Appendix C

Test pit logs

BOREHOLE ENVIRONMENTAL LOG

BOREHOLE NO.

BH01

SHEET 1 OF 1

Client:	**Alinta Asset Management Pty Ltd**	Date Commenced:	**02/06/08**
Project:	**Additional Environmental Works**	Date Completed:	**02/06/08**
Borehole Location:	**Woodville Reservoir**	Recorded By:	**DH**
Project Number:	**2116732A**	Log Checked By:	

Drill Model/Mounting:	**Hand Auger**	Driller:		Surface RL:	
Borehole Diameter:	**0.1m**	Driller Lic No:		Co-ords:	**E -33.8658 N 150.993**

Borehole Information							Field Material Description					
1	2	3	4	5	6	7	8	9	10	11	12	13
METHOD	SUPPORT	WATER	WELL CONSTRUCTION	RL(m) DEPTH(m)	FIELD TEST	SAMPLE	GRAPHIC LOG	USC SYMBOL	SOIL/ROCK MATERIAL FIELD DESCRIPTION	MOISTURE	RELATIVE DENSITY /CONSISTENCY (FB VL L MD D VD / VS S F ST VST H)	STRUCTURE AND ADDITIONAL OBSERVATIONS
								SC	Grass covered, medium grained, dark brown			0.2
					PID=0.0 ppm	J						
				0.30				SC	SANDY CLAY, dark brown, medium grained, some gravel	M		
				1								
					PID=0.0 ppm	J						1.7
BH				1.80					refusal on gravel END OF BOREHOLE AT 1.80 m			
				2								

This borehole log should be read in conjunction with Parsons Brinckerhoff's accompanying standard notes.

BOREHOLE ENVIRONMENTAL LOG

BOREHOLE NO.

BH02

SHEET 1 OF 1

Client:	**Alinta Asset Management Pty Ltd**	Date Commenced:	**02/06/08**
Project:	**Additional Environmental Works**	Date Completed:	**02/06/08**
Borehole Location:	**Woodville Reservoir**	Recorded By:	**DH**
Project Number:	**2116732A**	Log Checked By:	

Drill Model/Mounting:	**Hand Auger**	Driller:		Surface RL:	
Borehole Diameter:	**0.1m**	Driller Lic No:		Co-ords:	**E -33.8661 N 150.9933**

Borehole Information							Field Material Description					
1	2	3	4	5	6	7	8	9	10	11	12	13
METHOD	SUPPORT	WATER	WELL CONSTRUCTION	RL(m) DEPTH(m)	FIELD TEST	SAMPLE	GRAPHIC LOG	USC SYMBOL	SOIL/ROCK MATERIAL FIELD DESCRIPTION	MOISTURE	RELATIVE DENSITY /CONSISTENCY (FB VL L MD D VD / VS S F ST VST H)	STRUCTURE AND ADDITIONAL OBSERVATIONS
								SC	Grass covered, medium grained, dark brown			
				0.30	PID=0.0 ppm	J		SC	SANDY CLAY, dark brown, medium grained, some gravel	M		0.3
				1								metal fragments
					PID=0.0 ppm	J						1.6
BH				1.80					refusal on gravel END OF BOREHOLE AT 1.80 m			
				2								

This borehole log should be read in conjunction with Parsons Brinckerhoff's accompanying standard notes.

BOREHOLE ENVIRONMENTAL LOG

BOREHOLE NO.

BH03

SHEET 1 OF 1

Client:	**Alinta Asset Management Pty Ltd**	Date Commenced:	**02/06/08**
Project:	**Additional Environmental Works**	Date Completed:	**02/06/08**
Borehole Location:	**Woodville Reservoir**	Recorded By:	**DH**
Project Number:	**2116732A**	Log Checked By:	

Drill Model/Mounting:	**Hand Auger**	Driller:		Surface RL:	
Borehole Diameter:	**0.1m**	Driller Lic No:		Co-ords:	**E -33.8663 N 150.9931**

Borehole Information							Field Material Description					
1	2	3	4	5	6	7	8	9	10	11	12	13
METHOD	SUPPORT	WATER	WELL CONSTRUCTION	RL(m) / DEPTH(m)	FIELD TEST	SAMPLE	GRAPHIC LOG	USC SYMBOL	SOIL/ROCK MATERIAL FIELD DESCRIPTION	MOISTURE	RELATIVE DENSITY /CONSISTENCY (FB VL L MD VS S F ST VST D H VD)	STRUCTURE AND ADDITIONAL OBSERVATIONS
					PID=0.0 ppm	J		SC	Grass covered, medium grained, dark brown			0.1
				0.30				SC	SANDY CLAY, dark brown, medium grained, some gravel	M		
				1								
				1.50				CH	grey brown, medium plasticity, medium stiffness			
					PID=0.0 ppm	J						
BH				2.00 2					END OF BOREHOLE AT 2.00 m			2.0

This borehole log should be read in conjunction with Parsons Brinckerhoff's accompanying standard notes.

BOREHOLE ENVIRONMENTAL LOG

BOREHOLE NO.

PBTP1

SHEET 1 OF 1

Client:	**Alinta Asset Management Pty Ltd**	Date Commenced:	**26/03/08**
Project:	**Additional Environmental Works**	Date Completed:	**26/03/08**
Borehole Location:	**Woodville Reservoir**	Recorded By:	**DH**
Project Number:	**2116732A**	Log Checked By:	

Drill Model/Mounting:	**Backhoe**	Driller:	Surface RL:
Borehole Diameter:	**2m**	Driller Lic No:	Co-ords: **E -33.86639 N 150.99323**

Borehole Information							Field Material Description					
1	2	3	4	5	6	7	8	9	10	11	12	13
METHOD	SUPPORT	WATER	WELL CONSTRUCTION	RL(m) DEPTH(m)	FIELD TEST	SAMPLE	GRAPHIC LOG	USC SYMBOL	SOIL/ROCK MATERIAL FIELD DESCRIPTION	MOISTURE	RELATIVE DENSITY /CONSISTENCY (FB VL L MD D VD / VS S F ST VST H)	STRUCTURE AND ADDITIONAL OBSERVATIONS
					PID=0.0 ppm	J		SC	Grass covered, medium grained, dark brown			Dup1 & Dup2
				0.30	PID=0.0 ppm	J		SC	dark brown, medium grained, some gravel	M		
				1.00 1	PID=0.0 ppm	J		CH	red brown, medium plasticity, medium stiffness			
				1.60	PID=0.0 ppm	J		CH	grey brown, medium plasticity, medium stiffness			
				2 2.10	PID=0.0 ppm	J		CL	grey, low plasticity			
BH				2.50	PID=0.0 ppm	J			END OF BOREHOLE AT 2.60 m			

This borehole log should be read in conjunction with Parsons Brinckerhoff's accompanying standard notes.

BOREHOLE ENVIRONMENTAL LOG

BOREHOLE NO.

PBTP2

SHEET 1 OF 1

Client:	**Alinta Asset Management Pty Ltd**	Date Commenced:	**26/03/08**
Project:	**Additional Environmental Works**	Date Completed:	**26/03/08**
Borehole Location:	**Woodville Reservoir**	Recorded By:	**DH**
Project Number:	**2116732A**	Log Checked By:	

Drill Model/Mounting:	**Backhoe**	Driller:		Surface RL:	
Borehole Diameter:	**2m**	Driller Lic No:		Co-ords:	**E -33.86603 N 150.99341**

Borehole Information							Field Material Description					
1	2	3	4	5	6	7	8	9	10	11	12	13
METHOD	SUPPORT	WATER	WELL CONSTRUCTION	RL(m) / DEPTH(m)	FIELD TEST	SAMPLE	GRAPHIC LOG	USC SYMBOL	SOIL/ROCK MATERIAL FIELD DESCRIPTION	MOISTURE	RELATIVE DENSITY /CONSISTENCY (VS S F ST VST H / FB VL L MD D VD)	STRUCTURE AND ADDITIONAL OBSERVATIONS
					PID=0.0 ppm	J		SC	Grass covered, medium grained, dark brown, some shale fragments			
					PID=0.0 ppm	J				M		
				0.60				CH	Red to brown, medium plasticity, medium stiffness			
				1	PID=0.0 ppm	J						
				1.10				CH	Red to grey, medium plasticity, medium stiffness			
					PID=0.0 ppm	J						
				1.60				CH	Grey to orange, medium plasticity, medium stiffness			
				2	PID=0.0 ppm	J						
				2.10				CL	Grey, low plasticity, low stiffness			
BH					PID=0.0 ppm	J						
				2.60					END OF BOREHOLE AT 2.60 m			

This borehole log should be read in conjunction with Parsons Brinckerhoff's accompanying standard notes.

BOREHOLE ENVIRONMENTAL LOG

BOREHOLE NO.

PBTP3

SHEET 1 OF 1

Client:	**Alinta Asset Management Pty Ltd**	Date Commenced:	**26/03/08**
Project:	**Additional Environmental Works**	Date Completed:	**26/03/08**
Borehole Location:	**Woodville Reservoir**	Recorded By:	**DH**
Project Number:	**2116732A**	Log Checked By:	

Drill Model/Mounting:	**Backhoe**	Driller:	Surface RL:
Borehole Diameter:	**2m**	Driller Lic No:	Co-ords: **E -33.86603 N 150.99355**

Borehole Information							Field Material Description					
1	2	3	4	5	6	7	8	9	10	11	12	13
METHOD	SUPPORT	WATER	WELL CONSTRUCTION	RL(m) / DEPTH(m)	FIELD TEST	SAMPLE	GRAPHIC LOG	USC SYMBOL	SOIL/ROCK MATERIAL FIELD DESCRIPTION	MOISTURE	RELATIVE DENSITY /CONSISTENCY (FB VL L MD D VD / VS S F ST VST H)	STRUCTURE AND ADDITIONAL OBSERVATIONS
					PID=0.0 ppm	J		SC	Grass covered, medium grained, dark brown, some fill			
		26/3/08		0.30	PID=0.0 ppm	J		SC	Fill including tires, metial, wires, wood fragments, building materials, some fiberous cement sheeting	W		Some perched groundwater present, oily with odour
BH				0.60					END OF BOREHOLE AT 0.60 m			

This borehole log should be read in conjunction with Parsons Brinckerhoff's accompanying standard notes.

BOREHOLE ENVIRONMENTAL LOG

BOREHOLE NO.

PBTP4

SHEET 1 OF 1

Client:	**Alinta Asset Management Pty Ltd**	Date Commenced:	**26/03/08**
Project:	**Additional Environmental Works**	Date Completed:	**26/03/08**
Borehole Location:	**Woodville Reservoir**	Recorded By:	**DH**
Project Number:	**2116732A**	Log Checked By:	

Drill Model/Mounting:	**Backhoe**	Driller:	Surface RL:
Borehole Diameter:	**2m**	Driller Lic No:	Co-ords: **E -33.86609 N 150.99371**

Borehole Information							Field Material Description					
1	2	3	4	5	6	7	8	9	10	11	12	13
METHOD	SUPPORT	WATER	WELL CONSTRUCTION	RL(m) DEPTH(m)	FIELD TEST	SAMPLE	GRAPHIC LOG	USC SYMBOL	SOIL/ROCK MATERIAL FIELD DESCRIPTION	MOISTURE	RELATIVE DENSITY /CONSISTENCY (VS S F ST VST H / FB VL L MD D VD)	STRUCTURE AND ADDITIONAL OBSERVATIONS
					PID=0.0 ppm	J		SC	Grass covered, medium grained, dark brown			Dup3 & Dup4
				0.30				CL	Red brown			
					PID=0.0 ppm	J				M		
				1	PID=0.0 ppm	J						
				1.10				CH	Red brown			
					PID=0.0 ppm	J						
				1.60				CH	Orange grey			
				2	PID=0.0 ppm	J						
BH				2.10					END OF BOREHOLE AT 2.10 m			

This borehole log should be read in conjunction with Parsons Brinckerhoff's accompanying standard notes.

BOREHOLE ENVIRONMENTAL LOG

BOREHOLE NO.

PBTP5

SHEET 1 OF 1

Client:	**Alinta Asset Management Pty Ltd**	Date Commenced:	**26/03/08**
Project:	**Additional Environmental Works**	Date Completed:	**26/03/08**
Borehole Location:	**Woodville Reservoir**	Recorded By:	**DH**
Project Number:	**2116732A**	Log Checked By:	

Drill Model/Mounting:	**Backhoe**	Driller:		Surface RL:	
Borehole Diameter:	**2m**	Driller Lic No:		Co-ords:	**E -33.86616 N 150.99375**

Borehole Information							Field Material Description					
1	2	3	4	5	6	7	8	9	10	11	12	13
METHOD	SUPPORT	WATER	WELL CONSTRUCTION	RL(m) / DEPTH(m)	FIELD TEST	SAMPLE	GRAPHIC LOG	USC SYMBOL	SOIL/ROCK MATERIAL FIELD DESCRIPTION	MOISTURE	RELATIVE DENSITY /CONSISTENCY (FB VS, VL S, L F, MD ST, D VST, VD H)	STRUCTURE AND ADDITIONAL OBSERVATIONS
BH					PID=0.0 ppm	J		SC	Grass covered, medium grained, dark brown, some fill			Some fiberous cement sheeting observed, roofing material
					PID=0.0 ppm	J				M		
				0.60				CL	Red brown, medium plasticity			
				1	PID=0.0 ppm	J						
				1.10				CL	Orange brown, medium plasticity			
					PID=0.0 ppm	J						
				2.00 2	PID=0.0 ppm	J		CL	Grey brown, medium plasticity			
				2.20				CH	Grey, low plasticity			
				2.60					END OF BOREHOLE AT 2.60 m			

This borehole log should be read in conjunction with Parsons Brinckerhoff's accompanying standard notes.

BOREHOLE ENVIRONMENTAL LOG

BOREHOLE NO.

PBTP6

SHEET 1 OF 1

Client:	**Alinta Asset Management Pty Ltd**	Date Commenced:	**26/03/08**
Project:	**Additional Environmental Works**	Date Completed:	**26/03/08**
Borehole Location:	**Barbers Street**	Recorded By:	**DH**
Project Number:	**2116732A**	Log Checked By:	

Drill Model/Mounting:	**Backhoe**	Driller:		Surface RL:	
Borehole Diameter:	**2m**	Driller Lic No:		Co-ords:	**E -33.86597 N 150.99026**

Borehole Information							Field Material Description					
1	2	3	4	5	6	7	8	9	10	11	12	13
METHOD	SUPPORT	WATER	WELL CONSTRUCTION	RL(m) / DEPTH(m)	FIELD TEST	SAMPLE	GRAPHIC LOG	USC SYMBOL	SOIL/ROCK MATERIAL FIELD DESCRIPTION	MOISTURE	RELATIVE DENSITY /CONSISTENCY (VS S F ST VST H / FB VL L MD D VD)	STRUCTURE AND ADDITIONAL OBSERVATIONS
BH					PID=0.0 ppm	J		SC	Grass covered, medium grained, dark brown			
				0.20	PID=0.0 ppm	J		CL	Brown, medium plasticity	M		
				0.70				CL	Red brown, medium plasticity			
				1	PID=0.0 ppm	J						
				1.20				CL	Red Grey mottled clay, medium plasticity			
					PID=0.0 ppm	D+JAR						POCUS sample analysed
				1.70				CL	Grey, medium plasticity			
				2	PID=0.0 ppm	J						
				2.20					END OF BOREHOLE AT 2.20 m			

This borehole log should be read in conjunction with Parsons Brinckerhoff's accompanying standard notes.

BOREHOLE ENVIRONMENTAL LOG

BOREHOLE NO.

PBTP7

SHEET 1 OF 1

Client:	**Alinta Asset Management Pty Ltd**	Date Commenced:	**26/03/08**
Project:	**Additional Environmental Works**	Date Completed:	**26/03/08**
Borehole Location:	**Kendall Street**	Recorded By:	**DH**
Project Number:	**2116732A**	Log Checked By:	

Drill Model/Mounting:	**Backhoe**	Driller:		Surface RL:	
Borehole Diameter:	**2m**	Driller Lic No:		Co-ords:	**E -33.83302 N 151.02026**

Borehole Information | **Field Material Description**

1	2	3	4	5	6	7	8	9	10	11	12	13
METHOD	SUPPORT	WATER	WELL CONSTRUCTION	RL(m) / DEPTH(m)	FIELD TEST	SAMPLE	GRAPHIC LOG	USC SYMBOL	SOIL/ROCK MATERIAL FIELD DESCRIPTION	MOISTURE	RELATIVE DENSITY /CONSISTENCY (VS S F ST VST H / FB VL L MD D VD)	STRUCTURE AND ADDITIONAL OBSERVATIONS
BH					PID=0.0 ppm	J		SC	Grass covered, medium grained, dark brown			Some clay, rock fragments
				0.50	PID=0.0 ppm	J		CL	Grey, medium plasticity	M		
				0.90				CL	Grey red mottled, medium plasticity			
				1	PID=0.0 ppm	J						
					PID=1.2 ppm	J						
				2	PID=2.5 ppm	J						POCUS sample analysed
				2.10					END OF BOREHOLE AT 2.10 m			

This borehole log should be read in conjunction with Parsons Brinckerhoff's accompanying standard notes.

BOREHOLE ENVIRONMENTAL LOG

BOREHOLE NO.

PBTP8

SHEET 1 OF 1

Client:	**Alinta Asset Management Pty Ltd**	Date Commenced:	**26/03/08**
Project:	**Additional Environmental Works**	Date Completed:	**26/03/08**
Borehole Location:	**Kendall Street**	Recorded By:	**DH**
Project Number:	**2116732A**	Log Checked By:	

Drill Model/Mounting:	**Backhoe**	Driller:		Surface RL:	
Borehole Diameter:	**2m**	Driller Lic No:		Co-ords:	**E -33.83223 N 151.02069**

Borehole Information | **Field Material Description**

1	2	3	4	5	6	7	8	9	10	11	12	13
METHOD	SUPPORT	WATER	WELL CONSTRUCTION	RL(m) / DEPTH(m)	FIELD TEST	SAMPLE	GRAPHIC LOG	USC SYMBOL	SOIL/ROCK MATERIAL FIELD DESCRIPTION	MOISTURE	RELATIVE DENSITY /CONSISTENCY (VS S F ST VST H / FB VL L MD D VD)	STRUCTURE AND ADDITIONAL OBSERVATIONS
BH					PID=0.0 ppm	J		SC	Grass covered, medium grained, dark brown	M		
				0.30				CL	Light brown, medium plasticity			
					PID=0.0 ppm	J						
				1	PID=0.0 ppm	J						POCUS sample analysed
				1.10					END OF BOREHOLE AT 1.10 m			Stopped excavation due to restricted access above ground
				2								

This borehole log should be read in conjunction with Parsons Brinckerhoff's accompanying standard notes.

BOREHOLE ENVIRONMENTAL LOG

BOREHOLE NO.

PBTP9

SHEET 1 OF 1

Client:	**Alinta Asset Management Pty Ltd**	Date Commenced:	**26/03/08**
Project:	**Additional Environmental Works**	Date Completed:	**26/03/08**
Borehole Location:	**Martha Street**	Recorded By:	**DH**
Project Number:	**2116732A**	Log Checked By:	

Drill Model/Mounting:	**Backhoe**	Driller:		Surface RL:	
Borehole Diameter:	**2m**	Driller Lic No:		Co-ords:	**E -33.83257 N 151.02154**

Borehole Information							Field Material Description					
1	2	3	4	5	6	7	8	9	10	11	12	13
METHOD	SUPPORT	WATER	WELL CONSTRUCTION	RL(m) / DEPTH(m)	FIELD TEST	SAMPLE	GRAPHIC LOG	USC SYMBOL	SOIL/ROCK MATERIAL FIELD DESCRIPTION	MOISTURE	RELATIVE DENSITY /CONSISTENCY (VS S F ST VST H / FB VL L MD D VD)	STRUCTURE AND ADDITIONAL OBSERVATIONS
					PID=0.0 ppm	J		SC	Grass covered, medium grained, dark brown to grey	M		
				0.30				CL	Light brown, medium plasticity			
					PID=0.0 ppm	J						
				1	PID=0.0 ppm	J						
				1.20				CL	Grey red mottled, medium plasticity			
					PID=0.0 ppm	J						
				2	PID=0.0 ppm	J						
				2.10					END OF BOREHOLE AT 2.10 m			

This borehole log should be read in conjunction with Parsons Brinckerhoff's accompanying standard notes.

BOREHOLE ENVIRONMENTAL LOG

BOREHOLE NO.

PBTP10

SHEET 1 OF 1

Client:	**Alinta Asset Management Pty Ltd**	Date Commenced:	**26/03/08**
Project:	**Additional Environmental Works**	Date Completed:	**26/03/08**
Borehole Location:	**Martha Street**	Recorded By:	**DH**
Project Number:	**2116732A**	Log Checked By:	

Drill Model/Mounting:	**Backhoe**	Driller:		Surface RL:	
Borehole Diameter:	**2m**	Driller Lic No:		Co-ords:	**E -33.83359 N 151.02386**

Borehole Information | **Field Material Description**

1	2	3	4	5	6	7	8	9	10	11	12	13
METHOD	SUPPORT	WATER	WELL CONSTRUCTION	RL(m) / DEPTH(m)	FIELD TEST	SAMPLE	GRAPHIC LOG	USC SYMBOL	SOIL/ROCK MATERIAL FIELD DESCRIPTION	MOISTURE	RELATIVE DENSITY /CONSISTENCY (VS S F ST VST H / FB VL L MD D VD)	STRUCTURE AND ADDITIONAL OBSERVATIONS
BH					PID=0.0 ppm	J		SC	Grass covered, medium grained, dark brown to grey	M		Dup5 & Dup6
				0.30	PID=0.0 ppm	J		CL	Red grey, medium plasticity			
				1	PID=0.0 ppm	J						
				1.20				CL	Light brown, medium plasticity			
					PID=0.0 ppm	J						
				1.70				CL	Light brown/grey, medium plasticity			
				2	PID=0.0 ppm	J						
				2.10					END OF BOREHOLE AT 2.10 m			

This borehole log should be read in conjunction with Parsons Brinckerhoff's accompanying standard notes.

BOREHOLE ENVIRONMENTAL LOG

BOREHOLE NO.

PBTP11

SHEET 1 OF 1

Client:	**Alinta Asset Management Pty Ltd**	Date Commenced:	**27/03/08**
Project:	**Additional Environmental Works**	Date Completed:	**27/03/08**
Borehole Location:	**Deniehy Street**	Recorded By:	**DH**
Project Number:	**2116732A**	Log Checked By:	

Drill Model/Mounting:	**Backhoe**	Driller:	Surface RL:
Borehole Diameter:	**2m**	Driller Lic No:	Co-ords: **E -33.83269 N 151.02588**

Borehole Information							Field Material Description					
1	2	3	4	5	6	7	8	9	10	11	12	13
METHOD	SUPPORT	WATER	WELL CONSTRUCTION	RL(m) DEPTH(m)	FIELD TEST	SAMPLE	GRAPHIC LOG	USC SYMBOL	SOIL/ROCK MATERIAL FIELD DESCRIPTION	MOISTURE	RELATIVE DENSITY /CONSISTENCY (VS S F ST VST H / FB VL L MD D VD)	STRUCTURE AND ADDITIONAL OBSERVATIONS
					PID=0.0 ppm	J		SC	Grass covered, medium grained, dark brown	M		
				0.30	PID=0.0 ppm	J		SC	Dark brown, medium grained			
				0.70				CL	Red grey, medium plasticity			
				1	PID=0.0 ppm	J						
					PID=0.0 ppm	J						Slight organic odour
				2.00 2	PID=0.0 ppm	J		CH	Red grey, low plasticity			
				2.10					END OF BOREHOLE AT 2.10 m			P0CUS testing Undertaken

This borehole log should be read in conjunction with Parsons Brinckerhoff's accompanying standard notes.

BOREHOLE ENVIRONMENTAL LOG

BOREHOLE NO.

PBTP12

SHEET 1 OF 1

Client:	**Alinta Asset Management Pty Ltd**	Date Commenced:	**27/03/08**
Project:	**Additional Environmental Works**	Date Completed:	**27/03/08**
Borehole Location:	**Unwin Street**	Recorded By:	**DH**
Project Number:	**2116732A**	Log Checked By:	

Drill Model/Mounting:	**Backhoe**	Driller:		Surface RL:	
Borehole Diameter:	**2m**	Driller Lic No:		Co-ords:	**E -33.82761 N 151.02888**

Borehole Information | **Field Material Description**

1	2	3	4	5	6	7	8	9	10	11	12	13
METHOD	SUPPORT	WATER	WELL CONSTRUCTION	RL(m) / DEPTH(m)	FIELD TEST	SAMPLE	GRAPHIC LOG	USC SYMBOL	SOIL/ROCK MATERIAL FIELD DESCRIPTION	MOISTURE	RELATIVE DENSITY /CONSISTENCY (VS S F ST VST H / FB VL L MD D VD)	STRUCTURE AND ADDITIONAL OBSERVATIONS
BH					PID=0.0 ppm	J		SC	Grass covered, medium grained, dark brown	M		
				0.30	PID=0.0 ppm	J		CL	Red brown, medium plasticity			
				0.90				CL	Orange brown, medium plasticity			
				1	PID=0.0 ppm	J						
				1.20				CL	Red grey, mottled, medium plasticity			
					PID=0.0 ppm	J						
				2	PID=0.0 ppm	J						P0CUS testing Undertaken
				2.10					END OF BOREHOLE AT 2.10 m			

This borehole log should be read in conjunction with Parsons Brinckerhoff's accompanying standard notes.

BOREHOLE ENVIRONMENTAL LOG

BOREHOLE NO.

PBTP13

SHEET 1 OF 1

Client:	**Alinta Asset Management Pty Ltd**	Date Commenced:	**27/03/08**
Project:	**Additional Environmental Works**	Date Completed:	**27/03/08**
Borehole Location:	**Colquhoun Street**	Recorded By:	**DH**
Project Number:	**2116732A**	Log Checked By:	

Drill Model/Mounting:	**Backhoe**	Driller:		Surface RL:	
Borehole Diameter:	**2m**	Driller Lic No:		Co-ords:	**E -33.82651 N 151.03011**

Borehole Information							Field Material Description					
1	2	3	4	5	6	7	8	9	10	11	12	13
METHOD	SUPPORT	WATER	WELL CONSTRUCTION	RL(m) DEPTH(m)	FIELD TEST	SAMPLE	GRAPHIC LOG	USC SYMBOL	SOIL/ROCK MATERIAL FIELD DESCRIPTION	MOISTURE	RELATIVE DENSITY /CONSISTENCY (VS S F ST VST H / FB VL L MD D VD)	STRUCTURE AND ADDITIONAL OBSERVATIONS
BH					PID=0.0 ppm	J		SC	Grass covered, medium grained, dark brown	M		
				0.30	PID=0.0 ppm	J		CL	Orange, medium plasticity			
				0.90				CH	Orange brown, low plasticity			
				1	PID=0.0 ppm	J						
				1.20				CH	Red grey, mottled, low plasticity			
					PID=0.0 ppm	J						
				2	PID=0.0 ppm	J						P0CUS testing Undertaken
				2.10					END OF BOREHOLE AT 2.10 m			Some seapage into excavation, possibly from perched groundwater in neighbouring trench

This borehole log should be read in conjunction with Parsons Brinckerhoff's accompanying standard notes.

BOREHOLE ENVIRONMENTAL LOG

BOREHOLE NO.

PBTP14

SHEET 1 OF 1

Client:	**Alinta Asset Management Pty Ltd**	Date Commenced:	**27/03/08**
Project:	**Additional Environmental Works**	Date Completed:	**27/03/08**
Borehole Location:	**Durham Street**	Recorded By:	**DH**
Project Number:	**2116732A**	Log Checked By:	

Drill Model/Mounting:	**Backhoe**	Driller:		Surface RL:	
Borehole Diameter:	**2m**	Driller Lic No:		Co-ords:	**E -33.82323 N 151.03742**

Borehole Information							Field Material Description					
1	2	3	4	5	6	7	8	9	10	11	12	13
METHOD	SUPPORT	WATER	WELL CONSTRUCTION	RL(m) DEPTH(m)	FIELD TEST	SAMPLE	GRAPHIC LOG	USC SYMBOL	SOIL/ROCK MATERIAL FIELD DESCRIPTION	MOISTURE	RELATIVE DENSITY /CONSISTENCY (VS S F ST VST H / FB VL L MD D VD)	STRUCTURE AND ADDITIONAL OBSERVATIONS
BH					PID=0.0 ppm	J		SC	Grass covered, medium grained, dark brown	M		
				0.30	PID=0.0 ppm	J		CL	Orange, medium plasticity			Some Ashy material
				0.90				CH	Orange brown, low plasticity			
				1	PID=0.0 ppm	J						
				1.20				CH	Red grey, mottled, low plasticity			
				2	PID=0.0 ppm	J						
				2.10					END OF BOREHOLE AT 2.10 m			P0CUS testing Undertaken

This borehole log should be read in conjunction with Parsons Brinckerhoff's accompanying standard notes.

BOREHOLE ENVIRONMENTAL LOG

BOREHOLE NO.

PBTP15

SHEET 1 OF 1

Client:	**Alinta Asset Management Pty Ltd**	Date Commenced:	**27/03/08**
Project:	**Additional Environmental Works**	Date Completed:	**27/03/08**
Borehole Location:	**Durham Street**	Recorded By:	**DH**
Project Number:	**2116732A**	Log Checked By:	

Drill Model/Mounting:	**Backhoe**	Driller:	Surface RL:
Borehole Diameter:	**2m**	Driller Lic No:	Co-ords: **E -33.82229 N 151.03764**

Borehole Information							Field Material Description					
1	2	3	4	5	6	7	8	9	10	11	12	13
METHOD	SUPPORT	WATER	WELL CONSTRUCTION	RL(m) DEPTH(m)	FIELD TEST	SAMPLE	GRAPHIC LOG	USC SYMBOL	SOIL/ROCK MATERIAL FIELD DESCRIPTION	MOISTURE	RELATIVE DENSITY /CONSISTENCY (FB VL L MD D VD / VS S F ST VST H)	STRUCTURE AND ADDITIONAL OBSERVATIONS
BH					PID=0.0 ppm	J		SC	Grass covered, medium grained, dark brown			Some Ash present
				0.30				CL	Red grey, medium plasticity			
				1	PID=0.0 ppm	J						
					PID=0.0 ppm	J						
					PID=0.0 ppm	J						P0CUS testing Undertaken
				1.70					END OF BOREHOLE AT 1.70 m			
				2								

This borehole log should be read in conjunction with Parsons Brinckerhoff's accompanying standard notes.

BOREHOLE ENVIRONMENTAL LOG

BOREHOLE NO.

PBTP16

SHEET 1 OF 1

Client:	**Alinta Asset Management Pty Ltd**	Date Commenced:	**27/03/08**
Project:	**Additional Environmental Works**	Date Completed:	**27/03/08**
Borehole Location:	**Grande Avenue**	Recorded By:	**DH**
Project Number:	**2116732A**	Log Checked By:	

Drill Model/Mounting:	**Backhoe**	Driller:		Surface RL:	
Borehole Diameter:	**2m**	Driller Lic No:		Co-ords:	**E -33.82077 N 151.039**

Borehole Information | **Field Material Description**

1	2	3	4	5	6	7	8	9	10	11	12	13
METHOD	SUPPORT	WATER	WELL CONSTRUCTION	RL(m) / DEPTH(m)	FIELD TEST	SAMPLE	GRAPHIC LOG	USC SYMBOL	SOIL/ROCK MATERIAL FIELD DESCRIPTION	MOISTURE	RELATIVE DENSITY /CONSISTENCY (VS S F ST VST H / FB VL L MD D VD)	STRUCTURE AND ADDITIONAL OBSERVATIONS
BH					PID=0.0 ppm	J		SC	Dirt covered, medium grained, dark brown	M		Some ash present in fill material
				0.30				CL	Grey, medium plasticity			
					PID=0.0 ppm	J						
				1	PID=0.0 ppm	J						
				2	PID=0.0 ppm	D+JAR						
				2.10					END OF BOREHOLE AT 2.10 m			

This borehole log should be read in conjunction with Parsons Brinckerhoff's accompanying standard notes.

BOREHOLE ENVIRONMENTAL LOG

BOREHOLE NO.

PBTP17

SHEET 1 OF 1

Client:	**Alinta Asset Management Pty Ltd**	Date Commenced:	**27/03/08**
Project:	**Additional Environmental Works**	Date Completed:	**27/03/08**
Borehole Location:	**Thackeray Street**	Recorded By:	**DH**
Project Number:	**2116732A**	Log Checked By:	

Drill Model/Mounting:	**Backhoe**	Driller:		Surface RL:	
Borehole Diameter:	**2m**	Driller Lic No:		Co-ords:	**E -33.8202 N 151.04091**

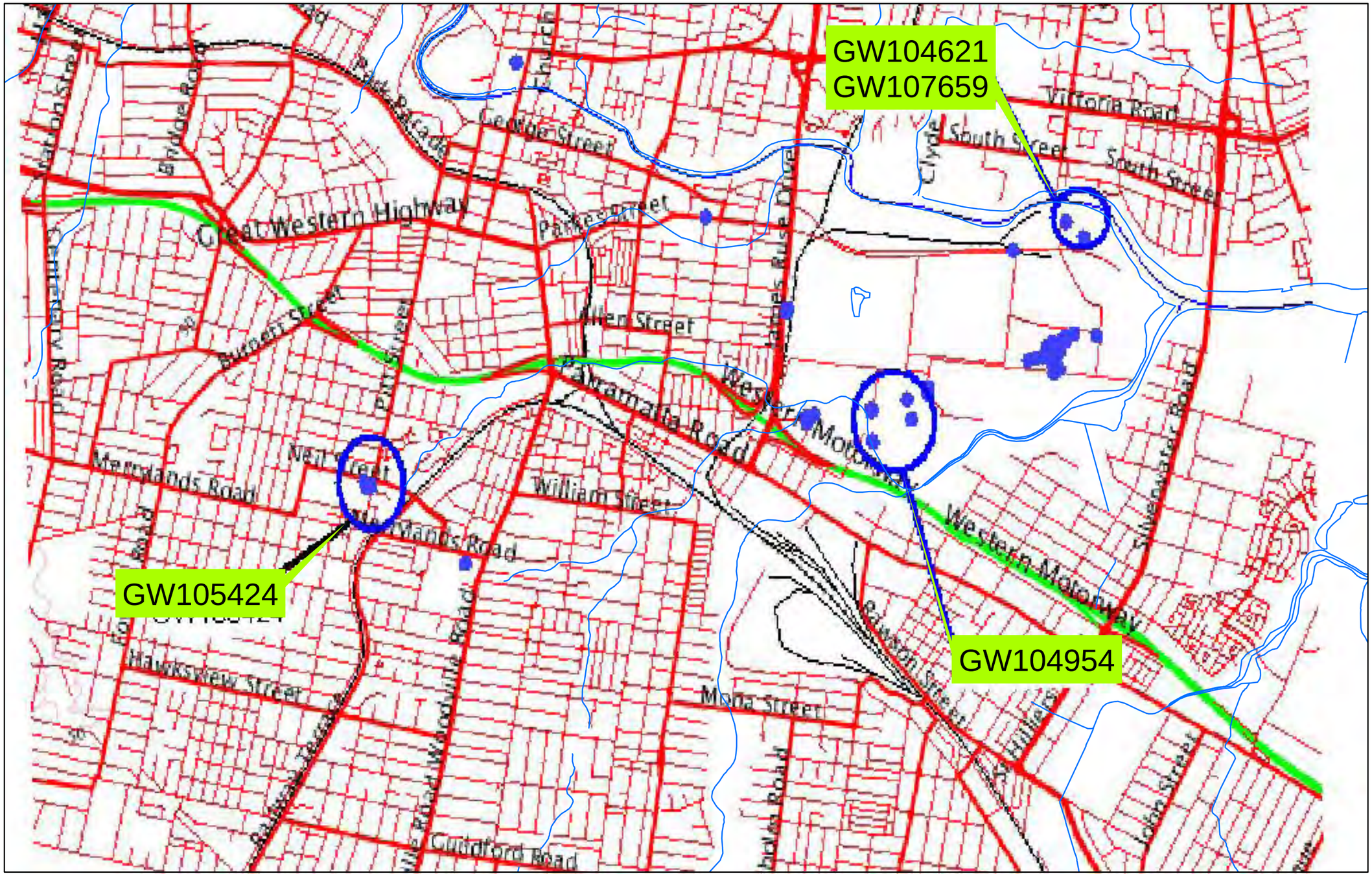
Borehole Information							Field Material Description					
1	2	3	4	5	6	7	8	9	10	11	12	13
METHOD	SUPPORT	WATER	WELL CONSTRUCTION	RL(m) / DEPTH(m)	FIELD TEST	SAMPLE	GRAPHIC LOG	USC SYMBOL	SOIL/ROCK MATERIAL FIELD DESCRIPTION	MOISTURE	RELATIVE DENSITY /CONSISTENCY (FB VL L MD D VD / VS S F ST VST H)	STRUCTURE AND ADDITIONAL OBSERVATIONS
BH					PID=0.0 ppm	J		SC	Grass covered, medium grained, dark brown			Some fiberous cement sheeting found in topsoil
				0.30					Ashphalt from near by parking lot			
				0.40				SC	Road base material			
				1	PID=0.0 ppm	J						
				1.20				CH	Orange grey, low plasticity	M		
					PID=0.0 ppm	J						
				2	PID=0.0 ppm	J						
				2.10					END OF BOREHOLE AT 2.10 m			

This borehole log should be read in conjunction with Parsons Brinckerhoff's accompanying standard notes.

Appendix D

Groundwater Information

Figure 3 – Groundwater Information



J:\A353-ENVPL\NPRO\J2116732A_EIA__Camellia_Recycled_Water\10_GIS\Projects\2116732A_2000_Site_Location.mxd

Appendix E

Laboratory reports

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

CERTIFICATE OF ANALYSIS 18156

Client:
Parsons Brinckerhoff
GPO Box 5394
Sydney
NSW 2001

Attention: Dave Hogberg

Sample log in details:

Your Reference:	**2116732A, Camellia**
No. of samples:	82 Soils, 2 Waters
Date samples received:	28/03/08
Date completed instructions received:	28/03/08

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:	4/04/08
Date of Preliminary Report:	04/04/08
Issue Date:	7/04/08

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Tests not covered by NATA are denoted with *.

Results Approved By:

Jacinta Hurst
Operations Manager

David Springer
Business Development & Quality Manager

Joshua Lim
Chemist

ACCREDITED FOR TECHNICAL COMPETENCE

vTPH & BTEX in Soil						
Our Reference:	UNITS	18156-1	18156-5	18156-6	18156-9	18156-12
Your Reference	----------	PBTP1	PBTP1	PBTP2	PBTP2	PBTP3
Depth	----------	0.2-0.3	2.5-2.6	0.2-0.3	1.5-1.6	0.2-0.3
Date Sampled		26/03/2008	26/03/2008	26/03/2008	26/03/2008	26/03/2008
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	1/04/2008	1/04/2008	1/04/2008	1/04/2008	1/04/2008
Date analysed	-	1/04/2008	1/04/2008	1/04/2008	1/04/2008	1/04/2008
vTPH C_6 - C_9	mg/kg	<25	<25	<25	<25	<25
Benzene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
m + p-Xylene	mg/kg	<2.0	<2.0	<2.0	<2.0	<2.0
o-Xylene	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
Surrogate aaa-Trifluorotoluene	%	82	91	78	83	73

vTPH & BTEX in Soil						
Our Reference:	UNITS	18156-13	18156-14	18156-17	18156-19	18156-22
Your Reference	----------	PBTP3	PBTP4	PBTP4	PBTP5	PBTP5
Depth	----------	0.5-0.6	0.1-0.2	1.5-1.6	0.1-0.2	2.0-2.1
Date Sampled		26/03/2008	26/03/2008	26/03/2008	26/03/2008	26/03/2008
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	1/04/2008	1/04/2008	1/04/2008	1/04/2008	1/04/2008
Date analysed	-	1/04/2008	1/04/2008	1/04/2008	1/04/2008	1/04/2008
vTPH C_6 - C_9	mg/kg	<25	<25	<25	<25	<25
Benzene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
m + p-Xylene	mg/kg	<2.0	<2.0	<2.0	<2.0	<2.0
o-Xylene	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
Surrogate aaa-Trifluorotoluene	%	76	71	82	83	78

vTPH & BTEX in Soil Our Reference: Your Reference Depth Date Sampled Type of sample	UNITS ---------- ----------	18156-23 PBTP6 0.1-0.2 26/03/2008 Soil	18156-31 PBTP7 1.5-1.6 26/03/2008 Soil	18156-35 PBTP8 1.0-1.1 26/03/2008 Soil	18156-37 PBTP9 0.5-0.6 26/03/2008 Soil	18156-41 PBTP10 0.1-0.2 27/03/2008 Soil
Date extracted	-	1/04/2008	1/04/2008	1/04/2008	1/04/2008	1/04/2008
Date analysed	-	1/04/2008	1/04/2008	1/04/2008	1/04/2008	1/04/2008
vTPH C_6 - C_9	mg/kg	<25	<25	<25	<25	<25
Benzene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
m + p-Xylene	mg/kg	<2.0	<2.0	<2.0	<2.0	<2.0
o-Xylene	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
Surrogate aaa-Trifluorotoluene	%	83	77	69	78	79

vTPH & BTEX in Soil Our Reference: Your Reference Depth Date Sampled Type of sample	UNITS ---------- ----------	18156-47 PBTP11 0.5-0.6 27/03/2008 Soil	18156-52 PBTP12 0.5-0.6 27/03/2008 Soil	18156-57 PBTP13 0.5-0.6 27/03/2008 Soil	18156-66 PBTP15 0.5-0.6 27/03/2008 Soil	18156-70 PBTP16 0.5-0.6 27/03/2008 Soil
Date extracted	-	1/04/2008	1/04/2008	1/04/2008	1/04/2008	1/04/2008
Date analysed	-	1/04/2008	1/04/2008	1/04/2008	1/04/2008	1/04/2008
vTPH C_6 - C_9	mg/kg	<25	<25	<25	<25	<25
Benzene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
m + p-Xylene	mg/kg	<2.0	<2.0	<2.0	<2.0	<2.0
o-Xylene	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
Surrogate aaa-Trifluorotoluene	%	79	78	80	75	77

vTPH & BTEX in Soil Our Reference: Your Reference Depth Date Sampled Type of sample	UNITS ---------- ----------	18156-73 PBTP17 0.1-0.2 27/03/2008 Soil	18156-78 Dup1 - 28/03/2008 Soil	18156-79 Dup3 - 26/03/2008 Soil	18156-83 Trip Spike - 27/03/2008 Soil	18156-84 Trip Blank - 27/03/2008 Soil
Date extracted	-	1/04/2008	1/04/2008	1/04/2008	1/04/2008	1/04/2008
Date analysed	-	1/04/2008	1/04/2008	1/04/2008	1/04/2008	1/04/2008
vTPH C_6 - C_9	mg/kg	<25	<25	<25	[NA]	<25
Benzene	mg/kg	<0.5	<0.5	<0.5	98%	<0.5
Toluene	mg/kg	<0.5	<0.5	<0.5	90%	<0.5
Ethylbenzene	mg/kg	<1.0	<1.0	<1.0	95%	<1.0
m + p-Xylene	mg/kg	<2.0	<2.0	<2.0	96%	<2.0
o-Xylene	mg/kg	<1.0	<1.0	<1.0	92%	<1.0
Surrogate aaa-Trifluorotoluene	%	80	72	76	81	82

sTPH in Soil (C10-C36)						
Our Reference:	UNITS	18156-1	18156-5	18156-6	18156-9	18156-12
Your Reference	----------	PBTP1	PBTP1	PBTP2	PBTP2	PBTP3
Depth	----------	0.2-0.3	2.5-2.6	0.2-0.3	1.5-1.6	0.2-0.3
Date Sampled		26/03/2008	26/03/2008	26/03/2008	26/03/2008	26/03/2008
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	1/04/2008	1/04/2008	1/04/2008	1/04/2008	1/04/2008
Date analysed	-	1/04/2008	1/04/2008	1/04/2008	1/04/2008	1/04/2008
TPH C_{10} - C_{14}	mg/kg	<50	<50	<50	<50	<50
TPH C_{15} - C_{28}	mg/kg	<100	<100	<100	<100	<100
TPH C_{29} - C_{36}	mg/kg	<100	<100	<100	<100	<100
Surrogate o-Terphenyl	%	60	68	68	85	89

sTPH in Soil (C10-C36)						
Our Reference:	UNITS	18156-13	18156-14	18156-17	18156-19	18156-22
Your Reference	----------	PBTP3	PBTP4	PBTP4	PBTP5	PBTP5
Depth	----------	0.5-0.6	0.1-0.2	1.5-1.6	0.1-0.2	2.0-2.1
Date Sampled		26/03/2008	26/03/2008	26/03/2008	26/03/2008	26/03/2008
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	1/04/2008	1/04/2008	1/04/2008	1/04/2008	1/04/2008
Date analysed	-	1/04/2008	1/04/2008	1/04/2008	1/04/2008	1/04/2008
TPH C_{10} - C_{14}	mg/kg	<50	<50	<50	<50	<50
TPH C_{15} - C_{28}	mg/kg	<100	<100	<100	<100	<100
TPH C_{29} - C_{36}	mg/kg	<100	<100	<100	<100	<100
Surrogate o-Terphenyl	%	86	86	93	86	87

sTPH in Soil (C10-C36)						
Our Reference:	UNITS	18156-23	18156-31	18156-35	18156-37	18156-41
Your Reference	----------	PBTP6	PBTP7	PBTP8	PBTP9	PBTP10
Depth	----------	0.1-0.2	1.5-1.6	1.0-1.1	0.5-0.6	0.1-0.2
Date Sampled		26/03/2008	26/03/2008	26/03/2008	26/03/2008	27/03/2008
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	1/04/2008	1/04/2008	1/04/2008	1/04/2008	1/04/2008
Date analysed	-	1/04/2008	1/04/2008	1/04/2008	1/04/2008	1/04/2008
TPH C_{10} - C_{14}	mg/kg	<50	<50	<50	<50	<50
TPH C_{15} - C_{28}	mg/kg	<100	<100	<100	<100	<100
TPH C_{29} - C_{36}	mg/kg	<100	<100	<100	<100	<100
Surrogate o-Terphenyl	%	88	83	87	84	87

sTPH in Soil (C10-C36) **Our Reference:** **Your Reference** **Depth** **Date Sampled** **Type of sample**	**UNITS** ---------- ----------	**18156-47** **PBTP11** **0.5-0.6** **27/03/2008** **Soil**	**18156-52** **PBTP12** **0.5-0.6** **27/03/2008** **Soil**	**18156-57** **PBTP13** **0.5-0.6** **27/03/2008** **Soil**	**18156-66** **PBTP15** **0.5-0.6** **27/03/2008** **Soil**	**18156-70** **PBTP16** **0.5-0.6** **27/03/2008** **Soil**
Date extracted	-	1/04/2008	1/04/2008	1/04/2008	1/04/2008	1/04/2008
Date analysed	-	1/04/2008	1/04/2008	1/04/2008	1/04/2008	1/04/2008
TPH C_{10} - C_{14}	mg/kg	<50	<50	<50	<50	<50
TPH C_{15} - C_{28}	mg/kg	<100	<100	<100	<100	<100
TPH C_{29} - C_{36}	mg/kg	<100	<100	<100	<100	<100
Surrogate o-Terphenyl	%	89	89	93	89	86

sTPH in Soil (C10-C36) Our Reference: Your Reference Depth Date Sampled Type of sample	UNITS ---------- ----------	18156-73 PBTP17 0.1-0.2 27/03/2008 Soil	18156-78 Dup1 - 28/03/2008 Soil	18156-79 Dup3 - 26/03/2008 Soil	18156-84 Trip Blank - 27/03/2008 Soil
Date extracted	-	1/04/2008	1/04/2008	1/04/2008	1/04/2008
Date analysed	-	1/04/2008	1/04/2008	1/04/2008	1/04/2008
TPH C_{10} - C_{14}	mg/kg	<50	<50	<50	<50
TPH C_{15} - C_{28}	mg/kg	<100	<100	<100	<100
TPH C_{29} - C_{36}	mg/kg	<100	<100	<100	<100
Surrogate o-Terphenyl	%	83	81	87	85

PAHs in Soil						
Our Reference:	UNITS	18156-1	18156-6	18156-12	18156-14	18156-19
Your Reference	----------	PBTP1	PBTP2	PBTP3	PBTP4	PBTP5
Depth	----------	0.2-0.3	0.2-0.3	0.2-0.3	0.1-0.2	0.1-0.2
Date Sampled		26/03/2008	26/03/2008	26/03/2008	26/03/2008	26/03/2008
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	1/04/2008	1/04/2008	1/04/2008	1/04/2008	1/04/2008
Date analysed	-	2/04/2008	2/04/2008	2/04/2008	2/04/2008	2/04/2008
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	<0.1	<0.1	<0.1
Anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chrysene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(b,k)fluoranthene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Benzo(a)pyrene	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<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	<0.1	<0.1	<0.1	<0.1
Surrogate p-Terphenyl-d_{14}	%	106	122	122	121	120

PAHs in Soil Our Reference: Your Reference Depth Date Sampled Type of sample	UNITS ---------- ----------	18156-23 PBTP6 0.1-0.2 26/03/2008 Soil	18156-29 PBTP7 0.5-0.6 26/03/2008 Soil	18156-35 PBTP8 1.0-1.1 26/03/2008 Soil	18156-37 PBTP9 0.5-0.6 26/03/2008 Soil	18156-41 PBTP10 0.1-0.2 27/03/2008 Soil
Date extracted	-	1/04/2008	1/04/2008	1/04/2008	1/04/2008	1/04/2008
Date analysed	-	2/04/2008	2/04/2008	2/04/2008	2/04/2008	2/04/2008
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	<0.1	<0.1	<0.1
Anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Pyrene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chrysene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(b,k)fluoranthene	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2
Benzo(a)pyrene	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<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	<0.1	<0.1	<0.1	<0.1
Surrogate p-Terphenyl-d_{14}	%	127	107	123	113	121

PAHs in Soil Our Reference: Your Reference Depth Date Sampled Type of sample	UNITS ---------- ----------	18156-47 PBTP11 0.5-0.6 27/03/2008 Soil	18156-52 PBTP12 0.5-0.6 27/03/2008 Soil	18156-57 PBTP13 0.5-0.6 27/03/2008 Soil	18156-62 PBTP14 0.5-0.6 27/03/2008 Soil	18156-66 PBTP15 0.5-0.6 27/03/2008 Soil
Date extracted	-	1/04/2008	1/04/2008	1/04/2008	1/04/2008	1/04/2008
Date analysed	-	2/04/2008	2/04/2008	2/04/2008	2/04/2008	2/04/2008
Naphthalene	mg/kg	<0.1	<0.1	<0.1	0.2	<0.1
Acenaphthylene	mg/kg	<0.1	<0.1	<0.1	0.3	<0.1
Acenaphthene	mg/kg	<0.1	<0.1	<0.1	0.2	<0.1
Fluorene	mg/kg	<0.1	<0.1	<0.1	0.5	<0.1
Phenanthrene	mg/kg	<0.1	<0.1	<0.1	8.6	0.5
Anthracene	mg/kg	<0.1	<0.1	<0.1	1.0	0.1
Fluoranthene	mg/kg	<0.1	<0.1	<0.1	15	0.7
Pyrene	mg/kg	<0.1	<0.1	<0.1	14	0.8
Benzo(a)anthracene	mg/kg	<0.1	<0.1	<0.1	4.2	0.4
Chrysene	mg/kg	<0.1	<0.1	<0.1	4.4	0.5
Benzo(b,k)fluoranthene	mg/kg	<0.2	<0.2	<0.2	8.2	0.6
Benzo(a)pyrene	mg/kg	<0.05	<0.05	<0.05	5.9	0.4
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1	<0.1	4.4	0.2
Dibenzo(a,h)anthracene	mg/kg	<0.1	<0.1	<0.1	0.5	<0.1
Benzo(g,h,i)perylene	mg/kg	<0.1	<0.1	<0.1	4.0	0.2
Surrogate p-Terphenyl-d_{14}	%	126	119	119	119	121

PAHs in Soil Our Reference: Your Reference Depth Date Sampled Type of sample	UNITS ---------- ----------	18156-70 PBTP16 0.5-0.6 27/03/2008 Soil	18156-73 PBTP17 0.1-0.2 27/03/2008 Soil	18156-78 Dup1 - 28/03/2008 Soil	18156-79 Dup3 - 26/03/2008 Soil	18156-84 Trip Blank - 27/03/2008 Soil
Date extracted	-	1/04/2008	1/04/2008	1/04/2008	1/04/2008	1/04/2008
Date analysed	-	2/04/2008	2/04/2008	2/04/2008	2/04/2008	2/04/2008
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	<0.1	<0.1	<0.1
Anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	<0.1	0.2	<0.1	<0.1	<0.1
Pyrene	mg/kg	<0.1	0.2	<0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chrysene	mg/kg	<0.1	0.1	<0.1	<0.1	<0.1
Benzo(b,k)fluoranthene	mg/kg	<0.2	0.2	<0.2	<0.2	<0.2
Benzo(a)pyrene	mg/kg	<0.05	0.1	<0.05	<0.05	<0.05
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.1	<0.1	<0.1	<0.1	<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	0.1	<0.1	<0.1	<0.1
Surrogate p-Terphenyl-d_{14}	%	121	115	115	118	122

Organochlorine Pesticides in soil						
Our Reference:	UNITS	18156-1	18156-6	18156-12	18156-14	18156-19
Your Reference	----------	PBTP1	PBTP2	PBTP3	PBTP4	PBTP5
Depth	----------	0.2-0.3	0.2-0.3	0.2-0.3	0.1-0.2	0.1-0.2
Date Sampled		26/03/2008	26/03/2008	26/03/2008	26/03/2008	26/03/2008
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	4/04/2008	4/04/2008	4/04/2008	4/04/2008	4/04/2008
Date analysed	-	4/04/2008	4/04/2008	4/04/2008	4/04/2008	4/04/2008
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	0.5	<0.1	<0.1
alpha-chlordane	mg/kg	<0.1	<0.1	0.6	<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
Surrogate TCLMX	%	60	122	125	124	126

Organochlorine Pesticides in soil Our Reference: Your Reference Depth Date Sampled Type of sample	UNITS ---------- ----------	18156-23 PBTP6 0.1-0.2 26/03/2008 Soil	18156-28 PBTP7 0.1-0.2 26/03/2008 Soil	18156-34 PBTP8 0.5-0.6 26/03/2008 Soil	18156-36 PBTP9 0.1-0.2 26/03/2008 Soil	18156-41 PBTP10 0.1-0.2 27/03/2008 Soil
Date extracted	-	4/04/2008	4/04/2008	4/04/2008	4/04/2008	4/04/2008
Date analysed	-	4/04/2008	4/04/2008	4/04/2008	4/04/2008	4/04/2008
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
Surrogate TCLMX	%	121	129	127	124	121

Organochlorine Pesticides in soil	UNITS	18156-46	18156-51	18156-56	18156-65	18156-69
Our Reference:	----------	PBTP11	PBTP12	PBTP13	PBTP15	PBTP16
Your Reference	----------	0.1-0.2	0.1-0.2	0.1-0.2	0.1-0.2	0.1-0.2
Depth		27/03/2008	27/03/2008	27/03/2008	27/03/2008	27/03/2008
Date Sampled		Soil	Soil	Soil	Soil	Soil
Type of sample						
Date extracted	-	4/04/2008	4/04/2008	4/04/2008	4/04/2008	4/04/2008
Date analysed	-	4/04/2008	4/04/2008	4/04/2008	4/04/2008	4/04/2008
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
Surrogate TCLMX	%	126	127	124	130	135

Organochlorine Pesticides in soil Our Reference: Your Reference Depth Date Sampled Type of sample	UNITS ---------- ----------	18156-73 PBTP17 0.1-0.2 27/03/2008 Soil	18156-78 Dup1 - 28/03/2008 Soil	18156-79 Dup3 - 26/03/2008 Soil	18156-84 Trip Blank - 27/03/2008 Soil
Date extracted	-	4/04/2008	4/04/2008	4/04/2008	4/04/2008
Date analysed	-	4/04/2008	4/04/2008	4/04/2008	4/04/2008
HCB	mg/kg	<0.1	<0.1	<0.1	<0.1
alpha-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1
gamma-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1
beta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	<0.1	<0.1	<0.1	<0.1
delta-BHC	mg/kg	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	<0.1	<0.1	<0.1	<0.1
Heptachlor Epoxide	mg/kg	<0.1	<0.1	<0.1	<0.1
gamma-Chlordane	mg/kg	<0.1	<0.1	0.2	<0.1
alpha-chlordane	mg/kg	<0.1	<0.1	0.3	<0.1
Endosulfan I	mg/kg	<0.1	<0.1	<0.1	<0.1
pp-DDE	mg/kg	<0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	<0.1	<0.1	<0.1	<0.1
Endrin	mg/kg	<0.1	<0.1	<0.1	<0.1
pp-DDD	mg/kg	<0.1	<0.1	<0.1	<0.1
Endosulfan II	mg/kg	<0.1	<0.1	<0.1	<0.1
pp-DDT	mg/kg	<0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	<0.1	<0.1	<0.1	<0.1
Endosulfan Sulphate	mg/kg	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	<0.1	<0.1	<0.1	<0.1
Surrogate TCLMX	%	133	115	114	109

Organophosphorus Pesticides						
Our Reference:	UNITS	18156-1	18156-6	18156-12	18156-14	18156-19
Your Reference	----------	PBTP1	PBTP2	PBTP3	PBTP4	PBTP5
Depth	----------	0.2-0.3	0.2-0.3	0.2-0.3	0.1-0.2	0.1-0.2
Date Sampled		26/03/2008	26/03/2008	26/03/2008	26/03/2008	26/03/2008
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	4/04/2008	4/04/2008	4/04/2008	4/04/2008	4/04/2008
Date analysed	-	4/04/2008	4/04/2008	4/04/2008	4/04/2008	4/04/2008
Diazinon	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
Chlorpyriphos-methyl	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
Chlorpyriphos	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
Bromophos-ethyl	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
Surrogate TCLMX	%	60	122	125	124	126

Organophosphorus Pesticides						
Our Reference:	UNITS	18156-23	18156-28	18156-34	18156-36	18156-41
Your Reference	----------	PBTP6	PBTP7	PBTP8	PBTP9	PBTP10
Depth	----------	0.1-0.2	0.1-0.2	0.5-0.6	0.1-0.2	0.1-0.2
Date Sampled		26/03/2008	26/03/2008	26/03/2008	26/03/2008	27/03/2008
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	4/04/2008	4/04/2008	4/04/2008	4/04/2008	4/04/2008
Date analysed	-	4/04/2008	4/04/2008	4/04/2008	4/04/2008	4/04/2008
Diazinon	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
Chlorpyriphos-methyl	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
Chlorpyriphos	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
Bromophos-ethyl	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
Surrogate TCLMX	%	121	129	127	124	121

Organophosphorus Pesticides **Our Reference:** **Your Reference** **Depth** **Date Sampled** **Type of sample**	**UNITS** ---------- ----------	**18156-46** **PBTP11** **0.1-0.2** **27/03/2008** **Soil**	**18156-51** **PBTP12** **0.1-0.2** **27/03/2008** **Soil**	**18156-56** **PBTP13** **0.1-0.2** **27/03/2008** **Soil**	**18156-65** **PBTP15** **0.1-0.2** **27/03/2008** **Soil**	**18156-69** **PBTP16** **0.1-0.2** **27/03/2008** **Soil**
Date extracted	-	4/04/2008	4/04/2008	4/04/2008	4/04/2008	4/04/2008
Date analysed	-	4/04/2008	4/04/2008	4/04/2008	4/04/2008	4/04/2008
Diazinon	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
Chlorpyriphos-methyl	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
Chlorpyriphos	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
Bromophos-ethyl	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
Surrogate TCLMX	%	126	127	124	130	135

Organophosphorus Pesticides Our Reference: Your Reference Depth Date Sampled Type of sample	UNITS ---------- ----------	18156-73 PBTP17 0.1-0.2 27/03/2008 Soil	18156-78 Dup1 - 28/03/2008 Soil	18156-79 Dup3 - 26/03/2008 Soil	18156-84 Trip Blank - 27/03/2008 Soil
Date extracted	-	4/04/2008	4/04/2008	4/04/2008	4/04/2008
Date analysed	-	4/04/2008	4/04/2008	4/04/2008	4/04/2008
Diazinon	mg/kg	<0.1	<0.1	<0.1	<0.1
Dimethoate	mg/kg	<0.1	<0.1	<0.1	<0.1
Chlorpyriphos-methyl	mg/kg	<0.1	<0.1	<0.1	<0.1
Ronnel	mg/kg	<0.1	<0.1	<0.1	<0.1
Chlorpyriphos	mg/kg	<0.1	<0.1	<0.1	<0.1
Fenitrothion	mg/kg	<0.1	<0.1	<0.1	<0.1
Bromophos-ethyl	mg/kg	<0.1	<0.1	<0.1	<0.1
Ethion	mg/kg	<0.1	<0.1	<0.1	<0.1
Surrogate TCLMX	%	133	115	114	109

Total Phenolics in Soil						
Our Reference:	UNITS	18156-1	18156-6	18156-12	18156-14	18156-19
Your Reference	----------	PBTP1	PBTP2	PBTP3	PBTP4	PBTP5
Depth	----------	0.2-0.3	0.2-0.3	0.2-0.3	0.1-0.2	0.1-0.2
Date Sampled		26/03/2008	26/03/2008	26/03/2008	26/03/2008	26/03/2008
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	2/04/2008	2/04/2008	2/04/2008	2/04/2008	2/04/2008
Date analysed	-	4/04/2008	4/04/2008	4/04/2008	4/04/2008	4/04/2008
Total Phenolics (as Phenol)	mg/kg	<5.0	<5.0	<5.0	<5.0	<5.0

Total Phenolics in Soil				
Our Reference:	UNITS	18156-31	18156-70	18156-73
Your Reference	----------	PBTP7	PBTP16	PBTP17
Depth	----------	1.5-1.6	0.5-0.6	0.1-0.2
Date Sampled		26/03/2008	27/03/2008	27/03/2008
Type of sample		Soil	Soil	Soil
Date extracted	-	2/04/2008	2/04/2008	2/04/2008
Date analysed	-	4/04/2008	4/04/2008	4/04/2008
Total Phenolics (as Phenol)	mg/kg	<5.0	<5.0	<5.0

Acid Extractable metals in soil						
Our Reference:	UNITS	18156-1	18156-5	18156-6	18156-9	18156-12
Your Reference	----------	PBTP1	PBTP1	PBTP2	PBTP2	PBTP3
Depth	----------	0.2-0.3	2.5-2.6	0.2-0.3	1.5-1.6	0.2-0.3
Date Sampled		26/03/2008	26/03/2008	26/03/2008	26/03/2008	26/03/2008
Type of sample		Soil	Soil	Soil	Soil	Soil
Date digested	-	1/04/2008	1/04/2008	1/04/2008	1/04/2008	1/04/2008
Date analysed	-	2/04/2008	2/04/2008	2/04/2008	2/04/2008	2/04/2008
Arsenic	mg/kg	4.8	12	17	4.7	40
Cadmium	mg/kg	<1.0	<1.0	<1.0	<1.0	2.0
Chromium	mg/kg	15	13	12	15	15
Copper	mg/kg	550	47	52	66	79
Lead	mg/kg	110	19	37	18	150
Mercury	mg/kg	<0.10	<0.10	<0.10	<0.10	<0.10
Nickel	mg/kg	24	28	21	17	12
Zinc	mg/kg	92	120	85	100	710

Acid Extractable metals in soil						
Our Reference:	UNITS	18156-13	18156-14	18156-17	18156-19	18156-22
Your Reference	----------	PBTP3	PBTP4	PBTP4	PBTP5	PBTP5
Depth	----------	0.5-0.6	0.1-0.2	1.5-1.6	0.1-0.2	2.0-2.1
Date Sampled		26/03/2008	26/03/2008	26/03/2008	26/03/2008	26/03/2008
Type of sample		Soil	Soil	Soil	Soil	Soil
Date digested	-	1/04/2008	1/04/2008	1/04/2008	1/04/2008	1/04/2008
Date analysed	-	2/04/2008	2/04/2008	2/04/2008	2/04/2008	2/04/2008
Arsenic	mg/kg	27	7.1	4.4	6.9	5.5
Cadmium	mg/kg	1.3	<1.0	<1.0	<1.0	<1.0
Chromium	mg/kg	12	15	9.1	17	15
Copper	mg/kg	49	29	16	31	46
Lead	mg/kg	170	43	10	45	21
Mercury	mg/kg	<0.10	<0.10	<0.10	<0.10	<0.10
Nickel	mg/kg	9.9	8.6	3.2	11	20
Zinc	mg/kg	580	84	23	75	100

Acid Extractable metals in soil **Our Reference:** **Your Reference** **Depth** **Date Sampled** **Type of sample**	**UNITS** ---------- ----------	**18156-23** **PBTP6** **0.1-0.2** **26/03/2008** **Soil**	**18156-29** **PBTP7** **0.5-0.6** **26/03/2008** **Soil**	**18156-33** **PBTP8** **0.1-0.2** **26/03/2008** **Soil**	**18156-37** **PBTP9** **0.5-0.6** **26/03/2008** **Soil**	**18156-41** **PBTP10** **0.1-0.2** **27/03/2008** **Soil**
Date digested	-	1/04/2008	1/04/2008	1/04/2008	1/04/2008	1/04/2008
Date analysed	-	2/04/2008	2/04/2008	2/04/2008	2/04/2008	2/04/2008
Arsenic	mg/kg	9.6	5.5	4.0	5.8	5.8
Cadmium	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
Chromium	mg/kg	19	14	20	16	19
Copper	mg/kg	24	13	44	14	43
Lead	mg/kg	71	16	68	18	49
Mercury	mg/kg	<0.10	<0.10	<0.10	<0.10	<0.10
Nickel	mg/kg	11	2.9	54	2.2	13
Zinc	mg/kg	110	8.9	90	6.2	55

Acid Extractable metals in soil Our Reference: Your Reference Depth Date Sampled Type of sample	UNITS ---------- ----------	18156-47 PBTP11 0.5-0.6 27/03/2008 Soil	18156-52 PBTP12 0.5-0.6 27/03/2008 Soil	18156-57 PBTP13 0.5-0.6 27/03/2008 Soil	18156-66 PBTP15 0.5-0.6 27/03/2008 Soil	18156-70 PBTP16 0.5-0.6 27/03/2008 Soil
Date digested	-	1/04/2008	1/04/2008	1/04/2008	1/04/2008	1/04/2008
Date analysed	-	2/04/2008	2/04/2008	2/04/2008	2/04/2008	2/04/2008
Arsenic	mg/kg	5.6	5.0	4.8	<4.0	4.6
Cadmium	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
Chromium	mg/kg	17	21	17	5.3	23
Copper	mg/kg	10	12	3.8	4.7	7.1
Lead	mg/kg	18	22	15	20	19
Mercury	mg/kg	<0.10	<0.10	<0.10	<0.10	<0.10
Nickel	mg/kg	2.8	7.2	3.2	3.0	5.5
Zinc	mg/kg	11	13	6.0	39	13

Acid Extractable metals in soil Our Reference: Your Reference Depth Date Sampled Type of sample	UNITS ---------- ----------	18156-73 PBTP17 0.1-0.2 27/03/2008 Soil	18156-78 Dup1 - 28/03/2008 Soil	18156-79 Dup3 - 26/03/2008 Soil	18156-84 Trip Blank - 27/03/2008 Soil
Date digested	-	1/04/2008	1/04/2008	1/04/2008	1/04/2008
Date analysed	-	2/04/2008	2/04/2008	2/04/2008	2/04/2008
Arsenic	mg/kg	7.0	<4.0	14	<4.0
Cadmium	mg/kg	<1.0	<1.0	<1.0	<1.0
Chromium	mg/kg	22	37	37	<1.0
Copper	mg/kg	2,000	13	68	<1.0
Lead	mg/kg	180	31	90	<1.0
Mercury	mg/kg	<0.10	<0.10	<0.10	<0.10
Nickel	mg/kg	46	11	23	<1.0
Zinc	mg/kg	180	98	170	<1.0

Moisture						
Our Reference:	UNITS	18156-1	18156-5	18156-6	18156-9	18156-12
Your Reference	----------	PBTP1	PBTP1	PBTP2	PBTP2	PBTP3
Depth	----------	0.2-0.3	2.5-2.6	0.2-0.3	1.5-1.6	0.2-0.3
Date Sampled		26/03/2008	26/03/2008	26/03/2008	26/03/2008	26/03/2008
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	1/04/2008	1/04/2008	1/04/2008	1/04/2008	1/04/2008
Date analysed	-	1/04/2008	1/04/2008	1/04/2008	1/04/2008	1/04/2008
Moisture	%	8.4	6.7	16	15	17

Moisture						
Our Reference:	UNITS	18156-13	18156-14	18156-17	18156-19	18156-22
Your Reference	----------	PBTP3	PBTP4	PBTP4	PBTP5	PBTP5
Depth	----------	0.5-0.6	0.1-0.2	1.5-1.6	0.1-0.2	2.0-2.1
Date Sampled		26/03/2008	26/03/2008	26/03/2008	26/03/2008	26/03/2008
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	1/04/2008	1/04/2008	1/04/2008	1/04/2008	1/04/2008
Date analysed	-	1/04/2008	1/04/2008	1/04/2008	1/04/2008	1/04/2008
Moisture	%	15	18	22	19	13

Moisture						
Our Reference:	UNITS	18156-23	18156-28	18156-29	18156-31	18156-33
Your Reference	----------	PBTP6	PBTP7	PBTP7	PBTP7	PBTP8
Depth	----------	0.1-0.2	0.1-0.2	0.5-0.6	1.5-1.6	0.1-0.2
Date Sampled		26/03/2008	26/03/2008	26/03/2008	26/03/2008	26/03/2008
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	1/04/2008	1/04/2008	1/04/2008	1/04/2008	1/04/2008
Date analysed	-	1/04/2008	1/04/2008	1/04/2008	1/04/2008	1/04/2008
Moisture	%	20	38	19	22	10

Moisture						
Our Reference:	UNITS	18156-34	18156-35	18156-36	18156-37	18156-41
Your Reference	----------	PBTP8	PBTP8	PBTP9	PBTP9	PBTP10
Depth	----------	0.5-0.6	1.0-1.1	0.1-0.2	0.5-0.6	0.1-0.2
Date Sampled		26/03/2008	26/03/2008	26/03/2008	26/03/2008	27/03/2008
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	1/04/2008	1/04/2008	1/04/2008	1/04/2008	1/04/2008
Date analysed	-	1/04/2008	1/04/2008	1/04/2008	1/04/2008	1/04/2008
Moisture	%	22	21	15	20	14

Moisture Our Reference: Your Reference Depth Date Sampled Type of sample	UNITS ---------- ----------	18156-46 PBTP11 0.1-0.2 27/03/2008 Soil	18156-47 PBTP11 0.5-0.6 27/03/2008 Soil	18156-51 PBTP12 0.1-0.2 27/03/2008 Soil	18156-52 PBTP12 0.5-0.6 27/03/2008 Soil	18156-56 PBTP13 0.1-0.2 27/03/2008 Soil
Date prepared	-	1/04/2008	1/04/2008	1/04/2008	1/04/2008	1/04/2008
Date analysed	-	1/04/2008	1/04/2008	1/04/2008	1/04/2008	1/04/2008
Moisture	%	19	21	17	16	9.0

Moisture Our Reference: Your Reference Depth Date Sampled Type of sample	UNITS ---------- ----------	18156-57 PBTP13 0.5-0.6 27/03/2008 Soil	18156-62 PBTP14 0.5-0.6 27/03/2008 Soil	18156-65 PBTP15 0.1-0.2 27/03/2008 Soil	18156-66 PBTP15 0.5-0.6 27/03/2008 Soil	18156-69 PBTP16 0.1-0.2 27/03/2008 Soil
Date prepared	-	1/04/2008	1/04/2008	1/04/2008	1/04/2008	1/04/2008
Date analysed	-	1/04/2008	1/04/2008	1/04/2008	1/04/2008	1/04/2008
Moisture	%	16	10	9.8	14	12

Moisture Our Reference: Your Reference Depth Date Sampled Type of sample	UNITS ---------- ----------	18156-70 PBTP16 0.5-0.6 27/03/2008 Soil	18156-73 PBTP17 0.1-0.2 27/03/2008 Soil	18156-78 Dup1 - 28/03/2008 Soil	18156-79 Dup3 - 26/03/2008 Soil	18156-84 Trip Blank - 27/03/2008 Soil
Date prepared	-	1/04/2008	1/04/2008	1/04/2008	1/04/2008	1/04/2008
Date analysed	-	1/04/2008	1/04/2008	1/04/2008	1/04/2008	1/04/2008
Moisture	%	21	11	7.6	20	<0.10

Asbestos ID - soils			
Our Reference:	UNITS	18156-1	18156-12
Your Reference	----------	PBTP1	PBTP3
Depth	----------	0.2-0.3	0.2-0.3
Date Sampled		26/03/2008	26/03/2008
Type of sample		Soil	Soil
Date analysed	-	3/04/2008	3/04/2008
Sample Description	-	30g soil	30g clay
Asbestos ID in soil	-	No asbestos detected	No asbestos detected
Trace Analysis	-	Respirable fibres not detected	Respirable fibres not detected

sPOCAS Our Reference: Your Reference Depth Date Sampled Type of sample	UNITS ---------- ----------	18156-45 PBTP10 2.0-2.1 27/03/2008 Soil	18156-50 PBTP11 2.0-2.1 27/03/2008 Soil	18156-55 PBTP12 2.0-2.1 27/03/2008 Soil	18156-60 PBTP13 2.0-2.1 27/03/2008 Soil	18156-72 PBTP16 2.0-2.1 27/03/2008 Soil
pH $_{kcl}$	pH units	6.9	4.0	3.8	3.8	3.9
TAA pH 6.5	moles H^+/ tonne	<5	40	75	100	100
s-TAA pH 6.5	%w/w S	<0.01	0.064	0.12	0.16	0.16
pH $_{Ox}$	pH units	5.0	3.8	4.2	3.8	3.8
TPA pH 6.5	moles H^+/ tonne	<5.0	40	32	113	108
s-TPA pH 6.5	%w/w S	<0.01	0.064	0.052	0.18	0.17
TSA pH 6.5	moles H^+/ tonne	<5.0	<5.0	<5.0	12	7.5
s-TSA pH 6.5	%w/w S	<0.01	<0.01	<0.01	0.020	0.012
ANC_E	% $CaCO_3$	<0.05	<0.05	<0.05	<0.05	<0.05
a-ANC_E	moles H^+/ tonne	<5	<5	<5	<5	<5
s-ANC_E	%w/w S	<0.05	<0.05	<0.05	<0.05	<0.05
S_{KCl}	%w/w	<0.005	0.057	0.058	0.052	0.023
S_P	%w/w	<0.005	0.063	0.070	0.067	0.028
S_{POS}	%w/w	<0.005	0.006	0.012	0.015	0.005
a-S_{POS}	moles H^+/ tonne	<5.0	<5.0	7.2	9.6	<5.0
Ca_{KCl}	%w/w	0.14	0.033	<0.005	0.020	0.005
Ca_P	%w/w	0.13	0.036	0.018	0.045	0.007
Ca_A	%w/w	<0.005	<0.005	0.018	0.025	<0.005
Mg_{KCl}	%w/w	0.044	0.14	0.097	0.066	0.071
Mg_P	%w/w	0.045	0.14	0.12	0.080	0.068
Mg_A	%w/w	<0.005	<0.005	0.024	0.014	<0.005
SRAS	%w/w	<0.005	0.008	0.007	0.006	<0.005
S_{HCl}	%w/w	<0.005	0.062	0.064	0.058	0.023
S_{NAS}	%w/w	<0.005	0.005	0.006	0.007	<0.005
a-S_{NAS}	moles H^+/ tonne	<5	<5	<5	<5	<5
s-S_{NAS}	%w/w S	<0.01	<0.01	<0.01	<0.01	<0.01
a-Net Acidity	moles H^+/ tonne	<10	46	85	113	103
Liming rate	kg $CaCO_3$/tonne	<0.75	3.5	6.4	8.5	7.7

sPOCAS Our Reference: Your Reference Depth Date Sampled Type of sample	UNITS ---------- ----------	18156-77 PBTP17 2.0-2.2 27/03/2008 Soil
pH kcl	pH units	5.9
TAA pH 6.5	moles H^+/ tonne	10
s-TAA pH 6.5	%w/w S	0.016
pH ox	pH units	4.2
TPA pH 6.5	moles H^+/ tonne	20
s-TPA pH 6.5	%w/w S	0.032
TSA pH 6.5	moles H^+/ tonne	10
s-TSA pH 6.5	%w/w S	0.016
ANCE	% $CaCO_3$	<0.05
a-ANCE	moles H^+/ tonne	<5
s-ANCE	%w/w S	<0.05
SKCl	%w/w	0.016
SP	%w/w	0.088
SPOS	%w/w	0.072
a-SPOS	moles H^+/ tonne	45
CaKCl	%w/w	0.21
CaP	%w/w	0.20
CaA	%w/w	<0.005
MgKCl	%w/w	0.033
MgP	%w/w	0.035
MgA	%w/w	<0.005
SRAS	%w/w	<0.005
SHCl	%w/w	0.020
SNAS	%w/w	<0.005
a-SNAS	moles H^+/ tonne	<5
s-SNAS	%w/w S	<0.01
a-Net Acidity	moles H^+/ tonne	55
Liming rate	kg $CaCO_3$/tonne	4.1

vTPH & BTEX in Water			
Our Reference:	UNITS	18156-81	18156-82
Your Reference	----------	R-260308	R-270303
Depth	----------	-	-
Date Sampled		26/03/2008	27/03/2008
Type of sample		Water	Water
Date extracted	-	4/04/2008	4/04/2008
Date analysed	-	4/04/2008	4/04/2008
TPH C_6 - C_9	µg/L	<10	<10
Benzene	µg/L	<1.0	<1.0
Toluene	µg/L	<1.0	<1.0
Ethylbenzene	µg/L	<1.0	<1.0
m+p-xylene	µg/L	<2.0	<2.0
o-xylene	µg/L	<1.0	<1.0
Surrogate Dibromofluoromethane	%	99	92
Surrogate toluene-d8	%	104	105
Surrogate 4-BFB	%	81	82

sTPH in Water (C10-C36)			
Our Reference:	UNITS	18156-81	18156-82
Your Reference	----------	R-260308	R-270303
Depth	----------	-	-
Date Sampled		26/03/2008	27/03/2008
Type of sample		Water	Water
Date extracted	-	1/04/2008	1/04/2008
Date analysed	-	1/04/2008	1/04/2008
TPH C_{10} - C_{14}	µg/L	<50	<50
TPH C_{15} - C_{28}	µg/L	<100	<100
TPH C_{29} - C_{36}	µg/L	<100	<100
Surrogate o-Terphenyl	%	83	82

PAHs in Water			
Our Reference:	UNITS	18156-81	18156-82
Your Reference	----------	R-260308	R-270303
Depth	----------	-	-
Date Sampled		26/03/2008	27/03/2008
Type of sample		Water	Water
Date extracted	-	1/04/2008	1/04/2008
Date analysed	-	1/04/2008	1/04/2008
Naphthalene	µg/L	<1	<1
Acenaphthylene	µg/L	<1	<1
Acenaphthene	µg/L	<1	<1
Fluorene	µg/L	<1	<1
Phenanthrene	µg/L	<1	<1
Anthracene	µg/L	<1	<1
Fluoranthene	µg/L	<1	<1
Pyrene	µg/L	<1	<1
Benzo(a)anthracene	µg/L	<1	<1
Chrysene	µg/L	<1	<1
Benzo(b,k)fluoranthene	µg/L	<2	<2
Benzo(a)pyrene	µg/L	<1	<1
Indeno(1,2,3-c,d)pyrene	µg/L	<1	<1
Dibenzo(a,h)anthracene	µg/L	<1	<1
Benzo(g,h,i)perylene	µg/L	<1	<1
Surrogate p-Terphenyl-d_{14}	%	115	109

Organochlorine Pesticides in water			
Our Reference:	UNITS	18156-81	18156-82
Your Reference	----------	R-260308	R-270303
Depth	----------	-	-
Date Sampled		26/03/2008	27/03/2008
Type of sample		Water	Water
Date extracted	-	1/04/2008	1/04/2008
Date analysed	-	3/04/2008	3/04/2008
HCB	µg/L	<0.2	<0.2
alpha-BHC	µg/L	<0.2	<0.2
gamma-BHC	µg/L	<0.2	<0.2
beta-BHC	µg/L	<0.2	<0.2
Heptachlor	µg/L	<0.2	<0.2
delta-BHC	µg/L	<0.2	<0.2
Aldrin	µg/L	<0.2	<0.2
Heptachlor Epoxide	µg/L	<0.2	<0.2
gamma-Chlordane	µg/L	<0.2	<0.2
alpha-Chlordane	µg/L	<0.2	<0.2
Endosulfan I	µg/L	<0.2	<0.2
pp-DDE	µg/L	<0.2	<0.2
Dieldrin	µg/L	<0.2	<0.2
Endrin	µg/L	<0.2	<0.2
pp-DDD	µg/L	<0.2	<0.2
Endosulfan II	µg/L	<0.2	<0.2
DDT	µg/L	<0.2	<0.2
Endrin Aldehyde	µg/L	<0.2	<0.2
Endosulfan Sulphate	µg/L	<0.2	<0.2
Methoxychlor	µg/L	<0.2	<0.2
Surrogate TCLMX	%	55	53

OP Pesticides in water			
Our Reference:	UNITS	18156-81	18156-82
Your Reference	----------	R-260308	R-270303
Depth	----------	-	-
Date Sampled		26/03/2008	27/03/2008
Type of sample		Water	Water
Date extracted	-	1/04/2008	1/04/2008
Date analysed	-	3/04/2008	3/04/2008
Diazinon	µg/L	<0.2	<0.2
Dimethoate	µg/L	<0.2	<0.2
Chlorpyriphos-methyl	µg/L	<0.2	<0.2
Ronnel	µg/L	<0.2	<0.2
Chlorpyriphos	µg/L	<0.2	<0.2
Fenitrothion	µg/L	<0.2	<0.2
Bromophos ethyl	µg/L	<0.2	<0.2
Ethion	µg/L	<0.2	<0.2
Surrogate TCLMX	%	55	53

Metals in Water - Dissolved			
Our Reference:	UNITS	18156-81	18156-82
Your Reference	----------	R-260308	R-270303
Depth	----------	-	-
Date Sampled		26/03/2008	27/03/2008
Type of sample		Water	Water
Date digested	-	31/03/2008	31/03/2008
Date analysed	-	31/03/2008	31/03/2008
Arsenic - Dissolved	mg/L	<0.05	<0.05
Cadmium - Dissolved	mg/L	<0.01	<0.01
Chromium - Dissolved	mg/L	<0.01	<0.01
Copper - Dissolved	mg/L	<0.01	<0.01
Lead - Dissolved	mg/L	<0.03	<0.03
Mercury - Dissolved	mg/L	<0.0005	<0.0005
Nickel - Dissolved	mg/L	<0.02	<0.02
Zinc - Dissolved	mg/L	<0.02	<0.02

Method ID	Methodology Summary
GC.16	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.
GC.14	Soil samples extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS.
GC.3	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID.
GC.12	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS.
GC-5	Soil samples are extracted with hexane/acetone and waters with dichloromethane and analysed by GC with dual ECD's.
GC.8	Soil samples are extracted with hexane/acetone and waters with dichloromethane and analysed by GC with dual ECD's.
LAB.30	Total Phenolics - determined colorimetrically following disitillation.
Metals.20 ICP-AES	Determination of various metals by ICP-AES.
Metals.21 CV-AAS	Determination of Mercury by Cold Vapour AAS.
LAB.8	Moisture content determined by heating at 105 deg C for a minimum of 4 hours.
ASB.1	Qualitative identification of asbestos type fibres in bulk using Polarised Light Microscopy and Dispersion Staining Techniques.
LAB.64	sPOCAS determined using titrimetric and ICP-AES techniques. Based on Acid Sulfate Soils Laboratory Methods Guidelines, Version 2.1 - June 2004.
GC.13	Water samples are analysed directly by purge and trap GC-MS.

QUALITY CONTROL vTPH & BTEX in Soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base ll Duplicate ll %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			1/4/08	18156-1	1/04/2008 || 1/04/2008	LCS-5	1/4/08%
Date analysed	-			1/4/08	18156-1	1/04/2008 || 1/04/2008	LCS-5	1/4/08%
vTPH C_6 - C_9	mg/kg	25	GC.16	<25	18156-1	<25 || <25	LCS-5	109%
Benzene	mg/kg	0.5	GC.14	<0.5	18156-1	<0.5 || <0.5	LCS-5	119%
Toluene	mg/kg	0.5	GC.14	<0.5	18156-1	<0.5 || <0.5	LCS-5	96%
Ethylbenzene	mg/kg	1	GC.14	<1.0	18156-1	<1.0 || <1.0	LCS-5	106%
m + p-Xylene	mg/kg	2	GC.14	<2.0	18156-1	<2.0 || <2.0	LCS-5	112%
o-Xylene	mg/kg	1	GC.14	<1.0	18156-1	<1.0 || <1.0	LCS-5	110%
Surrogate aaa-Trifluorotoluene	%		GC.14	83	18156-1	82 || 84 || RPD: 2	LCS-5	86%
QUALITY CONTROL sTPH in Soil (C10-C36)	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base ll Duplicate ll %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			1/4/08	18156-1	1/04/2008 || 1/04/2008	LCS-5	1/4/08%
Date analysed	-			1/4/08	18156-1	1/04/2008 || 1/04/2008	LCS-5	1/4/08%
TPH C_{10} - C_{14}	mg/kg	50	GC.3	<50	18156-1	<50 || <50	LCS-5	89%
TPH C_{15} - C_{28}	mg/kg	100	GC.3	<100	18156-1	<100 || <100	LCS-5	79%
TPH C_{29} - C_{36}	mg/kg	100	GC.3	<100	18156-1	<100 || <100	LCS-5	93%
Surrogate o-Terphenyl	%		GC.3	85	18156-1	60 || 73 || RPD: 20	LCS-5	82%
QUALITY CONTROL PAHs in Soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base ll Duplicate ll %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			1/4/08	18156-1	1/04/2008 || 1/04/2008	LCS-5	1/4/08%
Date analysed	-			2/4/08	18156-1	2/04/2008 || 2/04/2008	LCS-5	2/4/08%
Naphthalene	mg/kg	0.1	GC.12	<0.1	18156-1	<0.1 || <0.1	LCS-5	110%
Acenaphthylene	mg/kg	0.1	GC.12	<0.1	18156-1	<0.1 || <0.1	[NR]	[NR]
Acenaphthene	mg/kg	0.1	GC.12	<0.1	18156-1	<0.1 || <0.1	[NR]	[NR]
Fluorene	mg/kg	0.1	GC.12	<0.1	18156-1	<0.1 || <0.1	LCS-5	110%
Phenanthrene	mg/kg	0.1	GC.12	<0.1	18156-1	<0.1 || <0.1	LCS-5	107%
Anthracene	mg/kg	0.1	GC.12	<0.1	18156-1	<0.1 || <0.1	[NR]	[NR]
Fluoranthene	mg/kg	0.1	GC.12	<0.1	18156-1	<0.1 || <0.1	LCS-5	107%
Pyrene	mg/kg	0.1	GC.12	<0.1	18156-1	<0.1 || <0.1	LCS-5	108%
Benzo(a)anthracene	mg/kg	0.1	GC.12	<0.1	18156-1	<0.1 || <0.1	[NR]	[NR]
Chrysene	mg/kg	0.1	GC.12	<0.1	18156-1	<0.1 || <0.1	LCS-5	111%
Benzo(b,k)fluoranthene	mg/kg	0.2	GC.12	<0.2	18156-1	<0.2 || <0.2	[NR]	[NR]
Benzo(a)pyrene	mg/kg	0.05	GC.12	<0.05	18156-1	<0.05 || <0.05	LCS-5	80%
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1	GC.12	<0.1	18156-1	<0.1 || <0.1	[NR]	[NR]
Dibenzo(a,h)anthracene	mg/kg	0.1	GC.12	<0.1	18156-1	<0.1 || <0.1	[NR]	[NR]
Benzo(g,h,i)perylene	mg/kg	0.1	GC.12	<0.1	18156-1	<0.1 || <0.1	[NR]	[NR]
Surrogate p-Terphenyl-d_{14}	%		GC.12	114	18156-1	106 || 118 || RPD: 11	LCS-5	112%

QUALITY CONTROL Organochlorine Pesticides in soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			4/4/08	18156-1	4/04/2008 || 4/04/2008	LCS-1	4/4/08%
Date analysed	-			4/4/08	18156-1	4/04/2008 || 4/04/2008	LCS-1	4/4/08%
HCB	mg/kg	0.1	GC-5	<0.1	18156-1	<0.1 || <0.1	[NR]	[NR]
alpha-BHC	mg/kg	0.1	GC-5	<0.1	18156-1	<0.1 || <0.1	LCS-1	117%
gamma-BHC	mg/kg	0.1	GC-5	<0.1	18156-1	<0.1 || <0.1	[NR]	[NR]
beta-BHC	mg/kg	0.1	GC-5	<0.1	18156-1	<0.1 || <0.1	LCS-1	111%
Heptachlor	mg/kg	0.1	GC-5	<0.1	18156-1	<0.1 || <0.1	LCS-1	109%
delta-BHC	mg/kg	0.1	GC-5	<0.1	18156-1	<0.1 || <0.1	[NR]	[NR]
Aldrin	mg/kg	0.1	GC-5	<0.1	18156-1	<0.1 || <0.1	LCS-1	113%
Heptachlor Epoxide	mg/kg	0.1	GC-5	<0.1	18156-1	<0.1 || <0.1	LCS-1	116%
gamma-Chlordane	mg/kg	0.1	GC-5	<0.1	18156-1	<0.1 || <0.1	[NR]	[NR]
alpha-chlordane	mg/kg	0.1	GC-5	<0.1	18156-1	<0.1 || <0.1	[NR]	[NR]
Endosulfan I	mg/kg	0.1	GC-5	<0.1	18156-1	<0.1 || <0.1	[NR]	[NR]
pp-DDE	mg/kg	0.1	GC-5	<0.1	18156-1	<0.1 || <0.1	LCS-1	120%
Dieldrin	mg/kg	0.1	GC-5	<0.1	18156-1	<0.1 || <0.1	LCS-1	115%
Endrin	mg/kg	0.1	GC-5	<0.1	18156-1	<0.1 || <0.1	LCS-1	120%
pp-DDD	mg/kg	0.1	GC-5	<0.1	18156-1	<0.1 || <0.1	LCS-1	123%
Endosulfan II	mg/kg	0.1	GC-5	<0.1	18156-1	<0.1 || <0.1	[NR]	[NR]
pp-DDT	mg/kg	0.1	GC-5	<0.1	18156-1	<0.1 || <0.1	[NR]	[NR]
Endrin Aldehyde	mg/kg	0.1	GC-5	<0.1	18156-1	<0.1 || <0.1	[NR]	[NR]
Endosulfan Sulphate	mg/kg	0.1	GC-5	<0.1	18156-1	<0.1 || <0.1	LCS-1	118%
Methoxychlor	mg/kg	0.1	GC-5	<0.1	18156-1	<0.1 || <0.1	[NR]	[NR]
Surrogate TCLMX	%		GC-5	116	18156-1	60 || 122 || RPD: 68	LCS-1	116%

QUALITY CONTROL Organophosphorus Pesticides	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			4/4/08	18156-1	4/04/2008 || 4/04/2008	LCS-1	4/4/08%
Date analysed	-			4/4/08	18156-1	4/04/2008 || 4/04/2008	LCS-1	4/4/08%
Diazinon	mg/kg	0.1	GC.8	<0.1	18156-1	<0.1 || <0.1	[NR]	[NR]
Dimethoate	mg/kg	0.1	GC.8	<0.1	18156-1	<0.1 || <0.1	[NR]	[NR]
Chlorpyriphos-methyl	mg/kg	0.1	GC.8	<0.1	18156-1	<0.1 || <0.1	[NR]	[NR]
Ronnel	mg/kg	0.1	GC.8	<0.1	18156-1	<0.1 || <0.1	[NR]	[NR]
Chlorpyriphos	mg/kg	0.1	GC.8	<0.1	18156-1	<0.1 || <0.1	LCS-1	92%
Fenitrothion	mg/kg	0.1	GC.8	<0.1	18156-1	<0.1 || <0.1	LCS-1	78%
Bromophos-ethyl	mg/kg	0.1	GC.8	<0.1	18156-1	<0.1 || <0.1	[NR]	[NR]
Ethion	mg/kg	0.1	GC.8	<0.1	18156-1	<0.1 || <0.1	LCS-1	102%
Surrogate TCLMX	%		GC.8	116	18156-1	60 || 122 || RPD: 68	LCS-1	114%
QUALITY CONTROL Total Phenolics in Soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			2/4/08	18156-1	2/04/2008 || 2/04/2008	LCS-1	2/4/08%
Date analysed	-			4/4/08	18156-1	4/04/2008 || 4/04/2008	LCS-1	4/4/08%
Total Phenolics (as Phenol)	mg/kg	5	LAB.30	<5.0	18156-1	<5.0 || <5.0	LCS-1	93%
QUALITY CONTROL Acid Extractable metals in soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date digested	-			1/4/08	18156-1	1/04/2008 || 1/04/2008	LCS-1	1/4/08%
Date analysed	-			2/4/08	18156-1	2/04/2008 || 2/04/2008	LCS-1	2/4/08%
Arsenic	mg/kg	4	Metals.20 ICP-AES	<4.0	18156-1	4.8 || 4.4 || RPD: 9	LCS-1	95%
Cadmium	mg/kg	1	Metals.20 ICP-AES	<1.0	18156-1	<1.0 || <1.0	LCS-1	95%
Chromium	mg/kg	1	Metals.20 ICP-AES	<1.0	18156-1	15 || 11 || RPD: 31	LCS-1	98%
Copper	mg/kg	1	Metals.20 ICP-AES	<1.0	18156-1	550 || 710 || RPD: 25	LCS-1	96%
Lead	mg/kg	1	Metals.20 ICP-AES	<1.0	18156-1	110 || 91 || RPD: 19	LCS-1	96%
Mercury	mg/kg	0.1	Metals.21 CV-AAS	<0.10	18156-1	<0.10 || <0.10	LCS-1	99%
Nickel	mg/kg	1	Metals.20 ICP-AES	<1.0	18156-1	24 || 24 || RPD: 0	LCS-1	96%
Zinc	mg/kg	1	Metals.20 ICP-AES	<1.0	18156-1	92 || 94 || RPD: 2	LCS-1	98%

QUALITY CONTROL Moisture	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD
Date prepared	-			1/4/08	18156-1	1/04/2008 || 1/04/2008
Date analysed	-			1/4/08	18156-1	1/04/2008 || 1/04/2008
Moisture	%	0.1	LAB.8	<0.10	18156-1	8.4 || 8.4 || RPD: 0

QUALITY CONTROL Asbestos ID - soils	UNITS	PQL	METHOD	Blank
Date analysed	-			[NT]

QUALITY CONTROL sPOCAS	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
pH $_{kcl}$	pH units		LAB.64	[NT]	18156-50	4.0 || 4.0 || RPD: 0	LCS	100%
TAA pH 6.5	moles H^+/ tonne	5	LAB.64	<5	18156-50	40 || 50 || RPD: 22	LCS	106%
s-TAA pH 6.5	%w/w S	0.01	LAB.64	<0.01	18156-50	0.064 || 0.080 || RPD: 22	[NR]	[NR]
pH $_{Ox}$	pH units		LAB.64	[NT]	18156-50	3.8 || 4.0 || RPD: 5	LCS	94%
TPA pH 6.5	moles H^+/ tonne	5	LAB.64	<5.0	18156-50	40 || 22 || RPD: 58	LCS	94%
s-TPA pH 6.5	%w/w S	0.01	LAB.64	<0.01	18156-50	0.064 || 0.036 || RPD: 56	[NR]	[NR]
TSA pH 6.5	moles H^+/ tonne	5	LAB.64	<5.0	18156-50	<5.0 || <5.0	LCS	94%
s-TSA pH 6.5	%w/w S	0.01	LAB.64	<0.01	18156-50	<0.01 || <0.01	[NR]	[NR]
ANC_E	% $CaCO_3$	0.05	LAB.64	<0.05	18156-50	<0.05 || <0.05	[NR]	[NR]
a-ANC_E	moles H^+/ tonne	5	LAB.64	<5	18156-50	<5 || <5	[NR]	[NR]
s-ANC_E	%w/w S	0.05	LAB.64	<0.05	18156-50	<0.05 || <0.05	[NR]	[NR]
S_{KCl}	%w/w	0.005	LAB.64	<0.005	18156-50	0.057 || 0.053 || RPD: 7	LCS	108%
S_P	%w/w	0.005	LAB.64	<0.005	18156-50	0.063 || 0.066 || RPD: 5	LCS	105%
S_{POS}	%w/w	0.005	LAB.64	<0.005	18156-50	0.006 || 0.012 || RPD: 67	[NR]	[NR]
a-S_{POS}	moles H^+/ tonne	5	LAB.64	<5.0	18156-50	<5.0 || 7.6	[NR]	[NR]
Ca_{KCl}	%w/w	0.005	LAB.64	<0.005	18156-50	0.033 || 0.031 || RPD: 6	LCS	104%
Ca_P	%w/w	0.005	LAB.64	<0.005	18156-50	0.036 || 0.053 || RPD: 38	LCS	106%
Ca_A	%w/w	0.005	LAB.64	<0.005	18156-50	<0.005 || 0.022	[NR]	[NR]
Mg_{KCl}	%w/w	0.005	LAB.64	<0.005	18156-50	0.14 || 0.14 || RPD: 0	LCS	106%
Mg_P	%w/w	0.005	LAB.64	<0.005	18156-50	0.14 || 0.15 || RPD: 7	LCS	101%
Mg_A	%w/w	0.005	LAB.64	<0.005	18156-50	<0.005 || 0.014	[NR]	[NR]

QUALITY CONTROL sPOCAS	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base ll Duplicate ll %RPD	Spike Sm#	Spike % Recovery
SRAS	%w/w	0.005	LAB.64	<0.005	18156-50	0.008 || 0.006 || RPD: 29	[NR]	[NR]
SHCl	%w/w	0.005	LAB.64	<0.005	18156-50	0.062 || 0.065 || RPD: 5	LCS	106%
SNAS	%w/w	0.005	LAB.64	<0.005	18156-50	0.005 || 0.012 || RPD: 82	[NR]	[NR]
a-SNAS	moles H^+/ tonne	5	LAB.64	<5	18156-50	<5 || 5.5	[NR]	[NR]
s-SNAS	%w/w S	0.01	LAB.64	<0.01	18156-50	<0.01 || <0.01	[NR]	[NR]
a-Net Acidity	moles H^+/ tonne	10	LAB.64	<10	18156-50	46 || 63 || RPD: 31	LCS	104%
Liming rate	kg $CaCO_3$ /tonne	0.75	LAB.64	<0.75	18156-50	3.5 || 4.7 || RPD: 29	[NR]	[NR]
QUALITY CONTROL vTPH & BTEX in Water	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base ll Duplicate ll %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			4/4/08	[NT]	[NT]	LCS-W1	4/4/08%
Date analysed	-			4/4/08	[NT]	[NT]	LCS-W1	4/4/08%
TPH C_6 - C_9	µg/L	10	GC.16	<10	[NT]	[NT]	LCS-W1	86%
Benzene	µg/L	1	GC.13	<1.0	[NT]	[NT]	LCS-W1	94%
Toluene	µg/L	1	GC.13	<1.0	[NT]	[NT]	LCS-W1	83%
Ethylbenzene	µg/L	1	GC.13	<1.0	[NT]	[NT]	LCS-W1	83%
m+p-xylene	µg/L	2	GC.13	<2.0	[NT]	[NT]	LCS-W1	84%
o-xylene	µg/L	1	GC.13	<1.0	[NT]	[NT]	LCS-W1	83%
Surrogate Dibromofluoromethane	%		GC.13	132	[NT]	[NT]	LCS-W1	114%
Surrogate toluene-d8	%		GC.13	98	[NT]	[NT]	LCS-W1	102%
Surrogate 4-BFB	%		GC.13	79	[NT]	[NT]	LCS-W1	96%
QUALITY CONTROL sTPH in Water (C10-C36)	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base ll Duplicate ll %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			1/4/08	[NT]	[NT]	LCS-W1	1/4/08%
Date analysed	-			1/4/08	[NT]	[NT]	LCS-W1	1/4/08%
TPH C_{10} - C_{14}	µg/L	50	GC.3	<50	[NT]	[NT]	LCS-W1	64%
TPH C_{15} - C_{28}	µg/L	100	GC.3	<100	[NT]	[NT]	LCS-W1	90%
TPH C_{29} - C_{36}	µg/L	100	GC.3	<100	[NT]	[NT]	LCS-W1	91%
Surrogate o-Terphenyl	%		GC.3	102	[NT]	[NT]	LCS-W1	123%

QUALITY CONTROL PAHs in Water	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base ll Duplicate ll %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			1/4/08	[NT]	[NT]	LCS-W1	1/4/08%
Date analysed	-			1/4/08	[NT]	[NT]	LCS-W1	1/4/08%
Naphthalene	µg/L	1	GC.12	<1	[NT]	[NT]	LCS-W1	103%
Acenaphthylene	µg/L	1	GC.12	<1	[NT]	[NT]	[NR]	[NR]
Acenaphthene	µg/L	1	GC.12	<1	[NT]	[NT]	[NR]	[NR]
Fluorene	µg/L	1	GC.12	<1	[NT]	[NT]	LCS-W1	110%
Phenanthrene	µg/L	1	GC.12	<1	[NT]	[NT]	LCS-W1	112%
Anthracene	µg/L	1	GC.12	<1	[NT]	[NT]	[NR]	[NR]
Fluoranthene	µg/L	1	GC.12	<1	[NT]	[NT]	LCS-W1	114%
Pyrene	µg/L	1	GC.12	<1	[NT]	[NT]	LCS-W1	120%
Benzo(a)anthracene	µg/L	1	GC.12	<1	[NT]	[NT]	[NR]	[NR]
Chrysene	µg/L	1	GC.12	<1	[NT]	[NT]	LCS-W1	116%
Benzo(b,k)fluoranthene	µg/L	2	GC.12	<2	[NT]	[NT]	[NR]	[NR]
Benzo(a)pyrene	µg/L	1	GC.12	<1	[NT]	[NT]	LCS-W1	109%
Indeno(1,2,3-c,d)pyrene	µg/L	1	GC.12	<1	[NT]	[NT]	[NR]	[NR]
Dibenzo(a,h)anthracene	µg/L	1	GC.12	<1	[NT]	[NT]	[NR]	[NR]
Benzo(g,h,i)perylene	µg/L	1	GC.12	<1	[NT]	[NT]	[NR]	[NR]
Surrogate p-Terphenyl-d_{14}	%		GC.12	104	[NT]	[NT]	LCS-W1	105%
QUALITY CONTROL Organochlorine Pesticides in water	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base ll Duplicate ll %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			1/4/08	[NT]	[NT]	LCS-W1	1/4/08%
Date analysed	-			3/4/08	[NT]	[NT]	LCS-W1	3/4/08%
HCB	µg/L	0.2	GC-5	<0.2	[NT]	[NT]	[NR]	[NR]
alpha-BHC	µg/L	0.2	GC-5	<0.2	[NT]	[NT]	LCS-W1	140%
gamma-BHC	µg/L	0.2	GC-5	<0.2	[NT]	[NT]	[NR]	[NR]
beta-BHC	µg/L	0.2	GC-5	<0.2	[NT]	[NT]	LCS-W1	145%
Heptachlor	µg/L	0.2	GC-5	<0.2	[NT]	[NT]	LCS-W1	131%
delta-BHC	µg/L	0.2	GC-5	<0.2	[NT]	[NT]	[NR]	[NR]
Aldrin	µg/L	0.2	GC-5	<0.2	[NT]	[NT]	LCS-W1	126%
Heptachlor Epoxide	µg/L	0.2	GC-5	<0.2	[NT]	[NT]	LCS-W1	143%
gamma-Chlordane	µg/L	0.2	GC-5	<0.2	[NT]	[NT]	[NR]	[NR]
alpha-Chlordane	µg/L	0.2	GC-5	<0.2	[NT]	[NT]	[NR]	[NR]
Endosulfan I	µg/L	0.2	GC-5	<0.2	[NT]	[NT]	[NR]	[NR]
pp-DDE	µg/L	0.2	GC-5	<0.2	[NT]	[NT]	LCS-W1	142%
Dieldrin	µg/L	0.2	GC-5	<0.2	[NT]	[NT]	LCS-W1	140%
Endrin	µg/L	0.2	GC-5	<0.2	[NT]	[NT]	LCS-W1	137%
pp-DDD	µg/L	0.2	GC-5	<0.2	[NT]	[NT]	LCS-W1	135%
Endosulfan II	µg/L	0.2	GC-5	<0.2	[NT]	[NT]	[NR]	[NR]
DDT	µg/L	0.2	GC-5	<0.2	[NT]	[NT]	[NR]	[NR]

QUALITY CONTROL Organochlorine Pesticides in water	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Endrin Aldehyde	µg/L	0.2	GC-5	<0.2	[NT]	[NT]	[NR]	[NR]
Endosulfan Sulphate	µg/L	0.2	GC-5	<0.2	[NT]	[NT]	LCS-W1	136%
Methoxychlor	µg/L	0.2	GC-5	<0.2	[NT]	[NT]	[NR]	[NR]
Surrogate TCLMX	%		GC-5	66	[NT]	[NT]	LCS-W1	76%
QUALITY CONTROL OP Pesticides in water	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			1/4/08	[NT]	[NT]	LCS-W1	1/4/08%
Date analysed	-			3/4/08	[NT]	[NT]	LCS-W1	3/4/08%
Diazinon	µg/L	0.2	GC.8	<0.2	[NT]	[NT]	[NR]	[NR]
Dimethoate	µg/L	0.2	GC.8	<0.2	[NT]	[NT]	[NR]	[NR]
Chlorpyriphos-methyl	µg/L	0.2	GC.8	<0.2	[NT]	[NT]	[NR]	[NR]
Ronnel	µg/L	0.2	GC.8	<0.2	[NT]	[NT]	[NR]	[NR]
Chlorpyriphos	µg/L	0.2	GC.8	<0.2	[NT]	[NT]	LCS-W1	105%
Fenitrothion	µg/L	0.2	GC.8	<0.2	[NT]	[NT]	LCS-W1	83%
Bromophos ethyl	µg/L	0.2	GC.8	<0.2	[NT]	[NT]	[NR]	[NR]
Ethion	µg/L	0.2	GC.8	<0.2	[NT]	[NT]	LCS-W1	115%
Surrogate TCLMX	%		GC.8	66	[NT]	[NT]	LCS-W1	55%
QUALITY CONTROL Metals in Water - Dissolved	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date digested	-			31/3/08	[NT]	[NT]	LCS-W1	31/3/08%
Date analysed	-			31/3/08	[NT]	[NT]	LCS-W1	31/3/08%
Arsenic - Dissolved	mg/L	0.05	Metals.20 ICP-AES	<0.05	[NT]	[NT]	LCS-W1	88%
Cadmium - Dissolved	mg/L	0.01	Metals.20 ICP-AES	<0.01	[NT]	[NT]	LCS-W1	94%
Chromium - Dissolved	mg/L	0.01	Metals.20 ICP-AES	<0.01	[NT]	[NT]	LCS-W1	98%
Copper - Dissolved	mg/L	0.01	Metals.20 ICP-AES	<0.01	[NT]	[NT]	LCS-W1	97%
Lead - Dissolved	mg/L	0.03	Metals.20 ICP-AES	<0.03	[NT]	[NT]	LCS-W1	95%
Mercury - Dissolved	mg/L	0.0005	Metals.21 CV-AAS	<0.0005	[NT]	[NT]	LCS-W1	106%
Nickel - Dissolved	mg/L	0.02	Metals.20 ICP-AES	<0.02	[NT]	[NT]	LCS-W1	97%
Zinc - Dissolved	mg/L	0.02	Metals.20 ICP-AES	<0.02	[NT]	[NT]	LCS-W1	94%

QUALITY CONTROL vTPH & BTEX in Soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	18156-23	1/04/2008 || 1/04/2008	18156-5	1/4/08%
Date analysed	-	18156-23	1/04/2008 || 1/04/2008	18156-5	1/4/08%
vTPH C_6 - C_9	mg/kg	18156-23	<25 || <25	18156-5	117%
Benzene	mg/kg	18156-23	<0.5 || <0.5	18156-5	122%
Toluene	mg/kg	18156-23	<0.5 || <0.5	18156-5	103%
Ethylbenzene	mg/kg	18156-23	<1.0 || <1.0	18156-5	116%
m + p-Xylene	mg/kg	18156-23	<2.0 || <2.0	18156-5	123%
o-Xylene	mg/kg	18156-23	<1.0 || <1.0	18156-5	121%
Surrogate aaa-Trifluorotoluene	%	18156-23	83 || 78 || RPD: 6	18156-5	79%
QUALITY CONTROL sTPH in Soil (C10-C36)	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	18156-23	1/04/2008 || 1/04/2008	18156-6	1/4/08%
Date analysed	-	18156-23	1/04/2008 || 1/04/2008	18156-6	1/4/08%
TPH C_{10} - C_{14}	mg/kg	18156-23	<50 || <50	18156-6	93%
TPH C_{15} - C_{28}	mg/kg	18156-23	<100 || <100	18156-6	81%
TPH C_{29} - C_{36}	mg/kg	18156-23	<100 || <100	18156-6	94%
Surrogate o-Terphenyl	%	18156-23	88 || 86 || RPD: 2	18156-6	85%
QUALITY CONTROL PAHs in Soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	18156-23	1/04/2008 || 1/04/2008	18156-6	1/4/08%
Date analysed	-	18156-23	2/04/2008 || 2/04/2008	18156-6	1/4/08%
Naphthalene	mg/kg	18156-23	<0.1 || <0.1	18156-6	116%
Acenaphthylene	mg/kg	18156-23	<0.1 || <0.1	[NR]	[NR]
Acenaphthene	mg/kg	18156-23	<0.1 || <0.1	[NR]	[NR]
Fluorene	mg/kg	18156-23	<0.1 || <0.1	18156-6	116%
Phenanthrene	mg/kg	18156-23	<0.1 || <0.1	18156-6	106%
Anthracene	mg/kg	18156-23	<0.1 || <0.1	[NR]	[NR]
Fluoranthene	mg/kg	18156-23	0.1 || 0.2 || RPD: 67	18156-6	107%
Pyrene	mg/kg	18156-23	0.1 || 0.2 || RPD: 67	18156-6	110%
Benzo(a)anthracene	mg/kg	18156-23	<0.1 || <0.1	[NR]	[NR]
Chrysene	mg/kg	18156-23	<0.1 || 0.1	18156-6	109%
Benzo(b,k)fluoranthene	mg/kg	18156-23	<0.2 || <0.2	[NR]	[NR]
Benzo(a)pyrene	mg/kg	18156-23	<0.05 || 0.08	18156-6	102%
Indeno(1,2,3-c,d)pyrene	mg/kg	18156-23	<0.1 || <0.1	[NR]	[NR]
Dibenzo(a,h)anthracene	mg/kg	18156-23	<0.1 || <0.1	[NR]	[NR]
Benzo(g,h,i)perylene	mg/kg	18156-23	<0.1 || <0.1	[NR]	[NR]
Surrogate p-Terphenyl-d_{14}	%	18156-23	127 || 127 || RPD: 0	18156-6	114%

QUALITY CONTROL Organochlorine Pesticides in soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	18156-51	4/04/2008 || 4/04/2008	18156-6	4/4/08%
Date analysed	-	18156-51	4/04/2008 || 4/04/2008	18156-6	4/4/08%
HCB	mg/kg	18156-51	<0.1 || <0.1	[NR]	[NR]
alpha-BHC	mg/kg	18156-51	<0.1 || <0.1	18156-6	116%
gamma-BHC	mg/kg	18156-51	<0.1 || <0.1	[NR]	[NR]
beta-BHC	mg/kg	18156-51	<0.1 || <0.1	18156-6	109%
Heptachlor	mg/kg	18156-51	<0.1 || <0.1	18156-6	110%
delta-BHC	mg/kg	18156-51	<0.1 || <0.1	[NR]	[NR]
Aldrin	mg/kg	18156-51	<0.1 || <0.1	18156-6	113%
Heptachlor Epoxide	mg/kg	18156-51	<0.1 || <0.1	18156-6	116%
gamma-Chlordane	mg/kg	18156-51	<0.1 || <0.1	[NR]	[NR]
alpha-chlordane	mg/kg	18156-51	<0.1 || <0.1	[NR]	[NR]
Endosulfan I	mg/kg	18156-51	<0.1 || <0.1	[NR]	[NR]
pp-DDE	mg/kg	18156-51	<0.1 || <0.1	18156-6	120%
Dieldrin	mg/kg	18156-51	<0.1 || <0.1	18156-6	115%
Endrin	mg/kg	18156-51	<0.1 || <0.1	18156-6	117%
pp-DDD	mg/kg	18156-51	<0.1 || <0.1	18156-6	122%
Endosulfan II	mg/kg	18156-51	<0.1 || <0.1	[NR]	[NR]
pp-DDT	mg/kg	18156-51	<0.1 || <0.1	[NR]	[NR]
Endrin Aldehyde	mg/kg	18156-51	<0.1 || <0.1	[NR]	[NR]
Endosulfan Sulphate	mg/kg	18156-51	<0.1 || <0.1	18156-6	118%
Methoxychlor	mg/kg	18156-51	<0.1 || <0.1	[NR]	[NR]
Surrogate TCLMX	%	18156-51	127 || 129 || RPD: 2	18156-6	117%

QUALITY CONTROL Organophosphorus Pesticides	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	18156-51	4/04/2008 || 4/04/2008	18156-6	4/4/08%
Date analysed	-	18156-51	4/04/2008 || 4/04/2008	18156-6	4/4/08%
Diazinon	mg/kg	18156-51	<0.1 || <0.1	[NR]	[NR]
Dimethoate	mg/kg	18156-51	<0.1 || <0.1	[NR]	[NR]
Chlorpyriphos-methyl	mg/kg	18156-51	<0.1 || <0.1	[NR]	[NR]
Ronnel	mg/kg	18156-51	<0.1 || <0.1	[NR]	[NR]
Chlorpyriphos	mg/kg	18156-51	<0.1 || <0.1	18156-6	93%
Fenitrothion	mg/kg	18156-51	<0.1 || <0.1	18156-6	77%
Bromophos-ethyl	mg/kg	18156-51	<0.1 || <0.1	[NR]	[NR]
Ethion	mg/kg	18156-51	<0.1 || <0.1	18156-6	106%
Surrogate TCLMX	%	18156-51	127 || 129 || RPD: 2	18156-6	120%
QUALITY CONTROL Total Phenolics in Soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	[NT]	[NT]	18156-6	2/4/08%
Date analysed	-	[NT]	[NT]	18156-6	4/4/08%
Total Phenolics (as Phenol)	mg/kg	[NT]	[NT]	18156-6	86%
QUALITY CONTROL Acid Extractable metals in soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date digested	-	18156-23	1/04/2008 || 1/04/2008	LCS-2	1/4/08%
Date analysed	-	18156-23	2/04/2008 || 2/04/2008	LCS-2	2/4/08%
Arsenic	mg/kg	18156-23	9.6 || 9.9 || RPD: 3	LCS-2	93%
Cadmium	mg/kg	18156-23	<1.0 || <1.0	LCS-2	94%
Chromium	mg/kg	18156-23	19 || 17 || RPD: 11	LCS-2	98%
Copper	mg/kg	18156-23	24 || 22 || RPD: 9	LCS-2	96%
Lead	mg/kg	18156-23	71 || 60 || RPD: 17	LCS-2	93%
Mercury	mg/kg	18156-23	<0.10 || <0.10	LCS-2	104%
Nickel	mg/kg	18156-23	11 || 10 || RPD: 10	LCS-2	96%
Zinc	mg/kg	18156-23	110 || 110 || RPD: 0	LCS-2	96%

QUALITY CONTROL Moisture	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD
Date prepared	-	18156-23	1/04/2008 || 1/04/2008
Date analysed	-	18156-23	1/04/2008 || 1/04/2008
Moisture	%	18156-23	20 || 20 || RPD: 0

QUALITY CONTROL Acid Extractable metals in soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date digested	-	[NT]	[NT]	18156-5	1/4/08%
Date analysed	-	[NT]	[NT]	18156-5	2/4/08%
Arsenic	mg/kg	[NT]	[NT]	18156-5	97%
Cadmium	mg/kg	[NT]	[NT]	18156-5	95%
Chromium	mg/kg	[NT]	[NT]	18156-5	98%
Copper	mg/kg	[NT]	[NT]	18156-5	97%
Lead	mg/kg	[NT]	[NT]	18156-5	92%
Mercury	mg/kg	[NT]	[NT]	18156-5	101%
Nickel	mg/kg	[NT]	[NT]	18156-5	94%
Zinc	mg/kg	[NT]	[NT]	18156-5	95%

Report Comments:

Asbestos: A portion of the supplied sample was sub-sampled for asbestos according to Envirolab procedures. We cannot guarantee that this sub-sample is indicative of the entire sample.
Envirolab recommends supplying 30-40g of sample in it's own container.

OCP/OP's in water: Low surrogate accepted as there is no sample to repeat.
Asbestos was analysed by Approved Identifier: Joshua Lim

INS: Insufficient sample for this test	NT: Not tested	PQL: Practical Quantitation Limit
RPD: Relative Percent Difference	NA: Test not required	LCS: Laboratory Control Sample
NR: Not requested	<: Less than	>: Greater than

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.

Laboratory Acceptance Criteria:

Duplicates: <5xPQL - any RPD is acceptable; >5xPQL - 0-50% RPD is acceptable.
Matrix Spikes and LCS: Generally 70-130% for inorganics/metals; 60-140% for organics and 10-140% for SVOC and speciated phenols is acceptable. Surrogates: 60-140% is acceptable for general organics and 10-140% for SVOC and speciated phenols.

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CERTIFICATE OF ANALYSIS 18156-A

Client:
Parsons Brinckerhoff
GPO Box 5394
Sydney
NSW 2001

Attention: Dave Hogberg

Sample log in details:

Your Reference:	**2116732A, Camellia**
No. of samples:	Additional Testing on 4 Soils
Date samples received:	28/03/08
Date completed instructions received:	11/04/08

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:	18/04/08
Date of Preliminary Report:	Not issued
Issue Date:	16/04/08

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Accredited for compliance with ISO/IEC 17025.
Tests not covered by NATA are denoted with *.

Results Approved By:

Jacinta Hurst
Operations Manager

Metals in TCLP Our Reference: Your Reference Depth Date Sampled Type of sample	UNITS ---------- ----------	18156-A-13 PBTP3 0.5-0.6 26/03/2008 Soil	18156-A-33 PBTP8 0.1-0.2 26/03/2008 Soil	18156-A-62 PBTP14 0.5-0.6 27/03/2008 Soil	18156-A-73 PBTP17 0.1-0.2 27/03/2008 Soil
Date extracted	-	14/04/2008	14/04/2008	14/04/2008	14/04/2008
Date analysed	-	14/04/2008	14/04/2008	[NA]	14/04/2008
pH of soil for fluid# determ.	pH units	6.90	7.30	7.50	7.30
pH of soil for fluid # determ. (acid)	pH units	1.50	1.60	1.60	1.40
Extraction fluid used	-	1	1	1	1
pH of final Leachate	pH units	5.20	5.20	5.20	5.20
Lead in TCLP	mg/L	0.13	[NA]	[NA]	0.03
Nickel in TCLP	mg/L	[NA]	0.06	[NA]	<0.02

PAHs in TCLP (USEPA 1311)		
Our Reference:	UNITS	18156-A-62
Your Reference	----------	PBTP14
Depth	----------	0.5-0.6
Date Sampled		27/03/2008
Type of sample		Soil
Date extracted	-	15/04/2008
Date analysed	-	15/04/2008
Naphthalene	mg/L	<0.001
Acenaphthylene	mg/L	<0.001
Acenaphthene	mg/L	<0.001
Fluorene	mg/L	<0.001
Phenanthrene	mg/L	<0.001
Anthracene	mg/L	<0.001
Fluoranthene	mg/L	<0.001
Pyrene	mg/L	<0.001
Benzo(a)anthracene	mg/L	<0.001
Chrysene	mg/L	<0.001
Benzo(b,k)fluoranthene	mg/L	<0.002
Benzo(a)pyrene	mg/L	<0.001
Indeno(1,2,3-c,d)pyrene	mg/L	<0.001
Dibenzo(a,h)anthracene	mg/L	<0.001
Benzo(g,h,i)perylene	mg/L	<0.001
Surrogate p-Terphenyl-d_{14}	%	102

Method ID	Methodology Summary
EXTRACT.7	Toxicity Characteristic Leaching Procedure (TCLP).
Metals.20 ICP-AES	Determination of various metals by ICP-AES.
GC.12	Leachates are extracted with Dichloromethane and analysed by GC-MS.
GC.12	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS.

QUALITY CONTROL Metals in TCLP	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base ll Duplicate ll %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			14/4/08	[NT]	[NT]	LCS-W1	14/4/08%
Date analysed	-			14/4/08	[NT]	[NT]	LCS-W1	14/4/08%
Lead in TCLP	mg/L	0.03	Metals.20 ICP-AES	<0.03	[NT]	[NT]	LCS-W1	99%
Nickel in TCLP	mg/L	0.02	Metals.20 ICP-AES	<0.02	[NT]	[NT]	LCS-W1	98%
QUALITY CONTROL PAHs in TCLP (USEPA 1311)	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base ll Duplicate ll %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			15/4/08	[NT]	[NT]	LCS-W1	14/4/08%
Date analysed	-			15/4/08	[NT]	[NT]	LCS-W1	14/4/08%
Naphthalene	mg/L	0.001	GC.12	<0.001	[NT]	[NT]	LCS-W1	97%
Acenaphthylene	mg/L	0.001	GC.12	<0.001	[NT]	[NT]	[NR]	[NR]
Acenaphthene	mg/L	0.001	GC.12	<0.001	[NT]	[NT]	[NR]	[NR]
Fluorene	mg/L	0.001	GC.12	<0.001	[NT]	[NT]	LCS-W1	94%
Phenanthrene	mg/L	0.001	GC.12	<0.001	[NT]	[NT]	LCS-W1	97%
Anthracene	mg/L	0.001	GC.12	<0.001	[NT]	[NT]	[NR]	[NR]
Fluoranthene	mg/L	0.001	GC.12	<0.001	[NT]	[NT]	LCS-W1	97%
Pyrene	mg/L	0.001	GC.12	<0.001	[NT]	[NT]	LCS-W1	99%
Benzo(a)anthracene	mg/L	0.001	GC.12	<0.001	[NT]	[NT]	[NR]	[NR]
Chrysene	mg/L	0.001	GC.12	<0.001	[NT]	[NT]	LCS-W1	98%
Benzo(b,k)fluoranthene	mg/L	0.002	GC.12	<0.002	[NT]	[NT]	[NR]	[NR]
Benzo(a)pyrene	mg/L	0.001	GC.12	<0.001	[NT]	[NT]	LCS-W1	86%
Indeno(1,2,3-c,d)pyrene	mg/L	0.001	GC.12	<0.001	[NT]	[NT]	[NR]	[NR]
Dibenzo(a,h)anthracene	mg/L	0.001	GC.12	<0.001	[NT]	[NT]	[NR]	[NR]
Benzo(g,h,i)perylene	mg/L	0.001	GC.12	<0.001	[NT]	[NT]	[NR]	[NR]
Surrogate p-Terphenyl-d_{14}	%		GC.12	102	[NT]	[NT]	LCS-W1	103%

Report Comments:

Asbestos was analysed by Approved Identifier: Not applicable for this job

INS: Insufficient sample for this test	NT: Not tested	PQL: Practical Quantitation Limit
RPD: Relative Percent Difference	NA: Test not required	LCS: Laboratory Control Sample
NR: Not requested	<: Less than	>: Greater than

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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.

Laboratory Acceptance Criteria:

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Matrix Spikes and LCS: Generally 70-130% for inorganics/metals; 60-140% for organics and 10-140% for SVOC and speciated phenols is acceptable. Surrogates: 60-140% is acceptable for general organics and 10-140% for SVOC and speciated phenols.

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CERTIFICATE OF ANALYSIS 19858

Client:
Parsons Brinckerhoff
GPO Box 5394
Sydney
NSW 2001

Attention: Dave Hogberg

Sample log in details:

Your Reference:	**2116732A, Camellia**
No. of samples:	6 Soils
Date samples received:	02/06/08
Date completed instructions received:	02/06/08

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:	6/06/08
Date of Preliminary Report:	Not Issued
Issue Date:	6/06/08

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Results Approved By:

Jacinta Hurst
Operations Manager

vTPH & BTEX in Soil						
Our Reference:	UNITS	19858-1	19858-2	19858-3	19858-4	19858-5
Your Reference	----------	BH01	BH01	BH02	BH02	BH03
Depth	----------	0.2	1.7	0.3	1.6	0.1
Date Sampled		2/06/2008	2/06/2008	2/06/2008	2/06/2008	2/06/2008
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	4/06/2008	4/06/2008	4/06/2008	4/06/2008	4/06/2008
Date analysed	-	4/06/2008	4/06/2008	4/06/2008	4/06/2008	4/06/2008
vTPH C_6 - C_9	mg/kg	<25	<25	<25	<25	<25
Benzene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Toluene	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
m+p-xylene	mg/kg	<2.0	<2.0	<2.0	<2.0	<2.0
o-Xylene	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
Surrogate aaa-Trifluorotoluene	%	139	135	140	110	128

vTPH & BTEX in Soil		
Our Reference:	UNITS	19858-6
Your Reference	----------	BH03
Depth	----------	2.0
Date Sampled		2/06/2008
Type of sample		Soil
Date extracted	-	4/06/2008
Date analysed	-	4/06/2008
vTPH C_6 - C_9	mg/kg	<25
Benzene	mg/kg	<0.5
Toluene	mg/kg	<0.5
Ethylbenzene	mg/kg	<1.0
m+p-xylene	mg/kg	<2.0
o-Xylene	mg/kg	<1.0
Surrogate aaa-Trifluorotoluene	%	117

sTPH in Soil (C10-C36)						
Our Reference:	UNITS	19858-1	19858-2	19858-3	19858-4	19858-5
Your Reference	----------	BH01	BH01	BH02	BH02	BH03
Depth	----------	0.2	1.7	0.3	1.6	0.1
Date Sampled		2/06/2008	2/06/2008	2/06/2008	2/06/2008	2/06/2008
Type of sample		Soil	Soil	Soil	Soil	Soil
Date extracted	-	4/06/2008	4/06/2008	4/06/2008	4/06/2008	4/06/2008
Date analysed	-	4/06/2008	4/06/2008	4/06/2008	4/06/2008	4/06/2008
TPH C_{10} - C_{14}	mg/kg	<50	<50	55	<50	<50
TPH C_{15} - C_{28}	mg/kg	<100	<100	170	<100	<100
TPH C_{29} - C_{36}	mg/kg	<100	<100	<100	<100	<100
Surrogate o-Terphenyl	%	86	98	102	98	98

sTPH in Soil (C10-C36)		
Our Reference:	UNITS	19858-6
Your Reference	----------	BH03
Depth	----------	2.0
Date Sampled		2/06/2008
Type of sample		Soil
Date extracted	-	4/06/2008
Date analysed	-	4/06/2008
TPH C_{10} - C_{14}	mg/kg	<50
TPH C_{15} - C_{28}	mg/kg	<100
TPH C_{29} - C_{36}	mg/kg	<100
Surrogate o-Terphenyl	%	98

PAHs in Soil				
Our Reference:	UNITS	19858-1	19858-3	19858-5
Your Reference	----------	BH01	BH02	BH03
Depth	----------	0.2	0.3	0.1
Date Sampled		2/06/2008	2/06/2008	2/06/2008
Type of sample		Soil	Soil	Soil
Date extracted	-	4/06/2008	4/06/2008	4/06/2008
Date analysed	-	4/06/2008	4/06/2008	4/06/2008
Naphthalene	mg/kg	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	<0.1	0.1	<0.1
Acenaphthene	mg/kg	<0.1	0.2	<0.1
Fluorene	mg/kg	<0.1	0.1	<0.1
Phenanthrene	mg/kg	0.1	3.6	0.2
Anthracene	mg/kg	<0.1	0.7	<0.1
Fluoranthene	mg/kg	0.3	8.3	0.3
Pyrene	mg/kg	0.3	7.6	0.2
Benzo(a)anthracene	mg/kg	0.2	3.2	0.1
Chrysene	mg/kg	0.2	3.8	0.1
Benzo(b+k)fluoranthene	mg/kg	0.4	5.8	<0.2
Benzo(a)pyrene	mg/kg	0.2	3.7	0.1
Indeno(1,2,3-c,d)pyrene	mg/kg	0.2	2.5	<0.1
Dibenzo(a,h)anthracene	mg/kg	<0.1	0.4	<0.1
Benzo(g,h,i)perylene	mg/kg	0.2	2.3	<0.1
Surrogate p-Terphenyl-d_{14}	%	97	105	108

Organochlorine Pesticides in soil				
Our Reference:	UNITS	19858-1	19858-3	19858-5
Your Reference	----------	BH01	BH02	BH03
Depth	----------	0.2	0.3	0.1
Date Sampled		2/06/2008	2/06/2008	2/06/2008
Type of sample		Soil	Soil	Soil
Date extracted	-	4/06/2008	4/06/2008	4/06/2008
Date analysed	-	4/06/2000	4/06/2000	4/06/2000
HCB	mg/kg	<0.1	<1	<0.1
alpha-BHC	mg/kg	<0.1	<1	<0.1
gamma-BHC	mg/kg	<0.1	<1	<0.1
beta-BHC	mg/kg	<0.1	<1	<0.1
Heptachlor	mg/kg	<0.1	<1	<0.1
delta-BHC	mg/kg	<0.1	<1	<0.1
Aldrin	mg/kg	<0.1	<1	<0.1
Heptachlor Epoxide	mg/kg	<0.1	<1	<0.1
gamma-Chlordane	mg/kg	<0.1	<1	<0.1
alpha-chlordane	mg/kg	<0.1	<1	<0.1
Endosulfan I	mg/kg	<0.1	<1	<0.1
pp-DDE	mg/kg	<0.1	<1	<0.1
Dieldrin	mg/kg	<0.1	<1	<0.1
Endrin	mg/kg	<0.1	<1	<0.1
pp-DDD	mg/kg	<0.1	<1	<0.1
Endosulfan II	mg/kg	<0.1	<1	<0.1
pp-DDT	mg/kg	<0.1	<1	<0.1
Endrin Aldehyde	mg/kg	<0.1	<1	<0.1
Endosulfan Sulphate	mg/kg	<0.1	<1	<0.1
Methoxychlor	mg/kg	<0.1	<1	<0.1
Surrogate TCLMX	%	107	80	103

Organophosphorus Pesticides				
Our Reference:	UNITS	19858-1	19858-3	19858-5
Your Reference	----------	BH01	BH02	BH03
Depth	----------	0.2	0.3	0.1
Date Sampled		2/06/2008	2/06/2008	2/06/2008
Type of sample		Soil	Soil	Soil
Date extracted	-	4/06/2008	4/06/2008	4/06/2008
Date analysed	-	4/06/2008	4/06/2008	4/06/2008
Diazinon	mg/kg	<0.1	<1	<0.1
Dimethoate	mg/kg	<0.1	<1	<0.1
Chlorpyriphos-methyl	mg/kg	<0.1	<1	<0.1
Ronnel	mg/kg	<0.1	<1	<0.1
Chlorpyriphos	mg/kg	<0.1	<1	<0.1
Fenitrothion	mg/kg	<0.1	<1	<0.1
Bromophos-ethyl	mg/kg	<0.1	<1	<0.1
Ethion	mg/kg	<0.1	<1	<0.1
Surrogate TCLMX	%	107	80	103

Total Phenolics in Soil		
Our Reference:	UNITS	19858-1
Your Reference	----------	BH01
Depth	----------	0.2
Date Sampled		2/06/2008
Type of sample		Soil
Date extracted	-	4/06/2008
Date analysed	-	6/06/2008
Total Phenolics (as Phenol)	mg/kg	<5.0

Acid Extractable metals in soil						
Our Reference:	UNITS	19858-1	19858-2	19858-3	19858-4	19858-5
Your Reference	----------	BH01	BH01	BH02	BH02	BH03
Depth	----------	0.2	1.7	0.3	1.6	0.1
Date Sampled		2/06/2008	2/06/2008	2/06/2008	2/06/2008	2/06/2008
Type of sample		Soil	Soil	Soil	Soil	Soil
Date digested	-	4/06/2008	4/06/2008	4/06/2008	4/06/2008	4/06/2008
Date analysed	-	5/06/2008	5/06/2008	5/06/2008	5/06/2008	5/06/2008
Arsenic	mg/kg	4.7	7.1	7.5	5.4	8.3
Cadmium	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
Chromium	mg/kg	17	56	28	13	23
Copper	mg/kg	56	41	54	25	25
Lead	mg/kg	44	52	160	56	64
Mercury	mg/kg	<0.10	<0.10	<0.10	<0.10	<0.10
Nickel	mg/kg	11	44	32	15	13
Zinc	mg/kg	240	270	180	130	65

Acid Extractable metals in soil		
Our Reference:	UNITS	19858-6
Your Reference	----------	BH03
Depth	----------	2.0
Date Sampled		2/06/2008
Type of sample		Soil
Date digested	-	4/06/2008
Date analysed	-	5/06/2008
Arsenic	mg/kg	4.4
Cadmium	mg/kg	<1.0
Chromium	mg/kg	11
Copper	mg/kg	31
Lead	mg/kg	11
Mercury	mg/kg	<0.10
Nickel	mg/kg	8.4
Zinc	mg/kg	62

Moisture						
Our Reference:	UNITS	19858-1	19858-2	19858-3	19858-4	19858-5
Your Reference	----------	BH01	BH01	BH02	BH02	BH03
Depth	----------	0.2	1.7	0.3	1.6	0.1
Date Sampled		2/06/2008	2/06/2008	2/06/2008	2/06/2008	2/06/2008
Type of sample		Soil	Soil	Soil	Soil	Soil
Date prepared	-	4/06/2008	4/06/2008	4/06/2008	4/06/2008	4/06/2008
Date analysed	-	4/06/2008	4/06/2008	4/06/2008	4/06/2008	4/06/2008
Moisture	%	16	15	14	15	13

Moisture		
Our Reference:	UNITS	19858-6
Your Reference	----------	BH03
Depth	----------	2.0
Date Sampled		2/06/2008
Type of sample		Soil
Date prepared	-	4/06/2008
Date analysed	-	4/06/2008
Moisture	%	13

Method ID	Methodology Summary
GC.16	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.
GC.14	Soil samples extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS.
GC.3	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID.
GC.12 subset	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS.
GC-5	Soil samples are extracted with hexane/acetone and waters with dichloromethane and analysed by GC with dual ECD's.
GC.8	Soil samples are extracted with hexane/acetone and waters with dichloromethane and analysed by GC with dual ECD's.
LAB.30	Total Phenolics - determined colorimetrically following disitillation.
Metals.20 ICP-AES	Determination of various metals by ICP-AES.
Metals.21 CV-AAS	Determination of Mercury by Cold Vapour AAS.
LAB.8	Moisture content determined by heating at 105 deg C for a minimum of 4 hours.

QUALITY CONTROL vTPH & BTEX in Soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base ll Duplicate ll %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			4/6/08	19858-1	4/06/2008 || 4/06/2008	LCS-1	4/6/08%
Date analysed	-			4/6/08	19858-1	4/06/2008 || 4/06/2008	LCS-1	4/6/08%
vTPH C_6 - C_9	mg/kg	25	GC.16	<25	19858-1	<25 || <25	LCS-1	112%
Benzene	mg/kg	0.5	GC.14	<0.5	19858-1	<0.5 || <0.5	LCS-1	111%
Toluene	mg/kg	0.5	GC.14	<0.5	19858-1	<0.5 || <0.5	LCS-1	112%
Ethylbenzene	mg/kg	1	GC.14	<1.0	19858-1	<1.0 || <1.0	LCS-1	110%
m+p-xylene	mg/kg	2	GC.14	<2.0	19858-1	<2.0 || <2.0	LCS-1	115%
o-Xylene	mg/kg	1	GC.14	<1.0	19858-1	<1.0 || <1.0	LCS-1	119%
Surrogate aaa-Trifluorotoluene	%		GC.14	138	19858-1	139 || 104 || RPD: 29	LCS-1	127%
QUALITY CONTROL sTPH in Soil (C10-C36)	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base ll Duplicate ll %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			4/6/08	19858-1	4/06/2008 || 4/06/2008	LCS-1	4/6/08%
Date analysed	-			4/6/08	19858-1	4/06/2008 || 4/06/2008	LCS-1	4/6/08%
TPH C_{10} - C_{14}	mg/kg	50	GC.3	<50	19858-1	<50 || <50	LCS-1	72%
TPH C_{15} - C_{28}	mg/kg	100	GC.3	<100	19858-1	<100 || <100	LCS-1	91%
TPH C_{29} - C_{36}	mg/kg	100	GC.3	<100	19858-1	<100 || <100	LCS-1	84%
Surrogate o-Terphenyl	%		GC.3	97	19858-1	86 || 82 || RPD: 5	LCS-1	97%
QUALITY CONTROL PAHs in Soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base ll Duplicate ll %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			4/6/08	19858-1	4/06/2008 || 4/06/2008	LCS-1	4/6/08%
Date analysed	-			4/6/08	19858-1	4/06/2008 || 4/06/2008	LCS-1	4/6/08%
Naphthalene	mg/kg	0.1	GC.12 subset	<0.1	19858-1	<0.1 || <0.1	LCS-1	109%
Acenaphthylene	mg/kg	0.1	GC.12 subset	<0.1	19858-1	<0.1 || <0.1	[NR]	[NR]
Acenaphthene	mg/kg	0.1	GC.12 subset	<0.1	19858-1	<0.1 || <0.1	[NR]	[NR]
Fluorene	mg/kg	0.1	GC.12 subset	<0.1	19858-1	<0.1 || <0.1	LCS-1	96%
Phenanthrene	mg/kg	0.1	GC.12 subset	<0.1	19858-1	0.1 || <0.1	LCS-1	100%
Anthracene	mg/kg	0.1	GC.12 subset	<0.1	19858-1	<0.1 || <0.1	[NR]	[NR]
Fluoranthene	mg/kg	0.1	GC.12 subset	<0.1	19858-1	0.3 || 0.5 || RPD: 50	LCS-1	96%
Pyrene	mg/kg	0.1	GC.12 subset	<0.1	19858-1	0.3 || 0.7 || RPD: 80	LCS-1	101%
Benzo(a)anthracene	mg/kg	0.1	GC.12 subset	<0.1	19858-1	0.2 || 0.3 || RPD: 40	[NR]	[NR]
Chrysene	mg/kg	0.1	GC.12 subset	<0.1	19858-1	0.2 || 0.4 || RPD: 67	LCS-1	121%

QUALITY CONTROL PAHs in Soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Benzo(b+k)fluoranthene	mg/kg	0.2	GC.12 subset	<0.2	19858-1	0.4 || 0.4 || RPD: 0	[NR]	[NR]
Benzo(a)pyrene	mg/kg	0.05	GC.12 subset	<0.05	19858-1	0.2 || 0.2 || RPD: 0	LCS-1	94%
Indeno(1,2,3-c,d)pyrene	mg/kg	0.1	GC.12 subset	<0.1	19858-1	0.2 || 0.1 || RPD: 67	[NR]	[NR]
Dibenzo(a,h)anthracene	mg/kg	0.1	GC.12 subset	<0.1	19858-1	<0.1 || <0.1	[NR]	[NR]
Benzo(g,h,i)perylene	mg/kg	0.1	GC.12 subset	<0.1	19858-1	0.2 || 0.1 || RPD: 67	[NR]	[NR]
Surrogate p-Terphenyl-d_{14}	%		GC.12 subset	106	19858-1	97 || 105 || RPD: 8	LCS-1	105%
QUALITY CONTROL Organochlorine Pesticides in soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			4/6/08	19858-1	4/06/2008 || 4/06/2008	LCS-1	4/6/08%
Date analysed	-			4/6/08	19858-1	4/06/2000 || 4/06/2000	LCS-1	4/6/08%
HCB	mg/kg	0.1	GC-5	<0.1	19858-1	<0.1 || <0.1	[NR]	[NR]
alpha-BHC	mg/kg	0.1	GC-5	<0.1	19858-1	<0.1 || <0.1	LCS-1	99%
gamma-BHC	mg/kg	0.1	GC-5	<0.1	19858-1	<0.1 || <0.1	[NR]	[NR]
beta-BHC	mg/kg	0.1	GC-5	<0.1	19858-1	<0.1 || <0.1	LCS-1	113%
Heptachlor	mg/kg	0.1	GC-5	<0.1	19858-1	<0.1 || <0.1	LCS-1	110%
delta-BHC	mg/kg	0.1	GC-5	<0.1	19858-1	<0.1 || <0.1	[NR]	[NR]
Aldrin	mg/kg	0.1	GC-5	<0.1	19858-1	<0.1 || <0.1	LCS-1	100%
Heptachlor Epoxide	mg/kg	0.1	GC-5	<0.1	19858-1	<0.1 || <0.1	LCS-1	112%
gamma-Chlordane	mg/kg	0.1	GC-5	<0.1	19858-1	<0.1 || <0.1	[NR]	[NR]
alpha-chlordane	mg/kg	0.1	GC-5	<0.1	19858-1	<0.1 || <0.1	[NR]	[NR]
Endosulfan I	mg/kg	0.1	GC-5	<0.1	19858-1	<0.1 || <0.1	[NR]	[NR]
pp-DDE	mg/kg	0.1	GC-5	<0.1	19858-1	<0.1 || <0.1	LCS-1	114%
Dieldrin	mg/kg	0.1	GC-5	<0.1	19858-1	<0.1 || <0.1	LCS-1	115%
Endrin	mg/kg	0.1	GC-5	<0.1	19858-1	<0.1 || <0.1	LCS-1	101%
pp-DDD	mg/kg	0.1	GC-5	<0.1	19858-1	<0.1 || <0.1	LCS-1	107%
Endosulfan II	mg/kg	0.1	GC-5	<0.1	19858-1	<0.1 || <0.1	[NR]	[NR]
pp-DDT	mg/kg	0.1	GC-5	<0.1	19858-1	<0.1 || <0.1	[NR]	[NR]
Endrin Aldehyde	mg/kg	0.1	GC-5	<0.1	19858-1	<0.1 || <0.1	[NR]	[NR]
Endosulfan Sulphate	mg/kg	0.1	GC-5	<0.1	19858-1	<0.1 || <0.1	LCS-1	101%
Methoxychlor	mg/kg	0.1	GC-5	<0.1	19858-1	<0.1 || <0.1	[NR]	[NR]
Surrogate TCLMX	%		GC-5	107	19858-1	107 || 105 || RPD: 2	LCS-1	101%

QUALITY CONTROL Organophosphorus Pesticides	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			4/6/08	19858-1	4/06/2008 || 4/06/2008	LCS-1	4/6/08%
Date analysed	-			4/6/08	19858-1	4/06/2008 || 4/06/2008	LCS-1	4/6/08%
Diazinon	mg/kg	0.1	GC.8	<0.1	19858-1	<0.1 || <0.1	[NR]	[NR]
Dimethoate	mg/kg	0.1	GC.8	<0.1	19858-1	<0.1 || <0.1	[NR]	[NR]
Chlorpyriphos-methyl	mg/kg	0.1	GC.8	<0.1	19858-1	<0.1 || <0.1	[NR]	[NR]
Ronnel	mg/kg	0.1	GC.8	<0.1	19858-1	<0.1 || <0.1	[NR]	[NR]
Chlorpyriphos	mg/kg	0.1	GC.8	<0.1	19858-1	<0.1 || <0.1	LCS-1	98%
Fenitrothion	mg/kg	0.1	GC.8	<0.1	19858-1	<0.1 || <0.1	LCS-1	86%
Bromophos-ethyl	mg/kg	0.1	GC.8	<0.1	19858-1	<0.1 || <0.1	[NR]	[NR]
Ethion	mg/kg	0.1	GC.8	<0.1	19858-1	<0.1 || <0.1	LCS-1	135%
Surrogate TCLMX	%		GC.8	107	19858-1	107 || 105 || RPD: 2	LCS-1	98%
QUALITY CONTROL Total Phenolics in Soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			4/6/08	[NT]	[NT]	LCS-1	4/6/08%
Date analysed	-			6/6/08	[NT]	[NT]	LCS-1	6/6/08%
Total Phenolics (as Phenol)	mg/kg	5	LAB.30	<5.0	[NT]	[NT]	LCS-1	101%
QUALITY CONTROL Acid Extractable metals in soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date digested	-			04/06/08	19858-1	4/06/2008 || 4/06/2008	LCS-3	04/06/08%
Date analysed	-			05/06/08	19858-1	5/06/2008 || 5/06/2008	LCS-3	05/06/08%
Arsenic	mg/kg	4	Metals.20 ICP-AES	<4.0	19858-1	4.7 || 6.1 || RPD: 26	LCS-3	104%
Cadmium	mg/kg	1	Metals.20 ICP-AES	<1.0	19858-1	<1.0 || <1.0	LCS-3	110%
Chromium	mg/kg	1	Metals.20 ICP-AES	<1.0	19858-1	17 || 16 || RPD: 6	LCS-3	107%
Copper	mg/kg	1	Metals.20 ICP-AES	<1.0	19858-1	56 || 52 || RPD: 7	LCS-3	110%
Lead	mg/kg	1	Metals.20 ICP-AES	<1.0	19858-1	44 || 52 || RPD: 17	LCS-3	110%
Mercury	mg/kg	0.1	Metals.21 CV-AAS	<0.10	19858-1	<0.10 || <0.10	LCS-3	116%
Nickel	mg/kg	1	Metals.20 ICP-AES	<1.0	19858-1	11 || 11 || RPD: 0	LCS-3	106%
Zinc	mg/kg	1	Metals.20 ICP-AES	<1.0	19858-1	240 || 210 || RPD: 13	LCS-3	107%

QUALITY CONTROL **Moisture**	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results **Base II Duplicate II %RPD**
Date prepared	-			4/6/08	19858-1	4/06/2008 || 4/06/2008
Date analysed	-			4/6/08	19858-1	4/06/2008 || 4/06/2008
Moisture	%	0.1	LAB.8	<0.10	19858-1	16 || 16 || RPD: 0

QUALITY CONTROL vTPH & BTEX in Soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	[NT]	[NT]	19858-2	4/6/08%
Date analysed	-	[NT]	[NT]	19858-2	4/6/08%
vTPH C_6 - C_9	mg/kg	[NT]	[NT]	19858-2	133%
Benzene	mg/kg	[NT]	[NT]	19858-2	121%
Toluene	mg/kg	[NT]	[NT]	19858-2	137%
Ethylbenzene	mg/kg	[NT]	[NT]	19858-2	126%
m+p-xylene	mg/kg	[NT]	[NT]	19858-2	140%
o-Xylene	mg/kg	[NT]	[NT]	19858-2	136%
Surrogate aaa-Trifluorotoluene	%	[NT]	[NT]	19858-2	106%

QUALITY CONTROL sTPH in Soil (C10-C36)	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	[NT]	[NT]	19858-3	4/6/08%
Date analysed	-	[NT]	[NT]	19858-3	4/6/08%
TPH C_{10} - C_{14}	mg/kg	[NT]	[NT]	19858-3	99%
TPH C_{15} - C_{28}	mg/kg	[NT]	[NT]	19858-3	139%
TPH C_{29} - C_{36}	mg/kg	[NT]	[NT]	19858-3	109%
Surrogate o-Terphenyl	%	[NT]	[NT]	19858-3	102%

QUALITY CONTROL PAHs in Soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	[NT]	[NT]	19858-3	4/6/08%
Date analysed	-	[NT]	[NT]	19858-3	4/6/08%
Naphthalene	mg/kg	[NT]	[NT]	19858-3	114%
Acenaphthylene	mg/kg	[NT]	[NT]	[NR]	[NR]
Acenaphthene	mg/kg	[NT]	[NT]	[NR]	[NR]
Fluorene	mg/kg	[NT]	[NT]	19858-3	104%
Phenanthrene	mg/kg	[NT]	[NT]	19858-3	93%
Anthracene	mg/kg	[NT]	[NT]	[NR]	[NR]
Fluoranthene	mg/kg	[NT]	[NT]	19858-3	85%
Pyrene	mg/kg	[NT]	[NT]	19858-3	89%
Benzo(a)anthracene	mg/kg	[NT]	[NT]	[NR]	[NR]
Chrysene	mg/kg	[NT]	[NT]	19858-3	113%
Benzo(b+k)fluoranthene	mg/kg	[NT]	[NT]	[NR]	[NR]

QUALITY CONTROL PAHs in Soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Benzo(a)pyrene	mg/kg	[NT]	[NT]	19858-3	92%
Indeno(1,2,3-c,d)pyrene	mg/kg	[NT]	[NT]	[NR]	[NR]
Dibenzo(a,h)anthracene	mg/kg	[NT]	[NT]	[NR]	[NR]
Benzo(g,h,i)perylene	mg/kg	[NT]	[NT]	[NR]	[NR]
Surrogate p-Terphenyl-d_{14}	%	[NT]	[NT]	19858-3	104%
QUALITY CONTROL Organochlorine Pesticides in soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	[NT]	[NT]	19858-3	4/6/08%
Date analysed	-	[NT]	[NT]	19858-3	4/6/08%
HCB	mg/kg	[NT]	[NT]	[NR]	[NR]
alpha-BHC	mg/kg	[NT]	[NT]	19858-3	99%
gamma-BHC	mg/kg	[NT]	[NT]	[NR]	[NR]
beta-BHC	mg/kg	[NT]	[NT]	19858-3	110%
Heptachlor	mg/kg	[NT]	[NT]	19858-3	99%
delta-BHC	mg/kg	[NT]	[NT]	[NR]	[NR]
Aldrin	mg/kg	[NT]	[NT]	19858-3	101%
Heptachlor Epoxide	mg/kg	[NT]	[NT]	19858-3	112%
gamma-Chlordane	mg/kg	[NT]	[NT]	[NR]	[NR]
alpha-chlordane	mg/kg	[NT]	[NT]	[NR]	[NR]
Endosulfan I	mg/kg	[NT]	[NT]	[NR]	[NR]
pp-DDE	mg/kg	[NT]	[NT]	19858-3	111%
Dieldrin	mg/kg	[NT]	[NT]	19858-3	114%
Endrin	mg/kg	[NT]	[NT]	19858-3	97%
pp-DDD	mg/kg	[NT]	[NT]	19858-3	92%
Endosulfan II	mg/kg	[NT]	[NT]	[NR]	[NR]
pp-DDT	mg/kg	[NT]	[NT]	[NR]	[NR]
Endrin Aldehyde	mg/kg	[NT]	[NT]	[NR]	[NR]
Endosulfan Sulphate	mg/kg	[NT]	[NT]	19858-3	106%
Methoxychlor	mg/kg	[NT]	[NT]	[NR]	[NR]
Surrogate TCLMX	%	[NT]	[NT]	19858-3	99%

QUALITY CONTROL Organophosphorus Pesticides	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date extracted	-	[NT]	[NT]	19858-3	4/6/08%
Date analysed	-	[NT]	[NT]	19858-3	4/6/08%
Diazinon	mg/kg	[NT]	[NT]	[NR]	[NR]
Dimethoate	mg/kg	[NT]	[NT]	[NR]	[NR]
Chlorpyriphos-methyl	mg/kg	[NT]	[NT]	[NR]	[NR]
Ronnel	mg/kg	[NT]	[NT]	[NR]	[NR]
Chlorpyriphos	mg/kg	[NT]	[NT]	19858-3	80%
Fenitrothion	mg/kg	[NT]	[NT]	19858-3	63%
Bromophos-ethyl	mg/kg	[NT]	[NT]	[NR]	[NR]
Ethion	mg/kg	[NT]	[NT]	19858-3	123%
Surrogate TCLMX	%	[NT]	[NT]	19858-3	103%
QUALITY CONTROL Acid Extractable metals in soil	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Spike % Recovery
Date digested	-	[NT]	[NT]	19858-2	04/06/08%
Date analysed	-	[NT]	[NT]	19858-2	05/06/08%
Arsenic	mg/kg	[NT]	[NT]	19858-2	96%
Cadmium	mg/kg	[NT]	[NT]	19858-2	92%
Chromium	mg/kg	[NT]	[NT]	19858-2	73%
Copper	mg/kg	[NT]	[NT]	19858-2	110%
Lead	mg/kg	[NT]	[NT]	19858-2	99%
Mercury	mg/kg	[NT]	[NT]	19858-2	119%
Nickel	mg/kg	[NT]	[NT]	19858-2	76%
Zinc	mg/kg	[NT]	[NT]	19858-2	101%

Report Comments:

OCP/OP's in soil: Sample 3 - PQL raised due to sample matrix.

Asbestos was analysed by Approved Identifier: Not applicable for this job

INS: Insufficient sample for this test	NT: Not tested	PQL: Practical Quantitation Limit
RPD: Relative Percent Difference	NA: Test not required	LCS: Laboratory Control Sample
NR: Not requested	<: Less than	>: Greater than

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.

Laboratory Acceptance Criteria:

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

Matrix Spikes and LCS: Generally 70-130% for inorganics/metals; 60-140% for organics and 10-140% for SVOC and speciated phenols is acceptable. Surrogates: 60-140% is acceptable for general organics and 10-140% for SVOC and speciated phenols.

LabMark
ENVIRONMENTAL LABORATORIES

CUSTOMER CENTRIC - ANALYTICAL CHEMISTS

FINAL CERTIFICATE OF ANALYSIS - ENVIRONMENTAL DIVISION

Laboratory Report No:	E036904
Client Name:	Parsons Brinckerhoff NSW
Client Reference:	Camellia
Contact Name:	Dave Hogberg
Chain of Custody No:	na
Sample Matrix:	SOIL

Cover Page 1 of 4
plus Sample Results

Date Received: 31/03/2008
Date Reported: 10/04/2008

This Final Certificate of Analysis consists of sample results, DQI's, method descriptions, laboratory definitions, and internationally recognised NATA accreditation and endorsement. The DQO compliance relates specifically to QA/QC results as performed as part of the sample analysis, and may provide an indication of sample result quality. Transfer of report ownership from Labmark to the client shall only occur once full & final payment has been settled and verified. All report copies may be retracted where full payment has not occured within the agreed settlement period.

QUALITY ASSURANCE CRITERIA

Accuracy:	matrix spike:	1 in first 5-20, then 1 every 20 samples
	lcs, crm, method:	1 per analytical batch
	surrogate spike:	addition per target organic method
Precision:	laboratory duplicate:	1 in first 5-10, then 1 every 10 samples
	laboratory triplicate:	re-extracted & reported when duplicate RPD values exceed acceptance criteria
Holding Times:	soils, waters:	Refer to LabMark Preservation & THT table VOC's 14 days water / soil VAC's 7 days water or 14 days acidified VAC's 14 days soil SVOC's 7 days water, 14 days soil Pesticides 7 days water, 14 days soil Metals 6 months general elements Mercury 28 days
Confirmation:	target organic analysis:	GC/MS, or confirmatory column
Sensitivity:	EQL:	Typically 2-5 x Method Detection Limit (MDL)

QUALITY CONTROL GLOBAL ACCEPTANCE CRITERIA (GAC)

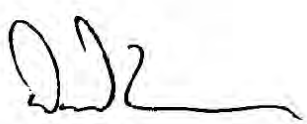
Accuracy:	spike, lcs, crm surrogate:	general analytes 70% - 130% recovery phenol analytes 50% - 130% recovery organophosphorous pesticide analytes 60% - 130% recovery phenoxy acid herbicides, organotins 50% - 130% recovery
	anion/cation bal:	+/- 10% (0-3 meq/l), +/- 5% (>3 meq/l)
Precision:	method blank:	not detected >95% of the reported EQL
	duplicate lab RPD (metals):	0-30% (>10xEQL), 0-75% (5-10xEQL) 0-100% (<5xEQL)
	duplicate lab RPD:	0-50% (>10xEQL), 0-75% (5-10xEQL) 0-100% (<5xEQL)

QUALITY CONTROL ANALYTE SPECIFIC ACCEPTANCE CRITERIA (ASAC)

Accuracy:	spike, lcs, crm surrogate:	analyte specific recovery data <3xsd of historical mean
Uncertainty:	spike, lcs:	measurement calculated from historical analyte specific control charts

RESULT ANNOTATION

DQO:	Data Quality Objective	s:	matrix spike recovery	p:	pending
DQI:	Data Quality Indicator	d:	laboratory duplicate	lcs:	laboratory control sample
EQL:	Estimated Quantitation Limit	t:	laboratory triplicate	crm:	certified reference material
- - :	not applicable	r:	RPD relative % difference	mb:	method blank



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This document is issued in accordance with NATA's accreditation requirements.

Environmental Laboratory Industry Group
Foundation Member

Laboratory Report: E036904

NEPC GUIDELINE COMPLIANCE - DQO

1. GENERAL

A. Results relate specifically to samples as received. Sample results are not corrected for matrix spike, lcs, or surrogate recovery data.

B. EQL's are matrix dependant and may be increased due to sample dilution or matrix interference.

C. Laboratory QA/QC samples are specific to this project.

D. Inter-laboratory proficiency results are available upon request. NATA accreditation details available at www.nata.asn.au.

E. VOC spikes & surrogates added to samples during extraction, SVOC spikes & surrogates added prior to extraction.

F. Recovery data outside GAC limits shall be investigated and compared to ASAC (historical mean +/- 3sd). If recovery data <20%, then the relevant results for that compound are considered not reliable.

G. Recovery data (ms, surrogate, crm, lcs) outside ASAC limits shall initiate an investigative action. Anomolous QC data is examined in conjunction with other QC samples and a final decision whether to accept or reject results is provided by the professional judgement of the senior analyst. The USEPA-CLP National Functional Guidelines are referred to for specific recommendations.

H. Extraction (preparation) date refers to the date that sample preparation was initiated. Note that certain methods not requiring sample preparation (eg. VOCs in water, etc) may report a common extraction and analysis date.

I. LabMark shall maintain an official copy of this Certificate of Analysis for all tracable reference purposes.

2. CHAIN OF CUSTODY (COC) & SAMPLE RECEIPT NOTICE (SRN) REQUIREMENTS

A. SRN issued to client upon sample receipt & login verification.

B. Preservation & sampling date details specified on COC and SRN, unless noted.

C. Sample Integrity & Validated Time of Sample Receipt (VTSR) Holding Times verified (preservation may extend holding time, refer to preservation chart).

3. NATA ACCREDITED METHODS

A. NATA accreditation held for each method and sample matrix type reported, unless noted below.

B. NATA accredited in-house laboratory methods are referenced from NEPC, ASTM, modified USEPA / APHA documents. Corporate Accreditation No. 13542.

C. Subcontracted analyses: Refer to Sample Receipt Notice and additional DQO comments.

LabMark PTY LTD ABN 27 079 798 397
* SYDNEY: Unit 1, 8 Leighton Place Asquith NSW 2077 * Telephone: (02) 9476 6533 * Fax: (02) 9476 8219
* MELBOURNE: 116 Moray Street, South Melbourne VIC 3205 * Telephone: (03) 9686 8344 * Fax: (03) 9686 7344

Laboratory Report: E036904

4. QA/QC FREQUENCY COMPLIANCE TABLE SPECIFIC TO THIS REPORT

Matrix: **SOIL**

Page:	Method:	Totals:	#d	%d-ratio	#t	#s	%s-ratio
1	BTEX by P&T	2	0	0%	0	0	0%
1	Volatile TPH by P&T (vTPH)	2	0	0%	0	0	0%
2	Petroleum Hydrocarbons (TPH)	2	0	0%	0	0	0%
3	Polyaromatic Hydrocarbons (PAH)	2	0	0%	0	0	0%
4	Organochlorine Pesticides (OC)	2	0	0%	0	0	0%
5	Organophosphorus Pesticides (OP)	2	0	0%	0	0	0%
6	Acid extractable metals (M7)	2	0	0%	0	0	0%
7	Acid extractable mercury	2	0	0%	0	0	0%
8	Moisture	2	--	--	--	--	--

GLOSSARY:

#d	number of discrete duplicate extractions/analyses performed.
%d-ratio	NEPC guideline for laboratory duplicates is 1 in 10 samples (min 10%).
#t	number of triplicate extractions/analyses performed.
#s	number of spiked samples analysed.
%s-ratio	USEPA guideline for laboratory matrix spikes is 1 in 20 samples (min 5%).

Environmental Laboratory Industry Group

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Laboratory Report: E036904

5. ADDITIONAL COMMENTS SPECIFIC TO THIS REPORT

A. All tests were conducted by LabMark Environmental Sydney, NATA accreditation No. 13542, Corporate Site No. 13535, unless indicated below.

Laboratory QA/QC data shall relate specifically to this report, and may provide an indication of site specific sample result quality. LabMark DOES NOT report NON-RELEVANT BATCH QA/QC data. Acceptance of this self assessment certificate does not preclude any requirement for a QA/QC review by a accredited contaminated site EPA auditor, when and wherever necessary. Laboratory QA/QC self assessment references available upon request.

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LabMark
ENVIRONMENTAL LABORATORIES

Laboratory Report No: E036904
Client Name: Parsons Brinckerhoff NSW
Contact Name: Dave Hogberg
Client Reference: Camellia

Date: 10/04/08
This report supercedes reports issued on: 09/04/08

Final
Certificate
of Analysis

Laboratory Identification		**148077**	**148078**	**lcs**	**mb**						
Sample Identification		Dup2	Dup4	QC	QC						
Depth (m)		--	--	--	--						
Sampling Date recorded on COC		26/3/08	26/3/08	--	--						
Laboratory Extraction (Preparation) Date		3/4/08	3/4/08	3/4/08	3/4/08						
Laboratory Analysis Date		4/4/08	4/4/08	3/4/08	3/4/08						
Method : E002.2											
BTEX by P&T	**EQL**										
Benzene	0.2	<0.2	<0.2	87%	<0.2						
Toluene	0.5	<0.5	<0.5	88%	<0.5						
Ethylbenzene	0.5	<0.5	<0.5	86%	<0.5						
meta- and para-Xylene	1	<1	<1	90%	<1						
ortho-Xylene	0.5	<0.5	<0.5	91%	<0.5						
Total Xylene	--	--	--	--	--						
CDFB (Surr @ 10mg/kg)	--	*91%*	*86%*	*91%*	*102%*						
Method : E003.2											
Volatile TPH by P&T (vTPH)	**EQL**										
C6 - C9 Fraction	10	<10	<10	92%	<10						

Results expressed in mg/kg dry weight unless otherwise specified

Comments:

E002.2: 8-10g soil extracted with 20ml methanol. Analysis by P&T/GC/PID/MSD.
E003.2: 8-10g soil extracted with 20ml methanol. Analysis by P&T/GC/FID.

Laboratory Identification		**148077**	**148078**	**lcs**	**mb**						
Sample Identification		Dup2	Dup4	QC	QC						
Depth (m)		--	--	--	--						
Sampling Date recorded on COC		26/3/08	26/3/08	--	--						
Laboratory Extraction (Preparation) Date		3/4/08	3/4/08	3/4/08	3/4/08						
Laboratory Analysis Date		3/4/08	3/4/08	3/4/08	3/4/08						
Method : E006.2											
Petroleum Hydrocarbons (TPH)	**EQL**										
C10 - C14 Fraction	50	<50	<50	82%	<50						
C15 - C28 Fraction	100	<100	<100	--	<100						
C29 - C36 Fraction	100	<100	<100	--	<100						
Sum of TPH C10 - C36	--	--	--	--	--						

Results expressed in mg/kg dry weight unless otherwise specified

Comments:

E006.2: 8-10g soil extracted with 20ml DCM/Acetone/Hexane (10:45:45). Analysis by GC/FID.

Laboratory Identification		**148077**	**148078**	**lcs**	**mb**						
Sample Identification		Dup2	Dup4	QC	QC						
Depth (m)		--	--	--	--						
Sampling Date recorded on COC		26/3/08	26/3/08	--	--						
Laboratory Extraction (Preparation) Date		3/4/08	3/4/08	3/4/08	3/4/08						
Laboratory Analysis Date		4/4/08	4/4/08	4/4/08	4/4/08						
Method : E007.2											
Polyaromatic Hydrocarbons (PAH)	**EQL**										
Naphthalene	0.5	<0.5	<0.5	110%	<0.5						
Acenaphthylene	0.5	<0.5	<0.5	115%	<0.5						
Acenaphthene	0.5	<0.5	<0.5	109%	<0.5						
Fluorene	0.5	<0.5	<0.5	112%	<0.5						
Phenanthrene	0.5	<0.5	<0.5	110%	<0.5						
Anthracene	0.5	<0.5	<0.5	109%	<0.5						
Fluoranthene	0.5	<0.5	<0.5	101%	<0.5						
Pyrene	0.5	<0.5	<0.5	101%	<0.5						
Benz(a)anthracene	0.5	<0.5	<0.5	92%	<0.5						
Chrysene	0.5	<0.5	<0.5	97%	<0.5						
Benzo(b)&(k)fluoranthene	1	<1	<1	114%	<1						
Benzo(a) pyrene	0.5	<0.5	<0.5	110%	<0.5						
Indeno(1,2,3-c,d)pyrene	0.5	<0.5	<0.5	87%	<0.5						
Dibenz(a,h)anthracene	0.5	<0.5	<0.5	85%	<0.5						
Benzo(g,h,i)perylene	0.5	<0.5	<0.5	83%	<0.5						
Sum of reported PAHs	--	--	--	--	--						
2-FBP (Surr @ 5mg/kg)	--	*92%*	*91%*	*98%*	*99%*						
TP-d14 (Surr @ 5mg/kg)	--	*99%*	*88%*	*98%*	*99%*						

Results expressed in mg/kg dry weight unless otherwise specified

Comments:

E007.2: 8-10g soil extracted with 20ml DCM/Acetone/Hexane (10:45:45). Analysis by GC/MS.

Laboratory Identification		**148077**	**148078**	**lcs**	**mb**						
Sample Identification		Dup2	Dup4	QC	QC						
Depth (m)		--	--	--	--						
Sampling Date recorded on COC		26/3/08	26/3/08	--	--						
Laboratory Extraction (Preparation) Date		3/4/08	3/4/08	3/4/08	3/4/08						
Laboratory Analysis Date		10/4/08	10/4/08	3/4/08	3/4/08						
Method : E013.2											
Organochlorine Pesticides (OC)	**EQL**										
a-BHC	0.05	<0.05	<0.05	105%	<0.05						
Hexachlorobenzene	0.05	<0.05	<0.05	111%	<0.05						
b-BHC	0.05	<0.05	<0.05	111%	<0.05						
g-BHC (Lindane)	0.05	<0.05	<0.05	106%	<0.05						
d-BHC	0.05	<0.05	<0.05	108%	<0.05						
Heptachlor	0.05	<0.05	<0.05	100%	<0.05						
Aldrin	0.05	<0.05	<0.05	104%	<0.05						
Heptachlor epoxide	0.05	<0.05	<0.05	106%	<0.05						
trans-chlordane	0.05	<0.05	0.17	106%	<0.05						
Endosulfan I	0.05	<0.05	<0.05	108%	<0.05						
cis-chlordane	0.05	<0.05	0.20	109%	<0.05						
Dieldrin	0.05	<0.05	<0.05	105%	<0.05						
4,4-DDE	0.05	<0.05	<0.05	109%	<0.05						
Endrin	0.05	<0.05	<0.05	126%	<0.05						
Endosulfan II	0.05	<0.05	<0.05	103%	<0.05						
4,4-DDD	0.05	<0.05	<0.05	112%	<0.05						
Endosulfan sulphate	0.05	<0.05	<0.05	101%	<0.05						
4,4-DDT	0.2	<0.2	<0.2	87%	<0.2						
Methoxychlor	0.2	<0.2	<0.2	88%	<0.2						
DBC (Surr @ 0.2mg/kg)	--	*87%*	*99%*	*97%*	*101%*						

Results expressed in mg/kg dry weight unless otherwise specified

Comments:

E013.2: 8-10g soil extracted with 20ml DCM/Acetone/Hexane (10:45:45). Analysis by GC/dual ECD.

Laboratory Identification		**148077**	**148078**	**lcs**	**mb**						
Sample Identification		Dup2	Dup4	QC	QC						
Depth (m)		--	--	--	--						
Sampling Date recorded on COC		26/3/08	26/3/08	--	--						
Laboratory Extraction (Preparation) Date		3/4/08	3/4/08	3/4/08	3/4/08						
Laboratory Analysis Date		4/4/08	4/4/08	3/4/08	3/4/08						
Method : E014.2											
Organophosphorus Pesticides (OP)	**EQL**										
Dichlorvos	0.5	<0.5	<0.5	101%	<0.5						
Mevinphos (Phosdrin)	0.5	<0.5	<0.5	118%	<0.5						
Demeton (total)	1	<1	<1	113%	<1						
Ethoprop	0.5	<0.5	<0.5	107%	<0.5						
Monocrotophos	0.5	<0.5	<0.5	115%	<0.5						
Phorate	0.5	<0.5	<0.5	112%	<0.5						
Dimethoate	0.5	<0.5	<0.5	99%	<0.5						
Diazinon	0.5	<0.5	<0.5	101%	<0.5						
Disulfoton	0.5	<0.5	<0.5	98%	<0.5						
Methyl parathion	0.5	<0.5	<0.5	102%	<0.5						
Ronnel	0.5	<0.5	<0.5	92%	<0.5						
Fenitrothion	0.5	<0.5	<0.5	106%	<0.5						
Malathion	0.5	<0.5	<0.5	97%	<0.5						
Chlorpyrifos	0.5	<0.5	<0.5	96%	<0.5						
Fenthion	0.5	<0.5	<0.5	96%	<0.5						
Parathion	0.5	<0.5	<0.5	108%	<0.5						
Stirofos	0.5	<0.5	<0.5	90%	<0.5						
Prothiofos	0.5	<0.5	<0.5	97%	<0.5						
Azinophos methyl	0.5	<0.5	<0.5	94%	<0.5						
Coumaphos	0.5	<0.5	<0.5	111%	<0.5						
TPP (Surr @ 2mg/kg)	--	*117%*	*89%*	*95%*	*102%*						

Results expressed in mg/kg dry weight unless otherwise specified

Comments:

E014.2: 8-10g soil extracted with 20ml DCM/Acetone/Hexane (10:45:45). Analysis by GC/MSD.

Laboratory Identification		**148077**	**148078**	**crm**	**lcs**	**mb**					
Sample Identification		Dup2	Dup4	QC	QC	QC					
Depth (m)		--	--	--	--	--					
Sampling Date recorded on COC		26/3/08	26/3/08	--	--	--					
Laboratory Extraction (Preparation) Date		3/4/08	3/4/08	3/4/08	3/4/08	3/4/08					
Laboratory Analysis Date		4/4/08	4/4/08	4/4/08	4/4/08	4/4/08					
Method : E022.2											
Acid extractable metals (M7)	**EQL**										
Arsenic	1	4	7	87%	83%	<1					
Cadmium	0.1	0.5	<0.1	89%	94%	<0.1					
Chromium	1	11	14	92%	92%	<1					
Copper	2	2870	24	94%	90%	<2					
Nickel	1	29	7	91%	88%	<1					
Lead	2	211	45	90%	96%	<2					
Zinc	5	227	57	87%	88%	<5					

Results expressed in mg/kg dry weight unless otherwise specified

Comments:

E022.2: 0.5g digested in nitric/hydrochloric acid. Analysis by ICP-MS.

Laboratory Identification		**148077**	**148078**	**crm**	**lcs**	**mb**					
Sample Identification		Dup2	Dup4	QC	QC	QC					
Depth (m)		--	--	--	--	--					
Sampling Date recorded on COC		26/3/08	26/3/08	--	--	--					
Laboratory Extraction (Preparation) Date		3/4/08	3/4/08	3/4/08	3/4/08	3/4/08					
Laboratory Analysis Date		3/4/08	4/4/08	3/4/08	3/4/08	3/4/08					
Method : E026.2											
Acid extractable mercury	**EQL**										
Mercury	0.05	<0.05	0.15	111%	85%	<0.05					

Results expressed in mg/kg dry weight unless otherwise specified

Comments:

E026.2: 0.5g digested with nitric/hydrochloric acid. Analysis by CV-ICP-MS or FIMS.

Laboratory Identification		**148077**	**148078**								
Sample Identification		Dup2	Dup4								
Depth (m)		--	--								
Sampling Date recorded on COC		26/3/08	26/3/08								
Laboratory Extraction (Preparation) Date		3/4/08	3/4/08								
Laboratory Analysis Date		4/4/08	4/4/08								
Method : E005.2											
Moisture	**EQL**										
Moisture	--	5	18								

Results expressed in % w/w unless otherwise specified

Comments:

E005.2: Moisture by gravimetric analysis. Results are in % w/w.

LabMark
ENVIRONMENTAL LABORATORIES

Report Date : 1/04/2008
Report Time : 11:07:18AM

Sample **Receipt** Notice (SRN) for **E036904**

Quality, Service, Support

Client Details		Laboratory Reference Information	
Client Name:	Parsons Brinckerhoff NSW	**Please have this information ready when contacting Labmark.**	
Client Phone:	02 9272 5100		
Client Fax:	02 9272 5101	**Laboratory Report:**	**E036904**
Contact Name:	Dave Hogberg	**Quotation Number:**	- Not provided, standard prices apply
Contact Email:	dhogberg@pb.com.au	**Laboratory Address:**	Unit 1, 8 Leighton Pl. Asquith NSW 2077
Client Address:	G P O Box 5394 Sydney NSW 2001	**Phone:**	61 2 9476 6533
		Fax:	61 2 9476 8219
Project Name:	Camellia	**Sample Receipt Contact:**	Jakleen El Galada
Project Number:	- Not provided -	**Email:**	jakleen.galada@labmark.com.au
CoC Serial Number:	- Not provided -	**Reporting Contact:**	Jyothi Lal
Purchase Order:	- Not provided -	**Email:**	jyothi.lal@labmark.com.au
Surcharge:	No surcharge applied (results by 6:30pm on due date)		
Sample Matrix:	SOIL		
Date Sampled (earliest date):	26/03/2008	**NATA Accreditation:**	13542
Date Samples Received:	31/03/2008	**TGA GMP License:**	185-336 (Sydney)
Date Sample Receipt Notice issued:	01/04/2008	**APVMA License:**	6105 (Sydney)
Date Preliminary Report Due:	09/04/2008	**AQIS Approval:**	NO356 (Sydney)
		AQIS Entry Permit:	200521534 (Sydney)

Reporting Requirements: Electronic Data Download required: Yes

Invoice Number: 31121

Sample Condition: COC received with samples. Report number and lab ID's defined on COC.
Samples received in good order .
Samples received with cooling media: Ice bricks .
Samples received chilled.
Security seals not used .
Sample container & chemical preservation suitable .

Comments:

Holding Times: Date received allows for sufficient time to meet Technical Holding Times.

Preservation: Chemical preservation of samples satisfactory for requested analytes.

Important Notes:

LabMark shall responsibly dispose of spent customer soil and water samples which includes the disintegration of the sample label. A sample disposal fee of $1.00 is applicable on all samples received by the laboratory regardless of whether they have undergone analytical testing. Sample disposal of environmental samples shall be 31 days (water) and 3 months (soil, HN03 preserved samples) after laboratory receipt, unless otherwise requested in writing by the client. Samples requested to be held in non-refrigerated storage shall incur $5.00/ sample/ 3 months. Additional refrigerated storage shall incur $30/ sample/ 3 months. Combination prices apply only if requested. Transfer of report ownership from LabMark to the client shall occur once full and final payment has been settled and verified. All report copies may be retracted where full payment does not occur within the agreed settlement period.

Analysis comments:

Subcontracted Analyses:

Thank you for choosing Labmark to analyse your project samples.
Additional information on www.labmark.com.au

LabMark
ENVIRONMENTAL LABORATORIES

Report Date : 1/04/2008
Report Time : 11:07:18AM

Sample **Receipt** Notice (SRN) for **E036904**

Quality, Service, Support

The table below represents LabMark's understanding and interpretation of the customer supplied sample COC request (refer to SRN comments section on first page for external subcontracting method details). Please confirm that your COC request has been entered correctly. Due to THT and TAT requirements, testing shall commence immediately as per this table, unless the customer intervenes with a correction prior to testing.

GRID REVIEW TABLE

No.	Date	Depth	Client Sample ID	Requested Analysis: BTEX by P&T	Acid extractable mercury	HOLD ON HOLD	Acid extractable metals (M7)	Moisture	Organochlorine Pesticides (OC)	Organophosphorus Pesticides (OP)	Polyaromatic Hydrocarbons (PAH)	PREP Not Reported	Petroleum Hydrocarbons (TPH)	Volatile TPH by P&T (vTPH)									
148077	26/03		Dup2	●	●		●	●	●	●	●	●	●	●									
148078	26/03		Dup4	●	●		●	●	●	●	●	●	●	●									
148079	27/03		Dup6			●																	
			Totals:	2	2	1	2	2	2	2	2	2	2	2									

'PREP Not Reported' refers to an internal laboratory instruction - client confirmation of this parameter is not required.

Thank you for choosing Labmark to analyse your project samples.
Additional information on www.labmark.com.au

LabMark
ENVIRONMENTAL LABORATORIES

Report Date : 1/04/2008
Report Time : 11:07:18AM

Sample **Receipt** Notice (SRN) for **E036904**

Quality, Service, Support

No.	Date	Depth	Client Sample ID	Requested Analysis: M8 - M7-T_S																		
148077	26/03		Dup2	●																		
148078	27/03		Dup4	●																		
			Totals:	2																		

Thank you for choosing Labmark to analyse your project samples.
Additional information on www.labmark.com.au

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

CERTIFICATE OF ANALYSIS 19858-A

Client:
Parsons Brinckerhoff
GPO Box 5394
Sydney
NSW 2001

Attention: Dave Hogberg

Sample log in details:

Your Reference:	**2116732A, Camellia**
No. of samples:	Additional Testing on 1 Soil
Date samples received:	02/06/08
Date completed instructions received:	06/06/08

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:	10/06/08
Date of Preliminary Report:	Not Issued
Issue Date:	10/06/08

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This document is issued in accordance with NATA's accreditation requirements.
Accredited for compliance with ISO/IEC 17025.
Tests not covered by NATA are denoted with *.

Results Approved By:

Jacinta Hurst
Operations Manager

Metals in TCLP		
Our Reference:	UNITS	19858-A-3
Your Reference	----------	BH02
Depth	----------	0.3
Date Sampled		2/06/2008
Type of sample		Soil
Date extracted	-	10/06/2008
Date analysed	-	10/06/2008
pH of soil for fluid# determ.	pH units	6.80
pH of soil for fluid # determ. (acid)	pH units	1.60
Extraction fluid used	-	1
pH of final Leachate	pH units	5.00
Lead in TCLP	mg/L	0.48

PAHs in TCLP (USEPA 1311)		
Our Reference:	UNITS	19858-A-3
Your Reference	----------	BH02
Depth	----------	0.3
Date Sampled		2/06/2008
Type of sample		Soil
Date extracted	-	10/06/2008
Date analysed	-	10/06/2008
Naphthalene	mg/L	<0.001
Acenaphthylene	mg/L	<0.001
Acenaphthene	mg/L	<0.001
Fluorene	mg/L	<0.001
Phenanthrene	mg/L	<0.001
Anthracene	mg/L	<0.001
Fluoranthene	mg/L	<0.001
Pyrene	mg/L	<0.001
Benzo(a)anthracene	mg/L	<0.001
Chrysene	mg/L	<0.001
Benzo(b+k)fluoranthene	mg/L	<0.002
Benzo(a)pyrene	mg/L	<0.001
Indeno(1,2,3-c,d)pyrene	mg/L	<0.001
Dibenzo(a,h)anthracene	mg/L	<0.001
Benzo(g,h,i)perylene	mg/L	<0.001
Surrogate p-Terphenyl-d_{14}	%	103

Method ID	Methodology Summary
EXTRACT.7	Toxicity Characteristic Leaching Procedure (TCLP).
Metals.20 ICP-AES	Determination of various metals by ICP-AES.
GC.12 subset	Leachates are extracted with Dichloromethane and analysed by GC-MS.
GC.12 subset	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS.
GC.12	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS.

QUALITY CONTROL Metals in TCLP	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base ll Duplicate ll %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			10/6/08	[NT]	[NT]	LCS-1	10/5/08%
Date analysed	-			10/6/08	[NT]	[NT]	LCS-1	10/5/08%
Lead in TCLP	mg/L	0.03	Metals.20 ICP-AES	<0.03	[NT]	[NT]	LCS-1	105%
QUALITY CONTROL PAHs in TCLP (USEPA 1311)	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base ll Duplicate ll %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			10/06/2008	[NT]	[NT]	LCS-W1	10/06/2008 %
Date analysed	-			10/06/2008	[NT]	[NT]	LCS-W1	10/06/2008 %
Naphthalene	mg/L	0.001	GC.12 subset	<0.001	[NT]	[NT]	LCS-W1	91%
Acenaphthylene	mg/L	0.001	GC.12 subset	<0.001	[NT]	[NT]	[NR]	[NR]
Acenaphthene	mg/L	0.001	GC.12 subset	<0.001	[NT]	[NT]	[NR]	[NR]
Fluorene	mg/L	0.001	GC.12 subset	<0.001	[NT]	[NT]	LCS-W1	89%
Phenanthrene	mg/L	0.001	GC.12 subset	<0.001	[NT]	[NT]	LCS-W1	95%
Anthracene	mg/L	0.001	GC.12 subset	<0.001	[NT]	[NT]	[NR]	[NR]
Fluoranthene	mg/L	0.001	GC.12 subset	<0.001	[NT]	[NT]	LCS-W1	84%
Pyrene	mg/L	0.001	GC.12 subset	<0.001	[NT]	[NT]	LCS-W1	86%
Benzo(a)anthracene	mg/L	0.001	GC.12 subset	<0.001	[NT]	[NT]	[NR]	[NR]
Chrysene	mg/L	0.001	GC.12 subset	<0.001	[NT]	[NT]	LCS-W1	103%
Benzo(b+k)fluoranthene	mg/L	0.002	GC.12 subset	<0.002	[NT]	[NT]	[NR]	[NR]
Benzo(a)pyrene	mg/L	0.001	GC.12 subset	<0.001	[NT]	[NT]	LCS-W1	78%
Indeno(1,2,3-c,d)pyrene	mg/L	0.001	GC.12 subset	<0.001	[NT]	[NT]	[NR]	[NR]
Dibenzo(a,h)anthracene	mg/L	0.001	GC.12 subset	<0.001	[NT]	[NT]	[NR]	[NR]
Benzo(g,h,i)perylene	mg/L	0.001	GC.12 subset	<0.001	[NT]	[NT]	[NR]	[NR]
Surrogate p-Terphenyl-d_{14}	%		GC.12	87	[NT]	[NT]	LCS-W1	99%

Report Comments:

Asbestos was analysed by Approved Identifier: Not applicable for this job

INS: Insufficient sample for this test	NT: Not tested	PQL: Practical Quantitation Limit
RPD: Relative Percent Difference	NA: Test not required	LCS: Laboratory Control Sample
NR: Not requested	<: Less than	>: Greater than

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.

Laboratory Acceptance Criteria:

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

Matrix Spikes and LCS: Generally 70-130% for inorganics/metals; 60-140% for organics and 10-140% for SVOC and speciated phenols is acceptable. Surrogates: 60-140% is acceptable for general organics and 10-140% for SVOC and speciated phenols.

Appendix F

Laboratory results

Table 1
Soil Analytical Results - Camellia Additional Environmental Works
TPH/BTEX

Sample I.D.	Date Sampled	Total Petroleum Hydrocarbons (TPH)					Monocyclic Aromatic Hydrocarbons (BTEX)					
		C_6-C_9	C_{10}-C_{14}	C_{15}-C_{28}	C_{29}-C_{36}	Total C_{10}-C_{36}	Benzene	Toluene	Ethyl Benzene	m&p Xylene	o-Xylene	Total Xylene
BH1_0.2	2/05/2008	<25	<50	<100	<100	nd	<0.5	<0.5	<1.0	<2.0	<1.0	nd
BH1_1.7	2/05/2008	<25	<50	<100	<100	nd	<0.5	<0.5	<1.0	<2.0	<1.0	nd
BH2_0.3	2/05/2008	<25	55	170	<100	225	<0.5	<0.5	<1.0	<2.0	<1.0	nd
BH2_1.6	2/05/2008	<25	<50	<100	<100	nd	<0.5	<0.5	<1.0	<2.0	<1.0	nd
BH3_0.1	2/05/2008	<25	<50	<100	<100	nd	<0.5	<0.5	<1.0	<2.0	<1.0	nd
BH3_2.0	2/05/2008	<25	<50	<100	<100	nd	<0.5	<0.5	<1.0	<2.0	<1.0	nd
TP1_0.2-0.3	26/03/2008	<25	<50	<100	<100	nd	<0.5	<0.5	<1.0	<2.0	<1.0	nd
TP1_2.5-2.6	26/03/2008	<25	<50	<100	<100	nd	<0.5	<0.5	<1.0	<2.0	<1.0	nd
TP2_0.2-0.3	26/03/2008	<25	<50	<100	<100	nd	<0.5	<0.5	<1.0	<2.0	<1.0	nd
TP2_1.5-1.6	26/03/2008	<25	<50	<100	<100	nd	<0.5	<0.5	<1.0	<2.0	<1.0	nd
TP6_0.1-0.2	26/03/2008	<25	<50	<100	<100	nd	<0.5	<0.5	<1.0	<2.0	<1.0	nd
TP7_1.5-1.6	26/03/2008	<25	<50	<100	<100	nd	<0.5	<0.5	<1.0	<2.0	<1.0	nd
TP8_1.0-1.1	26/03/2008	<25	<50	<100	<100	nd	<0.5	<0.5	<1.0	<2.0	<1.0	nd
TP9_0.5-06	26/03/2008	<25	<50	<100	<100	nd	<0.5	<0.5	<1.0	<2.0	<1.0	nd
TP10_0.1-0.2	27/03/2008	<25	<50	<100	<100	nd	<0.5	<0.5	<1.0	<2.0	<1.0	nd
TP11_0.5-0.6	27/03/2008	<25	<50	<100	<100	nd	<0.5	<0.5	<1.0	<2.0	<1.0	nd
TP12_0.5-0.6	27/03/2008	<25	<50	<100	<100	nd	<0.5	<0.5	<1.0	<2.0	<1.0	nd
TP13_0.5-0.6	27/03/2008	<25	<50	<100	<100	nd	<0.5	<0.5	<1.0	<2.0	<1.0	nd
TP16_0.5-0.6	27/03/2008	<25	<50	<100	<100	nd	<0.5	<0.5	<1.0	<2.0	<1.0	nd
TP17_0.1-0.2	27/03/2008	<25	<50	<100	<100	nd	<0.5	<0.5	<1.0	<2.0	<1.0	nd
Dup 1	28/03/2008	<25	<50	<100	<100	nd	<0.5	<0.5	<1.0	<2.0	<1.0	nd
Dup 3	26/03/2008	<25	<50	<100	<100	nd	<0.5	<0.5	<1.0	<2.0	<1.0	nd
offiste testpits												
TP3_0.2-0.3	26/03/2008	<25	<50	<100	<100	nd	<0.5	<0.5	<1.0	<2.0	<1.0	nd
TP3_0.5-0.6	26/03/2008	<25	<50	<100	<100	nd	<0.5	<0.5	<1.0	<2.0	<1.0	nd
TP4_0.1-0.2	26/03/2008	<25	<50	<100	<100	nd	<0.5	<0.5	<1.0	<2.0	<1.0	nd
TP4_1.5-1.6	26/03/2008	<25	<50	<100	<100	nd	<0.5	<0.5	<1.0	<2.0	<1.0	nd
TP5_0.1-0.2	26/03/2008	<25	<50	<100	<100	nd	<0.5	<0.5	<1.0	<2.0	<1.0	nd
TP5_2.0-2.1	26/03/2008	<25	<50	<100	<100	nd	<0.5	<0.5	<1.0	<2.0	<1.0	nd
Practical Quantitation Limit		5(10)	10(50)	20(100)	20(100)	-	0.2	1(0.5)	1(0.5)	2(0.5)	1(0.5)	-
GeneralSolid Waste (w/o TCLP)[1]		650	-	-	-	10,000	10	288	600	-	-	1,000
Restricted Solid Waste (w/o TCLP)[1]		2600	-	-	-	40,000	40	1152	2400	-	-	4,000
Sensitive Land Use Criteria[3]		65	-	-	-	1,000	1	1.4	3.1	-	-	14
Commercial or Industrial [2]		-	-	-	-	-	-	-	-	-	-	-

Notes:
All results expressed as mg/kg
Q - the sample contains volatile halogenated oxygenated or other compounds that are included and quantified as part of C_6 - C_9
- Not asssessment concentration available
nd = referes to non detect
[1] Assessment criteria based on the NSW EPA (2008) *Waste Classification Guidlines*
[2] Assessment Criteria based on Health-based investigation levels - Commercial or Industrial. ("Guidelines for the NSW Site Auditor Scheme" 2nd edition, NSW DEC, April 2006).
[3] NSW EPA (1994) Guidelines for Assessing Service Station Sites - Sensitive Landuse Criteria

Bold	**Concentration exceeds the adopted assessment criteria for General Solid Waste and is classified as RESTRICTED SOLID WASTE**
Bold & Shaded	**Concentration exceeds the adopted assessment criteria for Restricted Solid Waste and is classified as HAZARDOUS WASTE**
Bold & Shaded	**Concentration exceeds the Health-based investigation levels for Commercial or Industrial**

Table 2
Soil Analytical Results - Camellia Additional Environmental Works
Heavy Metals

Sample I.D.	Date Sampled	Arsenic (As)	Cadmium (Cd)	Chromium (Cr)[1]	Copper (Cu)	Lead (Pb)	Pb TCLP	Nickel (Ni)	Ni TCLP	Zinc (Zn)	Mercury (Hg)
BH1_0.2	2/05/2008	4.7	<1.0	17	56	44	-	11	-	240	<0.10
BH1_1.7	2/05/2008	7.1	<1.0	56	41	52	-	**44**	-	240	<0.10
BH2_0.3	2/05/2008	7.5	<1.0	28	54	**160**	0.48	32	-	180	<0.10
BH2_1.6	2/05/2008	5.4	<1.0	13	25	56	-	15	-	130	<0.10
BH3_0.1	2/05/2008	8.3	<1.0	23	25	64	-	13	-	65	<0.10
BH3_2.0	2/05/2008	4.4	<1.0	11	31	11	-	8.4	-	62	<0.10
TP1_0.2-0.3	26/03/2008	4.8	<1.0	15	550	**110**	-	24	-	92	<0.10
TP1_2.5-2.6	26/03/2008	12	<1.0	13	47	19	-	28	-	120	<0.10
TP2_0.2-0.3	26/03/2008	17	<1.0	12	52	37	-	21	-	85	<0.10
TP2_1.5-1.6	26/03/2008	4.7	<1.0	15	66	18	-	17	-	100	<0.10
TP6_0.1-0.2	26/03/2008	9.6	<1.0	19	24	71	-	11	-	110	<0.10
TP7_0.5-0.6	26/03/2008	5.5	<1.0	14	13	16	-	2.9	-	8.9	<0.10
TP8_0.1-0.2	26/03/2008	4	<1.0	20	44	68	-	**54**	0.05	90	<0.10
TP9_0.5-0.6	26/03/2008	5.8	<1.0	16	14	18	-	2.2	-	6.2	<0.10
TP10_0.1-0.2	27/03/2008	5.8	<1.0	19	43	49	-	13	-	55	<0.10
TP11_0.5-0.6	27/03/2008	5.6	<1.0	17	10	18	-	2.8	-	11	<0.10
TP12_0.5-0.6	27/03/2008	5	<1.0	21	12	22	-	7.2	-	13	<0.10
TP13_0.5-0.6	27/03/2008	4.8	<1.0	17	3.8	15	-	3.2	-	6	<0.10
TP15_0.5-0.6	27/03/2008	<4.0	<1.0	5.3	4.7	20	-	3	-	39	<0.10
TP16_0.5-0.6	27/03/2008	4.6	<1.0	23	7.1	19	-	5.5	-	13	<0.10
TP17_0.1-0.2	27/03/2008	7	<1.0	22	2000	**180**	0.03	46	<0.02	180	<0.10
Dup 1	28/03/2008	<4.0	<1.0	37	13	31	-	11	-	98	<0.10
Dup 3	26/03/2008	14	<1.0	37	68	90	-	23	-	170	<0.10
offiste testpits											
TP3_0.2-0.3	26/03/2008	40	2	15	79	**150**	-	12	-	710	<0.10
TP3_0.5-0.6	26/03/2008	27	1.3	12	49	**170**	0.13	9.9	-	580	<0.10
TP4_0.1-0.2	26/03/2008	7.1	<1.0	15	29	43	-	8.6	-	84	<0.10
TP4_1.5-1.6	26/03/2008	4.4	<1.0	9.1	16	10	-	3.2	-	23	<0.10
TP5_0.1-0.2	26/03/2008	6.9	<1.0	17	31	45	-	11	-	75	<0.10
TP5_2.0-2.1	26/03/2008	5.5	<1.0	15	46	21	-	20	-	100	<0.10
Practical Quantitation Limit		3	1	2	2	5		2		2	0.05
GeneralSolid Waste (w/o TCLP)[1]		**100**	**20**	**-**	**-**	**100**	**5**	**40**	**2**	**-**	**4**
Restricted Solid Waste (w/o TCLP)[1]		**400**	**80**	**-**	**-**	**400**	**20**	**60**	**8**	**-**	**16**
General Solid Waste (SCC2/TCLP2)[2]		**500**	**-**	**-**	**-**	**1,500**		**1,050**		**-**	**-**
Restricted Solid Waste (SCC2/TCLP2)[2]		**500**	**-**	**-**	**-**	**6,000**		**4,200**		**-**	**-**
Commercial or Industrial[3]		500	100	500	5,000	1,500		3,000		35,000	75

Notes:

All results expressed as mg/kg, except TCLP expressed in mg/L

nd = referes to non detect

[1] Waste Criteria is for Cr (VI), however as there is no source for Cr (VI) on the site and Cr (VI) is unstable in the environment, the chromium measured here is likely to be Cr (III) for which there is no waste guideline.

[2] Total (SCC) and leachable (TCLP) concentrations values for non-liquid waste classification per Table 2 of the NSW EPA (2008) Waste Classification Guidlines

[3] Assessment Criteria based on Health-based investigation levels - Commercial or Industrial. ("Guidelines for the NSW Site Auditor Scheme" 2nd edition, NSW DEC, April 2006).

Bold	**Concentration exceeds the adopted assessment criteria for General Solid Waste and is classified as RESTRICTED SOLID WASTE**
Bold & Shaded	**Concentration exceeds the adopted assessment criteria for Restricted Solid Waste and is classified as HAZARDOUS WASTE**
Bold & Shaded	**Concentration exceeds the Health-based investigation levels for Commercial or Industrial**

Table 3
Soil Analytical Results - Camellia Additional Environmental Works
Polycyclic Aromatic Hydrocarbons (PAHs)

Sample I.D.	Date Sampled	Naphthalene	Acenaphthylene	Acenaphthene	Fluorene	Phenanthrene	Anthracene	Fluoranthene	Pyrene	Benzo(a)anthracene	Chrysene	Benzo(b)&(k)fluorantene	Benzo(a)pyrene	Benzo(a)pyrene TCLP	Indeno(123-cd)pyrene	Dibenz(ah)anthracene	Benzo(ghi)perylene	**Total PAHs**
BH1_0.2	2/05/2008	<0.1	<0.1	<0.1	<0.1	0.1	<0.1	0.3	0.3	0.2	0.2	0.4	0.2	-	0.2	<0.1	0.2	2.1
BH2_0.3	2/05/2008	<0.1	0.1	0.2	0.1	3.6	0.7	8.3	7.6	3.2	3.8	5.8	**3.7**	<0.001	2.5	0.4	2.3	42.3
BH3_0.1	2/05/2008	<0.1	<0.1	<0.1	3.6	0.2	<0.1	0.3	0.2	0.1	0.1	<0.2	0.1	-	<0.1	<0.1	<0.1	4.6
TP1_0.2-0.3	26/03/2008	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.05	-	<0.1	<0.1	<0.1	<0.2
TP2_0.2-0.3	26/03/2008	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.05	-	<0.1	<0.1	<0.1	<0.2
TP6_0.1-0.2	26/03/2008	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	0.1	<0.1	<0.1	<0.1	<0.05	-	<0.1	<0.1	<0.1	0.2
TP7_0.5-0.6	26/03/2008	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.05	-	<0.1	<0.1	<0.1	<0.2
TP8_1.0-1.1	26/03/2008	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.05	-	<0.1	<0.1	<0.1	<0.2
TP9_0.5-0.6	26/03/2008	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.05	-	<0.1	<0.1	<0.1	<0.2
TP10_0.1-0.2	27/03/2008	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.05	-	<0.1	<0.1	<0.1	<0.2
TP11_0.5-0.6	27/03/2008	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.05	-	<0.1	<0.1	<0.1	<0.2
TP12_0.5-0.6	27/03/2008	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.05	-	<0.1	<0.1	<0.1	<0.2
TP13_0.5-0.6	27/03/2008	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.05	-	<0.1	<0.1	<0.1	<0.2
TP14_0.5-0.6	27/03/2008	0.2	0.3	0.2	0.5	8.6	1	15	14	4.2	4.4	8.2	**5.9**	<0.001	4.4	0.5	4	71.4
TP15_0.5-0.6	27/03/2008	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	0.7	0.8	0.4	0.5	<0.1	0.4	-	0.2	<0.1	0.2	4.4
TP16_0.5-0.6	27/03/2008	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.05	-	<0.1	<0.1	<0.1	<0.2
TP17_0.1-0.2	27/03/2008	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	<0.1	0.1	-	<0.1	<0.1	0.1	<0.2
Dup 1	28/03/2008	<0.1	<0.1	<0.1	<0.1		<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.05	-	<0.1	<0.1	<0.1	<0.2
Dup 3	26/03/2008	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.05	-	<0.1	<0.1	<0.1	<0.2
offiste testpits																		
TP3_0.2-0.3	26/03/2008	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.05	-	<0.1	<0.1	<0.1	<0.2
TP4_0.1-0.2	26/03/2008	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.05	-	<0.1	<0.1	<0.1	<0.2
TP5_0.1-0.2	26/03/2008	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.05	-	<0.1	<0.1	<0.1	<0.2
Practical Quantitation Limit		0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	1	0.5		0.5	0.5	0.5	0.5
General Solid Waste (w/o TCLP)[1]		-	-	-	-	-	-	-	-	-	-	-	0.8	0.04	-	-	-	200
Restricted Solid Waste (w/o TCLP)[1]		-	-	-	-	-	-	-	-	-	-	-	3.2	0.16	-	-	-	800
General Solid Waste (SCC2/TCLP2)[2]		-	-	-	-	-	-	-	-	-	-	-	18		-	-	-	
Restricted Solid Waste (SCC2/TCLP2)[2]		-	-	-	-	-	-	-	-	-	-	-	72		-	-	-	
Commercial or Industrial [3]		-	-	-	-	-	-	-	-	-	-	-	5		-	-	-	100

Notes:
All results expressed as mg/kg
Q - the sample contains volatile halogenated oxygenated or other compounds that are included and quantified as part of C_6 - C_9
- Not asssessment concentration available
nd = referes to non detect
[1] Assessment criteria based on the NSW EPA (2008) *Waste Classification Guidlines*
[2] Total (SCC) and leachable (TCLP) concentrations values for non-liquid waste classification per Table 2 of the NSW EPA (2008) Waste Classification Guidlines
[3] Assessment Criteria based on Health-based investigation levels - Commercial or Industrial. ("Guidelines for the NSW Site Auditor Scheme" 2nd edition, NSW DEC, April 2006).

Bold	**Concentration exceeds the adopted assessment criteria for General Solid Waste and is classified as RESTRICTED SOLID WASTE**
Bold & Shaded	**Concentration exceeds the adopted assessment criteria for Restricted Solid Waste and is classified as HAZARDOUS WASTE**
Bold & Shaded	**Concentration exceeds the Health-based investigation levels for Commercial or Industrial**

Table 4
Soil Analytical Results - Camellia Additional Environmental Works
Organochloringe Pesticdes (OCPs)/Total Organophosphorus Pesticides (OPs)/Total Phenols/Asbestos

Sample I.D.	Date Sampled	Aldrin + Dieldrin + Endrin	DDT - Total	Total OPs	Total Phenols	Asbestos
BH1_0.2	2/05/2008	<0.3	<0.3	<0.8	<5	-
BH2_0.3	2/05/2008	<1	<1	<8	-	-
BH3_0.1	2/05/2008	<0.3	<0.3	<0.8	-	-
TP1_0.2-0.3	26/03/2008	<0.3	<0.3	<0.8	<5	nd
TP2_0.2-0.3	26/03/2008	<0.3	<0.3	<0.8	<5	-
TP6_0.1-0.2	26/03/2008	<0.3	<0.3	<0.8	-	-
TP7_0.1-0.2	26/03/2008	<0.3	<0.3	<0.8	-	-
TP7_1.5-1.6	26/03/2008	-	-	-	<5	-
TP8_1.0-1.1	26/03/2008	<0.3	<0.3	<0.8	-	-
TP9_0.5-0.6	26/03/2008	<0.3	<0.3	<0.8	-	-
TP10_0.1-0.2	27/03/2008	<0.3	<0.3	<0.8	-	-
TP11_0.5-0.6	27/03/2008	<0.3	<0.3	<0.8	-	-
TP12_0.5-0.6	27/03/2008	<0.3	<0.3	<0.8	-	-
TP13_0.5-0.6	27/03/2008	<0.3	<0.3	<0.8	-	-
TP14_0.5-0.6	27/03/2008	<0.3	<0.3	<0.8	-	-
TP15_0.5-0.6	27/03/2008	<0.3	<0.3	<0.8	-	-
TP16_0.5-0.6	27/03/2008	<0.3	<0.3	<0.8	<5	-
TP17_0.1-0.2	27/03/2008	<0.3	<0.3	<0.8	<5	-
Dup 1	28/03/2008	<0.3	<0.3	<0.8	-	-
Dup 3	26/03/2008	<0.3	<0.3	<0.8	-	-
offiste testpits						
TP3_0.2-0.3	26/03/2008	<0.3	<0.3	<0.8	<5	nd
TP4_0.1-0.2	26/03/2008	<0.3	<0.3	<0.8	<5	-
TP5_0.1-0.2	26/03/2008	<0.3	<0.3	<0.8	<5	-
Practical Quantitation Limit		0.3	0.3	0.8	5	
General Solid Waste (w/o TCLP)[1]		-	-	-	-	-
Restricted Solid Waste (w/o TCLP)[1]		-	-	-	-	-
Commercial or Industrial[2]		-	-	-	-	-

Notes:
All results expressed as mg/kg
- Not asssessment concentration available
nd = referes to non detecl
[1] Assessment criteria based on the NSW EPA (2008) *Waste Classification Guidlines*
[2] Assessment Criteria based on Health-based investigation levels - Commercial or Industrial. ("Guidelines for the NSW Site Auditor Scheme" 2nd edition, NSW DEC, April 2006).

Bold	**Concentration exceeds the adopted assessment criteria for General Solid Waste and is classified as RESTRICTED SOLID WASTE**
Bold & Shaded	**Concentration exceeds the adopted assessment criteria for Restricted Solid Waste and is classified as HAZARDOUS WASTE**
Bold & Shaded	**Concentration exceeds the Health-based investigation levels for Commercial or Industrial**

Appendix G

QA/QC results

Table Q1
Quality Control Soil Analytical Results - Camellia Additional Environmental Works
TPH/BTEX

Sample Number	Total Petroleum Hydrocarbons (TPH)					Monocyclic Aromatic Hydrocarbons (BTEX)					
	C_6-C_9	C_{10}-C_{14}	C_{15}-C_{28}	C_{29}-C_{36}	C_{10}-C_{36}	Benzene	Toluene	Ethyl benzene	m&p-Xylene	o-Xylene	Total Xylene
Duplicates											
TP1_0.2-0.3	<25	<50	<100	<100	-	<0.5	<0.5	<1.0	<2.0	<1.0	-
Dup 1 (intra-laboratory duplicate)	<25	<50	<100	<100	-	<0.5	<0.5	<1.0	<2.0	<1.0	-
RPD(%)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
TP1_0.2-0.3	<25	<50	<100	<100	-	<0.5	<0.5	<1.0	<2.0	<1.0	-
Dup 2 (inter-laboratory duplicate)	<10	<50	<100	<100	-	<0.5	<0.5	<0.5	<1	<0.5	-
RPD(%)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
TP4_0.1-0.2	<25	<50	<100	<100	-	<0.5	<0.5	<1.0	<2.0	<1.0	-
Dup 3 (intra-laboratory duplicate)	<25	<50	<100	<100	-	<0.5	<0.5	<1.0	<2.0	<1.0	-
RPD(%)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
TP4_0.1-0.2	<25	<50	<100	<100	-	<0.5	<0.5	<1.0	<2.0	<1.0	-
Dup 4 (inter-laboratory duplicate)	<10	<50	<100	<100	-	<0.5	<0.5	<0.5	<1	<0.5	-
RPD(%)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Notes:
All results expressed as *u*g/L

Italics: A value equal to the PQL has been used for the calculation of RPDs

Bold

Table Q2
Quality Control Soil Analytical Results - Camellia Additional Environmental Works
Metals

Sample I.D.	Arsenic (As)	Cadmium (Cd)	Chromium (Cr)[1]	Copper (Cu)	Lead (Pb)	Nickel (Ni)	Zinc (Zn)	Mercury (Hg)
Duplicates								
TP1_0.2-0.3	4.8	<1.0	15	550	110	24	92	<0.10
Dup 1 (intra-laboratory duplicate)	<4.0	<1.0	37	13	31	11	98	<0.10
RPD(%)	*18%*	N/A	**85%**	**191%**	**112%**	**74%**	6%	N/A
TP1_0.2-0.3	4.8	<1.0	15	550	110	24	92	<0.10
Dup 2 (inter-laboratory duplicate)	4	0.5	11	2870	211	29	*227*	<0.05
RPD(%)	18%	**67%**	31%	**136%**	**63%**	**19%**	**85%**	N/A
TP4_0.1-0.2	7.1	<1.0	15	29	43	8.6	84	<0.10
Dup 3 (intra-laboratory duplicate)	14	<1.0	37	68	90	23	170	<0.10
RPD(%)	**65%**	N/A	**85%**	**80%**	**71%**	**91%**	**68%**	N/A
TP4_0.1-0.2	7.1	<1.0	15	29	43	8.6	84	<0.1
Dup 4 (inter-laboratory duplicate)	*7*	<0.1	14	24	45	7	57	0.15
RPD(%)	1%	N/A	7%	19%	5%	21%	38%	*40%*

Notes:
All results expressed as ug/L

Italics: A value equal to the PQL has been used for the calculation of RPDs

Bold

Table Q3
Quality Control Soil Analytical Results - Camellia Additional Environmental Works
Polycyclic Aromatic Hydrocarbons (PAHs) and Total Phenols

Contaminant	Naphthalene	Acenaphthylene	Acenaphthene	Fluorene	Phenanthrene	Anthracene	Fluoranthene	Pyrene	Benz(a)anthracene	Chrysene	Benzo(b) & (k)fluoranthene	Benzo (a) pyrene	Indeno(1,2,3-cd)pyrene	Dibenz(a,h)anthracene	Benzo(g,h,i)perylene	**Total PAHs**
Duplicates																
TP1_0.2-0.3	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.2	<0.05	<0.1	<0.1	<0.1	<0.2
Dup 1 (intra-laboratory duplicate)	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.2	<0.05	<0.1	<0.1	<0.1	<0.2
RPD(%)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
TP1_0.2-0.3	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.2	<0.05	<0.1	<0.1	<0.1	<0.2
Dup 2 (inter-laboratory duplicate)	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<0.5	<0.5	<0.5	<1
RPD(%)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
TP4_0.1-0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.2	<0.05	<0.1	<0.1	<0.1	<0.2
Dup 3 (intra-laboratory duplicate)	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.2	<0.05	<0.1	<0.1	<0.1	<0.2
RPD(%)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
TP4_0.1-0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.2	<0.2	<0.1	<0.1	<0.1	<0.2
Dup 4 (inter-laboratory duplicate)	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<0.5	<0.5	<0.5	<1
RPD(%)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

All results expressed as ug/L

Italics: A value equal to the PQL has been used for the calculation of RPDs

Bold RPD exceeds to acceptable levels.

Table Q4
Quality Control Soil Analytical Results - Camellia Additional Environmental Work
Organochloringe Pesticdes (OCPs)/Total Organophosphorus Pesticides (OPs)

Sample I.D.	Aldrin + Dieldrin + Endrin	DDT - Total	Total OPs
Duplicates			
TP1_0.2-0.3	<0.3	<0.3	<0.8
Dup 1 (intra-laboratory duplicate)	<0.3	<0.3	<0.8
RPD(%)	N/A	N/A	N/A
TP1_0.2-0.3	<0.3	<0.3	<0.8
Dup 2 (inter-laboratory duplicate)	<0.15	<0.15	<10.5
RPD(%)	N/A	N/A	N/A
TP4_0.1-0.2	<0.3	<0.3	<0.8
Dup 3 (intra-laboratory duplicate)	<0.3	<0.3	<0.8
RPD(%)	N/A	N/A	N/A
TP4_0.1-0.2	<0.3	<0.3	<0.8
Dup 4 (inter-laboratory duplicate)	<0.15	<0.15	<10.5
RPD(%)	N/A	N/A	N/A

All results expressed as *u* g/L

Italics: A value equal to the PQL has been used for the calculation of RPDs

Bold RPD exceeds to acceptable levels.

Table Q5
Quality Control Soil Analytical Results - Camellia Additional Environmental Works
Metals

Sample Number	Date Sampled	Arsenic (Ar)	Cadmium (Cd)	Chromium (Cu)	Copper (Pb)	Lead (Hg)	Nickel (Ni)	Zinc (Zn)	Mercury (Hg)
R-260308	26/03/2008	<0.05	<0.01	<0.01	<0.01	<0.03	<0.02	<0.02	<0.0005
R-270308	27/03/2008	<0.05	<0.01	<0.01	<0.01	<0.03	<0.02	<0.02	<0.0005
Trip Blank	27/03/2008	<0.05	<0.01	<0.01	<0.01	<0.03	<0.02	<0.02	<0.0005

Notes:
All results expressed as µg/L

Table Q6
Quality Control Soil Analytical Results - Camellia Additional Environmental Works
TPH/BTEX

Sample Number	Date Sampled	Total Petroleum Hydrocarbons (TPH)					Monocyclic Aromatic Hydrocarbons (BTEX)					
		C_6-C_9	C_{10}-C_{14}	C_{15}-C_{28}	C_{29}-C_{36}	Total C_{10}-C_{36}	Benzene	Toluene	Ethyl benzene	m&p-Xylene	o-Xylene	Total Xylene
R-260308	26/03/2008	<10	<50	<100	<100	nd	<1.0	<1.0	<1.0	<2.0	<1.0	nd
R-270308	27/03/2008	<10	<50	<100	<100	nd	<1.0	<1.0	<1.0	<2.0	<1.0	nd
Trip Blank	27/03/2008	<10	<50	<100	<100	nd	<1.0	<1.0	<1.0	<2.0	<1.0	nd

Notes:

All results expressed as µg/L
- not analysed/ not applicable
nd = referes to non detect

Table Q7
Quality Control Soil Analytical Results - Camellia Additional Environmental Works
Polycyclic Aromatic Hydrocarbons (PAHs) and Total Phenols

Sample Number	Date Sampled	Naphthalene	Acenaphthylene	Acenaphthene	Fluorene	Phenanthrene	Anthracene	Fluoranthene	Pyrene	Benz(a)anthracene	Chrysene	Benzo(b) & (k)fluoranthene	Benzo (a) pyrene	Indeno(1,2,3-cd)pyrene	Dibenz(a.h)anthracene	Benzo(g.h.i)perylene	**Total PAHs**
R-260308	26/03/2008	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<2	<1	<1	<1	<1	<2
R-270308	27/03/2008	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<2	<1	<1	<1	<1	<2
Trip Blank	27/03/2008	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<2	<1	<1	<1	<1	<2

Notes:
All results expressed as µg/L

Table Q8
Quality Control Soil Analytical Results - Camellia Additional Environmental Works
Organochloringe Pesticdes (OCPs)/Total Organophosphorus Pesticides (OPs)

Sample I.D.	Date Sampled	Aldrin + Dieldrin + Endrin	DDT - Total	Total OPs
R-260308	26/03/2008	<0.6	<0.6	<0.16
R-270308	27/03/2008	<0.6	<0.6	<0.16
Trip Blank	27/03/2008	<0.6	<0.6	<0.16

Notes:
All results expressed as µg/L

Technical paper 5

Hazards and risk

Fairfield Recycled Water Treatment Plant
Preliminary Hazard Analysis

June, 2008

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1. Introduction

Alinta Asset Management (3) Pty Ltd (Alinta) proposes to deliver a recycled water scheme between Fairfield and Camellia in western Sydney on behalf of AquaNet Sydney Pty Ltd. The proposed scheme includes a reverse osmosis recycled water treatment plant (RWTP) at North Street, Fairfield (the 'Fairfield RWTP'). As a result of the activities undertaken and the nature of materials used and stored as part of the recycled water treatment plant operation, the proposed development would constitute a potentially hazardous industry, and a preliminary hazard analysis (PHA) of the operation has therefore been undertaken in accordance with the requirements of NSW State Environmental Planning Policy No 33 – Hazardous and Offensive Development (SEPP 33).

1.1 Applicable legislation

SEPP 33 - Hazardous and Offensive Development (subsidiary legislation No 129 of 1992) includes in its objectives (clause 2):

"(a) to amend the definitions of hazardous and offensive industries where used in environmental planning instruments

(d) to ensure that in determining whether a development is a hazardous or offensive industry, any measures proposed to be employed to reduce the impact of the development are taken into account

(e) to ensure that in considering any application to carry out potentially hazardous or offensive development, the consent authority has sufficient information to assess whether the development is hazardous or offensive and to impose conditions to reduce or minimise any adverse impact

(f) to require the advertising of applications to carry out any such development".

Part 3 of SEPP 33 applies to:

(a) development for the purposes of a potentially hazardous industry

(b) development for the purposes of a potentially offensive industry

(c) development notified, for the purposes of this Part, by the Director in the Gazette as being a potentially hazardous or potentially offensive development.

In SEPP 33:

"potentially hazardous industry'' means a development which, if it were to operate without employing appropriate measures to reduce or minimise its impact in the locality or on the existing or likely future development on other land, would pose a significant risk in relation to the locality to either human health, life or property or to the biophysical environment. It includes a hazardous industry and a hazardous storage establishment;

“potentially offensive industry'' means a development which, if it were to operate without employing appropriate measures to reduce or minimise its impact in the locality or on the existing or likely future development on other land, would emit a polluting discharge (including for example, noise) in a manner which would have a significant adverse impact in the locality or on the existing or likely future development on other land, and includes an offensive industry and an offensive storage establishment.

Part 3 requires that a person who proposes to make a development application to carry out development for the purposes of a potentially hazardous industry must prepare a preliminary hazard analysis (PHA) in accordance with current guidelines published by the relevant Department.

In making a determination regarding any such development application the consent authority is required to consider the PHA; any feasible alternatives to carrying out the development and its location, and the reasons for choosing the development and its location as proposed; and any likely future use of the surrounding land.

1.2 Applicability of SEPP 33

As a result of the activities to be undertaken and the nature of materials to be used and stored as part of the recycled water treatment plant, the proposed development could constitute a potentially hazardous industry. This preliminary hazard analysis has therefore been prepared to satisfy the requirements of SEPP 33 for the development application for the proposed recycled water treatment plant at Fairfield.

Notwithstanding the fact that the development may constitute a potentially hazardous industry, the proposed development, including the measures that are proposed to mitigate all risks and potentially offensive activities associated with the development, are considered adequate to ensure that there would be no significant risk to or impact on human health, life or property, or to the biophysical environment in the locality. The development would therefore not fall under the definition of either hazardous or offensive industry according to SEPP 33.

1.3 Objective

The objective of the PHA is to:

- qualitatively assess the risks posed to the human, social and biophysical environment in the locality by all activities associated with the operation of the proposed water recycling plant
- to determine whether any significant risk remains after the project design (including all appropriate risk mitigation measures) are considered
- provide the consent authority and any agencies with sufficient information regarding the risks involved in the proposal to enable them to properly determine the development application.

1.4 Scope

This PHA considers only the risks to the human, social and biophysical environment arising from sudden and unexpected events such as accidents and the results of equipment failure, operator error and the results of external events involving (but not under the direct control of) the proponent. Therefore the assessment does not consider risks that are unrelated to a single event (these longer term risks are generally treated in other sections of the EIS). Neither does the PHA address issues that are the direct result of activities undertaken intentionally as part of the development and described in the development application and supporting EIS. The hazards considered are therefore generally those arising from the transport, storage and use of bulk chemicals, The results of the PHA should be read in conjunction with other sections of the Environmental Assessment including the Traffic and Transport assessment.

1.5 Methodology

The methodology employed in this PHA is generally in accordance with AS/NZS 4360:2004 Risk Management, and relevant Department of Infrastructure, Planning and Natural Resources guidelines:

- Hazardous Industry Planning Advisory Paper: No 6 (HIPAP No 6) Guidelines for Hazard Analysis 1997
- Hazardous Industry Planning Advisory Paper: No 4 (HIPAP No 4) Risk Criteria for Land Use Planning (1997)
- Multi-Level Risk Assessment Guidelines (1999)
- Applying SEPP 33 (DUAP, 1997).

In accordance with HIPAP No 6, the PHA process followed was generally as follows:

- identify all possible sources and causes of hazardous incidents
- detail all operational and organisational safety controls
- identify the likely consequences and frequency of incidents and quantify the risks for the most relevant hazards identified
- assess likely cumulative risks
- compare expected risks against risk criteria detailed in HIPAP No 4
- assess the adequacy of proposed mitigation measures and controls.

In accordance with the recommendations of the guideline Multi-Level Risk Assessment (DUAP 1997) and Applying SEPP 33 (DUAP, 1997), a screening process comparing the quantities of hazardous materials against screening thresholds, was applied to all hazards to determine whether further assessment was required.

Following the screening process, a qualitative assessment has been undertaken, generally following the principles outlined in the companion to AS/NZS 4360:2004, handbook HB436:2004 Risk Management Guidelines.

The qualitative parameters and risk ranking tables are consistent with the preliminary risk register prepared for the operation of the RWTP by Alinta. The probability or frequency of the event being considered was generally categorised qualitatively as shown in Table 1-1.

Table 1-1 Qualitative measures of likelihood

Level of likelihood	Descriptor	Description
5	Almost certain	Almost certain to occur when relevant conditions are met. Frequent or continuous. At least a monthly occurrence.
4	Likely	Will probably occur when relevant conditions are met. Might occur annually.
3	Possible	Might occur at some time. May occur a few times in a person's lifetime.
2	Unlikely	Could occur at some time. Not expected to occur more than once in a lifetime.
1	Rare	Not expected to occur even when relevant conditions are met. Only in exceptional circumstances. Not expected to be observed in a lifetime.

The assessment of consequences was made against several relevant criteria and an overall score arrived at based on the perceived importance of each criterion and experience. The criteria are listed in Table 1-2.

Table 1-2 Qualitative measures of consequence

Severity	Public health and safety	Biophysical environment	Social, economic, property
5	Multiple fatalities, major chronic or acute public health effects to a significant population.	Major, long-term, irreversible effects on ecosystem function.	
4	Fatality or severe permanent disability. Ongoing public health effects.	Serious long term reversible effects on ecosystems	Major, permanent social disruption, major loss of assets or economic values.
3	Permanent partial disability or long term hospitalisation	Significant medium term impacts on species or ecosystems.	Serious on-going social impacts, loss of significant assets.
2	Medical treatment required, reversible disability.	Moderate short-term impacts not involving ecosystem function.	Ongoing social effects, minor loss of assets.
1	No medical treatment required, no health effects	Minor effects only, no irreversible effects or effects on ecosystems.	No loss of significant assets or property value, minor short term social effects.

Table 1-3 is used to calculate the risk ranking from the likelihood and severity or consequence assessments.

Table 1-3 Qualitative risk ranking

	Consequences				
Likelihood	**1- Insignificant**	**2- Minor**	**3 Moderate**	**4- Major**	**5- Catastrophic**
5-almost certain	M	H	E	E	E
4-likely	M	M	H	E	E
3-possible	L	M	M	H	E
2-unlikely	L	L	M	M	H
1-rare	L	L	M	M	M

E – extreme: requires immediate action to reduce risk before development could proceed.

H – high: requires attention to manage risk as part of the design process or management of the operation

M – moderate: requires specification of management responsibility

L – low: can be managed by routine procedures

The assessment process and criteria are such that any uncontrolled risk classified as extreme requires immediate action to reduce the residual risk; that uncontrolled risks classified as high require senior management attention (typically the implementation of specific controls and systems); that moderate risks require that management responsibility be specified; and that low risks can normally be managed by routine procedures.

2. Hazard identification

Hazard identification followed a systematic process to identify all credible hazards for the RWTP operation. This has involved identifying all activities undertaken as part of the water recycling plant operation, the materials associated with each activity, and the hazard that might arise from these activities and materials within each of a series of classes of hazardous incidents.

Activities that will be undertaken as part of the water recycling operation are:

- transport of equipment and materials to site
- storage on-site
- equipment maintenance
- waste disposal
- transport of other material (including waste) off-site.

Classes of materials that might give rise to or be involved in hazardous incidents and that might be present on the site are:

- water treatment chemicals
- lubricants, solvents, and other flammable or combustible materials
- wastes (sludges, waste chemicals, backwash waters, CIP wastes etc).

The types of hazardous incidents considered in this PHA are:

- loss of containment (leaks and spills)
- fire
- inappropriate waste disposal
- vehicle accidents.

These classifications have been combined in which details credible hazards relevant to the proposed RWTP operation.

Table 2-1 Credible hazards identified for the RWTP

	Classes of materials involving risk			
Activities	**Water treatment chemicals**	**Other materials**	**Chemical waste**	**Other wastes**
Transport to site	Vehicle accident Loss of containment	Vehicle accident Loss of containment Fire	n/a	n/a
Storage on-site	Loss of containment Chemical reaction	Loss of containment Fire	Loss of containment	Loss of containment Fire
Equipment maintenance	Loss of containment	Loss of containment Fire	Loss of containment	Loss of containment Fire
Waste disposal	n/a	n/a	Loss of containment Inappropriate waste disposal	Loss of containment Inappropriate waste disposal
Transport off-site	n/a	n/a	Loss of containment	Loss of containment

3. Risk assessment

The following sections provide a description of the hazards identified in the preceding section, likely scenarios, quantities of materials involved (where relevant), typical controls that would be applied, and the results of a preliminary screening against the criteria provided in the guideline Applying SEPP 33 (DUAP 1997).

3.1 Hazardous and other materials

3.1.1 Water treatment chemicals

Water treatment chemicals that will be used in the RWTP in significant quantities are:

- Sodium hydroxide – 49%
- Sodium hypochlorite – 12.5% (<16% available chlorine)
- Ferric chloride – 42%
- Sulfuric acid – 98%
- Sodium bisulfite – 30%
- Antiscalant – a non-hazardous phosphate-free polymer is proposed. (RO systems typically use antiscalants such as 1-Hydroxy ethylidene-1,1-Diphosphonic Acid or Amino trimethylene phosphonic acid)
- Sodium dodecyl sulfate (Sodium lauryl sulfate)
- Citric acid – 50%.

Water treatment chemicals will be transported to the site by road and stored in bulk tanks or intermediate bulk containers in a designated storage area. The tanks and storage area will be constructed in accordance with the requirements of AS 3780-1994: The storage and handling of corrosive substances. This will include a bund around all storages capable of containing the contents of the largest tank. The storage would be isolated from any stormwater catchment area allowing uncontrolled discharge to a major watercourse (in particular Orphan School Creek). This will include the tanker unloading area. This would limit the potential for any impacts on adjoining properties, water quality, downstream water users and aquatic ecosystems. All intermediate bulk containers will be stored or located during use within secondary containment facilities to prevent damage and the escape of their contents in the event of a leak or spill.

3.1.2 Fuels and other flammable liquids

There is no intention to store any fuel on site in quantities exceeding the definition of minor storage under AS 1940-2004: The storage and handling of flammable and combustible liquids. Materials might include materials such as solvents used in cleaning and maintenance activities.

3.1.3 Lubricants

Lubricants will not be used or stored on site in significant quantities; the largest container would be 200 L, and no more than 1,000 L would be held on site at any time.

These materials are only included in the screening process if they are stored together with Class 3 flammable liquids, as they do not themselves constitute hazardous materials. However, they do pose a potential hazard to the biophysical environment if they spill or leak.

3.1.4 Waste

A range of wastes will be generated by the RWTP operation. These are detailed in Schedule 6, and include the RO reject concentrate, flushing and backwash water and spent CIP solutions. These wastes will be neutralised if necessary and will generally be discharged to sewer under licence. Other hazardous materials and those that might pose a risk to the environment and all recyclable materials will be recycled or sent for treatment and disposal in licensed premises as appropriate. No significant risks to the environment are likely from these activities.

3.2 Hazard screening

Hazardous materials that would or might be stored on the Fairfield RWTP site have been subjected to a screening process in accordance with the Applying SEPP 33 guidelines (DUAP 1997). The results are shown in Table 3-1 below.

Table 3-1 Hazardous material storage screening

Dangerous goods class	Dangerous goods stored	Storage location	Maximum likely quantity in storage (aggregate)	Distance to nearest boundary/ protected works	SEPP 33 Screening threshold
8 Corrosive substances		Bulk chemical storage area		Approx. 10-15 m to nearest boundary. >100 m to nearest residence.	5 tonnes/ 5 m^3 – PG I 25 tonnes/ 25 m^3 – PG II 50 tonnes/ 50 m^3 – PG III
	Sodium hydroxide – 49% UN1824 PG II Hazchem Code 2R	Bulk chemical storage area – bunded tank	7 m^3.	As above for all chemical storage	
	Sodium hypochlorite – 12.5% UN1791 PG III Hazchem Code 2X	Bulk chemical storage area – bunded tank	34 m^3.		

Dangerous goods class	Dangerous goods stored	Storage location	Maximum likely quantity in storage (aggregate)	Distance to nearest boundary/ protected works	SEPP 33 Screening threshold
	Ferric chloride solution – 42% UN2582 PG III Hazchem Code 2Z	Bulk chemical storage area – bunded tank	38 m^3.		
	Sulfuric acid – 98% UN1830 PG II Hazchem Code 2P	Bulk chemical storage area – bunded tank	20 m^3.		
	Sodium bisulfite – 30% UN2693 PG III Hazchem Code 2X	Bulk chemical storage area – bunded intermediate bulk container	2 m^3.		

Table 3-2 Hazardous material transport screening

Dangerous goods class	Dangerous goods transported	Method of transport	Maximum number of movements per annum	Maximum quantity transported per annum	SEPP 33 Screening thresholds
8	Corrosive substances	Road -			>500 movements per annum
	Sodium hydroxide – 49% UN1824 PG II Hazchem Code 2R	Road tanker (8 m^3)	31	248 m^3	
	Sodium hypochlorite – 12.5% (<16% available chlorine) PG III	Road tanker (20 m^3)	18	350 m^3	
	Ferric chloride – 42% PG III	Road tanker (20 m^3)	18	350 m^3	

Dangerous goods class	Dangerous goods transported	Method of transport	Maximum number of movements per annum	Maximum quantity transported per annum	SEPP 33 Screening thresholds
	Sulfuric acid – 98% UN1830 PG II Hazchem Code 2P	Road tanker (8 m^3)	46	368 m^3	
	Sodium bisulfite – 30% UN2693 PG III Hazchem Code 2X	Bulki-bin (2 m^3)	29	58 m^3	
Not classified	Antiscalant polymer	Bulki-bin (2 m^3)	14	28 m^3	
	Sodium dodecyl sulfate (Sodium lauryl sulfate) -	20 kg bags	5	100 kg	
	Citric acid – 50%	Bulki-bin (2 m^3)	30	60 m^3	

In addition to the listed Class 8 dangerous goods, the plant will use approximately 100 kg per annum of sodium dodecyl sulfate (sodium lauryl sulfate), a common ingredient in hair shampoos and other personal care products, and 60m^3 per annum of citric acid solution, a compound which is present in many foodstuffs and is considered effectively non-hazardous even at high concentrations. It will also use an antiscalant polymeric chemical that is classed as non-hazardous.

The summary of the hazardous materials stored at the RWTP are:

Class and category	Maximum quantity stored	SEPP 33 screening threshold
Class 8 PG I:	0	5 m^3
Class 8 PG II:	27 m^3	25 m^3
Class 8 PG III:	74 m^3	50 m^3

The screening thresholds for both Class 8 materials of both PG II and PG III are exceeded. In addition, SEPP 33 guidelines require that where two or more categories of material are stored within one class, all the material should be considered as being in the higher category. For the purpose of screening, the plant should therefore be considered to store a maximum of 101 m^3 of Class 8 PG II dangerous goods.

The results of the screening process show that dangerous goods will be stored on the site in quantities that exceed the screening threshold, and that there is therefore the potential for risk. Therefore the conclusion from the screening process is that the development may constitute a hazardous or offensive industry under the provisions of SEPP 33, and further analysis is required.

3.3 Risk analysis

The screening assessment has indicated that the number of movements of material is small compared to the SEPP 33 threshold, and in addition the size of each type of shipment is also relatively small. The risk from transport-related hazards has therefore not been investigated further. Standard controls, including proper design of all tankers, should be sufficient to minimise the risk to the surrounding population.

It is considered that in the case of the RWTP, a qualitative Preliminary Hazard Analysis is sufficient to demonstrate that the risk associated with the plant can be controlled to a level that is not significant. This is based on the SEPP 33 Guidelines, which state a qualitative PHA may be sufficient:

- where the materials are relatively nonhazardous (for example, corrosive substances, and some classes of flammables)
- where the quantities of materials used are relatively small
- where there are no worst case major consequences
- where the technical and management safeguards are self-evident and readily implemented
- where the surrounding land uses are relatively non-sensitive.

In the case of the RWTP:

- corrosive materials are the only hazardous materials involved (although an unintended reaction between two of them could result in the generation of chlorine gas)
- the quantity of each material is relatively small and less than the SEPP 33 threshold in each case, although the total inventory of all hazardous materials involved exceeds the SEPP 33 threshold for Class 8 materials
- no worst-case major consequence can be envisaged, with the possible exception of accidental chlorine generation, and even this scenario is considered unlikely to have serious consequences because of the limited quantity of material that could be involved and the limited rate of generation
- the materials involved are all commonly used industrial chemicals, and their controls would pose no significant problems in a properly managed facility
- the land immediately surrounding the plant is currently undeveloped open or recreational space, and non-sensitive. The residential areas surrounding the plant are all located at least 100 metres from the chemical storage areas, and are therefore at little or no risk from any hazards other than perhaps the accidental generation of chlorine

A qualitative analysis of the associated risk was therefore undertaken using the process described in section 1.5. The results are presented in Table 3-3.

Table 3-3 Qualitative risk analysis results

Hazard	Possible consequences	Mitigation/controls proposed	Likelihood	Consequences	Risk rating	Comments
Chemical spills/leaks during transport	Contamination of soil, watercourses; water quality degraded; aquatic ecosystems adversely affected. Injury or possibly death.	Transport according to ADG Code, relevant standards including AS 2809.4-2001, AS 1678.8A1-2004 and regulations. Generally small cargo sizes.	3	E:3 P:3 S: 2	Moderate Moderate Moderate	Some increase likely over existing level of risk from DG transport along local road system. Little or no increase likely for wider road network given small number of movements.
Chemical spills/leaks from storage	Contamination of soil, watercourses; water quality degraded; aquatic ecosystems adversely affected. Injury or possibly death.	Storage in accordance with AS 3780-1994. Secondary containment (locked bunds) for all storages to collect leaks. All leaks and spills collected in neutralisation pit to prevent discharge via any drainage paths to watercourses or areas of sensitive land use. All residential areas separated by >100 m. Alarms and monitoring equipment for all storages, systems. Spill kits. Training. Emergency/incident procedures and training. Management system and audits.	2	E: 3 P: 3 S: 2	Moderate Moderate Moderate	Requires ongoing engineering and management controls of all dangerous goods storages.

Hazard	Possible consequences	Mitigation/controls proposed	Likelihood	Consequences	Risk rating	Comments
Mixing of incompatible DGs.	Reaction and emission of toxic gases (chlorine from reaction of acid and hypochlorite). Health effects, possible permanent injury.	Storages well separated. Controls to prevent delivery of wrong material into either tank. No physical systems (e.g. pipework) that permit incompatible materials to mix in dangerous quantities or concentrations. All residential and other sensitive land uses separated from plant by >100 m.	2	E: 2 P: 3 S: 1	Moderate Moderate Low	Extremely unlikely that sufficient toxic gas could be generated quickly enough to pose a significant threat to health.
Inappropriate waste disposal or failure of waste containment.	Contamination of land. Contamination of watercourses or groundwater. Degraded water quality, aquatic ecosystems adversely affected. Health effects from degraded water quality. Potential loss of economic value of water.	No hazardous or regulated wastes will be disposed of on site. All off-site disposal will be direct to sewer or via approved transport operators and to approved facilities. Chemical wastes collected in neutralisation tank. Neutralised waste and other wastewaters collected in wastewater pit for transfer to sewer in accordance with the Trade Waste Agreement with SWC. See Schedule 6.	1	E: 3 P: 2 S: 2	Low Low Low	Requires appropriate management controls and engineering standards to be maintained to prevent inappropriate disposal practices or design and operation of containment systems.

E: Environmental risks; P: Personal risk to members of the public; S: Socio-economic risk to members of the public

3.4 Risk assessment

This assessment should be read in conjunction with Schedule 7, the Preliminary Operational Risk Register, which also considers risks associated with hazardous materials.

The results of the preliminary, qualitative risk analysis shown in Table 3-3 must be evaluated against the criteria shown in section 1.5. The risk ranking, from low (L) to extreme (E) does not indicate an absolute scale of acceptability, where activities involving a risk above a certain level would automatically be considered unacceptable or significant. However, an extreme risk rating is taken to indicate the need for a more detailed quantitative analysis of the risk, and probably for additional controls for the development to proceed. No hazards with an 'extreme' risk assessment were identified in this study.

A 'high' risk assessment indicates the need for ongoing management oversight to ensure that controls remain effective and to maintain an acceptable level of risk. No environmental risks were assessed as being 'high'.

All other risks have been assessed as moderate or low. They are not considered to constitute a significant risk or to pose any limitation on the proposed development, subject to the proposed mitigation measures and controls being applied.

For all the hazards considered, it should be noted that the population potentially exposed to these risks is generally very small so that societal risk will also be small. The exception is for transport related accidents where the population along the entire transport route is potentially exposed. However, in this case the incremental risk is extremely small compared to the existing risk arising from the quantities of dangerous goods already being carried on the highway.

The result of this qualitative risk analysis is that none of the activities remaining in the analysis after screening has been found to be likely to result in a significant risk to human health, life or property or to the biophysical environment.

3.5 Mitigation and control measures

All facilities will be designed and constructed, and all operations will be undertaken in accordance with relevant standards, statutes and operating procedures developed by the company for the RWTP.

The number of movements of delivery vehicles is below the SEPP 33 screening threshold. The tankers involved are also small, limiting the consequences in the unlikely event of an accident. All tankers will conform to the relevant standard, and follow the Australian Dangerous Goods Code requirements.

Although the maximum cumulative quantities of Class 8 hazardous materials to be stored exceeds the threshold screening value specified in SEPP 33, the quantities of each material individually is low, and the maximum quantity likely to be involved in any incident is therefore also low.

Each hazardous material will be stored in a tank or container designed, constructed and maintained in accordance with the relevant standard. Each tank or container will have a secondary containment system, consisting of a locked bund able to contain the contents of the tank or container in the event of a leak. The delivery connection points will also be contained to prevent the escape of hazardous material in the event of a leak during tanker unloading. All material collected within the bunded areas will collected in a neutralisation pit and treated if necessary before discharge to the wastewater pit.

Storage systems will ensure that incompatible materials (in particular sulfuric acid and sodium hypochlorite) are kept separate. Safety in design principles will be applied during the process design phase to ensure that systems do no allow any dangerous mixing of incompatible chemicals.

All residential areas are separated from the plant by more than 100 m, so that the likelihood of any impact on residents is very small.

The hard physical controls provided by containment and piping systems will be backed up by an alarm system, spill kits to deal with minor leaks and spills, emergency incident procedures, operator training, and other management systems such as process change management control, maintenance management systems and regular audits to ensure that the plant is maintained in a safe state at all times.

Standards

AS 3780-1994: The storage and handling of corrosive substances.

AS 2809.4-2001: Road tank vehicles for dangerous goods – Tankers for toxic and corrosive cargoes.

AS 1678.8A1-2004: Emergency procedure guide – Transport – Group text EPGs for Class 8 substances – Corrosive substances.

4. Conclusions

A preliminary hazard analysis (PHA) of the proposed Fairfield RWTP has been completed as part of the environmental impact statement in accordance with the requirements of SEPP 33 – Hazardous and offensive development.

The PHA has found that dangerous goods are likely to be stored or used on the site in quantities that exceed the screening thresholds specified for the classes of dangerous goods involved, and that therefore there is the possibility that the development is a hazardous industry under the terms of SEPP 33.

A further qualitative risk analysis has been undertaken to determine whether the hazardous materials involved are likely to create any significant level of risk to persons health or property or the biophysical environment outside the RWTP. The conclusion from this analysis is that no significant risks exist that might prevent the proposed RWTP development from proceeding and operating safely, subject to the application of the proposed mitigation measures and controls.

5. References

Department of Urban Affairs and Planning (DUAP), 1997, Applying SEPP 33 – Hazardous and Offensive Development Application Guidelines.