



Site Locality Plan

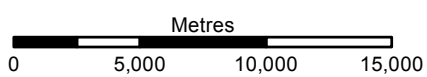
PRELIMINARY SITE INVESTIGATION
 BOX HILL INSTITUTE, SPRING STREET, BOX HILL, VICTORIA
 FIGURE 1



Map Produced by Cardno Geosciences and Environment
 Date: 2017-02-08
 Coordinate System: GDA 1994 MGA Zone 55
 Project: V161141G
 Map: V161141-GS-001-SiteLocPlan 01.mxd 01



1:3,000 Scale at A3





Site Layout Plan

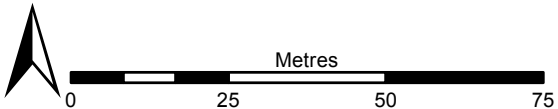
PRELIMINARY SITE INVESTIGATION
 BOX HILL INSTITUTE, SPRING STREET, BOX HILL, VICTORIA
 FIGURE 2



Map Produced by Cardno Geosciences and Environment
 Date: 2017-02-08
 Coordinate System: GDA 1994 MGA Zone 55
 Project: V161141G
 Map: V161141-GS-002-SiteLayoutPlan.mxd 01
 Aerial Imagery Supplied by Nearmaps (December, 2016)

N

1:1,200 Scale at A3



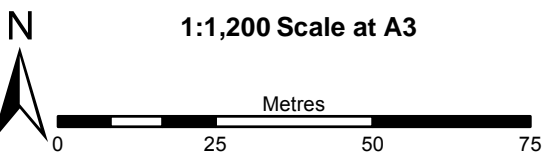


Environmental Assessment Areas

PRELIMINARY SITE INVESTIGATION
 BOX HILL INSTITUTE, SPRING STREET, BOX HILL, VICTORIA
 FIGURE 3



Map Produced by Cardno Geosciences and Environment
 Date: 2017-02-15
 Coordinate System: GDA 1994 MGA Zone 55
 Project: V161141G
 Map: V161141-GS-004-EAA.mxd 01
 Aerial Imagery Supplied by Nearmaps (December, 2016)





Legend

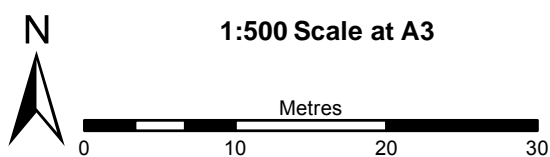
- Site Boundary
- + Soil Bore

Sample Location Plan

PRELIMINARY SITE INVESTIGATION
 BOX HILL INSTITUTE, SPRING STREET, BOX HILL, VICTORIA
 FIGURE 4



Map Produced by Cardno Geosciences and Environment
 Date: 2017-02-08
 Coordinate System: GDA 1994 MGA Zone 55
 Project: V161141G
 Map: V161141-GS-003-SampLocPlan 01.mxd 01
 Aerial Imagery Supplied by Nearmaps (December, 2016)



						BTEX							TPH					CRC Care TPH Fractions							PAH																						
						Benzene	Toluene	Ethylbenzene	Xylene (m & p)	Xylene (o)	Xylene Total	Total BTEX	C6 - C9	C10 - C14	C15 - C28	C29-C36	+C10 - C36 (Sum of total)	C6-C10	C10-C16	C16-C34	C34-C40	C10 - C40 (Sum of total)	F1: C6-C10 less BTEX	F2: >C10-C16 less NAPHTHALENE	BaP TEQ (zero)	Benzo(b+h)fluoranthene	Benzo(a)pyrene TEQ (upper bound)*	Acenaphthene	Acenaphthylene	Anthracene	Benzo(a)anthracene	Benzo(a) pyrene	Carcinogenic PAHs (as BaP TEQ)	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	Chrysene	Dibenz(a,h)anthracene	Fluoranthene	Fluorene								
						mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg					
LOR						0.1	0.1	0.1	0.2	0.1	0.3	0.2	20	20	50	50	50	20	50	100	100	50	20	50	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5			
NEPM 2013 EIL Comm./Ind., low pH, CEC, clay content - aged 0-2m																																															
NEPM 2013 EIL UR/POS, low pH, CEC, clay content - aged 0-2m																																															
NEPM 2013 HIL, Commercial/Industrial D																																															
NEPM 2013 HIL, Recreational C																																															
NEPM 2013 HIL, Residential B																																															
NEPM 2013 Soil HSL Commercial/Industrial D, for Vapour Intrusion, Silt 0-1m						4	NL ^{#9}	NL ^{#9}			NL ^{#9}												250	NL ^{#9}																							
NEPM 2013 Soil HSL Recreational C, for Vapour Intrusion, Silt 0-1m						NL ^{#9}	NL ^{#9}	NL ^{#9}			NL ^{#9}												NL ^{#9}	NL ^{#9}																							
NEPM 2013 Soil HSL Residential A&B, for Vapour Intrusion, Silt 0-1m						0.6	390	NL ^{#9}			95												40	230																							
Location Code	Sample Depth	Sampled Date	Field ID	Sample Type	Lab Report Number																																										
SB01	0.1	27/01/2017	SB01/0.1	Normal	532061	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	-	<20	<20	<50	<50	<50	<20	<50	<100	<100	-	<20	<50	<0.5	<0.5	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5				
SB02	0.2	27/01/2017	SB02/0.2	Normal	532061	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	-	<20	<20	<50	<50	<50	<20	<50	<100	<100	-	<20	<50	2.1	1.6	2.6	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5				
	0.5	27/01/2017	SB02/0.5	Normal	533268	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	-	<20	<20	<50	<50	<50	<20	<50	<100	<100	-	<20	<50	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
		27/01/2017	QC01_270117	Duplicate	532061	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	-	<20	<20	<50	<50	<50	<20	<50	<100	<100	-	<20	<50	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
		27/01/2017	QC02_270117	Split	EM1700852	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.2	<10	<50	<100	<100	<50	<10	<50	<100	<100	<50	<10	<50	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
SB03	0.1	27/01/2017	SB03/0.1	Normal	532061	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	-	<20	<20	<50	<50	<50	<20	<50	<100	<100	-	<20	<50	<0.5	<0.5	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5			
SB04	0.1	27/01/2017	SB04/0.1	Normal	532061	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.5	<0.5	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5				
SB06	0.1	27/01/2017	SB06/0.1	Normal	532061	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	-	<20	<20	<50	<50	<50	<20	<50	<100	<100	-	<20	<50	<0.5	<0.5	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5			
SB07	0.1	27/01/2017	SB07/0.1	Normal	532061	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	-	<20	<20	<50	<50	<50	<20	<50	<100	<100	-	<20	<50	4.6	2.7	4.6	<0.5	<0.5	<0.5	2.1	3.2	4.6	2.3	2	2.2	0.5	3.3	<0.5	<0.5	<0.5	<0.5					
	0.5	27/01/2017	SB07/0.5	Normal	533268	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.5	<0.5	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5					
SB08	0.1	27/01/2017	SB08/0.1	Normal	532061	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	-	<20	<20	<50	<50	<50	<20	<50	<100	<100	-	<20	<50	2.1	1.5	2.6	<0.5	<0.5	<0.5	1.1	1.6	2.3	1	1	1.3	<0.5	1.9	<0.5	<0.5	<0.5	<0.5					
SB09	0.1	27/01/2017	SB09/0.1	Normal	532061	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	-	<20	<20	<50	<50	<50	<20	<50	<100	<100	-	<20	<50	1.3	0.9	1.8	<0.5	<0.5	<0.5	0.7	1	1.5	0.7	0.6	0.8	<0.5	1.1	<0.5	<0.5	<0.5						
SB10	0.1	27/01/2017	SB010/0.1	Normal	532061	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	-	<20	<20	<50	<50	<50	<20	<50	<100	<100	-	<20	<50	<0.5	<0.5	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5					
SB11	0.3	27/01/2017	SB011/0.3	Normal	532061	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	-	<20	<20	<50	<50	<50	<20	<50	<100	<100	-	<20	<50	<0.5	<0.5	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5					
SB12	0.1	27/01/2017	SB012/0.1	Normal	532061	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.5	<0.5	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5						
SB13	0.1	27/01/2017	SB013/0.1	Normal	532061	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	-	<20	<20	63	<50	63	<20	<50	<100	<100	-	<20	<50	3	2	3.5	<0.5	<0.5	<0.5	1.7	2.3	3.2	1.2	1.6	1.7	<0.5	3	<0.5	<0.5	<0.5						
SB14	0.1	27/01/2017	SB014/0.1	Normal	532061	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	-	<20	<20	<50	<50	<50	<20	<50	<100	<100	-	<20	<50	<0.5	<0.5	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5						
SB15	0.3	27/01/2017	SB015/0.3	Normal	532061	<0.1	<0.1	<0.1	<0.2	<0.1	<0.3	-	<20	<20	140	77	217	<20	<50	200	<100	-	<20	<50	0.7	<0.5	1.4	<0.5	<0.5	<0.5	<0.5	0.7	1.1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5							

Env Stds Comments
 #1: Fresh contamination, generic guideline value, independent of soil pH, CEC, clay content
 #2: In soil for at least 2 years
 #3: B(a)P TEQ calculated from 8 carcinogenic PAHs, refer to notes for Table 1A(1) in NEPM 2013
 #4: Sum of 16 most commonly reported PAHs, refer to notes for Table 1A(1) in NEPM 2013
 #5: HIL assumes 70% oral bioavailability
 #6: HIL based on model with 50% oral bioavailability
 #7: HIL does not address elemental mercury
 #8: HIL relates to non-dioxin-like PCBs only, refer to notes for Table 1A(1) in NEPM 2013
 #9: NL The soil saturation concentration (Csat) is defined as the soil concentration at which the porewater phase cannot dissolve any more of an individual chemical. The soil vapour equilibrium with the porewater will be at its maximum. If the derived soil HSL exceeds Csat, a soil vapour source concentration for a petroleum mixture could not exceed a level result in the maximum allowable vapour risk for the given scenario. For these scenarios, no HSL is presented for these chemicals and the HSL is shown as 'not limiting' or 'NL'.
 #10: Value calculated using CEC average value of 24mg/100g and pH average value of 9.1 from Table 1B(1) from Schedule B1 - Guideline on Investigation Levels for Soil and Groundwater.




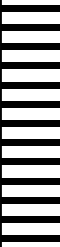



						PAH					Metals													Inorganics						Phenols			Halogenated Phenols		
						Indeno(1,2,3-c,d)pyrene	Naphthalene	PAHs (Sum of total)	Phenanthrene	Pyrene	Arsenic	Beryllium	Boron	Cadmium	Chromium (hexavalent)	Chromium (III+VI)	Cobalt	Copper	Lead	Manganese	Mercury	Nickel	Selenium	Zinc	Conductivity (1:5 aqueous extract)	CEC	Cyanide (Free)	Moisture	Moisture Content (dried @ 103°C)	pH (aqueous extract)	2-methylphenol	3-&4-methylphenol	Phenol	Pentachlorophenol	
						mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	US/CM	meg/100g	mg/kg	%	%	pH Units	mg/kg	mg/kg	mg/kg	mg/kg	
LOR						0.5	0.5	0.5	0.5	0.5	2	2	10	0.4	1	5	5	5	5	5	0.1	5	2	5	10	0.05	5	1	1	0.1	0.2	0.4	0.5	1	
NEPM 2013 EIL Comm./Ind., low pH, CEC, clay content - aged 0-2m							370 ^{#1}				160 ^{#2}						320 ^{#2#10}	1800 ^{#2}			520 ^{#2#10}		1300 ^{#2#10}												
NEPM 2013 EIL UR/POS, low pH, CEC, clay content - aged 0-2m							170 ^{#1}				100 ^{#2}						220 ^{#2#10}	1100 ^{#2}			310 ^{#2#10}		840 ^{#2#10}												
NEPM 2013 HIL, Commercial/Industrial D								4000 ^{#4}			3000 ^{#5}	500	300000	900	3600		4000	240000	1500 ^{#6}	60000	730 ^{#7}	6000	10000	400000			1500						240000	660	
NEPM 2013 HIL, Recreational C								300 ^{#4}			300 ^{#5}	90	20000	90	300		300	17000	600 ^{#6}	19000	80 ^{#7}	1200	700	30000			240						40000	120	
NEPM 2013 HIL, Residential B								400 ^{#4}			500 ^{#5}	90	40000	150	500		600	30000	1200 ^{#6}	14000	120 ^{#7}	1200	1400	60000			300					45000	130		
NEPM 2013 Soil HSL Commercial/Industrial D, for Vapour Intrusion, Silt 0-1m																																			
NEPM 2013 Soil HSL Recreational C, for Vapour Intrusion, Silt 0-1m																																			
NEPM 2013 Soil HSL Residential A&B, for Vapour Intrusion, Silt 0-1m																																			
NEPM 2013 Soil HSL Residential A&B, for Vapour Intrusion, Silt 0-1m							4																												
Location Code	Sample Depth	Sampled Date	Field ID	Sample Type	Lab Report Number																														
SB01	0.1	27/01/2017	SB01/0.1	Normal	532061	<0.5	<0.5	<0.5	<0.5	<0.5	3.9	-	-	<0.4	-	24	-	65	160	-	<0.1	13	-	270	-	-	-	-	10	-	-	-	-	-	
SB02	0.2	27/01/2017	SB02/0.2	Normal	532061	0.6	<0.5	16	1.8	2.9	3.2	-	-	0.8	-	18	-	60	150	-	<0.1	9.4	-	370	-	-	-	-	7.9	-	-	-	-	-	
	0.5	27/01/2017	SB02/0.5	Normal	533268	-	<0.5	-	-	-	4.7	-	-	<0.4	-	47	-	35	30	-	-	44	-	82	-	-	-	-	16	-	-	-	-	-	
		27/01/2017	QC01_270117	Duplicate	532061	-	<0.5	-	-	-	5.7	-	-	<0.4	-	45	-	28	26	-	-	40	-	69	-	-	-	-	15	-	-	-	-	-	
		27/01/2017	QC02_270117	Split	EM1700852	-	<1	-	-	-	<5	-	-	<1	-	38	-	19	19	-	<0.1	21	-	42	-	-	-	14.5	-	-	-	-	-	-	
SB03	0.1	27/01/2017	SB03/0.1	Normal	532061	<0.5	<0.5	<0.5	<0.5	<0.5	3	-	-	<0.4	-	22	-	9.3	7.5	-	<0.1	12	-	43	-	-	-	-	12	-	-	-	-	-	
SB04	0.1	27/01/2017	SB04/0.1	Normal	532061	<0.5	<0.5	<0.5	<0.5	<0.5	<2	<2	<10	<0.4	<1	35	43	51	<5	940	<0.1	150	<2	75	200	23	<5	-	5.1	9.9	<0.2	<0.4	<0.5	<1	
SB06	0.1	27/01/2017	SB06/0.1	Normal	532061	<0.5	<0.5	<0.5	<0.5	<0.5	3.7	-	-	<0.4	-	22	-	30	34	-	<0.1	84	-	79	-	-	-	-	3.5	-	-	-	-	-	
SB07	0.1	27/01/2017	SB07/0.1	Normal	532061	1.7	<0.5	25.3	1.6	3.7	4.8	-	-	0.6	-	20	-	34	41	-	<0.1	78	-	88	-	-	-	-	4.6	-	-	-	-	-	
	0.5	27/01/2017	SB07/0.5	Normal	533268	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	16	-	-	-	-	-		
SB08	0.1	27/01/2017	SB08/0.1	Normal	532061	0.7	<0.5	13.2	0.9	2.2	12	-	-	<0.4	-	21	-	28	110	-	<0.1	23	-	120	-	-	-	-	5.6	-	-	-	-	-	
SB09	0.1	27/01/2017	SB09/0.1	Normal	532061	0.5	<0.5	8	0.6	1.1	8.3	-	-	<0.4	-	20	-	17	87	-	0.1	14	-	91	-	-	-	5	-	-	-	-	-		
SB10	0.1	27/01/2017	SB10/0.1	Normal	532061	<0.5	<0.5	<0.5	<0.5	<0.5	5	-	-	0.6	-	17	-	18	21	-	<0.1	14	-	66	-	-	-	2.9	-	-	-	-	-		
SB11	0.3	27/01/2017	SB11/0.3	Normal	532061	<0.5	<0.5	<0.5	<0.5	<0.5	2.1	-	-	<0.4	-	18	-	35	9	-	<0.1	65	-	28	-	-	-	24	-	-	-	-	-		
SB12	0.1	27/01/2017	SB12/0.1	Normal	532061	<0.5	<0.5	<0.5	<0.5	<0.5	11	<2	18	<0.4	<1	34	11	26	16	200	<0.1	41	<2	52	120	25	<5	-	8.8	8.3	<0.2	<0.4	<0.5	<1	
SB13	0.1	27/01/2017	SB13/0.1	Normal	532061	1	<0.5	18.8	1.1	3.2	3.8	-	-	<0.4	-	17	-	24	110	-	<0.1	20	-	80	-	-	-	10	-	-	-	-	-		
SB14	0.1	27/01/2017	SB14/0.1	Normal	532061	<0.5	<0.5	<0.5	<0.5	<0.5	<2	-	-	<0.4	-	5.9	-	8.9	9.2	-	<0.1	<5	-	29	-	-	-	3.9	-	-	-	-	-		
SB15	0.3	27/01/2017	SB15/0.3	Normal	532061	<0.5	<0.5	0.7	<0.5	<0.5	3.6	-	-	<0.4	-	26	-	20	16	-	<0.1	37	-	55	-	-	-	19	-	-	-	-	-		

Env Stds Comments
 #1: Fresh contamination, generic guideline value, independent of soil pH, CEC, clay con
 #2: In soil for at least 2 years
 #3: B(a)P TEQ calculated from 8 carcinogenic PAHs, refer to notes for Table 1A(1) in NE
 #4: Sum of 16 most commonly reported PAHs, refer to notes for Table 1A(1) in NEPM 2C
 #5: HIL assumes 70% oral bioavailability
 #6: HIL based on model with 50% oral bioavailability
 #7: HIL does not address elemental mercury
 #8: HIL relates to non-dioxin-like PCBs only, refer to notes for Table 1A(1) in NEPM 2013
 #9: NL The soil saturation concentration (C_{sat}) is defined as the soil concentration at wh
 cannot dissolve any more of an individual chemical. The soil vapour equilibrium with the
 maximum. If the derived soil HSL exceeds C_{sat}, a soil vapour source concentration for :
 could not exceed a level result in the maximum allowable vapour risk for the given scen
 scenarios, no HSL is presented for these chemicals and the HSL is shown as 'not limitr
 #10: Value calculated using CEC average value of 24meg/100g and pH average value r
 from Schedule B1 - Guideline on Investigation Levels for Soil and Groundwater.

						Organochlorine Pesticides										Organophosphorous Pesticides	Herbicides						Pesticides	Polychlorinated Biphenyls															
						4,4-DDE	Aldrin	chlordane	DDD	DDT	Dieldrin	Endosulfan I	Endosulfan II	Endosulfan sulphate	Endrin	Heptachlor	Hexachlorobenzene	Methoxychlor	Toxaphene	Chlorpyrifos	2,4,5-Trichlorophenoxy Acetic Acid	Hedonal	Atrazine	2-Methyl-4-chlorophenoxyacetic acid	2-Methyl-4-Chlorophenoxy Butanoic Acid	Mecoprop	Picloram	Mirex	Arochlor 1016	Arochlor 1221	Arochlor 1232	Arochlor 1242	Arochlor 1248	Arochlor 1254	Arochlor 1260	PCBs (Sum of total)			
						mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg			
LOR						0.05	0.05	0.1	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	1	0.2	0.5	0.5	0.2	0.5	0.5	0.5	0.5	0.01	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1		
NEPM 2013 EIL Comm./Ind., low pH, CEC, clay content - aged 0-2m																																							
NEPM 2013 EIL UR/POS, low pH, CEC, clay content - aged 0-2m																																							
NEPM 2013 HIL, Commercial/Industrial D																																						7 ^{#8}	
NEPM 2013 HIL, Recreational C																																						1 ^{#8}	
NEPM 2013 HIL, Residential B																																						1 ^{#8}	
NEPM 2013 Soil HSL Commercial/Industrial D, for Vapour Intrusion, Silt 0-1m																																							
NEPM 2013 Soil HSL Recreational C, for Vapour Intrusion, Silt 0-1m																																							
NEPM 2013 Soil HSL Residential A&B, for Vapour Intrusion, Silt 0-1m																																							
Location Code	Sample Depth	Sampled Date	Field ID	Sample Type	Lab Report Number																																		
SB01	0.1	27/01/2017	SB01/0.1	Normal	532061	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB02	0.2	27/01/2017	SB02/0.2	Normal	532061	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	0.5	27/01/2017	SB02/0.5	Normal	533268	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		27/01/2017	QC01_270117	Duplicate	532061	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		27/01/2017	QC02_270117	Split	EM1700852	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB03	0.1	27/01/2017	SB03/0.1	Normal	532061	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
SB04	0.1	27/01/2017	SB04/0.1	Normal	532061	<0.05	<0.05	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<1	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	<0.5	<0.01	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1		
SB06	0.1	27/01/2017	SB06/0.1	Normal	532061	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
SB07	0.1	27/01/2017	SB07/0.1	Normal	532061	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	0.5	27/01/2017	SB07/0.5	Normal	533268	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
SB08	0.1	27/01/2017	SB08/0.1	Normal	532061	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
SB09	0.1	27/01/2017	SB09/0.1	Normal	532061	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB10	0.1	27/01/2017	SB010/0.1	Normal	532061	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB11	0.3	27/01/2017	SB011/0.3	Normal	532061	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB12	0.1	27/01/2017	SB012/0.1	Normal	532061	<0.05	<0.05	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<1	<0.2	<0.5	<0.5	<0.2	<0.5	<0.5	<0.5	<0.5	<0.01	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1		
SB13	0.1	27/01/2017	SB013/0.1	Normal	532061	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB14	0.1	27/01/2017	SB014/0.1	Normal	532061	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SB15	0.3	27/01/2017	SB15/0.3	Normal	532061	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-







Env Stds Comments
 #1: Fresh contamination, generic guideline value, independent of soil pH, CEC, clay con
 #2: In soil for at least 2 years
 #3: B(a)P TEQ calculated from 8 carcinogenic PAHs, refer to notes for Table 1A(1) in NE
 #4: Sum of 16 most commonly reported PAHs, refer to notes for Table 1A(1) in NEPM 2C
 #5: HIL assumes 70% oral bioavailability
 #6: HIL based on model with 50% oral bioavailability
 #7: HIL does not address elemental mercury
 #8: HIL relates to non-dioxin-like PCBs only, refer to notes for Table 1A(1) in NEPM 2013
 #9: NL The soil saturation concentration (Csat) is defined as the soil concentration at wh cannot dissolve any more of an individual chemical. The soil vapour equilibrium with the maximum. If the derived soil HSL exceeds Csat, a soil vapour source concentration for : could not exceed a level result in the maximum allowable vapour risk for the given scen scenarios, no HSL is presented for these chemicals and the HSL is shown as 'not limitr
 #10: Value calculated using CEC average value of 24meg/100g and pH average value c from Schedule B1 - Guideline on Investigation Levels for Soil and Groundwater.

Project: PSI Box Hill Location: Spring Street, Box Hill Job No.: V161141G	Position: H E: N: Surface Level: Ground Level Stickup: N/A Inclination: Vertical	Date Drilled: 27/01/2017 Drill Rig: Cardno 6WD Landcruiser Drilling Method: Direct Push Logged/Checked: RMH / DJL
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Depth (m)	Description of Strata	Graphic Log	Depth (m)	Sample	PID (ppm)/ Contam Ranking	Remarks
0.0	FILL, Silty GRAVEL (GP) coarse grained, poorly graded, low plasticity, pale grey, dense to very dense, slightly moist, no odour, no staining		0.0	SB01/0.1	PID = 0 V=0/O=0	
0.2	Silty CLAY (CI) moderate plasticity, orange brown, hard, slightly moist, no odour, no staining		0.2	SB01/0.5	PID = 0.1 V=0/O=0	
0.4			0.4			
0.6			0.6			
0.8			0.8			
0.9	SILTSTONE (CW), completely weathered, pale orange brown mottled with white, slightly moist, no staining		0.9	SB01/0.9	PID = 0 V=0/O=0	
1.0	End of SB01 at 1.0 m		1.0			



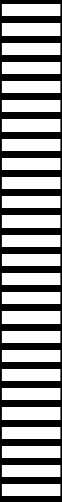

Key: For explanation of abbreviations and symbols, refer to Cardno UCS or Rock Notes	Notes: See Bore Location Plan in Appendix A Borehole terminated due to refusal on siltstone	Groundwater Observations: No groundwater observed
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Project: PSI Box Hill Location: Spring Street, Box Hill Job No.: V161141G	Position: H E: N: Surface Level: Ground Level Stickup: N/A Inclination: Vertical	Date Drilled: 27/01/2017 Drill Rig: Cardno 6WD Landcruiser Drilling Method: Direct Push Logged/Checked: RMH / DJL
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Depth (m)	Description of Strata	Graphic Log	Depth (m)	Sample	PID (ppm)/ Contam Ranking	Remarks
0.0	FILL, Silty GRAVEL (GP) coarse grained, poorly graded, low plasticity, pale grey, dense to very dense, slightly moist, no odour, no staining		0.0	SB02/0.1	PID = 0.2 V=0/O=0	QC01_270117 and QC02_270117 collected here
0.2	Clayey SILT (CL) low plasticity, dark brown, very stiff, slightly moist, no odour, no staining		0.2			
0.4	Silty CLAY (CI) moderate plasticity, orange brown, hard, slightly moist, no odour, no staining		0.4			
0.6			0.6	SB02/0.5	PID = 0.1 V=0/O=0	
0.8			0.8			
1.0	SILTSTONE (CW), completely weathered, pale orange brown mottled with white, slightly moist, no staining		1.0	SB02/0.9	PID = 0 V=0/O=0	
1.0	End of SB02 at 1.0 m		1.0			

Key: For explanation of abbreviations and symbols, refer to Cardno UCS or Rock Notes	Notes: Location Plan in Appendix A QC01_270117 and QC02_270117 are duplicates of SB02/0.1 Borehole terminated due to refusal on siltstone	Groundwater Observations: No groundwater observed
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Project: PSI Box Hill	Position: H E: N:	Date Drilled: 27/01/2017
Location: Spring Street, Box Hill	Surface Level: Ground Level	Drill Rig: Cardno 6WD Landcruiser
Job No.: V161141G	Stickup: N/A	Drilling Method: Direct Push
	Inclination: Vertical	Logged/Checked: RMH / DJL

Depth (m)	Description of Strata	Graphic Log	Depth (m)	Sample	PID (ppm)/ Contam Ranking	Remarks
0.0	CRUSHED STONE compacted crushed bluestone		0.0			
	FILL, Gravelly SILT (ML) low plasticity, pale grey, firm, slightly moist, no odour, no staining			SB03/0.1	PID = 0.2 V=0/O=0	
0.2			0.2			
	Clayey SILT (CL) low plasticity, dark brown, very stiff, slightly moist, no odour, no staining			SB03/0.35	PID = 0.5 V=0/O=0	
0.4			0.4			
	Silty CLAY (CI) moderate plasticity, orange brown, hard, slightly moist, no odour, no staining			SB03/0.5	PID = 0.4 V=0/O=0	
0.6			0.6			
0.8			0.8			
	SILTSTONE (CW), completely weathered, orange brown mottled with white, slightly moist, no staining			SB03/0.9	PID = 0.1 V=0/O=0	
1.0	End of SB03 at 1.0 m		1.0			



Key: For explanation of abbreviations and symbols, refer to Cardno UCS or Rock Notes	Notes: See Bore Location Plan in Appendix A Borehole terminated due to refusal on siltstone	Groundwater Observations: No groundwater observed
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Project: PSI Box Hill Location: Spring Street, Box Hill Job No.: V161141G	Position: H E: N: Surface Level: Ground Level Stickup: N/A Inclination: Vertical	Date Drilled: 27/01/2017 Drill Rig: Cardno 6WD Landcruiser Drilling Method: Direct Push Logged/Checked: RMH / DJL
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Depth (m)	Description of Strata	Graphic Log	Depth (m)	Sample	PID (ppm)/ Contam Ranking	Remarks
0.0	ASPHALT		0.0			
0.2	FILL, Sandy SILT (ML) low plasticity, pale grey brown, firm, slightly moist, no odour, no staining, minor gravel		0.2	SB04/0.1	PID = 0.2 V=0/O=0	
0.4	Silty CLAY (CI) moderate plasticity, orange brown, hard, slightly moist, no odour, no staining		0.4	SB04/0.5	PID = 0.1 V=0/O=0	
0.6			0.6			
0.8			0.8	SB04/0.9	PID = 0.3 V=0/O=0	
	End of SB04 at 0.9 m					

Key: For explanation of abbreviations and symbols, refer to Cardno UCS or Rock Notes	Notes: See Bore Location Plan in Appendix A Borehole terminated due to refusal on suspected siltstone	Groundwater Observations: No groundwater observed
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Project: PSI Box Hill Location: Spring Street, Box Hill Job No.: V161141G	Position: H E: N: Surface Level: Ground Level Stickup: N/A Inclination: Vertical	Date Drilled: 27/01/2017 Drill Rig: Cardno 6WD Landcruiser Drilling Method: Direct Push Logged/Checked: RMH / DJL
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Depth (m)	Description of Strata	Graphic Log	Depth (m)	Sample	PID (ppm)/ Contam Ranking	Remarks
0.0	ASPHALT		0.0			
	FILL, Silty GRAVEL (GP) coarse grained, poorly graded, low plasticity, brown grey, slightly moist, no odour, no staining, refusal					Not enough soil to form a sample
	End of SB05 at 0.1 m					





Key: For explanation of abbreviations and symbols, refer to Cardno UCS or Rock Notes	Notes: See Bore Location Plan in Appendix A Attempted two bores at this location but both met with refusal at 0.1 m	Groundwater Observations: No groundwater observed
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Project: PSI Box Hill Location: Spring Street, Box Hill Job No.: V161141G	Position: H E: N: Surface Level: Ground Level Stickup: N/A Inclination: Vertical	Date Drilled: 27/01/2017 Drill Rig: Cardno 6WD Landcruiser Drilling Method: Direct Push Logged/Checked: RMH / DJL
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Depth (m)	Description of Strata	Graphic Log	Depth (m)	Sample	PID (ppm)/ Contam Ranking	Remarks
0.0	ASPHALT		0.0			
	FILL, Sandy SILT (ML) low plasticity, pale brown, firm, slightly moist, no odour, no staining, minor gravel			SB06/0.1	PID = 0 V=0/O=0	
0.2			0.2			
0.4			0.4	SB06/0.5	PID = 0.2 V=0/O=0	
0.6			0.6			
0.8	Silty CLAY (CI) moderate plasticity, orange brown, hard, slightly moist, no odour, no staining		0.8	SB06/0.9	PID = 0.1 V=0/O=0	
	End of SB06 at 0.9 m					




Key: For explanation of abbreviations and symbols, refer to Cardno UCS or Rock Notes	Notes: See Bore Location Plan in Appendix A Borehole terminated due to refusal on suspected siltstone	Groundwater Observations: No groundwater observed
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Project: PSI Box Hill Location: Spring Street, Box Hill Job No.: V161141G	Position: H E: N: Surface Level: Ground Level Stickup: N/A Inclination: Vertical	Date Drilled: 27/01/2017 Drill Rig: Cardno 6WD Landcruiser Drilling Method: Direct Push Logged/Checked: RMH / DJL
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Depth (m)	Description of Strata	Graphic Log	Depth (m)	Sample	PID (ppm)/ Contam Ranking	Remarks
0.0	ASPHALT		0.0			
	FILL, Sandy SILT (ML) low plasticity, pale brown, firm, slightly moist, no odour, no staining, minor gravel		0.2	SB07/0.1	PID = 0.4 V=0/O=0	
	Silty CLAY (CI) moderate plasticity, orange brown, hard, slightly moist, no odour, no staining		0.4	SB07/0.5	PID = 0.5 V=0/O=0	
	SILTSTONE (CW), completely weathered, orange mottled with white, slightly moist, no staining		0.8	SB07/0.9	PID = 0 V=0/O=0	
	End of SB07 at 0.9 m					





Key: For explanation of abbreviations and symbols, refer to Cardno UCS or Rock Notes	Notes: See Bore Location Plan in Appendix A Borehole terminated due to refusal on siltstone	Groundwater Observations: No groundwater observed
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Project: PSI Box Hill Location: Spring Street, Box Hill Job No.: V161141G	Position: H E: N: Surface Level: Ground Level Stickup: N/A Inclination: Vertical	Date Drilled: 27/01/2017 Drill Rig: Cardno 6WD Landcruiser Drilling Method: Direct Push Logged/Checked: RMH / DJL
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Depth (m)	Description of Strata	Graphic Log	Depth (m)	Sample	PID (ppm)/ Contam Ranking	Remarks
0.0	FILL, Sandy SILT (ML) low plasticity, pale orange brown, firm, slightly moist, no odour, no staining, minor gravels		0.0	SB08/0.1	PID = 0.5 V=0/O=0	
0.2			0.2			
0.4			0.4			
0.6	Silty CLAY (CI) moderate plasticity, orange brown, hard, slightly moist, no odour, no staining		0.6	SB08/0.5	PID = 0 V=0/O=0	
0.8	SILTSTONE (CW), completely weathered, orange brown, slightly moist, no staining		0.8			
	End of SB08 at 0.9 m					





Key: For explanation of abbreviations and symbols, refer to Cardno UCS or Rock Notes	Notes: See Bore Location Plan in Appendix A Borehole terminated due to refusal on siltstone	Groundwater Observations: No groundwater observed
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Project: PSI Box Hill Location: Spring Street, Box Hill Job No.: V161141G	Position: H E: N: Surface Level: Ground Level Stickup: N/A Inclination: Vertical	Date Drilled: 27/01/2017 Drill Rig: Cardno 6WD Landcruiser Drilling Method: Direct Push Logged/Checked: RMH / DJL
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Depth (m)	Description of Strata	Graphic Log	Depth (m)	Sample	PID (ppm)/ Contam Ranking	Remarks
0.0	ASPHALT		0.0			
	FILL, Sandy SILT (ML) low plasticity, pale grey, firm, slightly moist, no odour, no staining, minor gravel			BH10/0.1	PID = 0 V=0/O=0	
	Silty CLAY (CI) moderate plasticity, orange brown, hard, slightly moist, no odour, no staining		0.2			
			0.4	BH10/0.5	PID = 0.2 V=0/O=0	
			0.6			
	SILTSTONE (CW), completely weathered, orange mottled with white, slightly moist, no staining		0.8	BH10/0.9	PID = 0.2 V=0/O=0	
	End of SB10 at 0.9 m					

Key: For explanation of abbreviations and symbols, refer to Cardno UCS or Rock Notes	Notes: See Bore Location Plan in Appendix A Borehole terminated due to refusal on siltstone	Groundwater Observations: No groundwater observed
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Project: PSI Box Hill	Position: H E: N:	Date Drilled: 27/01/2017
Location: Spring Street, Box Hill	Surface Level: Ground Level	Drill Rig: Cardno 6WD Landcruiser
Job No.: V161141G	Stickup: N/A	Drilling Method: Direct Push
	Inclination: Vertical	Logged/Checked: RMH / DJL

Depth (m)	Description of Strata	Graphic Log	Depth (m)	Sample	PID (ppm)/ Contam Ranking	Remarks
0.0	ASPHALT		0.0			
	FILL, Silty GRAVEL (GP) fine to coarse grained, poorly graded, dark grey, dense, slightly moist, no odour, no staining, crushed bluestone		0.2	SB12/0.1	PID = 0.2 V=0/O=0	
0.4	Silty CLAY (CI) moderate plasticity, orange brown, hard, slightly moist, no odour, no staining		0.4	SB12/0.5	PID = 0.2 V=0/O=0	
1.0			1.0	SB12/1.0	PID = 0 V=0/O=0	
End of SB12 at 1.1 m						





Key: For explanation of abbreviations and symbols, refer to Cardno UCS or Rock Notes	Notes: See Bore Location Plan in Appendix A Borehole terminated due to refusal on suspected siltstone	Groundwater Observations: No groundwater observed
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Project: PSI Box Hill Location: Spring Street, Box Hill Job No.: V161141G	Position: H E: N: Surface Level: Ground Level Stickup: N/A Inclination: Vertical	Date Drilled: 27/01/2017 Drill Rig: Cardno 6WD Landcruiser Drilling Method: Direct Push Logged/Checked: RMH / DJL
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Depth (m)	Description of Strata	Graphic Log	Depth (m)	Sample	PID (ppm)/ Contam Ranking	Remarks
0.0	ASPHALT		0.0			
	FILL, Silty GRAVEL (GP) fine to coarse grained, poorly graded, grey, dense, slightly moist, no odour, no staining, crushed bluestone		0.2	SB13/0.1	PID = 0.5 V=0/O=0	
	Clayey SILT (ML) low plasticity, dark brown mottled with orange, firm, slightly moist, no odour, no staining		0.4	SB13/0.5	PID = 0.2 V=0/O=0	
	Silty CLAY (CI) moderate plasticity, orange brown, hard, slightly moist, no odour, no staining		0.8	SB13/1.0	PID = 0 V=0/O=0	
	End of SB13 at 1.1 m					

Key: For explanation of abbreviations and symbols, refer to Cardno UCS or Rock Notes	Notes: See Bore Location Plan in Appendix A Borehole terminated due to refusal on suspected siltstone	Groundwater Observations: No groundwater observed
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Project: PSI Box Hill	Position: H E: N:	Date Drilled: 27/01/2017
Location: Spring Street, Box Hill	Surface Level: Ground Level	Drill Rig: Cardno 6WD Landcruiser
Job No.: V161141G	Stickup: N/A	Drilling Method: Direct Push
	Inclination: Vertical	Logged/Checked: RMH / DJL

Depth (m)	Description of Strata	Graphic Log	Depth (m)	Sample	PID (ppm)/ Contam Ranking	Remarks
0.0	CONCRETE double layered with crushed bluestone in between layers		0.0			Concrete core from 0.0 to 0.3 m
0.2			0.2			
	FILL, Gravelly SAND (SP) fine to coarse grained, poorly graded, dark grey, dense, slightly moist, no odour, no staining			SB15/0.3	PID = 0.9 V=0/O=0	
0.4			0.4			
	Silty CLAY (CI) moderate plasticity, orange brown, hard, slightly moist, no odour, no staining			SB15/0.5	PID = 0 V=0/O=0	
0.6			0.6			
0.8			0.8			
1.0			1.0			
	SILTSTONE (HW), highly weathered, orange brown, hard strength, slightly moist, no staining			SB15/1.0	PID = 0 V=0/O=0	

End of SB15 at 1.1 m

Key: For explanation of abbreviations and symbols, refer to Cardno UCS or Rock Notes	Notes: See Bore Location Plan in Appendix A Borehole terminated due to refusal on siltstone	Groundwater Observations: No groundwater observed
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PARTICLE SIZES

TERM	SIZE (mm)
BOULDER	>200
COBBLE	60 to 200
GRAVEL	
Coarse	20 to 60
Medium	6 to 20
Fine	2 to 6
SAND	
Coarse	0.6 to 2
Medium	0.2 to 0.6
Fine	0.06 to 0.2
SILT	0.002 to 0.06
CLAY	< 0.002

COHESIVE SOILS

TERM	UNDRAINED SHEAR STRENGTH (kPa)
Very Soft	0 to 12.5
Soft	12.5 to 25
Firm	25 to 50
Stiff	50 to 100
Very Stiff	100 to 200
Hard	≥ 200

COHESIONLESS SOILS

TERM	'N' (SPT) VALUE (blows / 300mm)	RELATIVE DENSITY (%)	ANGLE SHEAR RESISTANCE (degrees)
Very Loose	0 to 4	< 15	25 to 30
Loose	4 to 10	15 to 35	27 to 32
Medium Dense	10 to 30	35 to 65	30 to 35
Dense	30 to 50	65 to 85	35 to 40
Very Dense	> 50	≥ 85	38 to 43

STRUCTURE

TERM	SIZE OF BLOCKS (mm)
Blocky	> 60
Cloddy	20 to 60
Nutty	6 to 20
Granular	0.6 to 6
Prismatic	Stated
Shattered	< 10

SAMPLES

- BS = Bulk sample
- D = Disturbed sample
- U_(n) = Undisturbed tube sample ('n' denotes internal dia in mm)
- = Undisturbed tube recovery
- ▨ = Undisturbed tube non-recovery
- ⊠ = SPT Disturbed sample

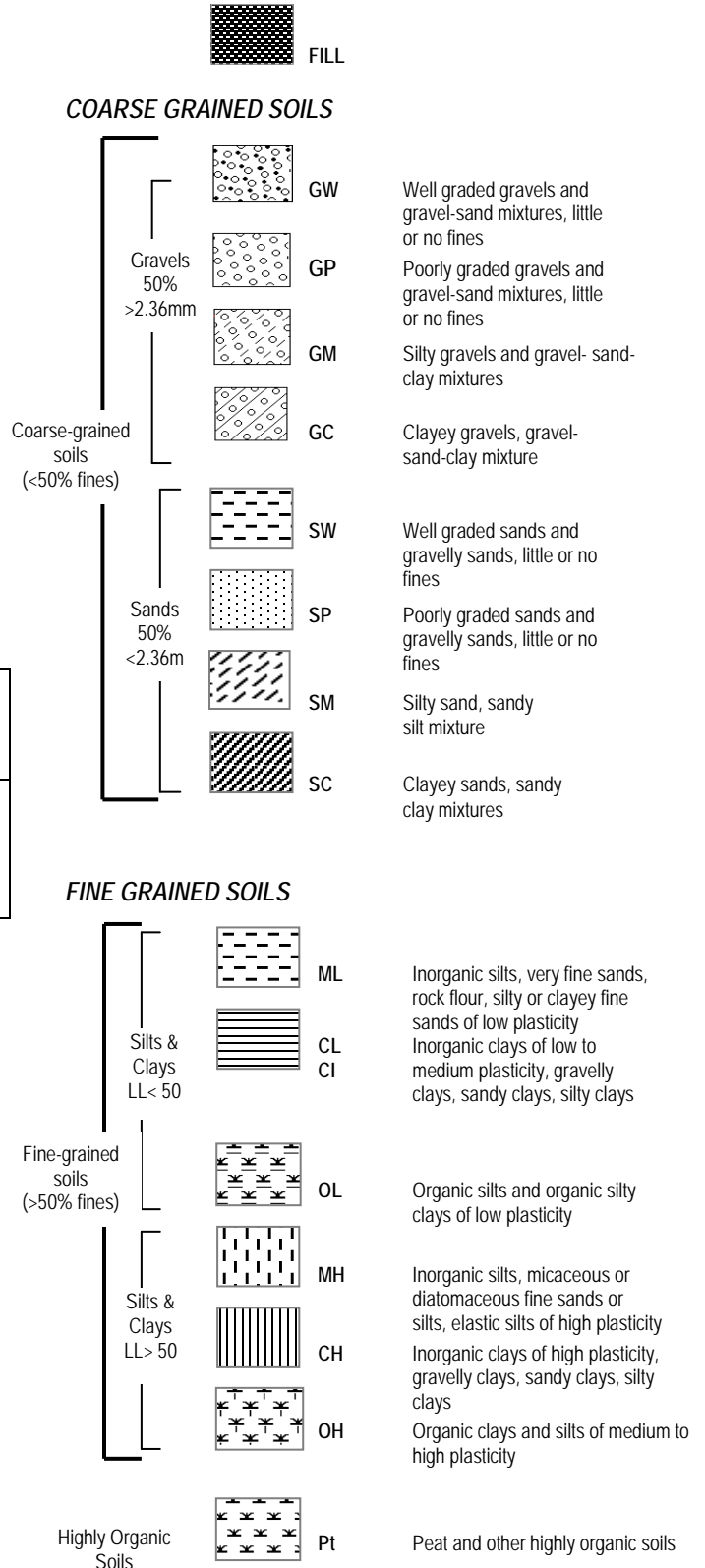
INDEX PROPERTIES

- ρ = bulk density (t/m³)
- DD = dry density (t/m³)
- mc = field moisture content (%)
- LL = Liquid Limit (%)
- PL = Plastic Limit (%)
- PI = Plastic Index (%)

FIELD TESTS

- W = Field permeability test
- P = Pressuremeter test
- ID = Insitu density test
- SPT(9) = Standard Penetrometer Test (blows per 300 mm) (63.5 kg hammer dropped 760mm)
- pp = Pocket penetrometer (kPa)

IDENTIFICATION OF SOILS



GROUNDWATER

- GW = Groundwater depth (m) or level (RL)
- bgl = Below ground level
- swl = Standing water level



PLATE 1: Northern car park – looking north-west (27 January 2017)



PLATE 2: Central / northern car park, showing proposed bore SB05 – looking west (27 January 2017)



PLATE 3: Central car park – looking south-west (27 January 2017)



PLATE 4: Central / southern car park – looking north (27 January 2017)



PLATE 5: South-west car park – looking south-west (27 January 2017)



PLATE 6: Recreation area, showing proposed bore SB14 – looking south-east (27 January 2017)



PLATE 7: Walk-way in south-west part of site – looking east (27 January 2017)



PLATE 8: Drill rig at bore SB02 in north car park – looking north-west (27 January 2017)

Chain of Custody

PM Name: David Louwrens	Sample Matrix	Sample preservation	Analysis												
Phone: 03 9831 6124 Fax: 03 8415 7788 Mobile: 0438 303 279															
Address: Level 6, 501 Swanston Street, Melbourne, Vic, 3000															
PM Email: david.louwrens@cardno.com.au															
Project Number: V161141G	Site: Box Hill														

Laboratory (name, phone, & contact person): Eurofins-mgt Natalie Krasselt (03) 8564 5051					Soil	Water	Ice/ Ice Brick	R20	BT	PH	CEC	HOLD
Sample ID	Laboratory ID	Container	Sampling									
			Date	Time								
SB08/0.5		JAR	27.1.17									✓
SB09/0.1												✓
SB09/0.5												✓
SB09/0.75												✓
SB10/0.1												✓
SB10/0.5												✓
SB10/0.9												✓
SB11/0.3												✓
SB11/0.5												✓
SB11/0.9 SB11/1.0												✓
SB12/0.1								✓		✓	✓	✓
SB12/0.5												✓
SB12/1.0												✓
SB13/0.1												✓
SB13/0.5												✓
SB13/1.0												✓
SB14/0.1												✓
SB15/0.3												✓
SB15/0.5												✓
SB15/1.0												✓

Sampler: I attest that the proper field sampling procedures were used during the collection of these samples.				Sampler name: (print and signature) R. HERLOT <i>[Signature]</i>		Date: 27/1/17	
Relinquished by (Sampler): (print and signature) R. HERLOT <i>[Signature]</i>	Date 30/1/17	Time 10.15	Received by (Courier/Lab): (print and signature) <i>[Signature]</i>	Date 30/1/17	Time 10.50		
Relinquished by: (print and signature)	Date	Time	Received by: (print and signature) Matt McGregg	Date 30/1/17	Time		
Relinquished by: (print and signature)	Date	Time	Received by: (print and signature)	Date	Time		

Please supply results electronically in spreadsheet and ESDAT files.
Turn around time: (24 hour/48 hour/3 days/5 days) Please circle

#532061

Sample Receipt Advice

Company name: **Cardno Lane Piper Pty Ltd**
Contact name: **David Louwrens**
Project name: **BOX HILL**
Project ID: **V161141G**
COC number: **Not provided**
Turn around time: **5 Day**
Date/Time received: **Jan 30, 2017 10:50 AM**
Eurofins | mgt reference: **532061**

Sample information

- A detailed list of analytes logged into our LIMS, is included in the attached summary table.
 - All samples have been received as described on the above COC.
 - COC has been completed correctly.
 - Attempt to chill was evident.
 - Appropriately preserved sample containers have been used.
 - All samples were received in good condition.
 - Samples have been provided with adequate time to commence analysis in accordance with the relevant holding times.
 - Appropriate sample containers have been used.
 - Sample containers for volatile analysis received with zero headspace.
 - Some samples have been subcontracted.
- N/A Custody Seals intact (if used).

Contact notes

If you have any questions with respect to these samples please contact:

Natalie Krasselt on Phone : (+61) (3) 8564 5000 or by e.mail: NatalieKrasselt@eurofins.com

Results will be delivered electronically via e.mail to David Louwrens - david.louwrens@cardno.com.au.

Cardno Victoria Pty Ltd
 Level 4, 501 Swanston Street
 Melbourne
 VIC 3000



NATA Accredited
 Accreditation Number 1261
 Site Number 1254

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

Attention: **David Louwrens**

Report **532061-S**
 Project name BOX HILL
 Project ID V161141G
 Received Date Jan 30, 2017

Client Sample ID			SB01/0.1	SB02/0.2	SB03/0.1	SB04/0.1
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins mgt Sample No.			M17-Ja17709	M17-Ja17710	M17-Ja17711	M17-Ja17712
Date Sampled			Jan 27, 2017	Jan 27, 2017	Jan 27, 2017	Jan 27, 2017
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons - 1999 NEPM Fractions						
TRH C6-C9	20	mg/kg	< 20	< 20	< 20	-
TRH C10-C14	20	mg/kg	< 20	< 20	< 20	-
TRH C15-C28	50	mg/kg	< 50	< 50	< 50	-
TRH C29-C36	50	mg/kg	< 50	< 50	< 50	-
TRH C10-36 (Total)	50	mg/kg	< 50	< 50	< 50	-
BTEX						
Benzene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	-
Toluene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	-
Ethylbenzene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	-
m&p-Xylenes	0.2	mg/kg	< 0.2	< 0.2	< 0.2	-
o-Xylene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	-
Xylenes - Total	0.3	mg/kg	< 0.3	< 0.3	< 0.3	-
4-Bromofluorobenzene (surr.)	1	%	76	79	74	-
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene ^{N02}	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-
TRH >C10-C16 less Naphthalene (F2) ^{N01}	50	mg/kg	< 50	< 50	< 50	-
TRH C6-C10	20	mg/kg	< 20	< 20	< 20	-
TRH C6-C10 less BTEX (F1) ^{N04}	20	mg/kg	< 20	< 20	< 20	-
Polycyclic Aromatic Hydrocarbons						
Benzo(a)pyrene TEQ (lower bound) *	0.5	mg/kg	< 0.5	2.1	< 0.5	< 0.5
Benzo(a)pyrene TEQ (medium bound) *	0.5	mg/kg	0.6	2.3	0.6	0.6
Benzo(a)pyrene TEQ (upper bound) *	0.5	mg/kg	1.2	2.6	1.2	1.2
Acenaphthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Acenaphthylene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benz(a)anthracene	0.5	mg/kg	< 0.5	1.5	< 0.5	< 0.5
Benzo(a)pyrene	0.5	mg/kg	< 0.5	1.6	< 0.5	< 0.5
Benzo(b&j)fluoranthene ^{N07}	0.5	mg/kg	< 0.5	1.6	< 0.5	< 0.5
Benzo(g,h,i)perylene	0.5	mg/kg	< 0.5	0.7	< 0.5	< 0.5
Benzo(k)fluoranthene	0.5	mg/kg	< 0.5	1.0	< 0.5	< 0.5
Chrysene	0.5	mg/kg	< 0.5	1.6	< 0.5	< 0.5
Dibenz(a,h)anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Fluoranthene	0.5	mg/kg	< 0.5	2.7	< 0.5	< 0.5
Fluorene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Indeno(1,2,3-cd)pyrene	0.5	mg/kg	< 0.5	0.6	< 0.5	< 0.5

Client Sample ID			SB01/0.1	SB02/0.2	SB03/0.1	SB04/0.1
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins mgt Sample No.			M17-Ja17709	M17-Ja17710	M17-Ja17711	M17-Ja17712
Date Sampled			Jan 27, 2017	Jan 27, 2017	Jan 27, 2017	Jan 27, 2017
Test/Reference	LOR	Unit				
Polycyclic Aromatic Hydrocarbons						
Naphthalene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Phenanthrene	0.5	mg/kg	< 0.5	1.8	< 0.5	< 0.5
Pyrene	0.5	mg/kg	< 0.5	2.9	< 0.5	< 0.5
Total PAH*	0.5	mg/kg	< 0.5	16	< 0.5	< 0.5
2-Fluorobiphenyl (surr.)	1	%	73	87	86	102
p-Terphenyl-d14 (surr.)	1	%	70	82	82	72
Organochlorine Pesticides						
Bifenthrin	0.05	mg/kg	-	-	-	< 0.05
Organophosphorus Pesticides						
Chlorpyrifos	0.2	mg/kg	-	-	-	< 0.2
Polychlorinated Biphenyls						
Aroclor-1016	0.1	mg/kg	-	-	-	< 0.1
Aroclor-1221	0.1	mg/kg	-	-	-	< 0.1
Aroclor-1232	0.1	mg/kg	-	-	-	< 0.1
Aroclor-1242	0.1	mg/kg	-	-	-	< 0.1
Aroclor-1248	0.1	mg/kg	-	-	-	< 0.1
Aroclor-1254	0.1	mg/kg	-	-	-	< 0.1
Aroclor-1260	0.1	mg/kg	-	-	-	< 0.1
Total PCB*	0.1	mg/kg	-	-	-	< 0.1
Dibutylchlorendate (surr.)	1	%	-	-	-	95
Tetrachloro-m-xylene (surr.)	1	%	-	-	-	86
Triazines						
Atrazine	0.2	mg/kg	-	-	-	< 0.2
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
TRH >C10-C16	50	mg/kg	< 50	< 50	< 50	-
TRH >C16-C34	100	mg/kg	< 100	< 100	< 100	-
TRH >C34-C40	100	mg/kg	< 100	< 100	< 100	-
NEPM 2013 Acid Herbicides						
Picloram*	0.5	mg/kg	-	-	-	< 0.5
2,4-D	0.5	mg/kg	-	-	-	< 0.5
2,4,5-T	0.5	mg/kg	-	-	-	< 0.5
MCPA	0.5	mg/kg	-	-	-	< 0.5
MCPB	0.5	mg/kg	-	-	-	< 0.5
Mecoprop	0.5	mg/kg	-	-	-	< 0.5
Warfarin (surr.)	1	%	-	-	-	87
NEPM 2013 Organochlorine Pesticides						
Endosulfan sulphate	0.05	mg/kg	-	-	-	< 0.05
Mirex	0.01	mg/kg	-	-	-	< 0.01
4,4'-DDD	0.05	mg/kg	-	-	-	< 0.05
4,4'-DDE	0.05	mg/kg	-	-	-	< 0.05
4,4'-DDT	0.05	mg/kg	-	-	-	< 0.05
Aldrin	0.05	mg/kg	-	-	-	< 0.05
Chlordanes - Total	0.1	mg/kg	-	-	-	< 0.1
Dieldrin	0.05	mg/kg	-	-	-	< 0.05
Endosulfan I	0.05	mg/kg	-	-	-	< 0.05
Endosulfan II	0.05	mg/kg	-	-	-	< 0.05
Endrin	0.05	mg/kg	-	-	-	< 0.05
Heptachlor	0.05	mg/kg	-	-	-	< 0.05
Hexachlorobenzene	0.05	mg/kg	-	-	-	< 0.05

Client Sample ID			SB01/0.1	SB02/0.2	SB03/0.1	SB04/0.1
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins mgt Sample No.			M17-Ja17709	M17-Ja17710	M17-Ja17711	M17-Ja17712
Date Sampled			Jan 27, 2017	Jan 27, 2017	Jan 27, 2017	Jan 27, 2017
Test/Reference	LOR	Unit				
NEPM 2013 Organochlorine Pesticides						
Methoxychlor	0.05	mg/kg	-	-	-	< 0.05
Toxaphene	1	mg/kg	-	-	-	< 1
Dibutylchloroendate (surr.)	1	%	-	-	-	95
Tetrachloro-m-xylene (surr.)	1	%	-	-	-	86
NEPM 2013 Phenols						
2-Methylphenol (o-Cresol)	0.2	mg/kg	-	-	-	< 0.2
3&4-Methylphenol (m&p-Cresol)	0.4	mg/kg	-	-	-	< 0.4
Pentachlorophenol	1.0	mg/kg	-	-	-	< 1
Phenol	0.5	mg/kg	-	-	-	< 0.5
Phenol-d6 (surr.)	1	%	-	-	-	84
Chromium (hexavalent)	1	mg/kg	-	-	-	< 1
Conductivity (1:5 aqueous extract at 25°C)	10	uS/cm	-	-	-	200
Cyanide (free)	5	mg/kg	-	-	-	< 5
pH (1:5 Aqueous extract)	0.1	pH Units	-	-	-	9.9
% Moisture	1	%	10	7.9	12	5.1
Heavy Metals						
Arsenic	2	mg/kg	3.9	3.2	3.0	< 2
Beryllium	2	mg/kg	-	-	-	< 2
Boron	10	mg/kg	-	-	-	< 10
Cadmium	0.4	mg/kg	< 0.4	0.8	< 0.4	< 0.4
Chromium	5	mg/kg	24	18	22	35
Cobalt	5	mg/kg	-	-	-	43
Copper	5	mg/kg	65	60	9.3	51
Lead	5	mg/kg	160	150	7.5	< 5
Manganese	5	mg/kg	-	-	-	940
Mercury	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Nickel	5	mg/kg	13	9.4	12	150
Selenium	2	mg/kg	-	-	-	< 2
Zinc	5	mg/kg	270	370	43	75
Ion Exchange Properties						
Cation Exchange Capacity	0.05	meq/100g	-	-	-	23

Client Sample ID			SB06/0.1	SB07/0.1	SB08/0.1	SB09/0.1
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins mgt Sample No.			M17-Ja17713	M17-Ja17714	M17-Ja17715	M17-Ja17716
Date Sampled			Jan 27, 2017	Jan 27, 2017	Jan 27, 2017	Jan 27, 2017
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons - 1999 NEPM Fractions						
TRH C6-C9	20	mg/kg	< 20	< 20	< 20	< 20
TRH C10-C14	20	mg/kg	< 20	< 20	< 20	< 20
TRH C15-C28	50	mg/kg	< 50	< 50	< 50	< 50
TRH C29-C36	50	mg/kg	< 50	< 50	< 50	< 50
TRH C10-36 (Total)	50	mg/kg	< 50	< 50	< 50	< 50

Client Sample ID			SB06/0.1	SB07/0.1	SB08/0.1	SB09/0.1
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins mgt Sample No.			M17-Ja17713	M17-Ja17714	M17-Ja17715	M17-Ja17716
Date Sampled			Jan 27, 2017	Jan 27, 2017	Jan 27, 2017	Jan 27, 2017
Test/Reference	LOR	Unit				
BTEX						
Benzene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Toluene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Ethylbenzene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
m&p-Xylenes	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
o-Xylene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Xylenes - Total	0.3	mg/kg	< 0.3	< 0.3	< 0.3	< 0.3
4-Bromofluorobenzene (surr.)	1	%	97	85	89	75
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene ^{N02}	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
TRH >C10-C16 less Naphthalene (F2) ^{N01}	50	mg/kg	< 50	< 50	< 50	< 50
TRH C6-C10	20	mg/kg	< 20	< 20	< 20	< 20
TRH C6-C10 less BTEX (F1) ^{N04}	20	mg/kg	< 20	< 20	< 20	< 20
Polycyclic Aromatic Hydrocarbons						
Benzo(a)pyrene TEQ (lower bound) *	0.5	mg/kg	< 0.5	4.6	2.1	1.3
Benzo(a)pyrene TEQ (medium bound) *	0.5	mg/kg	0.6	4.6	2.3	1.5
Benzo(a)pyrene TEQ (upper bound) *	0.5	mg/kg	1.2	4.6	2.6	1.8
Acenaphthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Acenaphthylene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benz(a)anthracene	0.5	mg/kg	< 0.5	2.1	1.1	0.7
Benzo(a)pyrene	0.5	mg/kg	< 0.5	3.2	1.6	1.0
Benzo(b&j)fluoranthene ^{N07}	0.5	mg/kg	< 0.5	2.7	1.5	0.9
Benzo(g,h,i)perylene	0.5	mg/kg	< 0.5	2.3	1.0	0.7
Benzo(k)fluoranthene	0.5	mg/kg	< 0.5	2.0	1.0	0.6
Chrysene	0.5	mg/kg	< 0.5	2.2	1.3	0.8
Dibenz(a,h)anthracene	0.5	mg/kg	< 0.5	0.5	< 0.5	< 0.5
Fluoranthene	0.5	mg/kg	< 0.5	3.3	1.9	1.1
Fluorene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Indeno(1,2,3-cd)pyrene	0.5	mg/kg	< 0.5	1.7	0.7	0.5
Naphthalene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Phenanthrene	0.5	mg/kg	< 0.5	1.6	0.9	0.6
Pyrene	0.5	mg/kg	< 0.5	3.7	2.2	1.1
Total PAH*	0.5	mg/kg	< 0.5	25.3	13.2	8
2-Fluorobiphenyl (surr.)	1	%	76	76	97	85
p-Terphenyl-d14 (surr.)	1	%	69	70	91	77
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
TRH >C10-C16	50	mg/kg	< 50	< 50	< 50	< 50
TRH >C16-C34	100	mg/kg	< 100	< 100	< 100	< 100
TRH >C34-C40	100	mg/kg	< 100	< 100	< 100	< 100
% Moisture						
% Moisture	1	%	3.5	4.6	5.6	5.0
Heavy Metals						
Arsenic	2	mg/kg	3.7	4.8	12	8.3
Cadmium	0.4	mg/kg	< 0.4	0.6	< 0.4	< 0.4
Chromium	5	mg/kg	22	20	21	20
Copper	5	mg/kg	30	34	28	17
Lead	5	mg/kg	34	41	110	87
Mercury	0.1	mg/kg	< 0.1	< 0.1	< 0.1	0.1
Nickel	5	mg/kg	84	78	23	14
Zinc	5	mg/kg	79	88	120	91

Client Sample ID			SB010/0.1	SB011/0.3	SB012/0.1	SB013/0.1
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins mgt Sample No.			M17-Ja17717	M17-Ja17718	M17-Ja17719	M17-Ja17720
Date Sampled			Jan 27, 2017	Jan 27, 2017	Jan 27, 2017	Jan 27, 2017
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons - 1999 NEPM Fractions						
TRH C6-C9	20	mg/kg	< 20	< 20	-	< 20
TRH C10-C14	20	mg/kg	< 20	< 20	-	< 20
TRH C15-C28	50	mg/kg	< 50	< 50	-	63
TRH C29-C36	50	mg/kg	< 50	< 50	-	< 50
TRH C10-36 (Total)	50	mg/kg	< 50	< 50	-	63
BTEX						
Benzene	0.1	mg/kg	< 0.1	< 0.1	-	< 0.1
Toluene	0.1	mg/kg	< 0.1	< 0.1	-	< 0.1
Ethylbenzene	0.1	mg/kg	< 0.1	< 0.1	-	< 0.1
m&p-Xylenes	0.2	mg/kg	< 0.2	< 0.2	-	< 0.2
o-Xylene	0.1	mg/kg	< 0.1	< 0.1	-	< 0.1
Xylenes - Total	0.3	mg/kg	< 0.3	< 0.3	-	< 0.3
4-Bromofluorobenzene (surr.)	1	%	85	56	-	93
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene ^{N02}	0.5	mg/kg	< 0.5	< 0.5	-	< 0.5
TRH >C10-C16 less Naphthalene (F2) ^{N01}	50	mg/kg	< 50	< 50	-	< 50
TRH C6-C10	20	mg/kg	< 20	< 20	-	< 20
TRH C6-C10 less BTEX (F1) ^{N04}	20	mg/kg	< 20	< 20	-	< 20
Polycyclic Aromatic Hydrocarbons						
Benzo(a)pyrene TEQ (lower bound) *	0.5	mg/kg	< 0.5	< 0.5	< 0.5	3.0
Benzo(a)pyrene TEQ (medium bound) *	0.5	mg/kg	0.6	0.6	0.6	3.2
Benzo(a)pyrene TEQ (upper bound) *	0.5	mg/kg	1.2	1.2	1.2	3.5
Acenaphthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Acenaphthylene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benz(a)anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	1.7
Benzo(a)pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	2.3
Benzo(b&j)fluoranthene ^{N07}	0.5	mg/kg	< 0.5	< 0.5	< 0.5	2.0
Benzo(g,h,i)perylene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	1.2
Benzo(k)fluoranthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	1.6
Chrysene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	1.7
Dibenz(a,h)anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Fluoranthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	3.0
Fluorene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Indeno(1,2,3-cd)pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	1.0
Naphthalene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Phenanthrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	1.1
Pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	3.2
Total PAH*	0.5	mg/kg	< 0.5	< 0.5	< 0.5	18.8
2-Fluorobiphenyl (surr.)	1	%	76	88	100	85
p-Terphenyl-d14 (surr.)	1	%	69	84	71	78
Organochlorine Pesticides						
Bifenthrin	0.05	mg/kg	-	-	< 0.05	-
Organophosphorus Pesticides						
Chlorpyrifos	0.2	mg/kg	-	-	< 0.2	-

Client Sample ID			SB010/0.1	SB011/0.3	SB012/0.1	SB013/0.1
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins mgt Sample No.			M17-Ja17717	M17-Ja17718	M17-Ja17719	M17-Ja17720
Date Sampled			Jan 27, 2017	Jan 27, 2017	Jan 27, 2017	Jan 27, 2017
Test/Reference	LOR	Unit				
Polychlorinated Biphenyls						
Aroclor-1016	0.1	mg/kg	-	-	< 0.1	-
Aroclor-1221	0.1	mg/kg	-	-	< 0.1	-
Aroclor-1232	0.1	mg/kg	-	-	< 0.1	-
Aroclor-1242	0.1	mg/kg	-	-	< 0.1	-
Aroclor-1248	0.1	mg/kg	-	-	< 0.1	-
Aroclor-1254	0.1	mg/kg	-	-	< 0.1	-
Aroclor-1260	0.1	mg/kg	-	-	< 0.1	-
Total PCB*	0.1	mg/kg	-	-	< 0.1	-
Dibutylchlorodate (surr.)	1	%	-	-	97	-
Tetrachloro-m-xylene (surr.)	1	%	-	-	86	-
Triazines						
Atrazine	0.2	mg/kg	-	-	< 0.2	-
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
TRH >C10-C16	50	mg/kg	< 50	< 50	-	< 50
TRH >C16-C34	100	mg/kg	< 100	< 100	-	< 100
TRH >C34-C40	100	mg/kg	< 100	< 100	-	< 100
NEPM 2013 Acid Herbicides						
Picloram*	0.5	mg/kg	-	-	< 0.5	-
2,4-D	0.5	mg/kg	-	-	< 0.5	-
2,4,5-T	0.5	mg/kg	-	-	< 0.5	-
MCPA	0.5	mg/kg	-	-	< 0.5	-
MCPB	0.5	mg/kg	-	-	< 0.5	-
Mecoprop	0.5	mg/kg	-	-	< 0.5	-
Warfarin (surr.)	1	%	-	-	89	-
NEPM 2013 Organochlorine Pesticides						
Endosulfan sulphate	0.05	mg/kg	-	-	< 0.05	-
Mirex	0.01	mg/kg	-	-	< 0.01	-
4,4'-DDD	0.05	mg/kg	-	-	< 0.05	-
4,4'-DDE	0.05	mg/kg	-	-	< 0.05	-
4,4'-DDT	0.05	mg/kg	-	-	< 0.05	-
Aldrin	0.05	mg/kg	-	-	< 0.05	-
Chlordanes - Total	0.1	mg/kg	-	-	< 0.1	-
Dieldrin	0.05	mg/kg	-	-	< 0.05	-
Endosulfan I	0.05	mg/kg	-	-	< 0.05	-
Endosulfan II	0.05	mg/kg	-	-	< 0.05	-
Endrin	0.05	mg/kg	-	-	< 0.05	-
Heptachlor	0.05	mg/kg	-	-	< 0.05	-
Hexachlorobenzene	0.05	mg/kg	-	-	< 0.05	-
Methoxychlor	0.05	mg/kg	-	-	< 0.05	-
Toxaphene	1	mg/kg	-	-	< 1	-
Dibutylchlorodate (surr.)	1	%	-	-	97	-
Tetrachloro-m-xylene (surr.)	1	%	-	-	86	-
NEPM 2013 Phenols						
2-Methylphenol (o-Cresol)	0.2	mg/kg	-	-	< 0.2	-
3&4-Methylphenol (m&p-Cresol)	0.4	mg/kg	-	-	< 0.4	-
Pentachlorophenol	1.0	mg/kg	-	-	< 1	-
Phenol	0.5	mg/kg	-	-	< 0.5	-
Phenol-d6 (surr.)	1	%	-	-	81	-

Client Sample ID			SB010/0.1	SB011/0.3	SB012/0.1	SB013/0.1
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins mgt Sample No.			M17-Ja17717	M17-Ja17718	M17-Ja17719	M17-Ja17720
Date Sampled			Jan 27, 2017	Jan 27, 2017	Jan 27, 2017	Jan 27, 2017
Test/Reference	LOR	Unit				
Chromium (hexavalent)	1	mg/kg	-	-	< 1	-
Conductivity (1:5 aqueous extract at 25°C)	10	uS/cm	-	-	120	-
Cyanide (free)	5	mg/kg	-	-	< 5	-
pH (1:5 Aqueous extract)	0.1	pH Units	-	-	8.3	-
% Moisture	1	%	2.9	24	8.8	10
Heavy Metals						
Arsenic	2	mg/kg	5.0	2.1	11	3.8
Beryllium	2	mg/kg	-	-	< 2	-
Boron	10	mg/kg	-	-	18	-
Cadmium	0.4	mg/kg	0.6	< 0.4	< 0.4	< 0.4
Chromium	5	mg/kg	17	18	34	17
Cobalt	5	mg/kg	-	-	11	-
Copper	5	mg/kg	18	35	26	24
Lead	5	mg/kg	21	9.0	16	110
Manganese	5	mg/kg	-	-	200	-
Mercury	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Nickel	5	mg/kg	14	65	41	20
Selenium	2	mg/kg	-	-	< 2	-
Zinc	5	mg/kg	66	28	52	80
Ion Exchange Properties						
Cation Exchange Capacity	0.05	meq/100g	-	-	25	-

Client Sample ID			SB014/0.1	SB15/0.3	QC01_270117
Sample Matrix			Soil	Soil	Soil
Eurofins mgt Sample No.			M17-Ja17721	M17-Ja17722	M17-Ja17723
Date Sampled			Jan 27, 2017	Jan 27, 2017	Jan 27, 2017
Test/Reference	LOR	Unit			
Total Recoverable Hydrocarbons - 1999 NEPM Fractions					
TRH C6-C9	20	mg/kg	< 20	< 20	< 20
TRH C10-C14	20	mg/kg	< 20	< 20	< 20
TRH C15-C28	50	mg/kg	< 50	140	< 50
TRH C29-C36	50	mg/kg	< 50	77	< 50
TRH C10-36 (Total)	50	mg/kg	< 50	217	< 50
BTEX					
Benzene	0.1	mg/kg	< 0.1	< 0.1	< 0.1
Toluene	0.1	mg/kg	< 0.1	< 0.1	< 0.1
Ethylbenzene	0.1	mg/kg	< 0.1	< 0.1	< 0.1
m&p-Xylenes	0.2	mg/kg	< 0.2	< 0.2	< 0.2
o-Xylene	0.1	mg/kg	< 0.1	< 0.1	< 0.1
Xylenes - Total	0.3	mg/kg	< 0.3	< 0.3	< 0.3
4-Bromofluorobenzene (surr.)	1	%	80	85	103
Total Recoverable Hydrocarbons - 2013 NEPM Fractions					
Naphthalene ^{N02}	0.5	mg/kg	< 0.5	< 0.5	< 0.5
TRH >C10-C16 less Naphthalene (F2) ^{N01}	50	mg/kg	< 50	< 50	< 50
TRH C6-C10	20	mg/kg	< 20	< 20	< 20
TRH C6-C10 less BTEX (F1) ^{N04}	20	mg/kg	< 20	< 20	< 20

Client Sample ID			SB014/0.1	SB15/0.3	QC01_270117
Sample Matrix			Soil	Soil	Soil
Eurofins mgt Sample No.			M17-Ja17721	M17-Ja17722	M17-Ja17723
Date Sampled			Jan 27, 2017	Jan 27, 2017	Jan 27, 2017
Test/Reference	LOR	Unit			
Polycyclic Aromatic Hydrocarbons					
Benzo(a)pyrene TEQ (lower bound) *	0.5	mg/kg	< 0.5	0.7	-
Benzo(a)pyrene TEQ (medium bound) *	0.5	mg/kg	0.6	1.1	-
Benzo(a)pyrene TEQ (upper bound) *	0.5	mg/kg	1.2	1.4	-
Acenaphthene	0.5	mg/kg	< 0.5	< 0.5	-
Acenaphthylene	0.5	mg/kg	< 0.5	< 0.5	-
Anthracene	0.5	mg/kg	< 0.5	< 0.5	-
Benz(a)anthracene	0.5	mg/kg	< 0.5	< 0.5	-
Benzo(a)pyrene	0.5	mg/kg	< 0.5	0.7	-
Benzo(b&j)fluoranthene ^{N07}	0.5	mg/kg	< 0.5	< 0.5	-
Benzo(g,h,i)perylene	0.5	mg/kg	< 0.5	< 0.5	-
Benzo(k)fluoranthene	0.5	mg/kg	< 0.5	< 0.5	-
Chrysene	0.5	mg/kg	< 0.5	< 0.5	-
Dibenz(a,h)anthracene	0.5	mg/kg	< 0.5	< 0.5	-
Fluoranthene	0.5	mg/kg	< 0.5	< 0.5	-
Fluorene	0.5	mg/kg	< 0.5	< 0.5	-
Indeno(1.2.3-cd)pyrene	0.5	mg/kg	< 0.5	< 0.5	-
Naphthalene	0.5	mg/kg	< 0.5	< 0.5	-
Phenanthrene	0.5	mg/kg	< 0.5	< 0.5	-
Pyrene	0.5	mg/kg	< 0.5	< 0.5	-
Total PAH*	0.5	mg/kg	< 0.5	0.7	-
2-Fluorobiphenyl (surr.)	1	%	72	70	-
p-Terphenyl-d14 (surr.)	1	%	80	73	-
Total Recoverable Hydrocarbons - 2013 NEPM Fractions					
TRH >C10-C16	50	mg/kg	< 50	< 50	< 50
TRH >C16-C34	100	mg/kg	< 100	200	< 100
TRH >C34-C40	100	mg/kg	< 100	< 100	< 100
% Moisture					
	1	%	3.9	19	15
Heavy Metals					
Arsenic	2	mg/kg	< 2	3.6	5.7
Cadmium	0.4	mg/kg	< 0.4	< 0.4	< 0.4
Chromium	5	mg/kg	5.9	26	45
Copper	5	mg/kg	8.9	20	28
Lead	5	mg/kg	9.2	16	26
Mercury	0.1	mg/kg	< 0.1	< 0.1	-
Nickel	5	mg/kg	< 5	37	40
Zinc	5	mg/kg	29	55	69

Sample History

Where samples are submitted/analysed over several days, the last date of extraction and analysis is reported. A recent review of our LIMS has resulted in the correction or clarification of some method identifications. Due to this, some of the method reference information on reports has changed. However, no substantive change has been made to our laboratory methods, and as such there is no change in the validity of current or previous results (regarding both quality and NATA accreditation).

If the date and time of sampling are not provided, the Laboratory will not be responsible for compromised results should testing be performed outside the recommended holding time.

Description	Testing Site	Extracted	Holding Time
Eurofins mgt Suite B5			
Total Recoverable Hydrocarbons - 1999 NEPM Fractions - Method: TRH C6-C36 - LTM-ORG-2010	Melbourne	Feb 01, 2017	14 Day
BTEX - Method: TRH C6-C40 - LTM-ORG-2010	Melbourne	Feb 01, 2017	14 Day
Total Recoverable Hydrocarbons - 2013 NEPM Fractions - Method: TRH C6-C40 - LTM-ORG-2010	Melbourne	Feb 01, 2017	14 Day
Total Recoverable Hydrocarbons - 2013 NEPM Fractions - Method: TRH C6-C40 - LTM-ORG-2010	Melbourne	Feb 01, 2017	14 Day
Metals M7 - Method: USEPA 6010/6020 Heavy Metals	Melbourne	Feb 01, 2017	180 Day
Eurofins mgt Suite B7			
Polycyclic Aromatic Hydrocarbons - Method: USEPA 8270 Polycyclic Aromatic Hydrocarbons	Melbourne	Feb 01, 2017	14 Day
Metals M8 - Method: LTM-MET-3030 by ICP-OES (hydride ICP-OES for Mercury)	Melbourne	Feb 01, 2017	28 Days
NEPM Screen Table 1(A) HIL's for Soil Contaminants - Basic Suite - Excluding Methyl Mercury/PBDE			
Organochlorine Pesticides - Method: USEPA 8081 Organochlorine Pesticides	Melbourne	Feb 01, 2017	14 Day
Organophosphorus Pesticides - Method: LTM-ORG-2200 Organophosphorus Pesticides by GC-MS	Melbourne	Feb 01, 2017	14 Day
Polychlorinated Biphenyls - Method: USEPA 8082 Polychlorinated Biphenyls	Melbourne	Feb 01, 2017	28 Days
Triazines - Method: USEPA 8270	Melbourne	Feb 01, 2017	14 Day
NEPM 2013 Acid Herbicides - Method: MGT 530	Melbourne	Feb 01, 2017	14 Day
NEPM 2013 Organochlorine Pesticides - Method: USEPA 8081 Organochlorine Pesticides	Melbourne	Feb 01, 2017	14 Day
NEPM 2013 Phenols - Method: USEPA 8270 Phenols	Melbourne	Feb 01, 2017	14 Day
Chromium (hexavalent) - Method: APHA 3500-Cr Hexavalent Chromium- (Extraction:- USEPA3060)	Melbourne	Feb 01, 2017	28 Day
NEPM 2013 Metals : Metals M12 - Method: LTM-MET-3030 by ICP-OES (hydride ICP-OES for Mercury)	Melbourne	Feb 01, 2017	28 Day
Heavy Metals - Method: LTM-MET-3030 by ICP-OES (hydride ICP-OES for Mercury)	Melbourne	Feb 01, 2017	180 Day
Conductivity (1:5 aqueous extract at 25°C) - Method: LTM-INO-4030	Melbourne	Feb 01, 2017	7 Day
Ion Exchange Properties	Melbourne	Feb 02, 2017	
pH (1:5 Aqueous extract) - Method: LTM-GEN-7090 pH in soil by ISE	Melbourne	Feb 01, 2017	7 Day
% Moisture - Method: LTM-GEN-7080 Moisture	Melbourne	Jan 31, 2017	14 Day

Company Name: Cardno Lane Piper Pty Ltd	Order No.:	Received: Jan 30, 2017 10:50 AM
Address: Level 4, 501 Swanston Street Melbourne VIC 3000	Report #: 532061	Due: Feb 6, 2017
Project Name: BOX HILL	Phone: 8415 7777	Priority: 5 Day
Project ID: V161141G	Fax: 8415 7788	Contact Name: David Louwrens

Eurofins | mgt Analytical Services Manager : Natalie Krasselt

Sample Detail						HOLD	pH (1:5 Aqueous extract)	TRH C6-C9	Metals M7	Moisture Set	Cation Exchange Capacity	NEPM Screen Table 1(A) HIL's for Soil Contaminants - Basic Suite - Excluding	Eurofins mgt Suite B7	Eurofins mgt Suite B5
Melbourne Laboratory - NATA Site # 1254 & 14271						X	X	X	X	X	X	X	X	X
Sydney Laboratory - NATA Site # 18217														
Brisbane Laboratory - NATA Site # 20794														
Perth Laboratory - NATA Site # 18217														
External Laboratory														
No	Sample ID	Sample Date	Sampling Time	Matrix	LAB ID									
1	SB01/0.1	Jan 27, 2017		Soil	M17-Ja17709					X			X	
2	SB02/0.2	Jan 27, 2017		Soil	M17-Ja17710					X			X	
3	SB03/0.1	Jan 27, 2017		Soil	M17-Ja17711					X			X	
4	SB04/0.1	Jan 27, 2017		Soil	M17-Ja17712		X			X	X	X		
5	SB06/0.1	Jan 27, 2017		Soil	M17-Ja17713					X			X	
6	SB07/0.1	Jan 27, 2017		Soil	M17-Ja17714					X			X	
7	SB08/0.1	Jan 27, 2017		Soil	M17-Ja17715					X			X	
8	SB09/0.1	Jan 27, 2017		Soil	M17-Ja17716					X			X	
9	SB010/0.1	Jan 27, 2017		Soil	M17-Ja17717					X			X	

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Sample Detail						HOLD	pH (1:5 Aqueous extract)	TRH C6-C9	Metals M7	Moisture Set	Cation Exchange Capacity	NEPM Screen Table 1(A) HIL's for Soil Contaminants - Basic Suite - Excluding	Eurofins mgt Suite B7	Eurofins mgt Suite B5
Melbourne Laboratory - NATA Site # 1254 & 14271						X	X	X	X	X	X	X	X	X
Sydney Laboratory - NATA Site # 18217														
Brisbane Laboratory - NATA Site # 20794														
Perth Laboratory - NATA Site # 18217														
10	SB011/0.3	Jan 27, 2017		Soil	M17-Ja17718				X				X	
11	SB012/0.1	Jan 27, 2017		Soil	M17-Ja17719		X		X	X	X			
12	SB013/0.1	Jan 27, 2017		Soil	M17-Ja17720				X				X	
13	SB014/0.1	Jan 27, 2017		Soil	M17-Ja17721				X				X	
14	SB15/0.3	Jan 27, 2017		Soil	M17-Ja17722				X				X	
15	QC01_270117	Jan 27, 2017		Soil	M17-Ja17723				X					X
16	QC03_270117	Jan 27, 2017		Water	M17-Ja17724			X						
17	QC04_270117	Jan 27, 2017		Water	M17-Ja17725		X							
18	SB01/0.5	Jan 27, 2017		Soil	M17-Ja17726	X								
19	SB01/0.9	Jan 27, 2017		Soil	M17-Ja17727	X								
20	SB02/0.5	Jan 27, 2017		Soil	M17-Ja17728	X								
21	SB02/0.85	Jan 27, 2017		Soil	M17-Ja17729	X								

Company Name: Cardno Lane Piper Pty Ltd
Address: Level 4, 501 Swanston Street
Melbourne
VIC 3000
Project Name: BOX HILL
Project ID: V161141G

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Phone: 8415 7777
Fax: 8415 7788

Received: Jan 30, 2017 10:50 AM
Due: Feb 6, 2017
Priority: 5 Day
Contact Name: David Louwrens

Eurofins | mgt Analytical Services Manager : Natalie Krasselt

Sample Detail						HOLD	pH (1:5 Aqueous extract)	TRH C6-C9	Metals M7	Moisture Set	Cation Exchange Capacity	NEPM Screen Table 1(A) HIL's for Soil Contaminants - Basic Suite - Excluding	Eurofins mgt Suite B7	Eurofins mgt Suite B5
Melbourne Laboratory - NATA Site # 1254 & 14271						X	X	X	X	X	X	X	X	X
Sydney Laboratory - NATA Site # 18217														
Brisbane Laboratory - NATA Site # 20794														
Perth Laboratory - NATA Site # 18217														
22	SB03/0.35	Jan 27, 2017		Soil	M17-Ja17730	X								
23	SB03/0.5	Jan 27, 2017		Soil	M17-Ja17731	X								
24	SB03/0.95	Jan 27, 2017		Soil	M17-Ja17732	X								
25	SB04/0.5	Jan 27, 2017		Soil	M17-Ja17733	X								
26	SB04/0.9	Jan 27, 2017		Soil	M17-Ja17734	X								
27	SB06/0.5	Jan 27, 2017		Soil	M17-Ja17735	X								
28	SB06/0.9	Jan 27, 2017		Soil	M17-Ja17736	X								
29	SB07/0.5	Jan 27, 2017		Soil	M17-Ja17737	X								
30	SB07/0.9	Jan 27, 2017		Soil	M17-Ja17738	X								
31	SB08/0.5	Jan 27, 2017		Soil	M17-Ja17739	X								
32	SB09/0.5	Jan 27, 2017		Soil	M17-Ja17740	X								
33	SB09/0.75	Jan 27, 2017		Soil	M17-Ja17741	X								

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	Phone: 8415 7777	Priority: 5 Day
Project Name: BOX HILL	Fax: 8415 7788	Contact Name: David Louwrens
Project ID: V161141G		

Eurofins | mgt Analytical Services Manager : Natalie Krasselt

Sample Detail						HOLD	pH (1:5 Aqueous extract)	TRH C6-C9	Metals M7	Moisture Set	Cation Exchange Capacity	NEPM Screen Table 1(A) HIL's for Soil Contaminants - Basic Suite - Excluding	Eurofins mgt Suite B7	Eurofins mgt Suite B5
Melbourne Laboratory - NATA Site # 1254 & 14271						X	X	X	X	X	X	X	X	X
Sydney Laboratory - NATA Site # 18217														
Brisbane Laboratory - NATA Site # 20794														
Perth Laboratory - NATA Site # 18217														
34	SB010/0.5	Jan 27, 2017		Soil	M17-Ja17742	X								
35	SB010/0.9	Jan 27, 2017		Soil	M17-Ja17743	X								
36	SB011/0.5	Jan 27, 2017		Soil	M17-Ja17744	X								
37	SB011/1.0	Jan 27, 2017		Soil	M17-Ja17745	X								
38	SB012/0.5	Jan 27, 2017		Soil	M17-Ja17746	X								
39	SB012/1.0	Jan 27, 2017		Soil	M17-Ja17747	X								
40	SB013/0.5	Jan 27, 2017		Soil	M17-Ja17748	X								
41	SB013/1.0	Jan 27, 2017		Soil	M17-Ja17749	X								
42	SB015/0.5	Jan 27, 2017		Soil	M17-Ja17750	X								
43	SB015/1.0	Jan 27, 2017		Soil	M17-Ja17751	X								
Test Counts						26	2	1	1	15	2	2	12	1

Internal Quality Control Review and Glossary

General

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

Holding Times

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

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

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

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

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

Units

mg/kg: milligrams per Kilogram

mg/l: milligrams per litre

ug/l: micrograms per litre

ppm: Parts per million

ppb: Parts per billion

%: Percentage

org/100ml: Organisms per 100 millilitres

NTU: Nephelometric Turbidity Units

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

Terms

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

QC - Acceptance Criteria

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

Results <10 times the LOR : No Limit

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

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

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

QC Data General Comments

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

Quality Control Results

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Method Blank							
Total Recoverable Hydrocarbons - 1999 NEPM Fractions							
TRH C6-C9	mg/kg	< 20			20	Pass	
TRH C10-C14	mg/kg	< 20			20	Pass	
TRH C15-C28	mg/kg	< 50			50	Pass	
TRH C29-C36	mg/kg	< 50			50	Pass	
Method Blank							
BTEX							
Benzene	mg/kg	< 0.1			0.1	Pass	
Toluene	mg/kg	< 0.1			0.1	Pass	
Ethylbenzene	mg/kg	< 0.1			0.1	Pass	
m&p-Xylenes	mg/kg	< 0.2			0.2	Pass	
o-Xylene	mg/kg	< 0.1			0.1	Pass	
Xylenes - Total	mg/kg	< 0.3			0.3	Pass	
Method Blank							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
Naphthalene	mg/kg	< 0.5			0.5	Pass	
TRH C6-C10	mg/kg	< 20			20	Pass	
Method Blank							
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	mg/kg	< 0.5			0.5	Pass	
Acenaphthylene	mg/kg	< 0.5			0.5	Pass	
Anthracene	mg/kg	< 0.5			0.5	Pass	
Benz(a)anthracene	mg/kg	< 0.5			0.5	Pass	
Benzo(a)pyrene	mg/kg	< 0.5			0.5	Pass	
Benzo(b&j)fluoranthene	mg/kg	< 0.5			0.5	Pass	
Benzo(g,h,i)perylene	mg/kg	< 0.5			0.5	Pass	
Benzo(k)fluoranthene	mg/kg	< 0.5			0.5	Pass	
Chrysene	mg/kg	< 0.5			0.5	Pass	
Dibenz(a,h)anthracene	mg/kg	< 0.5			0.5	Pass	
Fluoranthene	mg/kg	< 0.5			0.5	Pass	
Fluorene	mg/kg	< 0.5			0.5	Pass	
Indeno(1,2,3-cd)pyrene	mg/kg	< 0.5			0.5	Pass	
Naphthalene	mg/kg	< 0.5			0.5	Pass	
Phenanthrene	mg/kg	< 0.5			0.5	Pass	
Pyrene	mg/kg	< 0.5			0.5	Pass	
Method Blank							
Organophosphorus Pesticides							
Chlorpyrifos	mg/kg	< 0.2			0.2	Pass	
Method Blank							
Polychlorinated Biphenyls							
Aroclor-1016	mg/kg	< 0.1			0.1	Pass	
Aroclor-1221	mg/kg	< 0.1			0.1	Pass	
Aroclor-1232	mg/kg	< 0.1			0.1	Pass	
Aroclor-1242	mg/kg	< 0.1			0.1	Pass	
Aroclor-1248	mg/kg	< 0.1			0.1	Pass	
Aroclor-1254	mg/kg	< 0.1			0.1	Pass	
Aroclor-1260	mg/kg	< 0.1			0.1	Pass	
Total PCB*	mg/kg	< 0.1			0.1	Pass	
Method Blank							
Triazines							
Atrazine	mg/kg	< 0.2			0.2	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Method Blank							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
TRH >C10-C16	mg/kg	< 50			50	Pass	
TRH >C16-C34	mg/kg	< 100			100	Pass	
TRH >C34-C40	mg/kg	< 100			100	Pass	
Method Blank							
NEPM 2013 Acid Herbicides							
Picloram*	mg/kg	< 0.5			0.5	Pass	
2,4-D	mg/kg	< 0.5			0.5	Pass	
2,4,5-T	mg/kg	< 0.5			0.5	Pass	
MCPA	mg/kg	< 0.5			0.5	Pass	
MCPB	mg/kg	< 0.5			0.5	Pass	
Mecoprop	mg/kg	< 0.5			0.5	Pass	
Method Blank							
NEPM 2013 Organochlorine Pesticides							
Endosulfan sulphate	mg/kg	< 0.05			0.05	Pass	
4,4'-DDD	mg/kg	< 0.05			0.05	Pass	
4,4'-DDE	mg/kg	< 0.05			0.05	Pass	
4,4'-DDT	mg/kg	< 0.05			0.05	Pass	
Aldrin	mg/kg	< 0.05			0.05	Pass	
Chlordanes - Total	mg/kg	< 0.1			0.1	Pass	
Dieldrin	mg/kg	< 0.05			0.05	Pass	
Endosulfan I	mg/kg	< 0.05			0.05	Pass	
Endosulfan II	mg/kg	< 0.05			0.05	Pass	
Endrin	mg/kg	< 0.05			0.05	Pass	
Heptachlor	mg/kg	< 0.05			0.05	Pass	
Hexachlorobenzene	mg/kg	< 0.05			0.05	Pass	
Methoxychlor	mg/kg	< 0.05			0.05	Pass	
Toxaphene	mg/kg	< 1			1	Pass	
Method Blank							
NEPM 2013 Phenols							
2-Methylphenol (o-Cresol)	mg/kg	< 0.2			0.2	Pass	
3&4-Methylphenol (m&p-Cresol)	mg/kg	< 0.4			0.4	Pass	
Pentachlorophenol	mg/kg	< 1			1.0	Pass	
Phenol	mg/kg	< 0.5			0.5	Pass	
Method Blank							
Chromium (hexavalent)	mg/kg	< 1			1	Pass	
Cyanide (free)	mg/kg	< 5			5	Pass	
Method Blank							
Heavy Metals							
Arsenic	mg/kg	< 2			2	Pass	
Beryllium	mg/kg	< 2			2	Pass	
Cadmium	mg/kg	< 0.4			0.4	Pass	
Chromium	mg/kg	< 5			5	Pass	
Cobalt	mg/kg	< 5			5	Pass	
Copper	mg/kg	< 5			5	Pass	
Lead	mg/kg	< 5			5	Pass	
Manganese	mg/kg	< 5			5	Pass	
Mercury	mg/kg	< 0.1			0.1	Pass	
Nickel	mg/kg	< 5			5	Pass	
Selenium	mg/kg	< 2			2	Pass	
Zinc	mg/kg	< 5			5	Pass	
Method Blank							
Ion Exchange Properties							

Test	Units	Result 1		Acceptance Limits	Pass Limits	Qualifying Code
Cation Exchange Capacity	meq/100g	< 0.05		0.05	Pass	
LCS - % Recovery						
Total Recoverable Hydrocarbons - 1999 NEPM Fractions						
TRH C6-C9	%	129		70-130	Pass	
TRH C10-C14	%	106		70-130	Pass	
LCS - % Recovery						
BTEX						
Benzene	%	91		70-130	Pass	
Toluene	%	95		70-130	Pass	
Ethylbenzene	%	100		70-130	Pass	
m&p-Xylenes	%	100		70-130	Pass	
Xylenes - Total	%	100		70-130	Pass	
LCS - % Recovery						
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene	%	110		70-130	Pass	
TRH C6-C10	%	108		70-130	Pass	
LCS - % Recovery						
Polycyclic Aromatic Hydrocarbons						
Acenaphthene	%	84		70-130	Pass	
Acenaphthylene	%	80		70-130	Pass	
Anthracene	%	71		70-130	Pass	
Benz(a)anthracene	%	89		70-130	Pass	
Benzo(a)pyrene	%	108		70-130	Pass	
Benzo(b&j)fluoranthene	%	119		70-130	Pass	
Benzo(g,h,i)perylene	%	95		70-130	Pass	
Benzo(k)fluoranthene	%	120		70-130	Pass	
Chrysene	%	99		70-130	Pass	
Dibenz(a,h)anthracene	%	90		70-130	Pass	
Fluoranthene	%	89		70-130	Pass	
Fluorene	%	84		70-130	Pass	
Indeno(1,2,3-cd)pyrene	%	87		70-130	Pass	
Naphthalene	%	78		70-130	Pass	
Phenanthrene	%	85		70-130	Pass	
Pyrene	%	91		70-130	Pass	
LCS - % Recovery						
Polychlorinated Biphenyls						
Aroclor-1260	%	80		70-130	Pass	
LCS - % Recovery						
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
TRH >C10-C16	%	115		70-130	Pass	
LCS - % Recovery						
NEPM 2013 Acid Herbicides						
Picloram*	%	104		70-130	Pass	
2,4-D	%	119		70-130	Pass	
2,4,5-T	%	124		70-130	Pass	
MCPA	%	122		70-130	Pass	
MCPB	%	125		70-130	Pass	
Mecoprop	%	96		70-130	Pass	
LCS - % Recovery						
NEPM 2013 Organochlorine Pesticides						
Endosulfan sulphate	%	102		70-130	Pass	
4,4'-DDD	%	104		70-130	Pass	
4,4'-DDE	%	74		70-130	Pass	
4,4'-DDT	%	91		70-130	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code	
Aldrin	%	104			70-130	Pass		
Dieldrin	%	128			70-130	Pass		
Endosulfan I	%	101			70-130	Pass		
Endosulfan II	%	88			70-130	Pass		
Endrin	%	111			70-130	Pass		
Heptachlor	%	96			70-130	Pass		
Hexachlorobenzene	%	102			70-130	Pass		
Methoxychlor	%	74			70-130	Pass		
LCS - % Recovery								
NEPM 2013 Phenols								
2-Methylphenol (o-Cresol)	%	107			30-130	Pass		
3&4-Methylphenol (m&p-Cresol)	%	124			30-130	Pass		
Pentachlorophenol	%	46			30-130	Pass		
Phenol	%	119			30-130	Pass		
LCS - % Recovery								
Chromium (hexavalent)	%	99			70-130	Pass		
LCS - % Recovery								
Heavy Metals								
Arsenic	%	100			80-120	Pass		
Beryllium	%	109			80-120	Pass		
Cadmium	%	102			80-120	Pass		
Chromium	%	109			80-120	Pass		
Cobalt	%	109			80-120	Pass		
Copper	%	108			80-120	Pass		
Lead	%	109			80-120	Pass		
Manganese	%	107			80-120	Pass		
Mercury	%	95			75-125	Pass		
Nickel	%	102			80-120	Pass		
Selenium	%	106			80-120	Pass		
Zinc	%	103			80-120	Pass		
Test	Lab Sample ID	QA Source	Units	Result 1		Acceptance Limits	Pass Limits	Qualifying Code
Spike - % Recovery								
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1				
TRH C6-C9	M17-Ja17632	NCP	%	93		70-130	Pass	
TRH C10-C14	M17-Ja16118	NCP	%	96		70-130	Pass	
Spike - % Recovery								
BTEX				Result 1				
Benzene	M17-Ja17632	NCP	%	74		70-130	Pass	
Toluene	M17-Ja17632	NCP	%	80		70-130	Pass	
Ethylbenzene	M17-Ja17632	NCP	%	88		70-130	Pass	
m&p-Xylenes	M17-Ja17632	NCP	%	88		70-130	Pass	
o-Xylene	M17-Ja17632	NCP	%	88		70-130	Pass	
Xylenes - Total	M17-Ja17632	NCP	%	88		70-130	Pass	
Spike - % Recovery								
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1				
Naphthalene	M17-Ja17632	NCP	%	124		70-130	Pass	
TRH C6-C10	M17-Ja17632	NCP	%	74		70-130	Pass	
Spike - % Recovery								
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1				
TRH >C10-C16	M17-Ja16118	NCP	%	122		70-130	Pass	
Spike - % Recovery								
Heavy Metals				Result 1				
Arsenic	M17-Fe00416	NCP	%	97		75-125	Pass	
Cadmium	M17-Fe00416	NCP	%	107		75-125	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1		Acceptance Limits	Pass Limits	Qualifying Code
Chromium	M17-Fe00416	NCP	%	113		75-125	Pass	
Copper	M17-Fe00416	NCP	%	114		75-125	Pass	
Lead	M17-Fe00416	NCP	%	111		75-125	Pass	
Mercury	M17-Fe00416	NCP	%	101		70-130	Pass	
Nickel	M17-Fe00416	NCP	%	107		75-125	Pass	
Zinc	M17-Fe00416	NCP	%	105		75-125	Pass	
Spike - % Recovery								
				Result 1				
Chromium (hexavalent)	M17-Ja17712	CP	%	100		70-130	Pass	
Spike - % Recovery								
Heavy Metals				Result 1				
Beryllium	M17-Fe00416	NCP	%	111		75-125	Pass	
Cobalt	M17-Fe00416	NCP	%	113		75-125	Pass	
Manganese	M17-Fe00416	NCP	%	107		75-125	Pass	
Selenium	M17-Fe00416	NCP	%	103		75-125	Pass	
Spike - % Recovery								
Polycyclic Aromatic Hydrocarbons				Result 1				
Acenaphthene	M17-Ja17717	CP	%	82		70-130	Pass	
Acenaphthylene	M17-Ja17717	CP	%	82		70-130	Pass	
Anthracene	M17-Ja17717	CP	%	67		70-130	Fail	Q08
Benz(a)anthracene	M17-Ja17717	CP	%	94		70-130	Pass	
Benzo(a)pyrene	M17-Ja17717	CP	%	107		70-130	Pass	
Benzo(b&j)fluoranthene	M17-Ja17717	CP	%	118		70-130	Pass	
Benzo(g,h,i)perylene	M17-Ja17717	CP	%	96		70-130	Pass	
Benzo(k)fluoranthene	M17-Ja17717	CP	%	113		70-130	Pass	
Chrysene	M17-Ja17717	CP	%	95		70-130	Pass	
Dibenz(a,h)anthracene	M17-Ja17717	CP	%	93		70-130	Pass	
Fluoranthene	M17-Ja17717	CP	%	85		70-130	Pass	
Fluorene	M17-Ja17717	CP	%	80		70-130	Pass	
Indeno(1,2,3-cd)pyrene	M17-Ja17717	CP	%	89		70-130	Pass	
Naphthalene	M17-Ja17717	CP	%	82		70-130	Pass	
Phenanthrene	M17-Ja17717	CP	%	80		70-130	Pass	
Pyrene	M17-Ja17717	CP	%	89		70-130	Pass	
Spike - % Recovery								
NEPM 2013 Phenols				Result 1				
2-Methylphenol (o-Cresol)	M17-Ja17717	CP	%	81		30-130	Pass	
3&4-Methylphenol (m&p-Cresol)	M17-Ja17717	CP	%	79		30-130	Pass	
Pentachlorophenol	M17-Ja17717	CP	%	60		30-130	Pass	
Phenol	M17-Ja17717	CP	%	84		30-130	Pass	
Spike - % Recovery								
NEPM 2013 Acid Herbicides				Result 1				
Picloram*	M17-Ja17718	CP	%	98		70-130	Pass	
2,4-D	M17-Ja17718	CP	%	122		70-130	Pass	
MCPA	M17-Ja17718	CP	%	114		70-130	Pass	
MCPB	M17-Ja17718	CP	%	124		70-130	Pass	
Spike - % Recovery								
Polychlorinated Biphenyls				Result 1				
Aroclor-1260	M17-Ja17719	CP	%	110		70-130	Pass	
Spike - % Recovery								
NEPM 2013 Acid Herbicides				Result 1				
Picloram*	M17-Ja17719	CP	%	98		70-130	Pass	
2,4-D	M17-Ja17719	CP	%	122		70-130	Pass	
MCPA	M17-Ja17719	CP	%	114		70-130	Pass	
MCPB	M17-Ja17719	CP	%	124		70-130	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Spike - % Recovery									
NEPM 2013 Organochlorine Pesticides				Result 1					
Endosulfan sulphate	M17-Ja17719	CP	%	114			70-130	Pass	
4.4'-DDD	M17-Ja17719	CP	%	128			70-130	Pass	
4.4'-DDE	M17-Ja17719	CP	%	97			70-130	Pass	
4.4'-DDT	M17-Ja17719	CP	%	128			70-130	Pass	
Aldrin	M17-Ja17719	CP	%	101			70-130	Pass	
Dieldrin	M17-Ja17719	CP	%	95			70-130	Pass	
Endosulfan I	M17-Ja17719	CP	%	97			70-130	Pass	
Endosulfan II	M17-Ja17719	CP	%	92			70-130	Pass	
Endrin	M17-Ja17719	CP	%	117			70-130	Pass	
Heptachlor	M17-Ja17719	CP	%	97			70-130	Pass	
Hexachlorobenzene	M17-Ja17719	CP	%	107			70-130	Pass	
Methoxychlor	M17-Ja17719	CP	%	91			70-130	Pass	
Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Duplicate									
Polycyclic Aromatic Hydrocarbons				Result 1	Result 2	RPD			
Acenaphthene	M17-Ja17712	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Acenaphthylene	M17-Ja17712	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Anthracene	M17-Ja17712	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benz(a)anthracene	M17-Ja17712	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(a)pyrene	M17-Ja17712	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(b&j)fluoranthene	M17-Ja17712	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(g,h,i)perylene	M17-Ja17712	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(k)fluoranthene	M17-Ja17712	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Chrysene	M17-Ja17712	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Dibenz(a,h)anthracene	M17-Ja17712	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Fluoranthene	M17-Ja17712	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Fluorene	M17-Ja17712	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Indeno(1,2,3-cd)pyrene	M17-Ja17712	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Naphthalene	M17-Ja17712	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Phenanthrene	M17-Ja17712	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Pyrene	M17-Ja17712	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Duplicate									
Organochlorine Pesticides				Result 1	Result 2	RPD			
Bifenthrin	M17-Ja17712	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Duplicate									
Organophosphorus Pesticides				Result 1	Result 2	RPD			
Chlorpyrifos	M17-Ja17712	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
Duplicate									
Polychlorinated Biphenyls				Result 1	Result 2	RPD			
Aroclor-1016	M17-Ja17712	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Aroclor-1221	M17-Ja17712	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Aroclor-1232	M17-Ja17712	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Aroclor-1242	M17-Ja17712	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Aroclor-1248	M17-Ja17712	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Aroclor-1254	M17-Ja17712	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Aroclor-1260	M17-Ja17712	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Total PCB*	M17-Ja17712	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Duplicate									
Triazines				Result 1	Result 2	RPD			
Atrazine	M17-Ja17712	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	

Duplicate								
NEPM 2013 Acid Herbicides				Result 1	Result 2	RPD		
Picloram*	M17-Ja17519	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
2,4-D	M17-Ja17519	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
2,4,5-T	M17-Ja17519	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
MCPA	M17-Ja17519	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
MCPB	M17-Ja17519	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Mecoprop	M17-Ja17519	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Duplicate								
NEPM 2013 Organochlorine Pesticides				Result 1	Result 2	RPD		
Endosulfan sulphate	M17-Ja17712	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Mirex	M17-Ja17712	CP	mg/kg	< 0.01	< 0.01	<1	30%	Pass
4,4'-DDD	M17-Ja17712	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
4,4'-DDE	M17-Ja17712	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
4,4'-DDT	M17-Ja17712	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Aldrin	M17-Ja17712	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Chlordanes - Total	M17-Ja17712	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass
Dieldrin	M17-Ja17712	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Endosulfan I	M17-Ja17712	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Endosulfan II	M17-Ja17712	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Endrin	M17-Ja17712	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Heptachlor	M17-Ja17712	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Hexachlorobenzene	M17-Ja17712	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Methoxychlor	M17-Ja17712	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Toxaphene	M17-Ja17712	CP	mg/kg	< 1	< 1	<1	30%	Pass
Duplicate								
NEPM 2013 Phenols				Result 1	Result 2	RPD		
2-Methylphenol (o-Cresol)	M17-Ja17712	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
3&4-Methylphenol (m&p-Cresol)	M17-Ja17712	CP	mg/kg	< 0.4	< 0.4	<1	30%	Pass
Pentachlorophenol	M17-Ja17712	CP	mg/kg	< 1	< 1	<1	30%	Pass
Phenol	M17-Ja17712	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Duplicate								
				Result 1	Result 2	RPD		
Chromium (hexavalent)	M17-Ja18082	NCP	mg/kg	< 1	< 1	<1	30%	Pass
Conductivity (1:5 aqueous extract at 25°C)	M17-Ja17712	CP	uS/cm	200	170	15	30%	Pass
pH (1:5 Aqueous extract)	B17-Fe01822	NCP	pH Units	4.6	4.5	pass	30%	Pass
Duplicate								
Heavy Metals				Result 1	Result 2	RPD		
Arsenic	M17-Ja17712	CP	mg/kg	< 2	< 2	<1	30%	Pass
Beryllium	M17-Ja17712	CP	mg/kg	< 2	< 2	<1	30%	Pass
Boron	M17-Ja16872	NCP	mg/kg	4200	4000	4.0	30%	Pass
Cadmium	M17-Ja17712	CP	mg/kg	< 0.4	< 0.4	<1	30%	Pass
Chromium	M17-Ja17712	CP	mg/kg	35	34	2.0	30%	Pass
Cobalt	M17-Ja17712	CP	mg/kg	43	41	3.0	30%	Pass
Copper	M17-Ja17712	CP	mg/kg	51	50	2.0	30%	Pass
Lead	M17-Ja17712	CP	mg/kg	< 5	< 5	<1	30%	Pass
Manganese	M17-Ja17712	CP	mg/kg	940	920	2.0	30%	Pass
Mercury	M17-Ja17712	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass
Nickel	M17-Ja17712	CP	mg/kg	150	150	3.0	30%	Pass
Selenium	M17-Ja17712	CP	mg/kg	< 2	< 2	<1	30%	Pass
Zinc	M17-Ja17712	CP	mg/kg	75	77	4.0	30%	Pass
Duplicate								
				Result 1	Result 2	RPD		
% Moisture	M17-Ja17713	CP	%	3.5	3.6	3.0	30%	Pass

Duplicate								
Heavy Metals				Result 1	Result 2	RPD		
Arsenic	M17-Ja17713	CP	mg/kg	3.7	3.6	1.0	30%	Pass
Beryllium	M17-Ja17713	CP	mg/kg	< 2	< 2	<1	30%	Pass
Cadmium	M17-Ja17713	CP	mg/kg	< 0.4	< 0.4	<1	30%	Pass
Chromium	M17-Ja17713	CP	mg/kg	22	22	2.0	30%	Pass
Cobalt	M17-Ja17713	CP	mg/kg	22	26	18	30%	Pass
Copper	M17-Ja17713	CP	mg/kg	30	35	15	30%	Pass
Lead	M17-Ja17713	CP	mg/kg	34	41	19	30%	Pass
Manganese	M17-Ja17713	CP	mg/kg	430	430	1.0	30%	Pass
Mercury	M17-Ja17713	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass
Nickel	M17-Ja17713	CP	mg/kg	84	100	20	30%	Pass
Selenium	M17-Ja17713	CP	mg/kg	< 2	< 2	<1	30%	Pass
Zinc	M17-Ja17713	CP	mg/kg	79	77	3.0	30%	Pass
Duplicate								
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1	Result 2	RPD		
TRH C6-C9	M17-Ja17716	CP	mg/kg	< 20	< 20	<1	30%	Pass
TRH C10-C14	M17-Ja17716	CP	mg/kg	< 20	< 20	<1	30%	Pass
TRH C15-C28	M17-Ja17716	CP	mg/kg	< 50	< 50	<1	30%	Pass
TRH C29-C36	M17-Ja17716	CP	mg/kg	< 50	< 50	<1	30%	Pass
Duplicate								
BTEX				Result 1	Result 2	RPD		
Benzene	M17-Ja17716	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass
Toluene	M17-Ja17716	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass
Ethylbenzene	M17-Ja17716	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass
m&p-Xylenes	M17-Ja17716	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
o-Xylene	M17-Ja17716	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass
Xylenes - Total	M17-Ja17716	CP	mg/kg	< 0.3	< 0.3	<1	30%	Pass
Duplicate								
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1	Result 2	RPD		
Naphthalene	M17-Ja17716	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
TRH C6-C10	M17-Ja17716	CP	mg/kg	< 20	< 20	<1	30%	Pass
Duplicate								
Polycyclic Aromatic Hydrocarbons				Result 1	Result 2	RPD		
Acenaphthene	M17-Ja17716	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Acenaphthylene	M17-Ja17716	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Anthracene	M17-Ja17716	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Benz(a)anthracene	M17-Ja17716	CP	mg/kg	0.7	0.6	16	30%	Pass
Benzo(a)pyrene	M17-Ja17716	CP	mg/kg	1.0	0.9	3.0	30%	Pass
Benzo(b&j)fluoranthene	M17-Ja17716	CP	mg/kg	0.9	0.9	6.0	30%	Pass
Benzo(g,h,i)perylene	M17-Ja17716	CP	mg/kg	0.7	0.7	7.0	30%	Pass
Benzo(k)fluoranthene	M17-Ja17716	CP	mg/kg	0.6	0.6	2.0	30%	Pass
Chrysene	M17-Ja17716	CP	mg/kg	0.8	0.7	11	30%	Pass
Dibenz(a,h)anthracene	M17-Ja17716	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Fluoranthene	M17-Ja17716	CP	mg/kg	1.1	1.0	11	30%	Pass
Fluorene	M17-Ja17716	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Indeno(1,2,3-cd)pyrene	M17-Ja17716	CP	mg/kg	0.5	< 0.5	3.0	30%	Pass
Naphthalene	M17-Ja17716	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Phenanthrene	M17-Ja17716	CP	mg/kg	0.6	< 0.5	24	30%	Pass
Pyrene	M17-Ja17716	CP	mg/kg	1.1	1.0	9.0	30%	Pass
Duplicate								
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1	Result 2	RPD		
TRH >C10-C16	M17-Ja17716	CP	mg/kg	< 50	< 50	<1	30%	Pass
TRH >C16-C34	M17-Ja17716	CP	mg/kg	< 100	< 100	<1	30%	Pass
TRH >C34-C40	M17-Ja17716	CP	mg/kg	< 100	< 100	<1	30%	Pass

Duplicate								
NEPM 2013 Phenols				Result 1	Result 2	RPD		
2-Methylphenol (o-Cresol)	M17-Ja17716	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
3&4-Methylphenol (m&p-Cresol)	M17-Ja17716	CP	mg/kg	< 0.4	< 0.4	<1	30%	Pass
Pentachlorophenol	M17-Ja17716	CP	mg/kg	< 1	< 1	<1	30%	Pass
Phenol	M17-Ja17716	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Duplicate								
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1	Result 2	RPD		
TRH C6-C9	M17-Ja17718	CP	mg/kg	< 20	< 20	<1	30%	Pass
Duplicate								
BTEX				Result 1	Result 2	RPD		
Benzene	M17-Ja17718	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass
Toluene	M17-Ja17718	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass
Ethylbenzene	M17-Ja17718	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass
m&p-Xylenes	M17-Ja17718	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
o-Xylene	M17-Ja17718	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass
Xylenes - Total	M17-Ja17718	CP	mg/kg	< 0.3	< 0.3	<1	30%	Pass
Duplicate								
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1	Result 2	RPD		
Naphthalene	M17-Ja17718	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
TRH C6-C10	M17-Ja17718	CP	mg/kg	< 20	< 20	<1	30%	Pass
Duplicate								
Heavy Metals				Result 1	Result 2	RPD		
Arsenic	M17-Ja17719	CP	mg/kg	11	11	<1	30%	Pass
Beryllium	M17-Ja17719	CP	mg/kg	< 2	< 2	<1	30%	Pass
Cadmium	M17-Ja17719	CP	mg/kg	< 0.4	< 0.4	<1	30%	Pass
Chromium	M17-Ja17719	CP	mg/kg	34	34	<1	30%	Pass
Cobalt	M17-Ja17719	CP	mg/kg	11	11	<1	30%	Pass
Copper	M17-Ja17719	CP	mg/kg	26	26	1.0	30%	Pass
Lead	M17-Ja17719	CP	mg/kg	16	16	<1	30%	Pass
Manganese	M17-Ja17719	CP	mg/kg	200	190	1.0	30%	Pass
Mercury	M17-Ja17719	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass
Nickel	M17-Ja17719	CP	mg/kg	41	41	<1	30%	Pass
Selenium	M17-Ja17719	CP	mg/kg	< 2	< 2	<1	30%	Pass
Zinc	M17-Ja17719	CP	mg/kg	52	53	2.0	30%	Pass
Duplicate								
				Result 1	Result 2	RPD		
% Moisture	M17-Ja17723	CP	%	15	15	2.0	30%	Pass
Duplicate								
Heavy Metals				Result 1	Result 2	RPD		
Arsenic	M17-Ja17723	CP	mg/kg	5.7	5.7	2.0	30%	Pass
Beryllium	M17-Ja17723	CP	mg/kg	5.5	5.7	5.0	30%	Pass
Cadmium	M17-Ja17723	CP	mg/kg	< 0.4	< 0.4	<1	30%	Pass
Chromium	M17-Ja17723	CP	mg/kg	45	45	<1	30%	Pass
Cobalt	M17-Ja17723	CP	mg/kg	17	18	7.0	30%	Pass
Copper	M17-Ja17723	CP	mg/kg	28	29	1.0	30%	Pass
Lead	M17-Ja17723	CP	mg/kg	26	27	3.0	30%	Pass
Manganese	M17-Ja17723	CP	mg/kg	19	19	3.0	30%	Pass
Mercury	M17-Ja17723	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass
Nickel	M17-Ja17723	CP	mg/kg	40	41	2.0	30%	Pass
Selenium	M17-Ja17723	CP	mg/kg	< 2	< 2	<1	30%	Pass
Zinc	M17-Ja17723	CP	mg/kg	69	70	1.0	30%	Pass

Comments

Sample Integrity

Custody Seals Intact (if used)	N/A
Attempt to Chill was evident	Yes
Sample correctly preserved	Yes
Appropriate sample containers have been used	Yes
Sample containers for volatile analysis received with minimal headspace	Yes
Samples received within HoldingTime	Yes
Some samples have been subcontracted	No

Qualifier Codes/Comments

Code	Description
N01	F2 is determined by arithmetically subtracting the "naphthalene" value from the ">C10-C16" value. The naphthalene value used in this calculation is obtained from volatiles (Purge & Trap analysis).
N02	Where we have reported both volatile (P&T GCMS) and semivolatile (GCMS) naphthalene data, results may not be identical. Provided correct sample handling protocols have been followed, any observed differences in results are likely to be due to procedural differences within each methodology. Results determined by both techniques have passed all QAQC acceptance criteria, and are entirely technically valid.
N04	F1 is determined by arithmetically subtracting the "Total BTEX" value from the "C6-C10" value. The "Total BTEX" value is obtained by summing the concentrations of BTEX analytes. The "C6-C10" value is obtained by quantitating against a standard of mixed aromatic/aliphatic analytes.
N07	Please note:- These two PAH isomers closely co-elute using the most contemporary analytical methods and both the reported concentration (and the TEQ) apply specifically to the total of the two co-eluting PAHs
Q08	The matrix spike recovery is outside of the recommended acceptance criteria. An acceptable recovery was obtained for the laboratory control sample indicating a sample matrix interference

Authorised By

Natalie Krasselt	Analytical Services Manager
Alex Petridis	Senior Analyst-Metal (VIC)
Alex Petridis	Senior Analyst-Organic (VIC)
Harry Bacalis	Senior Analyst-Volatile (VIC)
Huong Le	Senior Analyst-Inorganic (VIC)
Joseph Edouard	Senior Analyst-Organic (VIC)



Glenn Jackson

National Operations Manager

Final report - this Report replaces any previously issued Report

- Indicates Not Requested

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

Measurement uncertainty of test data is available on request or please [click here](#).

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Certificate of Analysis

Cardno Victoria Pty Ltd
 Level 4, 501 Swanston Street
 Melbourne
 VIC 3000



NATA Accredited
 Accreditation Number 1261
 Site Number 1254

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

Attention: David Louwrens

Report 532061-W
 Project name BOX HILL
 Project ID V161141G
 Received Date Jan 30, 2017

Client Sample ID			QC03_270117	QC04_270117
Sample Matrix			Water	Water
Eurofins mgt Sample No.			M17-Ja17724	M17-Ja17725
Date Sampled			Jan 27, 2017	Jan 27, 2017
Test/Reference	LOR	Unit		
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				
TRH C6-C9	0.02	mg/L	-	< 0.02
Heavy Metals				
Arsenic	0.001	mg/L	< 0.001	-
Cadmium	0.0002	mg/L	< 0.0002	-
Chromium	0.001	mg/L	< 0.001	-
Copper	0.001	mg/L	< 0.001	-
Lead	0.001	mg/L	< 0.001	-
Nickel	0.001	mg/L	< 0.001	-
Zinc	0.005	mg/L	< 0.005	-

Sample History

Where samples are submitted/analysed over several days, the last date of extraction and analysis is reported. A recent review of our LIMS has resulted in the correction or clarification of some method identifications. Due to this, some of the method reference information on reports has changed. However, no substantive change has been made to our laboratory methods, and as such there is no change in the validity of current or previous results (regarding both quality and NATA accreditation).

If the date and time of sampling are not provided, the Laboratory will not be responsible for compromised results should testing be performed outside the recommended holding time.

Description	Testing Site	Extracted	Holding Time
Eurofins mgt Suite B5			
Total Recoverable Hydrocarbons - 1999 NEPM Fractions	Melbourne	Jan 31, 2017	7 Day
- Method: TRH C6-C36 - LTM-ORG-2010			
Metals M7	Melbourne	Jan 31, 2017	180 Day
- Method: USEPA 6010/6020 Heavy Metals			

Company Name: Cardno Lane Piper Pty Ltd	Order No.:	Received: Jan 30, 2017 10:50 AM
Address: Level 4, 501 Swanston Street Melbourne VIC 3000	Report #: 532061	Due: Feb 6, 2017
Project Name: BOX HILL	Phone: 8415 7777	Priority: 5 Day
Project ID: V161141G	Fax: 8415 7788	Contact Name: David Louwrens

Eurofins | mgt Analytical Services Manager : Natalie Krasselt

Sample Detail						HOLD	pH (1:5 Aqueous extract)	TRH C6-C9	Metals M7	Moisture Set	Cation Exchange Capacity	NEPM Screen Table 1(A) HIL's for Soil Contaminants - Basic Suite - Excluding	Eurofins mgt Suite B7	Eurofins mgt Suite B5
Melbourne Laboratory - NATA Site # 1254 & 14271						X	X	X	X	X	X	X	X	X
Sydney Laboratory - NATA Site # 18217														
Brisbane Laboratory - NATA Site # 20794														
Perth Laboratory - NATA Site # 18217														
External Laboratory														
No	Sample ID	Sample Date	Sampling Time	Matrix	LAB ID									
1	SB01/0.1	Jan 27, 2017		Soil	M17-Ja17709					X			X	
2	SB02/0.2	Jan 27, 2017		Soil	M17-Ja17710					X			X	
3	SB03/0.1	Jan 27, 2017		Soil	M17-Ja17711					X			X	
4	SB04/0.1	Jan 27, 2017		Soil	M17-Ja17712		X			X	X	X		
5	SB06/0.1	Jan 27, 2017		Soil	M17-Ja17713					X			X	
6	SB07/0.1	Jan 27, 2017		Soil	M17-Ja17714					X			X	
7	SB08/0.1	Jan 27, 2017		Soil	M17-Ja17715					X			X	
8	SB09/0.1	Jan 27, 2017		Soil	M17-Ja17716					X			X	
9	SB010/0.1	Jan 27, 2017		Soil	M17-Ja17717					X			X	

Company Name: Cardno Lane Piper Pty Ltd
Address: Level 4, 501 Swanston Street
Melbourne
VIC 3000
Project Name: BOX HILL
Project ID: V161141G

Order No.:
Report #: 532061
Phone: 8415 7777
Fax: 8415 7788

Received: Jan 30, 2017 10:50 AM
Due: Feb 6, 2017
Priority: 5 Day
Contact Name: David Louwrens

Eurofins | mgt Analytical Services Manager : Natalie Krasselt

Sample Detail						HOLD	pH (1:5 Aqueous extract)	TRH C6-C9	Metals M7	Moisture Set	Cation Exchange Capacity	NEPM Screen Table 1(A) HIL's for Soil Contaminants - Basic Suite - Excluding	Eurofins mgt Suite B7	Eurofins mgt Suite B5
Melbourne Laboratory - NATA Site # 1254 & 14271						X	X	X	X	X	X	X	X	X
Sydney Laboratory - NATA Site # 18217														
Brisbane Laboratory - NATA Site # 20794														
Perth Laboratory - NATA Site # 18217														
10	SB011/0.3	Jan 27, 2017		Soil	M17-Ja17718				X				X	
11	SB012/0.1	Jan 27, 2017		Soil	M17-Ja17719		X		X	X	X			
12	SB013/0.1	Jan 27, 2017		Soil	M17-Ja17720				X				X	
13	SB014/0.1	Jan 27, 2017		Soil	M17-Ja17721				X				X	
14	SB15/0.3	Jan 27, 2017		Soil	M17-Ja17722				X				X	
15	QC01_270117	Jan 27, 2017		Soil	M17-Ja17723				X					X
16	QC03_270117	Jan 27, 2017		Water	M17-Ja17724			X						
17	QC04_270117	Jan 27, 2017		Water	M17-Ja17725		X							
18	SB01/0.5	Jan 27, 2017		Soil	M17-Ja17726	X								
19	SB01/0.9	Jan 27, 2017		Soil	M17-Ja17727	X								
20	SB02/0.5	Jan 27, 2017		Soil	M17-Ja17728	X								
21	SB02/0.85	Jan 27, 2017		Soil	M17-Ja17729	X								

Company Name: Cardno Lane Piper Pty Ltd	Order No.:	Received: Jan 30, 2017 10:50 AM
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	Phone: 8415 7777	Priority: 5 Day
Project Name: BOX HILL	Fax: 8415 7788	Contact Name: David Louwrens
Project ID: V161141G		

Eurofins | mgt Analytical Services Manager : Natalie Krasselt

Sample Detail						HOLD	pH (1:5 Aqueous extract)	TRH C6-C9	Metals M7	Moisture Set	Cation Exchange Capacity	NEPM Screen Table 1(A) HIL's for Soil Contaminants - Basic Suite - Excluding	Eurofins mgt Suite B7	Eurofins mgt Suite B5
Melbourne Laboratory - NATA Site # 1254 & 14271						X	X	X	X	X	X	X	X	X
Sydney Laboratory - NATA Site # 18217														
Brisbane Laboratory - NATA Site # 20794														
Perth Laboratory - NATA Site # 18217														
22	SB03/0.35	Jan 27, 2017		Soil	M17-Ja17730	X								
23	SB03/0.5	Jan 27, 2017		Soil	M17-Ja17731	X								
24	SB03/0.95	Jan 27, 2017		Soil	M17-Ja17732	X								
25	SB04/0.5	Jan 27, 2017		Soil	M17-Ja17733	X								
26	SB04/0.9	Jan 27, 2017		Soil	M17-Ja17734	X								
27	SB06/0.5	Jan 27, 2017		Soil	M17-Ja17735	X								
28	SB06/0.9	Jan 27, 2017		Soil	M17-Ja17736	X								
29	SB07/0.5	Jan 27, 2017		Soil	M17-Ja17737	X								
30	SB07/0.9	Jan 27, 2017		Soil	M17-Ja17738	X								
31	SB08/0.5	Jan 27, 2017		Soil	M17-Ja17739	X								
32	SB09/0.5	Jan 27, 2017		Soil	M17-Ja17740	X								
33	SB09/0.75	Jan 27, 2017		Soil	M17-Ja17741	X								

Company Name: Cardno Lane Piper Pty Ltd	Order No.:	Received: Jan 30, 2017 10:50 AM
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Project Name: BOX HILL	Phone: 8415 7777	Priority: 5 Day
Project ID: V161141G	Fax: 8415 7788	Contact Name: David Louwrens

Eurofins | mgt Analytical Services Manager : Natalie Krasselt

Sample Detail						HOLD	pH (1:5 Aqueous extract)	TRH C6-C9	Metals M7	Moisture Set	Cation Exchange Capacity	NEPM Screen Table 1(A) HIL's for Soil Contaminants - Basic Suite - Excluding	Eurofins mgt Suite B7	Eurofins mgt Suite B5
Melbourne Laboratory - NATA Site # 1254 & 14271						X	X	X	X	X	X	X	X	X
Sydney Laboratory - NATA Site # 18217														
Brisbane Laboratory - NATA Site # 20794														
Perth Laboratory - NATA Site # 18217														
34	SB010/0.5	Jan 27, 2017		Soil	M17-Ja17742	X								
35	SB010/0.9	Jan 27, 2017		Soil	M17-Ja17743	X								
36	SB011/0.5	Jan 27, 2017		Soil	M17-Ja17744	X								
37	SB011/1.0	Jan 27, 2017		Soil	M17-Ja17745	X								
38	SB012/0.5	Jan 27, 2017		Soil	M17-Ja17746	X								
39	SB012/1.0	Jan 27, 2017		Soil	M17-Ja17747	X								
40	SB013/0.5	Jan 27, 2017		Soil	M17-Ja17748	X								
41	SB013/1.0	Jan 27, 2017		Soil	M17-Ja17749	X								
42	SB015/0.5	Jan 27, 2017		Soil	M17-Ja17750	X								
43	SB015/1.0	Jan 27, 2017		Soil	M17-Ja17751	X								
Test Counts						26	2	1	1	15	2	2	12	1

Internal Quality Control Review and Glossary

General

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

Holding Times

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

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

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

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

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

Units

mg/kg: milligrams per Kilogram

mg/l: milligrams per litre

ug/l: micrograms per litre

ppm: Parts per million

ppb: Parts per billion

%: Percentage

org/100ml: Organisms per 100 millilitres

NTU: Nephelometric Turbidity Units

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

Terms

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

QC - Acceptance Criteria

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

Results <10 times the LOR : No Limit

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

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

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

QC Data General Comments

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

Quality Control Results

Test				Units	Result 1		Acceptance Limits	Pass Limits	Qualifying Code		
Method Blank											
Total Recoverable Hydrocarbons - 1999 NEPM Fractions											
TRH C6-C9				mg/L	< 0.02		0.02	Pass			
Method Blank											
Heavy Metals											
Arsenic				mg/L	< 0.001		0.001	Pass			
Cadmium				mg/L	< 0.0002		0.0002	Pass			
Chromium				mg/L	< 0.001		0.001	Pass			
Copper				mg/L	< 0.001		0.001	Pass			
Lead				mg/L	< 0.001		0.001	Pass			
Nickel				mg/L	< 0.001		0.001	Pass			
Zinc				mg/L	< 0.005		0.005	Pass			
LCS - % Recovery											
Total Recoverable Hydrocarbons - 1999 NEPM Fractions											
TRH C6-C9				%	108		70-130	Pass			
LCS - % Recovery											
Heavy Metals											
Arsenic				%	97		80-120	Pass			
Cadmium				%	96		80-120	Pass			
Chromium				%	97		80-120	Pass			
Copper				%	97		80-120	Pass			
Lead				%	94		80-120	Pass			
Nickel				%	97		80-120	Pass			
Zinc				%	101		80-120	Pass			
Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code		
Spike - % Recovery											
Heavy Metals											
Arsenic				M17-Ja17724	CP	%	95	75-125	Pass		
Cadmium				M17-Ja17724	CP	%	96	75-125	Pass		
Chromium				M17-Ja17724	CP	%	96	75-125	Pass		
Copper				M17-Ja17724	CP	%	98	75-125	Pass		
Lead				M17-Ja17724	CP	%	94	75-125	Pass		
Nickel				M17-Ja17724	CP	%	97	75-125	Pass		
Zinc				M17-Ja17724	CP	%	99	75-125	Pass		
Spike - % Recovery											
Total Recoverable Hydrocarbons - 1999 NEPM Fractions											
TRH C6-C9				M17-Ja11769	NCP	%	80	70-130	Pass		
Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code		
Duplicate											
Heavy Metals											
Arsenic				M17-Ja17724	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Cadmium				M17-Ja17724	CP	mg/L	< 0.0002	< 0.0002	<1	30%	Pass
Chromium				M17-Ja17724	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Copper				M17-Ja17724	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Lead				M17-Ja17724	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Nickel				M17-Ja17724	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Zinc				M17-Ja17724	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass
Duplicate											
Total Recoverable Hydrocarbons - 1999 NEPM Fractions											
TRH C6-C9				M17-Ja11767	NCP	mg/L	< 0.02	< 0.02	<1	30%	Pass

Comments

Sample Integrity

Custody Seals Intact (if used)	N/A
Attempt to Chill was evident	Yes
Sample correctly preserved	Yes
Appropriate sample containers have been used	Yes
Sample containers for volatile analysis received with minimal headspace	Yes
Samples received within HoldingTime	Yes
Some samples have been subcontracted	No

Authorised By

Natalie Krasselt	Analytical Services Manager
Alex Petridis	Senior Analyst-Metal (VIC)
Harry Bacalis	Senior Analyst-Volatile (VIC)



Glenn Jackson

National Operations Manager

Final report - this Report replaces any previously issued Report

- Indicates Not Requested

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

Measurement uncertainty of test data is available on request or please [click here](#).

Eurofins | mgt shall not be liable for loss, cost, damages or expenses incurred by the client, or any other person or company, resulting from the use of any information or interpretation given in this report. In no case shall Eurofins | mgt be liable for consequential damages including, but not limited to, lost profits, damages for failure to meet deadlines and lost production arising from this report. This document shall not be reproduced except in full and relates only to the items tested. Unless indicated otherwise, the tests were performed on the samples as received.

Enviro Sample Vic

From: Sarah Gould
Sent: Wednesday, 8 February 2017 12:10 PM
To: Enviro Sample Vic
Subject: FW: Eurofins | mgt Test Results, Invoice - Report 532061 : Site BOX HILL (V161141G)
Attachments: 532061_COC.pdf

Sarah Gould
Phone : +61 3 8564 5053
Email : SarahGould@eurofins.com

From: David Louwrens [<mailto:David.Louwrens@cardno.com.au>]
Sent: Wednesday, 8 February 2017 12:07 PM
To: Natalie Krasselt
Cc: Rachel Heriot
Subject: FW: Eurofins | mgt Test Results, Invoice - Report 532061 : Site BOX HILL (V161141G)

Hi Natalie,

Can you please test SB02/0.5 for B5 using a 3 day TAT?

Regards,
David Louwrens
ASSOCIATE HYDROGEOLOGIST
CARDNO - GEOSCIENCES AND ENVIRONMENT

Direct +61 03 9831 6124 Phone +61 3 8415 7777 Fax +61 3 8415 7788 Mobile +61 0438 303 279
Address Level 4, 501 Swanston Street (Cnr. Victoria Street), Melbourne, Victoria 3000 Australia

From: NatalieKrasselt@eurofins.com [<mailto:NatalieKrasselt@eurofins.com>]
Sent: Monday, 6 February 2017 4:49 PM
To: David Louwrens <David.Louwrens@cardno.com.au>
Cc: Payables LanePiper <Payables.LanePiper@cardno.com.au>; Rachel Heriot <Rachel.Heriot@cardno.com.au>
Subject: Eurofins | mgt Test Results, Invoice - Report 532061 : Site BOX HILL (V161141G)

Hi David & Rachel,

Please find attached report and invoice for BOX HILL (V161141G)

Kind regards

Natalie Krasselt
Analytical Services Manager

Eurofins | mgt
2-5 Kingston Town Close
OAKLEIGH VIC 3166
AUSTRALIA
Phone: +61 385 645 051
Mobile: +61 421 233 772
Email: NatalieKrasselt@eurofins.com
Website: environment.eurofins.com.au

Enviro Sample Vic

From: Sarah Gould
Sent: Wednesday, 8 February 2017 1:10 PM
To: Enviro Sample Vic
Subject: FW: Eurofins | mgt Test Results, Invoice - Report 532061 : Site BOX HILL (V161141G)

Please include with earlier request from this afternoon.

Sarah Gould
Phone : +61 3 8564 5053
Email : SarahGould@eurofins.com

JIMMY
EF/MS
533268

From: David Louwrens [<mailto:David.Louwrens@cardno.com.au>]
Sent: Wednesday, 8 February 2017 1:07 PM
To: Sarah Gould
Subject: RE: Eurofins | mgt Test Results, Invoice - Report 532061 : Site BOX HILL (V161141G)

Sarah,

As discussed, can you please test the following sample and add to the order below?

Please test SB07/0.5 for PAH on a 3 day TAT.

Thank you and regards,
David Louwrens

ASSOCIATE HYDROGEOLOGIST
CARDNO - GEOSCIENCES AND ENVIRONMENT

Direct +61 03 9831 6124 Phone +61 3 8415 7777 Fax +61 3 8415 7788 Mobile +61 0438 303 279
Address Level 4, 501 Swanston Street (Cnr. Victoria Street), Melbourne, Victoria 3000 Australia

From: Sarah Gould [<mailto:SarahGould@eurofins.com>]
Sent: Wednesday, 8 February 2017 12:10 PM
To: David Louwrens <David.Louwrens@cardno.com.au>
Subject: RE: Eurofins | mgt Test Results, Invoice - Report 532061 : Site BOX HILL (V161141G)

Thanks David, will do.

Sarah Gould
Phone : +61 3 8564 5053
Email : SarahGould@eurofins.com

From: David Louwrens [<mailto:David.Louwrens@cardno.com.au>]
Sent: Wednesday, 8 February 2017 12:07 PM
To: Natalie Krasselt
Cc: Rachel Heriot
Subject: FW: Eurofins | mgt Test Results, Invoice - Report 532061 : Site BOX HILL (V161141G)

Hi Natalie,

Can you please test SB02/0.5 for B5 using a 3 day TAT?

Regards,
David Louwrens
ASSOCIATE HYDROGEOLOGIST
CARDNO - GEOSCIENCES AND ENVIRONMENT

Direct +61 03 9831 6124 Phone +61 3 8415 7777 Fax +61 3 8415 7788 Mobile +61 0438 303 279

Sample Receipt Advice

Company name: **Cardno Victoria Pty Ltd**
Contact name: **David Louwrens**
Project name: **BOX HILL**
Project ID: **V161141G**
COC number: **Not provided**
Turn around time: **3 Day**
Date/Time received: **Feb 8, 2017 12:10 PM**
Eurofins | mgt reference: **533268**

Sample information

- A detailed list of analytes logged into our LIMS, is included in the attached summary table.
 - All samples have been received as described on the above COC.
 - COC has been completed correctly.
 - Attempt to chill was evident.
 - Appropriately preserved sample containers have been used.
 - All samples were received in good condition.
 - Samples have been provided with adequate time to commence analysis in accordance with the relevant holding times.
 - Appropriate sample containers have been used.
 - Some samples have been subcontracted.
- N/A Custody Seals intact (if used).

Contact notes

If you have any questions with respect to these samples please contact:

Natalie Krasselt on Phone : (+61) (3) 8564 5000 or by e.mail: NatalieKrasselt@eurofins.com

Results will be delivered electronically via e.mail to David Louwrens - david.louwrens@cardno.com.au.

Cardno Victoria Pty Ltd
Level 4, 501 Swanston Street
Melbourne
VIC 3000



NATA Accredited
Accreditation Number 1261
Site Number 1254

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

Attention: David Louwrens

Report 533268-S
 Project name BOX HILL
 Project ID V161141G
 Received Date Feb 08, 2017

Client Sample ID			SB02/0.5	SB07/0.5
Sample Matrix			Soil	Soil
Eurofins mgt Sample No.			M17-Fe07391	M17-Fe07422
Date Sampled			Jan 27, 2017	Jan 27, 2017
Test/Reference	LOR	Unit		
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				
TRH C6-C9	20	mg/kg	< 20	-
TRH C10-C14	20	mg/kg	< 20	-
TRH C15-C28	50	mg/kg	< 50	-
TRH C29-C36	50	mg/kg	< 50	-
TRH C10-36 (Total)	50	mg/kg	< 50	-
BTEX				
Benzene	0.1	mg/kg	< 0.1	-
Toluene	0.1	mg/kg	< 0.1	-
Ethylbenzene	0.1	mg/kg	< 0.1	-
m&p-Xylenes	0.2	mg/kg	< 0.2	-
o-Xylene	0.1	mg/kg	< 0.1	-
Xylenes - Total	0.3	mg/kg	< 0.3	-
4-Bromofluorobenzene (surr.)	1	%	102	-
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				
Naphthalene ^{N02}	0.5	mg/kg	< 0.5	-
TRH >C10-C16 less Naphthalene (F2) ^{N01}	50	mg/kg	< 50	-
TRH C6-C10	20	mg/kg	< 20	-
TRH C6-C10 less BTEX (F1) ^{N04}	20	mg/kg	< 20	-
Polycyclic Aromatic Hydrocarbons				
Benzo(a)pyrene TEQ (lower bound) *	0.5	mg/kg	-	< 0.5
Benzo(a)pyrene TEQ (medium bound) *	0.5	mg/kg	-	0.6
Benzo(a)pyrene TEQ (upper bound) *	0.5	mg/kg	-	1.2
Acenaphthene	0.5	mg/kg	-	< 0.5
Acenaphthylene	0.5	mg/kg	-	< 0.5
Anthracene	0.5	mg/kg	-	< 0.5
Benz(a)anthracene	0.5	mg/kg	-	< 0.5
Benzo(a)pyrene	0.5	mg/kg	-	< 0.5
Benzo(b&j)fluoranthene ^{N07}	0.5	mg/kg	-	< 0.5
Benzo(g,h,i)perylene	0.5	mg/kg	-	< 0.5
Benzo(k)fluoranthene	0.5	mg/kg	-	< 0.5
Chrysene	0.5	mg/kg	-	< 0.5
Dibenz(a,h)anthracene	0.5	mg/kg	-	< 0.5
Fluoranthene	0.5	mg/kg	-	< 0.5
Fluorene	0.5	mg/kg	-	< 0.5
Indeno(1.2.3-cd)pyrene	0.5	mg/kg	-	< 0.5

Client Sample ID			SB02/0.5	SB07/0.5
Sample Matrix			Soil	Soil
Eurofins mgt Sample No.			M17-Fe07391	M17-Fe07422
Date Sampled			Jan 27, 2017	Jan 27, 2017
Test/Reference	LOR	Unit		
Polycyclic Aromatic Hydrocarbons				
Naphthalene	0.5	mg/kg	-	< 0.5
Phenanthrene	0.5	mg/kg	-	< 0.5
Pyrene	0.5	mg/kg	-	< 0.5
Total PAH*	0.5	mg/kg	-	< 0.5
2-Fluorobiphenyl (surr.)	1	%	-	93
p-Terphenyl-d14 (surr.)	1	%	-	73
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				
TRH >C10-C16	50	mg/kg	< 50	-
TRH >C16-C34	100	mg/kg	< 100	-
TRH >C34-C40	100	mg/kg	< 100	-
Heavy Metals				
Arsenic	2	mg/kg	4.7	-
Cadmium	0.4	mg/kg	< 0.4	-
Chromium	5	mg/kg	47	-
Copper	5	mg/kg	35	-
Lead	5	mg/kg	30	-
Nickel	5	mg/kg	44	-
Zinc	5	mg/kg	82	-
% Moisture				
	1	%	16	16

Sample History

Where samples are submitted/analysed over several days, the last date of extraction and analysis is reported. A recent review of our LIMS has resulted in the correction or clarification of some method identifications. Due to this, some of the method reference information on reports has changed. However, no substantive change has been made to our laboratory methods, and as such there is no change in the validity of current or previous results (regarding both quality and NATA accreditation).

If the date and time of sampling are not provided, the Laboratory will not be responsible for compromised results should testing be performed outside the recommended holding time.

Description	Testing Site	Extracted	Holding Time
Eurofins mgt Suite B5			
Total Recoverable Hydrocarbons - 1999 NEPM Fractions - Method: TRH C6-C36 - LTM-ORG-2010	Melbourne	Feb 08, 2017	14 Day
BTEX - Method: TRH C6-C40 - LTM-ORG-2010	Melbourne	Feb 08, 2017	14 Day
Total Recoverable Hydrocarbons - 2013 NEPM Fractions - Method: TRH C6-C40 - LTM-ORG-2010	Melbourne	Feb 08, 2017	14 Day
Total Recoverable Hydrocarbons - 2013 NEPM Fractions - Method: TRH C6-C40 - LTM-ORG-2010	Melbourne	Feb 08, 2017	14 Day
Metals M7 - Method: USEPA 6010/6020 Heavy Metals	Melbourne	Feb 08, 2017	180 Day
Polycyclic Aromatic Hydrocarbons - Method: USEPA 8270 Polycyclic Aromatic Hydrocarbons	Melbourne	Feb 08, 2017	14 Day
% Moisture - Method: LTM-GEN-7080 Moisture	Melbourne	Feb 08, 2017	14 Day

Company Name: Cardno Victoria Pty Ltd	Order No.:	Received: Feb 8, 2017 12:10 PM
Address: Level 4, 501 Swanston Street Melbourne VIC 3000	Report #: 533268	Due: Feb 13, 2017
Project Name: BOX HILL	Phone: 8415 7777	Priority: 3 Day
Project ID: V161141G	Fax: 8415 7788	Contact Name: David Louwrens

Eurofins | mgt Analytical Services Manager : Natalie Krasselt

Sample Detail						Reverse HOLD Charge	Polycyclic Aromatic Hydrocarbons	Moisture Set	Eurofins mgt Suite B5
Melbourne Laboratory - NATA Site # 1254 & 14271						X	X	X	X
Sydney Laboratory - NATA Site # 18217									
Brisbane Laboratory - NATA Site # 20794									
Perth Laboratory - NATA Site # 18217									
External Laboratory									
No	Sample ID	Sample Date	Sampling Time	Matrix	LAB ID				
1	SB02/0.5	Jan 27, 2017		Soil	M17-Fe07391			X	X
2	SB07/0.5	Jan 27, 2017		Soil	M17-Fe07422	X	X	X	
Test Counts						1	1	2	1

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

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

Quality Control Results

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Method Blank							
Total Recoverable Hydrocarbons - 1999 NEPM Fractions							
TRH C6-C9	mg/kg	< 20			20	Pass	
TRH C10-C14	mg/kg	< 20			20	Pass	
TRH C15-C28	mg/kg	< 50			50	Pass	
TRH C29-C36	mg/kg	< 50			50	Pass	
Method Blank							
BTEX							
Benzene	mg/kg	< 0.1			0.1	Pass	
Toluene	mg/kg	< 0.1			0.1	Pass	
Ethylbenzene	mg/kg	< 0.1			0.1	Pass	
m&p-Xylenes	mg/kg	< 0.2			0.2	Pass	
o-Xylene	mg/kg	< 0.1			0.1	Pass	
Xylenes - Total	mg/kg	< 0.3			0.3	Pass	
Method Blank							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
Naphthalene	mg/kg	< 0.5			0.5	Pass	
TRH C6-C10	mg/kg	< 20			20	Pass	
Method Blank							
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	mg/kg	< 0.5			0.5	Pass	
Acenaphthylene	mg/kg	< 0.5			0.5	Pass	
Anthracene	mg/kg	< 0.5			0.5	Pass	
Benzo(a)anthracene	mg/kg	< 0.5			0.5	Pass	
Benzo(a)pyrene	mg/kg	< 0.5			0.5	Pass	
Benzo(b&j)fluoranthene	mg/kg	< 0.5			0.5	Pass	
Benzo(g,h,i)perylene	mg/kg	< 0.5			0.5	Pass	
Benzo(k)fluoranthene	mg/kg	< 0.5			0.5	Pass	
Chrysene	mg/kg	< 0.5			0.5	Pass	
Dibenz(a,h)anthracene	mg/kg	< 0.5			0.5	Pass	
Fluoranthene	mg/kg	< 0.5			0.5	Pass	
Fluorene	mg/kg	< 0.5			0.5	Pass	
Indeno(1,2,3-cd)pyrene	mg/kg	< 0.5			0.5	Pass	
Naphthalene	mg/kg	< 0.5			0.5	Pass	
Phenanthrene	mg/kg	< 0.5			0.5	Pass	
Pyrene	mg/kg	< 0.5			0.5	Pass	
Method Blank							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
TRH >C10-C16	mg/kg	< 50			50	Pass	
TRH >C16-C34	mg/kg	< 100			100	Pass	
TRH >C34-C40	mg/kg	< 100			100	Pass	
Method Blank							
Heavy Metals							
Arsenic	mg/kg	< 2			2	Pass	
Cadmium	mg/kg	< 0.4			0.4	Pass	
Chromium	mg/kg	< 5			5	Pass	
Copper	mg/kg	< 5			5	Pass	
Lead	mg/kg	< 5			5	Pass	
Nickel	mg/kg	< 5			5	Pass	
Zinc	mg/kg	< 5			5	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 1999 NEPM Fractions							

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code	
TRH C6-C9	%	119			70-130	Pass		
TRH C10-C14	%	75			70-130	Pass		
LCS - % Recovery								
BTEX								
Benzene	%	110			70-130	Pass		
Toluene	%	107			70-130	Pass		
Ethylbenzene	%	112			70-130	Pass		
m&p-Xylenes	%	111			70-130	Pass		
Xylenes - Total	%	111			70-130	Pass		
LCS - % Recovery								
Total Recoverable Hydrocarbons - 2013 NEPM Fractions								
Naphthalene	%	107			70-130	Pass		
TRH C6-C10	%	121			70-130	Pass		
LCS - % Recovery								
Polycyclic Aromatic Hydrocarbons								
Acenaphthene	%	82			70-130	Pass		
Acenaphthylene	%	75			70-130	Pass		
Anthracene	%	74			70-130	Pass		
Benz(a)anthracene	%	78			70-130	Pass		
Benzo(a)pyrene	%	77			70-130	Pass		
Benzo(b&j)fluoranthene	%	72			70-130	Pass		
Benzo(g,h,i)perylene	%	76			70-130	Pass		
Benzo(k)fluoranthene	%	78			70-130	Pass		
Chrysene	%	89			70-130	Pass		
Dibenz(a,h)anthracene	%	119			70-130	Pass		
Fluoranthene	%	70			70-130	Pass		
Fluorene	%	81			70-130	Pass		
Indeno(1,2,3-cd)pyrene	%	104			70-130	Pass		
Naphthalene	%	81			70-130	Pass		
Phenanthrene	%	78			70-130	Pass		
Pyrene	%	74			70-130	Pass		
LCS - % Recovery								
Total Recoverable Hydrocarbons - 2013 NEPM Fractions								
TRH >C10-C16	%	82			70-130	Pass		
LCS - % Recovery								
Heavy Metals								
Arsenic	%	96			80-120	Pass		
Cadmium	%	93			80-120	Pass		
Chromium	%	97			80-120	Pass		
Copper	%	103			80-120	Pass		
Lead	%	100			80-120	Pass		
Nickel	%	98			80-120	Pass		
Zinc	%	100			80-120	Pass		
Test	Lab Sample ID	QA Source	Units	Result 1		Acceptance Limits	Pass Limits	Qualifying Code
Spike - % Recovery								
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1				
TRH C6-C9	M17-Fe07246	NCP	%	99		70-130	Pass	
TRH C10-C14	M17-Fe05411	NCP	%	97		70-130	Pass	
Spike - % Recovery								
BTEX				Result 1				
Benzene	M17-Fe07246	NCP	%	79		70-130	Pass	
Toluene	M17-Fe07246	NCP	%	89		70-130	Pass	
Ethylbenzene	M17-Fe07246	NCP	%	97		70-130	Pass	
m&p-Xylenes	M17-Fe07246	NCP	%	98		70-130	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
o-Xylene	M17-Fe07246	NCP	%	107			70-130	Pass	
Xylenes - Total	M17-Fe07246	NCP	%	101			70-130	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1					
Naphthalene	M17-Fe07246	NCP	%	103			70-130	Pass	
TRH C6-C10	M17-Fe07246	NCP	%	93			70-130	Pass	
Spike - % Recovery									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1					
TRH >C10-C16	M17-Fe05411	NCP	%	109			70-130	Pass	
Spike - % Recovery									
Heavy Metals				Result 1					
Arsenic	P17-Fe05893	NCP	%	101			75-125	Pass	
Cadmium	P17-Fe05893	NCP	%	102			75-125	Pass	
Chromium	P17-Fe05893	NCP	%	107			75-125	Pass	
Copper	P17-Fe05893	NCP	%	114			75-125	Pass	
Lead	P17-Fe05893	NCP	%	97			75-125	Pass	
Nickel	P17-Fe05893	NCP	%	96			75-125	Pass	
Zinc	P17-Fe05893	NCP	%	93			75-125	Pass	
Spike - % Recovery									
Polycyclic Aromatic Hydrocarbons				Result 1					
Acenaphthene	M17-Fe07306	NCP	%	104			70-130	Pass	
Acenaphthylene	M17-Fe07306	NCP	%	101			70-130	Pass	
Anthracene	M17-Fe07306	NCP	%	102			70-130	Pass	
Benz(a)anthracene	M17-Fe07306	NCP	%	99			70-130	Pass	
Benzo(a)pyrene	M17-Fe07306	NCP	%	89			70-130	Pass	
Benzo(b&j)fluoranthene	M17-Fe07306	NCP	%	71			70-130	Pass	
Benzo(g,h,i)perylene	M17-Fe07306	NCP	%	87			70-130	Pass	
Benzo(k)fluoranthene	M17-Fe07306	NCP	%	99			70-130	Pass	
Chrysene	M17-Fe07306	NCP	%	105			70-130	Pass	
Dibenz(a,h)anthracene	M17-Fe07306	NCP	%	129			70-130	Pass	
Fluoranthene	M17-Fe07306	NCP	%	92			70-130	Pass	
Fluorene	M17-Fe07306	NCP	%	104			70-130	Pass	
Indeno(1,2,3-cd)pyrene	M17-Fe07306	NCP	%	117			70-130	Pass	
Naphthalene	M17-Fe07306	NCP	%	100			70-130	Pass	
Phenanthrene	M17-Fe07306	NCP	%	106			70-130	Pass	
Pyrene	M17-Fe07306	NCP	%	94			70-130	Pass	
Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Duplicate									
Total Recoverable Hydrocarbons - 1999 NEPM Fractions				Result 1	Result 2	RPD			
TRH C6-C9	M17-Fe07391	CP	mg/kg	< 20	< 20	<1	30%	Pass	
TRH C10-C14	M17-Fe07318	NCP	mg/kg	< 20	< 20	<1	30%	Pass	
TRH C15-C28	M17-Fe07318	NCP	mg/kg	< 50	< 50	<1	30%	Pass	
TRH C29-C36	M17-Fe07318	NCP	mg/kg	< 50	< 50	<1	30%	Pass	
Duplicate									
BTEX				Result 1	Result 2	RPD			
Benzene	M17-Fe07391	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Toluene	M17-Fe07391	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Ethylbenzene	M17-Fe07391	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
m&p-Xylenes	M17-Fe07391	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass	
o-Xylene	M17-Fe07391	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Xylenes - Total	M17-Fe07391	CP	mg/kg	< 0.3	< 0.3	<1	30%	Pass	
Duplicate									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1	Result 2	RPD			
Naphthalene	M17-Fe07391	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
TRH C6-C10	M17-Fe07391	CP	mg/kg	< 20	< 20	<1	30%	Pass	

Duplicate								
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1	Result 2	RPD		
TRH >C10-C16	M17-Fe07318	NCP	mg/kg	< 50	< 50	<1	30%	Pass
TRH >C16-C34	M17-Fe07318	NCP	mg/kg	< 100	< 100	<1	30%	Pass
TRH >C34-C40	M17-Fe07318	NCP	mg/kg	< 100	< 100	<1	30%	Pass
Duplicate								
Heavy Metals				Result 1	Result 2	RPD		
Arsenic	P17-Fe05893	NCP	mg/kg	2.5	2.9	13	30%	Pass
Cadmium	P17-Fe05893	NCP	mg/kg	< 0.4	< 0.4	<1	30%	Pass
Chromium	P17-Fe05893	NCP	mg/kg	50	50	<1	30%	Pass
Copper	P17-Fe05893	NCP	mg/kg	18	18	1.0	30%	Pass
Lead	P17-Fe05893	NCP	mg/kg	16	16	1.0	30%	Pass
Nickel	P17-Fe05893	NCP	mg/kg	16	16	1.0	30%	Pass
Zinc	P17-Fe05893	NCP	mg/kg	30	32	7.0	30%	Pass
Duplicate								
				Result 1	Result 2	RPD		
% Moisture	M17-Fe07391	CP	%	16	16	<1	30%	Pass
Duplicate								
Polycyclic Aromatic Hydrocarbons				Result 1	Result 2	RPD		
Acenaphthene	M17-Fe07306	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Acenaphthylene	M17-Fe07306	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Anthracene	M17-Fe07306	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Benz(a)anthracene	M17-Fe07306	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Benzo(a)pyrene	M17-Fe07306	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Benzo(b&j)fluoranthene	M17-Fe07306	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Benzo(g,h,i)perylene	M17-Fe07306	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Benzo(k)fluoranthene	M17-Fe07306	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Chrysene	M17-Fe07306	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Dibenz(a,h)anthracene	M17-Fe07306	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Fluoranthene	M17-Fe07306	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Fluorene	M17-Fe07306	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Indeno(1,2,3-cd)pyrene	M17-Fe07306	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Naphthalene	M17-Fe07306	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Phenanthrene	M17-Fe07306	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Pyrene	M17-Fe07306	NCP	mg/kg	< 0.5	< 0.5	<1	30%	Pass

Comments

Sample Integrity

Custody Seals Intact (if used)	N/A
Attempt to Chill was evident	Yes
Sample correctly preserved	Yes
Appropriate sample containers have been used	Yes
Sample containers for volatile analysis received with minimal headspace	Yes
Samples received within HoldingTime	Yes
Some samples have been subcontracted	No

Qualifier Codes/Comments

Code	Description
N01	F2 is determined by arithmetically subtracting the "naphthalene" value from the ">C10-C16" value. The naphthalene value used in this calculation is obtained from volatiles (Purge & Trap analysis).
N02	Where we have reported both volatile (P&T GCMS) and semivolatile (GCMS) naphthalene data, results may not be identical. Provided correct sample handling protocols have been followed, any observed differences in results are likely to be due to procedural differences within each methodology. Results determined by both techniques have passed all QAQC acceptance criteria, and are entirely technically valid.
N04	F1 is determined by arithmetically subtracting the "Total BTEX" value from the "C6-C10" value. The "Total BTEX" value is obtained by summing the concentrations of BTEX analytes. The "C6-C10" value is obtained by quantitating against a standard of mixed aromatic/aliphatic analytes.
N07	Please note:- These two PAH isomers closely co-elute using the most contemporary analytical methods and both the reported concentration (and the TEQ) apply specifically to the total of the two co-eluting PAHs

Authorised By

Natalie Krasselt	Analytical Services Manager
Alex Petridis	Senior Analyst-Metal (VIC)
Alex Petridis	Senior Analyst-Organic (VIC)
Harry Bacalis	Senior Analyst-Volatile (VIC)
Huong Le	Senior Analyst-Inorganic (VIC)
Joseph Edouard	Senior Analyst-Organic (VIC)



Glenn Jackson

National Operations Manager

Final report - this Report replaces any previously issued Report

- Indicates Not Requested

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

Measurement uncertainty of test data is available on request or please [click here](#).

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CERTIFICATE OF ANALYSIS

Work Order : **EM1700852**
Client : **CARDNO VICTORIA PTY LTD**
Contact : MR DAVID LOUWRENS
Address : 501 SWANSTON STREET
 MELBOURNE VIC, AUSTRALIA 3000
Telephone : +61 03 98880100
Project : V161141G
Order number : ----
C-O-C number : ----
Sampler : RH
Site : Box Hill
Quote number : EN/024/15
No. of samples received : 1
No. of samples analysed : 1

Page : 1 of 5
Laboratory : Environmental Division Melbourne
Contact : Graeme Jablonskas
Address : 4 Westall Rd Springvale VIC Australia 3171
Telephone : +61-3-8549 9609
Date Samples Received : 30-Jan-2017 14:05
Date Analysis Commenced : 31-Jan-2017
Issue Date : 02-Feb-2017 13:39



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

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

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

Signatories

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

<i>Signatories</i>	<i>Position</i>	<i>Accreditation Category</i>
Chris Lemaitre	Non-Metals Team Leader	Melbourne Inorganics, Springvale, VIC
Dilani Fernando	Senior Inorganic Chemist	Melbourne Inorganics, Springvale, VIC
Nancy Wang	Senior Semivolatile Instrument Chemist	Melbourne Organics, Springvale, VIC
Xing Lin	Senior Organic Chemist	Melbourne Organics, Springvale, VIC



General Comments

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

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

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

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

When no sampling time is provided, the sampling time will default 00:00 on the date of sampling. If no sampling date is provided, the sampling date will be assumed by the laboratory and displayed in brackets without a time component.

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

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



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)		Client sample ID			QC02_270117	----	----	----	----
Client sampling date / time		27-Jan-2017 00:00			----	----	----	----	
Compound	CAS Number	LOR	Unit	EM1700852-001	-----	-----	-----	-----	
				Result	----	----	----	----	
EA055: Moisture Content									
Moisture Content (dried @ 103°C)	----	1	%	14.5	----	----	----	----	
EG005T: Total Metals by ICP-AES									
Arsenic	7440-38-2	5	mg/kg	<5	----	----	----	----	
Cadmium	7440-43-9	1	mg/kg	<1	----	----	----	----	
Chromium	7440-47-3	2	mg/kg	38	----	----	----	----	
Copper	7440-50-8	5	mg/kg	19	----	----	----	----	
Lead	7439-92-1	5	mg/kg	19	----	----	----	----	
Nickel	7440-02-0	2	mg/kg	21	----	----	----	----	
Zinc	7440-66-6	5	mg/kg	42	----	----	----	----	
EG035T: Total Recoverable Mercury by FIMS									
Mercury	7439-97-6	0.1	mg/kg	<0.1	----	----	----	----	
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	10	mg/kg	<10	----	----	----	----	
C10 - C14 Fraction	----	50	mg/kg	<50	----	----	----	----	
C15 - C28 Fraction	----	100	mg/kg	<100	----	----	----	----	
C29 - C36 Fraction	----	100	mg/kg	<100	----	----	----	----	
^ C10 - C36 Fraction (sum)	----	50	mg/kg	<50	----	----	----	----	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	10	mg/kg	<10	----	----	----	----	
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	<10	----	----	----	----	
>C10 - C16 Fraction	----	50	mg/kg	<50	----	----	----	----	
>C16 - C34 Fraction	----	100	mg/kg	<100	----	----	----	----	
>C34 - C40 Fraction	----	100	mg/kg	<100	----	----	----	----	
^ >C10 - C40 Fraction (sum)	----	50	mg/kg	<50	----	----	----	----	
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg	<50	----	----	----	----	
EP080: BTEXN									
Benzene	71-43-2	0.2	mg/kg	<0.2	----	----	----	----	
Toluene	108-88-3	0.5	mg/kg	<0.5	----	----	----	----	
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	----	----	----	----	
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	----	----	----	----	
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	----	----	----	----	
^ Sum of BTEX	----	0.2	mg/kg	<0.2	----	----	----	----	



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Client sample ID	QC02_270117	----	----	----	----
Client sampling date / time				27-Jan-2017 00:00	----	----	----	----	----
Compound	CAS Number	LOR	Unit	EM1700852-001	-----	-----	-----	-----	-----
				Result	----	----	----	----	----
EP080: BTEXN - Continued									
[^] Total Xylenes	1330-20-7	0.5	mg/kg	<0.5	----	----	----	----	----
Naphthalene	91-20-3	1	mg/kg	<1	----	----	----	----	----
EP080S: TPH(V)/BTEX Surrogates									
1,2-Dichloroethane-D4	17060-07-0	0.2	%	85.5	----	----	----	----	----
Toluene-D8	2037-26-5	0.2	%	83.3	----	----	----	----	----
4-Bromofluorobenzene	460-00-4	0.2	%	93.2	----	----	----	----	----



Surrogate Control Limits

Sub-Matrix: SOIL		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP080S: TPH(V)/BTEX Surrogates			
1,2-Dichloroethane-D4	17060-07-0	51	125
Toluene-D8	2037-26-5	55	125
4-Bromofluorobenzene	460-00-4	56	124

QUALITY CONTROL REPORT

Work Order	: EM1700852	Page	: 1 of 5
Client	: CARDNO VICTORIA PTY LTD	Laboratory	: Environmental Division Melbourne
Contact	: MR DAVID LOUWRENS	Contact	: Graeme Jablonskas
Address	: 501 SWANSTON STREET MELBOURNE VIC, AUSTRALIA 3000	Address	: 4 Westall Rd Springvale VIC Australia 3171
Telephone	: +61 03 98880100	Telephone	: +61-3-8549 9609
Project	: V161141G	Date Samples Received	: 30-Jan-2017
Order number	: ----	Date Analysis Commenced	: 31-Jan-2017
C-O-C number	: ----	Issue Date	: 02-Feb-2017
Sampler	: RH		
Site	: Box Hill		
Quote number	: EN/024/15		
No. of samples received	: 1		
No. of samples analysed	: 1		



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

This Quality Control Report contains the following information:

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

Signatories

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

<i>Signatories</i>	<i>Position</i>	<i>Accreditation Category</i>
Chris Lemaitre	Non-Metals Team Leader	Melbourne Inorganics, Springvale, VIC
Dilani Fernando	Senior Inorganic Chemist	Melbourne Inorganics, Springvale, VIC
Nancy Wang	Senior Semivolatile Instrument Chemist	Melbourne Organics, Springvale, VIC
Xing Lin	Senior Organic Chemist	Melbourne Organics, Springvale, VIC



General Comments

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

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

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

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

Laboratory Duplicate (DUP) Report

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

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EA055: Moisture Content (QC Lot: 738877)									
EM1700787-001	Anonymous	EA055-103: Moisture Content (dried @ 103°C)	----	1	%	26.0	24.1	7.23	0% - 20%
EM1700849-003	Anonymous	EA055-103: Moisture Content (dried @ 103°C)	----	1	%	20.4	21.1	2.93	0% - 20%
EG005T: Total Metals by ICP-AES (QC Lot: 737626)									
EM1700852-001	QC02_270117	EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.00	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	38	40	3.88	0% - 50%
		EG005T: Nickel	7440-02-0	2	mg/kg	21	29	32.8	0% - 50%
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	6	0.00	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	19	23	21.0	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	19	22	11.4	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	42	54	24.3	0% - 50%
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 737625)									
EM1700812-106	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.00	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 737461)									
EM1700732-001	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.00	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 738871)									
EM1700852-001	QC02_270117	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.00	No Limit
		EP071: C10 - C36 Fraction (sum)	----	50	mg/kg	<50	<50	0.00	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 737461)									
EM1700732-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.00	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 738871)									
EM1700852-001	QC02_270117	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.00	No Limit

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 Client : CARDNO VICTORIA PTY LTD
 Project : V161141G



Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 738871) - continued									
EM1700852-001	QC02_270117	EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	<50	0.00	No Limit
		EP071: >C10 - C40 Fraction (sum)	----	50	mg/kg	<50	<50	0.00	No Limit
EP080: BTEXN (QC Lot: 737461)									
EM1700732-001	Anonymous	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.00	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.00	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.00	No Limit



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

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

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)	
						LCS	Low	High	
EG005T: Total Metals by ICP-AES (QCLot: 737626)									
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	21.7 mg/kg	88.0	79	113	
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	4.64 mg/kg	103	85	109	
EG005T: Chromium	7440-47-3	2	mg/kg	<2	43.9 mg/kg	96.0	89	113	
EG005T: Copper	7440-50-8	5	mg/kg	<5	32 mg/kg	94.9	84	116	
EG005T: Lead	7439-92-1	5	mg/kg	<5	40 mg/kg	96.0	85	107	
EG005T: Nickel	7440-02-0	2	mg/kg	<2	55 mg/kg	98.2	89	111	
EG005T: Zinc	7440-66-6	5	mg/kg	<5	60.8 mg/kg	97.2	89	111	
EG035T: Total Recoverable Mercury by FIMS (QCLot: 737625)									
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	2.57 mg/kg	93.8	85	103	
EP080/071: Total Petroleum Hydrocarbons (QCLot: 737461)									
EP080: C6 - C9 Fraction	----	10	mg/kg	<10	36 mg/kg	100	70	127	
EP080/071: Total Petroleum Hydrocarbons (QCLot: 738871)									
EP071: C10 - C14 Fraction	----	50	mg/kg	<50	734 mg/kg	107	65	131	
EP071: C15 - C28 Fraction	----	100	mg/kg	<100	3091 mg/kg	109	70	126	
EP071: C29 - C36 Fraction	----	100	mg/kg	<100	1507 mg/kg	108	70	122	
EP071: C10 - C36 Fraction (sum)	----	50	mg/kg	<50	----	----	----	----	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 737461)									
EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	45 mg/kg	99.8	68	125	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 738871)									
EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	1101 mg/kg	107	68	130	
EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	3914 mg/kg	108	72	116	
EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	283 mg/kg	109	38	132	
EP071: >C10 - C40 Fraction (sum)	----	50	mg/kg	<50	----	----	----	----	
EP080: BTEXN (QCLot: 737461)									
EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	2 mg/kg	100	74	124	
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	2 mg/kg	96.8	77	125	
EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	2 mg/kg	98.6	73	125	
EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	4 mg/kg	105	77	128	
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	2 mg/kg	108	81	128	
EP080: Naphthalene	91-20-3	1	mg/kg	<1	0.5 mg/kg	95.2	66	130	

Matrix Spike (MS) Report



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

Sub-Matrix: SOIL

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report			
				Spike Concentration	Spike Recovery(%) MS	Recovery Limits (%)	
				Low	High		
EG005T: Total Metals by ICP-AES (QCLot: 737626)							
EM1700861-001	Anonymous	EG005T: Arsenic	7440-38-2	50 mg/kg	102	78	124
		EG005T: Cadmium	7440-43-9	50 mg/kg	109	84	116
		EG005T: Chromium	7440-47-3	50 mg/kg	101	79	121
		EG005T: Copper	7440-50-8	50 mg/kg	110	82	124
		EG005T: Lead	7439-92-1	50 mg/kg	99.1	76	124
		EG005T: Nickel	7440-02-0	50 mg/kg	106	78	120
		EG005T: Zinc	7440-66-6	50 mg/kg	106	74	128
EG035T: Total Recoverable Mercury by FIMS (QCLot: 737625)							
EM1700861-001	Anonymous	EG035T: Mercury	7439-97-6	5 mg/kg	95.4	76	116
EP080/071: Total Petroleum Hydrocarbons (QCLot: 737461)							
EM1700732-016	Anonymous	EP080: C6 - C9 Fraction	----	28 mg/kg	88.8	42	131
EP080/071: Total Petroleum Hydrocarbons (QCLot: 738871)							
EM1700891-001	Anonymous	EP071: C10 - C14 Fraction	----	734 mg/kg	100	53	123
		EP071: C15 - C28 Fraction	----	3091 mg/kg	88.6	70	124
		EP071: C29 - C36 Fraction	----	1507 mg/kg	# Not Determined	64	118
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 737461)							
EM1700732-016	Anonymous	EP080: C6 - C10 Fraction	C6_C10	33 mg/kg	88.4	39	129
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 738871)							
EM1700891-001	Anonymous	EP071: >C10 - C16 Fraction	----	1101 mg/kg	94.2	65	123
		EP071: >C16 - C34 Fraction	----	3914 mg/kg	93.1	67	121
		EP071: >C34 - C40 Fraction	----	283 mg/kg	# Not Determined	44	126
EP080: BTEXN (QCLot: 737461)							
EM1700732-016	Anonymous	EP080: Benzene	71-43-2	2 mg/kg	104	50	136
		EP080: Toluene	108-88-3	2 mg/kg	100	56	139

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: EM1700852	Page	: 1 of 5
Client	: CARDNO VICTORIA PTY LTD	Laboratory	: Environmental Division Melbourne
Contact	: MR DAVID LOUWRENS	Telephone	: +61-3-8549 9609
Project	: V161141G	Date Samples Received	: 30-Jan-2017
Site	: Box Hill	Issue Date	: 02-Feb-2017
Sampler	: RH	No. of samples received	: 1
Order number	: ----	No. of samples analysed	: 1

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

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

Summary of Outliers

Outliers : Quality Control Samples

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

- **NO** Method Blank value outliers occur.
- **NO** Duplicate outliers occur.
- **NO** Laboratory Control outliers occur.
- Matrix Spike outliers exist - please see following pages for full details.
- For all regular sample matrices, **NO** surrogate recovery outliers occur.

Outliers : Analysis Holding Time Compliance

- **NO** Analysis Holding Time Outliers exist.

Outliers : Frequency of Quality Control Samples

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



Outliers : Quality Control Samples

Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: **SOIL**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
Matrix Spike (MS) Recoveries							
EP080/071: Total Petroleum Hydrocarbons	EM1700891--001	Anonymous	C29 - C36 Fraction	----	Not Determined	----	MS recovery not determined, background level greater than or equal to 4x spike level.
EP080/071: Total Recoverable Hydrocarbons - NEPM 2	EM1700891--001	Anonymous	>C34 - C40 Fraction	----	Not Determined	----	MS recovery not determined, background level greater than or equal to 4x spike level.

Analysis Holding Time Compliance

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

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

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

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

Matrix: **SOIL**

Evaluation: * = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EA055: Moisture Content							
Soil Glass Jar - Unpreserved (EA055-103) QC02_270117	27-Jan-2017	----	----	----	01-Feb-2017	10-Feb-2017	✓
EG005T: Total Metals by ICP-AES							
Soil Glass Jar - Unpreserved (EG005T) QC02_270117	27-Jan-2017	01-Feb-2017	26-Jul-2017	✓	01-Feb-2017	26-Jul-2017	✓
EG035T: Total Recoverable Mercury by FIMS							
Soil Glass Jar - Unpreserved (EG035T) QC02_270117	27-Jan-2017	01-Feb-2017	24-Feb-2017	✓	01-Feb-2017	24-Feb-2017	✓
EP080/071: Total Petroleum Hydrocarbons							
Soil Glass Jar - Unpreserved (EP071) QC02_270117	27-Jan-2017	01-Feb-2017	10-Feb-2017	✓	01-Feb-2017	13-Mar-2017	✓
Soil Glass Jar - Unpreserved (EP080) QC02_270117	27-Jan-2017	31-Jan-2017	10-Feb-2017	✓	01-Feb-2017	10-Feb-2017	✓
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions							
Soil Glass Jar - Unpreserved (EP071) QC02_270117	27-Jan-2017	01-Feb-2017	10-Feb-2017	✓	01-Feb-2017	13-Mar-2017	✓
Soil Glass Jar - Unpreserved (EP080) QC02_270117	27-Jan-2017	31-Jan-2017	10-Feb-2017	✓	01-Feb-2017	10-Feb-2017	✓

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Matrix: **SOIL**

Evaluation: * = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EP080: BTEXN							
Soil Glass Jar - Unpreserved (EP080) QC02_270117	27-Jan-2017	31-Jan-2017	10-Feb-2017	✓	01-Feb-2017	10-Feb-2017	✓



Quality Control Parameter Frequency Compliance

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

Matrix: **SOIL**

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

Quality Control Sample Type	Method	Count		Rate (%)			Quality Control Specification
		QC	Reaular	Actual	Expected	Evaluation	
Analytical Methods							
Laboratory Duplicates (DUP)							
Moisture Content	EA055-103	2	20	10.00	10.00	✔	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	8	12.50	10.00	✔	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	4	25.00	10.00	✔	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	2	50.00	10.00	✔	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	10	10.00	10.00	✔	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Total Mercury by FIMS	EG035T	1	8	12.50	5.00	✔	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	4	25.00	5.00	✔	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	2	50.00	5.00	✔	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	10	10.00	5.00	✔	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Total Mercury by FIMS	EG035T	1	8	12.50	5.00	✔	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	4	25.00	5.00	✔	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	2	50.00	5.00	✔	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	10	10.00	5.00	✔	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Total Mercury by FIMS	EG035T	1	8	12.50	5.00	✔	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	4	25.00	5.00	✔	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	2	50.00	5.00	✔	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	10	10.00	5.00	✔	NEPM 2013 B3 & ALS QC Standard



Brief Method Summaries

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

Analytical Methods	Method	Matrix	Method Descriptions
Moisture Content	EA055-103	SOIL	In house: A gravimetric procedure based on weight loss over a 12 hour drying period at 103-105 degrees C. This method is compliant with NEPM (2013) Schedule B(3) Section 7.1 and Table 1 (14 day holding time).
Total Metals by ICP-AES	EG005T	SOIL	In house: Referenced to APHA 3120; USEPA SW 846 - 6010. Metals are determined following an appropriate acid digestion of the soil. The ICPAES technique ionises samples in a plasma, emitting a characteristic spectrum based on metals present. Intensities at selected wavelengths are compared against those of matrix matched standards. This method is compliant with NEPM (2013) Schedule B(3)
Total Mercury by FIMS	EG035T	SOIL	In house: Referenced to AS 3550, APHA 3112 Hg - B (Flow-injection (SnCl ₂)(Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. Mercury in solids are determined following an appropriate acid digestion. Ionic mercury is reduced online to atomic mercury vapour by SnCl ₂ which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
TRH - Semivolatile Fraction	EP071	SOIL	In house: Referenced to USEPA SW 846 - 8015A Sample extracts are analysed by Capillary GC/FID and quantified against alkane standards over the range C10 - C40.
TRH Volatiles/BTEX	EP080	SOIL	In house: Referenced to USEPA SW 846 - 8260B Extracts are analysed by Purge and Trap, Capillary GC/MS. Quantification is by comparison against an established 5 point calibration curve.
Preparation Methods	Method	Matrix	Method Descriptions
Hot Block Digest for metals in soils sediments and sludges	EN69	SOIL	In house: Referenced to USEPA 200.2. Hot Block Acid Digestion 1.0g of sample is heated with Nitric and Hydrochloric acids, then cooled. Peroxide is added and samples heated and cooled again before being filtered and bulked to volume for analysis. Digest is appropriate for determination of selected metals in sludge, sediments, and soils. This method is compliant with NEPM (2013) Schedule B(3) (Method 202)
Methanolic Extraction of Soils for Purge and Trap	ORG16	SOIL	In house: Referenced to USEPA SW 846 - 5030A. 5g of solid is shaken with surrogate and 10mL methanol prior to analysis by Purge and Trap - GC/MS.
Tumbler Extraction of Solids	ORG17	SOIL	In house: Mechanical agitation (tumbler). 10g of sample, Na ₂ SO ₄ and surrogate are extracted with 30mL 1:1 DCM/Acetone by end over end tumble. The solvent is decanted, dehydrated and concentrated (by KD) to the desired volume for analysis.

Data Quality Validation Report

This report reviews the Quality Assurance (QA) and Quality Control (QC) documentation. Quality assurance encompasses the actions, procedures, checks and decisions undertaken to ensure sample integrity and representativeness, and the reliability and accuracy of analysis results. The QA documentation should also include an indication of the Data Quality Objectives sought in relation to each significant action, test or process involved in the assessment.

QC activities measure the effectiveness of the QA procedures by undertaking testing, and then comparing results to previously established objectives. QC work will include the internal laboratory testing, as well as results of QC samples such as trip blanks and duplicates. The quality of the information and/or data is deemed satisfactory when the QC results demonstrate that agreed objectives have been met.

A review of the QA/QC was completed as part of the data validation exercise. The findings are summarised in the table below.

QA/QC Aspects	Evidence & Evaluation
QA Documentation	
Project Quality Plan/Work Plan and Data Quality Objectives	<p>A Workplan and Health & Safety Plan were prepared prior to the soil contamination assessment.</p> <p>The investigation was carried out in accordance with the proposed scope of work outlined in the report.</p> <p>A quality control program was implemented during the investigation and the quality assurance procedures used have been reiterated in the report.</p> <p>The Data Quality Objectives were expressed in terms of the purpose of the assessment and the relevant assessment criteria.</p>
Data Validation Report	This review constitutes a data validation review.
Data Representativeness	
Holding Times	Soil: Chain of custody and laboratory reports provide evidence of holding times. Holding times were in conformance with Appendix B in EPA Publication IWRG701 'Sampling and Analysis of Waters, Wastewaters, Soils and Wastes (June 2009).
Verification of field procedures	<p>The methodology conducted during the assessment is documented in the body of the report, and was generally in conformance with the work plan.</p> <p>Non-disposable equipment was decontaminated between soil and groundwater samples using phosphate free detergent (Decon 90) solution, followed by rinsing with DI water.</p>
Data Precision & Accuracy	
QC Testing – Blind Duplicate (Primary Laboratory)	<p style="text-align: center;">Soil</p> <ul style="list-style-type: none"> ● Acceptance Criteria: RPD < 30% ● Soil Samples Analysed: 14 ● Blind Duplicate Samples Analysed: 1 ● Blind Duplicate Analyte Pairs: 26 ● Number of Analyte Pairs Exceeding Criteria: 0 ● Percentage of Analyte Pairs Exceeding Criteria: 0% <p>There are no RPD exceedances for any of the analyte pairs. RPD calculations are presented in Appendix B of the assessment report.</p>
QC Testing – Split Duplicate (Secondary Laboratory)	<p style="text-align: center;">Soil</p> <ul style="list-style-type: none"> ● Acceptance Criteria: RPD < 30% ● Soil Samples Analysed: 14 ● Split Duplicate Samples Analysed: 1

QA/QC Aspects	Evidence & Evaluation
	<ul style="list-style-type: none"> ● Split Duplicate Analyte Pairs: 25 ● Number of Analyte Pairs Exceeding Criteria: 4 ● Percentage of Analyte Pairs Exceeding Criteria: 16% <p>The RPD exceedances include Copper (RPD of 59%), Lead (RPD of 45%), Nickel (RPD of 71%) and Zinc (RPD of 65%). The exceedances may be related to sample heterogeneity or differently analysis methods used at the primary and secondary laboratories, and for the most part are not excessively high. RPD calculations are presented in Appendix B of the report.</p>
Trip Blanks	One trip blank was collected and laboratory tested. The sample was tested for TPH C ₆ -C ₉ , which reported a concentration below the laboratory limit of reporting (LOR), as shown in Table B-3, Appendix B.
Laboratory Internal QC	<p>Evidence of the primary laboratory's internal QC testing is present and complete in the laboratory report. Eurofins-mgt performed internal QC with adequate testing and satisfactory results for matrix spikes, method blanks, and laboratory control samples.</p> <p>One sample tested for anthracene reported a matrix spike recovery of 67% which is outside the recommended acceptance criteria of 70-130%. Eurofins-mgt noted that an acceptable recovery was obtained for the laboratory control sample, indicating a sample matrix interference.</p> <p>All other analytes reported "passes" in the internal tests, recording results within the adopted acceptance criteria.</p>
Laboratory Method Detection Limit	Laboratory reports indicate that the method detection limits were lower than the respective assessment criteria. The analysed samples did not report any analyte concentrations above the LORs.
NATA endorsement of laboratory reports	Laboratory reports were stamped with the NATA endorsement stamp and signature.
Decontamination and Equipment Blanks	One rinsate blank sample was collected and laboratory tested for metals. All analytes reported concentrations below the laboratory LOR, as shown in Table B-3, Appendix B.
Data Comparability	
Standard Procedures	<p>Field methods such as sampling, storage, handling and decontamination were undertaken in compliance with Cardno's standard operating procedures (SOPs) and were consistent by the sampler. These SOPs are in general accordance with applicable standards and guidelines and industry best practice, which are detailed in the report.</p> <p>Laboratory methods used in this assessment were consistent over the duration of the assessment.</p>
Qualified Personnel	Staff members involved in managing and reviewing the project are confirmed as suitably qualified, trained and experienced personnel.
Volatile Losses	There is no evidence of volatile losses based on the trip blank results. PID screening undertaken during the soil sampling program recorded generally low readings that do not indicate significant contamination by volatiles.
Sample Integrity	Chain of Custody forms (laboratory request) are presented in Appendix E of the report.
Data Completeness	
Completeness of test program	The scope of work undertaken was generally consistent with that required to characterise the site, as set out in the proposed scope of works.
Validity of Data Set	The data quality review does not indicate any significant systematic errors in the data collection process for soil, and therefore the dataset used as the basis for this assessment is considered valid and complete.



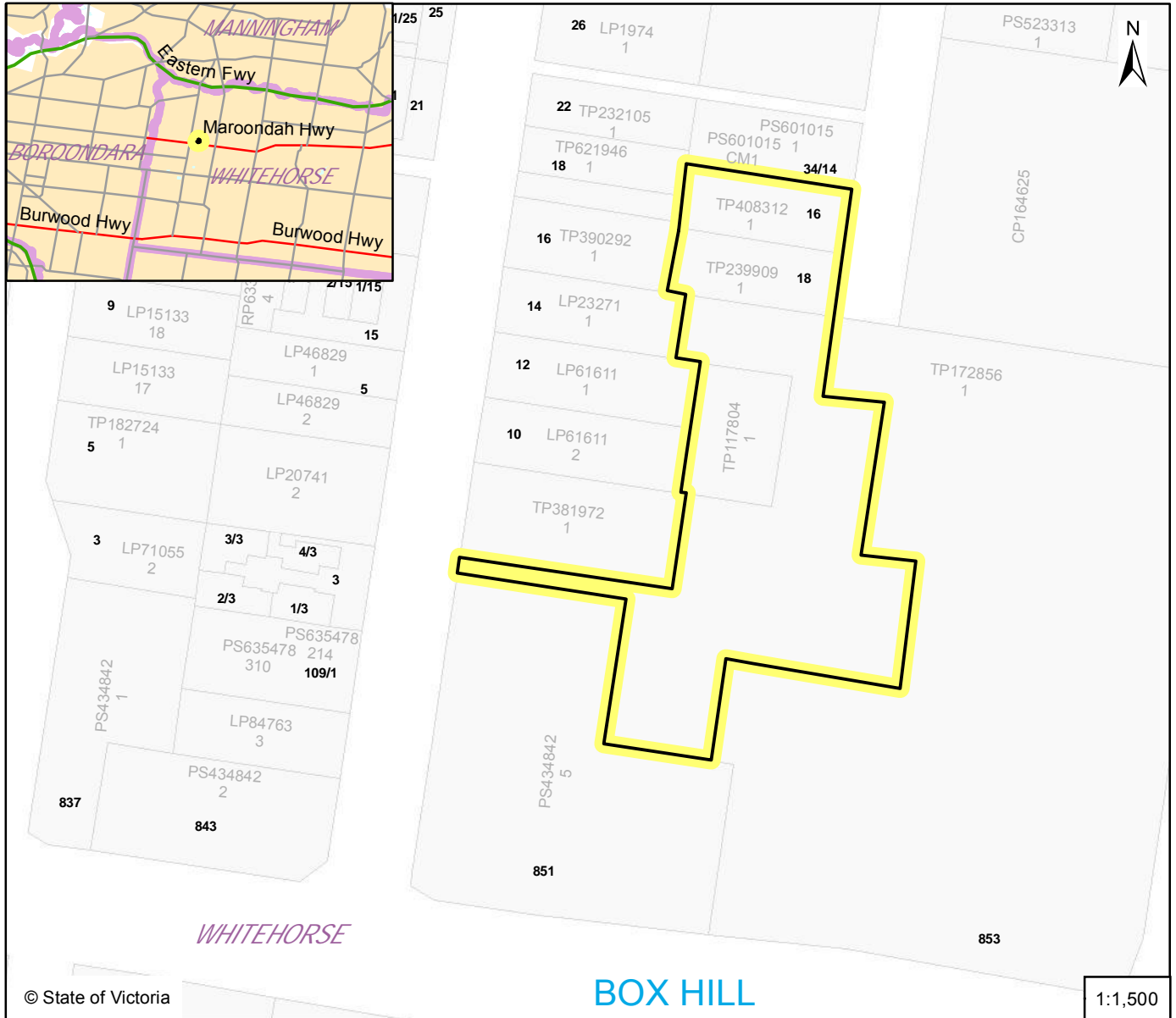
853 Whitehorse Road, Box Hill, 3128

CS00419








This report has been produced for the subject site:

853 Whitehorse Road, Box Hill, 3128



Legend

-  Subject Site
-  Watercourse
-  Waterbody
-  Reserves
-  LGA Boundary
- LGA NAME*
- Locality Name**

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 Contact: ph +61 3 9691 3000 or info@checksite.com.au
 www.checksite.com.au

The following searches have been undertaken for this report.

CONTENT	SOURCES	SEARCH UNDERTAKEN	INFO. PROVIDED	DETAILS
Melway	AUSWAY Publishing	<input checked="" type="radio"/> Yes <input type="radio"/> No	<input checked="" type="radio"/> Yes <input type="radio"/> No	Melway Ed1 1966 provided Melway Ed11 1978 provided
Historic Aerial Images	Department of Environment, Land, Water & Planning	<input checked="" type="radio"/> Yes <input type="radio"/> No	<input checked="" type="radio"/> Yes <input type="radio"/> No	Aerial Imagery from 1931, 1954, 1970, 1972, 1987, 1991, 2005 and 2010
Parish Plans	Public Records Office Victoria	<input checked="" type="radio"/> Yes <input type="radio"/> No	<input checked="" type="radio"/> Yes <input type="radio"/> No	Refer to map
Historic Planning Schemes	Planning Maps Online	<input checked="" type="radio"/> Yes <input type="radio"/> No	<input checked="" type="radio"/> Yes <input type="radio"/> No	1954, 1959, 1968 Historic Planning Schemes Area missing from 1985
MMBW Detail Plan	State Library of Victoria	<input checked="" type="radio"/> Yes <input type="radio"/> No	<input checked="" type="radio"/> Yes <input type="radio"/> No	MMBW Plan provided - refer to map

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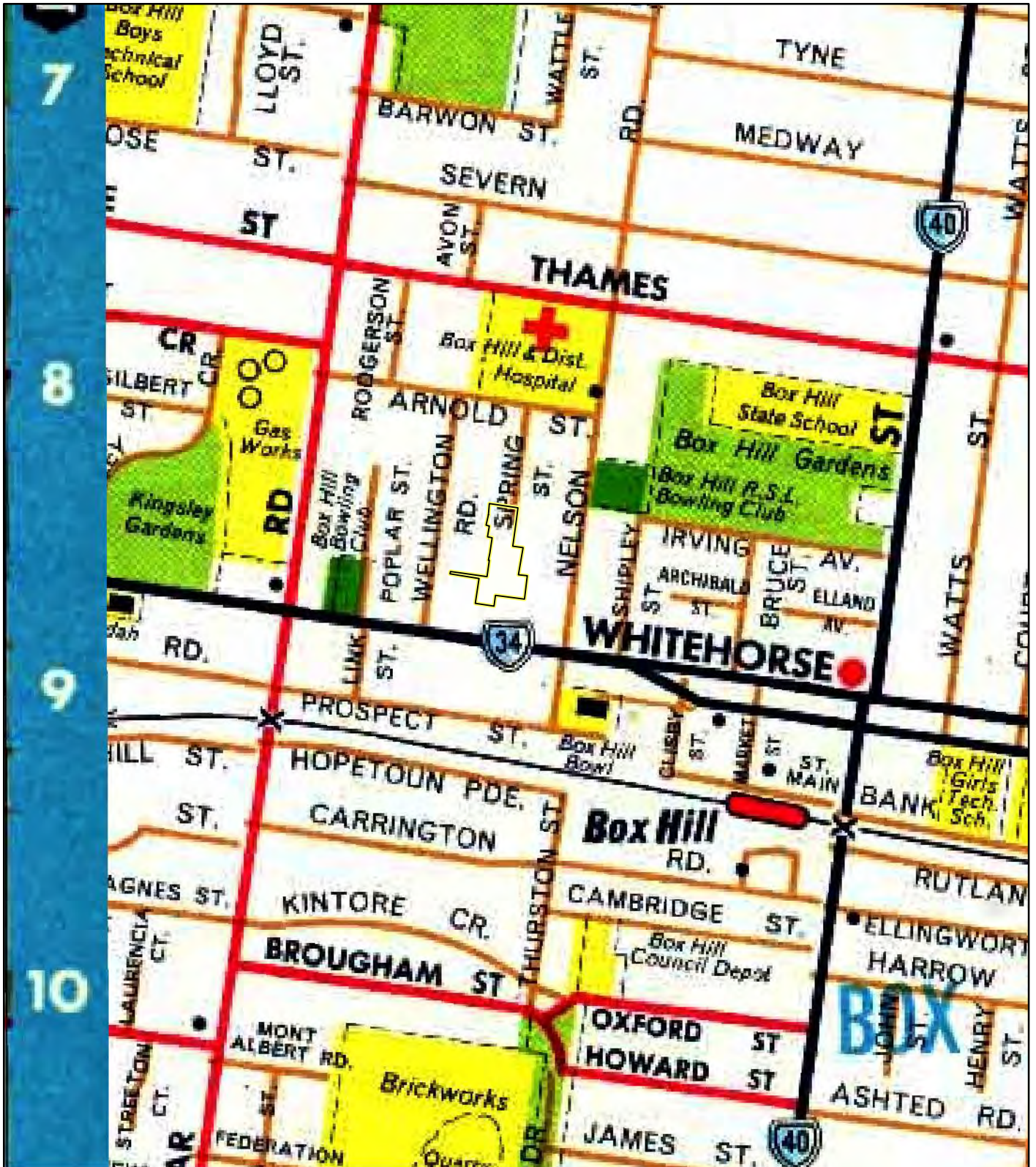
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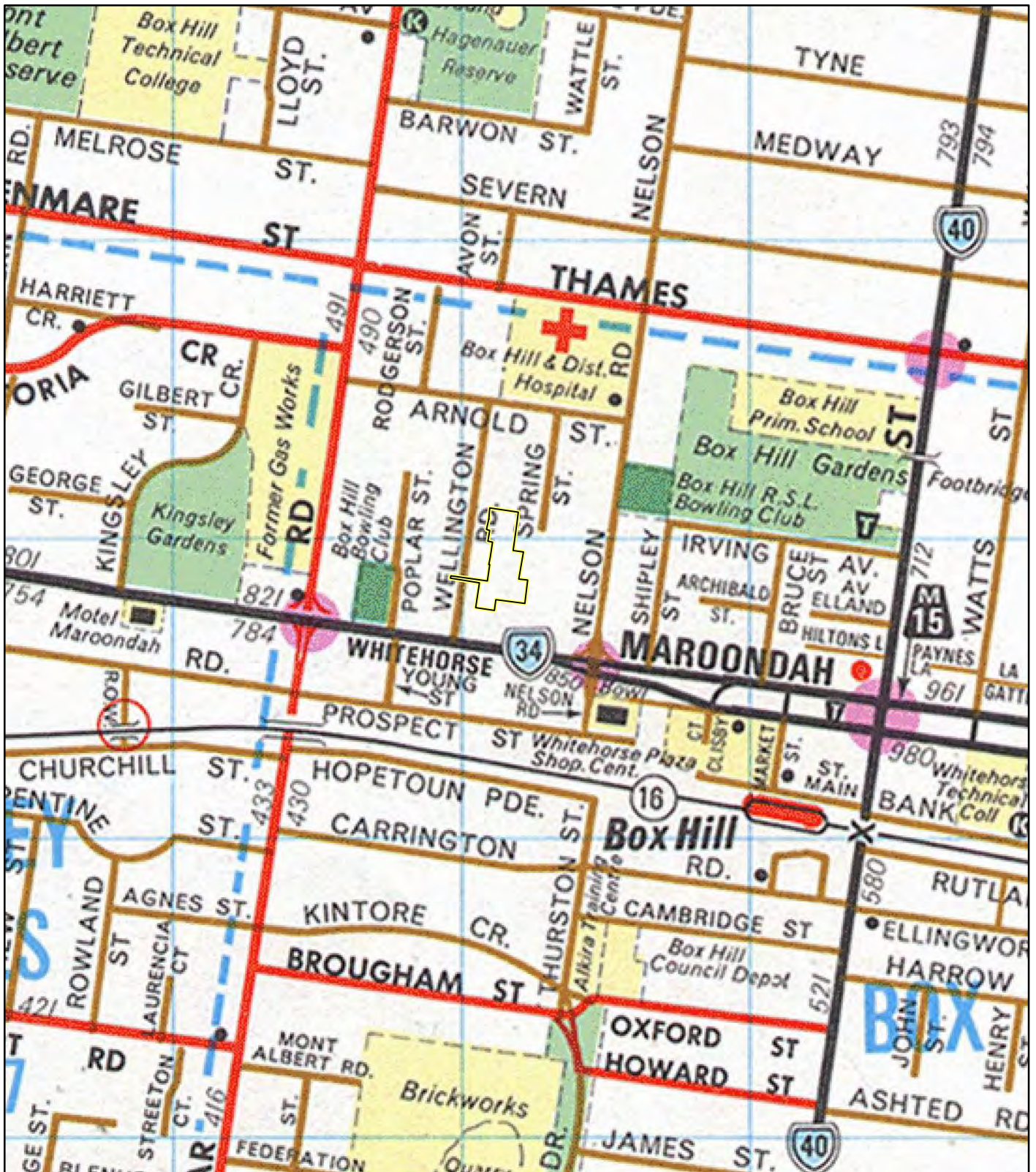
Melway Edition 1 - 1966

Map Number: 47



Melway Edition 11 - 1978

Map Number: 47



Historical Aerial Imagery

Image Date: November 1931

Scale of Original Photograph: 1:18,860

Photo ID: p1931r19y11_1931film60fr3124_photoid1703495_serial03414_dpi1000.jp2



Historical Aerial Imagery

Image Date: March 1954

Scale of Original Photograph: 1:20,000

Photo ID: p159r2y03_1954film1257fr2157_photoid1672092_serial07975_dpi1000.jp2



Historical Aerial Imagery

Image Date: February 1970

Scale of Original Photograph: 1:30,000

Photo ID: 2383_222_09_16um_24021970.jp2



Historical Aerial Imagery

Image Date: March 1972

Scale of Original Photograph: 1:7,200

Photo ID: p982r1y03_1972film2549fr4_photoid2095454_serial01560_dpi1000.jp2



Historical Aerial Imagery

Image Date: December 1987

Scale of Original Photograph: 1:10,000

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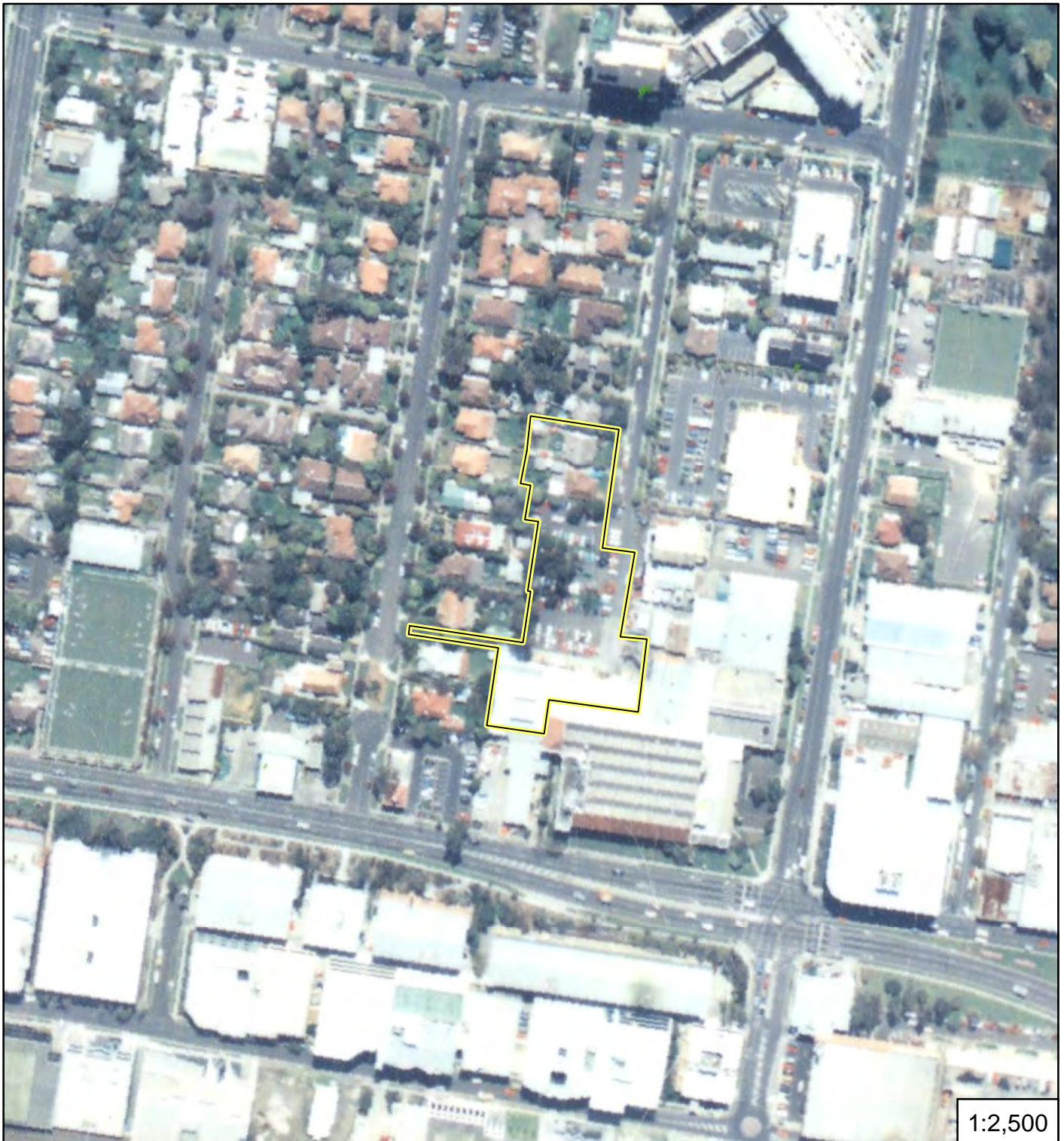


Historical Aerial Imagery

Image Date: September 1991

Scale of Original Photograph: 1:15,000

Photo ID: p2072r17y09_1991film4418fr153_photoid1722197_serial05391_dpi1000.jp2



Historical Aerial Imagery

Image Date: December 2005

Scale of Original Photograph: 35cm resolution

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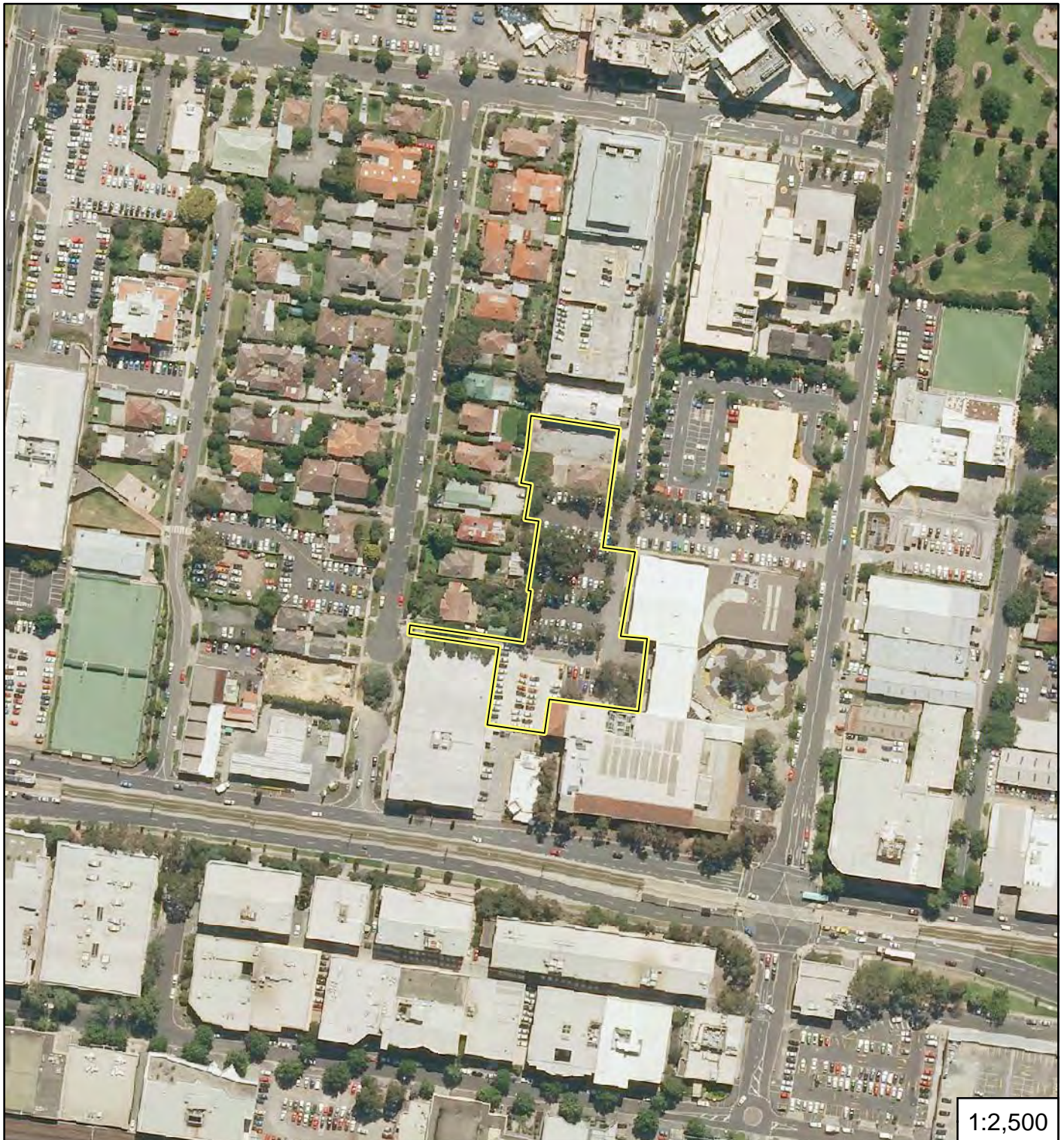


Historical Aerial Imagery

Image Date: December 2010

Scale of Original Photograph: 35cm resolution

Photo ID: portphillip_2010dec28_air_vis_35cm_mga55.ecw

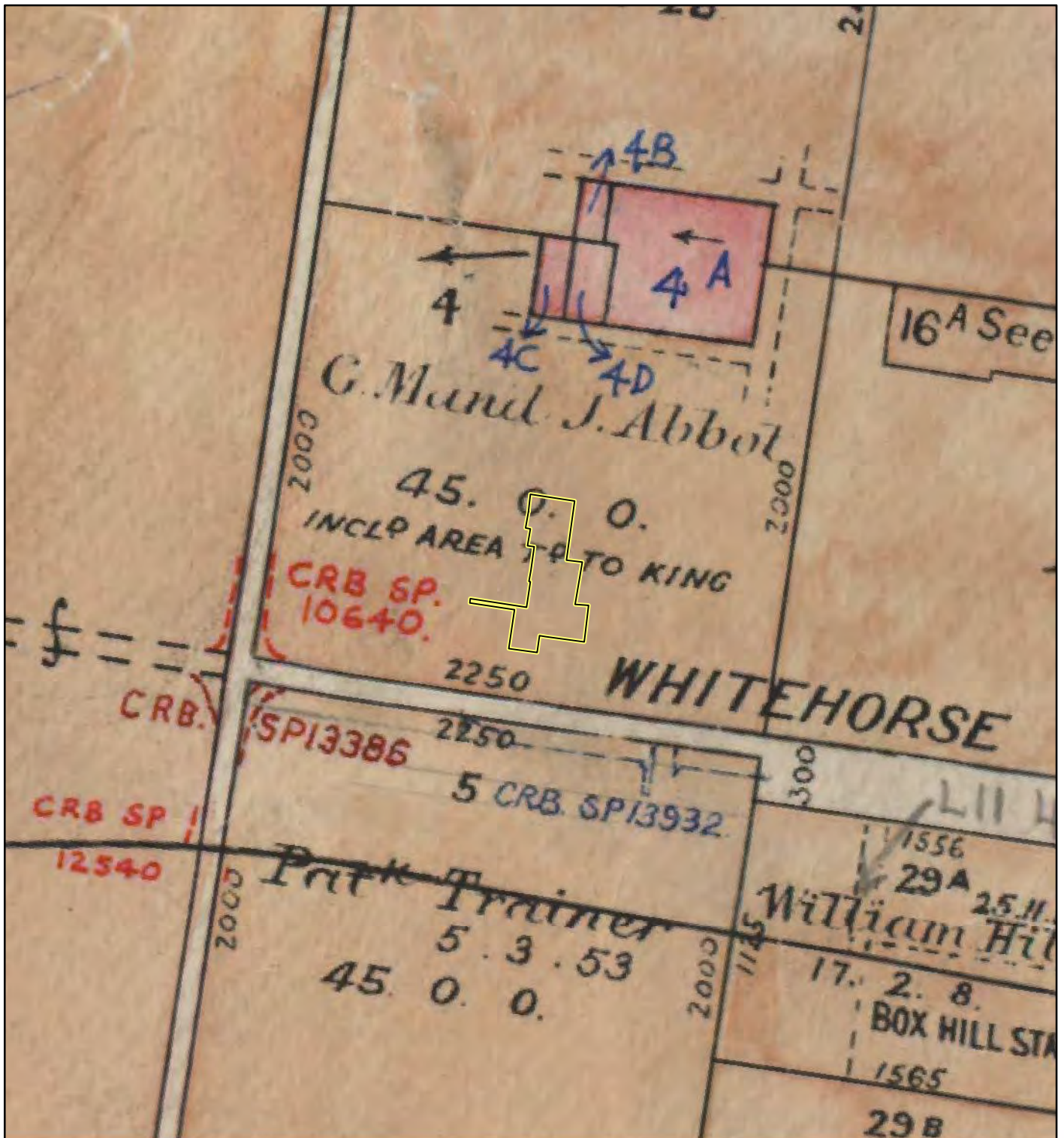


Parish Plan

Parish: Nunawading

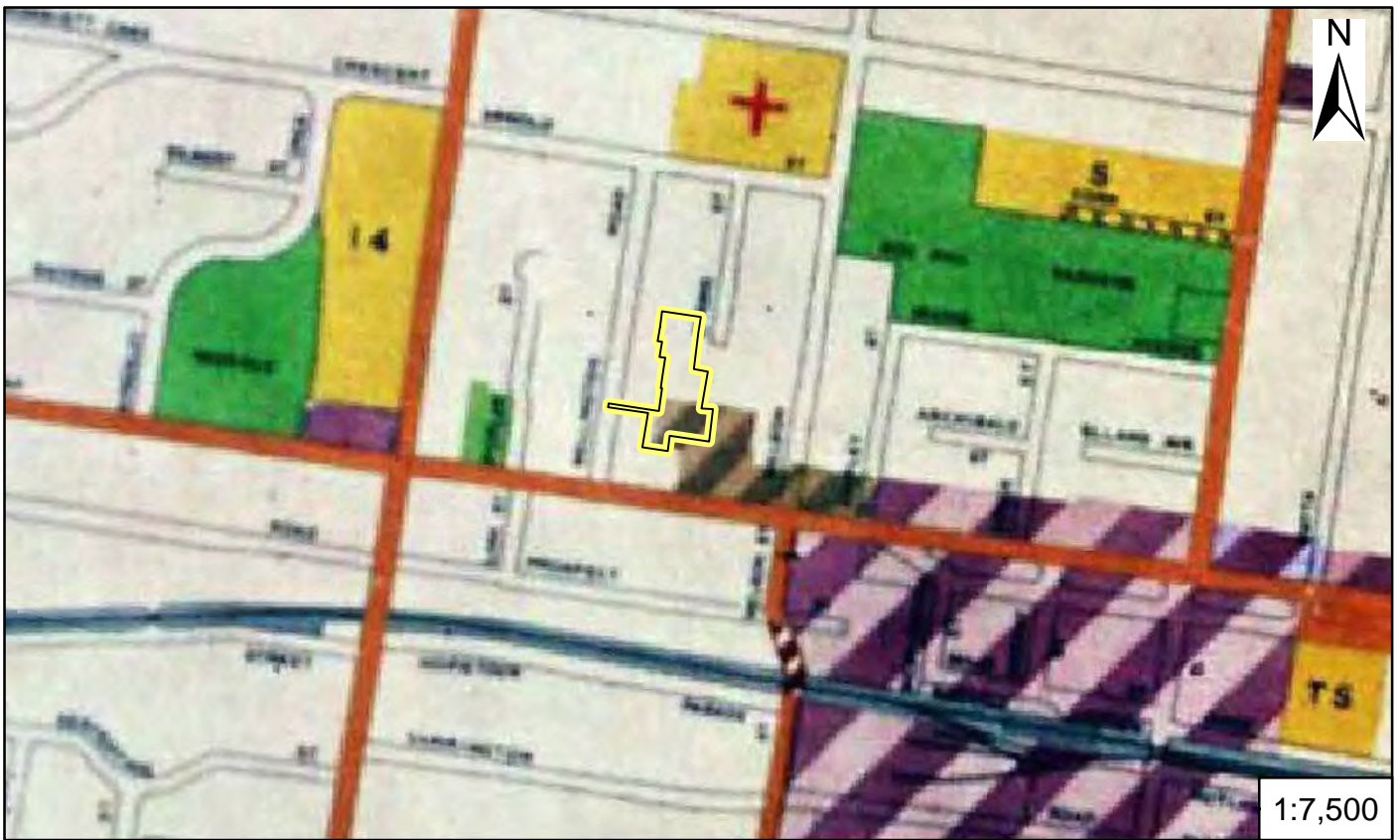
Section:

Allotment: Part of 4



Historical Planning Schemes

1954

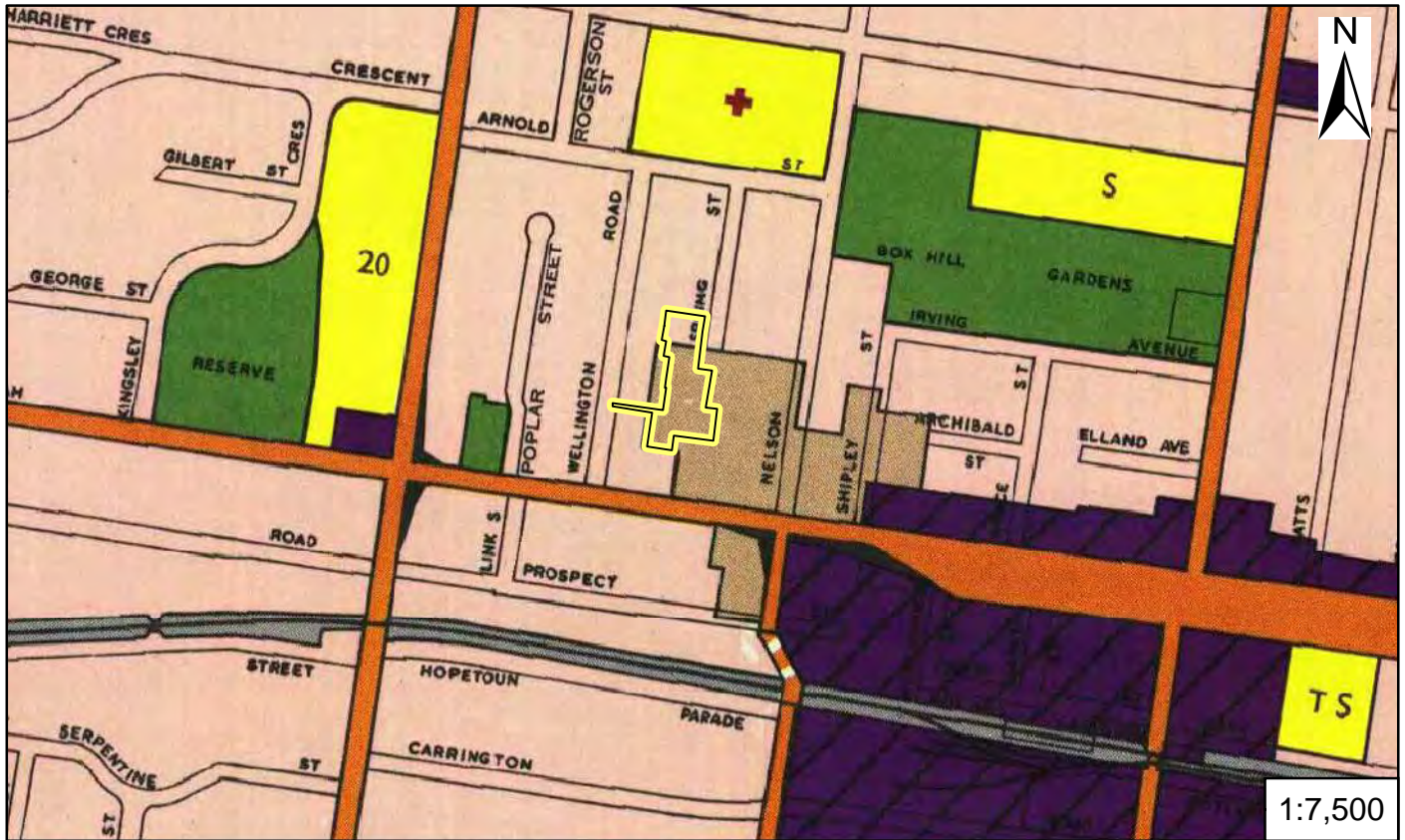


1959

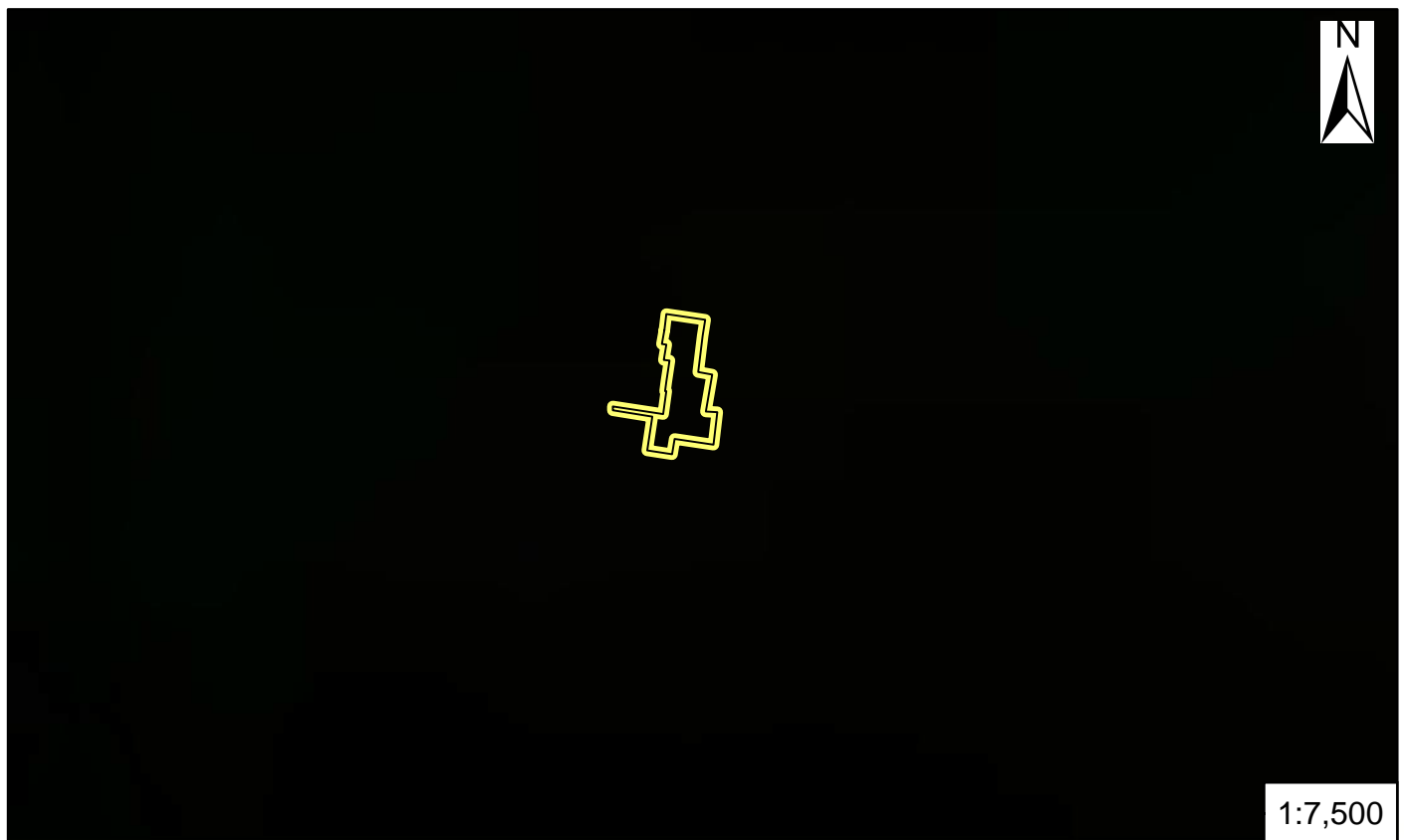


Historical Planning Schemes

1968



1985



HISTORIC PLANNING SCHEMES LEGENDS

LEGEND - 1954

PLANNING BOUNDARY	
MUNICIPAL BOUNDARY	
ZONES	
RURAL	
VILLAGE	
RESIDENTIAL	
LIVING	
RESERVED LIVING	
CENTRAL BUSINESS	
INDENT BUSINESS	
LOCAL BUSINESS	
RESTRICTED BUSINESS	
INDUSTRIAL	

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