

Appendix I: EIS (2014a) Summary Information



TABLE B
SOIL LABORATORY RESULTS COMPARED TO HIL
All data in mg/kg unless stated otherwise

			HEAVY METALS							PAHs		ORGANOCHLORINE PESTICIDES (OCPs)							OP PESTICIDES (OPPs)	TOTAL PCBs	ASBESTOS FIBRES		
			Arsenic	Cadmium	Chromium	Copper	Lead	Mercury	Nickel	Zinc	Total PAHs	B(a)P TEQ ²	HCB	Endosulfan	Methoxychlor	Aldrin & Dieldrin	Chlordane	DDT, DDD & DDE	Heptachlor			Chlorpyrifos	
PQL - Envirolab Services			4	0.5	1	1	1	0.1	1	1	-	0.5	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	100
Site Assessment Criteria (SAC) ¹			3000	900	nsI	240000	1500	730	6000	400000	4000	40	80	2000	2500	45	530	3600	50	2000	7	Detect/Not Detect	
Sample Reference	Sample Depth	Sample Description																					
			9	LPQL	11	14	28	LPQL	6	110	2.81	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL
BH1	0.4-0.5	Fill: sand	9	LPQL	11	14	28	LPQL	6	110	2.81	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	
BH2	0.1-0.2	Fill: sand	LPQL	LPQL	9	47	2	LPQL	67	30	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	
BH2	2.8-3	Fill: silty clay	5	LPQL	15	11	38	0.1	7	30	14.8	2	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	
BH3	0.1-0.2	Fill: silty sand	LPQL	LPQL	LPQL	4	LPQL	LPQL	6	3	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	
BH4	0-0.1	Fill: clayey sand	11	LPQL	9	9	13	LPQL	5	27	0.05	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	
BH4	4.3-4.5	Silty clay	6	LPQL	14	15	15	0.3	5	25	0.06	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	na	
BH5	0.1-0.2	Fill: sand	LPQL	LPQL	11	24	18	0.1	8	60	3.45	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	
BH6	0.1-0.2	Fill: clayey sand	11	1.5	9	12	14	LPQL	7	39	1.59	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	
BH7	0-0.3	Fill: silty clay	LPQL	LPQL	11	12	28	LPQL	7	32	1.47	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	
BH8	0.5-0.8	Fill: silty clay	LPQL	LPQL	10	6	12	LPQL	5	14	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	
BH8	3.3-3.6	Fill: silty clay	4	LPQL	11	14	37	LPQL	12	50	1.81	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	
BH8	3.6-3.7	Fill: fibre-cement	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	Chrysotile and Amosite asbestos	
BH8	5.2-5.4	Fill: fibrous debris	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	Chrysotile, Amosite and Crocidolite asbestos	
BH8	5.9-6	Fill: fibrous debris	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	Chrysotile, Amosite and Crocidolite asbestos	
BH9	0.6-0.9	Fill: silty clay	LPQL	LPQL	11	21	28	LPQL	11	45	2.68	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	
BH9	2.95-3	Fill: fibrous debris	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	Chrysotile, Amosite and Crocidolite asbestos	
BH10	0.5-0.8	Fill: silty clay	LPQL	LPQL	9	7	12	LPQL	4	20	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	
BH10	4.4-4.5	Fill: fibrous debris	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	Chrysotile, Amosite and Crocidolite asbestos	
BH11	0-0.3	Fill: silty sand	LPQL	LPQL	5	6	27	LPQL	4	16	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	
BH11	1.3-1.5	Fill: silty clay	LPQL	LPQL	9	8	16	LPQL	4	18	0.71	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	
Total Number of Samples			15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	19	
Maximum Value			11	1.5	15	47	38	0.3	67	110	14.8	2	0	0	0	0	0	0	0	0	0	nc	

Explanation:
1 - Site Assessment Criteria (SAC): NEPM 2013, HIL-D: 'Commercial/Industrial'
2 - B(a)P TEQ - Benzo(a)pyrene Toxicity Equivalence Quotient has been calculated based on 8 carcinogenic PAHs and their Toxic Equivalence Factors (TEFs) outlined in NEPM 2013

Concentration above the SAC **VALUE**

Abbreviations:
PAHs: Polycyclic Aromatic Hydrocarbons
B(a)P: Benzo(a)pyrene
PQL: Practical Quantitation Limit
LPQL: Less than PQL
OPP: Organophosphorus Pesticides
OCP: Organochlorine Pesticides
PCBs: Polychlorinated Biphenyls
UCL: Upper Level Confidence Limit on Mean Value
HILs: Health Investigation Levels
na: Not Analysed
nc: Not Calculated
nsI: No Set Limit
SAC: Site Assessment Criteria
NEPM: National Environmental Protection Measure

TABLE C SOIL LABORATORY RESULTS COMPARED TO HSL All data in mg/kg unless stated otherwise											
				C ₆ -C10 (F1)	> C ₁₀ -C ₁₆ (F2)	Benzene	Toluene	Ethylbenzene	Xylenes	Naphthalene	PID ²
PQL - Envirolab Services				25	50	0.2	0.5	1	3	1	
HSL Land Use Category ¹				COMMERCIAL/INDUSTRIAL							
Sample Reference	Sample Depth	Depth Category	Soil Category								
BH1	0.4-0.5	0m to < 1m	Sand	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	0
BH2	0.1-0.2	0m to < 1m	Sand	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	0
BH2	2.8-3	2m to <4m	Clay	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	0
BH3	0.1-0.2	0m to < 1m	Sand	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	0
BH4	0-0.1	0m to < 1m	Sand	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	0
BH4	4.3-4.5	4m +	Clay	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	0
BH5	0.1-0.2	0m to < 1m	Sand	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	0
BH6	0.1-0.2	0m to < 1m	Sand	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	0
BH7	0-0.3	0m to < 1m	Clay	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	0
BH8	0.5-0.8	0m to < 1m	Clay	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	0
BH8	3.3-3.6	2m to <4m	Clay	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	0
BH9	0.6-0.9	0m to < 1m	Clay	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	0
BH10	0.5-0.8	0m to < 1m	Clay	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	0
BH11	0-0.3	0m to < 1m	Clay	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	0
BH11	1.3-1.5	1m to <2m	Clay	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	0
Total Number of Samples ³				15	15	15	15	15	15	15	15
Maximum Value				LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	LPQL	0
Explanation: 1 - Site Assessment Criteria (SAC): NEPM 2013 2 - Field PID values obtained during the investigation Concentration above the SAC VALUE Abbreviations: UCL: Upper Level Confidence Limit on Mean Value PQL: Practical Quantitation Limit HSLs: Health Screening Levels LPQL: Less than PQL na: Not Analysed SAC: Site Assessment Criteria nc: Not Calculated NEPM: National Environmental Protection Measure NL: Not Limiting											

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SITE ASSESSMENT CRITERIA											
				C ₆ -C10 (F1)	> C ₁₀ -C ₁₆ (F2)	Benzene	Toluene	Ethylbenzene	Xylenes	Naphthalene	
PQL - Envirolab Services				25	50	0.2	0.5	1	3	1	
HSL Land Use Category ¹				COMMERCIAL/INDUSTRIAL							
Sample Reference	Sample Depth	Depth Category	Soil Category								
BH1	0.4-0.5	0m to < 1m	Sand	260	NL	3	NL	NL	230	NL	
BH2	0.1-0.2	0m to < 1m	Sand	260	NL	3	NL	NL	230	NL	
BH2	2.8-3	2m to <4m	Clay	NL	NL	9	NL	NL	NL	NL	
BH3	0.1-0.2	0m to < 1m	Sand	260	NL	3	NL	NL	230	NL	
BH4	0-0.1	0m to < 1m	Sand	260	NL	3	NL	NL	230	NL	
BH4	4.3-4.5	4m +	Clay	NL	NL	20	NL	NL	NL	NL	
BH5	0.1-0.2	0m to < 1m	Sand	260	NL	3	NL	NL	230	NL	
BH6	0.1-0.2	0m to < 1m	Sand	260	NL	3	NL	NL	230	NL	
BH7	0-0.3	0m to < 1m	Clay	310	NL	4	NL	NL	NL	NL	
BH8	0.5-0.8	0m to < 1m	Clay	310	NL	4	NL	NL	NL	NL	
BH8	3.3-3.6	2m to <4m	Clay	NL	NL	9	NL	NL	NL	NL	
BH9	0.6-0.9	0m to < 1m	Clay	310	NL	4	NL	NL	NL	NL	
BH10	0.5-0.8	0m to < 1m	Clay	310	NL	4	NL	NL	NL	NL	
BH11	0-0.3	0m to < 1m	Clay	310	NL	4	NL	NL	NL	NL	
BH11	1.3-1.5	1m to <2m	Clay	480	NL	6	NL	NL	NL	NL	

TABLE D
SOIL INTRA-LABORATORY DUPLICATE RESULTS & RPD CALCULATIONS

All results in mg/kg unless stated otherwise

SAMPLE	ANALYSIS	Envirolab PQL	INITIAL	REPEAT	MEAN	RPD %
Sample Ref = BH7 (0-0.3m) Dup Ref = Dup GF Envirolab Report: 102018	Arsenic	4	LPQL	LPQL	LPQL	NC
	Cadmium	0.5	LPQL	LPQL	LPQL	NC
	Chromium	1	11	10	10.5	9.5
	Copper	1	12	18	15	40.0
	Lead	1	28	44	36	44.4
	Mercury	0.1	LPQL	LPQL	LPQL	NC
	Nickel	1	7	7	7	0.0
	Zinc	1	32	44	38	31.6

EXPLANATION:

The RPD value is calculated as the absolute value of the difference between the initial and repeat results divided by the average value expressed as a percentage. The following acceptance criteria will be used to assess the RPD results:

Results > 10 times PQL = RPD value <= 50% are acceptable

Results between 5 & 10 times PQL = RPD value <= 75% are acceptable

Results < 5 times PQL = RPD value <= 100% are acceptable

RPD Results Above the Acceptance Criteria

VALUE

ABBREVIATIONS:

PQL: Practical Quantitation Limit

LPQL: Less than PQL

na: Not Analysed

nc: Not Calculated

OCP: Organochlorine Pesticides

OPP: Organophosphorus Pesticides

PCBs: Polychlorinated Biphenyls

TPH: Total Petroleum Hydrocarbons



TABLE E
SUMMARY OF QA/QC - TRIP BLANK RESULTS

ANALYSIS	Envirolab PQL		TB1 ^s 5/12/2013 102018 mg/kg
	mg/kg	µg/L	
C ₆ -C ₉ TPH	10	10	LPQL
C ₁₀ -C ₁₄ TPH	50	50	LPQL
C ₁₅ -C ₂₈ TPH	100	100	LPQL
C ₂₉ -C ₃₆ TPH	100	100	LPQL
Benzene	1	1	LPQL
Toluene	1	1	LPQL
Ethylbenzene	1	1	LPQL
m + p-xylene	2	2	LPQL
o-xylene	1	1	LPQL

EXPLANATION:

^s Sample type (sand)

Values above PQLs/Acceptance criteria

VALUE

ABBREVIATIONS:

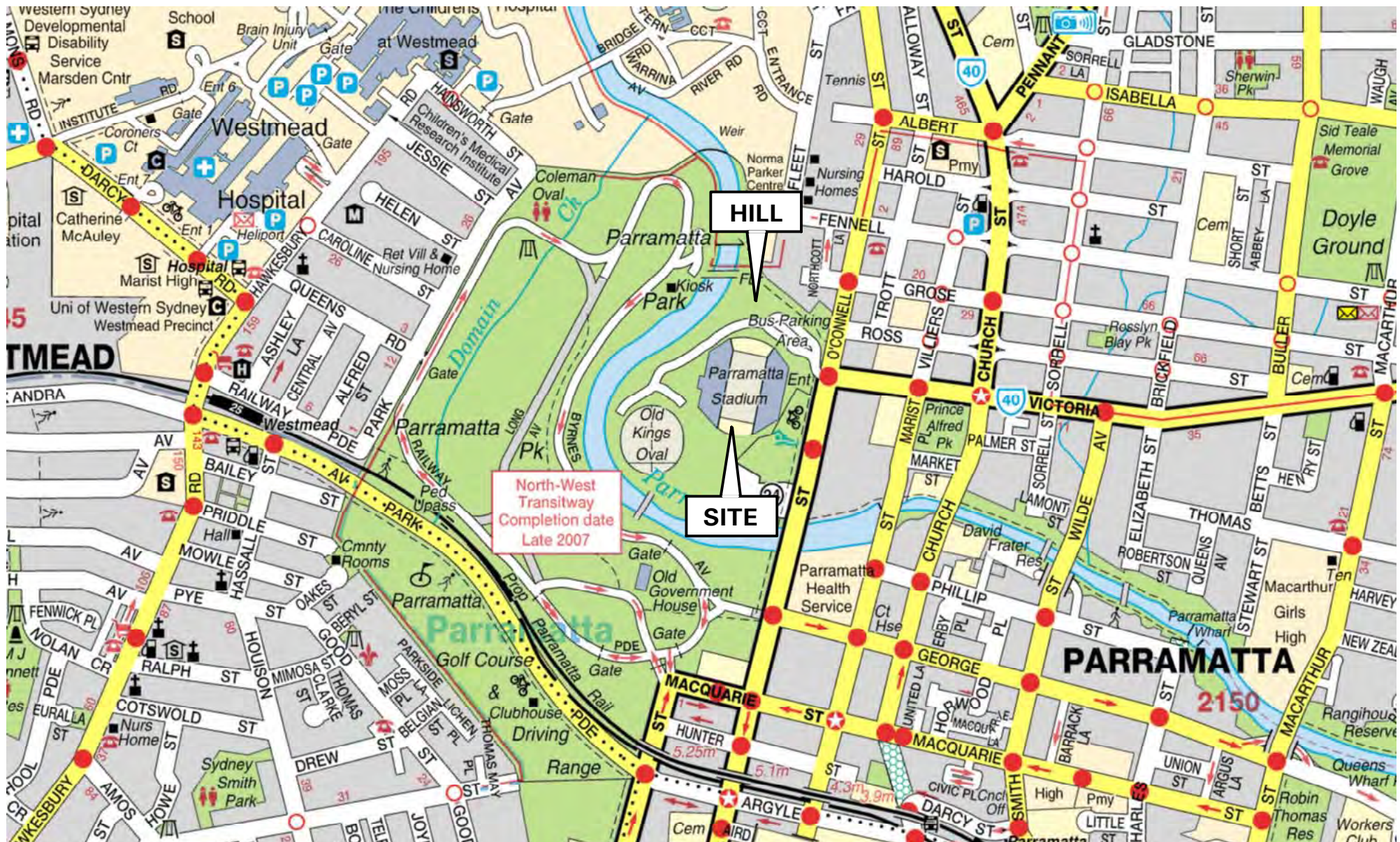
PQL: Practical Quantitation Limit

LPQL: Less than PQL

TB: Trip Blank

TPH: Total Petroleum Hydrocarbons

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NOTES:
Figure 1 has been recreated from UBD on disc (version 5.0). Figure is not to scale.

UBD Map ref: 196 A-B16

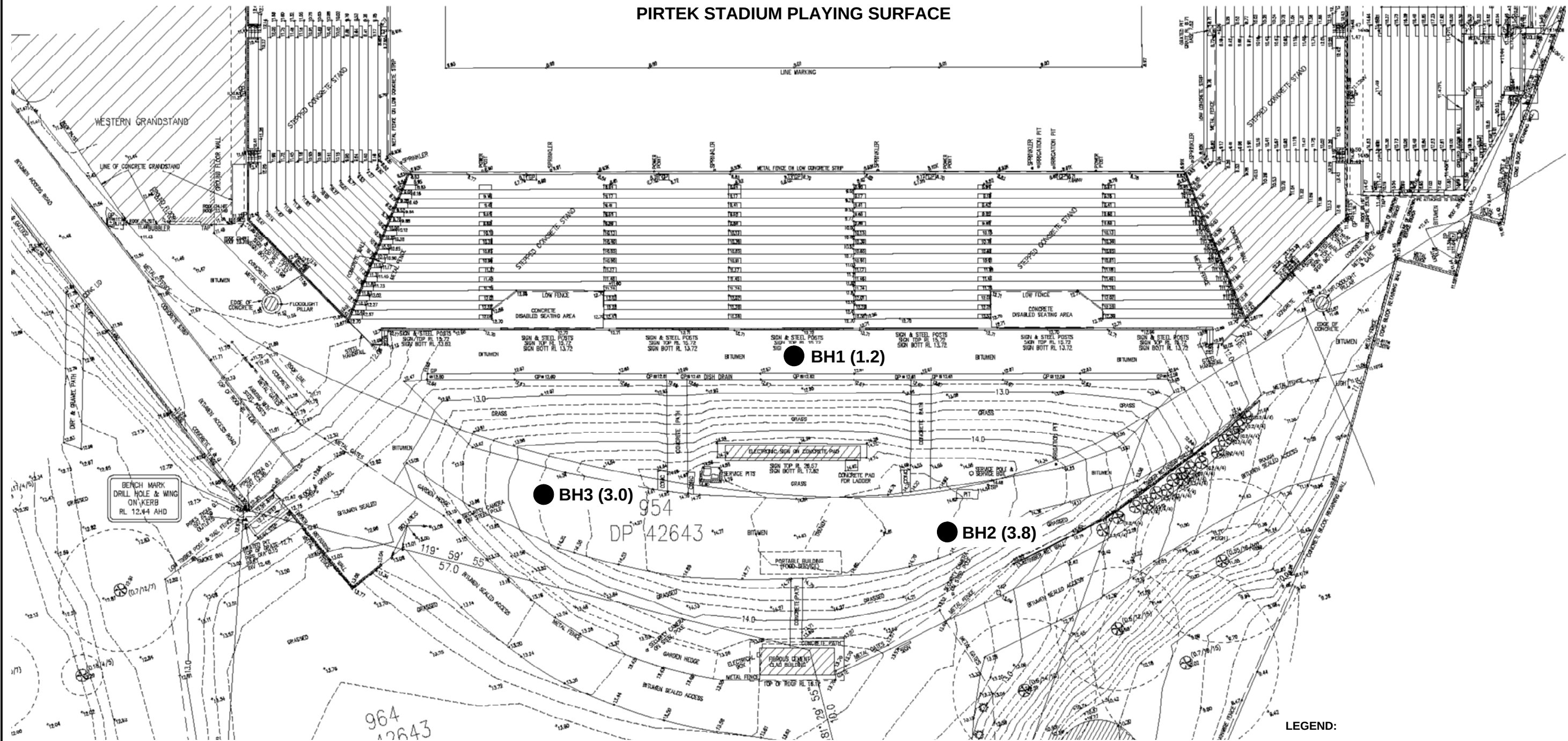
Reference should be made to the report text for a full understanding of this plan.



Project Number: E27070KH	Title: SITE LOCATION PLAN
Figure: 1	Address: PARRAMATTA STADIUM, O'CONNELL STREET, PARRAMATTA, NSW



PIRTEK STADIUM PLAYING SURFACE



NOTES:
Figure 2 has been recreated from a site survey plan

The borehole locations presented on this plan have been established from site measurements only and should not be construed as survey points.

Reference should be made to the report text for a full understanding of this plan.

Approximate Scale (m):



ENVIRONMENTAL
INVESTIGATION
SERVICES

Project Number:

E27070KH

Figure:

2

Title:

SOUTH TERRACE AREA
BOREHOLE LOCATION PLAN

Address:

PARRAMATTA STADIUM,
O'CONNELL STREET, PARRAMATTA

AMATTA PARK
T 80-3000

961
DP 42643

962
DP 42643

963
DP 42643

158
42643

959
DP 42643

951

PIRTEK STADIUM PLAYING SURFACE

PIRTEK STADIUM PLAYING SURFACE

"PARRAMATTA STADIUM"

WESTERN GRANDSTAND

● BH6 (2.3)

● BH4 (3.7)

● BH5 (0.5)

LEGEND:

● BH1 (0.2) Borehole location, number and depth of fill (m)

NOTES:
Figure 2 has been recreated from a site survey plan

The borehole locations presented on this plan have been established from site measurements only and should not be construed as survey points.

Reference should be made to the report text for a full understanding of this plan.

Approximate Scale (m):



EIS

ENVIRONMENTAL
INVESTIGATION
SERVICES

Project Number:

E27070KH

Figure:

3

Title:

NORTH TERRACE AREA
BOREHOLE LOCATION PLAN

Address:

PARRAMATTA STADIUM,
O'CONNELL STREET, PARRAMATTA



NOTES:
Figure 2 has been recreated from a Google Earth Pro image

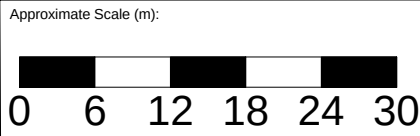
The borehole locations presented on this plan have been established from site measurements only and should not be construed as survey points.
Reference should be made to the report text for a full understanding of this plan.

LEGEND:

--- Approximate site boundary

● BH1 (0.2) Borehole location, number and depth of fill (m)

Contamination data (depth and contaminant)	
3.6-3.7	Abestos
5.2-5.4	Abestos
5.9-6	Abestos



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INVESTIGATION
SERVICES

Project Number: E27070KH	Title: MAN-MADE HILL AREA BOREHOLE LOCATION PLAN
Figure: 4	Address: PARRAMATTA STADIUM, O'CONNELL STREET, PARRAMATTA



Borehole No.
1
1/3

BOREHOLE LOG

Client: VENUES NSW													
Project: PROPOSED PIRTEK STADIUM UPGRADE													
Location: O'CONNELL STREET, PARRAMATTA, NSW													
Job No. 27070SB				Method: SPIRAL AUGER				R.L. Surface: ≈ 12.7m					
Date: 3-12-13				JK350				Datum: AHD					
Logged/Checked by: P.C./D.B.													
Groundwater Record	SAMPLES				Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
	ES	U50	DB	DS									
AFTER 29 HRS ▼						0		-	ASPHALTIC CONCRETE: 50mm.t FILL: Sand, fine to medium grained, brown, trace of fine to medium grained sub angular to angular igneous gravel and ceramic and concrete fragments. FILL: Clayey sand, fine to medium grained, dark brown, trace if fine to medium grained sub angular to angular igneous gravel and concrete fragments.	M			APPEARS POORLY COMPACTED
					N = 3 1,2,1							150 350 200	
						1							
								CL	SILTY CLAY: low plasticity, brown mottled light brown, trace of ash.	MC>PL	VSt		
					N = 4 1,2,2							300 200 200	
						2							
					N = 16 6,8,8						VSt-H	500 250 290	
						3							
								SC/CL	SANDY CLAY/CLAYEY SAND: low plasticity, fine grained, brown mottled red brown and light brown.	MC>PL/ M	VSt/ MD		
				N = 21 6,10,11							320 350 290		
					4								
				N > 41 7,20, 21/100mm REFUSAL						H/ VD	500 550 450		
					6								
							SC	CLAYEY SAND: fine to medium grained, mottled grey and brown, trace of fine to medium grained sub	M	D-VD			
					7								



BOREHOLE LOG

Borehole No.
1
2/3

Client: VENUES NSW														
Project: PROPOSED PIRTEK STADIUM UPGRADE														
Location: O'CONNELL STREET, PARRAMATTA, NSW														
Job No. 27070SB Method: SPIRAL AUGER JK350 R.L. Surface: ≈ 12.7m														
Date: 3-12-13 Logged/Checked by: P.C./D.B. Datum: AHD														
Groundwater Record	SAMPLES			Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks		
	ES	U50	DB										DS	
							SC	angular ironstone gravel.	M	D-VD		COMMENCE RAPID AUGER DRILLING TECHNIQUE AT 9.45m		
				N = 13 5,7,6	8			CLAYEY SAND: fine to medium grained, mottled grey and brown, trace of fine to medium grained sub angular ironstone gravel.	W	MD	200 200 90			
				N = 36 12,19,17	9			CLAYEY SAND: fine to medium grained, grey mottled brown and red brown.		D				
					10									
					11									
					12									
					13		-	SANDSTONE: fine to medium grained, brown.	XW-DW	EL-VL		VERY LOW TO LOW 'TC' BIT RESISTANCE		
					14			SANDSTONE: fine to medium grained, brown and light grey.	DW-SW	M		MODERATE RESISTANCE		



BOREHOLE LOG

Borehole No.

1

3/3

Client: VENUES NSW Project: PROPOSED PIRTEK STADIUM UPGRADE Location: O'CONNELL STREET, PARRAMATTA, NSW												
Job No. 27070SB Date: 3-12-13 Method: SPIRAL AUGER JK350 R.L. Surface: ≈ 12.7m Datum: AHD Logged/Checked by: P.C./D.B.												
Groundwater Record	SAMPLES			Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
	ES	U50	DB									
					15			SANDSTONE: fine to medium grained, light grey.	SW-FR	M-H		MODERATE TO HIGH RESISTANCE
					16			END OF BOREHOLE AT 15.0m				
					17							
					18							
					19							
					20							

BOREHOLE LOG

Borehole No.

2

1/3

Client: VENUES NSW
Project: PROPOSED PIRTEK STADIUM UPGRADE
Location: O'CONNELL STREET, PARRAMATTA, NSW

Job No. 27070SB **Method:** SPIRAL AUGER JK350 **R.L. Surface:** ≈ 14.6m
Date: 3-12-13 **Datum:** AHD
Logged/Checked by: P.C./D.B.

Groundwater Record	SAMPLES				Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
	ES	U50	DB	DS									
						0			ASPHALTIC CONCRETE: 30mm.t FILL: Sand, fine to medium grained, dark brown, trace of fine to medium grained sub angular igneous gravel.	M MC<PL			
					N = 31 11,15,16				FILL: Silty clay, low plasticity, brown, red brown and grey brown, trace of fine to medium grained sub angular ironstone gravel.			>600 >600 >600	APPEARS WELL COMPACTED
						1							
					N = 12 5,5,7				FILL: Silty clay, low plasticity, brown and light brown, trace of fine grained rounded ironstone gravel and slag.			>600 >600 >600	APPEARS MODERATELY COMPACTED
						2							
					N = 15 7,7,8				FILL: Clayey sandy silt, light grey brown, fine grained sand.			150 300	
						3							
						4		CL	SILTY CLAY: low plasticity, brown mottled grey, trace of root fibres.	MC<PL	VSt-H		
					N = 39 8,19,20							450 350 600	
						5							
						6			as above, but without root fibres.			400 450 350	
					N = 24 6,9,15								
						7							



BOREHOLE LOG

Borehole No.
2
2/3

Client: VENUES NSW												
Project: PROPOSED PIRTEK STADIUM UPGRADE												
Location: O'CONNELL STREET, PARRAMATTA, NSW												
Job No. 27070SB Method: SPIRAL AUGER JK350 R.L. Surface: ≈ 14.6m												
Date: 3-12-13 Logged/Checked by: P.C./D.B. Datum: AHD												
Groundwater Record	SAMPLES			Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
	ES	U50	DB									
▼ AFTER 2 HRS & 27 HRS ▲							SC/CL	CLAYEY SAND/SANDY CLAY: low plasticity, fine to medium grained, grey mottled brown.	M/ MC>PL	MD/ VSt		COMMENCED RAPID AUGER DRILLING TECHNIQUE AT 9.45m
					8						320 380 320	
					9		SC	CLAYEY SAND: fine to medium grained, grey.	W	D-VD	320 300	
					10							
					11							
					12							
				13								
				14								



BOREHOLE LOG

Borehole No.
2
3/3

Client: VENUES NSW													
Project: PROPOSED PIRTEK STADIUM UPGRADE													
Location: O'CONNELL STREET, PARRAMATTA, NSW													
Job No. 27070SB Method: SPIRAL AUGER JK350 R.L. Surface: ≈ 14.6m													
Date: 3-12-13 Logged/Checked by: P.C./D.B. Datum: AHD													
Groundwater Record	SAMPLES				Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
	ES	U50	DB	DS									
								SC	CLAYEY SAND: fine to medium grained, grey.	W	D-VD		
						15		-	SANDSTONE: fine to medium grained, brown,	DW	VL-L		VERY LOW TO LOW 'TC' BIT RESISTANCE
									SANDSTONE: fine to medium grained, brown and light grey.	DW-SW	M		MODERATE RESISTANCE
						16			INTERBEDDED SANDSTONE: fine to medium grained, light grey and SILTSTONE: dark grey.	SW-FR	M-H		MODERATE TO HIGH RESISTANCE
									END OF BOREHOLE AT 16.5m				
						17							
						18							
						19							
						20							

BOREHOLE LOG

Borehole No.

3

1/2

Client: VENUES NSW
Project: PROPOSED PIRTEK STADIUM UPGRADE
Location: O'CONNELL STREET, PARRAMATTA, NSW

Job No. 27070SB **Method:** SPIRAL AUGER JK350 **R.L. Surface:** ≈ 14.2m
Date: 3-12-13 **Datum:** AHD
Logged/Checked by: P.C./D.B.

Groundwater Record	SAMPLES				Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
	ES	U50	DB	DS									
						0			ASPHALTIC CONCRETE: 30mm.t FILL: Silty sand, fine to medium grained, dark brown grey, trace of fine to medium grained sub angular to angular igneous gravel and slag. FILL: Silty clay, medium to high plasticity, red brown and brown, trace of fine to medium grained sand, fine to medium grained sub angular ironstone gravel and ash.	M MC>PL			APPEARS WELL COMPACTED
					N = 18 4,8,10							340 320 370	
						1							
					N = 9 6,5,4							150 200 140	APPEARS MODERATELY COMPACTED
						2							
						3							
					N = 10 3,4,6			CL	SILTY CLAY: low plasticity, brown mottled grey brown.	MC>PL	St-VSt	150 150 320	
						4							
						5							
					N = 14 4,6,8					MC≈PL	VSt	320 250 350	
						6							
						7			SILTY CLAY: low to medium plasticity, grey brown mottled red brown, trace of fine grained sand.	MC<PL	H	440 440 450	
					N = 24 5,12,12								



BOREHOLE LOG

Borehole No.
3
2/2

Client: VENUES NSW Project: PROPOSED PIRTEK STADIUM UPGRADE Location: O'CONNELL STREET, PARRAMATTA, NSW																					
Job No. 27070SB Date: 3-12-13				Method: SPIRAL AUGER JK350 Logged/Checked by: P.C./D.B.				R.L. Surface: ≈ 14.2m Datum: AHD													
Groundwater Record	SAMPLES				Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks								
	ES	U50	DB	DS																	
▼ AFTER 24 HRS					N = 22 4,11,11	8		CL/SC	SANDY CLAY/CLAYEY SAND: low plasticity, fine to medium grained, brown mottled red brown, trace of fine to medium grained sub angular ironstone gravel.	MC>PL/ M	H/MD	>600 200 300									
					N = 14 10,6,8	9										200 400 350	COMMENCED RAPID AUGER DRILLING TECHNIQUE AT 9.45m				
▼ AFTER 1 HR						10															
														11		-	SANDSTONE: fine to medium grained, light grey and dark grey.	DW-SW	M-H		MODERATE 'TC' BIT RESISTANCE
						12															
						13															
						14			END OF BOREHOLE AT 13.5m												

BOREHOLE LOG

Borehole No.

4

1/3

Client: VENUES NSW
Project: PROPOSED PIRTEK STADIUM UPGRADE
Location: O'CONNELL STREET, PARRAMATTA, NSW

Job No. 27070SB **Method:** SPIRAL AUGER JK350 **R.L. Surface:** ≈ 14.5m
Date: 4-12-13 **Datum:** AHD
Logged/Checked by: P.C./D.B.

Groundwater Record	SAMPLES			Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
	ES	U50	DB									
					0			FILL: Clayey sand, fine to medium grained, brown, trace of root fibres and concrete fragments.	D			GRASS COVER
								FILL: Clayey sand, fine to medium grained, brown, trace of ash.	M			ROOT FIBRES TO 0.2m
				N = 10 4,4,6				FILL: Clayey sand, fine to medium grained, brown, trace of fine grained rounded ironstone gravel.			200 280 300	APPEARS MODERATELY COMPACTED
					1							
								FILL: Sandy silty clay, low plasticity, brown mottled red brown, fine to medium grained sand.	MC>PL			
				N = 9 7,5,4							180 180 280	
					2							
								FILL: Clayey sand, fine to medium grained, brown and dark brown, trace of ash.	M			
				N = 7 2,3,4							200 250 200	
					3							
							CL	SILTY CLAY: low plasticity, brown mottled red brown and grey.	MC>PL	H		
					4							
				N = 29 7,16,13							420 420 420	
					5							
								as above, but with fine grained sand.	MC<PL			
				N = 30 7,14,16							430 440 440	
					6							
					7							



BOREHOLE LOG

Borehole No.
4
2/3

Client: VENUES NSW
Project: PROPOSED PIRTEK STADIUM UPGRADE
Location: O'CONNELL STREET, PARRAMATTA, NSW
Job No. 27070SB
Method: SPIRAL AUGER JK350
R.L. Surface: ≈ 14.5m
Date: 4-12-13
Datum: AHD
Logged/Checked by: P.C./D.B.

Groundwater Record	SAMPLES				Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
	ES	U50	DB	DS									
AFTER 3 HRS ▼ ON COMPLETION					N = 23 5,11,14	8			SILTY CLAY: low plasticity, brown mottled red brown and grey, with fine grained sand, trace of fine to coarse grained sub angular to angular ironstone gravel.	MC<PL	H	>600 420 500	COMMENCED RAPID AUGER DRILLING TECHNIQUE AT 9.45m
					N = 15 7,5,10	9	CL/SC	SANDY CLAY/CLAYEY SAND: low to medium plasticity, fine to medium grained, brown mottled grey, trace of fine to medium grained sub angular to angular ironstone gravel.	MC>PL/W	VSt/MD	200 200 250		
						10							
						11							
						12							
						13							
						14							



Borehole No.

4

3/3

BOREHOLE LOG

Client: VENUES NSW												
Project: PROPOSED PIRTEK STADIUM UPGRADE												
Location: O'CONNELL STREET, PARRAMATTA, NSW												
Job No. 27070SB			Method: SPIRAL AUGER JK350			R.L. Surface: ≈ 14.5m						
Date: 4-12-13			Datum: AHD									
Logged/Checked by: P.C./D.B.												
Groundwater Record	SAMPLES			Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
	ES	U50	DB									
					15		CL/SC	SANDY CLAY/CLAYEY SAND: low to medium plasticity, fine to medium grained, brown mottled grey, trace of medium grained sub angular to angular ironstone gravel.	MC<PL/ W	H/MD		
					16		-	SANDSTONE: fine to medium grained, light grey.	DW	M		MODERATE 'TC' BIT RESISTANCE
					17				SW-FR	M-H		MODERATE TO HIGH RESISTANCE
					18			END OF BOREHOLE AT 18.0m				
					19							
					20							

BOREHOLE LOG

Borehole No.

5

1/2

Client: VENUES NSW
Project: PROPOSED PIRTEK STADIUM UPGRADE
Location: O'CONNELL STREET, PARRAMATTA, NSW

Job No. 27070SB **Method:** SPIRAL AUGER JK350 **R.L. Surface:** ≈ 12.6m
Date: 4-12-13 **Datum:** AHD
Logged/Checked by: P.C./D.B.

Groundwater Record	SAMPLES				Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
	ES	U50	DB	DS									
						0			ASPHALTIC CONCRETE: 30mm.t FILL: Sand, fine to medium grained, dark brown, trace of concrete, ceramic and brick fragments and slag.	D			APPEARS MODERATELY COMPACTED
					N = 15 4,7,8			CL	FILL: Clayey sand, fine to medium grained, grey brown, trace of concrete fragments. SANDY CLAY: low plasticity, red brown mottled brown, fine to medium grained sand.	MC>PL	VSt-H	390 300 400	
					N = 20 5,9,11				SILT CLAY: low to medium plasticity, red brown mottled brown, with fine grained sand.	MC<PL	H	440 480 500	
					N = 21 5,8,13				SANDY CLAY: low plasticity, red brown mottled grey, fine grained sand.			250 550 500	
					N > 28 20,28/ 150mm REFUSAL			SC	CLAYEY SAND: fine to medium grained, red brown and light brown.	M	D-VD		
					N = 25 11,13,12						MD		

▼
AFTER
6 HRS



BOREHOLE LOG

Borehole No.
5
2/2

Client: VENUES NSW												
Project: PROPOSED PIRTEK STADIUM UPGRADE												
Location: O'CONNELL STREET, PARRAMATTA, NSW												
Job No. 27070SB Method: SPIRAL AUGER JK350 R.L. Surface: ≈ 12.6m												
Date: 4-12-13 Logged/Checked by: P.C./D.B. Datum: AHD												
Groundwater Record	SAMPLES			Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
	ES	U50	DB									
				N = 36 10,10,25	8		SC	CLAYEY SAND: fine to medium grained, red brown and light brown and grey.	M	MD		MODERATE 'TC BIT RESISTANCE ON INFERRED IRON INDURATED BAND SOIL RESISTANCE
									as above, but iron indurated.	W		
				N = 16 5,7,9	9		CL	SILTY CLAY: medium plasticity, grey, with fine grained sand, trace of ironstone gravel bands.	MC≈PL	VSt	250 399 350	COMMENCED RAPID AUGER DRILLING TECHNIQUE A 9.45m OCCASIONAL VERY LOW TO LOW RESISTANCE BANDS
					10							
				11								
				12			-	SANDSTONE: fine to medium grained, light brown and light grey.	XW	EL		BANDED VERY LOW TO LOW RESISTANCE
				13				SANDSTONE: fine to medium grained, light grey.	DW	M		MODERATE RESISTANCE
								END OF BOREHOLE AT 13.5m				
				14								

BOREHOLE LOG

Borehole No.

6

1/2

Client: VENUES NSW
Project: PROPOSED PIRTEK STADIUM UPGRADE
Location: O'CONNELL STREET, PARRAMATTA, NSW

Job No. 27070SB **Method:** SPIRAL AUGER JK350 **R.L. Surface:** ≈ 14.2m
Date: 4-12-13 **Datum:** AHD
Logged/Checked by: P.C./D.B.

Groundwater Record	SAMPLES				Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
	ES	U50	DB	DS									
					N = 10 3,5,5	0			FILL: Clayey sand, fine to medium grained, dark brown, trace of root fibres and concrete fragments. FILL: Clayey sand, fine to medium grained, brown and grey, trace of concrete fragments.	D M			GRASS COVER APPEARS MODERATELY COMPACTED
					N = 15 5,7,8	1			FILL: Sand, fine to medium grained, brown, trace of cemented sand nodules.			320 350 300	
					N = 18 5,8,10	2							
					N = 25 5,10,15	3		CL/SC	SANDY CLAY/CLAYEY SAND: low to medium plasticity, fine to medium grained, red brown mottled brown.	MC<PL/ M	VSt- H/ MD	380 400 480	
						4			as above, but red brown mottled brown and grey.				
					N = 16 5,6,10	5		SC	CLAYEY SAND: fine to medium grained, grey mottled brown.	M	MD	>600 >600 >600	
						6							
						7							



BOREHOLE LOG

Borehole No.
6
2/2

Client: VENUES NSW													
Project: PROPOSED PIRTEK STADIUM UPGRADE													
Location: O'CONNELL STREET, PARRAMATTA, NSW													
Job No. 27070SB				Method: SPIRAL AUGER JK350				R.L. Surface: ≈ 14.2m					
Date: 4-12-13				Logged/Checked by: P.C./D.B.				Datum: AHD					
Groundwater Record	SAMPLES				Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
	ES	U50	DB	DS									
						8		CL	SANDY CLAY: low to medium plasticity, red brown mottled yellow brown, with fine to medium grained sand and fine to medium grained angular ironstone gravel.	MC<PL	VSt-H	400 350	COMMENCED RAPID AUGER DRILLING TECHNIQUE AT 9. 45m
				N > 19 8,9,10/ 70mm									
						9		SC	CLAYEY SAND: fine to medium grained, red brown and grey.	M	MD	250 350 300	
				N = 13 3,5,8									
						11		-	SANDSTONE: fine to medium grained, light brown and light grey.	DW	M-H		MODERATE TO HIGH 'TC' BIT RESISTANCE
						12			END OF BOREHOLE AT 12.0m				
						13							
						14							



Borehole No.
7

1/1

ENVIRONMENTAL LOG

Environmental logs are not to be used for geotechnical purposes

Client: VENUES NSW												
Project: PROPOSED STADIUM UPGRADE												
Location: PARRAMATTA STADIUM, O'CONNELL STREET, PARRAMATTA, NSW												
Job No. E27070KH Method: EZIPROBE R.L. Surface: N/A												
Date: 5-12-13 Datum:												
Logged/Checked by: G.F./T.H.												
Groundwater Record	SAMPLES			Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
	ES	ASS	SAL									
DRY ON COMPLETION	█	█	█		0			FILL: Silty clay, low to medium plasticity, brown and light brown, trace of fine to medium grained sand, fine to coarse grained sandstone, ironstone, igneous and shale gravel, tile, ash and slag fragments, root fibres and occasional cobble sized igneous.	MC<PL			GRASS COVER
	█	█	█		1							
	█	█	█		2							
	█	█	█		2.5		SM	SILTY SAND: fine to medium grained, light brown.	D			ALLUVIAL
	█	█	█		3			END OF BOREHOLE AT 3.0m				
					4							
					5							
					6							
					7							



Borehole No.
8

1/1

ENVIRONMENTAL LOG

Environmental logs are not to be used for geotechnical purposes

Client: VENUES NSW												
Project: PROPOSED STADIUM UPGRADE												
Location: PARRAMATTA STADIUM, O'CONNELL STREET, PARRAMATTA, NSW												
Job No. E27070KH Method: EZIPROBE R.L. Surface: N/A												
Date: 5-12-13 Datum:												
Logged/Checked by: G.F./T.H.												
Groundwater Record	SAMPLES			Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
	ES	ASS	ASB									
DRY ON COMPLETION					0			FILL: Silty clay, low to medium plasticity, brown and light brown, trace of fine to medium grained sand, ash slag and brick fragments, root fibers and fine to coarse grained sandstone, ironstone, igneous and shale gravel.	MC<PL			
					1							
					2							
					3		as above, but with trace of glass.					
					4		as above, but including trace of fibre cement fragments.					
					5		FILL: Clayey sandy silt, low plasticity, brown and light brown, trace of root fibres, fine to medium grained igneous and ironstone gravel and fibre cement fragments.					
				6			END OF BOREHOLE AT 6.0m					BOREHOLE TERMINATED DUE TO SUSPECTED FRIABLE ASBESTOS
					7							



Borehole No.
9

1/1

ENVIRONMENTAL LOG

Environmental logs are not to be used for geotechnical purposes

Client: VENUES NSW												
Project: PROPOSED STADIUM UPGRADE												
Location: PARRAMATTA STADIUM, O'CONNELL STREET, PARRAMATTA, NSW												
Job No. E27070KH Method: EZIPROBE R.L. Surface: N/A												
Date: 5-12-13 Datum:												
Logged/Checked by: G.F./T.H.												
Groundwater Record	SAMPLES			Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
	ES	ASS	SAL									
DRY ON COMPLET ION					0			FILL: Silty clay, low to medium plasticity, brown and light brown, trace of root fibres, sand and slag, fine to medium grained igneous, ironstone and shale gravel and fine to medium grained sand.	MC>PL			GRASS COVER
					1		FILL: Silty clay, medium to high plasticity, red brown, orange brown and brown, trace of fine to medium grained ironstone and sandstone gravel.					
					2							
					3			END OF BOREHOLE AT 3.0m				BOREHOLE TERMINATED DUE TO SUSPECTED FRIABLE ASBESTOS
					4							
					5							
					6							
					7							



Borehole No.
10

1/1

ENVIRONMENTAL LOG

Environmental logs are not to be used for geotechnical purposes

Client: VENUES NSW

Project: PROPOSED STADIUM UPGRADE

Location: PARRAMATTA STADIUM, O'CONNELL STREET, PARRAMATTA, NSW

Job No. E27070KH

Date: 5-12-13

Method: EZIPROBE

Logged/Checked by: G.F./T.H.

R.L. Surface: N/A

Datum:

Groundwater Record	SAMPLES			Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
	ES	ASS	SAL									
DRY ON COMPLETION					0			FILL: Silty sand, fine to medium grained, brown, trace of root fibres and fine to medium grained ironstone and igneous gravel.	D			GRASS COVER
					1			FILL: Silty clay, low to medium plasticity, brown and orange brown, with fine to medium grained sand, trace of ash, fine to medium grained quartz and ironstone gravel, and concrete fragments.	MC>PL			
					2							
					3							
					4							
					5			END OF BOREHOLE AT 4.5m				BOREHOLE TERMINATED DUE TO SUSPECTED FRIABLE ASBESTOS
					6							
					7							

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Borehole No.
11

1/1

ENVIRONMENTAL LOG

Environmental logs are not to be used for geotechnical purposes

Client: VENUES NSW													
Project: PROPOSED STADIUM UPGRADE													
Location: PARRAMATTA STADIUM, O'CONNELL STREET, PARRAMATTA, NSW													
Job No. E27070KH Method: EZIPROBE R.L. Surface: N/A													
Date: 5-12-13 Datum:													
Logged/Checked by: G.F./T.H.													
Groundwater Record	SAMPLES			Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks	
	ES	ASS	SAL										
DRY ON COMPLETION	ES	ASS	SAL		0			FILL: Silty sand, fine to medium grained, light brown, trace of slag, roots and fine grained ironstone gravel.	D				
					1			FILL: Silty clay, low to medium plasticity, with fine to medium grained silty sand, trace of ash, fine to medium grained ironstone and igneous gravel and bricks.	MC<PL				
					2								
					3								
					4								
					5			END OF BOREHOLE AT 4.5m				BOREHOLE TERMINATED DUE TO SUSPECTED FRIABLE ASBESTOS	
					6								
					7								