medium flint. PID = 0.0 ppmV
3.80		South Wall	ES	Brown slightly gravelly CLAY. Gravel is subangular to subrounded, fine to medium flint. PID = 0.7 ppmV
2.00		North Wall	ES	Orangish brown sandy gravelly CLAY. Sand is fine to medium. Gravel is subangular to subrounded, fine to medium flint PID = 0.3 ppmV



Compiled By

Date

Checked By

Date

Andy Denton

01/08/18

Catherine Cussell

01/08/18

Contract:

Land at West End Nursery, Angmering

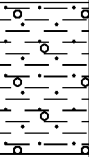
Contract Ref: 27621

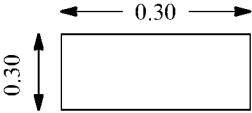
Page:

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FINAL
HAND PIT LOG

Contract: Land at West End Nursery, Angmering			Client: CALA Homes (South Home Counties) Ltd		Trial Pit: SWBV1-18
Contract Ref: 27621		Start: 01.11.18 End: 01.11.18	Ground Level: ---	Co-ordinates: ---	Sheet: 1 of 1

Samples and In-situ Tests				Water	Backfill	Description of Strata	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results					
0.20	1	ES				TOPSOIL: Dark brown slightly gravelly silty SAND with frequent organic matter. Sand is fine to medium. Gravel is subangular to subrounded, fine to medium flint.	(0.30) 0.30	
0.40	2	ES				SUBSOIL: Orangish brown slightly sandy gravelly CLAY. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse flint and occasional chalk.	(0.50) 0.80	
						Trial pit terminated at 0.80 m onto orange marker membrane.		

Plan (Not to Scale) 		General Remarks			
		1. Hand pit remained dry and stable during excavation. 2. Backfilled with arisings.			
Method Hand dug		Plant Used: Hand tools		Logged By: MGrenow	Checked By: 

FINAL HAND PIT LOG

Contract: Land at West End Nursery, Angmering			Client: CALA Homes (South Home Counties) Ltd		Trial Pit: SWBV2-18
Contract Ref: 27621	Start: 01.11.18 End: 01.11.18	Ground Level: ---	Co-ordinates: ---	Sheet: 1 of 1	

Samples and In-situ Tests				Water	Backfill	Description of Strata	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results					
0.20	1	ES				TOPSOIL: Dark brown slightly gravelly silty SAND with frequent organic matter. Sand is fine to medium. Gravel is subangular to subrounded, fine to medium flint.	0.25	
0.40	2	ES				SUBSOIL: Orangish brown slightly sandy gravelly CLAY. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse flint and occasional chalk.	(0.35)	
						Hand pit terminated at 0.60 m onto orange marker membrane.	0.60	

Plan (Not to Scale)		General Remarks 1. Hand pit remained dry and stable during excavation. 2. Backfilled with arisings.	
Method Used: Hand dug		All dimensions in metres Scale: 1:25	
Plant Used:		Logged By: MGrenow	
Checked By:			

TRIAL PIT LOG

Contract: Land at West End Nursery, Angmering		Client: CALA Homes (South Home Counties) Ltd		Trial Pit: V2 Validation Trial Pit
Contract Ref: 27621	Start: 07.02.19 End: 07.02.19	Ground Level: ---	Co-ordinates: ---	Sheet: 1 of 1

Samples and In-situ Tests				Water	Backfill	Description of Strata	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results					
						TOPSOIL: Dark brown clayey slightly gravelly SAND. Sand is fine to medium. Gravel is subrounded to rounded fine to medium of flint. High organic content. SUBSOIL: Light brown slightly sandy gravelly CLAY. Sand is fine. Gravel is angular to subangular fine to coarse flint. (Reworked River Terrace Deposits). MADE GROUND: Dark brown and dark grey slightly sandy gravelly CLAY. Sand is fine. Gravel is angular to subangular fine to coarse flint, brick, plastic, wood and concrete.	0.15 (0.35) 0.50	
1.00 1.10	1 2	ES ES	PID 0.0 ppmV PID 0.0 ppmV			1.10m : In south eastern corner of trial pit: pocket of light grey gravelly clayey fine to coarse SAND. Gravel is angular to subangular fine to medium flint, concrete and charcoal.	(1.30)	
2.00	3	ES	PID 0.0 ppmV			Brown slightly sandy slightly gravelly CLAY. Sand is fine. Gravel is angular fine and medium flint. (RIVER TERRACE DEPOSITS) Trial pit terminated at 2.00 m depth.	1.80 2.00	

General Remarks

1. Trial pit remained stable throughout.
2. Groundwater noted at 1.80 m depth.
3. Validation samples also collected from the sides of the trial pit excavation - refer to sample description sheet dated 07/02/2019.
4. Backfilled with arisings.

All dimensions in metres

Scale:

1:22

Method Machine dug	Plant Used: Mini tracked excavator	Logged By: JLaite	Checked By:	
------------------------------	--	-----------------------------	-------------	--

Exploratory Position ID:

V2 validation samples

SAMPLE DESCRIPTIONS

Logged By: JL

Logged Date: 26/02/2019

Top Depth (m)	Base Depth (m)	Sample Ref	Sample Type	Sample Description
0.7	-	North	ES	MADE GROUND: Dark brown and dark grey slightly sandy gravelly clay. Sand is fine. Gravel is angular to subangular fine to coarse flint, brick, plastic, wood and concrete. PID <0.1ppmV
0.9	-	North	ES	MADE GROUND: Dark brown and dark grey slightly sandy gravelly clay. Sand is fine. Gravel is angular to subangular fine to coarse flint, brick, plastic, wood and concrete. PID <0.1ppmV
0.7	-	West	ES	MADE GROUND: Dark brown and dark grey slightly sandy gravelly clay. Sand is fine. Gravel is angular to subangular fine to coarse flint, brick, plastic, wood and concrete. PID <0.1ppmV
1.0	-	West	ES	MADE GROUND: Dark brown and dark grey slightly sandy gravelly clay. Sand is fine. Gravel is angular to subangular fine to coarse flint, brick, plastic, wood and concrete. PID 0.1ppmV
0.5	-	South	ES	MADE GROUND: Dark brown and dark grey slightly sandy gravelly clay. Sand is fine. Gravel is angular to subangular fine to coarse flint, brick, plastic, wood and concrete. PID 0.1ppmV
0.8	-	South	ES	MADE GROUND: Dark brown and dark grey slightly sandy gravelly clay. Sand is fine. Gravel is angular to subangular fine to coarse flint, brick, plastic, wood and concrete. PID 0.1ppmV
0.6	-	East	ES	MADE GROUND: Dark brown and dark grey slightly sandy gravelly clay. Sand is fine. Gravel is angular to subangular fine to coarse flint, brick, plastic, wood and concrete. PID <0.1ppmV
0.9	-	East	ES	MADE GROUND: Dark brown and dark grey slightly sandy gravelly clay. Sand is fine. Gravel is angular to subangular fine to coarse flint, brick, plastic, wood and concrete. PID <0.1ppmV
1	-	Base 1	ES	MADE GROUND: Dark brown and dark grey slightly sandy gravelly clay. Sand is fine. Gravel is angular to subangular fine to coarse flint, brick, plastic, wood and concrete. PID <0.1ppmV
1.1	-	Base 2	ES	MADE GROUND: Light grey slightly gravelly clayey fine to coarse SAND. Gravel is angular and subangular fine to medium flint, concrete and charcoal. PID <0.1ppmV
2.0	-	Base 3	ES	Brown slightly sandy slightly gravelly CLAY, Sand is fine. Gravel is rounded fine to medium flint. RIVER TERRACE DEPOSITS. PID <0.1ppmV



Compiled By

Date

Checked By

Date

Cathy Cussell

26/02/19

Kirsten Fairall

27/02/19

Contract:

Contract Ref: 27621

Land at West End Nursery, Angmering

Page:

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APPENDIX G

PHOTOGRAPHIC LOG

PHOTOGRAPHIC LOG

Site Location: Land at West End Nursery, Angmering

Photo No.
1

Date:
29/03/2018

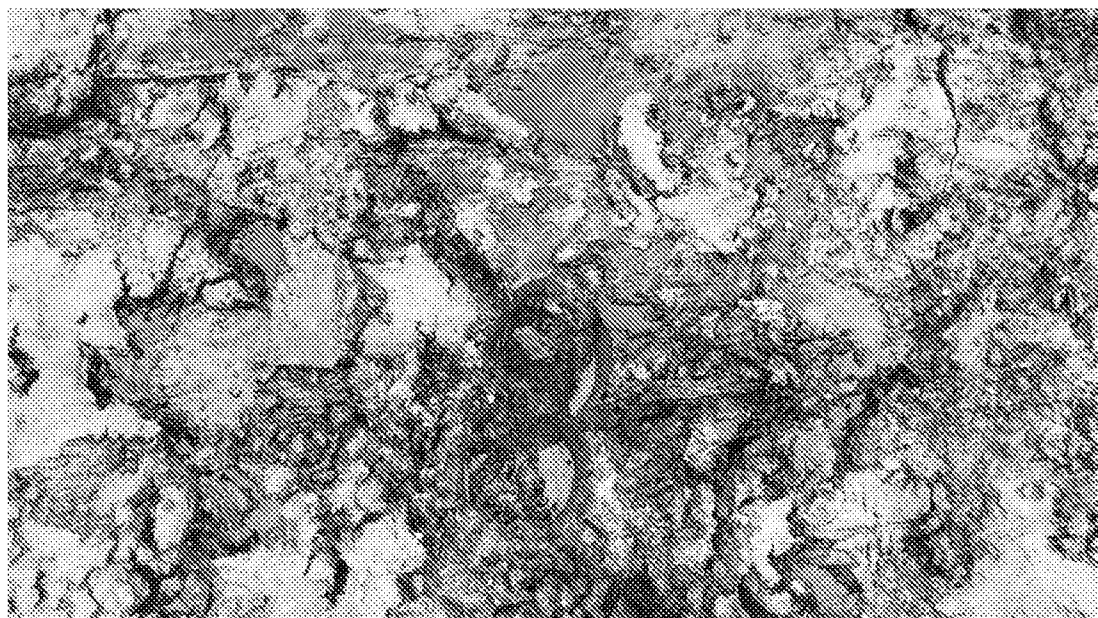
Hydrocarbon impacts observed at the ground surface following rainfall in the vicinity of plot 325. Two samples collected for laboratory analysis.



Photo No.
2

Date:
29/03/2018

Hydrocarbon impacts observed at the ground surface following rainfall in the vicinity of plot 325. Two samples collected for laboratory analysis (P3-A1 and P3-A2).



PHOTOGRAPHIC LOG

Site Location: Land at West End Nursery, Angmering

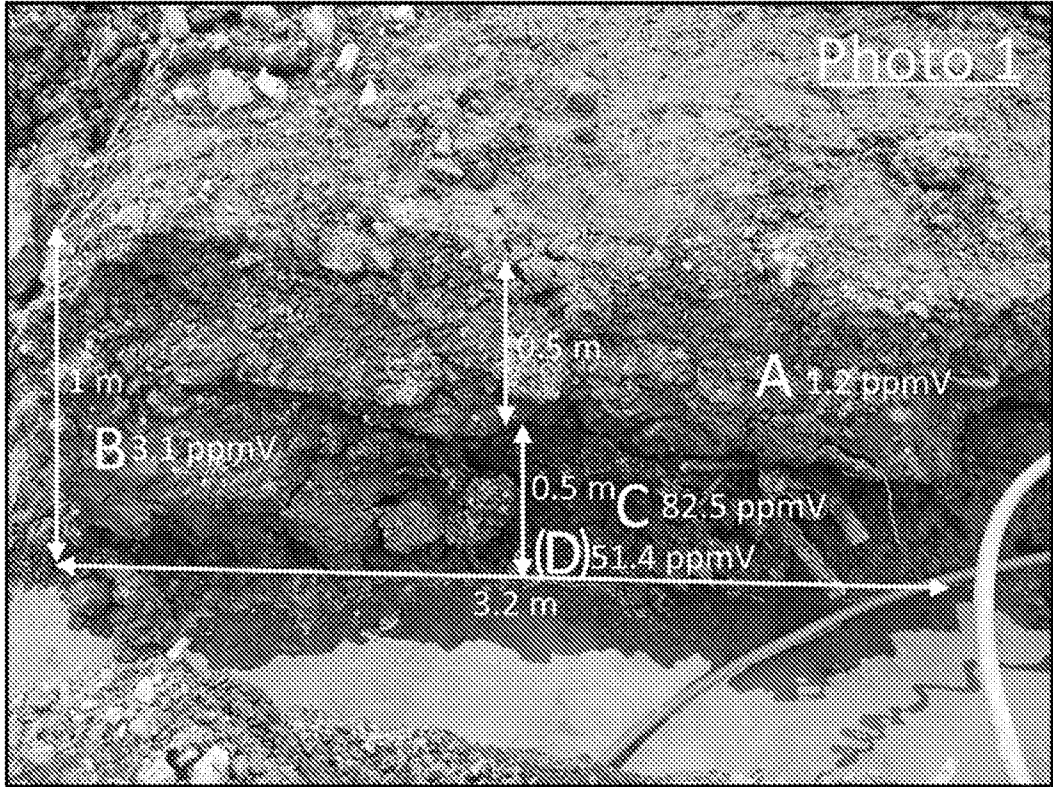
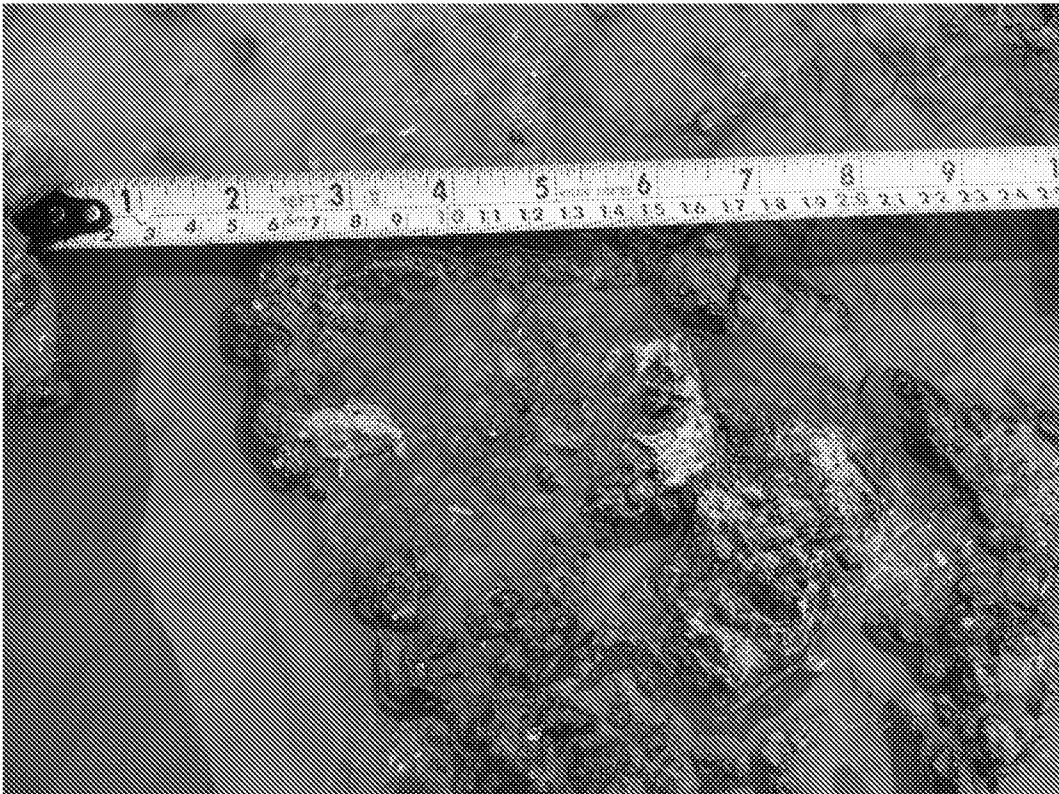
Photo No. 3	
Date: 03/04/2018	
Hydrocarbon impacts observed in Plot 317 parking area. Four samples collected for in-situ volatiles screening (A-D). Samples C and D subsequently submitted for laboratory analysis.	

Photo No. 4	
Date: 10/04/2018	
Suspected fibrous asbestos containing material (ACM) identified in the vicinity of Plot 325. Sample collected for laboratory analysis.	

PHOTOGRAPHIC LOG	
Site Location: Land at West End Nursery, Angmering	
Photo No. 5	
Date: 17/05/2018	
Phase 2A: Facing south west: hydrocarbon product freely observed Plot 325 east-central foundation trench, prior to hotspot removal works.	
Photo No. 6	
Date: 17/05/2018	
Phase 2A: Facing north east: polythene sheeting laid down adjacent to/ and partially over pre-existing temporary stockpile of hydrocarbon impacted soils arising from original excavation of Plot 325 foundation trenches. Stockpile Named temporary stockpile TSP02-P3.	