

Borehole No. **BH MSB-2**

Engineering Log - Borehole

Sheet 1 of 1
Project No: **GEOTLCOV24080AC**

Client: **University of New South Wales C/- Taylor Thomson Whitting**

Date started: **18.9.2010**

Principal:

Date completed: **18.9.2010**

Project: **UNSW, Proposed MSB Building**

Logged by: **DB**

Borehole Location: ***Car Park behind Applied Sciences Building***

Checked by: **DG**

drill model and mounting:						Edson 3000 Truck							Easting: 336204.74								slope: -90°									R.L. Surface: 28.62						
hole diameter:						100 mm							Northing 6245684.19								bearing: N/A									datum: AHD						
drilling information													material substance																							
method		penetration 1 2 3			support water		notes samples, tests, etc				RL depth metres		graphic log		classification symbol		material soil type: plasticity or particle characteristics, colour, secondary and minor components.								moisture condition		consistency/ density index		pocket penetrometer kPa 100 200 300 400		structure and additional observations					
ADT							E				28				SP		FILL: BITUMEN FILL: GRAVELLY SAND: Fine to medium grained, pale grey-dark grey, gravels are fine to medium grained, angular to sub-angular. SAND: Fine to medium grained, orange brown-pale orange, pale grey.								D						PAVEMENT SUB BASE DUNE SAND DEPOSITS					
							E				1						Borehole BH MSB-2 terminated at 1.1m																			
											27																									
											2																									
											26																									
											3																									
											25																									
											4																									
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											21																									
											8																									
method AS auger screwing* AD auger drilling* RR roller/tricone W washbore CT cable tool HA hand auger DT diatube B blank bit V V bit T TC bit *bit shown by suffix e.g. ADT						support M mud C casing penetration 1 2 3 4 water 10/1/98 water level on date shown water inflow water outflow						N nil notes, samples, tests U ₅₀ undisturbed sample 50mm diameter U ₆₃ undisturbed sample 63mm diameter D disturbed sample N standard penetration test (SPT) N* SPT - sample recovered Nc SPT with solid cone V vane shear (kPa) P pressuremeter Bs bulk sample E environmental sample R refusal						classification symbols and soil description based on unified classification system moisture D dry M moist W wet Wp plastic limit WL liquid limit						consistency/density index VS very soft S soft F firm St stiff VSt very stiff H hard Fb friable VL very loose L loose MD medium dense D dense VD very dense												

Borehole No. **BH MSB-3**

Engineering Log - Borehole

Sheet 1 of 2
Project No: **GEOTLCOV24080AC**

Client: **University of New South Wales C/- Taylor Thomson Whitting**

Date started: **18.9.2010**

Principal:

Date completed: **18.9.2010**

Project: **UNSW, Proposed MSB Building**

Logged by: **DB**

Borehole Location: **Car Park behind Applied Sciences Building**

Checked by: **DG**

drill model and mounting: Edson 3000 Truck		Easting: 336234.21		slope: -90°		R.L. Surface: 28.76	
hole diameter: 100 mm		Northing: 6245663.41		bearing: N/A		datum: AHD	
drilling information				material substance			
method	penetration 1 2 3	support water	notes samples, tests, etc	RL	depth metres	graphic log	classification symbol
ADT							
			E				
			E				
				28	1		
			E				
					27		
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Borehole No. **BH MSB-3**

Engineering Log - Borehole

Sheet 2 of 2
Project No: **GEOTLCOV24080AC**

Client: **University of New South Wales C/- Taylor Thomson Whitting**

Date started: **18.9.2010**

Principal:

Date completed: **18.9.2010**Project: **UNSW, Proposed MSB Building**

Logged by: **DB**

Borehole Location: ***Car Park behind Applied Sciences Building***

Checked by: **DG**

drill model and mounting:		Edson 3000 Truck		Easting: 336234.21		slope: -90°		R.L. Surface: 28.76																			
hole diameter:		100 mm		Northing 6245663.41		bearing: N/A		datum: AHD																			
drilling information						material substance																					
method		penetration		support		water		notes samples, tests, etc		RL		depth metres		graphic log		classification symbol		material		moisture condition		consistency/ density index		pocket penetrometer		structure and additional observations	
1 2 3		1 2 3 4		1 2 3 4		1 2 3 4												soil type: plasticity or particle characteristics, colour, secondary and minor components.						100 200 300 400			
ADT												20		9				SAND: Fine to medium grained, pale orange to orange-brown, with some iron indurated bands. (continued)		W		D					
												17		12				Borehole BH MSB-3 terminated at 11.4m									
												16		13													
												15		14													
												14		15													
												13		16													
												16															
method		auger screwing*		support		M mud N nil		penetration		1 2 3 4		no resistance ranging to refusal		water		10/1/98 water level on date shown		notes, samples, tests		classification symbols and soil description		based on unified classification system		consistency/density index			
AS		auger drilling*		C casing														U ₅₀ undisturbed sample 50mm diameter		VS		very soft					
AD																		U ₆₃ undisturbed sample 63mm diameter		S		soft					
RR		roller/tricone																D disturbed sample		F		firm					
W		washbore																N standard penetration test (SPT)		St		stiff					
CT		cable tool																N* SPT - sample recovered		VSt		very stiff					
HA		hand auger																Nc SPT with solid cone		H		hard					
DT		diatube																V vane shear (kPa)		Fb		friable					
B		blank bit																P pressuremeter		VL		very loose					
V		V bit																Bs bulk sample		L		loose					
T		TC bit																E environmental sample		MD		medium dense					
*bit shown by suffix e.g. ADT																		R refusal		D		dense					
																				VD		very dense					

Engineering Log - Borehole

Client: **University of New South Wales C/- Taylor Thomson Whitting**

Date started: **18.9.2010**

Principal:

Date completed: **18.9.2010**

Project: **UNSW, Proposed MSB Building**

Logged by: **DB**

Borehole Location: **Car Park behind Applied Sciences Building**

Checked by: **DG**

drill model and mounting:	Edson 3000 Truck	Easting:	336265.89	slope:	-90°	R.L. Surface:	29.16
hole diameter:	100 mm	Northing	6245662.52	bearing:	N/A	datum:	AHD

drilling information						material substance									
method	penetration			support	water	notes samples, tests, etc	RL	depth metres	graphic log	classification symbol	material soil type: plasticity or particle characteristics, colour, secondary and minor components.	moisture condition	consistency/ density index	pocket penetro- meter kPa	structure and additional observations
	1	2	3												
ADT				C		29					FILL: BITUMEN FILL: CONCRETE				PAVEMENT CONCRETE
					E										
					E					SP	SAND: Fine to medium grained, pale brown-pale grey.	M-D	MD		DUNE SAND DEPOSITS
								1							
					E	28									
RR					SPT 6,6,5 N*=11						SAND: Fine to medium grained, pale brown-orange brown, pale orange-pale grey.	M			
						27									
					SPT 3,5,8 N*=13	26		3			SAND: Fine to medium grained, pale grey-off white, some pale brown.				
						25		4			SAND: Fine grained with some medium grained, pale orange-pale brown-pale grey, with some minor clay and iron indurated banding.				
					SPT 11,7,9 N*=16			5							
						24									
					SPT 6,8,8 N*=16	23		6				W			
						22		7							
								8					D		

method	support	notes, samples, tests	classification symbols and soil description	consistency/density index
AS AD RR W CT HA DT B V T *bit shown by suffix e.g. ADT	M mud C casing penetration 1 2 3 4 no resistance ranging to refusal water 10/1/98 water level on date shown water inflow water outflow	U ₅₀ undisturbed sample 50mm diameter U ₆₃ undisturbed sample 63mm diameter D disturbed sample N standard penetration test (SPT) N* SPT - sample recovered Nc SPT with solid cone V vane shear (kPa) P pressuremeter Bs bulk sample E environmental sample R refusal	based on unified classification system moisture D dry M moist W wet Wp plastic limit WL liquid limit	VS very soft S soft F firm St stiff VSt very stiff H hard Fb friable VL very loose L loose MD medium dense D dense VD very dense

Borehole No. **BH MSB-4**

Engineering Log - Borehole

Sheet 2 of 2
Project No: **GEOTLCOV24080AC**

Client: **University of New South Wales C/- Taylor Thomson Whitting**

Date started: **18.9.2010**

Principal:

Date completed: **18.9.2010**

Project: **UNSW, Proposed MSB Building**

Logged by: **DB**

Borehole Location: **Car Park behind Applied Sciences Building**

Checked by: **DG**

drill model and mounting: Edson 3000 Truck Easting: 336265.89 slope: -90° R.L. Surface: 29.16
hole diameter: 100 mm Northing 6245662.52 bearing: N/A datum: AHD

drilling information						material substance												
method	penetration			support	water	notes samples, tests, etc	RL	depth metres	graphic log	classification symbol	material soil type: plasticity or particle characteristics, colour, secondary and minor components.	moisture condition	consistency/ density index	pocket penetro- meter				structure and additional observations
	1	2	3											100 kPa	200 kPa	300 kPa	400 meter	
RR							21				SAND: Fine grained with some medium grained, pale orange-pale brown-pale grey, with some minor clay and iron indurated banding. <i>(continued)</i>	W	D					
								9			Borehole BH MSB-4 terminated at 8.5m							
							20											
								10										
							19											
								11										
							18											
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							17											
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							15											
								15										
							14											
								16										

method	support	notes, samples, tests	classification symbols and soil description	consistency/density index
AS auger screwing*	M mud N nil	U ₅₀ undisturbed sample 50mm diameter	based on unified classification system	VS very soft
AD auger drilling*	C casing	U ₆₃ undisturbed sample 63mm diameter		S soft
RR roller/tricone	penetration 1 2 3 4	D disturbed sample	moisture	F firm
W washbore	no resistance ranging to refusal	N standard penetration test (SPT)		St stiff
CT cable tool		N* SPT - sample recovered	D dry	VSt very stiff
HA hand auger		Nc SPT with solid cone		H hard
DT diatube		V vane shear (kPa)	M moist	Fb friable
B blank bit		P pressuremeter	W wet	VL very loose
V V bit	10/1/98 water level on date shown	Bs bulk sample	Wp plastic limit	L loose
T TC bit		E environmental sample	WL liquid limit	MD medium dense
*bit shown by suffix e.g. ADT	water inflow water outflow	R refusal		D dense
				VD very dense

Appendix B - Laboratory Certificates of Analysis

Certificate of Analysis

Coffey Environments Pty Ltd NSW
Level 19, Tower B – Citadel Tower, 799 Pacific Highway
Chatswood
NSW 2067



NATA Accredited
Accreditation Number 1261
Site Number 18217

Accredited for compliance with ISO/IEC 17025.
The results of the tests, calibrations and/or
measurements included in this document are traceable
to Australian/national standards.

Attention: Matthew Locke

Report 355476-S
Client Reference UNSW KENSINGTON ENAURHOD04414AA
Received Date Oct 15, 2012

Client Sample ID			CBH1_(0.5-0.6M)	CBH2_(0.3-0.4M)	CBH3_(1.0-1.1M)	CBH4_(1.0-1.1M)
Sample Matrix			Soil	Soil	Soil	Soil
mgt-LabMark Sample No.			S12-Oc13015	S12-Oc13017	S12-Oc13020	S12-Oc13023
Date Sampled			Oct 13, 2012	Oct 13, 2012	Oct 13, 2012	Oct 13, 2012
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons - 1999 NEPM Fractions						
TRH C6-C9	10	mg/kg	< 10	< 10	< 10	< 10
TRH C10-C14	50	mg/kg	< 50	< 50	< 50	< 50
TRH C15-C28	100	mg/kg	< 100	< 100	< 100	< 100
TRH C29-C36	100	mg/kg	< 100	< 100	< 100	< 100
TRH C10-36 (Total)	100	mg/kg	< 100	< 100	< 100	< 100
BTEX						
Benzene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Toluene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Ethylbenzene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Total m+p-Xylenes	1	mg/kg	< 1	< 1	< 1	< 1
o-Xylene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Xylenes(ortho.meta and para)	1.5	mg/kg	< 1.5	< 1.5	< 1.5	< 1.5
Total BTEX	1.5	mg/kg	< 1.5	< 1.5	< 1.5	< 1.5
4-Bromofluorobenzene (surr.)	1	%	100	97	93	94
Total Recoverable Hydrocarbons - Draft 2010 NEPM Fractions *						
Naphthalene ^{N02}	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
TRH C6-C10	20	mg/kg	< 20	< 20	< 20	< 20
TRH C6-C10 less BTEX (F1) ^{N04}	20	mg/kg	< 20	< 20	< 20	< 20
TRH >C10-C16	50	mg/kg	< 50	< 50	< 50	< 50
TRH >C10-C16 less Naphthalene (F2) ^{N01}	50	mg/kg	< 50	< 50	< 50	< 50
TRH >C16-C34	100	mg/kg	< 100	< 100	< 100	< 100
TRH >C34-C40	100	mg/kg	< 100	< 100	< 100	< 100
Polychlorinated Biphenyls (PCB)						
Aroclor-1016	0.5	mg/kg	-	< 0.5	-	< 0.5
Aroclor-1232	0.5	mg/kg	-	< 0.5	-	< 0.5
Aroclor-1242	0.5	mg/kg	-	< 0.5	-	< 0.5
Aroclor-1248	0.5	mg/kg	-	< 0.5	-	< 0.5
Aroclor-1254	0.5	mg/kg	-	< 0.5	-	< 0.5
Aroclor-1260	0.5	mg/kg	-	< 0.5	-	< 0.5
Total PCB	0.5	mg/kg	-	< 0.5	-	< 0.5
Dibutylchloroendate (surr.)	1	%	-	125	-	105
Organochlorine Pesticides (OC)						
4,4'-DDD	0.05	mg/kg	-	< 0.05	-	< 0.05
4,4'-DDE	0.05	mg/kg	-	< 0.05	-	< 0.05
4,4'-DDT	0.2	mg/kg	-	< 0.2	-	< 0.2
a-BHC	0.05	mg/kg	-	< 0.05	-	< 0.05
a-Chlordane	0.05	mg/kg	-	< 0.05	-	< 0.05

Client Sample ID			CBH1_(0.5-0.6M)	CBH2_(0.3-0.4M)	CBH3_(1.0-1.1M)	CBH4_(1.0-1.1M)
Sample Matrix			Soil	Soil	Soil	Soil
mgt-LabMark Sample No.			S12-Oc13015	S12-Oc13017	S12-Oc13020	S12-Oc13023
Date Sampled			Oct 13, 2012	Oct 13, 2012	Oct 13, 2012	Oct 13, 2012
Test/Reference	LOR	Unit				
Organochlorine Pesticides (OC)						
Aldrin	0.05	mg/kg	-	< 0.05	-	< 0.05
b-BHC	0.05	mg/kg	-	< 0.05	-	< 0.05
d-BHC	0.05	mg/kg	-	< 0.05	-	< 0.05
Dieldrin	0.05	mg/kg	-	< 0.05	-	< 0.05
Endosulfan I	0.05	mg/kg	-	< 0.05	-	< 0.05
Endosulfan II	0.05	mg/kg	-	< 0.05	-	< 0.05
Endosulfan sulphate	0.05	mg/kg	-	< 0.05	-	< 0.05
Endrin	0.05	mg/kg	-	< 0.05	-	< 0.05
Endrin aldehyde	0.05	mg/kg	-	< 0.05	-	< 0.05
Endrin ketone	0.05	mg/kg	-	< 0.05	-	< 0.05
g-BHC (Lindane)	0.05	mg/kg	-	< 0.05	-	< 0.05
g-Chlordane	0.05	mg/kg	-	< 0.05	-	< 0.05
Heptachlor	0.05	mg/kg	-	< 0.05	-	< 0.05
Heptachlor epoxide	0.05	mg/kg	-	< 0.05	-	< 0.05
Hexachlorobenzene	0.05	mg/kg	-	< 0.05	-	< 0.05
Methoxychlor	0.2	mg/kg	-	< 0.2	-	< 0.2
Dibutylchloroendate (surr.)	1	%	-	125	-	105
Tetrachloro-m-xylene (surr.)	1	%	-	83	-	85
Polyaromatic Hydrocarbons (PAH)						
Acenaphthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Acenaphthylene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benz(a)anthracene	0.5	mg/kg	< 0.5	< 0.5	0.6	0.8
Benzo(a)pyrene	0.5	mg/kg	< 0.5	< 0.5	0.5	1.1
Benzo(b)fluoranthene & Benzo(k)fluoranthene	1	mg/kg	< 1	< 1	1.0	2.0
Benzo(g,h,i)perylene	0.5	mg/kg	< 0.5	< 0.5	0.5	1.1
Chrysene	0.5	mg/kg	< 0.5	< 0.5	0.9	1.4
Dibenz(a,h)anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Fluoranthene	0.5	mg/kg	1.0	< 0.5	1.4	2.5
Fluorene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Indeno(1,2,3-cd)pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	0.7
Naphthalene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Phenanthrene	0.5	mg/kg	< 0.5	< 0.5	0.9	1.7
Pyrene	0.5	mg/kg	0.9	< 0.5	1.5	2.3
Total PAH	1	mg/kg	1.9	< 1	7.3	14
2-Fluorobiphenyl (surr.)	1	%	86	98	97	86
p-Terphenyl-d14 (surr.)	1	%	77	86	90	77
Heavy Metals						
Arsenic	1	mg/kg	< 1	< 1	3.0	1.5
Cadmium	0.1	mg/kg	0.2	0.4	0.2	0.2
Chromium	2	mg/kg	< 2	< 2	< 2	3.1
Copper	2	mg/kg	9.4	45	6.5	13
Lead	2	mg/kg	44	43	44	100
Mercury	0.05	mg/kg	0.16	0.09	0.13	0.29
Nickel	1	mg/kg	3.4	40	1.4	2.1
Zinc	5	mg/kg	33	71	32	62
% Moisture	0.1	%	6.2	5.4	4.5	5.0
Asbestos			ASET Report	ASET Report	ASET Report	ASET Report

Client Sample ID			CBH4_(3.0-3.1M)	CBH5_(1.0-1.1M)	CBH6_(0.4-0.5M)	CBH7_(0.5-0.6M)
Sample Matrix			Soil	Soil	Soil	Soil
mgt-LabMark Sample No.			S12-Oc13025	S12-Oc13030	S12-Oc13032	S12-Oc13034
Date Sampled			Oct 13, 2012	Oct 13, 2012	Oct 13, 2012	Oct 13, 2012
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons - 1999 NEPM Fractions						
TRH C6-C9	10	mg/kg	< 10	< 10	< 10	< 10
TRH C10-C14	50	mg/kg	< 50	< 50	< 50	< 50
TRH C15-C28	100	mg/kg	< 100	< 100	< 100	< 100
TRH C29-C36	100	mg/kg	< 100	< 100	170	< 100
TRH C10-36 (Total)	100	mg/kg	< 100	< 100	170	< 100
BTEX						
Benzene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Toluene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Ethylbenzene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Total m+p-Xylenes	1	mg/kg	< 1	< 1	< 1	< 1
o-Xylene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Xylenes(ortho.meta and para)	1.5	mg/kg	< 1.5	< 1.5	< 1.5	< 1.5
Total BTEX	1.5	mg/kg	< 1.5	< 1.5	< 1.5	< 1.5
4-Bromofluorobenzene (surr.)	1	%	93	93	93	93
Total Recoverable Hydrocarbons - Draft 2010 NEPM Fractions *						
Naphthalene ^{N02}	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
TRH C6-C10	20	mg/kg	< 20	< 20	< 20	< 20
TRH C6-C10 less BTEX (F1) ^{N04}	20	mg/kg	< 20	< 20	< 20	< 20
TRH >C10-C16	50	mg/kg	< 50	< 50	< 50	< 50
TRH >C10-C16 less Naphthalene (F2) ^{N01}	50	mg/kg	< 50	< 50	< 50	< 50
TRH >C16-C34	100	mg/kg	< 100	< 100	120	< 100
TRH >C34-C40	100	mg/kg	< 100	< 100	220	< 100
Polyaromatic Hydrocarbons (PAH)						
Acenaphthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Acenaphthylene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benz(a)anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(a)pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(b)fluoranthene & Benzo(k)fluoranthene	1	mg/kg	< 1	< 1	< 1	< 1
Benzo(g,h,i)perylene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Chrysene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Dibenz(a,h)anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Fluoranthene	0.5	mg/kg	< 0.5	0.8	< 0.5	< 0.5
Fluorene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Indeno(1,2,3-cd)pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Naphthalene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Phenanthrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Pyrene	0.5	mg/kg	< 0.5	0.8	< 0.5	< 0.5
Total PAH	1	mg/kg	< 1	1.6	< 1	< 1
2-Fluorobiphenyl (surr.)	1	%	94	98	85	98
p-Terphenyl-d14 (surr.)	1	%	90	92	72	91
Heavy Metals						
Arsenic	1	mg/kg	1.6	1.6	1.0	2.3
Cadmium	0.1	mg/kg	0.1	0.1	0.5	0.1
Chromium	2	mg/kg	< 2	< 2	< 2	2.0
Copper	2	mg/kg	< 2	13	32	4.8
Lead	2	mg/kg	2.3	41	23	7.6
Mercury	0.05	mg/kg	< 0.05	0.13	0.68	< 0.05

Client Sample ID			CBH4_(3.0-3.1M)	CBH5_(1.0-1.1M)	CBH6_(0.4-0.5M)	CBH7_(0.5-0.6M)
Sample Matrix			Soil	Soil	Soil	Soil
mgt-LabMark Sample No.			S12-Oc13025	S12-Oc13030	S12-Oc13032	S12-Oc13034
Date Sampled			Oct 13, 2012	Oct 13, 2012	Oct 13, 2012	Oct 13, 2012
Test/Reference	LOR	Unit				
Heavy Metals						
Nickel	1	mg/kg	< 1	2.3	34	< 1
Zinc	5	mg/kg	< 5	26	40	11
% Moisture	0.1	%	1.2	3.6	6.9	5.3
Asbestos			-	ASET Report	ASET Report	ASET Report

Client Sample ID			CBH7_(0.9-1.0M)	DUP3	TB	TS
Sample Matrix			Soil	Soil	Soil	Soil
mgt-LabMark Sample No.			S12-Oc13035	S12-Oc13038	S12-Oc13040	S12-Oc13041
Date Sampled			Oct 13, 2012	Oct 13, 2012	Oct 13, 2012	Oct 13, 2012
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons - 1999 NEPM Fractions						
TRH C6-C9	10	mg/kg	< 10	< 10	< 10	-
TRH C10-C14	50	mg/kg	< 50	< 50	-	-
TRH C15-C28	100	mg/kg	< 100	< 100	-	-
TRH C29-C36	100	mg/kg	< 100	< 100	-	-
TRH C10-36 (Total)	100	mg/kg	< 100	< 100	-	-
BTEX						
Benzene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	104%
Toluene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	102%
Ethylbenzene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	101%
Total m+p-Xylenes	1	mg/kg	< 1	< 1	< 1	101%
o-Xylene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	100%
Xylenes(ortho.meta and para)	1.5	mg/kg	< 1.5	< 1.5	< 1.5	100%
Total BTEX	1.5	mg/kg	< 1.5	< 1.5	< 1.5	101%
4-Bromofluorobenzene (surr.)	1	%	94	93	94	95
Total Recoverable Hydrocarbons - Draft 2010 NEPM Fractions *						
Naphthalene ^{N02}	0.5	mg/kg	< 0.5	< 0.5	-	-
TRH C6-C10	20	mg/kg	< 20	< 20	-	-
TRH C6-C10 less BTEX (F1) ^{N04}	20	mg/kg	< 20	< 20	-	-
TRH >C10-C16	50	mg/kg	< 50	< 50	-	-
TRH >C10-C16 less Naphthalene (F2) ^{N01}	50	mg/kg	< 50	< 50	-	-
TRH >C16-C34	100	mg/kg	< 100	< 100	-	-
TRH >C34-C40	100	mg/kg	< 100	< 100	-	-
Polyaromatic Hydrocarbons (PAH)						
Acenaphthene	0.5	mg/kg	< 0.5	< 0.5	-	-
Acenaphthylene	0.5	mg/kg	< 0.5	< 0.5	-	-
Anthracene	0.5	mg/kg	< 0.5	< 0.5	-	-
Benz(a)anthracene	0.5	mg/kg	< 0.5	< 0.5	-	-
Benzo(a)pyrene	0.5	mg/kg	< 0.5	< 0.5	-	-
Benzo(b)fluoranthene & Benzo(k)fluoranthene	1	mg/kg	< 1	< 1	-	-
Benzo(g,h,i)perylene	0.5	mg/kg	< 0.5	< 0.5	-	-
Chrysene	0.5	mg/kg	< 0.5	< 0.5	-	-
Dibenz(a,h)anthracene	0.5	mg/kg	< 0.5	< 0.5	-	-
Fluoranthene	0.5	mg/kg	< 0.5	< 0.5	-	-
Fluorene	0.5	mg/kg	< 0.5	< 0.5	-	-

Client Sample ID			CBH7_(0.9-1.0M)	DUP3	TB	TS
Sample Matrix			Soil	Soil	Soil	Soil
mgt-LabMark Sample No.			S12-Oc13035	S12-Oc13038	S12-Oc13040	S12-Oc13041
Date Sampled			Oct 13, 2012	Oct 13, 2012	Oct 13, 2012	Oct 13, 2012
Test/Reference	LOR	Unit				
Polyaromatic Hydrocarbons (PAH)						
Indeno(1.2.3-cd)pyrene	0.5	mg/kg	< 0.5	< 0.5	-	-
Naphthalene	0.5	mg/kg	< 0.5	< 0.5	-	-
Phenanthrene	0.5	mg/kg	< 0.5	< 0.5	-	-
Pyrene	0.5	mg/kg	< 0.5	< 0.5	-	-
Total PAH	1	mg/kg	< 1	< 1	-	-
2-Fluorobiphenyl (surr.)	1	%	94	91	-	-
p-Terphenyl-d14 (surr.)	1	%	87	82	-	-
Heavy Metals						
Arsenic	1	mg/kg	< 1	3.3	-	-
Cadmium	0.1	mg/kg	0.1	0.2	-	-
Chromium	2	mg/kg	< 2	2.1	-	-
Copper	2	mg/kg	< 2	4.7	-	-
Lead	2	mg/kg	< 2	7.0	-	-
Mercury	0.05	mg/kg	< 0.05	< 0.05	-	-
Nickel	1	mg/kg	< 1	1.4	-	-
Zinc	5	mg/kg	< 5	11	-	-
% Moisture	0.1	%	4.4	5.6	-	-

Sample History

Where samples are submitted/analysed over several days, the last date of extraction and analysis is reported.

Description	Testing Site	Extracted	Holding Time
mgt-LabMark Suite 7			
Total Recoverable Hydrocarbons - 1999 NEPM Fractions - Method: E004 Petroleum Hydrocarbons (TPH)	Sydney	Oct 17, 2012	14 Day
BTEX - Method: E029/E016 BTEX	Sydney	Oct 17, 2012	14 Day
Total Recoverable Hydrocarbons - Draft 2010 NEPM Fractions * - Method: LM-LTM-ORG2010	Sydney	Oct 17, 2012	14 Day
Polyaromatic Hydrocarbons (PAH) - Method: E007 Polyaromatic Hydrocarbons (PAH)	Sydney	Oct 17, 2012	14 Day
Metals M8 - Method: E022 Acid Extractable metals in Soils & E026 Mercury	Sydney	Oct 16, 2012	28 Day
Polychlorinated Biphenyls (PCB) - Method: E013 Polychlorinated Biphenyls (PCB)	Sydney	Oct 17, 2012	14 Day
Organochlorine Pesticides (OC) - Method: E013 Organochlorine Pesticides (OC)	Sydney	Oct 17, 2012	14 Day
% Moisture - Method: E005 Moisture Content	Sydney	Oct 17, 2012	28 Day

Company Name: Coffey Environments Pty Ltd NSW
Address: Level 19, Tower B – Citadel Tower, 799 Pacific
Chatswood
NSW 2067
Client Job No.: UNSW KENSINGTON ENAURHOD04414AA

Order No.:
Report #: 355476
Phone: +61 2 9406 1000
Fax: +61 2 9406 1004

Received: Oct 15, 2012 12:40 PM
Due: Oct 22, 2012
Priority: 5 Day
Contact Name: Matthew Locke

mgt-LabMark Client Manager: Jean Heng

Sample Detail					% Moisture	Asbestos	HOLD	TRH C6-C9	BTEX	Polychlorinated Biphenyls (PCB)	Organochlorine Pesticides (OC)	mgt-LabMark Suite 7
Laboratory where analysis is conducted												
Melbourne Laboratory - NATA Site # 1254 & 14271												
Sydney Laboratory - NATA Site # 18217					X		X	X	X	X	X	X
Brisbane Laboratory - NATA Site # 20794												
External Laboratory						X						
Sample ID	Sample Date	Sampling Time	Matrix	LAB ID								
CBH1_(0.05-0.2M)	Oct 13, 2012		Soil	S12-Oc13014			X					
CBH1_(0.5-0.6M)	Oct 13, 2012		Soil	S12-Oc13015	X	X						X
CBH2_(0.0-0.2M)	Oct 13, 2012		Soil	S12-Oc13016			X					
CBH2_(0.3-0.4M)	Oct 13, 2012		Soil	S12-Oc13017	X	X				X	X	X
CBH3_(0.35-0.4M)	Oct 13, 2012		Soil	S12-Oc13018			X					
CBH3_(0.5-0.6M)	Oct 13, 2012		Soil	S12-Oc13019			X					

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Sample Detail					% Moisture	Asbestos	HOLD	TRH C6-C9	BTEX	Polychlorinated Biphenyls (PCB)	Organochlorine Pesticides (OC)	mgt-LabMark Suite 7
Laboratory where analysis is conducted												
Melbourne Laboratory - NATA Site # 1254 & 14271												
Sydney Laboratory - NATA Site # 18217					X		X	X	X	X	X	X
Brisbane Laboratory - NATA Site # 20794												
External Laboratory						X						
CBH3_(1.0-1.1M)	Oct 13, 2012		Soil	S12-Oc13020	X	X						X
CBH4_(0.35-0.4M)	Oct 13, 2012		Soil	S12-Oc13021			X					
CBH4_(0.5-0.6M)	Oct 13, 2012		Soil	S12-Oc13022			X					
CBH4_(1.0-1.1M)	Oct 13, 2012		Soil	S12-Oc13023	X	X				X	X	X
CBH4_(2.0-2.1M)	Oct 13, 2012		Soil	S12-Oc13024			X					
CBH4_(3.0-3.1M)	Oct 13, 2012		Soil	S12-Oc13025	X							X
CBH4_(3.9-4.0M)	Oct 13, 2012		Soil	S12-Oc13026			X					

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Sample Detail					% Moisture	Asbestos	HOLD	TRH C6-C9	BTEX	Polychlorinated Biphenyls (PCB)	Organochlorine Pesticides (OC)	mgt-LabMark Suite 7
Laboratory where analysis is conducted												
Melbourne Laboratory - NATA Site # 1254 & 14271												
Sydney Laboratory - NATA Site # 18217					X		X	X	X	X	X	X
Brisbane Laboratory - NATA Site # 20794												
External Laboratory						X						
CBH4_(5.0-5.1M)	Oct 13, 2012		Soil	S12-Oc13027			X					
CBH5_(0.02-0.2M)	Oct 13, 2012		Soil	S12-Oc13028			X					
CBH5_(0.5-0.6M)	Oct 13, 2012		Soil	S12-Oc13029			X					
CBH5_(1.0-1.1M)	Oct 13, 2012		Soil	S12-Oc13030	X	X						X
CBH6_(0.05-0.2M)	Oct 13, 2012		Soil	S12-Oc13031			X					
CBH6_(0.4-0.5M)	Oct 13, 2012		Soil	S12-Oc13032	X	X						X
CBH7_(0.05-0.2M)	Oct 13, 2012		Soil	S12-Oc13033			X					

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Sample Detail					% Moisture	Asbestos	HOLD	TRH C6-C9	BTEX	Polychlorinated Biphenyls (PCB)	Organochlorine Pesticides (OC)	mgt-LabMark Suite 7
Laboratory where analysis is conducted												
Melbourne Laboratory - NATA Site # 1254 & 14271												
Sydney Laboratory - NATA Site # 18217					X		X	X	X	X	X	X
Brisbane Laboratory - NATA Site # 20794												
External Laboratory						X						
CBH7_(0.5-0.6M)	Oct 13, 2012		Soil	S12-Oc13034	X	X						X
CBH7_(0.9-1.0M)	Oct 13, 2012		Soil	S12-Oc13035	X							X
DUP1	Oct 13, 2012		Soil	S12-Oc13036			X					
DUP2	Oct 13, 2012		Soil	S12-Oc13037			X					
DUP3	Oct 13, 2012		Soil	S12-Oc13038	X							X
RB	Oct 13, 2012		Water	S12-Oc13039								X
TB	Oct 13, 2012		Soil	S12-Oc13040				X	X			
TS	Oct 13, 2012		Soil	S12-Oc13041					X			
TSLAB	Oct 13, 2012		Soil	S12-Oc13042					X			

mgt-LabMark Internal Quality Control Review

General

1. Laboratory QC results for Method Blanks, Duplicates, Matrix Spikes, and Laboratory Control Samples are included in this QC report where applicable. Additional QC data may be available on request.
2. All soil results are reported on a dry basis, unless otherwise stated.
3. Actual PQLs are matrix dependant. Quoted PQLs may be raised where sample extracts are diluted due to interferences.
4. Results are uncorrected for matrix spikes or surrogate recoveries.
5. SVOC analysis on waters are performed on homogenised, unfiltered samples, unless noted otherwise.
6. Samples were analysed on an 'as received' basis. 7. This report replaces any interim results previously issued.

Holding Times

Please refer to 'Sample Preservation and Container Guide' for holding times (QS3001).

For samples received on the last day of holding time, notification of testing requirements should have been received at least 6 hours prior to sample receipt deadlines as stated on the Sample Receipt Acknowledgment.

If the Laboratory did not receive the information in the required timeframe, and regardless of any other integrity issues, suitably qualified results may still be reported.

Holding times apply from the date of sampling, therefore compliance to these may be outside the laboratory's control.

****NOTE:** pH duplicates are reported as a range NOT as RPD

UNITS

mg/kg: milligrams per Kilogram

mg/l: milligrams per litre

ug/l: micrograms per litre

ppm: Parts per million

ppb: Parts per billion

%: Percentage

org/100ml: Organisms per 100 millilitres

NTU: Units

MPN/100mL: Most Probable Number of organisms per 100 millilitres

TERMS

Dry	Where a moisture has been determined on a solid sample the result is expressed on a dry basis.
LOR	Limit of Reporting.
SPIKE	Addition of the analyte to the sample and reported as percentage recovery.
RPD	Relative Percent Difference between two Duplicate pieces of analysis.
LCS	Laboratory Control Sample - reported as percent recovery
CRM	Certified Reference Material - reported as percent recovery
Method Blank	In the case of solid samples these are performed on laboratory certified clean sands. In the case of water samples these are performed on de-ionised water.
Surr - Surrogate	The addition of a like compound to the analyte target and reported as percentage recovery.
Duplicate	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
Batch Duplicate	A second piece of analysis from a sample outside of the clients batch of samples but run within the laboratory batch of analysis.
Batch SPIKE	Spike recovery reported on a sample from outside of the clients batch of samples but run within the laboratory batch of analysis.
USEPA	United States Environment Protection Authority
APHA	American Public Health Association
ASLP	Australian Standard Leaching Procedure (AS4439.3)
TCLP	Toxicity Characteristic Leaching Procedure
COC	Chain of Custody
SRA	Sample Receipt Advice
CP	Client Parent - QC was performed on samples pertaining to this report
NCP	Non-Client Parent - QC was performed on samples not pertaining to this report, however QC is representative of the sequence or batch that client samples were analysed within

QC - ACCEPTANCE CRITERIA

RPD Duplicates: Global RPD Duplicates Acceptance Criteria is 30% however the following acceptance guidelines are equally applicable:

Results <10 times the LOR : No Limit

Results between 10-20 times the LOR : RPD must lie between 0-50%

Results >20 times the LOR : RPD must lie between 0-30%

Surrogate Recoveries : Recoveries must lie between 50-150% - Phenols 20-130%.

QC DATA GENERAL COMMENTS

1. Where a result is reported as a less than (<), higher than the nominated LOR, this is due to either matrix interference, extract dilution required due to interferences or contaminant levels within the sample, high moisture content or insufficient sample provided.
1. Where a result is reported as a less than (<), higher than the nominated LOR, this is due to either matrix interference, extract dilution required due to interferences or contaminant levels within the sample, high moisture content or insufficient sample provided.
2. Duplicate data shown within this report that states the word "BATCH" is a Batch Duplicate from outside of your sample batch, but within the laboratory sample batch at a 1:10 ratio. The Parent and Duplicate data shown is not data from your samples.
3. Organochlorine Pesticide analysis - where reporting LCS data, Toxophene & Chlordane are not added to the LCS.
3. Organochlorine Pesticide analysis - where reporting Spike data, Toxophene is not added to the Spike.
5. Total Recoverable Hydrocarbons - where reporting Spike & LCS data, a single spike of commercial Hydrocarbon products in the range of C12-C30 is added and it's Total Recovery is reported in the C10-C14 cell of the Report.
6. pH and Free Chlorine analysed in the laboratory - Analysis on this test must begin within 30 minutes of sampling. Therefore laboratory analysis is unlikely to be completed within holding time. Analysis will begin as soon as possible after sample receipt.
7. Recovery Data (Spikes & Surrogates) - where chromatographic interference does not allow the determination of Recovery the term "INT" appears against that analyte.
8. Polychlorinated Biphenyls are spiked only using Arochlor 1260 in Matrix Spikes and LCS's.
9. For Matrix Spikes and LCS results a dash " - " in the report means that the specific analyte was not added to the QC sample.
10. Duplicate RPD's are calculated from raw analytical data thus it is possible to have two sets of data.

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Method Blank							
Total Recoverable Hydrocarbons - 1999 NEPM Fractions E004 Petroleum Hydrocarbons (TPH)							
TRH C6-C9	mg/kg	< 10			10	Pass	
TRH C10-C14	mg/kg	< 50			50	Pass	
TRH C15-C28	mg/kg	< 100			100	Pass	
TRH C29-C36	mg/kg	< 100			100	Pass	
Method Blank							
BTEX E029/E016 BTEX							
Benzene	mg/kg	< 0.5			0.5	Pass	
Toluene	mg/kg	< 0.5			0.5	Pass	
Ethylbenzene	mg/kg	< 0.5			0.5	Pass	
Total m+p-Xylenes	mg/kg	< 1			1	Pass	
o-Xylene	mg/kg	< 0.5			0.5	Pass	
Xylenes(ortho.meta and para)	mg/kg	< 1.5			1.5	Pass	
Total BTEX	mg/kg	< 1.5			1.5	Pass	
Method Blank							
Total Recoverable Hydrocarbons - Draft 2010 NEPM Fractions * LM-LTM-ORG2010							
TRH >C10-C16	mg/kg	< 50			50	Pass	
TRH >C16-C34	mg/kg	< 100			100	Pass	
TRH >C34-C40	mg/kg	< 100			100	Pass	
Method Blank							
Polychlorinated Biphenyls (PCB) E013 Polychlorinated Biphenyls (PCB)							
Aroclor-1016	mg/kg	< 0.5			0.5	Pass	
Aroclor-1232	mg/kg	< 0.5			0.5	Pass	
Aroclor-1242	mg/kg	< 0.5			0.5	Pass	
Aroclor-1248	mg/kg	< 0.5			0.5	Pass	
Aroclor-1254	mg/kg	< 0.5			0.5	Pass	
Aroclor-1260	mg/kg	< 0.5			0.5	Pass	
Total PCB	mg/kg	< 0.5			0.5	Pass	
Method Blank							
Organochlorine Pesticides (OC) E013 Organochlorine Pesticides (OC)							
4,4'-DDD	mg/kg	< 0.05			0.05	Pass	
4,4'-DDE	mg/kg	< 0.05			0.05	Pass	
4,4'-DDT	mg/kg	< 0.2			0.2	Pass	
a-BHC	mg/kg	< 0.05			0.05	Pass	
a-Chlordane	mg/kg	< 0.05			0.05	Pass	
Aldrin	mg/kg	< 0.05			0.05	Pass	
b-BHC	mg/kg	< 0.05			0.05	Pass	
d-BHC	mg/kg	< 0.05			0.05	Pass	
Dieldrin	mg/kg	< 0.05			0.05	Pass	
Endosulfan I	mg/kg	< 0.05			0.05	Pass	
Endosulfan II	mg/kg	< 0.05			0.05	Pass	
Endosulfan sulphate	mg/kg	< 0.05			0.05	Pass	
Endrin	mg/kg	< 0.05			0.05	Pass	
Endrin aldehyde	mg/kg	< 0.05			0.05	Pass	
Endrin ketone	mg/kg	< 0.05			0.05	Pass	
g-BHC (Lindane)	mg/kg	< 0.05			0.05	Pass	
g-Chlordane	mg/kg	< 0.05			0.05	Pass	
Heptachlor	mg/kg	< 0.05			0.05	Pass	
Heptachlor epoxide	mg/kg	< 0.05			0.05	Pass	
Hexachlorobenzene	mg/kg	< 0.05			0.05	Pass	
Methoxychlor	mg/kg	< 0.2			0.2	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Method Blank							
Polyaromatic Hydrocarbons (PAH) E007 Polyaromatic Hydrocarbons (PAH)							
Acenaphthene	mg/kg	< 0.5			0.5	Pass	
Acenaphthylene	mg/kg	< 0.5			0.5	Pass	
Anthracene	mg/kg	< 0.5			0.5	Pass	
Benz(a)anthracene	mg/kg	< 0.5			0.5	Pass	
Benzo(a)pyrene	mg/kg	< 0.5			0.5	Pass	
Benzo(b)fluoranthene & Benzo(k)fluoranthene	mg/kg	< 1			1	Pass	
Benzo(g,h,i)perylene	mg/kg	< 0.5			0.5	Pass	
Chrysene	mg/kg	< 0.5			0.5	Pass	
Dibenz(a,h)anthracene	mg/kg	< 0.5			0.5	Pass	
Fluoranthene	mg/kg	< 0.5			0.5	Pass	
Fluorene	mg/kg	< 0.5			0.5	Pass	
Indeno(1,2,3-cd)pyrene	mg/kg	< 0.5			0.5	Pass	
Naphthalene	mg/kg	< 0.5			0.5	Pass	
Phenanthrene	mg/kg	< 0.5			0.5	Pass	
Pyrene	mg/kg	< 0.5			0.5	Pass	
Method Blank							
Metals M8 E022 Acid Extractable metals in Soils & E026 Mercury							
Arsenic	mg/kg	< 1			1	Pass	
Cadmium	mg/kg	< 0.1			0.1	Pass	
Chromium	mg/kg	< 2			2	Pass	
Copper	mg/kg	< 2			2	Pass	
Lead	mg/kg	< 2			2	Pass	
Mercury	mg/kg	< 0.05			0.05	Pass	
Nickel	mg/kg	< 1			1	Pass	
Zinc	mg/kg	< 5			5	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 1999 NEPM Fractions E004 Petroleum Hydrocarbons (TPH)							
TRH C6-C9	%	83			70-130	Pass	
TRH C10-C14	%	72			70-130	Pass	
LCS - % Recovery							
BTEX E029/E016 BTEX							
Benzene	%	111			70-130	Pass	
Toluene	%	110			70-130	Pass	
Ethylbenzene	%	109			70-130	Pass	
Total m+p-Xylenes	%	108			70-130	Pass	
o-Xylene	%	107			70-130	Pass	
Xylenes(ortho.meta and para)	%	108			70-130	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - Draft 2010 NEPM Fractions * LM-LTM-ORG2010							
TRH >C10-C16	%	72			70-130	Pass	
LCS - % Recovery							
Polychlorinated Biphenyls (PCB) E013 Polychlorinated Biphenyls (PCB)							
Aroclor-1260	%	104			70-130	Pass	
LCS - % Recovery							
Organochlorine Pesticides (OC) E013 Organochlorine Pesticides (OC)							
4,4'-DDD	%	102			70-130	Pass	
4,4'-DDE	%	104			70-130	Pass	
4,4'-DDT	%	96			70-130	Pass	
α-BHC	%	101			70-130	Pass	
α-Chlordane	%	107			70-130	Pass	
Aldrin	%	102			70-130	Pass	

Test				Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
b-BHC				%	94			70-130	Pass	
d-BHC				%	95			70-130	Pass	
Dieldrin				%	107			70-130	Pass	
Endosulfan I				%	110			70-130	Pass	
Endosulfan II				%	99			70-130	Pass	
Endosulfan sulphate				%	86			70-130	Pass	
Endrin				%	103			70-130	Pass	
Endrin aldehyde				%	92			70-130	Pass	
Endrin ketone				%	95			70-130	Pass	
g-BHC (Lindane)				%	109			70-130	Pass	
g-Chlordane				%	106			70-130	Pass	
Heptachlor				%	99			70-130	Pass	
Heptachlor epoxide				%	106			70-130	Pass	
Hexachlorobenzene				%	96			70-130	Pass	
Methoxychlor				%	94			70-130	Pass	
LCS - % Recovery										
Polyaromatic Hydrocarbons (PAH) E007 Polyaromatic Hydrocarbons (PAH)										
Acenaphthene				%	108			70-130	Pass	
Acenaphthylene				%	100			70-130	Pass	
Anthracene				%	99			70-130	Pass	
Benz(a)anthracene				%	70			70-130	Pass	
Benzo(a)pyrene				%	73			70-130	Pass	
Benzo(b)fluoranthene & Benzo(k)fluoranthene				%	71			70-130	Pass	
Benzo(g,h,i)perylene				%	108			70-130	Pass	
Chrysene				%	104			70-130	Pass	
Dibenz(a,h)anthracene				%	90			70-130	Pass	
Fluoranthene				%	79			70-130	Pass	
Fluorene				%	102			70-130	Pass	
Indeno(1.2.3-cd)pyrene				%	95			70-130	Pass	
Naphthalene				%	109			70-130	Pass	
Phenanthrene				%	93			70-130	Pass	
Pyrene				%	78			70-130	Pass	
LCS - % Recovery										
Metals M8 E022 Acid Extractable metals in Soils & E026 Mercury										
Arsenic				%	97			70-130	Pass	
Cadmium				%	97			70-130	Pass	
Chromium				%	100			70-130	Pass	
Copper				%	99			70-130	Pass	
Lead				%	101			70-130	Pass	
Mercury				%	116			70-130	Pass	
Nickel				%	99			70-130	Pass	
Zinc				%	96			70-130	Pass	
Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code	
Spike - % Recovery										
Total Recoverable Hydrocarbons - 1999 NEPM Fractions					Result 1					
TRH C6-C9	S12-Oc12989	NCP	%	75			70-130	Pass		
TRH C10-C14	S12-Oc13015	CP	%	75			70-130	Pass		
Spike - % Recovery										
BTEX					Result 1					
Benzene	S12-Oc12989	NCP	%	90			70-130	Pass		
Toluene	S12-Oc12989	NCP	%	91			70-130	Pass		
Ethylbenzene	S12-Oc12989	NCP	%	93			70-130	Pass		
Total m+p-Xylenes	S12-Oc12989	NCP	%	92			70-130	Pass		
o-Xylene	S12-Oc12989	NCP	%	92			70-130	Pass		

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Xylenes(ortho.meta and para)	S12-Oc12989	NCP	%	92			70-130	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons - Draft 2010 NEPM Fractions *				Result 1					
TRH >C10-C16	S12-Oc13015	CP	%	76			70-130	Pass	
Spike - % Recovery									
Polyaromatic Hydrocarbons (PAH)				Result 1					
Acenaphthene	S12-Oc13015	CP	%	102			70-130	Pass	
Acenaphthylene	S12-Oc13015	CP	%	101			70-130	Pass	
Anthracene	S12-Oc13015	CP	%	99			70-130	Pass	
Benz(a)anthracene	S12-Oc13015	CP	%	75			70-130	Pass	
Benzo(a)pyrene	S12-Oc13015	CP	%	81			70-130	Pass	
Benzo(b)fluoranthene & Benzo(k)fluoranthene	S12-Oc13015	CP	%	88			70-130	Pass	
Benzo(g,h,i)perylene	S12-Oc13015	CP	%	116			70-130	Pass	
Chrysene	S12-Oc13015	CP	%	118			70-130	Pass	
Dibenz(a,h)anthracene	S12-Oc13015	CP	%	87			70-130	Pass	
Fluoranthene	S12-Oc13015	CP	%	80			70-130	Pass	
Fluorene	S12-Oc13015	CP	%	99			70-130	Pass	
Indeno(1,2,3-cd)pyrene	S12-Oc13015	CP	%	105			70-130	Pass	
Naphthalene	S12-Oc13015	CP	%	106			70-130	Pass	
Phenanthrene	S12-Oc13015	CP	%	88			70-130	Pass	
Pyrene	S12-Oc13015	CP	%	80			70-130	Pass	
Spike - % Recovery									
Polychlorinated Biphenyls (PCB)				Result 1					
Aroclor-1260	S12-Oc12391	NCP	%	101			70-130	Pass	
Spike - % Recovery									
Organochlorine Pesticides (OC)				Result 1					
4,4'-DDD	S12-Oc12391	NCP	%	120			70-130	Pass	
4,4'-DDE	S12-Oc12391	NCP	%	117			70-130	Pass	
4,4'-DDT	S12-Oc12391	NCP	%	96			70-130	Pass	
α-BHC	S12-Oc12391	NCP	%	110			70-130	Pass	
α-Chlordane	S12-Oc12391	NCP	%	113			70-130	Pass	
Aldrin	S12-Oc12391	NCP	%	93			70-130	Pass	
β-BHC	S12-Oc12391	NCP	%	96			70-130	Pass	
δ-BHC	S12-Oc12391	NCP	%	96			70-130	Pass	
Dieldrin	S12-Oc12391	NCP	%	107			70-130	Pass	
Endosulfan I	S12-Oc12391	NCP	%	105			70-130	Pass	
Endosulfan II	S12-Oc12391	NCP	%	106			70-130	Pass	
Endosulfan sulphate	S12-Oc12391	NCP	%	91			70-130	Pass	
Endrin	S12-Oc12391	NCP	%	98			70-130	Pass	
Endrin aldehyde	S12-Oc12391	NCP	%	106			70-130	Pass	
Endrin ketone	S12-Oc12391	NCP	%	98			70-130	Pass	
γ-BHC (Lindane)	S12-Oc12391	NCP	%	97			70-130	Pass	
γ-Chlordane	S12-Oc12391	NCP	%	105			70-130	Pass	
Heptachlor	S12-Oc12391	NCP	%	91			70-130	Pass	
Heptachlor epoxide	S12-Oc12391	NCP	%	101			70-130	Pass	
Hexachlorobenzene	S12-Oc12391	NCP	%	92			70-130	Pass	
Methoxychlor	S12-Oc12391	NCP	%	100			70-130	Pass	
Spike - % Recovery									
Metals M8				Result 1					
Arsenic	S12-Oc13017	CP	%	99			70-130	Pass	
Cadmium	S12-Oc13017	CP	%	100			70-130	Pass	
Chromium	S12-Oc13017	CP	%	110			70-130	Pass	
Copper	S12-Oc13017	CP	%	72			70-130	Pass	
Lead	S12-Oc13017	CP	%	111			70-130	Pass	
Mercury	S12-Oc13017	CP	%	108			70-130	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Spike - % Recovery									
Metals M8				Result 1					
Arsenic	S12-Oc13038	CP	%	99			70-130	Pass	
Cadmium	S12-Oc13038	CP	%	95			70-130	Pass	
Chromium	S12-Oc13038	CP	%	104			70-130	Pass	
Copper	S12-Oc13038	CP	%	101			70-130	Pass	
Lead	S12-Oc13038	CP	%	101			70-130	Pass	
Mercury	S12-Oc13038	CP	%	112			70-130	Pass	
Nickel	S12-Oc13038	CP	%	104			70-130	Pass	
Zinc	S12-Oc13038	CP	%	109			70-130	Pass	
Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Duplicate									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1	Result 2	RPD			
TRH C6-C9	S12-Oc13015	CP	mg/kg	< 10	< 10	<1	30%	Pass	
Duplicate									
BTEX				Result 1	Result 2	RPD			
Benzene	S12-Oc13015	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Toluene	S12-Oc13015	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Ethylbenzene	S12-Oc13015	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Total m+p-Xylenes	S12-Oc13015	CP	mg/kg	< 1	< 1	<1	30%	Pass	
o-Xylene	S12-Oc13015	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Xylenes(ortho.meta and para)	S12-Oc13015	CP	mg/kg	< 1.5	< 1.5	<1	30%	Pass	
Total BTEX	S12-Oc13015	CP	mg/kg	< 1.5	< 1.5	<1	30%	Pass	
Duplicate									
Total Recoverable Hydrocarbons - Draft 2010 NEPM Fractions *				Result 1	Result 2	RPD			
Naphthalene	S12-Oc13015	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
TRH C6-C10	S12-Oc13015	CP	mg/kg	< 20	< 20	<1	30%	Pass	
TRH C6-C10 less BTEX (F1)	S12-Oc13015	CP	mg/kg	< 20	< 20	<1	30%	Pass	
Duplicate									
Polyaromatic Hydrocarbons (PAH)				Result 1	Result 2	RPD			
Acenaphthene	S12-Oc13015	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Acenaphthylene	S12-Oc13015	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Anthracene	S12-Oc13015	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benz(a)anthracene	S12-Oc13015	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(a)pyrene	S12-Oc13015	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(b)fluoranthene & Benzo(k)fluoranthene	S12-Oc13015	CP	mg/kg	< 1	< 1	<1	30%	Pass	
Benzo(g,h,i)perylene	S12-Oc13015	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Chrysene	S12-Oc13015	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Dibenz(a,h)anthracene	S12-Oc13015	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Fluoranthene	S12-Oc13015	CP	mg/kg	1.0	1.1	16	30%	Pass	
Fluorene	S12-Oc13015	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Indeno(1,2,3-cd)pyrene	S12-Oc13015	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Naphthalene	S12-Oc13015	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Phenanthrene	S12-Oc13015	CP	mg/kg	< 0.5	< 0.5	21	30%	Pass	
Pyrene	S12-Oc13015	CP	mg/kg	0.9	1.0	15	30%	Pass	
Duplicate									
Metals M8				Result 1	Result 2	RPD			
Arsenic	S12-Oc13015	CP	mg/kg	< 1	< 1	<1	30%	Pass	
Cadmium	S12-Oc13015	CP	mg/kg	0.2	0.2	1.0	30%	Pass	
Chromium	S12-Oc13015	CP	mg/kg	< 2	< 2	15	30%	Pass	
Copper	S12-Oc13015	CP	mg/kg	9.4	9.7	3.0	30%	Pass	
Lead	S12-Oc13015	CP	mg/kg	44	37	17	30%	Pass	
Mercury	S12-Oc13015	CP	mg/kg	0.16	0.16	3.0	30%	Pass	
Nickel	S12-Oc13015	CP	mg/kg	3.4	3.8	11	30%	Pass	

Duplicate								
Metals M8				Result 1	Result 2	RPD		
Zinc	S12-Oc13015	CP	mg/kg	33	30	8.0	30%	Pass
Duplicate								
Polychlorinated Biphenyls (PCB)				Result 1	Result 2	RPD		
Aroclor-1016	S12-Oc12391	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Aroclor-1232	S12-Oc12391	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Aroclor-1242	S12-Oc12391	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Aroclor-1248	S12-Oc12391	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Aroclor-1254	S12-Oc12391	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Aroclor-1260	S12-Oc12391	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Duplicate								
Organochlorine Pesticides (OC)				Result 1	Result 2	RPD		
4,4'-DDD	S12-Oc12391	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
4,4'-DDE	S12-Oc12391	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
4,4'-DDT	S12-Oc12391	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
a-BHC	S12-Oc12391	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
a-Chlordane	S12-Oc12391	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Aldrin	S12-Oc12391	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
b-BHC	S12-Oc12391	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
d-BHC	S12-Oc12391	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Dieldrin	S12-Oc12391	NCP	mg/kg	< 0.05	< 0.05	2.0	30%	Pass
Endosulfan I	S12-Oc12391	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Endosulfan II	S12-Oc12391	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Endosulfan sulphate	S12-Oc12391	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Endrin	S12-Oc12391	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Endrin aldehyde	S12-Oc12391	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Endrin ketone	S12-Oc12391	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
g-BHC (Lindane)	S12-Oc12391	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
g-Chlordane	S12-Oc12391	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Heptachlor	S12-Oc12391	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Heptachlor epoxide	S12-Oc12391	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Hexachlorobenzene	S12-Oc12391	NCP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Methoxychlor	S12-Oc12391	NCP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Duplicate								
Metals M8				Result 1	Result 2	RPD		
Arsenic	S12-Oc13035	CP	mg/kg	< 1	< 1	<1	30%	Pass
Cadmium	S12-Oc13035	CP	mg/kg	0.1	0.1	25	30%	Pass
Chromium	S12-Oc13035	CP	mg/kg	< 2	< 2	1.0	30%	Pass
Copper	S12-Oc13035	CP	mg/kg	< 2	< 2	10	30%	Pass
Lead	S12-Oc13035	CP	mg/kg	< 2	< 2	22	30%	Pass
Mercury	S12-Oc13035	CP	mg/kg	< 0.05	< 0.05	10	30%	Pass
Nickel	S12-Oc13035	CP	mg/kg	< 1	1.3	27	30%	Pass
Zinc	S12-Oc13035	CP	mg/kg	< 5	< 5	17	30%	Pass

Comments

Please note: Asbestos analysed by ASET (Job : ASET31270/34450/1-7) NATA Accreditation : 14484

Sample Integrity

Custody Seals Intact (if used)	N/A
Attempt to Chill was evident	Yes
Sample correctly preserved	Yes
Organic samples had Teflon liners	Yes
Sample containers for volatile analysis received with minimal headspace	Yes
Samples received within HoldingTime	Yes
Some samples have been subcontracted	Yes

Qualifier Codes/Comments

Code	Description
N01	F2 is determined by arithmetically subtracting the "naphthalene" value from the ">C10-C16" value. The naphthalene value used in this calculation is obtained from volatiles (Purge & Trap analysis).
N02	Where we have reported both volatile (P&T GCMS) and semivolatile (GCMS) naphthalene data, results may not be identical. Provided correct sample handling protocols have been followed, any observed differences in results are likely to be due to procedural differences within each methodology. Results determined by both techniques have passed all QAQC acceptance criteria, and are entirely technically valid.
N04	F1 is determined by arithmetically subtracting the "Total BTEX" value from the "C6-C10" value. The "Total BTEX" value is obtained by summing the concentrations of BTEX analytes. The "C6-C10" value is obtained by quantitating against a standard of mixed aromatic/aliphatic analytes.

Authorised By

Jean Heng	Client Services
James Norford	Senior Analyst-Metal (NSW)
Laura Schofield	Senior Analyst-Volatile (NSW)
Ryan Hamilton	Senior Analyst-Organic (NSW)



Dr. Bob Symons

Laboratory Manager

Final report - this Report replaces any previously issued Report

- Indicates Not Requested

* Indicates NATA accreditation does not cover the performance of this service

Uncertainty data is available on request

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Coffey Environments Pty Ltd NSW
Level 19, Tower B – Citadel Tower, 799 Pacific Highway
Chatswood
NSW 2067

Attention: Matthew Locke

Report **355476-W**
Client Reference UNSW KENSINGTON ENAURHOD04414AA
Received Date Oct 15, 2012

Certificate of Analysis



NATA Accredited
Accreditation Number 1261
Site Number 18217

Accredited for compliance with ISO/IEC 17025.
The results of the tests, calibrations and/or
measurements included in this document are traceable
to Australian/national standards.

Client Sample ID			RB
Sample Matrix			Water
mgt-LabMark Sample No.			S12-Oc13039
Date Sampled			Oct 13, 2012
Test/Reference	LOR	Unit	
Total Recoverable Hydrocarbons - 1999 NEPM Fractions			
TRH C6-C9	0.02	mg/L	< 0.02
TRH C10-C14	0.05	mg/L	< 0.05
TRH C15-C28	0.1	mg/L	< 0.1
TRH C29-C36	0.1	mg/L	< 0.1
TRH C10-36 (Total)	0.1	mg/L	< 0.1
BTEX			
Benzene	0.001	mg/L	< 0.001
Toluene	0.001	mg/L	< 0.001
Ethylbenzene	0.001	mg/L	< 0.001
Total m+p-Xylenes	0.002	mg/L	< 0.002
o-Xylene	0.001	mg/L	< 0.001
Xylenes(ortho.meta and para)	0.003	mg/L	< 0.003
Total BTEX	0.01	mg/L	< 0.01
4-Bromofluorobenzene (surr.)	1	%	101
Total Recoverable Hydrocarbons - Draft 2010 NEPM Fractions *			
Naphthalene ^{N02}	0.005	mg/L	< 0.005
TRH C6-C10	0.02	mg/L	0.02
TRH C6-C10 less BTEX (F1) ^{N04}	0.02	mg/L	0.02
TRH >C10-C16	0.05	mg/L	< 0.05
TRH >C10-C16 less Naphthalene (F2) ^{N01}	0.05	mg/L	< 0.05
TRH >C16-C34	0.1	mg/L	< 0.1
TRH >C34-C40	0.1	mg/L	< 0.1
Polyaromatic Hydrocarbons (PAH)			
Acenaphthene	0.001	mg/L	< 0.001
Acenaphthylene	0.001	mg/L	< 0.001
Anthracene	0.001	mg/L	< 0.001
Benz(a)anthracene	0.001	mg/L	< 0.001
Benzo(a)pyrene	0.001	mg/L	< 0.001
Benzo(b)fluoranthene & Benzo(k)fluoranthene	0.002	mg/L	< 0.002
Benzo(g,h,i)perylene	0.001	mg/L	< 0.001
Chrysene	0.001	mg/L	< 0.001
Dibenz(a,h)anthracene	0.001	mg/L	< 0.001
Fluoranthene	0.001	mg/L	< 0.001
Fluorene	0.001	mg/L	< 0.001
Indeno(1,2,3-cd)pyrene	0.001	mg/L	< 0.001
Naphthalene	0.001	mg/L	< 0.001
Phenanthrene	0.001	mg/L	< 0.001
Pyrene	0.001	mg/L	< 0.001

Client Sample ID			RB
Sample Matrix			Water
mgt-LabMark Sample No.			S12-Oc13039
Date Sampled			Oct 13, 2012
Test/Reference	LOR	Unit	
Polyaromatic Hydrocarbons (PAH)			
Total PAH	0.002	mg/L	< 0.002
2-Fluorobiphenyl (surr.)	1	%	73
p-Terphenyl-d14 (surr.)	1	%	75
Heavy Metals			
Arsenic	0.005	mg/L	< 0.005
Cadmium	0.0005	mg/L	< 0.0005
Chromium	0.005	mg/L	< 0.005
Copper	0.005	mg/L	< 0.005
Lead	0.005	mg/L	< 0.005
Mercury	0.0001	mg/L	< 0.0001
Nickel	0.005	mg/L	< 0.005
Zinc	0.005	mg/L	< 0.005