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SAMPLE RECEIPT ADV ICE

Client Details

Client	Douglas Partners Pty Ltd
Attention	Paul Gorman, Paula Maurici

Sample Login Details

Your reference	72505.12, Randwick Campus Redevelopment
Envirolab Reference	176182
Date Sample Received	21/09/2017
Date Instructions Received	21/09/2017
Date Results Expected to be Reported	28/09/2017

Sample Condition

Samples received in appropriate condition for analysis	YES
No. of Samples Provided	4 soil
Turnaround Time Requested	Standard
Temperature on Receipt (° C)	2.4
Cooling Method	Ice
Sampling Date Provided	YES

Comments

Nil

Please direct any queries to:

Aileen Hie

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Email: ahie@envirolab.com.au

J acina Hurst

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Analysis and details on the following page:



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Sample ID	VTRH(C6-C10)/BTEXN in Soil	svTRH (C10-C40) in Soil	PAHs in Soil	Organochlorine Pesticides in soil	Organophosphorus Pesticides	PCBs in Soil	Acid Extractable metals in soil	Total Phenolics (as Phenol)	Asbestos ID - soils
BH3-0.1-0.2	✓	✓	✓	✓	✓	✓	✓	✓	✓
BH3-0.7-0.8	✓	✓	✓	✓	✓	✓	✓	✓	✓
TS 20170921	✓								
BH3-1.3-1.43	✓	✓	✓	✓	✓	✓	✓	✓	✓

The '✓' indicates the testing you have requested. **THIS IS NOT A REPORT OF THE RESU LTS.**

Additional Info

Sample storage - Waters are routinely disposed of approximately 1 month and soils approximately 2 months from receipt.

Requests for longer term sample storage must be received in writing.

CERTIFICATE OF ANALYSIS 177363

Client Details

Client	Douglas Partners Pty Ltd
Attention	Paul Gorman, Paula Maurici
Address	96 Hermitage Rd, West Ryde, NSW, 2114

Sample Details

Your Reference	<u>72505.12, Randwick Campus Redevelopment</u>
Number of Samples	2 Soil
Date samples received	10/10/2017
Date completed instructions received	10/10/2017

Analysis Details

Please refer to the following pages for results, methodology summary and quality control data.
 Samples were analysed as received from the client. Results relate specifically to the samples as received.
 Results are reported on a dry weight basis for solids and on an as received basis for other matrices.
Please refer to the last page of this report for any comments relating to the results.

Report Details

Date results requested by	17/10/2017
Date of Issue	17/10/2017
NATA Accreditation Number 2901. This document shall not be reproduced except in full.	
Accredited for compliance with ISO/IEC 17025 - Testing. Tests not covered by NATA are denoted with *	

Asbestos Approved By

Analysed by Asbestos Approved Identifier: Paul Ching
 Authorised by Asbestos Approved Signatory: Paul Ching

Results Approved By

Diego Bigolin, Team Leader, Inorganics
 Dragana Tomas, Senior Chemist
 Long Pham, Team Leader, Metals
 Paul Ching, Senior Analyst
 Priya Samarawickrama, Senior Chemist
 Steven Luong, Chemist

Authorised By



David Springer, General Manager

vTRH(C6-C10)/BTEXN in Soil			
Our Reference		177363-1	177363-2
Your Reference	UNITS	BH7	BH7
Depth		0.1	0.5
Date Sampled		06/10/2017	06/10/2017
Type of sample		Soil	Soil
Date extracted	-	11/10/2017	11/10/2017
Date analysed	-	12/10/2017	12/10/2017
TRH C ₆ - C ₉	mg/kg	<25	<25
TRH C ₆ - C ₁₀	mg/kg	<25	<25
vTPH C ₆ - C ₁₀ less BTEX (F1)	mg/kg	<25	<25
Benzene	mg/kg	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1
m+p-xylene	mg/kg	3	<2
o-Xylene	mg/kg	<1	<1
Total +ve Xylenes	mg/kg	3	<1
naphthalene	mg/kg	<1	<1
Surrogate aaa-Trifluorotoluene	%	116	109

svTRH (C10-C40) in Soil			
Our Reference		177363-1	177363-2
Your Reference	UNITS	BH7	BH7
Depth		0.1	0.5
Date Sampled		06/10/2017	06/10/2017
Type of sample		Soil	Soil
Date extracted	-	11/10/2017	11/10/2017
Date analysed	-	11/10/2017	12/10/2017
TRH C ₁₀ - C ₁₄	mg/kg	<50	<50
TRH C ₁₅ - C ₂₈	mg/kg	<100	<100
TRH C ₂₉ - C ₃₆	mg/kg	<100	<100
TRH >C ₁₀ -C ₁₆	mg/kg	<50	<50
TRH >C ₁₀ - C ₁₆ less Naphthalene (F2)	mg/kg	<50	<50
TRH >C ₁₆ -C ₃₄	mg/kg	<100	<100
TRH >C ₃₄ -C ₄₀	mg/kg	<100	<100
Total +ve TRH (>C10-C40)	mg/kg	<50	<50
Surrogate o-Terphenyl	%	87	79

PAHs in Soil			
Our Reference		177363-1	177363-2
Your Reference	UNITS	BH7	BH7
Depth		0.1	0.5
Date Sampled		06/10/2017	06/10/2017
Type of sample		Soil	Soil
Date extracted	-	11/10/2017	11/10/2017
Date analysed	-	11/10/2017	11/10/2017
Naphthalene	mg/kg	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1
Phenanthrene	mg/kg	0.1	<0.1
Anthracene	mg/kg	<0.1	<0.1
Fluoranthene	mg/kg	0.5	<0.1
Pyrene	mg/kg	0.5	<0.1
Benzo(a)anthracene	mg/kg	0.2	<0.1
Chrysene	mg/kg	0.2	<0.1
Benzo(b,j+k)fluoranthene	mg/kg	0.5	<0.2
Benzo(a)pyrene	mg/kg	0.3	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	0.2	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	0.2	<0.1
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5	<0.5
Total +ve PAH's	mg/kg	2.8	<0.05
Surrogate <i>p</i> -Terphenyl-d14	%	92	88

Organochlorine Pesticides in soil		
Our Reference		177363-1
Your Reference	UNITS	BH7
Depth		0.1
Date Sampled		06/10/2017
Type of sample		Soil
Date extracted	-	11/10/2017
Date analysed	-	11/10/2017
HCB	mg/kg	<0.1
alpha-BHC	mg/kg	<0.1
gamma-BHC	mg/kg	<0.1
beta-BHC	mg/kg	<0.1
Heptachlor	mg/kg	<0.1
delta-BHC	mg/kg	<0.1
Aldrin	mg/kg	<0.1
Heptachlor Epoxide	mg/kg	<0.1
gamma-Chlordane	mg/kg	<0.1
alpha-chlordane	mg/kg	<0.1
Endosulfan I	mg/kg	<0.1
pp-DDE	mg/kg	<0.1
Dieldrin	mg/kg	<0.1
Endrin	mg/kg	<0.1
pp-DDD	mg/kg	<0.1
Endosulfan II	mg/kg	<0.1
pp-DDT	mg/kg	<0.1
Endrin Aldehyde	mg/kg	<0.1
Endosulfan Sulphate	mg/kg	<0.1
Methoxychlor	mg/kg	<0.1
Total +ve DDT+DDD+DDE	mg/kg	<0.1
Surrogate TCMX	%	82

Organophosphorus Pesticides		
Our Reference		177363-1
Your Reference	UNITS	BH7
Depth		0.1
Date Sampled		06/10/2017
Type of sample		Soil
Date extracted	-	11/10/2017
Date analysed	-	11/10/2017
Azinphos-methyl (Guthion)	mg/kg	<0.1
Bromophos-ethyl	mg/kg	<0.1
Chlorpyrifos	mg/kg	<0.1
Chlorpyrifos-methyl	mg/kg	<0.1
Diazinon	mg/kg	<0.1
Dichlorvos	mg/kg	<0.1
Dimethoate	mg/kg	<0.1
Ethion	mg/kg	<0.1
Fenitrothion	mg/kg	<0.1
Malathion	mg/kg	<0.1
Parathion	mg/kg	<0.1
Ronnel	mg/kg	<0.1
Surrogate TCMX	%	82

PCBs in Soil		
Our Reference		177363-1
Your Reference	UNITS	BH7
Depth		0.1
Date Sampled		06/10/2017
Type of sample		Soil
Date extracted	-	11/10/2017
Date analysed	-	11/10/2017
Aroclor 1016	mg/kg	<0.1
Aroclor 1221	mg/kg	<0.1
Aroclor 1232	mg/kg	<0.1
Aroclor 1242	mg/kg	<0.1
Aroclor 1248	mg/kg	<0.1
Aroclor 1254	mg/kg	<0.1
Aroclor 1260	mg/kg	<0.1
Total +ve PCBs (1016-1260)	mg/kg	<0.1
Surrogate TCLMX	%	82

Acid Extractable metals in soil			
Our Reference		177363-1	177363-2
Your Reference	UNITS	BH7	BH7
Depth		0.1	0.5
Date Sampled		06/10/2017	06/10/2017
Type of sample		Soil	Soil
Date prepared	-	11/10/2017	11/10/2017
Date analysed	-	11/10/2017	11/10/2017
Arsenic	mg/kg	<4	<4
Cadmium	mg/kg	<0.4	<0.4
Chromium	mg/kg	4	2
Copper	mg/kg	14	<1
Lead	mg/kg	94	6
Mercury	mg/kg	<0.1	<0.1
Nickel	mg/kg	2	1
Zinc	mg/kg	72	12

Misc Soil - Inorg		
Our Reference		177363-1
Your Reference	UNITS	BH7
Depth		0.1
Date Sampled		06/10/2017
Type of sample		Soil
Date prepared	-	11/10/2017
Date analysed	-	11/10/2017
Total Phenolics (as Phenol)	mg/kg	<5

Misc Inorg - Soil			
Our Reference		177363-1	177363-2
Your Reference	UNITS	BH7	BH7
Depth		0.1	0.5
Date Sampled		06/10/2017	06/10/2017
Type of sample		Soil	Soil
Date prepared	-	12/10/2017	12/10/2017
Date analysed	-	12/10/2017	12/10/2017
pH 1:5 soil:water	pH Units	7.1	6.9

CEC			
Our Reference		177363-1	177363-2
Your Reference	UNITS	BH7	BH7
Depth		0.1	0.5
Date Sampled		06/10/2017	06/10/2017
Type of sample		Soil	Soil
Date prepared	-	12/10/2017	12/10/2017
Date analysed	-	12/10/2017	12/10/2017
Exchangeable Ca	meq/100g	2.1	0.2
Exchangeable K	meq/100g	<0.1	<0.1
Exchangeable Mg	meq/100g	0.26	<0.1
Exchangeable Na	meq/100g	<0.1	<0.1
Cation Exchange Capacity	meq/100g	2.4	<1

Moisture			
Our Reference		177363-1	177363-2
Your Reference	UNITS	BH7	BH7
Depth		0.1	0.5
Date Sampled		06/10/2017	06/10/2017
Type of sample		Soil	Soil
Date prepared	-	11/10/2017	11/10/2017
Date analysed	-	12/10/2017	12/10/2017
Moisture	%	3.9	2.7

Asbestos ID - soils		
Our Reference		177363-1
Your Reference	UNITS	BH7
Depth		0.1
Date Sampled		06/10/2017
Type of sample		Soil
Date analysed	-	17/10/2017
Sample mass tested	g	Approx. 45g
Sample Description	-	Brown sandy soil
Asbestos ID in soil	-	No asbestos detected at reporting limit of 0.1g/kg Organic fibre detected
Trace Analysis	-	No asbestos detected

Method ID	Methodology Summary
ASB-001	Asbestos ID - Qualitative identification of asbestos in bulk samples using Polarised Light Microscopy and Dispersion Staining Techniques including Synthetic Mineral Fibre and Organic Fibre as per Australian Standard 4964-2004.
Inorg-001	pH - Measured using pH meter and electrode in accordance with APHA latest edition, 4500-H+. Please note that the results for water analyses are indicative only, as analysis outside of the APHA storage times.
Inorg-008	Moisture content determined by heating at 105+/-5 °C for a minimum of 12 hours.
Inorg-031	Total Phenolics by segmented flow analyser (in line distillation with colourimetric finish). Solids are extracted in a caustic media prior to analysis.
Metals-009	Determination of exchangeable cations and cation exchange capacity in soils using 1M Ammonium Chloride exchange and ICP-AES analytical finish.
Metals-020	Determination of various metals by ICP-AES.
Metals-021	Determination of Mercury by Cold Vapour AAS.
Org-003	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID. F2 = (>C10-C16)-Naphthalene as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater (HSLs Tables 1A (3, 4)). Note Naphthalene is determined from the VOC analysis.
Org-003	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID. F2 = (>C10-C16)-Naphthalene as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater (HSLs Tables 1A (3, 4)). Note Naphthalene is determined from the VOC analysis. Note, the Total +ve TRH PQL is reflective of the lowest individual PQL and is therefore "Total +ve TRH" is simply a sum of the positive individual TRH fractions (>C10-C40).
Org-005	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC with dual ECD's.
Org-005	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC with dual ECD's. Note, the Total +ve reported DDD+DDE+DDT PQL is reflective of the lowest individual PQL and is therefore simply a sum of the positive individually report DDD+DDE+DDT.
Org-006	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC-ECD.
Org-006	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC-ECD. Note, the Total +ve PCBs PQL is reflective of the lowest individual PQL and is therefore "Total +ve PCBs" is simply a sum of the positive individual PCBs.
Org-008	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC with dual ECD's.

Method ID	Methodology Summary
Org-012	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS. Benzo(a)pyrene TEQ as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater - 2013. For soil results:- 1. 'EQ PQL' values are assuming all contributing PAHs reported as <PQL are actually at the PQL. This is the most conservative approach and can give false positive TEQs given that PAHs that contribute to the TEQ calculation may not be present. 2. 'EQ zero' values are assuming all contributing PAHs reported as <PQL are zero. This is the least conservative approach and is more susceptible to false negative TEQs when PAHs that contribute to the TEQ calculation are present but below PQL. 3. 'EQ half PQL' values are assuming all contributing PAHs reported as <PQL are half the stipulated PQL. Hence a mid-point between the most and least conservative approaches above. Note, the Total +ve PAHs PQL is reflective of the lowest individual PQL and is therefore "Total +ve PAHs" is simply a sum of the positive individual PAHs.
Org-014	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS.
Org-016	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS. Water samples are analysed directly by purge and trap GC-MS. F1 = (C6-C10)-BTX as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater.
Org-016	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS. Water samples are analysed directly by purge and trap GC-MS. F1 = (C6-C10)-BTX as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater. Note, the Total +ve Xylene PQL is reflective of the lowest individual PQL and is therefore "Total +ve Xylenes" is simply a sum of the positive individual Xylenes.

Client Reference: 72505.12, Randwick Campus Redevelopment

QUALITY CONTROL: vTRH(C6-C10)/BTEXN in Soil						Duplicate		Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-3	[NT]
Date extracted	-			11/10/2017	[NT]	[NT]	[NT]	[NT]	11/10/2017	[NT]
Date analysed	-			12/10/2017	[NT]	[NT]	[NT]	[NT]	12/10/2017	[NT]
TRH C ₆ - C ₉	mg/kg	25	Org-016	<25	[NT]	[NT]	[NT]	[NT]	113	[NT]
TRH C ₆ - C ₁₀	mg/kg	25	Org-016	<25	[NT]	[NT]	[NT]	[NT]	113	[NT]
Benzene	mg/kg	0.2	Org-016	<0.2	[NT]	[NT]	[NT]	[NT]	102	[NT]
Toluene	mg/kg	0.5	Org-016	<0.5	[NT]	[NT]	[NT]	[NT]	112	[NT]
Ethylbenzene	mg/kg	1	Org-016	<1	[NT]	[NT]	[NT]	[NT]	118	[NT]
m+p-xylene	mg/kg	2	Org-016	<2	[NT]	[NT]	[NT]	[NT]	117	[NT]
o-Xylene	mg/kg	1	Org-016	<1	[NT]	[NT]	[NT]	[NT]	119	[NT]
naphthalene	mg/kg	1	Org-014	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Surrogate aaa-Trifluorotoluene	%		Org-016	109	[NT]	[NT]	[NT]	[NT]	121	[NT]

Client Reference: 72505.12, Randwick Campus Redevelopment

QUALITY CONTROL: svTRH (C10-C40) in Soil					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-3	[NT]
Date extracted	-			11/10/2017	[NT]	[NT]	[NT]	[NT]	11/10/2017	[NT]
Date analysed	-			11/10/2017	[NT]	[NT]	[NT]	[NT]	11/10/2017	[NT]
TRH C ₁₀ - C ₁₄	mg/kg	50	Org-003	<50	[NT]	[NT]	[NT]	[NT]	106	[NT]
TRH C ₁₅ - C ₂₈	mg/kg	100	Org-003	<100	[NT]	[NT]	[NT]	[NT]	100	[NT]
TRH C ₂₉ - C ₃₆	mg/kg	100	Org-003	<100	[NT]	[NT]	[NT]	[NT]	76	[NT]
TRH >C ₁₀ -C ₁₆	mg/kg	50	Org-003	<50	[NT]	[NT]	[NT]	[NT]	106	[NT]
TRH >C ₁₆ -C ₃₄	mg/kg	100	Org-003	<100	[NT]	[NT]	[NT]	[NT]	100	[NT]
TRH >C ₃₄ -C ₄₀	mg/kg	100	Org-003	<100	[NT]	[NT]	[NT]	[NT]	76	[NT]
Surrogate o-Terphenyl	%		Org-003	84	[NT]	[NT]	[NT]	[NT]	93	[NT]

QUALITY CONTROL: PAHs in Soil					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-3	[NT]
Date extracted	-			11/10/2017	[NT]	[NT]	[NT]	[NT]	11/10/2017	[NT]
Date analysed	-			11/10/2017	[NT]	[NT]	[NT]	[NT]	11/10/2017	[NT]
Naphthalene	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	92	[NT]
Acenaphthylene	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Acenaphthene	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Fluorene	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	100	[NT]
Phenanthrene	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	100	[NT]
Anthracene	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Fluoranthene	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	94	[NT]
Pyrene	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	90	[NT]
Benzo(a)anthracene	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Chrysene	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	93	[NT]
Benzo(b,j+k)fluoranthene	mg/kg	0.2	Org-012	<0.2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Benzo(a)pyrene	mg/kg	0.05	Org-012	<0.05	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Dibenzo(a,h)anthracene	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Benzo(g,h,i)perylene	mg/kg	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Surrogate p-Terphenyl-d14	%		Org-012	90	[NT]	[NT]	[NT]	[NT]	106	[NT]

Client Reference: 72505.12, Randwick Campus Redevelopment

QUALITY CONTROL: Organochlorine Pesticides in soil						Duplicate		Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-3	[NT]
Date extracted	-			11/10/2017	[NT]	[NT]	[NT]	[NT]	11/10/2017	[NT]
Date analysed	-			11/10/2017	[NT]	[NT]	[NT]	[NT]	11/10/2017	[NT]
HCB	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
alpha-BHC	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	[NT]	[NT]	102	[NT]
gamma-BHC	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
beta-BHC	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	[NT]	[NT]	102	[NT]
Heptachlor	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	[NT]	[NT]	99	[NT]
delta-BHC	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Aldrin	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	[NT]	[NT]	95	[NT]
Heptachlor Epoxide	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	[NT]	[NT]	95	[NT]
gamma-Chlordane	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
alpha-chlordane	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Endosulfan I	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
pp-DDE	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	[NT]	[NT]	105	[NT]
Dieldrin	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	[NT]	[NT]	110	[NT]
Endrin	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	[NT]	[NT]	92	[NT]
pp-DDD	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	[NT]	[NT]	99	[NT]
Endosulfan II	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
pp-DDT	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Endrin Aldehyde	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Endosulfan Sulphate	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	[NT]	[NT]	104	[NT]
Methoxychlor	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Surrogate TCMX	%		Org-005	87	[NT]	[NT]	[NT]	[NT]	98	[NT]

Client Reference: 72505.12, Randwick Campus Redevelopment

QUALITY CONTROL: Organophosphorus Pesticides					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-3	[NT]
Date extracted	-			11/10/2017	[NT]	[NT]	[NT]	[NT]	11/10/2017	[NT]
Date analysed	-			11/10/2017	[NT]	[NT]	[NT]	[NT]	11/10/2017	[NT]
Azinphos-methyl (Guthion)	mg/kg	0.1	Org-008	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Bromophos-ethyl	mg/kg	0.1	Org-008	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Chlorpyrifos	mg/kg	0.1	Org-008	<0.1	[NT]	[NT]	[NT]	[NT]	92	[NT]
Chlorpyrifos-methyl	mg/kg	0.1	Org-008	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Diazinon	mg/kg	0.1	Org-008	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Dichlorvos	mg/kg	0.1	Org-008	<0.1	[NT]	[NT]	[NT]	[NT]	90	[NT]
Dimethoate	mg/kg	0.1	Org-008	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Ethion	mg/kg	0.1	Org-008	<0.1	[NT]	[NT]	[NT]	[NT]	98	[NT]
Fenitrothion	mg/kg	0.1	Org-008	<0.1	[NT]	[NT]	[NT]	[NT]	106	[NT]
Malathion	mg/kg	0.1	Org-008	<0.1	[NT]	[NT]	[NT]	[NT]	111	[NT]
Parathion	mg/kg	0.1	Org-008	<0.1	[NT]	[NT]	[NT]	[NT]	111	[NT]
Ronnel	mg/kg	0.1	Org-008	<0.1	[NT]	[NT]	[NT]	[NT]	104	[NT]
Surrogate TCMX	%		Org-008	87	[NT]	[NT]	[NT]	[NT]	91	[NT]

Client Reference: 72505.12, Randwick Campus Redevelopment

QUALITY CONTROL: PCBs in Soil						Duplicate		Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-3	[NT]
Date extracted	-			11/10/2017	[NT]	[NT]	[NT]	[NT]	11/10/2017	[NT]
Date analysed	-			11/10/2017	[NT]	[NT]	[NT]	[NT]	11/10/2017	[NT]
Aroclor 1016	mg/kg	0.1	Org-006	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Aroclor 1221	mg/kg	0.1	Org-006	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Aroclor 1232	mg/kg	0.1	Org-006	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Aroclor 1242	mg/kg	0.1	Org-006	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Aroclor 1248	mg/kg	0.1	Org-006	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Aroclor 1254	mg/kg	0.1	Org-006	<0.1	[NT]	[NT]	[NT]	[NT]	113	[NT]
Aroclor 1260	mg/kg	0.1	Org-006	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Surrogate TCLMX	%		Org-006	87	[NT]	[NT]	[NT]	[NT]	91	[NT]

Client Reference: 72505.12, Randwick Campus Redevelopment

QUALITY CONTROL: Acid Extractable metals in soil					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-3	[NT]
Date prepared	-			11/10/2017	[NT]	[NT]	[NT]	[NT]	11/10/2017	[NT]
Date analysed	-			11/10/2017	[NT]	[NT]	[NT]	[NT]	11/10/2017	[NT]
Arsenic	mg/kg	4	Metals-020	<4	[NT]	[NT]	[NT]	[NT]	107	[NT]
Cadmium	mg/kg	0.4	Metals-020	<0.4	[NT]	[NT]	[NT]	[NT]	103	[NT]
Chromium	mg/kg	1	Metals-020	<1	[NT]	[NT]	[NT]	[NT]	108	[NT]
Copper	mg/kg	1	Metals-020	<1	[NT]	[NT]	[NT]	[NT]	105	[NT]
Lead	mg/kg	1	Metals-020	<1	[NT]	[NT]	[NT]	[NT]	105	[NT]
Mercury	mg/kg	0.1	Metals-021	<0.1	[NT]	[NT]	[NT]	[NT]	107	[NT]
Nickel	mg/kg	1	Metals-020	<1	[NT]	[NT]	[NT]	[NT]	102	[NT]
Zinc	mg/kg	1	Metals-020	<1	[NT]	[NT]	[NT]	[NT]	114	[NT]

Client Reference: 72505.12, Randwick Campus Redevelopment

QUALITY CONTROL: Misc Soil - Inorg						Duplicate		Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-3	[NT]
Date prepared	-			11/10/2017	[NT]	[NT]	[NT]	[NT]	11/10/2017	[NT]
Date analysed	-			11/10/2017	[NT]	[NT]	[NT]	[NT]	11/10/2017	[NT]
Total Phenolics (as Phenol)	mg/kg	5	Inorg-031	<5	[NT]	[NT]	[NT]	[NT]	99	[NT]

Client Reference: 72505.12, Randwick Campus Redevelopment

QUALITY CONTROL: Misc Inorg - Soil						Duplicate		Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-3	[NT]
Date prepared	-			12/10/2017	[NT]	[NT]	[NT]	[NT]	12/10/2017	[NT]
Date analysed	-			12/10/2017	[NT]	[NT]	[NT]	[NT]	12/10/2017	[NT]
pH 1:5 soil:water	pH Units		Inorg-001	[NT]	[NT]	[NT]	[NT]	[NT]	102	[NT]

Client Reference: 72505.12, Randwick Campus Redevelopment

QUALITY CONTROL: CEC				Duplicate				Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-3	[NT]
Date prepared	-			12/10/2017	1	12/10/2017	12/10/2017		12/10/2017	[NT]
Date analysed	-			12/10/2017	1	12/10/2017	12/10/2017		12/10/2017	[NT]
Exchangeable Ca	meq/100g	0.1	Metals-009	<0.1	1	2.1	1.6	27	105	[NT]
Exchangeable K	meq/100g	0.1	Metals-009	<0.1	1	<0.1	<0.1	0	113	[NT]
Exchangeable Mg	meq/100g	0.1	Metals-009	<0.1	1	0.26	0.21	21	106	[NT]
Exchangeable Na	meq/100g	0.1	Metals-009	<0.1	1	<0.1	<0.1	0	105	[NT]

Result Definitions

NT	Not tested
NA	Test not required
INS	Insufficient sample for this test
PQL	Practical Quantitation Limit
<	Less than
>	Greater than
RPD	Relative Percent Difference
LCS	Laboratory Control Sample
NS	Not specified
NEPM	National Environmental Protection Measure
NR	Not Reported

Quality Control Definitions

Blank	This is the component of the analytical signal which is not derived from the sample but from reagents, glassware etc, can be determined by processing solvents and reagents in exactly the same manner as for samples.
Duplicate	This is the complete duplicate analysis of a sample from the process batch. If possible, the sample selected should be one where the analyte concentration is easily measurable.
Matrix Spike	A portion of the sample is spiked with a known concentration of target analyte. The purpose of the matrix spike is to monitor the performance of the analytical method used and to determine whether matrix interferences exist.
LCS (Laboratory Control Sample)	This comprises either a standard reference material or a control matrix (such as a blank sand or water) fortified with analytes representative of the analyte class. It is simply a check sample.
Surrogate Spike	Surrogates are known additions to each sample, blank, matrix spike and LCS in a batch, of compounds which are similar to the analyte of interest, however are not expected to be found in real samples.
Australian Drinking Water Guidelines recommend that Thermotolerant Coliform, Faecal Enterococci, & E.Coli levels are less than 1cfu/100mL. The recommended maximums are taken from "Australian Drinking Water Guidelines", published by NHMRC & ARMC 2011.	

Laboratory Acceptance Criteria

Duplicate sample and matrix spike recoveries may not be reported on smaller jobs, however, were analysed at a frequency to meet or exceed NEPM requirements. All samples are tested in batches of 20. The duplicate sample RPD and matrix spike recoveries for the batch were within the laboratory acceptance criteria.

Filters, swabs, wipes, tubes and badges will not have duplicate data as the whole sample is generally extracted during sample extraction.

Spikes for Physical and Aggregate Tests are not applicable.

For VOCs in water samples, three vials are required for duplicate or spike analysis.

Duplicates: <5xPQL - any RPD is acceptable; >5xPQL - 0-50% RPD is acceptable.

Matrix Spikes, LCS and Surrogate recoveries: Generally 70-130% for inorganics/metals; 60-140% for organics (+/-50% surrogates) and 10-140% for labile SVOCs (including labile surrogates), ultra trace organics and speciated phenols is acceptable.

In circumstances where no duplicate and/or sample spike has been reported at 1 in 10 and/or 1 in 20 samples respectively, the sample volume submitted was insufficient in order to satisfy laboratory QA/QC protocols.

When samples are received where certain analytes are outside of recommended technical holding times (THTs), the analysis has proceeded. Where analytes are on the verge of breaching THTs, every effort will be made to analyse within the THT or as soon as practicable.

Where sampling dates are not provided, Envirolab are not in a position to comment on the validity of the analysis where recommended technical holding times may have been breached.

Measurement Uncertainty estimates are available for most tests upon request.

Report Comments

Asbestos: Excessive sample volume was provided for asbestos analysis. A portion of the supplied sample was sub-sampled according to Envirolab procedures. We cannot guarantee that this sub-sample is indicative of the entire sample. Envirolab recommends supplying 40-50g (50mL) of sample in its own container as per AS4964-2004.

Note: Sample 177363-1 were sub-sampled from bag provided by the client.



Douglas Partners

Geotechnics - Environment - Groundwater

CHAIN OF CUSTODY

Project Name: Randwick Campus Redevelopment.....
Project No: 72505.12..... Sampler:A McIntyre.....
Project Mgr: Paul Gorman/Paula Maurici Mob. Phone 0408314017....
Email: mauricip@douglaspartners.com.au;
paul.gorman@douglaspartners.com.au.....

To: Envirolab Services
12 Ashley Street, Chatswood NSW 2068
Attn: Tania Notaras
Phone: 02 9910 6200 Fax: 02 9910 6201
Date Required: standard... Lab Quote No.
Email: tnotaras@envirolabservices.com.au

[illegible]

Lab Report No. _____

Phone: (02) 9809 0666

Send Results to: Douglas Partners Address: 96 Hermitage Road, West Ryde 2114

Fax: (02) 9809 4095

Relinquished by:	Signed:	Date & Time:	Received By:	Date & Time:
Relinquished by: <i>Holche</i>	Signed: <i>[Signature]</i>	Date & Time: <i>10/10/17 10:15</i>	Received By: <i>MT</i>	Date & Time: <i>10/10/17 15:40</i>



Envirolab Services Pty Ltd
ABN 37 112 535 645
12 Ashley St Chatswood NSW 2067
ph 02 9910 6200 fax 02 9910 6201
customerservice@envirolab.com.au
www.envirolab.com.au

SAMPLE RECEIPT ADVICE

Client Details

Client	Douglas Partners Pty Ltd
Attention	Paul Gorman, Paula Maurici

Sample Login Details

Your reference	72505.12, Randwick Campus Redevelopment
Envirolab Reference	177363
Date Sample Received	10/10/2017
Date Instructions Received	10/10/2017
Date Results Expected to be Reported	17/10/2017

Sample Condition

Samples received in appropriate condition for analysis	YES
No. of Samples Provided	2 Soil
Turnaround Time Requested	Standard
Temperature on Receipt (°C)	8.3
Cooling Method	Ice Pack
Sampling Date Provided	YES

Comments

Nil

Please direct any queries to:

Aileen Hie

Phone: 02 9910 6200
Fax: 02 9910 6201
Email: ahie@envirolab.com.au

Jacinta Hurst

Phone: 02 9910 6200
Fax: 02 9910 6201
Email: jhurst@envirolab.com.au

Analysis Underway, details on the following page:



Envirolab Services Pty Ltd

ABN 37 112 535 645

12 Ashley St Chatswood NSW 2067

ph 02 9910 6200 fax 02 9910 6201

customerservice@envirolab.com.au

www.envirolab.com.au

Sample ID	VTRH(C6-C10)/BTEXN in Soil	svTRH (C10-C40) in Soil	PAHs in Soil	Organochlorine Pesticides in soil	Organophosphorus Pesticides	PCBs in Soil	Acid Extractable metals in soil	Total Phenolics (as Phenol)	pH1:5 soil:water	CEC	Asbestos ID - soils
BH7-0.1	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
BH7-0.5	✓	✓	✓				✓		✓	✓	

The '✓' indicates the testing you have requested. **THIS IS NOT A REPORT OF THE RESULTS.**

Additional Info

Sample storage - Waters are routinely disposed of approximately 1 month and soils approximately 2 months from receipt.

Requests for longer term sample storage must be received in writing.

CERTIFICATE OF ANALYSIS 177650

Client Details

Client	Douglas Partners Pty Ltd
Attention	Paul Gorman, Paula Maurici
Address	96 Hermitage Rd, West Ryde, NSW, 2114

Sample Details

Your Reference	<u>72505.12, Randwick Campus Redevelopment</u>
Number of Samples	2 Water
Date samples received	13/10/2017
Date completed instructions received	13/10/2017

Analysis Details

Please refer to the following pages for results, methodology summary and quality control data.
 Samples were analysed as received from the client. Results relate specifically to the samples as received.
 Results are reported on a dry weight basis for solids and on an as received basis for other matrices.

Report Details

Date results requested by	20/10/2017
Date of Issue	19/10/2017
NATA Accreditation Number 2901. This document shall not be reproduced except in full.	
Accredited for compliance with ISO/IEC 17025 - Testing. Tests not covered by NATA are denoted with *	

Results Approved By

Dragana Tomas, Senior Chemist
 Jaimie Loa-Kum-Cheung, Senior Chemist
 Long Pham, Team Leader, Metals
 Nick Sarlamis, Inorganics Supervisor
 Steven Luong, Chemist

Authorised By



David Springer, General Manager

VOCs in water		
Our Reference		177650-1
Your Reference	UNITS	GW7
Date Sampled		13/10/2017
Type of sample		Water
Date extracted	-	16/10/2017
Date analysed	-	17/10/2017
Dichlorodifluoromethane	µg/L	<10
Chloromethane	µg/L	<10
Vinyl Chloride	µg/L	<10
Bromomethane	µg/L	<10
Chloroethane	µg/L	<10
Trichlorofluoromethane	µg/L	<10
1,1-Dichloroethene	µg/L	<1
Trans-1,2-dichloroethene	µg/L	<1
1,1-dichloroethane	µg/L	<1
Cis-1,2-dichloroethene	µg/L	<1
Bromochloromethane	µg/L	<1
Chloroform	µg/L	4
2,2-dichloropropane	µg/L	<1
1,2-dichloroethane	µg/L	<1
1,1,1-trichloroethane	µg/L	<1
1,1-dichloropropene	µg/L	<1
Cyclohexane	µg/L	<1
Carbon tetrachloride	µg/L	<1
Benzene	µg/L	<1
Dibromomethane	µg/L	<1
1,2-dichloropropane	µg/L	<1
Trichloroethene	µg/L	<1
Bromodichloromethane	µg/L	<1
trans-1,3-dichloropropene	µg/L	<1
cis-1,3-dichloropropene	µg/L	<1
1,1,2-trichloroethane	µg/L	<1
Toluene	µg/L	1
1,3-dichloropropane	µg/L	<1
Dibromochloromethane	µg/L	<1
1,2-dibromoethane	µg/L	<1
Tetrachloroethene	µg/L	<1
1,1,1,2-tetrachloroethane	µg/L	<1
Chlorobenzene	µg/L	<1
Ethylbenzene	µg/L	<1
Bromoform	µg/L	<1

VOCs in water		
Our Reference		177650-1
Your Reference	UNITS	GW7
Date Sampled		13/10/2017
Type of sample		Water
m+p-xylene	µg/L	<2
Styrene	µg/L	<1
1,1,2,2-tetrachloroethane	µg/L	<1
o-xylene	µg/L	<1
1,2,3-trichloropropane	µg/L	<1
Isopropylbenzene	µg/L	<1
Bromobenzene	µg/L	<1
n-propyl benzene	µg/L	<1
2-chlorotoluene	µg/L	<1
4-chlorotoluene	µg/L	<1
1,3,5-trimethyl benzene	µg/L	1
Tert-butyl benzene	µg/L	<1
1,2,4-trimethyl benzene	µg/L	1
1,3-dichlorobenzene	µg/L	<1
Sec-butyl benzene	µg/L	<1
1,4-dichlorobenzene	µg/L	<1
4-isopropyl toluene	µg/L	<1
1,2-dichlorobenzene	µg/L	<1
n-butyl benzene	µg/L	<1
1,2-dibromo-3-chloropropane	µg/L	<1
1,2,4-trichlorobenzene	µg/L	<1
Hexachlorobutadiene	µg/L	<1
1,2,3-trichlorobenzene	µg/L	<1
Surrogate Dibromofluoromethane	%	102
Surrogate toluene-d8	%	101
Surrogate 4-BFB	%	89

vTRH(C6-C10)/BTEXN in Water			
Our Reference		177650-1	177650-2
Your Reference	UNITS	GW7	BD13102017
Date Sampled		13/10/2017	13/10/2017
Type of sample		Water	Water
Date extracted	-	16/10/2017	16/10/2017
Date analysed	-	17/10/2017	16/10/2017
TRH C ₆ - C ₉	µg/L	<10	<10
TRH C ₆ - C ₁₀	µg/L	14	14
TRH C ₆ - C ₁₀ less BTEX (F1)	µg/L	13	12
Benzene	µg/L	<1	<1
Toluene	µg/L	1	1
Ethylbenzene	µg/L	<1	<1
m+p-xylene	µg/L	<2	<2
o-xylene	µg/L	<1	<1
Naphthalene	µg/L	<1	<1
Surrogate Dibromofluoromethane	%	102	99
Surrogate toluene-d8	%	101	98
Surrogate 4-BFB	%	89	85

svTRH (C10-C40) in Water			
Our Reference		177650-1	177650-2
Your Reference	UNITS	GW7	BD13102017
Date Sampled		13/10/2017	13/10/2017
Type of sample		Water	Water
Date extracted	-	16/10/2017	16/10/2017
Date analysed	-	17/10/2017	17/10/2017
TRH C ₁₀ - C ₁₄	µg/L	<50	<50
TRH C ₁₅ - C ₂₈	µg/L	<100	<100
TRH C ₂₉ - C ₃₆	µg/L	<100	<100
TRH >C ₁₀ - C ₁₆	µg/L	<50	<50
TRH >C ₁₀ - C ₁₆ less Naphthalene (F2)	µg/L	<50	<50
TRH >C ₁₆ - C ₃₄	µg/L	<100	<100
TRH >C ₃₄ - C ₄₀	µg/L	<100	<100
Surrogate o-Terphenyl	%	62	75

PAHs in Water - Low Level			
Our Reference		177650-1	177650-2
Your Reference	UNITS	GW7	BD13102017
Date Sampled		13/10/2017	13/10/2017
Type of sample		Water	Water
Date extracted	-	16/10/2017	16/10/2017
Date analysed	-	17/10/2017	17/10/2017
Naphthalene	µg/L	<0.2	<0.2
Acenaphthylene	µg/L	<0.1	<0.1
Acenaphthene	µg/L	<0.1	<0.1
Fluorene	µg/L	<0.1	<0.1
Phenanthrene	µg/L	<0.1	<0.1
Anthracene	µg/L	<0.1	<0.1
Fluoranthene	µg/L	<0.1	<0.1
Pyrene	µg/L	<0.1	<0.1
Benzo(a)anthracene	µg/L	<0.1	<0.1
Chrysene	µg/L	<0.1	<0.1
Benzo(b,j+k)fluoranthene	µg/L	<0.2	<0.2
Benzo(a)pyrene	µg/L	<0.1	<0.1
Indeno(1,2,3-c,d)pyrene	µg/L	<0.1	<0.1
Dibenzo(a,h)anthracene	µg/L	<0.1	<0.1
Benzo(g,h,i)perylene	µg/L	<0.1	<0.1
Benzo(a)pyrene TEQ	µg/L	<0.5	<0.5
Total +ve PAH's	µg/L	NIL (+)VE	NIL (+)VE
Surrogate <i>p</i> -Terphenyl-d14	%	71	70

Total Phenolics in Water			
Our Reference		177650-1	177650-2
Your Reference	UNITS	GW7	BD13102017
Date Sampled		13/10/2017	13/10/2017
Type of sample		Water	Water
Date extracted	-	17/10/2017	17/10/2017
Date analysed	-	17/10/2017	17/10/2017
Total Phenolics (as Phenol)	mg/L	<0.05	<0.05

HM in water - dissolved			
Our Reference		177650-1	177650-2
Your Reference	UNITS	GW7	BD13102017
Date Sampled		13/10/2017	13/10/2017
Type of sample		Water	Water
Date prepared	-	16/10/2017	16/10/2017
Date analysed	-	16/10/2017	16/10/2017
Arsenic-Dissolved	µg/L	<1	<1
Cadmium-Dissolved	µg/L	<0.1	<0.1
Chromium-Dissolved	µg/L	<1	<1
Copper-Dissolved	µg/L	7	7
Lead-Dissolved	µg/L	<1	<1
Mercury-Dissolved	µg/L	<0.05	<0.05
Nickel-Dissolved	µg/L	2	2
Zinc-Dissolved	µg/L	24	22

Cations in water Dissolved		
Our Reference		177650-1
Your Reference	UNITS	GW7
Date Sampled		13/10/2017
Type of sample		Water
Date digested	-	16/10/2017
Date analysed	-	16/10/2017
Calcium - Dissolved	mg/L	1.6
Magnesium - Dissolved	mg/L	2.7
Hardness	mgCaCO ₃ /L	15

Method ID	Methodology Summary
Inorg-031	Total Phenolics by segmented flow analyser (in line distillation with colourimetric finish). Solids are extracted in a caustic media prior to analysis.
Metals-020	Determination of various metals by ICP-AES.
Metals-021	Determination of Mercury by Cold Vapour AAS.
Metals-022	Determination of various metals by ICP-MS.
Org-003	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID. F2 = (>C10-C16)-Naphthalene as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater (HSLs Tables 1A (3, 4)). Note Naphthalene is determined from the VOC analysis.
Org-012	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS. Benzo(a)pyrene TEQ as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater - 2013.
Org-013	Water samples are analysed directly by purge and trap GC-MS.
Org-016	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS. Water samples are analysed directly by purge and trap GC-MS. F1 = (C6-C10)-BTEX as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater.

Client Reference: 72505.12, Randwick Campus Redevelopment

QUALITY CONTROL: VOCs in water					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date extracted	-			16/10/2017	[NT]	[NT]	[NT]	[NT]	16/10/2017	[NT]
Date analysed	-			17/10/2017	[NT]	[NT]	[NT]	[NT]	17/10/2017	[NT]
Dichlorodifluoromethane	µg/L	10	Org-013	<10	[NT]	[NT]	[NT]	[NT]	<10	[NT]
Chloromethane	µg/L	10	Org-013	<10	[NT]	[NT]	[NT]	[NT]	<10	[NT]
Vinyl Chloride	µg/L	10	Org-013	<10	[NT]	[NT]	[NT]	[NT]	<10	[NT]
Bromomethane	µg/L	10	Org-013	<10	[NT]	[NT]	[NT]	[NT]	<10	[NT]
Chloroethane	µg/L	10	Org-013	<10	[NT]	[NT]	[NT]	[NT]	<10	[NT]
Trichlorofluoromethane	µg/L	10	Org-013	<10	[NT]	[NT]	[NT]	[NT]	<10	[NT]
1,1-Dichloroethene	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	<1	[NT]
Trans-1,2-dichloroethene	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	<1	[NT]
1,1-dichloroethane	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	121	[NT]
Cis-1,2-dichloroethene	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	<1	[NT]
Bromochloromethane	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	<1	[NT]
Chloroform	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	107	[NT]
2,2-dichloropropane	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	<1	[NT]
1,2-dichloroethane	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	116	[NT]
1,1,1-trichloroethane	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	122	[NT]
1,1-dichloropropene	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	<1	[NT]
Cyclohexane	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	<1	[NT]
Carbon tetrachloride	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	<1	[NT]
Benzene	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	<1	[NT]
Dibromomethane	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	<1	[NT]
1,2-dichloropropane	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	<1	[NT]
Trichloroethene	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	113	[NT]
Bromodichloromethane	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	125	[NT]
trans-1,3-dichloropropene	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	<1	[NT]
cis-1,3-dichloropropene	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	<1	[NT]
1,1,2-trichloroethane	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	<1	[NT]
Toluene	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	<1	[NT]
1,3-dichloropropane	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	<1	[NT]
Dibromochloromethane	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	124	[NT]
1,2-dibromoethane	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	<1	[NT]
Tetrachloroethene	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	116	[NT]
1,1,1,2-tetrachloroethane	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	<1	[NT]
Chlorobenzene	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	<1	[NT]
Ethylbenzene	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	<1	[NT]
Bromoform	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	<1	[NT]
m+p-xylene	µg/L	2	Org-013	<2	[NT]	[NT]	[NT]	[NT]	<2	[NT]
Styrene	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	<1	[NT]
1,1,2,2-tetrachloroethane	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	<1	[NT]
o-xylene	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	<1	[NT]

QUALITY CONTROL: VOCs in water					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
1,2,3-trichloropropane	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	<1	[NT]
Isopropylbenzene	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	<1	[NT]
Bromobenzene	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	<1	[NT]
n-propyl benzene	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	<1	[NT]
2-chlorotoluene	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	<1	[NT]
4-chlorotoluene	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	<1	[NT]
1,3,5-trimethyl benzene	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	<1	[NT]
Tert-butyl benzene	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	<1	[NT]
1,2,4-trimethyl benzene	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	<1	[NT]
1,3-dichlorobenzene	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	<1	[NT]
Sec-butyl benzene	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	<1	[NT]
1,4-dichlorobenzene	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	<1	[NT]
4-isopropyl toluene	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	<1	[NT]
1,2-dichlorobenzene	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	<1	[NT]
n-butyl benzene	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	<1	[NT]
1,2-dibromo-3-chloropropane	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	<1	[NT]
1,2,4-trichlorobenzene	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	<1	[NT]
Hexachlorobutadiene	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	<1	[NT]
1,2,3-trichlorobenzene	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	<1	[NT]
Surrogate Dibromofluoromethane	%		Org-013	109	[NT]	[NT]	[NT]	[NT]	86	[NT]
Surrogate toluene-d8	%		Org-013	103	[NT]	[NT]	[NT]	[NT]	98	[NT]
Surrogate 4-BFB	%		Org-013	90	[NT]	[NT]	[NT]	[NT]	113	[NT]

Client Reference: 72505.12, Randwick Campus Redevelopment

QUALITY CONTROL: vTRH(C6-C10)/BTEXN in Water					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date extracted	-			16/10/2017	[NT]	[NT]	[NT]	[NT]	16/10/2017	[NT]
Date analysed	-			17/10/2017	[NT]	[NT]	[NT]	[NT]	17/10/2017	[NT]
TRH C ₆ - C ₉	µg/L	10	Org-016	<10	[NT]	[NT]	[NT]	[NT]	111	[NT]
TRH C ₆ - C ₁₀	µg/L	10	Org-016	<10	[NT]	[NT]	[NT]	[NT]	111	[NT]
Benzene	µg/L	1	Org-016	<1	[NT]	[NT]	[NT]	[NT]	115	[NT]
Toluene	µg/L	1	Org-016	<1	[NT]	[NT]	[NT]	[NT]	103	[NT]
Ethylbenzene	µg/L	1	Org-016	<1	[NT]	[NT]	[NT]	[NT]	113	[NT]
m+p-xylene	µg/L	2	Org-016	<2	[NT]	[NT]	[NT]	[NT]	113	[NT]
o-xylene	µg/L	1	Org-016	<1	[NT]	[NT]	[NT]	[NT]	117	[NT]
Naphthalene	µg/L	1	Org-013	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Surrogate Dibromofluoromethane	%		Org-016	109	[NT]	[NT]	[NT]	[NT]	86	[NT]
Surrogate toluene-d8	%		Org-016	103	[NT]	[NT]	[NT]	[NT]	98	[NT]
Surrogate 4-BFB	%		Org-016	90	[NT]	[NT]	[NT]	[NT]	113	[NT]

Client Reference: 72505.12, Randwick Campus Redevelopment

QUALITY CONTROL: svTRH (C10-C40) in Water					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W2	[NT]
Date extracted	-			17/10/2017	[NT]	[NT]	[NT]	[NT]	16/10/2017	[NT]
Date analysed	-			17/10/2017	[NT]	[NT]	[NT]	[NT]	16/10/2017	[NT]
TRH C ₁₀ - C ₁₄	µg/L	50	Org-003	<50	[NT]	[NT]	[NT]	[NT]	104	[NT]
TRH C ₁₅ - C ₂₈	µg/L	100	Org-003	<100	[NT]	[NT]	[NT]	[NT]	123	[NT]
TRH C ₂₉ - C ₃₆	µg/L	100	Org-003	<100	[NT]	[NT]	[NT]	[NT]	107	[NT]
TRH >C ₁₀ - C ₁₆	µg/L	50	Org-003	<50	[NT]	[NT]	[NT]	[NT]	104	[NT]
TRH >C ₁₆ - C ₃₄	µg/L	100	Org-003	<100	[NT]	[NT]	[NT]	[NT]	123	[NT]
TRH >C ₃₄ - C ₄₀	µg/L	100	Org-003	<100	[NT]	[NT]	[NT]	[NT]	107	[NT]
Surrogate o-Terphenyl	%		Org-003	77	[NT]	[NT]	[NT]	[NT]	90	[NT]

QUALITY CONTROL: PAHs in Water - Low Level					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W2	[NT]
Date extracted	-			16/10/2017	[NT]	[NT]	[NT]	[NT]	16/10/2017	[NT]
Date analysed	-			17/10/2017	[NT]	[NT]	[NT]	[NT]	17/10/2017	[NT]
Naphthalene	µg/L	0.2	Org-012	<0.2	[NT]	[NT]	[NT]	[NT]	74	[NT]
Acenaphthylene	µg/L	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Acenaphthene	µg/L	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Fluorene	µg/L	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	81	[NT]
Phenanthrene	µg/L	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	80	[NT]
Anthracene	µg/L	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Fluoranthene	µg/L	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	75	[NT]
Pyrene	µg/L	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	80	[NT]
Benzo(a)anthracene	µg/L	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Chrysene	µg/L	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	87	[NT]
Benzo(b,j+k)fluoranthene	µg/L	0.2	Org-012	<0.2	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Benzo(a)pyrene	µg/L	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	77	[NT]
Indeno(1,2,3-c,d)pyrene	µg/L	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Dibenzo(a,h)anthracene	µg/L	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Benzo(g,h,i)perylene	µg/L	0.1	Org-012	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Surrogate p-Terphenyl-d14	%		Org-012	78	[NT]	[NT]	[NT]	[NT]	89	[NT]

Client Reference: 72505.12, Randwick Campus Redevelopment

QUALITY CONTROL: Total Phenolics in Water					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	[NT]
Date extracted	-			17/10/2017	[NT]	[NT]	[NT]	[NT]	17/10/2017	[NT]
Date analysed	-			17/10/2017	[NT]	[NT]	[NT]	[NT]	17/10/2017	[NT]
Total Phenolics (as Phenol)	mg/L	0.05	Inorg-031	<0.05	[NT]	[NT]	[NT]	[NT]	102	[NT]

Client Reference: 72505.12, Randwick Campus Redevelopment

QUALITY CONTROL: HM in water - dissolved					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W3	[NT]
Date prepared	-			16/10/2017	[NT]	[NT]	[NT]	[NT]	16/10/2017	[NT]
Date analysed	-			16/10/2017	[NT]	[NT]	[NT]	[NT]	16/10/2017	[NT]
Arsenic-Dissolved	µg/L	1	Metals-022	<1	[NT]	[NT]	[NT]	[NT]	98	[NT]
Cadmium-Dissolved	µg/L	0.1	Metals-022	<0.1	[NT]	[NT]	[NT]	[NT]	99	[NT]
Chromium-Dissolved	µg/L	1	Metals-022	<1	[NT]	[NT]	[NT]	[NT]	92	[NT]
Copper-Dissolved	µg/L	1	Metals-022	<1	[NT]	[NT]	[NT]	[NT]	91	[NT]
Lead-Dissolved	µg/L	1	Metals-022	<1	[NT]	[NT]	[NT]	[NT]	103	[NT]
Mercury-Dissolved	µg/L	0.05	Metals-021	<0.05	[NT]	[NT]	[NT]	[NT]	103	[NT]
Nickel-Dissolved	µg/L	1	Metals-022	<1	[NT]	[NT]	[NT]	[NT]	92	[NT]
Zinc-Dissolved	µg/L	1	Metals-022	<1	[NT]	[NT]	[NT]	[NT]	95	[NT]

Client Reference: 72505.12, Randwick Campus Redevelopment

QUALITY CONTROL: Cations in water Dissolved						Duplicate		Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W2	[NT]
Date digested	-			16/10/2017	[NT]	[NT]	[NT]	[NT]	16/10/2017	[NT]
Date analysed	-			16/10/2017	[NT]	[NT]	[NT]	[NT]	16/10/2017	[NT]
Calcium - Dissolved	mg/L	0.5	Metals-020	<0.5	[NT]	[NT]	[NT]	[NT]	108	[NT]
Magnesium - Dissolved	mg/L	0.5	Metals-020	<0.5	[NT]	[NT]	[NT]	[NT]	107	[NT]

Result Definitions

NT	Not tested
NA	Test not required
INS	Insufficient sample for this test
PQL	Practical Quantitation Limit
<	Less than
>	Greater than
RPD	Relative Percent Difference
LCS	Laboratory Control Sample
NS	Not specified
NEPM	National Environmental Protection Measure
NR	Not Reported

Quality Control Definitions

Blank	This is the component of the analytical signal which is not derived from the sample but from reagents, glassware etc, can be determined by processing solvents and reagents in exactly the same manner as for samples.
Duplicate	This is the complete duplicate analysis of a sample from the process batch. If possible, the sample selected should be one where the analyte concentration is easily measurable.
Matrix Spike	A portion of the sample is spiked with a known concentration of target analyte. The purpose of the matrix spike is to monitor the performance of the analytical method used and to determine whether matrix interferences exist.
LCS (Laboratory Control Sample)	This comprises either a standard reference material or a control matrix (such as a blank sand or water) fortified with analytes representative of the analyte class. It is simply a check sample.
Surrogate Spike	Surrogates are known additions to each sample, blank, matrix spike and LCS in a batch, of compounds which are similar to the analyte of interest, however are not expected to be found in real samples.
Australian Drinking Water Guidelines recommend that Thermotolerant Coliform, Faecal Enterococci, & E.Coli levels are less than 1cfu/100mL. The recommended maximums are taken from "Australian Drinking Water Guidelines", published by NHMRC & ARMC 2011.	

Laboratory Acceptance Criteria

Duplicate sample and matrix spike recoveries may not be reported on smaller jobs, however, were analysed at a frequency to meet or exceed NEPM requirements. All samples are tested in batches of 20. The duplicate sample RPD and matrix spike recoveries for the batch were within the laboratory acceptance criteria.

Filters, swabs, wipes, tubes and badges will not have duplicate data as the whole sample is generally extracted during sample extraction.

Spikes for Physical and Aggregate Tests are not applicable.

For VOCs in water samples, three vials are required for duplicate or spike analysis.

Duplicates: <5xPQL - any RPD is acceptable; >5xPQL - 0-50% RPD is acceptable.

Matrix Spikes, LCS and Surrogate recoveries: Generally 70-130% for inorganics/metals; 60-140% for organics (+/-50% surrogates) and 10-140% for labile SVOCs (including labile surrogates), ultra trace organics and speciated phenols is acceptable.

In circumstances where no duplicate and/or sample spike has been reported at 1 in 10 and/or 1 in 20 samples respectively, the sample volume submitted was insufficient in order to satisfy laboratory QA/QC protocols.

When samples are received where certain analytes are outside of recommended technical holding times (THTs), the analysis has proceeded. Where analytes are on the verge of breaching THTs, every effort will be made to analyse within the THT or as soon as practicable.

Where sampling dates are not provided, Envirolab are not in a position to comment on the validity of the analysis where recommended technical holding times may have been breached.

Measurement Uncertainty estimates are available for most tests upon request.

Project Name: Randwick Campus Redevelopment.....
Project No: 72505.12..... Sampler:A McIntyre.....
Project Mgr : Paul Gorman/Paula Maurici Mob. Phone 0408314017....
Email: mauricip@douglaspartners.com.au;
paul.gorman@douglaspartners.com.au

To: Envirolab Services
12 Ashley Street, Chatswood NSW 2068
Attn: Tania Notaras
Phone: 02 9910 6200 Fax: 02 9910 6201
Date Required: standard... Lab Quote No.
Email: tnotaras@envirolabservices.com.au

[illegible]

Lab Report No.
Send Results to: Douglas Partners Address: 96 Hermitage Road, West Ryde 2114

Phone: (02) 9809 0666

Fax: (02) 9809 4095

Relinquished by: _____ Signed: _____ Date & Time: _____

Received By: 117 P1 Date & Time: 3/10/12 14:25

Relinquished by: _____ Signed: _____ Date & Time: _____

Received By: _____ Date & Time: _____



Envirolab Services Pty Ltd
 ABN 37 112 535 645
 12 Ashley St Chatswood NSW 2067
 ph 02 9910 6200 fax 02 9910 6201
 customerservice@envirolab.com.au
 www.envirolab.com.au

SAMPLE RECEIPT ADV ICE

Client Details

Client	Douglas Partners Pty Ltd
Attention	Paul Gorman, Paula Maurici

Sample Login Details

Your reference	72505.12, Randwick Campus Redevelopment
Envirolab Reference	177650
Date Sample Received	13/10/2017
Date Instructions Received	13/10/2017
Date Results Expected to be Reported	20/10/2017

Sample Condition

Samples received in appropriate condition for analysis	YES
No. of Samples Provided	2 Water
Turnaround Time Requested	Standard
Temperature on Receipt (° C)	19.3
Cooling Method	Ice Pack
Sampling Date Provided	YES

Comments

Nil

Please direct any queries to:

Aileen Hie

Phone: 02 9910 6200
Fax: 02 9910 6201
Email: ahie@envirolab.com.au

J acina Hurst

Phone: 02 9910 6200
Fax: 02 9910 6201
Email: j_hurst@envirolab.com.au

Anal y s i s a n d r e s u l t s o n t h e f o l l o w i n g p a g e:



Envirolab Services Pty Ltd

ABN 37 112 535 645

12 Ashley St Chatswood NSW 2067

ph 02 9910 6200 fax 02 9910 6201

customerservice@envirolab.com.au

www.envirolab.com.au

Sample ID	VOCs in water	VTRH(C6-C10)/BTEXN in Water	svTRH (C10-C40) in Water	PAHs in Water - Low Level	Total Phenolics in Water	HM in water - dissolved	Cations in water Dissolved
G W7	✓	✓	✓	✓	✓	✓	✓
BD13102017		✓	✓	✓	✓	✓	

The '✓' indicates the testing you have requested. **THIS IS NOT A REPORT OF THE RESULTS.**

Additional Info

Sample storage - Waters are routinely disposed of approximately 1 month and soils approximately 2 months from receipt.

Requests for longer term sample storage must be received in writing.

CERTIFICATE OF ANALYSIS 183121

Client Details

Client	Douglas Partners Pty Ltd
Attention	accounts email, Paula Maurici
Address	96 Hermitage Rd, West Ryde, NSW, 2114

Sample Details

Your Reference	<u>72505.12, Randwick Campus Redevelopment</u>
Number of Samples	38 Soil, 1 Fragment
Date samples received	11/01/2018
Date completed instructions received	11/01/2018

Analysis Details

Please refer to the following pages for results, methodology summary and quality control data.
 Samples were analysed as received from the client. Results relate specifically to the samples as received.
 Results are reported on a dry weight basis for solids and on an as received basis for other matrices.
Please refer to the last page of this report for any comments relating to the results.

Report Details

Date results requested by	18/01/2018
Date of Issue	31/01/2018
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vTRH(C6-C10)/BTEXN in Soil

Our Reference		183121-1	183121-2	183121-3	183121-4	183121-5
Your Reference	UNITS	BH101/0.5-0.7	BH101/1.4-1.6	BH102/0-0.3	BH103/0-0.3	BH103/0.5-0.7
Date Sampled		09/01/18	09/01/18	09/01/18	09/01/18	09/01/18
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	12/01/2018	12/01/2018	12/01/2018	12/01/2018	12/01/2018
Date analysed	-	15/01/2018	15/01/2018	15/01/2018	15/01/2018	15/01/2018
TRH C ₆ - C ₉	mg/kg	<25	<25	<25	<25	<25
TRH C ₆ - C ₁₀	mg/kg	<25	<25	<25	<25	<25
vTPH C ₆ - C ₁₀ less BTEX (F1)	mg/kg	<25	<25	<25	<25	<25
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1	<1	<1
naphthalene	mg/kg	<1	<1	<1	<1	<1
Total +ve Xylenes	mg/kg	<1	<1	<1	<1	<1
Surrogate aaa-Trifluorotoluene	%	112	107	106	114	115

vTRH(C6-C10)/BTEXN in Soil

Our Reference		183121-6	183121-7	183121-8	183121-9	183121-10
Your Reference	UNITS	BH104/0-0.3	BH105/0.3-0.5	BH105/0.5-0.7	BH106/0-0.2	BH106/0.5-0.7
Date Sampled		09/01/18	09/01/18	09/01/18	09/01/18	09/01/18
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	12/01/2018	12/01/2018	12/01/2018	12/01/2018	12/01/2018
Date analysed	-	15/01/2018	15/01/2018	15/01/2018	15/01/2018	15/01/2018
TRH C ₆ - C ₉	mg/kg	<25	<25	<25	<25	<25
TRH C ₆ - C ₁₀	mg/kg	<25	<25	<25	<25	<25
vTPH C ₆ - C ₁₀ less BTEX (F1)	mg/kg	<25	<25	<25	<25	<25
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1	<1	<1
naphthalene	mg/kg	<1	<1	<1	<1	<1
Total +ve Xylenes	mg/kg	<1	<1	<1	<1	<1
Surrogate aaa-Trifluorotoluene	%	114	115	115	109	113

vTRH(C6-C10)/BTEXN in Soil

Our Reference		183121-12	183121-13	183121-14	183121-15	183121-16
Your Reference	UNITS	BH107/0-0.2	BH108/0-0.2	BH108/0.7-0.8	BH109/0-0.2	BH110/0-0.2
Date Sampled		09/01/18	09/01/18	09/01/18	09/01/18	09/01/18
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	12/01/2018	12/01/2018	12/01/2018	12/01/2018	12/01/2018
Date analysed	-	15/01/2018	15/01/2018	15/01/2018	15/01/2018	15/01/2018
TRH C ₆ - C ₉	mg/kg	<25	<25	<25	<25	<25
TRH C ₆ - C ₁₀	mg/kg	<25	<25	<25	<25	<25
vTPH C ₆ - C ₁₀ less BTEX (F1)	mg/kg	<25	<25	<25	<25	<25
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1	<1	<1
naphthalene	mg/kg	<1	<1	<1	<1	<1
Total +ve Xylenes	mg/kg	<1	<1	<1	<1	<1
Surrogate aaa-Trifluorotoluene	%	110	109	114	103	113

vTRH(C6-C10)/BTEXN in Soil

Our Reference		183121-17	183121-18	183121-19	183121-20	183121-21
Your Reference	UNITS	BH110/0.5-0.7	BH111/0-0.2	BH112/0-0.2	BH112/0.6-0.7	BH113/0.1-0.3
Date Sampled		09/01/18	10/01/18	10/01/18	10/01/18	10/01/18
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	12/01/2018	12/01/2018	12/01/2018	12/01/2018	12/01/2018
Date analysed	-	15/01/2018	15/01/2018	15/01/2018	15/01/2018	15/01/2018
TRH C ₆ - C ₉	mg/kg	<25	<25	<25	<25	<25
TRH C ₆ - C ₁₀	mg/kg	<25	<25	<25	<25	<25
vTPH C ₆ - C ₁₀ less BTEX (F1)	mg/kg	<25	<25	<25	<25	<25
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1	<1	<1
naphthalene	mg/kg	<1	<1	<1	<1	<1
Total +ve Xylenes	mg/kg	<1	<1	<1	<1	<1
Surrogate aaa-Trifluorotoluene	%	115	110	111	110	112

vTRH(C6-C10)/BTEXN in Soil

Our Reference		183121-22	183121-23	183121-24	183121-25	183121-26
Your Reference	UNITS	BH113/0.5-0.7	BH114/0.5-0.7	BH115/0-0.2	BH115/0.5-0.7	BH116/0-0.2
Date Sampled		10/01/18	10/01/18	10/01/18	10/01/18	10/01/18
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	12/01/2018	12/01/2018	12/01/2018	12/01/2018	12/01/2018
Date analysed	-	15/01/2018	15/01/2018	15/01/2018	15/01/2018	15/01/2018
TRH C ₆ - C ₉	mg/kg	<25	<25	<25	<25	<25
TRH C ₆ - C ₁₀	mg/kg	<25	<25	<25	<25	<25
vTPH C ₆ - C ₁₀ less BTEX (F1)	mg/kg	<25	<25	<25	<25	<25
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1	<1	<1
naphthalene	mg/kg	<1	<1	<1	<1	<1
Total +ve Xylenes	mg/kg	<1	<1	<1	<1	<1
Surrogate aaa-Trifluorotoluene	%	99	106	107	105	115

vTRH(C6-C10)/BTEXN in Soil

Our Reference		183121-27	183121-28	183121-29	183121-30	183121-31
Your Reference	UNITS	BH117/0.6-0.8	BH117/1.5-1.6	BH118/0.5-0.6	BH119/0.5-0.6	BH119/1-1.1
Date Sampled		10/01/18	10/01/18	10/01/18	10/01/18	10/01/18
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	12/01/2018	12/01/2018	12/01/2018	12/01/2018	12/01/2018
Date analysed	-	15/01/2018	15/01/2018	15/01/2018	15/01/2018	15/01/2018
TRH C ₆ - C ₉	mg/kg	<25	<25	<25	<25	<25
TRH C ₆ - C ₁₀	mg/kg	<25	<25	<25	<25	<25
vTPH C ₆ - C ₁₀ less BTEX (F1)	mg/kg	<25	<25	<25	<25	<25
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1	<1	<1
naphthalene	mg/kg	<1	<1	<1	<1	<1
Total +ve Xylenes	mg/kg	<1	<1	<1	<1	<1
Surrogate aaa-Trifluorotoluene	%	107	111	115	107	110

vTRH(C6-C10)/BTEXN in Soil

Our Reference		183121-32	183121-33	183121-34	183121-35	183121-36
Your Reference	UNITS	BH120/0-0.1	BH121/0-0.05	BH122/0-0.1	BH122/0.5-0.6	BD1/20180109
Date Sampled		10/01/18	10/01/18	10/01/18	10/01/18	09/01/18
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	12/01/2018	12/01/2018	12/01/2018	12/01/2018	12/01/2018
Date analysed	-	15/01/2018	15/01/2018	15/01/2018	15/01/2018	15/01/2018
TRH C ₆ - C ₉	mg/kg	<25	<25	<25	<25	<25
TRH C ₆ - C ₁₀	mg/kg	<25	<25	<25	<25	<25
vTPH C ₆ - C ₁₀ less BTEX (F1)	mg/kg	<25	<25	<25	<25	<25
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1	<1	<1
naphthalene	mg/kg	<1	<1	<1	<1	<1
Total +ve Xylenes	mg/kg	<1	<1	<1	<1	<1
Surrogate aaa-Trifluorotoluene	%	109	102	112	112	106

vTRH(C6-C10)/BTEXN in Soil

Our Reference		183121-37	183121-38	183121-39
Your Reference	UNITS	BD3/20180109	BD4/20180110	BD1/20180110
Date Sampled		09/01/18	10/01/18	10/01/18
Type of sample		Soil	Soil	Soil
Date extracted	-	12/01/2018	12/01/2018	12/01/2018
Date analysed	-	15/01/2018	15/01/2018	15/01/2018
TRH C ₆ - C ₉	mg/kg	<25	<25	<25
TRH C ₆ - C ₁₀	mg/kg	<25	<25	<25
vTPH C ₆ - C ₁₀ less BTEX (F1)	mg/kg	<25	<25	<25
Benzene	mg/kg	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1
naphthalene	mg/kg	<1	<1	<1
Total +ve Xylenes	mg/kg	<1	<1	<1
Surrogate aaa-Trifluorotoluene	%	105	106	99

svTRH (C10-C40) in Soil						
Our Reference		183121-1	183121-2	183121-3	183121-4	183121-5
Your Reference	UNITS	BH101/0.5-0.7	BH101/1.4-1.6	BH102/0-0.3	BH103/0-0.3	BH103/0.5-0.7
Date Sampled		09/01/18	09/01/18	09/01/18	09/01/18	09/01/18
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	12/01/2018	12/01/2018	12/01/2018	12/01/2018	12/01/2018
Date analysed	-	12/01/2018	12/01/2018	12/01/2018	12/01/2018	12/01/2018
TRH C ₁₀ - C ₁₄	mg/kg	<50	<50	<50	<50	<50
TRH C ₁₅ - C ₂₈	mg/kg	<100	<100	<100	<100	<100
TRH C ₂₉ - C ₃₆	mg/kg	<100	<100	<100	<100	<100
TRH >C ₁₀ -C ₁₆	mg/kg	<50	<50	<50	<50	<50
TRH >C ₁₀ - C ₁₆ less Naphthalene (F2)	mg/kg	<50	<50	<50	<50	<50
TRH >C ₁₆ -C ₃₄	mg/kg	<100	<100	<100	<100	<100
TRH >C ₃₄ -C ₄₀	mg/kg	<100	<100	<100	<100	<100
Total +ve TRH (>C10-C40)	mg/kg	<50	<50	<50	<50	<50
Surrogate o-Terphenyl	%	91	87	89	90	91

svTRH (C10-C40) in Soil						
Our Reference		183121-6	183121-7	183121-8	183121-9	183121-10
Your Reference	UNITS	BH104/0-0.3	BH105/0.3-0.5	BH105/0.5-0.7	BH106/0-0.2	BH106/0.5-0.7
Date Sampled		09/01/18	09/01/18	09/01/18	09/01/18	09/01/18
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	12/01/2018	12/01/2018	12/01/2018	12/01/2018	12/01/2018
Date analysed	-	12/01/2018	12/01/2018	12/01/2018	13/01/2018	12/01/2018
TRH C ₁₀ - C ₁₄	mg/kg	<50	<50	<50	<50	<50
TRH C ₁₅ - C ₂₈	mg/kg	<100	<100	<100	<100	<100
TRH C ₂₉ - C ₃₆	mg/kg	<100	<100	<100	120	<100
TRH >C ₁₀ -C ₁₆	mg/kg	<50	<50	<50	<50	<50
TRH >C ₁₀ - C ₁₆ less Naphthalene (F2)	mg/kg	<50	<50	<50	<50	<50
TRH >C ₁₆ -C ₃₄	mg/kg	<100	<100	<100	130	<100
TRH >C ₃₄ -C ₄₀	mg/kg	<100	<100	<100	<100	<100
Total +ve TRH (>C10-C40)	mg/kg	<50	<50	<50	130	<50
Surrogate o-Terphenyl	%	89	90	90	111	92

svTRH (C10-C40) in Soil

Our Reference		183121-12	183121-13	183121-14	183121-15	183121-16
Your Reference	UNITS	BH107/0-0.2	BH108/0-0.2	BH108/0.7-0.8	BH109/0-0.2	BH110/0-0.2
Date Sampled		09/01/18	09/01/18	09/01/18	09/01/18	09/01/18
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	12/01/2018	12/01/2018	12/01/2018	12/01/2018	12/01/2018
Date analysed	-	12/01/2018	12/01/2018	13/01/2018	12/01/2018	13/01/2018
TRH C ₁₀ - C ₁₄	mg/kg	<50	<50	<50	<50	<50
TRH C ₁₅ - C ₂₈	mg/kg	<100	<100	<100	<100	100
TRH C ₂₉ - C ₃₆	mg/kg	<100	<100	<100	<100	110
TRH >C ₁₀ -C ₁₆	mg/kg	<50	<50	<50	<50	<50
TRH >C ₁₀ - C ₁₆ less Naphthalene (F2)	mg/kg	<50	<50	<50	<50	<50
TRH >C ₁₆ -C ₃₄	mg/kg	110	100	<100	<100	160
TRH >C ₃₄ -C ₄₀	mg/kg	<100	<100	<100	<100	<100
Total +ve TRH (>C10-C40)	mg/kg	110	100	<50	<50	160
Surrogate o-Terphenyl	%	90	90	92	88	87

svTRH (C10-C40) in Soil

Our Reference		183121-17	183121-18	183121-19	183121-20	183121-21
Your Reference	UNITS	BH110/0.5-0.7	BH111/0-0.2	BH112/0-0.2	BH112/0.6-0.7	BH113/0.1-0.3
Date Sampled		09/01/18	10/01/18	10/01/18	10/01/18	10/01/18
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	12/01/2018	12/01/2018	12/01/2018	12/01/2018	12/01/2018
Date analysed	-	13/01/2018	13/01/2018	13/01/2018	13/01/2018	13/01/2018
TRH C ₁₀ - C ₁₄	mg/kg	<50	<50	<50	<50	<50
TRH C ₁₅ - C ₂₈	mg/kg	<100	280	<100	<100	<100
TRH C ₂₉ - C ₃₆	mg/kg	<100	260	<100	<100	<100
TRH >C ₁₀ -C ₁₆	mg/kg	<50	<50	<50	<50	<50
TRH >C ₁₀ - C ₁₆ less Naphthalene (F2)	mg/kg	<50	<50	<50	<50	<50
TRH >C ₁₆ -C ₃₄	mg/kg	<100	480	110	<100	<100
TRH >C ₃₄ -C ₄₀	mg/kg	<100	140	<100	<100	<100
Total +ve TRH (>C10-C40)	mg/kg	<50	610	110	<50	<50
Surrogate o-Terphenyl	%	88	90	85	89	87

svTRH (C10-C40) in Soil

Our Reference		183121-22	183121-23	183121-24	183121-25	183121-26
Your Reference	UNITS	BH113/0.5-0.7	BH114/0.5-0.7	BH115/0-0.2	BH115/0.5-0.7	BH116/0-0.2
Date Sampled		10/01/18	10/01/18	10/01/18	10/01/18	10/01/18
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	12/01/2018	12/01/2018	12/01/2018	12/01/2018	12/01/2018
Date analysed	-	13/01/2018	13/01/2018	13/01/2018	13/01/2018	13/01/2018
TRH C ₁₀ - C ₁₄	mg/kg	<50	<50	<50	<50	<50
TRH C ₁₅ - C ₂₈	mg/kg	<100	<100	<100	<100	<100
TRH C ₂₉ - C ₃₆	mg/kg	<100	<100	<100	100	<100
TRH >C ₁₀ -C ₁₆	mg/kg	<50	<50	<50	<50	<50
TRH >C ₁₀ - C ₁₆ less Naphthalene (F2)	mg/kg	<50	<50	<50	<50	<50
TRH >C ₁₆ -C ₃₄	mg/kg	<100	<100	<100	100	110
TRH >C ₃₄ -C ₄₀	mg/kg	<100	<100	<100	<100	<100
Total +ve TRH (>C10-C40)	mg/kg	<50	<50	<50	100	110
Surrogate o-Terphenyl	%	85	89	86	86	86

svTRH (C10-C40) in Soil

Our Reference		183121-27	183121-28	183121-29	183121-30	183121-31
Your Reference	UNITS	BH117/0.6-0.8	BH117/1.5-1.6	BH118/0.5-0.6	BH119/0.5-0.6	BH119/1-1.1
Date Sampled		10/01/18	10/01/18	10/01/18	10/01/18	10/01/18
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	12/01/2018	12/01/2018	12/01/2018	12/01/2018	12/01/2018
Date analysed	-	13/01/2018	13/01/2018	13/01/2018	13/01/2018	13/01/2018
TRH C ₁₀ - C ₁₄	mg/kg	<50	<50	<50	<50	<50
TRH C ₁₅ - C ₂₈	mg/kg	<100	<100	<100	<100	<100
TRH C ₂₉ - C ₃₆	mg/kg	<100	<100	<100	<100	<100
TRH >C ₁₀ -C ₁₆	mg/kg	<50	<50	<50	<50	<50
TRH >C ₁₀ - C ₁₆ less Naphthalene (F2)	mg/kg	<50	<50	<50	<50	<50
TRH >C ₁₆ -C ₃₄	mg/kg	<100	<100	<100	<100	<100
TRH >C ₃₄ -C ₄₀	mg/kg	<100	<100	<100	<100	<100
Total +ve TRH (>C10-C40)	mg/kg	<50	<50	<50	<50	<50
Surrogate o-Terphenyl	%	84	84	85	88	96

svTRH (C10-C40) in Soil

Our Reference		183121-32	183121-33	183121-34	183121-35	183121-36
Your Reference	UNITS	BH120/0-0.1	BH121/0-0.05	BH122/0-0.1	BH122/0.5-0.6	BD1/20180109
Date Sampled		10/01/18	10/01/18	10/01/18	10/01/18	09/01/18
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	12/01/2018	12/01/2018	12/01/2018	12/01/2018	12/01/2018
Date analysed	-	13/01/2018	13/01/2018	13/01/2018	13/01/2018	13/01/2018
TRH C ₁₀ - C ₁₄	mg/kg	<50	<50	<50	<50	<50
TRH C ₁₅ - C ₂₈	mg/kg	<100	270	<100	<100	<100
TRH C ₂₉ - C ₃₆	mg/kg	180	410	<100	<100	<100
TRH >C ₁₀ -C ₁₆	mg/kg	<50	63	<50	<50	<50
TRH >C ₁₀ - C ₁₆ less Naphthalene (F2)	mg/kg	<50	63	<50	<50	<50
TRH >C ₁₆ -C ₃₄	mg/kg	210	520	<100	<100	<100
TRH >C ₃₄ -C ₄₀	mg/kg	100	220	<100	<100	<100
Total +ve TRH (>C10-C40)	mg/kg	310	800	<50	<50	<50
Surrogate o-Terphenyl	%	87	91	87	86	85

svTRH (C10-C40) in Soil

Our Reference		183121-37	183121-38	183121-39
Your Reference	UNITS	BD3/20180109	BD4/20180110	BD1/20180110
Date Sampled		09/01/18	10/01/18	10/01/18
Type of sample		Soil	Soil	Soil
Date extracted	-	12/01/2018	12/01/2018	12/01/2018
Date analysed	-	13/01/2018	13/01/2018	13/01/2018
TRH C ₁₀ - C ₁₄	mg/kg	<50	<50	<50
TRH C ₁₅ - C ₂₈	mg/kg	<100	<100	<100
TRH C ₂₉ - C ₃₆	mg/kg	<100	<100	<100
TRH >C ₁₀ -C ₁₆	mg/kg	<50	<50	<50
TRH >C ₁₀ - C ₁₆ less Naphthalene (F2)	mg/kg	<50	<50	<50
TRH >C ₁₆ -C ₃₄	mg/kg	<100	<100	<100
TRH >C ₃₄ -C ₄₀	mg/kg	<100	<100	<100
Total +ve TRH (>C10-C40)	mg/kg	<50	<50	<50
Surrogate o-Terphenyl	%	86	87	80

PAHs in Soil						
Our Reference		183121-1	183121-2	183121-3	183121-4	183121-5
Your Reference	UNITS	BH101/0.5-0.7	BH101/1.4-1.6	BH102/0-0.3	BH103/0-0.3	BH103/0.5-0.7
Date Sampled		09/01/18	09/01/18	09/01/18	09/01/18	09/01/18
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	12/01/2018	12/01/2018	12/01/2018	12/01/2018	12/01/2018
Date analysed	-	12/01/2018	12/01/2018	12/01/2018	12/01/2018	12/01/2018
Naphthalene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	<0.1	0.8	0.6	0.1
Anthracene	mg/kg	<0.1	<0.1	0.2	0.2	<0.1
Fluoranthene	mg/kg	0.2	<0.1	1.7	1.5	0.6
Pyrene	mg/kg	0.2	<0.1	1.8	1.6	0.8
Benzo(a)anthracene	mg/kg	0.1	<0.1	1.0	0.9	0.4
Chrysene	mg/kg	0.1	<0.1	1.1	1	0.5
Benzo(b,j+k)fluoranthene	mg/kg	0.2	<0.2	2.1	2.1	1
Benzo(a)pyrene	mg/kg	0.1	<0.05	1.2	1.2	0.63
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1	0.7	0.8	0.3
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	0.2	0.2	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1	0.9	1	0.4
Total +ve PAH's	mg/kg	0.94	<0.05	12	11	4.8
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5	<0.5	1.8	1.8	0.8
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5	<0.5	1.8	1.8	0.8
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5	<0.5	1.8	1.8	0.8
Surrogate <i>p</i> -Terphenyl-d14	%	99	98	98	99	100

PAHs in Soil						
Our Reference		183121-6	183121-7	183121-8	183121-9	183121-10
Your Reference	UNITS	BH104/0-0.3	BH105/0.3-0.5	BH105/0.5-0.7	BH106/0-0.2	BH106/0.5-0.7
Date Sampled		09/01/18	09/01/18	09/01/18	09/01/18	09/01/18
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	12/01/2018	12/01/2018	12/01/2018	12/01/2018	12/01/2018
Date analysed	-	12/01/2018	12/01/2018	12/01/2018	12/01/2018	12/01/2018
Naphthalene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	0.2	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	0.1	0.4	1	0.3	0.2
Anthracene	mg/kg	<0.1	0.1	0.2	0.1	<0.1
Fluoranthene	mg/kg	0.4	1.1	2.0	0.9	0.8
Pyrene	mg/kg	0.4	1.1	2.0	1	1
Benzo(a)anthracene	mg/kg	0.2	0.6	1.1	0.5	0.7
Chrysene	mg/kg	0.2	0.7	1	0.6	0.7
Benzo(b,j+k)fluoranthene	mg/kg	0.5	1	2	1	1
Benzo(a)pyrene	mg/kg	0.3	0.77	1.1	0.73	0.91
Indeno(1,2,3-c,d)pyrene	mg/kg	0.2	0.5	0.6	0.4	0.5
Dibenzo(a,h)anthracene	mg/kg	<0.1	0.1	0.1	0.1	0.1
Benzo(g,h,i)perylene	mg/kg	0.3	0.6	0.7	0.6	0.7
Total +ve PAH's	mg/kg	2.6	7.2	12	6.7	7.1
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5	1.1	1.6	1.1	1.3
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5	1.1	1.6	1.1	1.3
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5	1.1	1.6	1.1	1.3
Surrogate p-Terphenyl-d14	%	97	99	100	97	99

PAHs in Soil						
Our Reference		183121-12	183121-13	183121-14	183121-15	183121-16
Your Reference	UNITS	BH107/0-0.2	BH108/0-0.2	BH108/0.7-0.8	BH109/0-0.2	BH110/0-0.2
Date Sampled		09/01/18	09/01/18	09/01/18	09/01/18	09/01/18
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	12/01/2018	12/01/2018	12/01/2018	12/01/2018	12/01/2018
Date analysed	-	12/01/2018	12/01/2018	12/01/2018	12/01/2018	12/01/2018
Naphthalene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	0.2	0.1	<0.1	<0.1	0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	0.6	0.6	0.2	0.4	0.8
Anthracene	mg/kg	0.2	0.2	0.1	0.2	0.3
Fluoranthene	mg/kg	2.3	2.3	0.6	1.0	2.1
Pyrene	mg/kg	2.6	2.4	0.6	1.1	2.3
Benzo(a)anthracene	mg/kg	1.5	1.5	0.4	0.8	1.4
Chrysene	mg/kg	1.6	1.3	0.4	0.7	1.4
Benzo(b,j+k)fluoranthene	mg/kg	2.9	2.5	0.8	1	2.1
Benzo(a)pyrene	mg/kg	1.8	1.5	0.54	0.78	1.4
Indeno(1,2,3-c,d)pyrene	mg/kg	1	0.8	0.3	0.4	0.6
Dibenzo(a,h)anthracene	mg/kg	0.2	0.2	<0.1	0.1	0.2
Benzo(g,h,i)perylene	mg/kg	1.2	1	0.4	0.5	0.7
Total +ve PAH's	mg/kg	16	14	4.4	7.3	13
Benzo(a)pyrene TEQ calc (zero)	mg/kg	2.6	2.2	0.7	1.2	2.0
Benzo(a)pyrene TEQ calc(half)	mg/kg	2.6	2.2	0.7	1.2	2.0
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	2.6	2.2	0.7	1.2	2.0
Surrogate p-Terphenyl-d14	%	99	100	94	102	98

PAHs in Soil						
Our Reference		183121-17	183121-18	183121-19	183121-20	183121-21
Your Reference	UNITS	BH110/0.5-0.7	BH111/0-0.2	BH112/0-0.2	BH112/0.6-0.7	BH113/0.1-0.3
Date Sampled		09/01/18	10/01/18	10/01/18	10/01/18	10/01/18
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	12/01/2018	12/01/2018	12/01/2018	12/01/2018	12/01/2018
Date analysed	-	12/01/2018	12/01/2018	12/01/2018	12/01/2018	12/01/2018
Naphthalene	mg/kg	<0.1	0.3	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	1.2	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	0.3	3.1	0.2	<0.1	0.1
Anthracene	mg/kg	<0.1	1.4	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	0.5	8.7	0.6	<0.1	0.3
Pyrene	mg/kg	0.5	10	0.7	<0.1	0.4
Benzo(a)anthracene	mg/kg	0.3	5.9	0.4	<0.1	0.2
Chrysene	mg/kg	0.3	5.7	0.4	<0.1	0.2
Benzo(b,j+k)fluoranthene	mg/kg	0.4	10	0.9	<0.2	0.4
Benzo(a)pyrene	mg/kg	0.2	6.4	0.5	<0.05	0.2
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1	3.1	0.3	<0.1	0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	0.8	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	0.2	4.0	0.4	<0.1	0.2
Total +ve PAH's	mg/kg	2.8	61	4.2	<0.05	2.1
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5	9.2	0.7	<0.5	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5	9.2	0.7	<0.5	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5	9.2	0.7	<0.5	<0.5
Surrogate p-Terphenyl-d14	%	101	93	95	100	99

PAHs in Soil						
Our Reference		183121-22	183121-23	183121-24	183121-25	183121-26
Your Reference	UNITS	BH113/0.5-0.7	BH114/0.5-0.7	BH115/0-0.2	BH115/0.5-0.7	BH116/0-0.2
Date Sampled		10/01/18	10/01/18	10/01/18	10/01/18	10/01/18
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	12/01/2018	12/01/2018	12/01/2018	12/01/2018	12/01/2018
Date analysed	-	12/01/2018	12/01/2018	12/01/2018	12/01/2018	12/01/2018
Naphthalene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	0.2	0.2	<0.1	<0.1	0.3
Acenaphthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1	<0.1	0.2
Phenanthrene	mg/kg	0.5	0.8	<0.1	0.3	1.4
Anthracene	mg/kg	0.2	0.3	<0.1	0.2	0.5
Fluoranthene	mg/kg	1.6	1.7	0.1	1.1	3.0
Pyrene	mg/kg	1.8	1.9	0.1	1.2	2.8
Benzo(a)anthracene	mg/kg	1.1	1.0	<0.1	0.7	1.6
Chrysene	mg/kg	1.0	1.1	<0.1	0.8	1.3
Benzo(b,j+k)fluoranthene	mg/kg	2	2	<0.2	2	2.4
Benzo(a)pyrene	mg/kg	1.2	1.1	0.09	0.89	1.4
Indeno(1,2,3-c,d)pyrene	mg/kg	0.6	0.6	<0.1	0.5	0.7
Dibenzo(a,h)anthracene	mg/kg	0.2	0.2	<0.1	0.1	0.2
Benzo(g,h,i)perylene	mg/kg	0.8	0.7	<0.1	0.6	0.8
Total +ve PAH's	mg/kg	11	11	0.4	7.9	16
Benzo(a)pyrene TEQ calc (zero)	mg/kg	1.7	1.6	<0.5	1.3	2.1
Benzo(a)pyrene TEQ calc(half)	mg/kg	1.7	1.6	<0.5	1.3	2.1
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	1.7	1.6	<0.5	1.3	2.1
Surrogate p-Terphenyl-d14	%	98	97	100	99	99

PAHs in Soil						
Our Reference		183121-27	183121-28	183121-29	183121-30	183121-31
Your Reference	UNITS	BH117/0.6-0.8	BH117/1.5-1.6	BH118/0.5-0.6	BH119/0.5-0.6	BH119/1-1.1
Date Sampled		10/01/18	10/01/18	10/01/18	10/01/18	10/01/18
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	12/01/2018	12/01/2018	12/01/2018	12/01/2018	12/01/2018
Date analysed	-	12/01/2018	12/01/2018	12/01/2018	12/01/2018	12/01/2018
Naphthalene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	0.4	0.3	0.2	<0.1
Anthracene	mg/kg	<0.1	0.2	0.1	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	0.9	0.9	0.3	<0.1
Pyrene	mg/kg	<0.1	0.9	0.9	0.4	<0.1
Benzo(a)anthracene	mg/kg	<0.1	0.5	0.5	0.2	<0.1
Chrysene	mg/kg	<0.1	0.4	0.5	0.3	<0.1
Benzo(b,j+k)fluoranthene	mg/kg	<0.2	0.9	1	0.5	<0.2
Benzo(a)pyrene	mg/kg	<0.05	0.52	0.60	0.3	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	0.3	0.3	0.2	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	0.3	0.4	0.2	<0.1
Total +ve PAH's	mg/kg	<0.05	5.3	5.5	2.5	<0.05
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5	0.7	0.8	<0.5	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5	0.7	0.8	<0.5	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5	0.7	0.8	<0.5	<0.5
Surrogate p-Terphenyl-d14	%	97	95	99	100	99

PAHs in Soil					
Our Reference		183121-32	183121-33	183121-34	183121-35
Your Reference	UNITS	BH120/0-0.1	BH121/0-0.05	BH122/0-0.1	BH122/0.5-0.6
Date Sampled		10/01/18	10/01/18	10/01/18	10/01/18
Type of sample		Soil	Soil	Soil	Soil
Date extracted	-	12/01/2018	12/01/2018	12/01/2018	12/01/2018
Date analysed	-	12/01/2018	12/01/2018	12/01/2018	12/01/2018
Naphthalene	mg/kg	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	<0.1	<0.1	<0.1	<0.1
Anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	0.1	0.3	0.2	<0.1
Pyrene	mg/kg	0.1	0.3	0.2	<0.1
Benzo(a)anthracene	mg/kg	<0.1	0.2	<0.1	<0.1
Chrysene	mg/kg	<0.1	0.2	<0.1	<0.1
Benzo(b,j+k)fluoranthene	mg/kg	<0.2	0.5	0.2	<0.2
Benzo(a)pyrene	mg/kg	0.07	0.2	0.1	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	0.2	<0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	0.2	<0.1	<0.1
Total +ve PAH's	mg/kg	0.3	2.2	0.63	<0.05
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5	<0.5	<0.5	<0.5
Surrogate p-Terphenyl-d14	%	100	97	104	90

Organochlorine Pesticides in soil						
Our Reference		183121-1	183121-3	183121-4	183121-6	183121-7
Your Reference	UNITS	BH101/0.5-0.7	BH102/0-0.3	BH103/0-0.3	BH104/0-0.3	BH105/0.3-0.5
Date Sampled		09/01/18	09/01/18	09/01/18	09/01/18	09/01/18
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	12/01/2018	12/01/2018	12/01/2018	12/01/2018	12/01/2018
Date analysed	-	12/01/2018	12/01/2018	12/01/2018	12/01/2018	12/01/2018
HCB	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
beta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
delta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor Epoxide	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-Chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan I	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDE	mg/kg	<0.1	0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDD	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan II	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDT	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan Sulphate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve DDT+DDD+DDE	mg/kg	<0.1	0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	103	107	110	110	110

Organochlorine Pesticides in soil						
Our Reference		183121-9	183121-12	183121-13	183121-15	183121-17
Your Reference	UNITS	BH106/0-0.2	BH107/0-0.2	BH108/0-0.2	BH109/0-0.2	BH110/0.5-0.7
Date Sampled		09/01/18	09/01/18	09/01/18	09/01/18	09/01/18
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	12/01/2018	12/01/2018	12/01/2018	12/01/2018	12/01/2018
Date analysed	-	12/01/2018	12/01/2018	12/01/2018	12/01/2018	12/01/2018
HCB	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
beta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
delta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor Epoxide	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-Chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan I	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDD	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan II	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDT	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan Sulphate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve DDT+DDD+DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	107	108	102	104	107

Organochlorine Pesticides in soil						
Our Reference		183121-18	183121-19	183121-21	183121-23	183121-24
Your Reference	UNITS	BH111/0-0.2	BH112/0-0.2	BH113/0.1-0.3	BH114/0.5-0.7	BH115/0-0.2
Date Sampled		10/01/18	10/01/18	10/01/18	10/01/18	10/01/18
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	12/01/2018	12/01/2018	12/01/2018	12/01/2018	12/01/2018
Date analysed	-	12/01/2018	12/01/2018	12/01/2018	12/01/2018	12/01/2018
HCB	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
beta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
delta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor Epoxide	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-Chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan I	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDD	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan II	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDT	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan Sulphate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve DDT+DDD+DDE	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	107	101	104	110	103

Organochlorine Pesticides in soil						
Our Reference		183121-26	183121-27	183121-29	183121-30	183121-32
Your Reference	UNITS	BH116/0-0.2	BH117/0.6-0.8	BH118/0.5-0.6	BH119/0.5-0.6	BH120/0-0.1
Date Sampled		10/01/18	10/01/18	10/01/18	10/01/18	10/01/18
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	12/01/2018	12/01/2018	12/01/2018	12/01/2018	12/01/2018
Date analysed	-	12/01/2018	12/01/2018	12/01/2018	12/01/2018	12/01/2018
HCB	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
beta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
delta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor Epoxide	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
gamma-Chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
alpha-chlordane	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan I	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDE	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	2	<0.1	<0.1	<0.1	<0.1
Endrin	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDD	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan II	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
pp-DDT	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan Sulphate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve DDT+DDD+DDE	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	102	103	100	100	101

Organochlorine Pesticides in soil			
Our Reference		183121-33	183121-35
Your Reference	UNITS	BH121/0-0.05	BH122/0.5-0.6
Date Sampled		10/01/18	10/01/18
Type of sample		Soil	Soil
Date extracted	-	12/01/2018	12/01/2018
Date analysed	-	12/01/2018	12/01/2018
HCB	mg/kg	<0.1	<0.1
alpha-BHC	mg/kg	<0.1	<0.1
gamma-BHC	mg/kg	<0.1	<0.1
beta-BHC	mg/kg	<0.1	<0.1
Heptachlor	mg/kg	<0.1	<0.1
delta-BHC	mg/kg	<0.1	<0.1
Aldrin	mg/kg	<0.1	<0.1
Heptachlor Epoxide	mg/kg	<0.1	<0.1
gamma-Chlordane	mg/kg	<0.1	<0.1
alpha-chlordane	mg/kg	<0.1	<0.1
Endosulfan I	mg/kg	<0.1	<0.1
pp-DDE	mg/kg	<0.1	<0.1
Dieldrin	mg/kg	<0.1	<0.1
Endrin	mg/kg	<0.1	<0.1
pp-DDD	mg/kg	<0.1	<0.1
Endosulfan II	mg/kg	<0.1	<0.1
pp-DDT	mg/kg	<0.1	<0.1
Endrin Aldehyde	mg/kg	<0.1	<0.1
Endosulfan Sulphate	mg/kg	<0.1	<0.1
Methoxychlor	mg/kg	<0.1	<0.1
Total +ve DDT+DDD+DDE	mg/kg	<0.1	<0.1
Surrogate TCMX	%	98	103

Organophosphorus Pesticides						
Our Reference		183121-1	183121-3	183121-4	183121-6	183121-7
Your Reference	UNITS	BH101/0.5-0.7	BH102/0-0.3	BH103/0-0.3	BH104/0-0.3	BH105/0.3-0.5
Date Sampled		09/01/18	09/01/18	09/01/18	09/01/18	09/01/18
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	12/01/2018	12/01/2018	12/01/2018	12/01/2018	12/01/2018
Date analysed	-	12/01/2018	12/01/2018	12/01/2018	12/01/2018	12/01/2018
Azinphos-methyl (Guthion)	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Bromophos-ethyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyrifos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyrifos-methyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Diazinon	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dichlorvos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dimethoate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ethion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fenitrothion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Malathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Parathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ronnel	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	103	107	110	110	110

Organophosphorus Pesticides						
Our Reference		183121-9	183121-12	183121-13	183121-15	183121-17
Your Reference	UNITS	BH106/0-0.2	BH107/0-0.2	BH108/0-0.2	BH109/0-0.2	BH110/0.5-0.7
Date Sampled		09/01/18	09/01/18	09/01/18	09/01/18	09/01/18
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	12/01/2018	12/01/2018	12/01/2018	12/01/2018	12/01/2018
Date analysed	-	12/01/2018	12/01/2018	12/01/2018	12/01/2018	12/01/2018
Azinphos-methyl (Guthion)	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Bromophos-ethyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyrifos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyrifos-methyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Diazinon	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dichlorvos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dimethoate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ethion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fenitrothion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Malathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Parathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ronnel	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	107	108	102	104	107

Organophosphorus Pesticides

Our Reference		183121-18	183121-19	183121-21	183121-23	183121-24
Your Reference	UNITS	BH111/0-0.2	BH112/0-0.2	BH113/0.1-0.3	BH114/0.5-0.7	BH115/0-0.2
Date Sampled		10/01/18	10/01/18	10/01/18	10/01/18	10/01/18
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	12/01/2018	12/01/2018	12/01/2018	12/01/2018	12/01/2018
Date analysed	-	12/01/2018	12/01/2018	12/01/2018	12/01/2018	12/01/2018
Azinphos-methyl (Guthion)	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Bromophos-ethyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyrifos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyrifos-methyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Diazinon	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dichlorvos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dimethoate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ethion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fenitrothion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Malathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Parathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ronnel	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	107	101	104	110	103

Organophosphorus Pesticides

Our Reference		183121-26	183121-27	183121-29	183121-30	183121-32
Your Reference	UNITS	BH116/0-0.2	BH117/0.6-0.8	BH118/0.5-0.6	BH119/0.5-0.6	BH120/0-0.1
Date Sampled		10/01/18	10/01/18	10/01/18	10/01/18	10/01/18
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	12/01/2018	12/01/2018	12/01/2018	12/01/2018	12/01/2018
Date analysed	-	12/01/2018	12/01/2018	12/01/2018	12/01/2018	12/01/2018
Azinphos-methyl (Guthion)	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Bromophos-ethyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyrifos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chlorpyrifos-methyl	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Diazinon	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dichlorvos	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dimethoate	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ethion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fenitrothion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Malathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Parathion	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ronnel	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCMX	%	102	103	100	100	101

Organophosphorus Pesticides			
Our Reference		183121-33	183121-35
Your Reference	UNITS	BH121/0-0.05	BH122/0.5-0.6
Date Sampled		10/01/18	10/01/18
Type of sample		Soil	Soil
Date extracted	-	12/01/2018	12/01/2018
Date analysed	-	12/01/2018	12/01/2018
Azinphos-methyl (Guthion)	mg/kg	<0.1	<0.1
Bromophos-ethyl	mg/kg	<0.1	<0.1
Chlorpyrifos	mg/kg	<0.1	<0.1
Chlorpyrifos-methyl	mg/kg	<0.1	<0.1
Diazinon	mg/kg	<0.1	<0.1
Dichlorvos	mg/kg	<0.1	<0.1
Dimethoate	mg/kg	<0.1	<0.1
Ethion	mg/kg	<0.1	<0.1
Fenitrothion	mg/kg	<0.1	<0.1
Malathion	mg/kg	<0.1	<0.1
Parathion	mg/kg	<0.1	<0.1
Ronnel	mg/kg	<0.1	<0.1
Surrogate TCMX	%	98	103

PCBs in Soil						
Our Reference		183121-1	183121-3	183121-4	183121-6	183121-7
Your Reference	UNITS	BH101/0.5-0.7	BH102/0-0.3	BH103/0-0.3	BH104/0-0.3	BH105/0.3-0.5
Date Sampled		09/01/18	09/01/18	09/01/18	09/01/18	09/01/18
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	12/01/2018	12/01/2018	12/01/2018	12/01/2018	12/01/2018
Date analysed	-	12/01/2018	12/01/2018	12/01/2018	12/01/2018	12/01/2018
Aroclor 1016	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1221	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1232	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1242	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1248	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1254	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1260	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve PCBs (1016-1260)	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCLMX	%	103	107	110	110	110

PCBs in Soil						
Our Reference		183121-9	183121-12	183121-13	183121-15	183121-17
Your Reference	UNITS	BH106/0-0.2	BH107/0-0.2	BH108/0-0.2	BH109/0-0.2	BH110/0.5-0.7
Date Sampled		09/01/18	09/01/18	09/01/18	09/01/18	09/01/18
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	12/01/2018	12/01/2018	12/01/2018	12/01/2018	12/01/2018
Date analysed	-	12/01/2018	12/01/2018	12/01/2018	12/01/2018	12/01/2018
Aroclor 1016	mg/kg	<0.1	<0.5	<0.1	<0.1	<0.1
Aroclor 1221	mg/kg	<0.1	<0.5	<0.1	<0.1	<0.1
Aroclor 1232	mg/kg	<0.1	<0.5	<0.1	<0.1	<0.1
Aroclor 1242	mg/kg	<0.1	<0.5	<0.1	<0.1	<0.1
Aroclor 1248	mg/kg	<0.1	<0.5	<0.1	<0.1	<0.1
Aroclor 1254	mg/kg	<0.1	<0.5	<0.1	0.2	<0.1
Aroclor 1260	mg/kg	<0.1	<0.5	<0.1	<0.1	<0.1
Total +ve PCBs (1016-1260)	mg/kg	<0.1	<0.5	<0.1	0.2	<0.1
Surrogate TCLMX	%	107	108	102	104	107

PCBs in Soil						
Our Reference		183121-18	183121-19	183121-21	183121-23	183121-24
Your Reference	UNITS	BH111/0-0.2	BH112/0-0.2	BH113/0.1-0.3	BH114/0.5-0.7	BH115/0-0.2
Date Sampled		10/01/18	10/01/18	10/01/18	10/01/18	10/01/18
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	12/01/2018	12/01/2018	12/01/2018	12/01/2018	12/01/2018
Date analysed	-	12/01/2018	12/01/2018	12/01/2018	12/01/2018	12/01/2018
Aroclor 1016	mg/kg	<0.5	<0.1	<0.1	<0.1	<0.1
Aroclor 1221	mg/kg	<0.5	<0.1	<0.1	<0.1	<0.1
Aroclor 1232	mg/kg	<0.5	<0.1	<0.1	<0.1	<0.1
Aroclor 1242	mg/kg	<0.5	<0.1	<0.1	<0.1	<0.1
Aroclor 1248	mg/kg	<0.5	<0.1	<0.1	<0.1	<0.1
Aroclor 1254	mg/kg	<0.5	0.2	<0.1	<0.1	<0.1
Aroclor 1260	mg/kg	<0.5	<0.1	<0.1	<0.1	<0.1
Total +ve PCBs (1016-1260)	mg/kg	<0.5	0.2	<0.1	<0.1	<0.1
Surrogate TCLMX	%	107	101	104	110	103

PCBs in Soil						
Our Reference		183121-26	183121-27	183121-29	183121-30	183121-32
Your Reference	UNITS	BH116/0-0.2	BH117/0.6-0.8	BH118/0.5-0.6	BH119/0.5-0.6	BH120/0-0.1
Date Sampled		10/01/18	10/01/18	10/01/18	10/01/18	10/01/18
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	12/01/2018	12/01/2018	12/01/2018	12/01/2018	12/01/2018
Date analysed	-	12/01/2018	12/01/2018	12/01/2018	12/01/2018	12/01/2018
Aroclor 1016	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1221	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1232	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1242	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1248	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1254	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Aroclor 1260	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total +ve PCBs (1016-1260)	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Surrogate TCLMX	%	102	103	100	100	101

PCBs in Soil			
Our Reference		183121-33	183121-35
Your Reference	UNITS	BH121/0-0.05	BH122/0.5-0.6
Date Sampled		10/01/18	10/01/18
Type of sample		Soil	Soil
Date extracted	-	12/01/2018	12/01/2018
Date analysed	-	12/01/2018	12/01/2018
Aroclor 1016	mg/kg	<0.5	<0.1
Aroclor 1221	mg/kg	<0.5	<0.1
Aroclor 1232	mg/kg	<0.5	<0.1
Aroclor 1242	mg/kg	<0.5	<0.1
Aroclor 1248	mg/kg	<0.5	<0.1
Aroclor 1254	mg/kg	<0.5	<0.1
Aroclor 1260	mg/kg	<0.5	<0.1
Total +ve PCBs (1016-1260)	mg/kg	<0.5	<0.1
Surrogate TCLMX	%	98	103

Acid Extractable metals in soil

Our Reference		183121-1	183121-2	183121-3	183121-4	183121-5
Your Reference	UNITS	BH101/0.5-0.7	BH101/1.4-1.6	BH102/0-0.3	BH103/0-0.3	BH103/0.5-0.7
Date Sampled		09/01/18	09/01/18	09/01/18	09/01/18	09/01/18
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	12/01/2018	12/01/2018	12/01/2018	12/01/2018	12/01/2018
Date analysed	-	15/01/2018	15/01/2018	15/01/2018	15/01/2018	15/01/2018
Arsenic	mg/kg	<4	<4	<4	<4	<4
Cadmium	mg/kg	<0.4	<0.4	0.5	<0.4	<0.4
Chromium	mg/kg	4	9	9	5	3
Copper	mg/kg	5	<1	83	25	14
Lead	mg/kg	34	4	450	220	20
Mercury	mg/kg	0.1	<0.1	0.2	0.1	<0.1
Nickel	mg/kg	<1	2	3	3	2
Zinc	mg/kg	30	22	150	99	29

Acid Extractable metals in soil

Our Reference		183121-6	183121-7	183121-8	183121-9	183121-10
Your Reference	UNITS	BH104/0-0.3	BH105/0.3-0.5	BH105/0.5-0.7	BH106/0-0.2	BH106/0.5-0.7
Date Sampled		09/01/18	09/01/18	09/01/18	09/01/18	09/01/18
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	12/01/2018	12/01/2018	12/01/2018	12/01/2018	12/01/2018
Date analysed	-	15/01/2018	15/01/2018	15/01/2018	15/01/2018	15/01/2018
Arsenic	mg/kg	<4	<4	<4	<4	<4
Cadmium	mg/kg	0.5	<0.4	<0.4	0.7	<0.4
Chromium	mg/kg	4	4	3	5	4
Copper	mg/kg	24	16	10	32	16
Lead	mg/kg	110	130	130	180	90
Mercury	mg/kg	0.1	<0.1	<0.1	0.1	<0.1
Nickel	mg/kg	2	2	2	3	2
Zinc	mg/kg	250	140	310	230	100

Acid Extractable metals in soil

Our Reference		183121-12	183121-13	183121-14	183121-15	183121-16
Your Reference	UNITS	BH107/0-0.2	BH108/0-0.2	BH108/0.7-0.8	BH109/0-0.2	BH110/0-0.2
Date Sampled		09/01/18	09/01/18	09/01/18	09/01/18	09/01/18
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	12/01/2018	12/01/2018	12/01/2018	12/01/2018	12/01/2018
Date analysed	-	15/01/2018	15/01/2018	15/01/2018	15/01/2018	15/01/2018
Arsenic	mg/kg	<4	<4	<4	<4	5
Cadmium	mg/kg	<0.4	0.5	<0.4	<0.4	<0.4
Chromium	mg/kg	7	6	3	8	26
Copper	mg/kg	25	26	3	28	43
Lead	mg/kg	270	280	230	240	77
Mercury	mg/kg	0.2	0.2	<0.1	<0.1	0.1
Nickel	mg/kg	4	4	2	6	26
Zinc	mg/kg	160	200	96	200	210

Acid Extractable metals in soil

Our Reference		183121-17	183121-18	183121-19	183121-20	183121-21
Your Reference	UNITS	BH110/0.5-0.7	BH111/0-0.2	BH112/0-0.2	BH112/0.6-0.7	BH113/0.1-0.3
Date Sampled		09/01/18	10/01/18	10/01/18	10/01/18	10/01/18
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	12/01/2018	12/01/2018	12/01/2018	12/01/2018	12/01/2018
Date analysed	-	15/01/2018	15/01/2018	15/01/2018	15/01/2018	15/01/2018
Arsenic	mg/kg	5	7	6	<4	<4
Cadmium	mg/kg	<0.4	0.8	2	<0.4	<0.4
Chromium	mg/kg	6	18	20	1	2
Copper	mg/kg	12	50	110	4	7
Lead	mg/kg	53	470	440	8	28
Mercury	mg/kg	0.2	0.2	0.2	<0.1	<0.1
Nickel	mg/kg	2	5	5	<1	<1
Zinc	mg/kg	170	390	230	58	31

Acid Extractable metals in soil

Our Reference		183121-22	183121-23	183121-24	183121-25	183121-26
Your Reference	UNITS	BH113/0.5-0.7	BH114/0.5-0.7	BH115/0-0.2	BH115/0.5-0.7	BH116/0-0.2
Date Sampled		10/01/18	10/01/18	10/01/18	10/01/18	10/01/18
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	12/01/2018	12/01/2018	12/01/2018	12/01/2018	12/01/2018
Date analysed	-	15/01/2018	15/01/2018	15/01/2018	15/01/2018	15/01/2018
Arsenic	mg/kg	<4	<4	<4	<4	<4
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	14	5	2	9	7
Copper	mg/kg	37	19	4	30	26
Lead	mg/kg	350	130	10	360	360
Mercury	mg/kg	0.1	0.1	<0.1	0.2	0.2
Nickel	mg/kg	4	2	1	4	4
Zinc	mg/kg	130	38	53	310	160

Acid Extractable metals in soil

Our Reference		183121-27	183121-28	183121-29	183121-30	183121-31
Your Reference	UNITS	BH117/0.6-0.8	BH117/1.5-1.6	BH118/0.5-0.6	BH119/0.5-0.6	BH119/1-1.1
Date Sampled		10/01/18	10/01/18	10/01/18	10/01/18	10/01/18
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	12/01/2018	12/01/2018	12/01/2018	12/01/2018	12/01/2018
Date analysed	-	15/01/2018	15/01/2018	15/01/2018	15/01/2018	15/01/2018
Arsenic	mg/kg	<4	<4	<4	<4	<4
Cadmium	mg/kg	<0.4	<0.4	0.8	<0.4	<0.4
Chromium	mg/kg	11	4	9	6	2
Copper	mg/kg	<1	14	43	12	4
Lead	mg/kg	6	270	350	100	13
Mercury	mg/kg	<0.1	0.3	0.2	<0.1	<0.1
Nickel	mg/kg	2	2	3	3	1
Zinc	mg/kg	220	220	510	72	12

Acid Extractable metals in soil

Our Reference		183121-32	183121-33	183121-34	183121-35	183121-36
Your Reference	UNITS	BH120/0-0.1	BH121/0-0.05	BH122/0-0.1	BH122/0.5-0.6	BD1/20180109
Date Sampled		10/01/18	10/01/18	10/01/18	10/01/18	09/01/18
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	12/01/2018	12/01/2018	12/01/2018	12/01/2018	12/01/2018
Date analysed	-	15/01/2018	15/01/2018	15/01/2018	15/01/2018	15/01/2018
Arsenic	mg/kg	13	4	<4	<4	4
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	13	9	6	3	9
Copper	mg/kg	35	31	9	3	15
Lead	mg/kg	21	290	69	15	50
Mercury	mg/kg	0.2	<0.1	<0.1	<0.1	0.1
Nickel	mg/kg	4	4	1	1	6
Zinc	mg/kg	85	160	31	7	130

Acid Extractable metals in soil

Our Reference		183121-37	183121-38	183121-39
Your Reference	UNITS	BD3/20180109	BD4/20180110	BD1/20180110
Date Sampled		09/01/18	10/01/18	10/01/18
Type of sample		Soil	Soil	Soil
Date prepared	-	12/01/2018	12/01/2018	12/01/2018
Date analysed	-	15/01/2018	15/01/2018	15/01/2018
Arsenic	mg/kg	<4	<4	<4
Cadmium	mg/kg	<0.4	<0.4	0.7
Chromium	mg/kg	8	3	18
Copper	mg/kg	7	13	79
Lead	mg/kg	79	98	290
Mercury	mg/kg	<0.1	<0.1	<0.1
Nickel	mg/kg	<1	2	4
Zinc	mg/kg	25	85	130

CEC						
Our Reference		183121-1	183121-7	183121-13	183121-17	183121-21
Your Reference	UNITS	BH101/0.5-0.7	BH105/0.3-0.5	BH108/0-0.2	BH110/0.5-0.7	BH113/0.1-0.3
Date Sampled		09/01/18	09/01/18	09/01/18	09/01/18	10/01/18
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	15/01/2018	15/01/2018	15/01/2018	15/01/2018	15/01/2018
Date analysed	-	16/01/2018	16/01/2018	16/01/2018	16/01/2018	16/01/2018
Exchangeable Ca	meq/100g	1.8	3.2	1.9	3.1	0.5
Exchangeable K	meq/100g	<0.1	<0.1	<0.1	0.1	<0.1
Exchangeable Mg	meq/100g	0.24	0.16	0.40	0.69	0.20
Exchangeable Na	meq/100g	<0.1	<0.1	<0.1	<0.1	<0.1
Cation Exchange Capacity	meq/100g	2.2	3.4	2.4	3.9	<1

Misc Soil - Inorg

Our Reference		183121-1	183121-3	183121-4	183121-6	183121-7
Your Reference	UNITS	BH101/0.5-0.7	BH102/0-0.3	BH103/0-0.3	BH104/0-0.3	BH105/0.3-0.5
Date Sampled		09/01/18	09/01/18	09/01/18	09/01/18	09/01/18
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	12/01/2018	12/01/2018	12/01/2018	12/01/2018	12/01/2018
Date analysed	-	12/01/2018	12/01/2018	12/01/2018	12/01/2018	12/01/2018
Total Phenolics (as Phenol)	mg/kg	<5	<5	<5	<5	<5

Misc Soil - Inorg

Our Reference		183121-9	183121-12	183121-13	183121-15	183121-17
Your Reference	UNITS	BH106/0-0.2	BH107/0-0.2	BH108/0-0.2	BH109/0-0.2	BH110/0.5-0.7
Date Sampled		09/01/18	09/01/18	09/01/18	09/01/18	09/01/18
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	12/01/2018	12/01/2018	12/01/2018	12/01/2018	12/01/2018
Date analysed	-	12/01/2018	12/01/2018	12/01/2018	12/01/2018	12/01/2018
Total Phenolics (as Phenol)	mg/kg	<5	<5	<5	<5	<5

Misc Soil - Inorg

Our Reference		183121-18	183121-19	183121-21	183121-23	183121-24
Your Reference	UNITS	BH111/0-0.2	BH112/0-0.2	BH113/0.1-0.3	BH114/0.5-0.7	BH115/0-0.2
Date Sampled		10/01/18	10/01/18	10/01/18	10/01/18	10/01/18
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	12/01/2018	12/01/2018	12/01/2018	12/01/2018	12/01/2018
Date analysed	-	12/01/2018	12/01/2018	12/01/2018	12/01/2018	12/01/2018
Total Phenolics (as Phenol)	mg/kg	<5	<5	<5	<5	<5

Misc Soil - Inorg

Our Reference		183121-26	183121-27	183121-29	183121-30	183121-32
Your Reference	UNITS	BH116/0-0.2	BH117/0.6-0.8	BH118/0.5-0.6	BH119/0.5-0.6	BH120/0-0.1
Date Sampled		10/01/18	10/01/18	10/01/18	10/01/18	10/01/18
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	12/01/2018	12/01/2018	12/01/2018	12/01/2018	12/01/2018
Date analysed	-	12/01/2018	12/01/2018	12/01/2018	12/01/2018	12/01/2018
Total Phenolics (as Phenol)	mg/kg	<5	<5	<5	<5	<5

Misc Soil - Inorg

Our Reference		183121-33	183121-35
Your Reference	UNITS	BH121/0-0.05	BH122/0.5-0.6
Date Sampled		10/01/18	10/01/18
Type of sample		Soil	Soil
Date prepared	-	12/01/2018	12/01/2018
Date analysed	-	12/01/2018	12/01/2018
Total Phenolics (as Phenol)	mg/kg	8	<5

Misc Inorg - Soil						
Our Reference		183121-1	183121-7	183121-13	183121-17	183121-21
Your Reference	UNITS	BH101/0.5-0.7	BH105/0.3-0.5	BH108/0-0.2	BH110/0.5-0.7	BH113/0.1-0.3
Date Sampled		09/01/18	09/01/18	09/01/18	09/01/18	10/01/18
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	15/01/2017	15/01/2017	15/01/2017	15/01/2017	15/01/2017
Date analysed	-	15/01/2017	15/01/2017	15/01/2017	15/01/2017	15/01/2017
pH 1:5 soil:water	pH Units	6.1	6.4	6.0	6.2	5.0

Moisture						
Our Reference	UNITS	183121-1	183121-2	183121-3	183121-4	183121-5
Your Reference		BH101/0.5-0.7	BH101/1.4-1.6	BH102/0-0.3	BH103/0-0.3	BH103/0.5-0.7
Date Sampled		09/01/18	09/01/18	09/01/18	09/01/18	09/01/18
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	12/01/2018	12/01/2018	12/01/2018	12/01/2018	12/01/2018
Date analysed	-	15/01/2018	15/01/2018	15/01/2018	15/01/2018	15/01/2018
Moisture	%	9.8	10	5.8	3.1	3.1

Moisture						
Our Reference	UNITS	183121-6	183121-7	183121-8	183121-9	183121-10
Your Reference		BH104/0-0.3	BH105/0.3-0.5	BH105/0.5-0.7	BH106/0-0.2	BH106/0.5-0.7
Date Sampled		09/01/18	09/01/18	09/01/18	09/01/18	09/01/18
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	12/01/2018	12/01/2018	12/01/2018	12/01/2018	12/01/2018
Date analysed	-	15/01/2018	15/01/2018	15/01/2018	15/01/2018	15/01/2018
Moisture	%	3.8	2.6	2.5	4.2	1.7

Moisture						
Our Reference	UNITS	183121-12	183121-13	183121-14	183121-15	183121-16
Your Reference		BH107/0-0.2	BH108/0-0.2	BH108/0.7-0.8	BH109/0-0.2	BH110/0-0.2
Date Sampled		09/01/18	09/01/18	09/01/18	09/01/18	09/01/18
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	12/01/2018	12/01/2018	12/01/2018	12/01/2018	12/01/2018
Date analysed	-	15/01/2018	15/01/2018	15/01/2018	15/01/2018	15/01/2018
Moisture	%	3.8	7.7	1.9	6.5	11

Moisture						
Our Reference	UNITS	183121-17	183121-18	183121-19	183121-20	183121-21
Your Reference		BH110/0.5-0.7	BH111/0-0.2	BH112/0-0.2	BH112/0.6-0.7	BH113/0.1-0.3
Date Sampled		09/01/18	10/01/18	10/01/18	10/01/18	10/01/18
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	12/01/2018	12/01/2018	12/01/2018	12/01/2018	12/01/2018
Date analysed	-	15/01/2018	15/01/2018	15/01/2018	15/01/2018	15/01/2018
Moisture	%	5.8	21	13	3.0	3.6

Moisture						
Our Reference	UNITS	183121-22	183121-23	183121-24	183121-25	183121-26
Your Reference		BH113/0.5-0.7	BH114/0.5-0.7	BH115/0-0.2	BH115/0.5-0.7	BH116/0-0.2
Date Sampled		10/01/18	10/01/18	10/01/18	10/01/18	10/01/18
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	12/01/2018	12/01/2018	12/01/2018	12/01/2018	12/01/2018
Date analysed	-	15/01/2018	15/01/2018	15/01/2018	15/01/2018	15/01/2018
Moisture	%	8.9	2.9	4.5	18	7.5

Moisture						
Our Reference		183121-27	183121-28	183121-29	183121-30	183121-31
Your Reference	UNITS	BH117/0.6-0.8	BH117/1.5-1.6	BH118/0.5-0.6	BH119/0.5-0.6	BH119/1-1.1
Date Sampled		10/01/18	10/01/18	10/01/18	10/01/18	10/01/18
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	12/01/2018	12/01/2018	12/01/2018	12/01/2018	12/01/2018
Date analysed	-	15/01/2018	15/01/2018	15/01/2018	15/01/2018	15/01/2018
Moisture	%	12	7.8	6.9	3.4	1.3

Moisture						
Our Reference		183121-32	183121-33	183121-34	183121-35	183121-36
Your Reference	UNITS	BH120/0-0.1	BH121/0-0.05	BH122/0-0.1	BH122/0.5-0.6	BD1/20180109
Date Sampled		10/01/18	10/01/18	10/01/18	10/01/18	09/01/18
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	12/01/2018	12/01/2018	12/01/2018	12/01/2018	12/01/2018
Date analysed	-	15/01/2018	15/01/2018	15/01/2018	15/01/2018	15/01/2018
Moisture	%	9.0	21	3.0	1.7	5.8

Moisture				
Our Reference		183121-37	183121-38	183121-39
Your Reference	UNITS	BD3/20180109	BD4/20180110	BD1/20180110
Date Sampled		09/01/18	10/01/18	10/01/18
Type of sample		Soil	Soil	Soil
Date prepared	-	12/01/2018	12/01/2018	12/01/2018
Date analysed	-	15/01/2018	15/01/2018	15/01/2018
Moisture	%	1.9	2.1	12

Asbestos ID - soils						
Our Reference	UNITS	183121-1	183121-2	183121-3	183121-4	183121-5
Your Reference		BH101/0.5-0.7	BH101/1.4-1.6	BH102/0-0.3	BH103/0-0.3	BH103/0.5-0.7
Date Sampled		09/01/18	09/01/18	09/01/18	09/01/18	09/01/18
Type of sample		Soil	Soil	Soil	Soil	Soil
Date analysed	-	15/01/2018	15/01/2018	15/01/2018	15/01/2018	15/01/2018
Sample mass tested	g	Approx. 35g	Approx. 35g	Approx. 35g	Approx. 35g	Approx. 40g
Sample Description	-	Brown sandy soil	Brown sandy soil	Brown sandy soil	Brown sandy soil	Brown sandy soil
Asbestos ID in soil	-	No asbestos detected at reporting limit of 0.1g/kg	No asbestos detected at reporting limit of 0.1g/kg	No asbestos detected at reporting limit of 0.1g/kg	No asbestos detected at reporting limit of 0.1g/kg	No asbestos detected at reporting limit of 0.1g/kg
		Organic fibres detected	Organic fibres detected	Organic fibres detected	Organic fibres detected	Organic fibres detected
Trace Analysis	-	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected

Asbestos ID - soils

Our Reference		183121-6	183121-7	183121-8	183121-10	183121-12
Your Reference	UNITS	BH104/0-0.3	BH105/0.3-0.5	BH105/0.5-0.7	BH106/0.5-0.7	BH107/0-0.2
Date Sampled		09/01/18	09/01/18	09/01/18	09/01/18	09/01/18
Type of sample		Soil	Soil	Soil	Soil	Soil
Date analysed	-	15/01/2018	15/01/2018	15/01/2018	15/01/2018	15/01/2018
Sample mass tested	g	Approx. 35g	Approx. 40g	Approx. 40g	Approx. 45g	Approx. 40g
Sample Description	-	Brown sandy soil	Brown sandy soil	Brown sandy soil	Brown sandy soil	Brown sandy soil
Asbestos ID in soil	-	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected
Trace Analysis	-	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected

Asbestos ID - soils

Our Reference		183121-13	183121-14	183121-15	183121-16	183121-17
Your Reference	UNITS	BH108/0-0.2	BH108/0.7-0.8	BH109/0-0.2	BH110/0-0.2	BH110/0.5-0.7
Date Sampled		09/01/18	09/01/18	09/01/18	09/01/18	09/01/18
Type of sample		Soil	Soil	Soil	Soil	Soil
Date analysed	-	15/01/2018	15/01/2018	15/01/2018	15/01/2018	15/01/2018
Sample mass tested	g	Approx. 35g	Approx. 30g	Approx. 35g	Approx. 30g	Approx. 35g
Sample Description	-	Brown sandy soil	Brown sandy soil	Brown sandy soil	Brown sandy soil	Brown sandy soil
Asbestos ID in soil	-	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected
Trace Analysis	-	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected

Asbestos ID - soils						
Our Reference		183121-18	183121-19	183121-20	183121-21	183121-22
Your Reference	UNITS	BH111/0-0.2	BH112/0-0.2	BH112/0.6-0.7	BH113/0.1-0.3	BH113/0.5-0.7
Date Sampled		10/01/18	10/01/18	10/01/18	10/01/18	10/01/18
Type of sample		Soil	Soil	Soil	Soil	Soil
Date analysed	-	15/01/2018	15/01/2018	15/01/2018	15/01/2018	15/01/2018
Sample mass tested	g	Approx. 35g	Approx. 35g	Approx. 40g	Approx. 40g	Approx. 35g
Sample Description	-	Brown sandy soil	Brown sandy soil	Brown sandy soil	Brown sandy soil	Brown sandy soil
Asbestos ID in soil	-	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected
Trace Analysis	-	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected

Client Reference: 72505.12, Randwick Campus Redevelopment

Asbestos ID - soils						
Our Reference		183121-23	183121-24	183121-25	183121-26	183121-27
Your Reference	UNITS	BH114/0.5-0.7	BH115/0-0.2	BH115/0.5-0.7	BH116/0-0.2	BH117/0.6-0.8
Date Sampled		10/01/18	10/01/18	10/01/18	10/01/18	10/01/18
Type of sample		Soil	Soil	Soil	Soil	Soil
Date analysed	-	15/01/2018	15/01/2018	15/01/2018	15/01/2018	15/01/2018
Sample mass tested	g	Approx. 45g	Approx. 35g	Approx. 40g	Approx. 35g	Approx. 35g
Sample Description	-	Brown sandy soil	Brown sandy soil	Brown sandy soil	Brown sandy soil	Brown sandy soil
Asbestos ID in soil	-	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected
Trace Analysis	-	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected

Asbestos ID - soils						
Our Reference		183121-28	183121-29	183121-30	183121-31	183121-32
Your Reference	UNITS	BH117/1.5-1.6	BH118/0.5-0.6	BH119/0.5-0.6	BH119/1-1.1	BH120/0-0.1
Date Sampled		10/01/18	10/01/18	10/01/18	10/01/18	10/01/18
Type of sample		Soil	Soil	Soil	Soil	Soil
Date analysed	-	15/01/2018	15/01/2018	15/01/2018	15/01/2018	15/01/2018
Sample mass tested	g	Approx. 45g	Approx. 40g	Approx. 40g	Approx. 40g	Approx. 25g
Sample Description	-	Brown sandy soil	Brown sandy soil	Brown sandy soil	Brown sandy soil	Brown sandy soil
Asbestos ID in soil	-	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected
Trace Analysis	-	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected

Asbestos ID - soils				
Our Reference		183121-33	183121-34	183121-35
Your Reference	UNITS	BH121/0-0.05	BH122/0-0.1	BH122/0.5-0.6
Date Sampled		10/01/18	10/01/18	10/01/18
Type of sample		Soil	Soil	Soil
Date analysed	-	15/01/2018	15/01/2018	15/01/2018
Sample mass tested	g	Approx. 30g	Approx. 40g	Approx. 45g
Sample Description	-	Brown sandy soil	Brown sandy soil	Brown sandy soil
Asbestos ID in soil	-	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected
Trace Analysis	-	No asbestos detected	No asbestos detected	No asbestos detected

Asbestos ID - soils NEPM		
Our Reference		183121-9
Your Reference	UNITS	BH106/0-0.2
Date Sampled		09/01/18
Type of sample		Soil
Date analysed	-	12/01/2018
Sample mass tested	g	1,248.89
Sample Description	-	Brown sandy soil
Asbestos ID in soil (AS4964) >0.1g/kg	-	No asbestos detected at reporting limit of 0.1g/kg Organic fibre detected
Trace Analysis	-	No asbestos detected
Total Asbestos ^{#1}	g/kg	<0.1
Asbestos ID in soil <0.1g/kg*	-	No visible asbestos detected
ACM >7mm Estimation*	g	—
FA and AF Estimation*	g	—
FA and AF Estimation*#2	%(w/w)	<0.001

Asbestos ID - materials		
Our Reference	UNITS	183121-11
Your Reference		BH106/0-0.2
Date Sampled		09/01/18
Type of sample		Fragment
Date analysed	-	12/01/2018
Mass / Dimension of Sample	-	56x45x5mm
Sample Description	-	Grey compressed fibre cement material
Asbestos ID in materials	-	Chrysotile asbestos detected

Method ID	Methodology Summary
ASB-001	Asbestos ID - Qualitative identification of asbestos in bulk samples using Polarised Light Microscopy and Dispersion Staining Techniques including Synthetic Mineral Fibre and Organic Fibre as per Australian Standard 4964-2004.
ASB-001	Asbestos ID - Identification of asbestos in soil samples using Polarised Light Microscopy and Dispersion Staining Techniques. Minimum 500mL soil sample was analysed as recommended by "National Environment Protection (Assessment of site contamination) Measure, Schedule B1 and "The Guidelines from the Assessment, Remediation and Management of Asbestos-Contaminated Sites in Western Australia - May 2009" with a reporting limit of 0.1g/kg (0.01% w/w) as per Australian Standard AS4964-2004. Results reported denoted with * are outside our scope of NATA accreditation. NOTE #1 Total Asbestos g/kg was analysed and reported as per Australian Standard AS4964 (This is the sum of ACM >7mm, <7mm and FA/AF) NOTE #2 The screening level of 0.001% w/w asbestos in soil for FA and AF only applies where the FA and AF are able to be quantified by gravimetric procedures. This screening level is not applicable to free fibres. Estimation = Estimated asbestos weight Results reported with "---" is equivalent to no visible asbestos identified using Polarised Light microscopy and Dispersion Staining Techniques.
Inorg-001	pH - Measured using pH meter and electrode in accordance with APHA latest edition, 4500-H+. Please note that the results for water analyses are indicative only, as analysis outside of the APHA storage times.
Inorg-008	Moisture content determined by heating at 105+/-5 °C for a minimum of 12 hours.
Inorg-031	Total Phenolics by segmented flow analyser (in line distillation with colourimetric finish). Solids are extracted in a caustic media prior to analysis.
Metals-009	Determination of exchangeable cations and cation exchange capacity in soils using 1M Ammonium Chloride exchange and ICP-AES analytical finish.
Metals-020	Determination of various metals by ICP-AES.
Metals-021	Determination of Mercury by Cold Vapour AAS.
Org-003	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID. F2 = (>C10-C16)-Naphthalene as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater (HSLs Tables 1A (3, 4)). Note Naphthalene is determined from the VOC analysis.

Method ID	Methodology Summary
Org-003	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID. F2 = (>C10-C16)-Naphthalene as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater (HSLs Tables 1A (3, 4)). Note Naphthalene is determined from the VOC analysis. Note, the Total +ve TRH PQL is reflective of the lowest individual PQL and is therefore "Total +ve TRH" is simply a sum of the positive individual TRH fractions (>C10-C40).
Org-005	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC with dual ECD's.
Org-005	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC with dual ECD's. Note, the Total +ve reported DDD+DDE+DDT PQL is reflective of the lowest individual PQL and is therefore simply a sum of the positive individually report DDD+DDE+DDT.
Org-006	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC-ECD.
Org-006	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC-ECD. Note, the Total +ve PCBs PQL is reflective of the lowest individual PQL and is therefore "Total +ve PCBs" is simply a sum of the positive individual PCBs.
Org-008	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC with dual ECD's.
Org-012	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS. Benzo(a)pyrene TEQ as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater - 2013. For soil results:- 1. 'EQ PQL' values are assuming all contributing PAHs reported as <PQL are actually at the PQL. This is the most conservative approach and can give false positive TEQs given that PAHs that contribute to the TEQ calculation may not be present. 2. 'EQ zero' values are assuming all contributing PAHs reported as <PQL are zero. This is the least conservative approach and is more susceptible to false negative TEQs when PAHs that contribute to the TEQ calculation are present but below PQL. 3. 'EQ half PQL' values are assuming all contributing PAHs reported as <PQL are half the stipulated PQL. Hence a mid-point between the most and least conservative approaches above. Note, the Total +ve PAHs PQL is reflective of the lowest individual PQL and is therefore "Total +ve PAHs" is simply a sum of the positive individual PAHs.
Org-014	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS.
Org-016	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS. Water samples are analysed directly by purge and trap GC-MS. F1 = (C6-C10)-BTX as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater.
Org-016	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS. Water samples are analysed directly by purge and trap GC-MS. F1 = (C6-C10)-BTX as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater. Note, the Total +ve Xylene PQL is reflective of the lowest individual PQL and is therefore "Total +ve Xylenes" is simply a sum of the positive individual Xylenes.

Client Reference: 72505.12, Randwick Campus Redevelopment

QUALITY CONTROL: vTRH(C6-C10)/BTEXN in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-4	183121-23
Date extracted	-			12/01/2018	10	12/01/2018	12/01/2018		12/01/2018	12/01/2018
Date analysed	-			15/01/2018	10	15/01/2018	15/01/2018		15/01/2018	15/01/2018
TRH C ₆ - C ₉	mg/kg	25	Org-016	<25	10	<25	<25	0	112	123
TRH C ₆ - C ₁₀	mg/kg	25	Org-016	<25	10	<25	<25	0	112	123
Benzene	mg/kg	0.2	Org-016	<0.2	10	<0.2	<0.2	0	96	106
Toluene	mg/kg	0.5	Org-016	<0.5	10	<0.5	<0.5	0	109	116
Ethylbenzene	mg/kg	1	Org-016	<1	10	<1	<1	0	116	129
m+p-xylene	mg/kg	2	Org-016	<2	10	<2	<2	0	119	133
o-Xylene	mg/kg	1	Org-016	<1	10	<1	<1	0	118	136
naphthalene	mg/kg	1	Org-014	<1	10	<1	<1	0	[NT]	[NT]
Surrogate aaa-Trifluorotoluene	%		Org-016	110	10	113	120	6	113	114

QUALITY CONTROL: vTRH(C6-C10)/BTEXN in Soil						Duplicate		Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-5	183121-3
Date extracted	-			[NT]	21	12/01/2018	12/01/2018		12/01/2018	12/01/2018
Date analysed	-			[NT]	21	15/01/2018	15/01/2018		15/01/2018	15/01/2018
TRH C ₆ - C ₉	mg/kg	25	Org-016	[NT]	21	<25	<25	0	103	105
TRH C ₆ - C ₁₀	mg/kg	25	Org-016	[NT]	21	<25	<25	0	103	105
Benzene	mg/kg	0.2	Org-016	[NT]	21	<0.2	<0.2	0	96	89
Toluene	mg/kg	0.5	Org-016	[NT]	21	<0.5	<0.5	0	109	100
Ethylbenzene	mg/kg	1	Org-016	[NT]	21	<1	<1	0	100	110
m+p-xylene	mg/kg	2	Org-016	[NT]	21	<2	<2	0	104	114
o-Xylene	mg/kg	1	Org-016	[NT]	21	<1	<1	0	105	111
naphthalene	mg/kg	1	Org-014	[NT]	21	<1	<1	0	[NT]	[NT]
Surrogate aaa-Trifluorotoluene	%		Org-016	[NT]	21	112	114	2	111	110

QUALITY CONTROL: vTRH(C6-C10)/BTEXN in Soil						Duplicate		Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	32	12/01/2018	12/01/2018		[NT]	[NT]
Date analysed	-			[NT]	32	15/01/2018	15/01/2018		[NT]	[NT]
TRH C ₆ - C ₉	mg/kg	25	Org-016	[NT]	32	<25	<25	0	[NT]	[NT]
TRH C ₆ - C ₁₀	mg/kg	25	Org-016	[NT]	32	<25	<25	0	[NT]	[NT]
Benzene	mg/kg	0.2	Org-016	[NT]	32	<0.2	<0.2	0	[NT]	[NT]
Toluene	mg/kg	0.5	Org-016	[NT]	32	<0.5	<0.5	0	[NT]	[NT]
Ethylbenzene	mg/kg	1	Org-016	[NT]	32	<1	<1	0	[NT]	[NT]
m+p-xylene	mg/kg	2	Org-016	[NT]	32	<2	<2	0	[NT]	[NT]
o-Xylene	mg/kg	1	Org-016	[NT]	32	<1	<1	0	[NT]	[NT]
naphthalene	mg/kg	1	Org-014	[NT]	32	<1	<1	0	[NT]	[NT]
Surrogate aaa-Trifluorotoluene	%		Org-016	[NT]	32	109	105	4	[NT]	[NT]

Client Reference: 72505.12, Randwick Campus Redevelopment

QUALITY CONTROL: vTRH(C6-C10)/BTEXN in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	1	12/01/2018	12/01/2018		[NT]	[NT]
Date analysed	-			[NT]	1	15/01/2018	15/01/2018		[NT]	[NT]
TRH C ₆ - C ₉	mg/kg	25	Org-016	[NT]	1	<25	<25	0	[NT]	[NT]
TRH C ₆ - C ₁₀	mg/kg	25	Org-016	[NT]	1	<25	<25	0	[NT]	[NT]
Benzene	mg/kg	0.2	Org-016	[NT]	1	<0.2	<0.2	0	[NT]	[NT]
Toluene	mg/kg	0.5	Org-016	[NT]	1	<0.5	<0.5	0	[NT]	[NT]
Ethylbenzene	mg/kg	1	Org-016	[NT]	1	<1	<1	0	[NT]	[NT]
m+p-xylene	mg/kg	2	Org-016	[NT]	1	<2	<2	0	[NT]	[NT]
o-Xylene	mg/kg	1	Org-016	[NT]	1	<1	<1	0	[NT]	[NT]
naphthalene	mg/kg	1	Org-014	[NT]	1	<1	<1	0	[NT]	[NT]
Surrogate aaa-Trifluorotoluene	%		Org-016	[NT]	1	112	106	6	[NT]	[NT]

Client Reference: 72505.12, Randwick Campus Redevelopment

QUALITY CONTROL: svTRH (C10-C40) in Soil					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-4	183121-23
Date extracted	-			15/01/2018	10	12/01/2018	12/01/2018		12/01/2018	12/01/2018
Date analysed	-			13/01/2018	10	12/01/2018	12/01/2018		12/01/2018	13/01/2018
TRH C ₁₀ - C ₁₄	mg/kg	50	Org-003	<50	10	<50	<50	0	105	112
TRH C ₁₅ - C ₂₈	mg/kg	100	Org-003	<100	10	<100	<100	0	103	106
TRH C ₂₉ - C ₃₆	mg/kg	100	Org-003	<100	10	<100	<100	0	92	98
TRH >C ₁₀ -C ₁₆	mg/kg	50	Org-003	<50	10	<50	<50	0	105	112
TRH >C ₁₆ -C ₃₄	mg/kg	100	Org-003	<100	10	<100	<100	0	103	106
TRH >C ₃₄ -C ₄₀	mg/kg	100	Org-003	<100	10	<100	<100	0	92	98
Surrogate o-Terphenyl	%		Org-003	96	10	92	93	1	94	89

QUALITY CONTROL: svTRH (C10-C40) in Soil					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-5	183121-3
Date extracted	-			[NT]	21	12/01/2018	12/01/2018		12/01/2018	12/01/2018
Date analysed	-			[NT]	21	13/01/2018	13/01/2018		13/01/2018	12/01/2018
TRH C ₁₀ - C ₁₄	mg/kg	50	Org-003	[NT]	21	<50	<50	0	118	115
TRH C ₁₅ - C ₂₈	mg/kg	100	Org-003	[NT]	21	<100	<100	0	104	104
TRH C ₂₉ - C ₃₆	mg/kg	100	Org-003	[NT]	21	<100	<100	0	108	92
TRH >C ₁₀ -C ₁₆	mg/kg	50	Org-003	[NT]	21	<50	<50	0	118	115
TRH >C ₁₆ -C ₃₄	mg/kg	100	Org-003	[NT]	21	<100	<100	0	104	104
TRH >C ₃₄ -C ₄₀	mg/kg	100	Org-003	[NT]	21	<100	<100	0	108	92
Surrogate o-Terphenyl	%		Org-003	[NT]	21	87	88	1	96	89

QUALITY CONTROL: svTRH (C10-C40) in Soil					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	32	12/01/2018	12/01/2018		[NT]	[NT]
Date analysed	-			[NT]	32	13/01/2018	13/01/2018		[NT]	[NT]
TRH C ₁₀ - C ₁₄	mg/kg	50	Org-003	[NT]	32	<50	<50	0	[NT]	[NT]
TRH C ₁₅ - C ₂₈	mg/kg	100	Org-003	[NT]	32	<100	<100	0	[NT]	[NT]
TRH C ₂₉ - C ₃₆	mg/kg	100	Org-003	[NT]	32	180	120	40	[NT]	[NT]
TRH >C ₁₀ -C ₁₆	mg/kg	50	Org-003	[NT]	32	<50	<50	0	[NT]	[NT]
TRH >C ₁₆ -C ₃₄	mg/kg	100	Org-003	[NT]	32	210	130	47	[NT]	[NT]
TRH >C ₃₄ -C ₄₀	mg/kg	100	Org-003	[NT]	32	100	<100	0	[NT]	[NT]
Surrogate o-Terphenyl	%		Org-003	[NT]	32	87	86	1	[NT]	[NT]

Client Reference: 72505.12, Randwick Campus Redevelopment

QUALITY CONTROL: svTRH (C10-C40) in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	1	12/01/2018	12/01/2018		[NT]	[NT]
Date analysed	-			[NT]	1	12/01/2018	12/01/2018		[NT]	[NT]
TRH C ₁₀ - C ₁₄	mg/kg	50	Org-003	[NT]	1	<50	<50	0	[NT]	[NT]
TRH C ₁₅ - C ₂₈	mg/kg	100	Org-003	[NT]	1	<100	<100	0	[NT]	[NT]
TRH C ₂₉ - C ₃₆	mg/kg	100	Org-003	[NT]	1	<100	<100	0	[NT]	[NT]
TRH >C ₁₀ -C ₁₆	mg/kg	50	Org-003	[NT]	1	<50	<50	0	[NT]	[NT]
TRH >C ₁₆ -C ₃₄	mg/kg	100	Org-003	[NT]	1	<100	<100	0	[NT]	[NT]
TRH >C ₃₄ -C ₄₀	mg/kg	100	Org-003	[NT]	1	<100	<100	0	[NT]	[NT]
Surrogate o-Terphenyl	%		Org-003	[NT]	1	91	89	2	[NT]	[NT]

Client Reference: 72505.12, Randwick Campus Redevelopment

QUALITY CONTROL: PAHs in Soil					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-4	183121-23
Date extracted	-			12/01/2018	10	12/01/2018	12/01/2018		12/01/2018	12/01/2018
Date analysed	-			12/01/2018	10	12/01/2018	12/01/2018		12/01/2018	12/01/2018
Naphthalene	mg/kg	0.1	Org-012	<0.1	10	<0.1	<0.1	0	87	79
Acenaphthylene	mg/kg	0.1	Org-012	<0.1	10	<0.1	<0.1	0	[NT]	[NT]
Acenaphthene	mg/kg	0.1	Org-012	<0.1	10	<0.1	<0.1	0	[NT]	[NT]
Fluorene	mg/kg	0.1	Org-012	<0.1	10	<0.1	<0.1	0	106	104
Phenanthrene	mg/kg	0.1	Org-012	<0.1	10	0.2	0.2	0	91	78
Anthracene	mg/kg	0.1	Org-012	<0.1	10	<0.1	<0.1	0	[NT]	[NT]
Fluoranthene	mg/kg	0.1	Org-012	<0.1	10	0.8	0.9	12	88	75
Pyrene	mg/kg	0.1	Org-012	<0.1	10	1	1.1	10	109	95
Benzo(a)anthracene	mg/kg	0.1	Org-012	<0.1	10	0.7	0.7	0	[NT]	[NT]
Chrysene	mg/kg	0.1	Org-012	<0.1	10	0.7	0.7	0	87	91
Benzo(b,j,k)fluoranthene	mg/kg	0.2	Org-012	<0.2	10	1	1	0	[NT]	[NT]
Benzo(a)pyrene	mg/kg	0.05	Org-012	<0.05	10	0.91	0.82	10	79	79
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1	Org-012	<0.1	10	0.5	0.5	0	[NT]	[NT]
Dibenzo(a,h)anthracene	mg/kg	0.1	Org-012	<0.1	10	0.1	0.1	0	[NT]	[NT]
Benzo(g,h,i)perylene	mg/kg	0.1	Org-012	<0.1	10	0.7	0.6	15	[NT]	[NT]
Surrogate p-Terphenyl-d14	%		Org-012	100	10	99	101	2	124	117

QUALITY CONTROL: PAHs in Soil					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-5	183121-3
Date extracted	-			[NT]	21	12/01/2018	12/01/2018		12/01/2018	12/01/2018
Date analysed	-			[NT]	21	12/01/2018	12/01/2018		12/01/2018	12/01/2018
Naphthalene	mg/kg	0.1	Org-012	[NT]	21	<0.1	<0.1	0	87	79
Acenaphthylene	mg/kg	0.1	Org-012	[NT]	21	<0.1	<0.1	0	[NT]	[NT]
Acenaphthene	mg/kg	0.1	Org-012	[NT]	21	<0.1	<0.1	0	[NT]	[NT]
Fluorene	mg/kg	0.1	Org-012	[NT]	21	<0.1	<0.1	0	109	105
Phenanthrene	mg/kg	0.1	Org-012	[NT]	21	0.1	<0.1	0	92	74
Anthracene	mg/kg	0.1	Org-012	[NT]	21	<0.1	<0.1	0	[NT]	[NT]
Fluoranthene	mg/kg	0.1	Org-012	[NT]	21	0.3	0.2	40	87	68
Pyrene	mg/kg	0.1	Org-012	[NT]	21	0.4	0.2	67	107	86
Benzo(a)anthracene	mg/kg	0.1	Org-012	[NT]	21	0.2	0.1	67	[NT]	[NT]
Chrysene	mg/kg	0.1	Org-012	[NT]	21	0.2	<0.1	67	86	79
Benzo(b,j,k)fluoranthene	mg/kg	0.2	Org-012	[NT]	21	0.4	<0.2	67	[NT]	[NT]
Benzo(a)pyrene	mg/kg	0.05	Org-012	[NT]	21	0.2	0.1	67	80	67
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1	Org-012	[NT]	21	0.1	<0.1	0	[NT]	[NT]
Dibenzo(a,h)anthracene	mg/kg	0.1	Org-012	[NT]	21	<0.1	<0.1	0	[NT]	[NT]
Benzo(g,h,i)perylene	mg/kg	0.1	Org-012	[NT]	21	0.2	<0.1	67	[NT]	[NT]
Surrogate p-Terphenyl-d14	%		Org-012	[NT]	21	99	104	5	98	97

QUALITY CONTROL: PAHs in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	32	12/01/2018	12/01/2018		[NT]	[NT]
Date analysed	-			[NT]	32	12/01/2018	12/01/2018		[NT]	[NT]
Naphthalene	mg/kg	0.1	Org-012	[NT]	32	<0.1	<0.1	0	[NT]	[NT]
Acenaphthylene	mg/kg	0.1	Org-012	[NT]	32	<0.1	<0.1	0	[NT]	[NT]
Acenaphthene	mg/kg	0.1	Org-012	[NT]	32	<0.1	<0.1	0	[NT]	[NT]
Fluorene	mg/kg	0.1	Org-012	[NT]	32	<0.1	<0.1	0	[NT]	[NT]
Phenanthrene	mg/kg	0.1	Org-012	[NT]	32	<0.1	0.1	0	[NT]	[NT]
Anthracene	mg/kg	0.1	Org-012	[NT]	32	<0.1	<0.1	0	[NT]	[NT]
Fluoranthene	mg/kg	0.1	Org-012	[NT]	32	0.1	0.2	67	[NT]	[NT]
Pyrene	mg/kg	0.1	Org-012	[NT]	32	0.1	0.2	67	[NT]	[NT]
Benzo(a)anthracene	mg/kg	0.1	Org-012	[NT]	32	<0.1	<0.1	0	[NT]	[NT]
Chrysene	mg/kg	0.1	Org-012	[NT]	32	<0.1	<0.1	0	[NT]	[NT]
Benzo(b,j+k)fluoranthene	mg/kg	0.2	Org-012	[NT]	32	<0.2	<0.2	0	[NT]	[NT]
Benzo(a)pyrene	mg/kg	0.05	Org-012	[NT]	32	0.07	0.09	25	[NT]	[NT]
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1	Org-012	[NT]	32	<0.1	<0.1	0	[NT]	[NT]
Dibenzo(a,h)anthracene	mg/kg	0.1	Org-012	[NT]	32	<0.1	<0.1	0	[NT]	[NT]
Benzo(g,h,i)perylene	mg/kg	0.1	Org-012	[NT]	32	<0.1	<0.1	0	[NT]	[NT]
Surrogate p-Terphenyl-d14	%		Org-012	[NT]	32	100	101	1	[NT]	[NT]

QUALITY CONTROL: PAHs in Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	1	12/01/2018	12/01/2018		[NT]	[NT]
Date analysed	-			[NT]	1	12/01/2018	12/01/2018		[NT]	[NT]
Naphthalene	mg/kg	0.1	Org-012	[NT]	1	<0.1	<0.1	0	[NT]	[NT]
Acenaphthylene	mg/kg	0.1	Org-012	[NT]	1	<0.1	<0.1	0	[NT]	[NT]
Acenaphthene	mg/kg	0.1	Org-012	[NT]	1	<0.1	<0.1	0	[NT]	[NT]
Fluorene	mg/kg	0.1	Org-012	[NT]	1	<0.1	<0.1	0	[NT]	[NT]
Phenanthrene	mg/kg	0.1	Org-012	[NT]	1	<0.1	0.2	67	[NT]	[NT]
Anthracene	mg/kg	0.1	Org-012	[NT]	1	<0.1	<0.1	0	[NT]	[NT]
Fluoranthene	mg/kg	0.1	Org-012	[NT]	1	0.2	0.4	67	[NT]	[NT]
Pyrene	mg/kg	0.1	Org-012	[NT]	1	0.2	0.4	67	[NT]	[NT]
Benzo(a)anthracene	mg/kg	0.1	Org-012	[NT]	1	0.1	0.2	67	[NT]	[NT]
Chrysene	mg/kg	0.1	Org-012	[NT]	1	0.1	0.2	67	[NT]	[NT]
Benzo(b,j+k)fluoranthene	mg/kg	0.2	Org-012	[NT]	1	0.2	0.4	67	[NT]	[NT]
Benzo(a)pyrene	mg/kg	0.05	Org-012	[NT]	1	0.1	0.2	67	[NT]	[NT]
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1	Org-012	[NT]	1	<0.1	0.1	0	[NT]	[NT]
Dibenzo(a,h)anthracene	mg/kg	0.1	Org-012	[NT]	1	<0.1	<0.1	0	[NT]	[NT]
Benzo(g,h,i)perylene	mg/kg	0.1	Org-012	[NT]	1	<0.1	0.2	67	[NT]	[NT]
Surrogate p-Terphenyl-d14	%		Org-012	[NT]	1	99	97	2	[NT]	[NT]

Client Reference: 72505.12, Randwick Campus Redevelopment

QUALITY CONTROL: Organochlorine Pesticides in soil					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-4	183121-23
Date extracted	-			12/01/2018	21	12/01/2018	12/01/2018		12/01/2018	12/01/2018
Date analysed	-			12/01/2018	21	12/01/2018	12/01/2018		12/01/2018	12/01/2018
HCB	mg/kg	0.1	Org-005	<0.1	21	<0.1	<0.1	0	[NT]	[NT]
alpha-BHC	mg/kg	0.1	Org-005	<0.1	21	<0.1	<0.1	0	85	100
gamma-BHC	mg/kg	0.1	Org-005	<0.1	21	<0.1	<0.1	0	[NT]	[NT]
beta-BHC	mg/kg	0.1	Org-005	<0.1	21	<0.1	<0.1	0	104	108
Heptachlor	mg/kg	0.1	Org-005	<0.1	21	<0.1	<0.1	0	96	100
delta-BHC	mg/kg	0.1	Org-005	<0.1	21	<0.1	<0.1	0	[NT]	[NT]
Aldrin	mg/kg	0.1	Org-005	<0.1	21	<0.1	<0.1	0	104	108
Heptachlor Epoxide	mg/kg	0.1	Org-005	<0.1	21	<0.1	<0.1	0	105	108
gamma-Chlordane	mg/kg	0.1	Org-005	<0.1	21	<0.1	<0.1	0	[NT]	[NT]
alpha-chlordane	mg/kg	0.1	Org-005	<0.1	21	<0.1	<0.1	0	[NT]	[NT]
Endosulfan I	mg/kg	0.1	Org-005	<0.1	21	<0.1	<0.1	0	[NT]	[NT]
pp-DDE	mg/kg	0.1	Org-005	<0.1	21	<0.1	<0.1	0	105	109
Dieldrin	mg/kg	0.1	Org-005	<0.1	21	<0.1	<0.1	0	105	110
Endrin	mg/kg	0.1	Org-005	<0.1	21	<0.1	<0.1	0	95	100
pp-DDD	mg/kg	0.1	Org-005	<0.1	21	<0.1	<0.1	0	99	110
Endosulfan II	mg/kg	0.1	Org-005	<0.1	21	<0.1	<0.1	0	[NT]	[NT]
pp-DDT	mg/kg	0.1	Org-005	<0.1	21	<0.1	<0.1	0	[NT]	[NT]
Endrin Aldehyde	mg/kg	0.1	Org-005	<0.1	21	<0.1	<0.1	0	[NT]	[NT]
Endosulfan Sulphate	mg/kg	0.1	Org-005	<0.1	21	<0.1	<0.1	0	92	100
Methoxychlor	mg/kg	0.1	Org-005	<0.1	21	<0.1	<0.1	0	[NT]	[NT]
Surrogate TCMX	%		Org-005	103	21	104	104	0	123	128

Client Reference: 72505.12, Randwick Campus Redevelopment

QUALITY CONTROL: Organochlorine Pesticides in soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-5	183121-3
Date extracted	-			[NT]	32	12/01/2018	12/01/2018		12/01/2018	12/01/2018
Date analysed	-			[NT]	32	12/01/2018	12/01/2018		12/01/2018	12/01/2018
HCB	mg/kg	0.1	Org-005	[NT]	32	<0.1	<0.1	0	[NT]	[NT]
alpha-BHC	mg/kg	0.1	Org-005	[NT]	32	<0.1	<0.1	0	86	96
gamma-BHC	mg/kg	0.1	Org-005	[NT]	32	<0.1	<0.1	0	[NT]	[NT]
beta-BHC	mg/kg	0.1	Org-005	[NT]	32	<0.1	<0.1	0	104	105
Heptachlor	mg/kg	0.1	Org-005	[NT]	32	<0.1	<0.1	0	95	101
delta-BHC	mg/kg	0.1	Org-005	[NT]	32	<0.1	<0.1	0	[NT]	[NT]
Aldrin	mg/kg	0.1	Org-005	[NT]	32	<0.1	<0.1	0	104	103
Heptachlor Epoxide	mg/kg	0.1	Org-005	[NT]	32	<0.1	<0.1	0	105	104
gamma-Chlordane	mg/kg	0.1	Org-005	[NT]	32	<0.1	<0.1	0	[NT]	[NT]
alpha-chlordane	mg/kg	0.1	Org-005	[NT]	32	<0.1	<0.1	0	[NT]	[NT]
Endosulfan I	mg/kg	0.1	Org-005	[NT]	32	<0.1	<0.1	0	[NT]	[NT]
pp-DDE	mg/kg	0.1	Org-005	[NT]	32	<0.1	<0.1	0	106	105
Dieldrin	mg/kg	0.1	Org-005	[NT]	32	<0.1	<0.1	0	106	105
Endrin	mg/kg	0.1	Org-005	[NT]	32	<0.1	<0.1	0	95	100
pp-DDD	mg/kg	0.1	Org-005	[NT]	32	<0.1	<0.1	0	99	106
Endosulfan II	mg/kg	0.1	Org-005	[NT]	32	<0.1	<0.1	0	[NT]	[NT]
pp-DDT	mg/kg	0.1	Org-005	[NT]	32	<0.1	<0.1	0	[NT]	[NT]
Endrin Aldehyde	mg/kg	0.1	Org-005	[NT]	32	<0.1	<0.1	0	[NT]	[NT]
Endosulfan Sulphate	mg/kg	0.1	Org-005	[NT]	32	<0.1	<0.1	0	86	126
Methoxychlor	mg/kg	0.1	Org-005	[NT]	32	<0.1	<0.1	0	[NT]	[NT]
Surrogate TCMX	%		Org-005	[NT]	32	101	103	2	124	121

Client Reference: 72505.12, Randwick Campus Redevelopment

QUALITY CONTROL: Organochlorine Pesticides in soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	1	12/01/2018	12/01/2018		[NT]	[NT]
Date analysed	-			[NT]	1	12/01/2018	12/01/2018		[NT]	[NT]
HCB	mg/kg	0.1	Org-005	[NT]	1	<0.1	<0.1	0	[NT]	[NT]
alpha-BHC	mg/kg	0.1	Org-005	[NT]	1	<0.1	<0.1	0	[NT]	[NT]
gamma-BHC	mg/kg	0.1	Org-005	[NT]	1	<0.1	<0.1	0	[NT]	[NT]
beta-BHC	mg/kg	0.1	Org-005	[NT]	1	<0.1	<0.1	0	[NT]	[NT]
Heptachlor	mg/kg	0.1	Org-005	[NT]	1	<0.1	<0.1	0	[NT]	[NT]
delta-BHC	mg/kg	0.1	Org-005	[NT]	1	<0.1	<0.1	0	[NT]	[NT]
Aldrin	mg/kg	0.1	Org-005	[NT]	1	<0.1	<0.1	0	[NT]	[NT]
Heptachlor Epoxide	mg/kg	0.1	Org-005	[NT]	1	<0.1	<0.1	0	[NT]	[NT]
gamma-Chlordane	mg/kg	0.1	Org-005	[NT]	1	<0.1	<0.1	0	[NT]	[NT]
alpha-chlordane	mg/kg	0.1	Org-005	[NT]	1	<0.1	<0.1	0	[NT]	[NT]
Endosulfan I	mg/kg	0.1	Org-005	[NT]	1	<0.1	<0.1	0	[NT]	[NT]
pp-DDE	mg/kg	0.1	Org-005	[NT]	1	<0.1	<0.1	0	[NT]	[NT]
Dieldrin	mg/kg	0.1	Org-005	[NT]	1	<0.1	<0.1	0	[NT]	[NT]
Endrin	mg/kg	0.1	Org-005	[NT]	1	<0.1	<0.1	0	[NT]	[NT]
pp-DDD	mg/kg	0.1	Org-005	[NT]	1	<0.1	<0.1	0	[NT]	[NT]
Endosulfan II	mg/kg	0.1	Org-005	[NT]	1	<0.1	<0.1	0	[NT]	[NT]
pp-DDT	mg/kg	0.1	Org-005	[NT]	1	<0.1	<0.1	0	[NT]	[NT]
Endrin Aldehyde	mg/kg	0.1	Org-005	[NT]	1	<0.1	<0.1	0	[NT]	[NT]
Endosulfan Sulphate	mg/kg	0.1	Org-005	[NT]	1	<0.1	<0.1	0	[NT]	[NT]
Methoxychlor	mg/kg	0.1	Org-005	[NT]	1	<0.1	<0.1	0	[NT]	[NT]
Surrogate TCMX	%		Org-005	[NT]	1	103	105	2	[NT]	[NT]

Client Reference: 72505.12, Randwick Campus Redevelopment

QUALITY CONTROL: Organophosphorus Pesticides					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-4	183121-23
Date extracted	-			12/01/2018	21	12/01/2018	12/01/2018		12/01/2018	12/01/2018
Date analysed	-			12/01/2018	21	12/01/2018	12/01/2018		12/01/2018	12/01/2018
Azinphos-methyl (Guthion)	mg/kg	0.1	Org-008	<0.1	21	<0.1	<0.1	0	[NT]	[NT]
Bromophos-ethyl	mg/kg	0.1	Org-008	<0.1	21	<0.1	<0.1	0	[NT]	[NT]
Chlorpyrifos	mg/kg	0.1	Org-008	<0.1	21	<0.1	<0.1	0	79	89
Chlorpyrifos-methyl	mg/kg	0.1	Org-008	<0.1	21	<0.1	<0.1	0	[NT]	[NT]
Diazinon	mg/kg	0.1	Org-008	<0.1	21	<0.1	<0.1	0	[NT]	[NT]
Dichlorvos	mg/kg	0.1	Org-008	<0.1	21	<0.1	<0.1	0	88	89
Dimethoate	mg/kg	0.1	Org-008	<0.1	21	<0.1	<0.1	0	[NT]	[NT]
Ethion	mg/kg	0.1	Org-008	<0.1	21	<0.1	<0.1	0	85	109
Fenitrothion	mg/kg	0.1	Org-008	<0.1	21	<0.1	<0.1	0	79	90
Malathion	mg/kg	0.1	Org-008	<0.1	21	<0.1	<0.1	0	75	109
Parathion	mg/kg	0.1	Org-008	<0.1	21	<0.1	<0.1	0	79	86
Ronnel	mg/kg	0.1	Org-008	<0.1	21	<0.1	<0.1	0	89	99
Surrogate TCMX	%		Org-008	103	21	104	104	0	95	101

QUALITY CONTROL: Organophosphorus Pesticides					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-5	183121-3
Date extracted	-			[NT]	32	12/01/2018	12/01/2018		12/01/2018	12/01/2018
Date analysed	-			[NT]	32	12/01/2018	12/01/2018		12/01/2018	12/01/2018
Azinphos-methyl (Guthion)	mg/kg	0.1	Org-008	[NT]	32	<0.1	<0.1	0	[NT]	[NT]
Bromophos-ethyl	mg/kg	0.1	Org-008	[NT]	32	<0.1	<0.1	0	[NT]	[NT]
Chlorpyrifos	mg/kg	0.1	Org-008	[NT]	32	<0.1	<0.1	0	81	92
Chlorpyrifos-methyl	mg/kg	0.1	Org-008	[NT]	32	<0.1	<0.1	0	[NT]	[NT]
Diazinon	mg/kg	0.1	Org-008	[NT]	32	<0.1	<0.1	0	[NT]	[NT]
Dichlorvos	mg/kg	0.1	Org-008	[NT]	32	<0.1	<0.1	0	84	94
Dimethoate	mg/kg	0.1	Org-008	[NT]	32	<0.1	<0.1	0	[NT]	[NT]
Ethion	mg/kg	0.1	Org-008	[NT]	32	<0.1	<0.1	0	86	110
Fenitrothion	mg/kg	0.1	Org-008	[NT]	32	<0.1	<0.1	0	81	90
Malathion	mg/kg	0.1	Org-008	[NT]	32	<0.1	<0.1	0	79	107
Parathion	mg/kg	0.1	Org-008	[NT]	32	<0.1	<0.1	0	87	91
Ronnel	mg/kg	0.1	Org-008	[NT]	32	<0.1	<0.1	0	91	102
Surrogate TCMX	%		Org-008	[NT]	32	101	103	2	99	105

Client Reference: 72505.12, Randwick Campus Redevelopment

QUALITY CONTROL: Organophosphorus Pesticides						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	1	12/01/2018	12/01/2018		[NT]	[NT]
Date analysed	-			[NT]	1	12/01/2018	12/01/2018		[NT]	[NT]
Azinphos-methyl (Guthion)	mg/kg	0.1	Org-008	[NT]	1	<0.1	<0.1	0	[NT]	[NT]
Bromophos-ethyl	mg/kg	0.1	Org-008	[NT]	1	<0.1	<0.1	0	[NT]	[NT]
Chlorpyrifos	mg/kg	0.1	Org-008	[NT]	1	<0.1	<0.1	0	[NT]	[NT]
Chlorpyrifos-methyl	mg/kg	0.1	Org-008	[NT]	1	<0.1	<0.1	0	[NT]	[NT]
Diazinon	mg/kg	0.1	Org-008	[NT]	1	<0.1	<0.1	0	[NT]	[NT]
Dichlorvos	mg/kg	0.1	Org-008	[NT]	1	<0.1	<0.1	0	[NT]	[NT]
Dimethoate	mg/kg	0.1	Org-008	[NT]	1	<0.1	<0.1	0	[NT]	[NT]
Ethion	mg/kg	0.1	Org-008	[NT]	1	<0.1	<0.1	0	[NT]	[NT]
Fenitrothion	mg/kg	0.1	Org-008	[NT]	1	<0.1	<0.1	0	[NT]	[NT]
Malathion	mg/kg	0.1	Org-008	[NT]	1	<0.1	<0.1	0	[NT]	[NT]
Parathion	mg/kg	0.1	Org-008	[NT]	1	<0.1	<0.1	0	[NT]	[NT]
Ronnel	mg/kg	0.1	Org-008	[NT]	1	<0.1	<0.1	0	[NT]	[NT]
Surrogate TCMX	%		Org-008	[NT]	1	103	105	2	[NT]	[NT]

Client Reference: 72505.12, Randwick Campus Redevelopment

QUALITY CONTROL: PCBs in Soil					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-4	183121-23
Date extracted	-			12/01/2018	21	12/01/2018	12/01/2018		12/01/2018	12/01/2018
Date analysed	-			12/01/2018	21	12/01/2018	12/01/2018		12/01/2018	12/01/2018
Aroclor 1016	mg/kg	0.1	Org-006	<0.1	21	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1221	mg/kg	0.1	Org-006	<0.1	21	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1232	mg/kg	0.1	Org-006	<0.1	21	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1242	mg/kg	0.1	Org-006	<0.1	21	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1248	mg/kg	0.1	Org-006	<0.1	21	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1254	mg/kg	0.1	Org-006	<0.1	21	<0.1	<0.1	0	100	104
Aroclor 1260	mg/kg	0.1	Org-006	<0.1	21	<0.1	<0.1	0	[NT]	[NT]
Surrogate TCLMX	%		Org-006	103	21	104	104	0	95	101

QUALITY CONTROL: PCBs in Soil					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-5	183121-3
Date extracted	-			[NT]	32	12/01/2018	12/01/2018		12/01/2018	12/01/2018
Date analysed	-			[NT]	32	12/01/2018	12/01/2018		12/01/2018	12/01/2018
Aroclor 1016	mg/kg	0.1	Org-006	[NT]	32	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1221	mg/kg	0.1	Org-006	[NT]	32	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1232	mg/kg	0.1	Org-006	[NT]	32	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1242	mg/kg	0.1	Org-006	[NT]	32	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1248	mg/kg	0.1	Org-006	[NT]	32	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1254	mg/kg	0.1	Org-006	[NT]	32	<0.1	<0.1	0	102	110
Aroclor 1260	mg/kg	0.1	Org-006	[NT]	32	<0.1	<0.1	0	[NT]	[NT]
Surrogate TCLMX	%		Org-006	[NT]	32	101	103	2	99	105

QUALITY CONTROL: PCBs in Soil					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	1	12/01/2018	12/01/2018		[NT]	[NT]
Date analysed	-			[NT]	1	12/01/2018	12/01/2018		[NT]	[NT]
Aroclor 1016	mg/kg	0.1	Org-006	[NT]	1	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1221	mg/kg	0.1	Org-006	[NT]	1	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1232	mg/kg	0.1	Org-006	[NT]	1	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1242	mg/kg	0.1	Org-006	[NT]	1	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1248	mg/kg	0.1	Org-006	[NT]	1	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1254	mg/kg	0.1	Org-006	[NT]	1	<0.1	<0.1	0	[NT]	[NT]
Aroclor 1260	mg/kg	0.1	Org-006	[NT]	1	<0.1	<0.1	0	[NT]	[NT]
Surrogate TCLMX	%		Org-006	[NT]	1	103	105	2	[NT]	[NT]

Client Reference: 72505.12, Randwick Campus Redevelopment

QUALITY CONTROL: Acid Extractable metals in soil					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-4	183121-23
Date prepared	-			12/01/2018	10	12/01/2018	12/01/2018		12/01/2018	12/01/2018
Date analysed	-			15/01/2018	10	15/01/2018	15/01/2018		15/01/2018	15/01/2018
Arsenic	mg/kg	4	Metals-020	<4	10	<4	<4	0	101	102
Cadmium	mg/kg	0.4	Metals-020	<0.4	10	<0.4	<0.4	0	107	107
Chromium	mg/kg	1	Metals-020	<1	10	4	3	29	102	104
Copper	mg/kg	1	Metals-020	<1	10	16	15	6	101	105
Lead	mg/kg	1	Metals-020	<1	10	90	64	34	99	109
Mercury	mg/kg	0.1	Metals-021	<0.1	10	<0.1	<0.1	0	115	104
Nickel	mg/kg	1	Metals-020	<1	10	2	2	0	101	101
Zinc	mg/kg	1	Metals-020	<1	10	100	75	29	103	89

QUALITY CONTROL: Acid Extractable metals in soil					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-5	183121-3
Date prepared	-			[NT]	21	12/01/2018	12/01/2018		12/01/2018	12/01/2018
Date analysed	-			[NT]	21	15/01/2018	15/01/2018		15/01/2018	15/01/2018
Arsenic	mg/kg	4	Metals-020	[NT]	21	<4	<4	0	101	103
Cadmium	mg/kg	0.4	Metals-020	[NT]	21	<0.4	<0.4	0	108	107
Chromium	mg/kg	1	Metals-020	[NT]	21	2	2	0	103	107
Copper	mg/kg	1	Metals-020	[NT]	21	7	7	0	100	##
Lead	mg/kg	1	Metals-020	[NT]	21	28	25	11	98	#
Mercury	mg/kg	0.1	Metals-021	[NT]	21	<0.1	<0.1	0	111	120
Nickel	mg/kg	1	Metals-020	[NT]	21	<1	<1	0	102	102
Zinc	mg/kg	1	Metals-020	[NT]	21	31	35	12	103	74

QUALITY CONTROL: Acid Extractable metals in soil					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date prepared	-			[NT]	32	12/01/2018	12/01/2018		[NT]	[NT]
Date analysed	-			[NT]	32	15/01/2018	15/01/2018		[NT]	[NT]
Arsenic	mg/kg	4	Metals-020	[NT]	32	13	13	0	[NT]	[NT]
Cadmium	mg/kg	0.4	Metals-020	[NT]	32	<0.4	<0.4	0	[NT]	[NT]
Chromium	mg/kg	1	Metals-020	[NT]	32	13	14	7	[NT]	[NT]
Copper	mg/kg	1	Metals-020	[NT]	32	35	30	15	[NT]	[NT]
Lead	mg/kg	1	Metals-020	[NT]	32	21	23	9	[NT]	[NT]
Mercury	mg/kg	0.1	Metals-021	[NT]	32	0.2	0.2	0	[NT]	[NT]
Nickel	mg/kg	1	Metals-020	[NT]	32	4	4	0	[NT]	[NT]
Zinc	mg/kg	1	Metals-020	[NT]	32	85	74	14	[NT]	[NT]

Client Reference: 72505.12, Randwick Campus Redevelopment

QUALITY CONTROL: Acid Extractable metals in soil						Duplicate		Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date prepared	-			[NT]	1	12/01/2018	12/01/2018		[NT]	[NT]
Date analysed	-			[NT]	1	15/01/2018	15/01/2018		[NT]	[NT]
Arsenic	mg/kg	4	Metals-020	[NT]	1	<4	<4	0	[NT]	[NT]
Cadmium	mg/kg	0.4	Metals-020	[NT]	1	<0.4	<0.4	0	[NT]	[NT]
Chromium	mg/kg	1	Metals-020	[NT]	1	4	4	0	[NT]	[NT]
Copper	mg/kg	1	Metals-020	[NT]	1	5	5	0	[NT]	[NT]
Lead	mg/kg	1	Metals-020	[NT]	1	34	29	16	[NT]	[NT]
Mercury	mg/kg	0.1	Metals-021	[NT]	1	0.1	0.1	0	[NT]	[NT]
Nickel	mg/kg	1	Metals-020	[NT]	1	<1	<1	0	[NT]	[NT]
Zinc	mg/kg	1	Metals-020	[NT]	1	30	29	3	[NT]	[NT]

QUALITY CONTROL: Acid Extractable metals in soil						Duplicate		Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date prepared	-			[NT]	19	12/01/2018	12/01/2018		[NT]	[NT]
Date analysed	-			[NT]	19	15/01/2018	15/01/2018		[NT]	[NT]
Arsenic	mg/kg	4	Metals-020	[NT]	19	6	6	0	[NT]	[NT]
Cadmium	mg/kg	0.4	Metals-020	[NT]	19	2	2	0	[NT]	[NT]
Chromium	mg/kg	1	Metals-020	[NT]	19	20	20	0	[NT]	[NT]
Copper	mg/kg	1	Metals-020	[NT]	19	110	110	0	[NT]	[NT]
Lead	mg/kg	1	Metals-020	[NT]	19	440	440	0	[NT]	[NT]
Mercury	mg/kg	0.1	Metals-021	[NT]	19	0.2	0.2	0	[NT]	[NT]
Nickel	mg/kg	1	Metals-020	[NT]	19	5	5	0	[NT]	[NT]
Zinc	mg/kg	1	Metals-020	[NT]	19	230	210	9	[NT]	[NT]

Client Reference: 72505.12, Randwick Campus Redevelopment

QUALITY CONTROL: CEC				Duplicate				Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-4	[NT]
Date prepared	-			15/01/2018	7	15/01/2018	15/01/2018		15/01/2018	[NT]
Date analysed	-			16/01/2018	7	16/01/2018	16/01/2018		16/01/2018	[NT]
Exchangeable Ca	meq/100g	0.1	Metals-009	<0.1	7	3.2	2.7	17	101	[NT]
Exchangeable K	meq/100g	0.1	Metals-009	<0.1	7	<0.1	<0.1	0	109	[NT]
Exchangeable Mg	meq/100g	0.1	Metals-009	<0.1	7	0.16	0.12	29	97	[NT]
Exchangeable Na	meq/100g	0.1	Metals-009	<0.1	7	<0.1	<0.1	0	100	[NT]

Client Reference: 72505.12, Randwick Campus Redevelopment

QUALITY CONTROL: Misc Soil - Inorg					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-4	183121-3
Date prepared	-			12/01/2018	1	12/01/2018	12/01/2018		12/01/2018	12/01/2018
Date analysed	-			12/01/2018	1	12/01/2018	12/01/2018		12/01/2018	12/01/2018
Total Phenolics (as Phenol)	mg/kg	5	Inorg-031	<5	1	<5	<5	0	101	100

QUALITY CONTROL: Misc Soil - Inorg					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-5	183121-35
Date prepared	-			[NT]	18	12/01/2018	12/01/2018		12/01/2018	12/01/2018
Date analysed	-			[NT]	18	12/01/2018	12/01/2018		12/01/2018	12/01/2018
Total Phenolics (as Phenol)	mg/kg	5	Inorg-031	[NT]	18	<5	<5	0	103	97

QUALITY CONTROL: Misc Soil - Inorg					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date prepared	-			[NT]	33	12/01/2018	12/01/2018		[NT]	[NT]
Date analysed	-			[NT]	33	12/01/2018	12/01/2018		[NT]	[NT]
Total Phenolics (as Phenol)	mg/kg	5	Inorg-031	[NT]	33	8	9	12	[NT]	[NT]

Client Reference: 72505.12, Randwick Campus Redevelopment

QUALITY CONTROL: Misc Inorg - Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-4	[NT]
Date prepared	-			15/01/2017	21	15/01/2017	[NT]		15/01/2017	[NT]
Date analysed	-			15/01/2017	21	15/01/2017	[NT]		15/01/2017	[NT]
pH 1:5 soil:water	pH Units		Inorg-001	[NT]	21	5.0	[NT]		102	[NT]

QUALITY CONTROL: Misc Inorg - Soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date prepared	-			[NT]	1	15/01/2017	15/01/2017		[NT]	[NT]
Date analysed	-			[NT]	1	15/01/2017	15/01/2017		[NT]	[NT]
pH 1:5 soil:water	pH Units		Inorg-001	[NT]	1	6.1	6.1	0	[NT]	[NT]

Result Definitions

NT	Not tested
NA	Test not required
INS	Insufficient sample for this test
PQL	Practical Quantitation Limit
<	Less than
>	Greater than
RPD	Relative Percent Difference
LCS	Laboratory Control Sample
NS	Not specified
NEPM	National Environmental Protection Measure
NR	Not Reported

Quality Control Definitions

Blank	This is the component of the analytical signal which is not derived from the sample but from reagents, glassware etc, can be determined by processing solvents and reagents in exactly the same manner as for samples.
Duplicate	This is the complete duplicate analysis of a sample from the process batch. If possible, the sample selected should be one where the analyte concentration is easily measurable.
Matrix Spike	A portion of the sample is spiked with a known concentration of target analyte. The purpose of the matrix spike is to monitor the performance of the analytical method used and to determine whether matrix interferences exist.
LCS (Laboratory Control Sample)	This comprises either a standard reference material or a control matrix (such as a blank sand or water) fortified with analytes representative of the analyte class. It is simply a check sample.
Surrogate Spike	Surrogates are known additions to each sample, blank, matrix spike and LCS in a batch, of compounds which are similar to the analyte of interest, however are not expected to be found in real samples.
Australian Drinking Water Guidelines recommend that Thermotolerant Coliform, Faecal Enterococci, & E.Coli levels are less than 1cfu/100mL. The recommended maximums are taken from "Australian Drinking Water Guidelines", published by NHMRC & ARMC 2011.	

Laboratory Acceptance Criteria

Duplicate sample and matrix spike recoveries may not be reported on smaller jobs, however, were analysed at a frequency to meet or exceed NEPM requirements. All samples are tested in batches of 20. The duplicate sample RPD and matrix spike recoveries for the batch were within the laboratory acceptance criteria.

Filters, swabs, wipes, tubes and badges will not have duplicate data as the whole sample is generally extracted during sample extraction.

Spikes for Physical and Aggregate Tests are not applicable.

For VOCs in water samples, three vials are required for duplicate or spike analysis.

Duplicates: <5xPQL - any RPD is acceptable; >5xPQL - 0-50% RPD is acceptable.

Matrix Spikes, LCS and Surrogate recoveries: Generally 70-130% for inorganics/metals; 60-140% for organics (+/-50% surrogates) and 10-140% for labile SVOCs (including labile surrogates), ultra trace organics and speciated phenols is acceptable.

In circumstances where no duplicate and/or sample spike has been reported at 1 in 10 and/or 1 in 20 samples respectively, the sample volume submitted was insufficient in order to satisfy laboratory QA/QC protocols.

When samples are received where certain analytes are outside of recommended technical holding times (THTs), the analysis has proceeded. Where analytes are on the verge of breaching THTs, every effort will be made to analyse within the THT or as soon as practicable.

Where sampling dates are not provided, Envirolab are not in a position to comment on the validity of the analysis where recommended technical holding times may have been breached.

Measurement Uncertainty estimates are available for most tests upon request.

Report Comments

Asbestos-ID in soil: NEPM

This report is consistent with the reporting recommendations in the National Environment Protection (Assessment of Site Contamination) Measure, Schedule B1, May 2013.

This is reported outside our scope of NATA accreditation.

Asbestos: A portion of the supplied samples were sub-sampled for asbestos analysis according to Envirolab procedures. We cannot guarantee that these sub-samples are indicative of the entire sample. Envirolab recommends supplying 40-50g of sample in its own container.

Note: Samples requested for asbestos analysis were sub-sampled from jars provided by the client.

Acid Extractable Metals in Soil:

Percent recovery is not possible to report due to the high concentration of the element/s in the sample/s. However an acceptable recovery was obtained for the LCS.

Acid Extractable Metals in Soil:

Percent recovery is not possible to report due to the inhomogeneous nature of the element/s in the sample/s. However an acceptable recovery was obtained for the LCS.

PCBs in Soil - PQL has been raised due to interference from analytes (other than those being tested) in the sample/s.

Project No: 72505.00		Suburb: Randwick		To: Envirolab Services	
Project Name: Randwick Campus Redevelopment		Order Number			
Project Manager: DH PMM		Sampler: LT		Attn: Aileen Hie	
Emails: Mauricip@douglaspartners.com.au				Phone:	
Date Required: Same day ☐ 24 hours ☐ 48 hours ☐ 72 hours ☐ Standard ☒				Email:	
Prior Storage: ☐ Esky ☐ Fridge ☐ Shelved		Do samples contain 'potential' HBM? Yes ☐ No ☐ (If YES, then handle, transport and store in accordance with FPM HAZID)			

Sample ID	Lab ID	Date Sampled	Sample Type	Container Type	Analytes										Notes/preservation	
			S - soil W - water	G - glass P - plastic	Heavy Metals	OCP/OPP PCB	TRH and BTEX	pH BATH CEC	Total Phenols	Asbestos VOC	Combo 8a	Combo 3a	Asbestos Combo 3- AFCA			
BH1/0.5-0.7	1	9/1/18	S	G												
BH1/1.4-1.6	2		S	G												
BH2/0-0.3	3		S	G												
BH3/0-0.3	4		S	G												
BH3/0.5-0.7	5		S	G												
BH4/0-0.3	6		S	G												
BH5/0.3-0.5	7		S	G												
BH5/0.5-0.7	8		S	G												
BH6/0-0.2	9		S	G												
BH6/0.5-0.7	10		S	G												
BH6/0-0.2	11		S	G												
BH7/0-0.2	12		S	G												
BH8/0-0.2	13		S	G												
BH8/0.7-0.8	14		S	G												
BH9/0-0.2	15		S	G												
PQL (S) mg/kg					ANZECC PQLs req'd for all water analytes ☐											

PQL = practical quantitation limit. If none given, default to Laboratory Method Detection Limit

Metals to Analyse: 8HM unless specified here:

Total number of samples in container: Relinquished by: PM < LT Transported to laboratory by:

Send Results to: Douglas Partners Pty Ltd Address Phone: Fax:

Signed: Received by: Date & Time:

Project No: 72505.00		Suburb: Randwick		To: Envirolab Services	
Project Name: Randwick Campus Redevelopment		Order Number			
Project Manager: DH pmm		Sampler: LT		Attn: Aileen Hie	
Emails: Mauricip@douglaspartners.com.au				Phone:	
Date Required: Same day ☐ 24 hours ☐ 48 hours ☐ 72 hours ☐ Standard ☒				Email:	
Prior Storage: ☐ Esky ☐ Fridge ☐ Shelved		Do samples contain 'potential' HBM? Yes ☒ No ☐ (If YES, then handle, transport and store in accordance with FPM HAZID)			

Sample ID	Lab ID	Date Sampled	Sample Type S - soil W - water	Container Type G - glass P - plastic	Analytes										Notes/preservation
					Heavy Metals	OCP/OPP PCB	TRH and BTEX	pH BAH CEL	Total Phenols	VOC	Combo 8a	Combo 3a	Combo 3		
BH10/0-0.2	16	9/1/18	S	G									✓		
BH10 05-0.7	17	9/1/18	S	G				✓				✓			
BH11/0-0.2	18	10/1/18	S	G								✓			
BH12/0-0.2	19		S	G								✓			
BH12/0-0.7	20		S	G									✓		
BH13/0-1-0.3	21		S	G				✓				✓			
BH13/0-5-0.7	22		S	G									✓		
BH14/0-5-0.7	23		S	G								✓			
BH15/0-0.2	24		S	G								✓			
BH15/0-5-0.7	25		S	G									✓		
BH16/0-0.2	26		S	G								✓			
BH17/0-5-0.8	27		S	G								✓			
BH17/1-5-1.6	28		S	G									✓		
BH18/0-5-0.6	29		S	G								✓			
BH19/0-5-0.6	30	✓	S	G								✓			

PQL (S) mg/kg

PQL = practical quantitation limit. If none given, default to Laboratory Method Detection Limit

Metals to Analyse: 8HM unless specified here:

Total number of samples in container: Relinquished by: PM/LT | Transported to laboratory by:

Send Results to: Douglas Partners Pty Ltd | **Address:** | **Phone:** | **Fax:**

Signed: | **Received by:** ELS | JE | **Date & Time:** 11.1.18

ANZECC PQLs req'd for all water analytes ☐

Project No: 72505.00		Suburb: Randwick		To: Envirolab Services	
Project Name: Randwick Campus Redevelopment		Order Number			
Project Manager: DHT <i>PM</i>		Sampler: LT		Attn: Aileen Hie	
Emails: Mauricip@douglaspartners.com.au		Phone:			
Date Required: Same day ☐ 24 hours ☐ 48 hours ☐ 72 hours ☐ Standard ☒		Email:			
Prior Storage: ☐ Esky ☐ Fridge ☐ Shelved		Do samples contain 'potential' HBM? Yes ☐ No ☐ (If YES, then handle, transport and store in accordance with FPM HAZID)			

Sample ID	Lab ID	Date Sampled	Sample Type	Container Type	Analytes										Notes/preservation	
			S - soil W - water	G - glass P - plastic	Heavy Metals	OCP/OPP PCB	TRH and BTEX	PAH	Total Phenols	VOC	Combo 8a	Combo 3a	Combo 3			
BH 19/1-1-1	31	10/1/18	S	G												
BH 20/0-0-1	32		S	G												
BH 21/0-0-05	33		S	G												
BH 22/0-0-1	34		S	G												
BH 22/0-5-0-4	35		S	G												
BD 1/20180109	36	9/1/18	S	G	✓			✓								
BD 3/20180109	37	9/1/18	S	G	✓			✓								
BD 4/20180110	38	10/1/18	S	G	✓			✓								
BD 1/20180110	39	10/1/18	S	G	✓			✓								
			S	G												
			S	G												
			S	G												
			S	G												
			S	G												
			S	G												
PQL (S) mg/kg																
PQL = practical quantitation limit. If none given, default to Laboratory Method Detection Limit.													ANZECC PQLs req'd for all water analytes ☐			
Metals to Analyse: 8HM unless specified here:													Lab Report/Reference No:			
Total number of samples in container: Relinquished by: <i>PM / LT</i> Transported to laboratory by:																
Send Results to: Douglas Partners Pty Ltd Address													Phone: Fax:			
Signed: <i>no</i> Received by: <i>ELS</i> <i>JE</i>													Date & Time: <i>11.1.18</i>			

CERTIFICATE OF ANALYSIS 183121-A

Client Details

Client	Douglas Partners Pty Ltd
Attention	Celine Li
Address	96 Hermitage Rd, West Ryde, NSW, 2114

Sample Details

Your Reference	<u>72505.12, Randwick Campus Redevelopment</u>
Number of Samples	Additional testing 21 samples
Date samples received	11/01/2018
Date completed instructions received	11/01/2018

Analysis Details

Please refer to the following pages for results, methodology summary and quality control data.
 Samples were analysed as received from the client. Results relate specifically to the samples as received.
 Results are reported on a dry weight basis for solids and on an as received basis for other matrices.

Report Details

Date results requested by	01/02/2018
Date of Issue	01/02/2018
NATA Accreditation Number 2901. This document shall not be reproduced except in full.	
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Results Approved By

Long Pham, Team Leader, Metals
 Steven Luong, Senior Chemist

Authorised By



David Springer, General Manager

PAHs in TCLP (USEPA 1311)						
Our Reference		183121-A-3	183121-A-4	183121-A-8	183121-A-9	183121-A-12
Your Reference	UNITS	BH2/0-0.3	BH3/0-0.3	BH5/0.5-0.7	BH6/0-0.2	BH7/0-0.2
Date Sampled		09/01/18	09/01/18	09/01/18	09/01/18	09/01/18
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	01/02/2018	01/02/2018	01/02/2018	01/02/2018	01/02/2018
Date analysed	-	01/02/2018	01/02/2018	01/02/2018	01/02/2018	01/02/2018
Naphthalene in TCLP	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Acenaphthylene in TCLP	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Acenaphthene in TCLP	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Fluorene in TCLP	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Phenanthrene in TCLP	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Anthracene in TCLP	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Fluoranthene in TCLP	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Pyrene in TCLP	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Benzo(a)anthracene in TCLP	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Chrysene in TCLP	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Benzo(bjk)fluoranthene in TCLP	mg/L	<0.002	<0.002	<0.002	<0.002	<0.002
Benzo(a)pyrene in TCLP	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Indeno(1,2,3-c,d)pyrene - TCLP	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Dibenzo(a,h)anthracene in TCLP	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Benzo(g,h,i)perylene in TCLP	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Total +ve PAH's	mg/L	NIL (+)VE	NIL (+)VE	NIL (+)VE	NIL (+)VE	NIL (+)VE
Surrogate p-Terphenyl-d14	%	109	121	130	109	109

PAHs in TCLP (USEPA 1311)						
Our Reference		183121-A-13	183121-A-15	183121-A-16	183121-A-18	183121-A-19
Your Reference	UNITS	BH8/0-0.2	BH9/0-0.2	BH10/0-0.2	BH11/0-0.2	BH12/0-0.2
Date Sampled		09/01/18	09/01/18	09/01/18	10/01/18	10/01/18
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	01/02/2018	01/02/2018	01/02/2018	01/02/2018	01/02/2018
Date analysed	-	01/02/2018	01/02/2018	01/02/2018	01/02/2018	01/02/2018
Naphthalene in TCLP	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Acenaphthylene in TCLP	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Acenaphthene in TCLP	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Fluorene in TCLP	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Phenanthrene in TCLP	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Anthracene in TCLP	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Fluoranthene in TCLP	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Pyrene in TCLP	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Benzo(a)anthracene in TCLP	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Chrysene in TCLP	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Benzo(b,k)fluoranthene in TCLP	mg/L	<0.002	<0.002	<0.002	<0.002	<0.002
Benzo(a)pyrene in TCLP	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Indeno(1,2,3-c,d)pyrene - TCLP	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Dibenzo(a,h)anthracene in TCLP	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Benzo(g,h,i)perylene in TCLP	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Total +ve PAH's	mg/L	NIL (+)VE	NIL (+)VE	NIL (+)VE	NIL (+)VE	NIL (+)VE
Surrogate p-Terphenyl-d14	%	84	99	91	84	88

PAHs in TCLP (USEPA 1311)

Our Reference		183121-A-22	183121-A-23	183121-A-25	183121-A-28	183121-A-29
Your Reference	UNITS	BH13/0.5-0.7	BH14/0.5-0.7	BH15/0.5-0.7	BH17/1.5-1.6	BH18/0.5-0.6
Date Sampled		10/01/18	10/01/18	10/01/18	10/01/18	10/01/18
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	01/02/2018	01/02/2018	01/02/2018	01/02/2018	01/02/2018
Date analysed	-	01/02/2018	01/02/2018	01/02/2018	01/02/2018	01/02/2018
Naphthalene in TCLP	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Acenaphthylene in TCLP	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Acenaphthene in TCLP	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Fluorene in TCLP	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Phenanthrene in TCLP	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Anthracene in TCLP	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Fluoranthene in TCLP	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Pyrene in TCLP	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Benzo(a)anthracene in TCLP	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Chrysene in TCLP	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Benzo(b,k)fluoranthene in TCLP	mg/L	<0.002	<0.002	<0.002	<0.002	<0.002
Benzo(a)pyrene in TCLP	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Indeno(1,2,3-c,d)pyrene - TCLP	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Dibenzo(a,h)anthracene in TCLP	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Benzo(g,h,i)perylene in TCLP	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Total +ve PAH's	mg/L	NIL (+)VE	NIL (+)VE	NIL (+)VE	NIL (+)VE	NIL (+)VE
Surrogate p-Terphenyl-d14	%	108	109	100	90	103

Metals in TCLP USEPA1311

Our Reference		183121-A-3	183121-A-4	183121-A-6	183121-A-7	183121-A-8
Your Reference	UNITS	BH2/0-0.3	BH3/0-0.3	BH4/0-0.3	BH5/0.3-0.5	BH5/0.5-0.7
Date Sampled		09/01/18	09/01/18	09/01/18	09/01/18	09/01/18
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	01/02/2018	01/02/2018	01/02/2018	01/02/2018	01/02/2018
Date analysed	-	01/02/2018	01/02/2018	01/02/2018	01/02/2018	01/02/2018
pH of soil for fluid# determ.	pH units	6.6	7.1	6.7	6.9	6.8
pH of soil TCLP (after HCl)	pH units	1.6	1.6	1.6	1.6	1.6
Extraction fluid used	-	1	1	1	1	1
pH of final Leachate	pH units	4.9	4.9	4.9	5.0	5.1
Lead in TCLP	mg/L	1.4	0.30	0.1	0.48	2.0

Metals in TCLP USEPA1311

Our Reference		183121-A-9	183121-A-12	183121-A-13	183121-A-14	183121-A-15
Your Reference	UNITS	BH6/0-0.2	BH7/0-0.2	BH8/0-0.2	BH8/0.7-0.8	BH9/0-0.2
Date Sampled		09/01/18	09/01/18	09/01/18	09/01/18	09/01/18
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	01/02/2018	01/02/2018	01/02/2018	01/02/2018	01/02/2018
Date analysed	-	01/02/2018	01/02/2018	01/02/2018	01/02/2018	01/02/2018
pH of soil for fluid# determ.	pH units	7.0	7.1	7.1	7.2	6.5
pH of soil TCLP (after HCl)	pH units	1.6	1.6	1.6	1.6	1.6
Extraction fluid used	-	1	1	1	1	1
pH of final Leachate	pH units	4.9	4.9	4.9	4.9	5.1
Lead in TCLP	mg/L	0.2	0.2	0.2	2.2	<0.03

Metals in TCLP USEPA1311

Our Reference		183121-A-16	183121-A-18	183121-A-19	183121-A-22	183121-A-23
Your Reference	UNITS	BH10/0-0.2	BH11/0-0.2	BH12/0-0.2	BH13/0.5-0.7	BH14/0.5-0.7
Date Sampled		09/01/18	10/01/18	10/01/18	10/01/18	10/01/18
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	31/01/2018	01/02/2018	01/02/2018	01/02/2018	01/02/2018
Date analysed	-	01/02/2018	01/02/2018	01/02/2018	01/02/2018	01/02/2018
pH of soil for fluid# determ.	pH units	6.2	6.5	5.9	6.3	6.1
pH of soil TCLP (after HCl)	pH units	1.6	1.6	1.6	1.6	1.6
Extraction fluid used	-	1	1	1	1	1
pH of final Leachate	pH units	5.0	5.0	4.9	4.9	4.9
Lead in TCLP	mg/L	[NA]	0.3	0.1	0.2	0.2

Metals in TCLP USEPA1311

Our Reference		183121-A-25	183121-A-26	183121-A-28	183121-A-29	183121-A-30
Your Reference	UNITS	BH15/0.5-0.7	BH16/0-0.2	BH17/1.5-1.6	BH18/0.5-0.6	BH19/0.5-0.6
Date Sampled		10/01/18	10/01/18	10/01/18	10/01/18	10/01/18
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	01/02/2018	01/02/2018	01/02/2018	01/02/2018	01/02/2018
Date analysed	-	01/02/2018	01/02/2018	01/02/2018	01/02/2018	01/02/2018
pH of soil for fluid# determ.	pH units	5.9	5.8	6.3	6.3	6.3
pH of soil TCLP (after HCl)	pH units	1.6	1.6	1.6	1.6	1.6
Extraction fluid used	-	1	1	1	1	1
pH of final Leachate	pH units	4.9	4.9	4.9	4.9	4.9
Lead in TCLP	mg/L	0.1	0.2	0.32	0.39	0.08

Metals in TCLP USEPA1311

Our Reference		183121-A-33
Your Reference	UNITS	BH21/0-0.05
Date Sampled		10/01/18
Type of sample		Soil
Date extracted	-	01/02/2018
Date analysed	-	01/02/2018
pH of soil for fluid# determ.	pH units	5.4
pH of soil TCLP (after HCl)	pH units	1.6
Extraction fluid used	-	1
pH of final Leachate	pH units	4.9
Lead in TCLP	mg/L	0.06

Client Reference: 72505.12, Randwick Campus Redevelopment

Method ID	Methodology Summary
EXTRACT.7	Toxicity Characteristic Leaching Procedure (TCLP) using Zero Headspace Extraction (zHE) using AS4439 and USEPA 1311.
Inorg-001	pH - Measured using pH meter and electrode in accordance with APHA latest edition, 4500-H+. Please note that the results for water analyses are indicative only, as analysis outside of the APHA storage times.
Inorg-004	Toxicity Characteristic Leaching Procedure (TCLP) using in house method INORG-004.
Metals-020 ICP-AES	Determination of various metals by ICP-AES.
Org-012	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS.
Org-012	Leachates are extracted with Dichloromethane and analysed by GC-MS.
Org-012	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS. Benzo(a)pyrene TEQ as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater - 2013.

Client Reference: 72505.12, Randwick Campus Redevelopment

QUALITY CONTROL: PAHs in TCLP (USEPA 1311)					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W2	[NT]
Date extracted	-			01/02/2018	[NT]	[NT]	[NT]	[NT]	01/02/2018	[NT]
Date analysed	-			01/02/2018	[NT]	[NT]	[NT]	[NT]	01/02/2018	[NT]
Naphthalene in TCLP	mg/L	0.001	Org-012	<0.001	[NT]	[NT]	[NT]	[NT]	74	[NT]
Acenaphthylene in TCLP	mg/L	0.001	Org-012	<0.001	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Acenaphthene in TCLP	mg/L	0.001	Org-012	<0.001	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Fluorene in TCLP	mg/L	0.001	Org-012	<0.001	[NT]	[NT]	[NT]	[NT]	70	[NT]
Phenanthrene in TCLP	mg/L	0.001	Org-012	<0.001	[NT]	[NT]	[NT]	[NT]	74	[NT]
Anthracene in TCLP	mg/L	0.001	Org-012	<0.001	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Fluoranthene in TCLP	mg/L	0.001	Org-012	<0.001	[NT]	[NT]	[NT]	[NT]	73	[NT]
Pyrene in TCLP	mg/L	0.001	Org-012	<0.001	[NT]	[NT]	[NT]	[NT]	90	[NT]
Benzo(a)anthracene in TCLP	mg/L	0.001	Org-012	<0.001	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Chrysene in TCLP	mg/L	0.001	Org-012	<0.001	[NT]	[NT]	[NT]	[NT]	72	[NT]
Benzo(bjk)fluoranthene in TCLP	mg/L	0.002	Org-012	<0.002	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Benzo(a)pyrene in TCLP	mg/L	0.001	Org-012	<0.001	[NT]	[NT]	[NT]	[NT]	73	[NT]
Indeno(1,2,3-c,d)pyrene - TCLP	mg/L	0.001	Org-012	<0.001	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Dibenzo(a,h)anthracene in TCLP	mg/L	0.001	Org-012	<0.001	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Benzo(g,h,i)perylene in TCLP	mg/L	0.001	Org-012	<0.001	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Surrogate p-Terphenyl-d14	%		Org-012	98	[NT]	[NT]	[NT]	[NT]	94	[NT]

Client Reference: 72505.12, Randwick Campus Redevelopment

QUALITY CONTROL: Metals in TCLP USEPA1311					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-W1	183121-A-4
Date extracted	-			01/02/2018	3	01/02/2018	01/02/2018		01/02/2018	01/02/2018
Date analysed	-			01/02/2018	3	01/02/2018	01/02/2018		01/02/2018	01/02/2018
Lead in TCLP	mg/L	0.03	Metals-020 ICP-AES	<0.03	3	1.4	1.4	0	111	109

QUALITY CONTROL: Metals in TCLP USEPA1311					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	[NT]	[NT]
Date extracted	-			[NT]	18	01/02/2018	01/02/2018		[NT]	[NT]
Date analysed	-			[NT]	18	01/02/2018	01/02/2018		[NT]	[NT]
Lead in TCLP	mg/L	0.03	Metals-020 ICP-AES	[NT]	18	0.3	0.2	40	[NT]	[NT]

Result Definitions

NT	Not tested
NA	Test not required
INS	Insufficient sample for this test
PQL	Practical Quantitation Limit
<	Less than
>	Greater than
RPD	Relative Percent Difference
LCS	Laboratory Control Sample
NS	Not specified
NEPM	National Environmental Protection Measure
NR	Not Reported

Quality Control Definitions

Blank	This is the component of the analytical signal which is not derived from the sample but from reagents, glassware etc, can be determined by processing solvents and reagents in exactly the same manner as for samples.
Duplicate	This is the complete duplicate analysis of a sample from the process batch. If possible, the sample selected should be one where the analyte concentration is easily measurable.
Matrix Spike	A portion of the sample is spiked with a known concentration of target analyte. The purpose of the matrix spike is to monitor the performance of the analytical method used and to determine whether matrix interferences exist.
LCS (Laboratory Control Sample)	This comprises either a standard reference material or a control matrix (such as a blank sand or water) fortified with analytes representative of the analyte class. It is simply a check sample.
Surrogate Spike	Surrogates are known additions to each sample, blank, matrix spike and LCS in a batch, of compounds which are similar to the analyte of interest, however are not expected to be found in real samples.
Australian Drinking Water Guidelines recommend that Thermotolerant Coliform, Faecal Enterococci, & E.Coli levels are less than 1cfu/100mL. The recommended maximums are taken from "Australian Drinking Water Guidelines", published by NHMRC & ARMC 2011.	

Laboratory Acceptance Criteria

Duplicate sample and matrix spike recoveries may not be reported on smaller jobs, however, were analysed at a frequency to meet or exceed NEPM requirements. All samples are tested in batches of 20. The duplicate sample RPD and matrix spike recoveries for the batch were within the laboratory acceptance criteria.

Filters, swabs, wipes, tubes and badges will not have duplicate data as the whole sample is generally extracted during sample extraction.

Spikes for Physical and Aggregate Tests are not applicable.

For VOCs in water samples, three vials are required for duplicate or spike analysis.

Duplicates: <5xPQL - any RPD is acceptable; >5xPQL - 0-50% RPD is acceptable.

Matrix Spikes, LCS and Surrogate recoveries: Generally 70-130% for inorganics/metals; 60-140% for organics (+/-50% surrogates) and 10-140% for labile SVOCs (including labile surrogates), ultra trace organics and speciated phenols is acceptable.

In circumstances where no duplicate and/or sample spike has been reported at 1 in 10 and/or 1 in 20 samples respectively, the sample volume submitted was insufficient in order to satisfy laboratory QA/QC protocols.

When samples are received where certain analytes are outside of recommended technical holding times (THTs), the analysis has proceeded. Where analytes are on the verge of breaching THTs, every effort will be made to analyse within the THT or as soon as practicable.

Where sampling dates are not provided, Envirolab are not in a position to comment on the validity of the analysis where recommended technical holding times may have been breached.

Measurement Uncertainty estimates are available for most tests upon request.

Andrew Fitzsimons

From: Celine Li <Celine.Li@douglaspartners.com.au>
Sent: Wednesday, 31 January 2018 12:41 PM
To: Samplereceipt
Subject: TCLP analysis for project 72505.12

Hi Envirolab,

ELS: 183121-A
Rec: 31/1/18
TAT: 1 Day
ATZ

Can we please undertake TCLP analysis for PAH and Lead on the following samples for the project 72505.12:

Sample ID	PAH (B(a)p)	Lead
BH10/0.0-0.2 16	X	
BH11/0.0-0.2 18	X	X
BH12/0.0-0.2 19	X	X
BH13/0.5-0.7 22	X	X
BH14/0.5-0.7 23	X	X
BH15/0.5-0.7 25	X	X
BH16/0.0-0.2 26		X
BH17/1.5-1.6 28	X	X
BH18/0.5-0.6 27	X	X
BH19/0.5-0.6 30		X
BH2/0.0-0.3 3	X	X
BH3/0.0-0.3 4	X	X
BH4/0.0-0.3 6		X
BH5/0.3-0.5 7		X
BH5/0.5-0.7 8	X	X
BH6/0.0-0.2 9	X	X
BH7/0.0-0.2 12	X	X
BH8/0.0-0.2 13	X	X
BH8/0.7-0.8 14		X
BH9/0.0-0.2 15	X	X
BH21/0.0-0.05 33		X

24 hrs turnaround please.

Thanks,

Celine Li Environmental Engineer/Scientist

Douglas Partners Pty Ltd | ABN 75 053 980 117 | www.douglaspartners.com.au

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P: 02 9809 0666 | F: 02 9809 4095 | M: 0428 199 646 | E: Celine.Li@douglaspartners.com.au

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Disclaimer

CERTIFICATE OF ANALYSIS 184142

Client Details

Client	Douglas Partners Pty Ltd
Attention	Paula Maurici
Address	96 Hermitage Rd, West Ryde, NSW, 2114

Sample Details

Your Reference	<u>82505.12, Randwick Campus Redevelopment</u>
Number of Samples	5 Soil
Date samples received	30/01/2018
Date completed instructions received	30/01/2018

Analysis Details

Please refer to the following pages for results, methodology summary and quality control data.
 Samples were analysed as received from the client. Results relate specifically to the samples as received.
 Results are reported on a dry weight basis for solids and on an as received basis for other matrices.
Please refer to the last page of this report for any comments relating to the results.

Report Details

Date results requested by	06/02/2018
Date of Issue	06/02/2018
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vTRH(C6-C10)/BTEXN in Soil

Our Reference		184142-1	184142-2	184142-3	184142-4	184142-5
Your Reference	UNITS	BH8	BH8	BH9	BH9	BD1/20180123
Depth		0.4-0.5	0.6-0.7	0.6-0.7	1.4-1.5	-
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	31/01/2018	31/01/2018	31/01/2018	31/01/2018	31/01/2018
Date analysed	-	01/02/2018	01/02/2018	01/02/2018	01/02/2018	01/02/2018
TRH C ₆ - C ₉	mg/kg	<25	<25	<25	<25	<25
TRH C ₆ - C ₁₀	mg/kg	<25	<25	<25	<25	<25
vTPH C ₆ - C ₁₀ less BTEX (F1)	mg/kg	<25	<25	<25	<25	<25
Benzene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1	<1	<1	<1	<1
m+p-xylene	mg/kg	<2	<2	<2	<2	<2
o-Xylene	mg/kg	<1	<1	<1	<1	<1
naphthalene	mg/kg	150	<1	<1	<1	<1
Total +ve Xylenes	mg/kg	<1	<1	<1	<1	<1
Surrogate aaa-Trifluorotoluene	%	98	85	94	92	92

svTRH (C10-C40) in Soil						
Our Reference		184142-1	184142-2	184142-3	184142-4	184142-5
Your Reference	UNITS	BH8	BH8	BH9	BH9	BD1/20180123
Depth		0.4-0.5	0.6-0.7	0.6-0.7	1.4-1.5	-
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	31/01/2018	31/01/2018	31/01/2018	31/01/2018	31/01/2018
Date analysed	-	01/02/2018	01/02/2018	01/02/2018	01/02/2018	01/02/2018
TRH C ₁₀ - C ₁₄	mg/kg	860	<50	<50	<50	<50
TRH C ₁₅ - C ₂₈	mg/kg	8,500	<100	<100	<100	<100
TRH C ₂₉ - C ₃₆	mg/kg	3,800	<100	<100	<100	<100
TRH >C ₁₀ -C ₁₆	mg/kg	1,700	<50	<50	<50	<50
TRH >C ₁₀ - C ₁₆ less Naphthalene (F2)	mg/kg	1,600	<50	<50	<50	<50
TRH >C ₁₆ -C ₃₄	mg/kg	11,000	<100	<100	<100	<100
TRH >C ₃₄ -C ₄₀	mg/kg	1,300	<100	<100	<100	<100
Total +ve TRH (>C10-C40)	mg/kg	14,000	<50	<50	<50	<50
Surrogate o-Terphenyl	%	#	85	87	88	82

PAHs in Soil				
Our Reference		184142-2	184142-3	184142-4
Your Reference	UNITS	BH8	BH9	BH9
Depth		0.6-0.7	0.6-0.7	1.4-1.5
Type of sample		Soil	Soil	Soil
Date extracted	-	31/01/2018	31/01/2018	31/01/2018
Date analysed	-	02/02/2018	02/02/2018	02/02/2018
Naphthalene	mg/kg	0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	0.2	<0.1	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	0.6	<0.1	<0.1
Anthracene	mg/kg	0.2	<0.1	<0.1
Fluoranthene	mg/kg	0.7	<0.1	<0.1
Pyrene	mg/kg	0.6	<0.1	<0.1
Benzo(a)anthracene	mg/kg	0.3	<0.1	<0.1
Chrysene	mg/kg	0.2	<0.1	<0.1
Benzo(b,j+k)fluoranthene	mg/kg	0.3	<0.2	<0.2
Benzo(a)pyrene	mg/kg	0.2	<0.05	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	0.1	<0.1	<0.1
Total +ve PAH's	mg/kg	3.6	<0.05	<0.05
Benzo(a)pyrene TEQ calc (zero)	mg/kg	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(half)	mg/kg	<0.5	<0.5	<0.5
Benzo(a)pyrene TEQ calc(PQL)	mg/kg	<0.5	<0.5	<0.5
Surrogate <i>p</i> -Terphenyl-d14	%	125	124	130

Organochlorine Pesticides in soil			
Our Reference		184142-1	184142-3
Your Reference	UNITS	BH8	BH9
Depth		0.4-0.5	0.6-0.7
Type of sample		Soil	Soil
Date extracted	-	31/01/2018	31/01/2018
Date analysed	-	01/02/2018	01/02/2018
HCB	mg/kg	<1	<0.1
alpha-BHC	mg/kg	<1	<0.1
gamma-BHC	mg/kg	<1	<0.1
beta-BHC	mg/kg	<1	<0.1
Heptachlor	mg/kg	<1	<0.1
delta-BHC	mg/kg	<1	<0.1
Aldrin	mg/kg	<1	<0.1
Heptachlor Epoxide	mg/kg	<1	<0.1
gamma-Chlordane	mg/kg	<1	<0.1
alpha-chlordane	mg/kg	<1	<0.1
Endosulfan I	mg/kg	<1	<0.1
pp-DDE	mg/kg	<1	<0.1
Dieldrin	mg/kg	<1	<0.1
Endrin	mg/kg	<1	<0.1
pp-DDD	mg/kg	<1	<0.1
Endosulfan II	mg/kg	<1	<0.1
pp-DDT	mg/kg	<1	<0.1
Endrin Aldehyde	mg/kg	<1	<0.1
Endosulfan Sulphate	mg/kg	<1	<0.1
Methoxychlor	mg/kg	<2	<0.1
Total +ve DDT+DDD+DDE	mg/kg	<1	<0.1
Surrogate TCMX	%	90	99

Organophosphorus Pesticides			
Our Reference		184142-1	184142-3
Your Reference	UNITS	BH8	BH9
Depth		0.4-0.5	0.6-0.7
Type of sample		Soil	Soil
Date extracted	-	31/01/2018	31/01/2018
Date analysed	-	01/02/2018	01/02/2018
Azinphos-methyl (Guthion)	mg/kg	<1	<0.1
Bromophos-ethyl	mg/kg	<1	<0.1
Chlorpyrifos	mg/kg	<1	<0.1
Chlorpyrifos-methyl	mg/kg	<1	<0.1
Diazinon	mg/kg	<1	<0.1
Dichlorvos	mg/kg	<1	<0.1
Dimethoate	mg/kg	<1	<0.1
Ethion	mg/kg	<1	<0.1
Fenitrothion	mg/kg	<1	<0.1
Malathion	mg/kg	<1	<0.1
Parathion	mg/kg	<1	<0.1
Ronnel	mg/kg	<1	<0.1
Surrogate TCMX	%	90	99

PCBs in Soil			
Our Reference		184142-1	184142-3
Your Reference	UNITS	BH8	BH9
Depth		0.4-0.5	0.6-0.7
Type of sample		Soil	Soil
Date extracted	-	31/01/2018	31/01/2018
Date analysed	-	01/02/2018	01/02/2018
Aroclor 1016	mg/kg	<1	<0.1
Aroclor 1221	mg/kg	<1	<0.1
Aroclor 1232	mg/kg	<1	<0.1
Aroclor 1242	mg/kg	<1	<0.1
Aroclor 1248	mg/kg	<1	<0.1
Aroclor 1254	mg/kg	<1	<0.1
Aroclor 1260	mg/kg	<1	<0.1
Total +ve PCBs (1016-1260)	mg/kg	<1	<0.1
Surrogate TCLMX	%	90	99

Acid Extractable metals in soil						
Our Reference		184142-1	184142-2	184142-3	184142-4	184142-5
Your Reference	UNITS	BH8	BH8	BH9	BH9	BD1/20180123
Depth		0.4-0.5	0.6-0.7	0.6-0.7	1.4-1.5	-
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	31/01/2018	31/01/2018	31/01/2018	31/01/2018	31/01/2018
Date analysed	-	31/01/2018	31/01/2018	31/01/2018	31/01/2018	31/01/2018
Arsenic	mg/kg	<4	<4	<4	<4	<4
Cadmium	mg/kg	<0.4	<0.4	<0.4	<0.4	<0.4
Chromium	mg/kg	5	1	<1	<1	1
Copper	mg/kg	29	1	1	<1	<1
Lead	mg/kg	12	<1	8	<1	1
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Nickel	mg/kg	4	<1	<1	<1	<1
Zinc	mg/kg	22	2	6	<1	2

CEC		
Our Reference		184142-1
Your Reference	UNITS	BH8
Depth		0.4-0.5
Type of sample		Soil
Date prepared	-	02/02/2018
Date analysed	-	02/02/2018
Exchangeable Ca	meq/100g	1.8
Exchangeable K	meq/100g	<0.1
Exchangeable Mg	meq/100g	1.0
Exchangeable Na	meq/100g	<0.1
Cation Exchange Capacity	meq/100g	2.9

Misc Soil - Inorg			
Our Reference		184142-1	184142-3
Your Reference	UNITS	BH8	BH9
Depth		0.4-0.5	0.6-0.7
Type of sample		Soil	Soil
Date prepared	-	31/01/2018	31/01/2018
Date analysed	-	31/01/2018	31/01/2018
Total Phenolics (as Phenol)	mg/kg	<5	<5

Misc Inorg - Soil		
Our Reference		184142-1
Your Reference	UNITS	BH8
Depth		0.4-0.5
Type of sample		Soil
Date prepared	-	01/02/2018
Date analysed	-	01/02/2018
pH 1:5 soil:water	pH Units	6.0

Moisture						
Our Reference		184142-1	184142-2	184142-3	184142-4	184142-5
Your Reference	UNITS	BH8	BH8	BH9	BH9	BD1/20180123
Depth		0.4-0.5	0.6-0.7	0.6-0.7	1.4-1.5	-
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	31/01/2018	31/01/2018	31/01/2018	31/01/2018	31/01/2018
Date analysed	-	01/02/2018	01/02/2018	01/02/2018	01/02/2018	01/02/2018
Moisture	%	10	8.5	5.9	2.6	11

Asbestos ID - soils					
Our Reference		184142-1	184142-2	184142-3	184142-4
Your Reference	UNITS	BH8	BH8	BH9	BH9
Depth		0.4-0.5	0.6-0.7	0.6-0.7	1.4-1.5
Type of sample		Soil	Soil	Soil	Soil
Date analysed	-	05/02/2018	05/02/2018	05/02/2018	05/02/2018
Sample mass tested	g	Approx. 30g	Approx. 35g	Approx. 40g	Approx. 40g
Sample Description	-	Brown coarse-grained soil & rocks	Beige sandy soil	Grey sandy soil	Grey sandy soil
Asbestos ID in soil	-	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected	No asbestos detected at reporting limit of 0.1g/kg Organic fibres detected
Trace Analysis	-	No asbestos detected	No asbestos detected	No asbestos detected	No asbestos detected

Method ID	Methodology Summary
ASB-001	Asbestos ID - Qualitative identification of asbestos in bulk samples using Polarised Light Microscopy and Dispersion Staining Techniques including Synthetic Mineral Fibre and Organic Fibre as per Australian Standard 4964-2004.
Inorg-001	pH - Measured using pH meter and electrode in accordance with APHA latest edition, 4500-H+. Please note that the results for water analyses are indicative only, as analysis outside of the APHA storage times.
Inorg-008	Moisture content determined by heating at 105+/-5 °C for a minimum of 12 hours.
Inorg-031	Total Phenolics by segmented flow analyser (in line distillation with colourimetric finish). Solids are extracted in a caustic media prior to analysis.
Metals-009	Determination of exchangeable cations and cation exchange capacity in soils using 1M Ammonium Chloride exchange and ICP-AES analytical finish.
Metals-020	Determination of various metals by ICP-AES.
Metals-021	Determination of Mercury by Cold Vapour AAS.
Org-003	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID. F2 = (>C10-C16)-Naphthalene as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater (HSLs Tables 1A (3, 4)). Note Naphthalene is determined from the VOC analysis.
Org-003	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID. F2 = (>C10-C16)-Naphthalene as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater (HSLs Tables 1A (3, 4)). Note Naphthalene is determined from the VOC analysis. Note, the Total +ve TRH PQL is reflective of the lowest individual PQL and is therefore "Total +ve TRH" is simply a sum of the positive individual TRH fractions (>C10-C40).
Org-005	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC with dual ECD's.
Org-005	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC with dual ECD's. Note, the Total +ve reported DDD+DDE+DDT PQL is reflective of the lowest individual PQL and is therefore simply a sum of the positive individually report DDD+DDE+DDT.
Org-006	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC-ECD.
Org-006	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC-ECD. Note, the Total +ve PCBs PQL is reflective of the lowest individual PQL and is therefore "Total +ve PCBs" is simply a sum of the positive individual PCBs.
Org-008	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC with dual ECD's.

Method ID	Methodology Summary
Org-012	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS. Benzo(a)pyrene TEQ as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater - 2013. For soil results:- 1. 'EQ PQL' values are assuming all contributing PAHs reported as <PQL are actually at the PQL. This is the most conservative approach and can give false positive TEQs given that PAHs that contribute to the TEQ calculation may not be present. 2. 'EQ zero' values are assuming all contributing PAHs reported as <PQL are zero. This is the least conservative approach and is more susceptible to false negative TEQs when PAHs that contribute to the TEQ calculation are present but below PQL. 3. 'EQ half PQL' values are assuming all contributing PAHs reported as <PQL are half the stipulated PQL. Hence a mid-point between the most and least conservative approaches above. Note, the Total +ve PAHs PQL is reflective of the lowest individual PQL and is therefore "Total +ve PAHs" is simply a sum of the positive individual PAHs.
Org-014	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS.
Org-016	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS. Water samples are analysed directly by purge and trap GC-MS. F1 = (C6-C10)-BTX as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater.
Org-016	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS. Water samples are analysed directly by purge and trap GC-MS. F1 = (C6-C10)-BTX as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater. Note, the Total +ve Xylene PQL is reflective of the lowest individual PQL and is therefore "Total +ve Xylenes" is simply a sum of the positive individual Xylenes.

Client Reference: 82505.12, Randwick Campus Redevelopment

QUALITY CONTROL: vTRH(C6-C10)/BTEXN in Soil						Duplicate		Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-3	[NT]
Date extracted	-			31/01/2018	[NT]	[NT]	[NT]	[NT]	31/01/2018	[NT]
Date analysed	-			01/02/2018	[NT]	[NT]	[NT]	[NT]	01/02/2018	[NT]
TRH C ₆ - C ₉	mg/kg	25	Org-016	<25	[NT]	[NT]	[NT]	[NT]	94	[NT]
TRH C ₆ - C ₁₀	mg/kg	25	Org-016	<25	[NT]	[NT]	[NT]	[NT]	94	[NT]
Benzene	mg/kg	0.2	Org-016	<0.2	[NT]	[NT]	[NT]	[NT]	85	[NT]
Toluene	mg/kg	0.5	Org-016	<0.5	[NT]	[NT]	[NT]	[NT]	90	[NT]
Ethylbenzene	mg/kg	1	Org-016	<1	[NT]	[NT]	[NT]	[NT]	93	[NT]
m+p-xylene	mg/kg	2	Org-016	<2	[NT]	[NT]	[NT]	[NT]	102	[NT]
o-Xylene	mg/kg	1	Org-016	<1	[NT]	[NT]	[NT]	[NT]	94	[NT]
naphthalene	mg/kg	1	Org-014	<1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Surrogate aaa-Trifluorotoluene	%		Org-016	91	[NT]	[NT]	[NT]	[NT]	95	[NT]

Client Reference: 82505.12, Randwick Campus Redevelopment

QUALITY CONTROL: svTRH (C10-C40) in Soil					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-3	[NT]
Date extracted	-			31/01/2018	[NT]	[NT]	[NT]	[NT]	31/01/2018	[NT]
Date analysed	-			31/01/2018	[NT]	[NT]	[NT]	[NT]	01/02/2018	[NT]
TRH C ₁₀ - C ₁₄	mg/kg	50	Org-003	<50	[NT]	[NT]	[NT]	[NT]	119	[NT]
TRH C ₁₅ - C ₂₈	mg/kg	100	Org-003	<100	[NT]	[NT]	[NT]	[NT]	114	[NT]
TRH C ₂₉ - C ₃₆	mg/kg	100	Org-003	<100	[NT]	[NT]	[NT]	[NT]	108	[NT]
TRH >C ₁₀ -C ₁₆	mg/kg	50	Org-003	<50	[NT]	[NT]	[NT]	[NT]	119	[NT]
TRH >C ₁₆ -C ₃₄	mg/kg	100	Org-003	<100	[NT]	[NT]	[NT]	[NT]	114	[NT]
TRH >C ₃₄ -C ₄₀	mg/kg	100	Org-003	<100	[NT]	[NT]	[NT]	[NT]	108	[NT]
Surrogate o-Terphenyl	%		Org-003	88	[NT]	[NT]	[NT]	[NT]	92	[NT]

QUALITY CONTROL: PAHs in Soil					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-3	[NT]
Date extracted	-			31/01/2018	2	31/01/2018	06/02/2018		31/01/2018	[NT]
Date analysed	-			02/02/2018	2	02/02/2018	06/02/2018		02/02/2018	[NT]
Naphthalene	mg/kg	0.1	Org-012	<0.1	2	0.1	0.2	67	81	[NT]
Acenaphthylene	mg/kg	0.1	Org-012	<0.1	2	<0.1	<0.1	0	[NT]	[NT]
Acenaphthene	mg/kg	0.1	Org-012	<0.1	2	0.2	0.3	40	[NT]	[NT]
Fluorene	mg/kg	0.1	Org-012	<0.1	2	<0.1	0.1	0	84	[NT]
Phenanthrene	mg/kg	0.1	Org-012	<0.1	2	0.6	0.7	15	84	[NT]
Anthracene	mg/kg	0.1	Org-012	<0.1	2	0.2	0.2	0	[NT]	[NT]
Fluoranthene	mg/kg	0.1	Org-012	<0.1	2	0.7	0.6	15	97	[NT]
Pyrene	mg/kg	0.1	Org-012	<0.1	2	0.6	0.5	18	120	[NT]
Benzo(a)anthracene	mg/kg	0.1	Org-012	<0.1	2	0.3	0.2	40	[NT]	[NT]
Chrysene	mg/kg	0.1	Org-012	<0.1	2	0.2	0.2	0	87	[NT]
Benzo(b,j+k)fluoranthene	mg/kg	0.2	Org-012	<0.2	2	0.3	0.4	29	[NT]	[NT]
Benzo(a)pyrene	mg/kg	0.05	Org-012	<0.05	2	0.2	0.2	0	72	[NT]
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1	Org-012	<0.1	2	0.1	0.1	0	[NT]	[NT]
Dibenzo(a,h)anthracene	mg/kg	0.1	Org-012	<0.1	2	<0.1	<0.1	0	[NT]	[NT]
Benzo(g,h,i)perylene	mg/kg	0.1	Org-012	<0.1	2	0.1	<0.1	0	[NT]	[NT]
Surrogate p-Terphenyl-d14	%		Org-012	125	2	125	90	33	130	[NT]

Client Reference: 82505.12, Randwick Campus Redevelopment

QUALITY CONTROL: Organochlorine Pesticides in soil					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-3	[NT]
Date extracted	-			31/01/2018	[NT]	[NT]	[NT]	[NT]	31/01/2018	[NT]
Date analysed	-			01/02/2018	[NT]	[NT]	[NT]	[NT]	01/02/2018	[NT]
HCB	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
alpha-BHC	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	[NT]	[NT]	99	[NT]
gamma-BHC	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
beta-BHC	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	[NT]	[NT]	107	[NT]
Heptachlor	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	[NT]	[NT]	105	[NT]
delta-BHC	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Aldrin	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	[NT]	[NT]	106	[NT]
Heptachlor Epoxide	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	[NT]	[NT]	107	[NT]
gamma-Chlordane	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
alpha-chlordane	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Endosulfan I	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
pp-DDE	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	[NT]	[NT]	109	[NT]
Dieldrin	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	[NT]	[NT]	109	[NT]
Endrin	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	[NT]	[NT]	103	[NT]
pp-DDD	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	[NT]	[NT]	114	[NT]
Endosulfan II	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
pp-DDT	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Endrin Aldehyde	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Endosulfan Sulphate	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	[NT]	[NT]	116	[NT]
Methoxychlor	mg/kg	0.1	Org-005	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Surrogate TCMX	%		Org-005	103	[NT]	[NT]	[NT]	[NT]	121	[NT]

Client Reference: 82505.12, Randwick Campus Redevelopment

QUALITY CONTROL: Organophosphorus Pesticides					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-3	[NT]
Date extracted	-			31/01/2018	[NT]	[NT]	[NT]	[NT]	31/01/2018	[NT]
Date analysed	-			01/02/2018	[NT]	[NT]	[NT]	[NT]	01/02/2018	[NT]
Azinphos-methyl (Guthion)	mg/kg	0.1	Org-008	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Bromophos-ethyl	mg/kg	0.1	Org-008	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Chlorpyrifos	mg/kg	0.1	Org-008	<0.1	[NT]	[NT]	[NT]	[NT]	101	[NT]
Chlorpyrifos-methyl	mg/kg	0.1	Org-008	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Diazinon	mg/kg	0.1	Org-008	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Dichlorvos	mg/kg	0.1	Org-008	<0.1	[NT]	[NT]	[NT]	[NT]	97	[NT]
Dimethoate	mg/kg	0.1	Org-008	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Ethion	mg/kg	0.1	Org-008	<0.1	[NT]	[NT]	[NT]	[NT]	108	[NT]
Fenitrothion	mg/kg	0.1	Org-008	<0.1	[NT]	[NT]	[NT]	[NT]	110	[NT]
Malathion	mg/kg	0.1	Org-008	<0.1	[NT]	[NT]	[NT]	[NT]	78	[NT]
Parathion	mg/kg	0.1	Org-008	<0.1	[NT]	[NT]	[NT]	[NT]	111	[NT]
Ronnel	mg/kg	0.1	Org-008	<0.1	[NT]	[NT]	[NT]	[NT]	113	[NT]
Surrogate TCMX	%		Org-008	103	[NT]	[NT]	[NT]	[NT]	123	[NT]

Client Reference: 82505.12, Randwick Campus Redevelopment

QUALITY CONTROL: PCBs in Soil						Duplicate		Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-3	[NT]
Date extracted	-			31/01/2018	[NT]	[NT]	[NT]	[NT]	31/01/2018	[NT]
Date analysed	-			01/02/2018	[NT]	[NT]	[NT]	[NT]	01/02/2018	[NT]
Aroclor 1016	mg/kg	0.1	Org-006	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Aroclor 1221	mg/kg	0.1	Org-006	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Aroclor 1232	mg/kg	0.1	Org-006	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Aroclor 1242	mg/kg	0.1	Org-006	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Aroclor 1248	mg/kg	0.1	Org-006	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Aroclor 1254	mg/kg	0.1	Org-006	<0.1	[NT]	[NT]	[NT]	[NT]	113	[NT]
Aroclor 1260	mg/kg	0.1	Org-006	<0.1	[NT]	[NT]	[NT]	[NT]	[NT]	[NT]
Surrogate TCLMX	%		Org-006	103	[NT]	[NT]	[NT]	[NT]	123	[NT]

Client Reference: 82505.12, Randwick Campus Redevelopment

QUALITY CONTROL: Acid Extractable metals in soil					Duplicate			Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-3	[NT]
Date prepared	-			31/01/2018	[NT]	[NT]	[NT]	[NT]	31/01/2018	[NT]
Date analysed	-			31/01/2018	[NT]	[NT]	[NT]	[NT]	31/01/2018	[NT]
Arsenic	mg/kg	4	Metals-020	<4	[NT]	[NT]	[NT]	[NT]	105	[NT]
Cadmium	mg/kg	0.4	Metals-020	<0.4	[NT]	[NT]	[NT]	[NT]	103	[NT]
Chromium	mg/kg	1	Metals-020	<1	[NT]	[NT]	[NT]	[NT]	106	[NT]
Copper	mg/kg	1	Metals-020	<1	[NT]	[NT]	[NT]	[NT]	103	[NT]
Lead	mg/kg	1	Metals-020	<1	[NT]	[NT]	[NT]	[NT]	100	[NT]
Mercury	mg/kg	0.1	Metals-021	<0.1	[NT]	[NT]	[NT]	[NT]	102	[NT]
Nickel	mg/kg	1	Metals-020	<1	[NT]	[NT]	[NT]	[NT]	98	[NT]
Zinc	mg/kg	1	Metals-020	<1	[NT]	[NT]	[NT]	[NT]	102	[NT]

Client Reference: 82505.12, Randwick Campus Redevelopment

QUALITY CONTROL: CEC						Duplicate		Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	[NT]
Date prepared	-			02/02/2018	[NT]	[NT]	[NT]	[NT]	02/02/2018	[NT]
Date analysed	-			02/02/2018	[NT]	[NT]	[NT]	[NT]	02/02/2018	[NT]
Exchangeable Ca	meq/100g	0.1	Metals-009	<0.1	[NT]	[NT]	[NT]	[NT]	99	[NT]
Exchangeable K	meq/100g	0.1	Metals-009	<0.1	[NT]	[NT]	[NT]	[NT]	105	[NT]
Exchangeable Mg	meq/100g	0.1	Metals-009	<0.1	[NT]	[NT]	[NT]	[NT]	97	[NT]
Exchangeable Na	meq/100g	0.1	Metals-009	<0.1	[NT]	[NT]	[NT]	[NT]	99	[NT]

Client Reference: 82505.12, Randwick Campus Redevelopment

QUALITY CONTROL: Misc Soil - Inorg						Duplicate		Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-3	[NT]
Date prepared	-			31/01/2018	[NT]	[NT]	[NT]	[NT]	31/01/2018	[NT]
Date analysed	-			31/01/2018	[NT]	[NT]	[NT]	[NT]	31/01/2018	[NT]
Total Phenolics (as Phenol)	mg/kg	5	Inorg-031	<5	[NT]	[NT]	[NT]	[NT]	102	[NT]

Client Reference: 82505.12, Randwick Campus Redevelopment

QUALITY CONTROL: Misc Inorg - Soil						Duplicate		Spike Recovery %		
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-3	[NT]
Date prepared	-			01/02/2018	[NT]	[NT]	[NT]	[NT]	01/02/2018	[NT]
Date analysed	-			01/02/2018	[NT]	[NT]	[NT]	[NT]	01/02/2018	[NT]
pH 1:5 soil:water	pH Units		Inorg-001	[NT]	[NT]	[NT]	[NT]	[NT]	101	[NT]

Result Definitions

NT	Not tested
NA	Test not required
INS	Insufficient sample for this test
PQL	Practical Quantitation Limit
<	Less than
>	Greater than
RPD	Relative Percent Difference
LCS	Laboratory Control Sample
NS	Not specified
NEPM	National Environmental Protection Measure
NR	Not Reported

Quality Control Definitions

Blank	This is the component of the analytical signal which is not derived from the sample but from reagents, glassware etc, can be determined by processing solvents and reagents in exactly the same manner as for samples.
Duplicate	This is the complete duplicate analysis of a sample from the process batch. If possible, the sample selected should be one where the analyte concentration is easily measurable.
Matrix Spike	A portion of the sample is spiked with a known concentration of target analyte. The purpose of the matrix spike is to monitor the performance of the analytical method used and to determine whether matrix interferences exist.
LCS (Laboratory Control Sample)	This comprises either a standard reference material or a control matrix (such as a blank sand or water) fortified with analytes representative of the analyte class. It is simply a check sample.
Surrogate Spike	Surrogates are known additions to each sample, blank, matrix spike and LCS in a batch, of compounds which are similar to the analyte of interest, however are not expected to be found in real samples.
Australian Drinking Water Guidelines recommend that Thermotolerant Coliform, Faecal Enterococci, & E.Coli levels are less than 1cfu/100mL. The recommended maximums are taken from "Australian Drinking Water Guidelines", published by NHMRC & ARMC 2011.	

Laboratory Acceptance Criteria

Duplicate sample and matrix spike recoveries may not be reported on smaller jobs, however, were analysed at a frequency to meet or exceed NEPM requirements. All samples are tested in batches of 20. The duplicate sample RPD and matrix spike recoveries for the batch were within the laboratory acceptance criteria.

Filters, swabs, wipes, tubes and badges will not have duplicate data as the whole sample is generally extracted during sample extraction.

Spikes for Physical and Aggregate Tests are not applicable.

For VOCs in water samples, three vials are required for duplicate or spike analysis.

Duplicates: <5xPQL - any RPD is acceptable; >5xPQL - 0-50% RPD is acceptable.

Matrix Spikes, LCS and Surrogate recoveries: Generally 70-130% for inorganics/metals; 60-140% for organics (+/-50% surrogates) and 10-140% for labile SVOCs (including labile surrogates), ultra trace organics and speciated phenols is acceptable.

In circumstances where no duplicate and/or sample spike has been reported at 1 in 10 and/or 1 in 20 samples respectively, the sample volume submitted was insufficient in order to satisfy laboratory QA/QC protocols.

When samples are received where certain analytes are outside of recommended technical holding times (THTs), the analysis has proceeded. Where analytes are on the verge of breaching THTs, every effort will be made to analyse within the THT or as soon as practicable.

Where sampling dates are not provided, Envirolab are not in a position to comment on the validity of the analysis where recommended technical holding times may have been breached.

Measurement Uncertainty estimates are available for most tests upon request.

Report Comments

svTRH (C10-C40) in Soil (sample 1) - # Percent recovery is not possible to report as the high concentration of analytes in the sample/s have caused interference.

Organochlorine Pesticides and Organophosphorus Pesticides and PCBs in Soil (sample 1) - PQL has been raised due to interference from analytes (other than those being tested) in the sample/s.

Asbestos: A portion of the supplied samples were sub-sampled for asbestos analysis according to Envirolab procedures.

We cannot guarantee that these sub-samples are indicative of the entire sample.

Envirolab recommends supplying 40-50g of sample in its own container.

Note: Samples 184142-1, 2, 3 & 4 were sub-sampled from jars provided by the client.

[illegible]



Environmental

CERTIFICATE OF ANALYSIS

Work Order : **ES1726657**
Client : **DOUGLAS PARTNERS PTY LTD**
Contact : MS PAULA MAURICI
Address : PO BOX 472 96 HERMITAGE ROAD
WEST RYDE NSW, AUSTRALIA 1685
Telephone : +61 98090666
Project : 72505.12 Randwick Campus Redevelopment
Order number : ----
C-O-C number : ----
Sampler : ----
Site : ----
Quote number : EN/020/16
No. of samples received : 1
No. of samples analysed : 1

Page : 1 of 2
Laboratory : Environmental Division Sydney
Contact : Shirley LeCornu
Address : 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone : +61-3-8549 9630
Date Samples Received : 20-Oct-2017 19:45
Date Analysis Commenced : 25-Oct-2017
Issue Date : 27-Oct-2017 10:15



This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	Position	Accreditation Category
Edwandy Fadjjar	Organic Coordinator	Sydney Inorganics, Smithfield, NSW
Raymond Commodore	Instrument Chemist	Sydney Inorganics, Smithfield, NSW



General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contact for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
 LOR = Limit of reporting
 ^ = This result is computed from individual analyte detections at or above the level of reporting
 ø = ALS is not NATA accredited for these tests.
 ~ = Indicates an estimated value.

Analytical Results

Sub-Matrix: SOIL
 (Matrix: SOIL)

Client sample ID

				BD1/20170918	----	----	----	----
Client sampling date / time				18-Sep-2017 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit	ES1726657-001	-----	-----	-----	-----
Result				----	----	----	----	----
EA055: Moisture Content (Dried @ 105-110°C)								
Moisture Content	----	1.0	%	5.8	----	----	----	----
EG005T: Total Metals by ICP-AES								
Arsenic	7440-38-2	5	mg/kg	<5	----	----	----	----
Cadmium	7440-43-9	1	mg/kg	<1	----	----	----	----
Chromium	7440-47-3	2	mg/kg	3	----	----	----	----
Copper	7440-50-8	5	mg/kg	<5	----	----	----	----
Lead	7439-92-1	5	mg/kg	11	----	----	----	----
Nickel	7440-02-0	2	mg/kg	2	----	----	----	----
Zinc	7440-66-6	5	mg/kg	34	----	----	----	----
EG035T: Total Recoverable Mercury by FIMS								
Mercury	7439-97-6	0.1	mg/kg	<0.1	----	----	----	----



Environmental

QUALITY CONTROL REPORT

Work Order	: ES1726657	Page	: 1 of 3
Client	: DOUGLAS PARTNERS PTY LTD	Laboratory	: Environmental Division Sydney
Contact	: MS PAULA MAURICI	Contact	: Shirley LeCornu
Address	: PO BOX 472 96 HERMITAGE ROAD WEST RYDE NSW, AUSTRALIA 1685	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: +61 98090666	Telephone	: +61-3-8549 9630
Project	: 72505.12 Randwick Campus Redevelopment	Date Samples Received	: 20-Oct-2017
Order number	: ----	Date Analysis Commenced	: 25-Oct-2017
C-O-C number	: ----	Issue Date	: 27-Oct-2017
Sampler	: ----		
Site	: ----		
Quote number	: EN/020/16		
No. of samples received	: 1		
No. of samples analysed	: 1		



This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	Position	Accreditation Category
Edwandy Fadjar	Organic Coordinator	Sydney Inorganics, Smithfield, NSW
Raymond Commodore	Instrument Chemist	Sydney Inorganics, Smithfield, NSW



General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis. Where the LOR of a reported result differs from standard LOR, this may be due to high

Key : Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
 CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
 LOR = Limit of reporting
 RPD = Relative Percentage Difference
 # = Indicates failed QC

Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

Sub-Matrix: **SOIL**

Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EA055: Moisture Content (Dried @ 105-110°C) (QC Lot: 1198203)									
ES1726530-022	Anonymous	EA055: Moisture Content	----	1	%	17.8	18.9	6.08	0% - 50%
ES1726530-033	Anonymous	EA055: Moisture Content	----	1	%	17.1	18.0	5.24	0% - 50%
EG005T: Total Metals by ICP-AES (QC Lot: 1198436)									
ES1726657-001	BD1/20170918	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.00	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	3	4	41.2	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	2	5	66.4	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	<5	0.00	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	<5	<5	0.00	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	11	12	9.60	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	34	36	7.14	No Limit
EW1704346-005	Anonymous	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.00	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	32	34	6.96	0% - 50%
		EG005T: Nickel	7440-02-0	2	mg/kg	15	16	0.00	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	6	21.4	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	49	52	5.78	0% - 50%
		EG005T: Lead	7439-92-1	5	mg/kg	12	12	0.00	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	78	86	9.20	0% - 50%
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 1198437)									
ES1726657-001	BD1/20170918	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
EW1704346-005	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.00	No Limit



Method Blank (MB) and Laboratory Control Spike (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Spike (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **SOIL**

Sub-Matrix: SOIL				Method Blank (MB) Report	Laboratory Control Spike (LCS) Report			
					Spike Concentration	Spike Recovery (%) LCS	Recovery Limits (%) Low High	
Method: Compound	CAS Number	LOR	Unit	Result				
EG005T: Total Metals by ICP-AES (QCLot: 1198436)								
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	21.7 mg/kg	105	86	126
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	4.64 mg/kg	100	83	113
EG005T: Chromium	7440-47-3	2	mg/kg	<2	43.9 mg/kg	105	76	128
EG005T: Copper	7440-50-8	5	mg/kg	<5	32 mg/kg	110	86	120
EG005T: Lead	7439-92-1	5	mg/kg	<5	40 mg/kg	101	80	114
EG005T: Nickel	7440-02-0	2	mg/kg	<2	55 mg/kg	108	87	123
EG005T: Zinc	7440-66-6	5	mg/kg	<5	60.8 mg/kg	111	80	122
EG035T: Total Recoverable Mercury by FIMS (QCLot: 1198437)								
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	2.57 mg/kg	83.9	70	105

Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: **SOIL**

Sub-Matrix: SOIL				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Recovery Limits (%)	
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EG005T: Total Metals by ICP-AES (QCLot: 1198436)							
ES1726657-001	BD1/20170918	EG005T: Arsenic	7440-38-2	50 mg/kg	92.8	70	130
		EG005T: Cadmium	7440-43-9	50 mg/kg	95.1	70	130
		EG005T: Chromium	7440-47-3	50 mg/kg	93.3	70	130
		EG005T: Copper	7440-50-8	250 mg/kg	96.1	70	130
		EG005T: Lead	7439-92-1	250 mg/kg	94.2	70	130
		EG005T: Nickel	7440-02-0	50 mg/kg	92.0	70	130
		EG005T: Zinc	7440-66-6	250 mg/kg	89.9	70	130
EG035T: Total Recoverable Mercury by FIMS (QCLot: 1198437)							
ES1726657-001	BD1/20170918	EG035T: Mercury	7439-97-6	5 mg/kg	96.5	70	130



QA/QC Compliance Assessment to assist with Quality Review

Work Order	: ES1726657	Page	: 1 of 4
Client	: DOUGLAS PARTNERS PTY LTD	Laboratory	: Environmental Division Sydney
Contact	: MS PAULA MAURICI	Telephone	: +61-3-8549 9630
Project	: 72505.12 Randwick Campus Redevelopment	Date Samples Received	: 20-Oct-2017
Site	: ----	Issue Date	: 27-Oct-2017
Sampler	: ----	No. of samples received	: 1
Order number	: ----	No. of samples analysed	: 1

This report is automatically generated by the ALS LIMS through interpretation of the ALS Quality Control Report and several Quality Assurance parameters measured by ALS. This automated reporting highlights any non-conformances, facilitates faster and more accurate data validation and is designed to assist internal expert and external Auditor review. Many components of this report contribute to the overall DQO assessment and reporting for guideline compliance.

Brief method summaries and references are also provided to assist in traceability.

Summary of Outliers

Outliers : Quality Control Samples

This report highlights outliers flagged in the Quality Control (QC) Report.

- **NO** Method Blank value outliers occur.
- **NO** Duplicate outliers occur.
- **NO** Laboratory Control outliers occur.
- **NO** Matrix Spike outliers occur.
- For all regular sample matrices, **NO** surrogate recovery outliers occur.

Outliers : Analysis Holding Time Compliance

- Analysis Holding Time Outliers exist - please see following pages for full details.

Outliers : Frequency of Quality Control Samples

- **NO** Quality Control Sample Frequency Outliers exist.



Outliers : Analysis Holding Time Compliance

Matrix: **SOIL**

Method Container / Client Sample ID(s)	Extraction / Preparation			Analysis		
	Date extracted	Due for extraction	Days overdue	Date analysed	Due for analysis	Days overdue
EA055: Moisture Content (Dried @ 105-110°C)						
Soil Glass Jar - Unpreserved BD1/20170918	----	----	----	25-Oct-2017	02-Oct-2017	23
EG035T: Total Recoverable Mercury by FIMS						
Soil Glass Jar - Unpreserved BD1/20170918	25-Oct-2017	16-Oct-2017	9	26-Oct-2017	16-Oct-2017	10

Analysis Holding Time Compliance

If samples are identified below as having been analysed or extracted outside of recommended holding times, this should be taken into consideration when interpreting results.

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times (referencing USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for VOC in soils vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **SOIL**

Evaluation: ✖ = Holding time breach ; ✔ = Within holding time.

Method	Sample Date	Extraction / Preparation			Analysis		
Container / Client Sample ID(s)		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EA055: Moisture Content (Dried @ 105-110°C)							
Soil Glass Jar - Unpreserved (EA055) BD1/20170918	18-Sep-2017	----	----	----	25-Oct-2017	02-Oct-2017	✖
EG005T: Total Metals by ICP-AES							
Soil Glass Jar - Unpreserved (EG005T) BD1/20170918	18-Sep-2017	25-Oct-2017	17-Mar-2018	✔	25-Oct-2017	17-Mar-2018	✔
EG035T: Total Recoverable Mercury by FIMS							
Soil Glass Jar - Unpreserved (EG035T) BD1/20170918	18-Sep-2017	25-Oct-2017	16-Oct-2017	✖	26-Oct-2017	16-Oct-2017	✖



Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(were) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **SOIL**

Evaluation: ✖ = Quality Control frequency not within specification ; ✔ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	Method	QC	Regular	Actual	Expected	Evaluation	
Laboratory Duplicates (DUP)							
Moisture Content	EA055	2	20	10.00	10.00	✔	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	2	19	10.53	10.00	✔	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	2	20	10.00	10.00	✔	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Total Mercury by FIMS	EG035T	1	19	5.26	5.00	✔	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	20	5.00	5.00	✔	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Total Mercury by FIMS	EG035T	1	19	5.26	5.00	✔	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	20	5.00	5.00	✔	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Total Mercury by FIMS	EG035T	1	19	5.26	5.00	✔	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	20	5.00	5.00	✔	NEPM 2013 B3 & ALS QC Standard



Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
Moisture Content	EA055	SOIL	In house: A gravimetric procedure based on weight loss over a 12 hour drying period at 105-110 degrees C. This method is compliant with NEPM (2013) Schedule B(3) Section 7.1 and Table 1 (14 day holding time).
Total Metals by ICP-AES	EG005T	SOIL	In house: Referenced to APHA 3120; USEPA SW 846 - 6010. Metals are determined following an appropriate acid digestion of the soil. The ICPAES technique ionises samples in a plasma, emitting a characteristic spectrum based on metals present. Intensities at selected wavelengths are compared against those of matrix matched standards. This method is compliant with NEPM (2013) Schedule B(3)
Total Mercury by FIMS	EG035T	SOIL	In house: Referenced to AS 3550, APHA 3112 Hg - B (Flow-injection (SnCl ₂) (Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. Mercury in solids are determined following an appropriate acid digestion. Ionic mercury is reduced online to atomic mercury vapour by SnCl ₂ which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
Preparation Methods	Method	Matrix	Method Descriptions
Hot Block Digest for metals in soils sediments and sludges	EN69	SOIL	In house: Referenced to USEPA 200.2. Hot Block Acid Digestion 1.0g of sample is heated with Nitric and Hydrochloric acids, then cooled. Peroxide is added and samples heated and cooled again before being filtered and bulked to volume for analysis. Digest is appropriate for determination of selected metals in sludge, sediments, and soils. This method is compliant with NEPM (2013) Schedule B(3) (Method 202)

Project Name: Randwick Campus Redevelopment.....
Project No: 72505.12..... Sampler: A McIntyre.....
Project Mgr: Paul Gorman/Paula Maurici Mob. Phone 0408314017.....
Email: maurici@douglaspartners.com.au.....
paul.gorman@douglaspartners.com.au.....

To: Envirolab Services
12 Ashley Street, Chatswood NSW 2068
Attn: Tania Notaras
Phone: 02 9910 6200 Fax: 02 9910 6201
Date Required: standard... Lab Quote No.
Email: tnotaras@envirolabservices.com.au

Sample ID	Sample Depth	Lab ID	Sampling Date	Sample Type	Container type	Analytes										Other
						Combo 8a	Combo 3	pH, CeC	TRA/CEC							
BH1	0.5-0.6	1	18/9	S	G	✓										
BH2	0.3-0.4	2	18/9	S	G	✓										
BH3	0.07-0.1	3	18/9	S	G	✓										
BH4	0.5-0.6	4	18/9	S	G	✓										
BH5	0.4-0.5	5	18/9	S		✓										
BH5	0.9-1	6	19/9	S			✓									
BH5	1.3-1.4	7	19/9	S			✓									
BH1/20170919	19/9	8	19/9	S												
TS20170919	19/9	9	19/9	S				✓								
TB20170919	19/9	10	19/9	S				✓								
TB20170918	18/9	11	18/9	S			✓									
BH1/20170918 (extra)	18/9	12														

Environmental Division
Sydney
Work Order Reference
ES1726657



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Envirolab Services
12 Ashley St
Chatswood NSW 2068
Ph: (02) 9910 6200
Job No: 176094
Date Received: 20/9/17
Time Received: 18:05
Received By: M3
Temp: 5.9
Cooling: 5.9
Security: Broken Stone

Phone: (02) 9809 0666

Fax: (02) 9809 4095

Lab Report No. Address: 96 Hermitage Road, West Ryde 2114

Send Results to: Douglas Partners

Relinquished by: PM Signed: [Signature] Date & Time:

Relinquished by: PM Signed: [Signature] Date & Time:

Received By: M3 Date & Time: 20/9/17 18:05

Received By: [Signature] Date & Time: 20-10-17 19:45

Appendix F

Data Quality Assessment

DATA QUALITY ASSESSMENT

Q1. Data Quality Objectives

The preliminary site investigation was prepared with reference to the seven step data quality objective (DQO) process which is provided in Appendix B, Schedule B2 of the *National Environment Protection (Assessment of Site Contamination) Measure* 1999 as amended 2013 (NEPC, 2013). The DQO process is outlined as follows:

-) Stating the Problem;
-) Identifying the Decision;
-) Identifying Inputs to the Decision;
-) Defining the Boundary of the Assessment;
-) Developing a Decision Rule;
-) Specifying Acceptable Limits on Decision Errors; and
-) Optimising the Design for Obtaining Data.

The DQOs have been addressed within the report as shown in Table Q1.

Table Q1: Data Quality Objectives

Data Quality Objective	Report Section where Addressed
State the Problem	S1 Introduction
Identify the Decision	S15 Conclusions and Recommendations
Identify Inputs to the Decision	S1 Introduction S2 Scope of Works S3 Site Identification S4 Site Geology, Topography and Hydrogeology S5 Acid Sulphate Soil S6 Historical Information S7 Site Walkover S8 Conceptual Site Model S11 Fieldwork Observations S12 Laboratory Results
Define the Boundary of the Assessment	S3 Site Identification Drawing 1 (Appendix A)
Develop a Decision Rule	S10 Site Assessment Criteria
Specify Acceptable Limits on Decision Errors	S10 Site Assessment Criteria Data Quality Assessment – Sections Q2, Q3
Optimise the Design for Obtaining Data	S2 Scope of Works S9 Fieldwork Data Quality Assessment – Sections Q2, Q3

Q2. FIELD AND LABORATORY QUALITY CONTROL

The field and laboratory quality control (QC) procedures and results are summarised in Tables Q2 and Q3. Reference should be made to the data quality indicators in Table Q5 and the laboratory results certificates in Appendix E for further details.

Table Q2: Field QC

Item	Frequency	Acceptance Criteria	Achievement
Intra-laboratory replicates	>5% primary samples	RPD <30% inorganics), <50% (organics)	yes ¹
Inter-laboratory replicates	>5% primary samples	RPD <30% inorganics), <50% (organics)	yes ¹
Trip Spikes	1 per field batch	60-140% recovery	yes
Trip Blanks	1 per field batch	<PQL/LOR	yes

Note: 1 qualitative assessment of RPD results overall; refer Section Q2.1 and Q2.2

Table Q3: Laboratory QC

Item	Frequency	Acceptance Criteria	Achievement
Analytical laboratories used		NATA accreditation	yes
Holding times		In accordance with NEPC (2013) which references various Australian and international standards Some additional analysis performed on samples were on or slightly exceed the specified holding times (14 days), however the analysis was for semi-volatiles and results are consistent with results for analysis undertaken within specified holding times.	ok
Laboratory / Reagent Blanks	1 per lab batch	<PQL	yes
Laboratory duplicates	10% primary samples	Laboratory specific ¹	Yes
Matrix Spikes	1 per lab batch	70-130% recovery (inorganics); 60-140% (organics); 10-140% (SVOC, speciated phenols)	yes ²
Surrogate Spikes	organics by GC	70-130% recovery (inorganics); 60-140% (organics); 10-140% (SVOC, speciated phenols)	yes ²
Control Samples	1 per lab batch	70-130% recovery (inorganics); 60-140% (organics); 10-140% (SVOC, speciated phenols)	Yes

Notes: 1 ELS: <5xPQL – any RPD; >5xPQL – 0-50%RPD
ALS: <10xLOR – no limit; 10-20x LOR – 0-50%; >20x LOR – 0-20%RPD

2 See Table Q6 for comments on triplicate samples and spike recovery.

A 5% inter-laboratory analysis frequency was achieved for soils and a 5% intra-laboratory sampling analysis frequency was achieved for both soil and water.

In summary, the QC data is considered to be of sufficient quality to be acceptable for the assessment.

Q2.1 Intra-Laboratory Replicates

Intra-laboratory replicates were analysed as an internal check of the reproducibility within the primary laboratory Envirolab Services Pty Ltd (ELS) and as a measure of consistency of sampling techniques. The comparative results of analysis between original and intra-laboratory replicate samples are summarised in Tables Q4 and Q5.

Note that, where both samples are below LOR/PQL the difference and RPD has been given as zero. Where one sample is reported below LOR/PQL, but a concentration is reported for the other, the LOR/PQL value has been used for calculation of the RPD for the less than LOR/PQL sample.

The calculated RPD values were within the acceptable range of ≤ 30 for inorganic analytes and $\leq 50\%$ for organics with the exception of the results shown in bold. However, this is not considered to be significant because:

-) The typically low actual differences in the concentrations of the replicate pairs where some RPD exceedances occurred. High RPD values reflect the small differences between two small numbers;
-) The number of replicate pairs being collected from fill soils which were heterogeneous in nature;
-) Soil replicates, rather than homogenised duplicates, were used to minimise the risk of volatile loss, hence greater variability can be expected;
-) Most of the recorded concentrations being relatively close to the LOR/PQL. High RPD values reflect the low concentrations;
-) The majority of RPDs within a replicate pair being within the acceptable limits; and
-) All other QA/QC parameters met the DQIs.

The calculated RPD values for water samples were within the acceptable range of ≤ 30 for inorganic analytes and $\leq 50\%$ for organics with the exception of the results shown in bold. However, this is not considered to be significant because:

-) The typically low actual differences in the concentrations of the replicate water pairs for metals (Cu).

Overall, the intra-laboratory replicate comparisons indicate that the sampling techniques were generally consistent and repeatable.

Table Q4: Relative Percentage Difference Results – Intra-laboratory Replicates

Lab	Sample ID	Date Sampled	Media	Units	Metals								TRH				BTEX				
					As	Cd	Cr	Cu	Pb	Hg	Ni	Zn	C6-C10	>C10-C16	>C16-C34	>C34-C40	Benzene	Toluene	Ethylbenzene	xylene	
Soil																					
ELS	BD1/20180109	09/01/18	Filling	mg/kg	4	<0.4	9	15	50	0.1	6	130	<25	<50	<100	<100	<0.2	<0.5	<1	<1	
ELS	BH105/0.3-0.5	09/01/18	Filling	mg/kg	<4	<0.4	4	16	130	<0.1	2	140	<25	<50	<100	<100	<0.2	<0.5	<1	<1	
Difference				mg/kg	-	0	5	1	80	-	4	1	0	0	0	0	0	0	0	0	0
RPD				%	-	0	77	6	89	-	100	7	0	0	0	0	0	0	0	0	0

Lab	Sample ID	Date Sampled	Media	Units	B(a)P	B(a)P total potential equivalent	Naphthalene	Total +ve PAHs
ELS	BD1/20180109	09/01/18	Filling	mg/kg	-	-	<0.1	-
ELS	BH105/0.3-0.5	09/01/18	Filling	mg/kg	<0.05	<0.5	<0.1	<0.05
Difference				mg/kg	-	-	0	-
RPD				%	-	-	0	-

Table Q5: Relative Percentage Difference Results – Intra-laboratory Replicates

Lab	Sample ID	Date Sampled	Media	Units	Metals								TRH				BTEX			
					As	Cd	Cr	Cu	Pb	Hg	Ni	Zn	C6-C10	>C10-C16	>C16-C34	>C34-C40	Benzene	Toluene	Ethylbenzene	xylene
Soil																				
ELS	BD1/20180110	09/01/18	Filling	mg/kg	<4	<0.4	9	15	50	0.1	6	130	<25	<50	<100	<100	<0.2	<0.5	<1	<1
ELS	BH113/0.1-0.3	09/01/18	Filling	mg/kg	<4	0.7	18	79	290	<0.1	4	130	<25	<50	<100	<100	<0.2	<0.5	<1	<1
Difference				mg/kg	0	-	9	64	240	0	2	0	0	0	0	0	0	0	0	0
RPD				%	0	-	67	136	141	0	40	0	0	0	0	0	0	0	0	0

Lab	Sample ID	Date Sampled	Media	Units	B(a)P	B(a)P total potential equivalent	Naphthalene	Total +ve PAHs
ELS	BD1/20180110	09/01/18	Filling	mg/kg	-	-	<0.1	-
ELS	BH105/0.3-0.5	09/01/18	Filling	mg/kg	0.2	<0.5	<0.1	2.1
Difference				mg/kg	-	-	0	-
RPD				%	-	-	0	-

Table Q6: Relative Percentage Difference Results – Intra-laboratory Replicates

Lab	Sample ID	Date Sampled	Media	Units	Metals								TRH				BTEX			
					As	Cd	Cr	Cu	Pb	Hg	Ni	Zn	C6-C10	>C10-C16	>C16-C34	>C34-C40	Benzene	Toluene	Ethylbenzene	xylene
Soil																				
ELS	BD3/20180109	09/01/18	Filling	mg/kg	<4	<0.4	8	7	79	<0.1	<1	25	<25	<50	<100	<100	<0.2	<0.5	<1	<1
ELS	BH110/0.5-0.7	09/01/18	Filling	mg/kg	5	<0.4	6	12	53	0.2	2	170	<25	<50	<100	<100	<0.2	<0.5	<1	<1
Difference				mg/kg	-	0	2	5	26	-	4	145	0	0	0	0	0	0	0	0
RPD				%	-	0	29	53	39	-	-	149	0	0	0	0	0	0	0	0

Lab	Sample ID	Date Sampled	Media	Units	B(a)P	B(a)P total potential equivalent	Naphthalene	Total +ve PAHs
ELS	BD3/20180109	09/01/18	Filling	mg/kg	-	-	<0.1	-
ELS	BH110/0.5-0.7	09/01/18	Filling	mg/kg	1.4	<0.5	<0.1	2.8
Difference				mg/kg	-	-	0	-
RPD				%	-	-	0	-

Table Q7: Relative Percentage Difference Results – Intra-laboratory Replicates

Lab	Sample ID	Date Sampled	Media	Units	Metals								TRH				BTEX				
					As	Cd	Cr	Cu	Pb	Hg	Ni	Zn	C6-C10	>C10-C16	>C16-C34	>C34-C40	Benzene	Toluene	Ethylbenzene	xylene	
Soil																					
ELS	BD4/20180110	09/01/18	Filling	mg/kg	<4	<0.4	3	13	98	<0.1	2	85	<25	<50	<100	<100	<0.2	<0.5	<1	<1	
ELS	BH122/0.0-0.1	09/01/18	Filling	mg/kg	<4	<0.4	6	9	69	<0.1	1	31	<25	<50	<100	<100	<0.2	<0.5	<1	<1	
Difference				mg/kg	0	0	3	4	29	-	4	54	0	0	0	0	0	0	0	0	0
RPD				%	0	0	67	36	35	-	-	31	0	0	0	0	0	0	0	0	0

Lab	Sample ID	Date Sampled	Media	Units	B(a)P	B(a)P total potential equivalent	Naphthalene	Total +ve PAHs
ELS	BD4/20180110	09/01/18	Filling	mg/kg	-	-	<0.1	-
ELS	BH122/0.0-0.1	09/01/18	Filling	mg/kg	0.1	<0.5	<0.1	0.63
Difference				mg/kg	-	-	0	-
RPD				%	-	-	0	-

Table Q8: Relative Percentage Difference Results – Intra-laboratory Replicates

Lab	Sample ID	Date Sampled	Media	Units	Metals								TRH				BTEX			
					As	Cd	Cr	Cu	Pb	Hg	Ni	Zn	C6-C10	>C10-C16	>C16-C34	>C34-C40	Benzene	Toluene	Ethylbenzene	xylene
Soil																				
ELS	BD1/20180123	23/01/18	Filling	mg/kg	<4	<0.4	5	29	12	<0.1	4	22	<25	1700	11000	1300	<0.2	<0.5	<1	<1
ELS	BH08/0.4-0.5	23/01/18	Filling	mg/kg	<4	<0.4	1	<1	1	<0.1	<1	2	<25	<50	<100	<100	<0.2	<0.5	<1	<1
Difference				mg/kg	0	0	4	28	11	0	3	20	0	-	-	-	0	0	0	0
RPD				%	0	0	133	187	169	0	120	167	0	-	-	-	0	0	0	0

Lab	Sample ID	Date Sampled	Media	Units	B(a)P	B(a)P total potential equivalent	Naphthalene	Total +ve PAHs
ELS	BD1/20180123	23/01/18	Filling	mg/kg	-	-	-	-
ELS	BH08/0.4-0.5	23/01/18	Filling	mg/kg	-	-	-	-
Difference				mg/kg	-	-	-	-
RPD				%	-	-	-	-

Table Q9: Relative Percentage Difference Results – Intra-laboratory Replicates

Lab	Sample ID	Date Sampled	Media	Units	Metals								TRH				BTEX			
					As	Cd	Cr	Cu	Pb	Hg	Ni	Zn	C6-C10	>C10-C16	>C16-C34	>C34-C40	Benzene	Toluene	Ethylbenzene	xylene
Soil																				
ELS	BD1/20170919	19/09/17	Filling	mg/kg	<4	<0.4	3	<1	3	<0.1	<1	1	<25	<50	<100	<100	<0.2	<0.5	<1	<1
ELS	BH5/1.3-1.4	19/09/17	Filling	mg/kg	<4	<0.4	3	<1	2	<0.1	1	2	<25	<50	<100	<100	<0.2	<0.5	<1	<1
Difference				mg/kg	0	0	4	0	11	0	0	20	0	0	0	0	0	0	0	0
RPD				%	0	0	133	0	169	0	0	167	0	0	0	0	0	0	0	0

Lab	Sample ID	Date Sampled	Media	Units	B(a)P	B(a)P total potential equivalent	Naphthalene	Total +ve PAHs
ELS	BD1/20170919	19/09/17	Filling	mg/kg	0.06	<0.5	<0.1	0.06
ELS	BH5/1.3-1.4	19/09/17	Filling	mg/kg	<0.05	<0.5	<0.1	<0.05
Difference				mg/kg	0.01	0	0	0.01
RPD				%	18	0	0	18

Table Q10: Relative Percentage Difference Results – Intra-laboratory Replicates

Lab	Sample ID	Date Sampled	Media	Units	Metals							
					As	Cd	Cr	Cu	Pb	Hg	Ni	Zn
ELS	BD13102017	13/10/17	water	mg/L	<0.001	<0.0001	<0.001	0.007	<0.001	<0.00005	0.002	0.022
ELS	GW7	13/10/17	water	mg/L	<0.001	<0.0001	<0.001	0.007	<0.001	<0.00005	0.002	0.024
Difference				mg/L	0	0	0	0	0	0	0	0.002
RPD				%	0	0	0	0	0	0	0	9

Lab	Sample ID	Date Sampled	Media	Units	TRH				BTEX				PAH		
					C6-C10	>C10-C16	>C16-C34	>C34-C40	Benzene	Toluene	Ethylbenzene	xylene	B(a)P	Naphthalene	Sum PAH
ELS	BD13102017	13/10/17	water	mg/L	0.014	<0.05	<0.1	<0.1	<0.001	<0.001	<0.001	<0.003	<0.0001	<0.0002	0
ELS	GW7	13/10/17	water	mg/L	0.014	<0.05	<0.1	<0.1	<0.001	<0.001	<0.001	<0.003	<0.0001	<0.0002	0
Difference				mg/L	0	0	0	0	0	0	0	0	0	0	0
RPD				%	0	0	0	0	0	0	0	0	0	0	0

Q2.2 Inter-Laboratory Analysis

Inter-laboratory replicates were conducted as a check of the reproducibility of results between the primary laboratory ELS and the secondary laboratory ALS Limited (ALS) and as a measure of consistency of sampling techniques.

The comparative results of analysis between original and inter-laboratory replicate samples are summarised in Table Q6.

Table Q6: Relative Percentage Difference Results – Inter-laboratory Replicates

Lab	Sample ID	Date Sampled	Media	Units	Metals							
					As	Pb	Cr	Cu	Pb	Hg	Ni	Zn
ELS (Sydney)		18/09/17	Filling	mg/kg	<4	<0.4	4	2	16	<0.1	2	37
ALS	BD1/20170918	18/09/17	Filling	mg/kg	<5	<1	3	<5	11	<0.1	2	34
Difference				mg/kg	1	0.6	1	3	5	0	0	3
RPD				%	22	86	29	86	37	0	0	8

Note that, where both samples are below LOR/PQL the difference and RPD has been given as zero. Where one sample is reported below LOR/PQL, but a concentration is reported for the other, the LOR/PQL value has been used for calculation of the RPD for the less than LOR/PQL sample.

For water, the calculated RPD values were within the acceptable range of ≤ 30 for inorganic analytes and $\leq 50\%$ for organics. For soils, the calculated RPD values marginally exceeded the acceptable range of ≤ 30 but it is considered that this is likely to be a result of the heterogeneous soil matrix which comprised a yellow and light grey silty clay, moist.

Overall, the inter-laboratory replicate comparisons indicate that the sampling techniques were generally consistent and repeatable.

Q2.3 Field Instrument Calibration

The photoionisation detector (PID) fitted with a [11.7 volt lamp] was calibrated and serviced prior to use on the field. Prior to commencement of groundwater sampling the water quality meter was calibrated in the field prior to use.

Q3. Data Quality Indicators

The reliability of field procedures and analytical results was assessed against the following data quality indicators (DQIs):

-) Completeness – a measure of the amount of usable data from a data collection activity;
-) Comparability – the confidence (qualitative) that data may be considered to be equivalent for each sampling and analytical event;
-) Representativeness – the confidence (qualitative) of data representativeness of media present on-site;
-) Precision – a measure of variability or reproducibility of data; and
-) Accuracy – a measure of closeness of the data to the ‘true’ value.

The DQIs were assessed as outlined in the following Table Q7.

Table Q7: Data Quality Indicators

Data Quality Indicator	Method(s) of Achievement
Completeness	Preparation of field logs, sample location plan and chain of custody (COC) records; Laboratory sample receipt information received confirming receipt of samples intact and appropriateness of the chain of custody; Samples analysed for the primary contaminants of potential concern (COPC) identified in the Conceptual Site Model (CSM). Future investigations will target potential contaminants not analysed; Completion of COC documentation; NATA endorsed laboratory certificates provided by the laboratory; Satisfactory frequency and results for field and laboratory QC samples as discussed in Section Q2.
Comparability	Using appropriate techniques for sample recovery, storage and transportation, which were the same for the duration of the project; Works undertaken by appropriately experienced and trained DP environmental scientist / engineer or geotechnical engineer; Use of NATA registered laboratories, with test methods the same or similar between laboratories; Satisfactory results for field and laboratory QC samples.
Representativeness	Samples were extracted and generally analysed within holding times. Samples were analysed in accordance with the analysis request. It is noted that a report comment is made by ELS with respect to sub-sampled asbestos from soil jars. This is expected and acceptable for analytical requirements.

Data Quality Indicator	Method(s) of Achievement
Precision	Acceptable RPD between original samples and replicates. It is noted that laboratory triplicates were conducted for samples BH1/0.2-0.3 which initially exceeded the RPD acceptance criteria for some metals but the total concentrations were very low. The laboratory has noted Percent recovery is not possible to report as the high concentration of analytes in the sample/s have caused interference. The RPD for duplicate results is accepted due to the non homogenous nature of the sample/s. Overall, satisfactory results were achieved for all other field and laboratory QC samples.
Accuracy	Satisfactory results for all field and laboratory QC samples.

Based on the above, it is considered that the DQIs have been complied with. As such, it is concluded that the field and laboratory test data obtained are reliable and useable for this assessment.