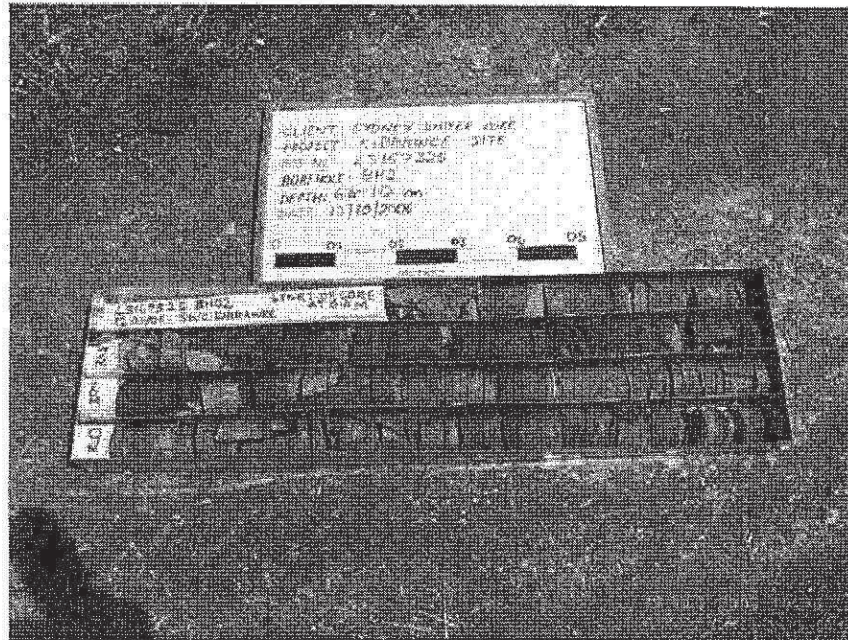


Appendix B

Boreholes Logs, Core Photos and Well Construction Details



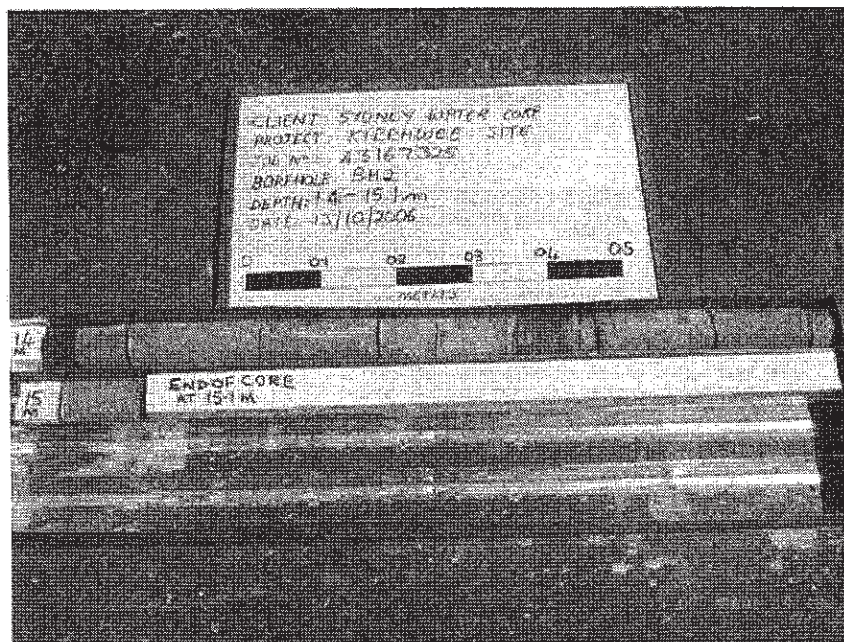
BH2: 6.4 – 10.0 m



BH2: 10.0 - 14.0 m

Appendix B

Boreholes Logs, Core Photos and Well Construction Details



BH2: 14.0 15.1 m

URS**Non-cored Hole****BOREHOLE BH03**

Sheet 1 of 1

URS Australia Pty Ltd
Level 3, 116 Miller St North Sydney NSW 2060Phone 02 8926 5500
Fax 02 8926 5555Project Reference: **Kirrawee Brick Pit
Geotech
Investigation**
Project No.: **43167393**Client: **Sydney Water Corporation**
Location: **Kirrawee**Drilling Contractor: **McDermott Drilling PTY LTD**Logged By: **A. Hitchon**
Checked By: **SGR**
Date Started: **11-10-06**
Date Finished: **11-10-06**Bore Size: **HW mm**
Total Depth: **4.00 m**
Casing Size: **HW mm**Relative Level: **97.11 mRL**
Coordinates: **6232553.40 mN
322128.60 mE**
Permit No:Drill Type: **Solid flight Auger, V-bit, TC bit**
Drill Model: **B40**
Drill Fluid: **None**

SAMPLE TYPE	RUN (m)	FIELD SHEAR STRENGTH (kPa)	PENETROMETER BLOWS (N)	SAMPLING AND OTHER TESTING	GROUND WATER DATA AND COMMENTS	DEPTH (m)	GRAPHIC LOG	DESCRIPTION OF STRATA	MOISTURE CONDITION	USCS	CONSISTENCY/DENSITY	GEOLOGICAL DESCRIPTION
						0		FILL: Clayey SILT, low plasticity, brown/grey, orange brown, dry, firm, with gravel to 60mm				
								As above becoming hard, possible concrete, bricks	D		F-H	
						1		FILL: Sandy CLAY, low plasticity, orange/brown, dry to moist, stiff to very stiff, trace brick fragments, silty in parts	D/M		St-Vst	FILL
			N=17	SPT 1-1.45m 5,8,9 N=17				FILL: CLAY low plasticity, orange/brown, dry to moist, very stiff, with trace silt	D/M		Vst	
						2		Silty CLAY: low plasticity, grey, red/brown, dry to moist, very stiff to hard	D/M		Vst-H	
			N=R	SPT 2-2.45m 23+refusal for 130mm N=R				CLAY: low plasticity, grey with abundant extremely weathered shale fragments, dry, hard	D		H	RESIDUAL
						3		Becoming silty				
						4		Residual SHALE: extremely to very low strength, extremely weathered, light grey, trace siltstone layers			H	SHALE
			N=32	SPT 3.5-3.95m 10,24,28 N=32								
								End of augering at 4m, refer to cored log				

Remarks:V-bit refusal in Fill at 0.4m & in Silty Clay at 2.2m
No Groundwater encountered
No TC-bit refusal

SYDNEY_GEOTECH_JA0684316739350007E-11LOCSOILR-1.GPJ URS1.GDT 30/10/06

URS**Cored Borehole****BOREHOLE BH03**

Sheet 1 of 3

URS Australia Pty Ltd
Level 3, 115 Miller St North Sydney NSW 2060Phone 02 8925 5500
Fax 02 8925 5555Project Reference: **Kirrawee Brick Pit
Geotech
Investigation**Client: **Sydney Water Corporation**Drilling Contractor: **McDermott Drilling Pty Ltd**Location: **Kirrawee**Project No.: **43167393**Logged By: **A. Hitchon**Bore Size: **HQ mm**Relative Level: **97.11 mRL**Drill Type: **Diamond core**Checked By: **SGR**Total Depth: **15.40 m**Coordinates: **6232553.40 mN**Drill Model: **B40**Date Started: **11-10-06**Casing Size: **HW mm**

322128.60 mE

Date Finished: **11-10-06**Borehole Inclination and
Bearing: **90° at 0**

Permit No:

Drill Fluid: **Water with polymer 'quick mud'**

METHOD	TESTING	WEATHERING	STRENGTH	RQD (%)	DEFECT SPACING (mm)	DEPTH (m)	DEFECT DESCRIPTION	GRAPHIC LOG	DESCRIPTION OF STRATA	GEOLOGICAL DESCRIPTION
Augering			EL VL L M H VH EH	25 50 75	50 100 150 200 250 300 350	3				
Augering						4			Terminate augering at @ 4.0m, start coring	
		DW				4	4.07-4.1 2x BP 5° Pl, S, KL<1mm 4.14-4.43 2x BP 10° Pl-Ir, Sr, KL<1mm		SHALE: Extremely Low to Very Low strength, Extremely weathered to Distinctly weathered, dark gray, poorly developed bedding	
						5	4.80-4.94 2x BP 15° Pl-Ir, S-Sr, KL<1mm JN 90-95° Pl, S, KL<1mm			SHALE
		XW DW				6	DI fracture BP 10-20° Pl, Sr, KL<1mm JN 50° Ir, Sr, KL<1mm & BP 20° Pl, Sr, KL<1mm 5.35-5.72 3x BP 15° Pl, Sr, KL<1mm BP 15° Pl, Sr, Rf JN 50° Pl-Ir, Sr, KL<1mm 5.83-5.94 2x BP 15° Pl, S, KL<1mm JN 75° Ir, Sr, KL<1mm BP 20° Ir, Sr, KL<1mm 5.22-6.25 2x BP 15° Pl-Ir, Sr, KL<1mm JN 55° Pl, S, KL<1mm 6.60-6.65 2x BP 20° Pl-Ir, Sr, KL<1mm JN 40° Pl, S, KL<1mm		SHALE: Very Low- Low strength, Extremely weathered-Distinctly weathered, dark brown and grey/brown, thinly laminated, poorly to well developed bedding, fractured to highly fractured, with occasional Extremely Low strength, Extremely weathered bands CLAY: high plasticity, grey to dark grey with some rock fragments SHALE: Very Low- Low strength, Extremely weathered-Distinctly weathered, gray, poorly developed fabric, fractured to highly fractured, with occasional Very Low strength, Extremely weathered bands	SHALE CH SHALE
		XW DW				7	7.05-7.15 CZ 5° Ir, R, Rf, 100mm 7.37-7.60 2x BP 0° Pl, S-Sr, KL<1mm BP 10° Ir, Sr-R, Rf 7.50-7.60 2x BP 10° Pl-Ir, S-Sr, KL<1mm JN 75° Pl, Sr, KL<1mm			SHALE

Remarks: A proportion of the bedding plane defects described are drilling induced fractures along incipient bedding

SYDNEY_CORE J:\JBS\43167393\B000TE-1\LOGS\KIRRAW-1.CPJ URS1.GDT 30/10/06

URS**Cored Borehole****BOREHOLE BH03**

Sheet 2 of 3

URS Australia Pty Ltd
Level 3, 116 Miller St North Sydney NSW 2060Phone 02 8925 5500
Fax 02 8925 5555Project
No.: 43167393Project
Reference: Kiriwee Brick Pit Geotech Investigation

METHOD	TESTING	WEATHERING	STRENGTH	ROD (%)	DEPTH (m)	DEFECT DESCRIPTION	GRAPHIC LOG	DESCRIPTION OF STRATA	GEOLOGICAL DESCRIPTION
RUN									
100% CR		SW			8	JN 50° Pl, S, KL<1mm BP 15° Pl, S, KL<1mm BP 20° Pl, S, KL<1mm		SHALE: Very Low- Low strength, Distinctly weathered-Slightly weathered, dark grey, brown, poorly developed fabric, fractured to highly fractured, with trace rock clay seams	
8.37		DW			9	JN 45-50° Ir, Sr, KL<1mm 8.38-8.53 2x BP 5-10° Pl, S, KL<1mm JN 30° Pl, S, Rf 110mm JN 60° Pl, Sr, Rf to previous JN JN 85-90° Pl, S, KL<1mm BP 10° Pl-Wa, S, KL<1mm JN 60° Pl, S, KL<1mm			
					9.05-9.63 5x BP 10° Pl-Ir, S-Sr, KL<1mm JN 30° St, Sr-R, KL<1mm 9.17-9.94 5x BP 5° Plr, S, KL<1mm 9.47-9.59 Dz, R Clay 120mm				
					10	9.75-9.85 Cz 5°, Ir, R, 100mm			
		SW			11	JN 50° Pl, Sr, Rf 10.04-10.12 5x BP 5° Pl, S-Sr, KL<1mm JN 30° Pl, S-Sr, KL<1mm JN 50° Pl, S-Sr, R Clay 20mm 10.24-10.36 8x BP 5° Pl-Ir, Sr, KL<1mm 10.38-10.39 Dz, R Clay 30mm 10.40-10.49 4x BP 5° Pl-Ir, S-Sr, KL<1mm 10.62-10.63 Dz, R Clay 10mm JN 55° Pl, S, Rf 30mm JN 50° Pl, S, KL<1mm 3x BP 0° Pl, S, KL<1mm		SHALE: Medium strength, Slightly weathered, dark grey, slightly fractured	
100% CR					12	11.27-11.30 BP 5-10° Pl-Ir, S-Sr, KL<1mm BP 10° Pl, S-Sr, KL<1mm JN 30° Pl-Wa, S-Sr, KL<1mm BP 15° Pl, S, KL<1mm JN 25° Pl-Ir, Sr, KL<1mm JN 80° Ir-St, Sr, KL<1mm BP 10° Ir, Sr-R, KL<1mm 12.10-12.19 Cz 20°, Ir, R, 90mm BP 15° Pl-Ir, Sr, KL<1mm		SHALE as above becoming Medium to High strength	
12.33					13	12.62-12.67 Dz, R Clay 50mm			
						BP 15° Pl-Ir, Sr, drillers break JN 15° Pl, S, KL<1mm JN 10-15° Ir, Sr, KL<1mm BP 5° Ir, Sr-R, KL<1mm BP 25° Ir, R, KL<1mm BP 10° Plr, S, KL<1mm		SANDSTONE: High strength, Slightly weathered, light gray, yellow/brown, with shale interbeds, fine to medium grained, fractured to slightly fractured	
						BP 5° Pl-Ir, Sr, KL<1mm			

SYDNEY_CORE_340354316739315000TE-11LOGSIRKIRAW-1.GPJ URS1.0BT 30/10/05

URS Australia Pty Ltd
Level 3, 116 Miller St North Sydney NSW 2060

Phone 02 8925 5500
Fax 02 8925 5555

Project No: 43167393

Project Reference: **Kilrawee Brick Pit Geotech Investigation**

METHOD RUN		TESTING	WEATHERING	STRENGTH		RQD (%)	DEFECT SPACING (mm)	DEPTH (m)	DEFECT DESCRIPTION	GRAPHIC LOG	DESCRIPTION OF STRATA	GEOLOGICAL DESCRIPTION
Core Log			SW	EL-VL	L-M	T-VH	EL					
14.4	100% CR	PL 14.32m D=2.30 A=2.87						14	BP 5° Pl-Ir, Sr, KL<1mm DI fracture BP 5° Pl-Ir, Sr, KL<1mm 14.34-14.47 BP 10° Pl-Wa, S-Sr, KL<1mm BP 0° Pl, S, KL<1mm 15.00-15.08 3x DI fractures 5° Pl-Ir, Sr, KL<1mm		As above with shale interbeds, gray SANDSTONE: High strength, Slightly weathered, yellow/ brown, massive bedding, fine to medium grained, with trace bedding, slightly fractured	SANDSTONE
								15				
								16			End of borehole @ 15.4m	
								17				
								18				
								19				

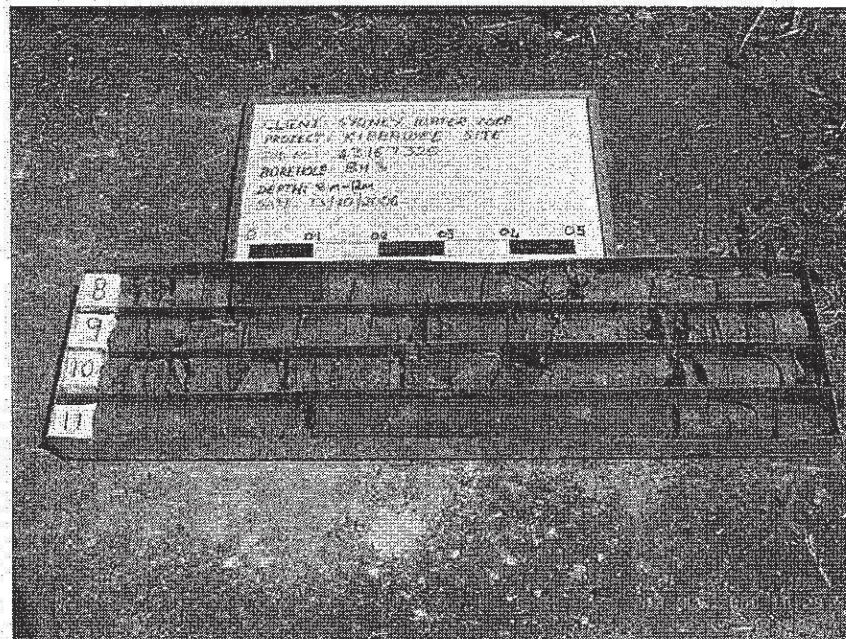
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Appendix B

Boreholes Logs, Core Photos and Well Construction Details



BH3: 4.0 – 8.0 m



BH3: 8.0 – 12.0 m

Appendix B

Boreholes Logs, Core Photos and Well Construction Details



BH3: 12.0 - 15.4 m

URS

Non-cored Hole

BOREHOLE BH04

URS Australia Pty Ltd
Level 3, 116 Miller St North Sydney NSW 2060

Phone 02 8925 5500
Fax 02 8925 5555

Project	Kirrawee Brick Pit
Reference:	Geotach Investigation

Client: **Sydney Water Corporation**

Drilling Contractor: McDermott Drilling PTY LTD

Project No.: 43167393

Location: Kirtawee

Logged By: J Donnelly

Bore Size: HW mm

Relative Level: 95.02 mRL

Drill Type: Solid flight Auger, Concrete corer, V-bit, TC bit

Checked By: SGR

Total Depth: 3.40 m

Coordinates: 6232528,30 mN

Drill Model: B40

Date Started: 10-10-06

Casing Size: HW mm

322191.70 mE

Drill Fluid: None

Permit No:

SAMPLE TYPE	RUN (m)	FIELD SHEAR STRENGTH (kPa)	PENETROMETER BLOWS (N)	SAMPLING AND OTHER TESTING	GROUND WATER DATA AND COMMENTS	DEPTH (m)	GRAPHIC LOG	DESCRIPTION OF STRATA	MOISTURE CONDITION	USCS	CONSISTENCY/DENSITY	GEOLOGICAL DESCRIPTION
						0		Concrete slab cover with topsoil				FILL
						1		FILL: Silty CLAY, low to medium plasticity, light brown with orange/brown flecks, dry to moist, with some black staining	D/M		St	FILL
			N=10	SPT 1-1.45m 2,5,5 N=10		2		FILL: Silty CLAY, with gravel, light brown, low to medium plasticity, dry to moist, gravel angular to sub-angular, some sandstone pieces and black staining	D/M		H	FILL
						3		Silty CLAY: low to medium plasticity, grey and light brown, dry to moist, hard with shale fragments increasing with depth	D/M		H	RESIDUAL
			N>50	SPT 3-3.4m 15,29,21 for 90mm N>50		4		SHALE: extremely low to very low strength, extremely weathered, brown/grey			H	SHALE
						5		End of augering at 3.4m, refer to cored log				
					SWL=4.56m 27/10/2006							

Remarks:

V bit Refusal at 1.7m in Fill
No TC-bit refusal

URS Australia Pty Ltd
Level 3, 115 Miller St North Sydney NSW 2060

Phone 02 8925 5500
Fax 02 8925 6655

Project Reference:	Kirrawee Brick Pit Geotech Investigation
--------------------	--

Client: **Sydney Water Corporation**

Drilling Contractor: McDermott Drilling Pty Ltd

Project No.: 43167393

Location: **Kirrawee**

Logged By: J Donnelly

Bore Size: 80 mm

Relative Level: 96.02 mRL

Drill Type: Diamond core

Checked By: SGR

Total Depth: 15.00 m

Coordinates: 6232528.30 mN

Drift Model: B40

Date Started: 10-10-06

Casing Size: HW mm
Borehole Inclination and
Bearing: 90° at 0

322191.70 mE

Drill Fluid: Water with polymer "quick mud"

[illegible]



Cored Borehole

BOREHOLE BH04

Sheet 2 of 4

URS Australia Pty Ltd
Level 3, 116 Miller St North Sydney NSW 2060Phone 02 8925 5500
Fax 02 8925 5555Project
No.: 43167393Project
Reference: Kirrawee Brick Pit Geotech Investigation

METHOD RUN	TESTING	WEATHERING	STRENGTH	RQD (%)	DEFECT SPACING (mm)	DEPTH (m)	DEFECT DESCRIPTION	GRAPHIC LOG	DESCRIPTION OF STRATA	GEOLOGICAL DESCRIPTION
100% CR 6.35									SHALE as above	
		XW RS					6.24-6.28 Cz 0-90°, Ir, S-R, Rf 40mm BP 0° Pl-Wa, Sr-R, KL <1mm		SHALE: Extremely Low strength, Extremely weathered, grey and dark grey, thinly laminated, poorly developed, fragmented to fractured with iron staining in bedding planes	SHALE
							Core Loss 6.52-6.84m		Core loss 6.52-6.84m	
		XW					6.84-7.05 Fz 0-90°, Ir, S-R, with Rf & Clay 210mm		SHALE as above	
							JN 30° Pl, S, Rf 5mm			
							7.14-7.31 BP 0° Pl, Sr-R, Rf & Clay 1-3mm			
							BP 0° Pl, Sr-R, Rf & Clay 50mm			
							7.33-7.45 3x BP 0-3° Pl-Wa, S-Sr, KL <1mm		SHALE: Very Low- Low strength, Extremely weathered-Distinctly weathered, dark grey, thinly laminated, well developed bedding, fractured with some Extremely Low strength, Extremely W bands	
							BP 3° Pl-Wa, Sr-R, Rf & Clay 10mm			
							BP 0° Pl, Sr, Rf & Clay 5mm			
							BP 3° Pl-Wa, tight, KL <1mm			
							7.74-7.88 3x BP 0° Pl, Sr-R, Rf & Clay 3-10mm			
							7.93-7.97 Cz 0-90°, Ir, S-R, Rf 40mm			
		DW					7.98-8.00 2x BP 10° Pl, S, KL <1mm			
							8.00-8.03 Fz 0-90°, Ir, S-R, Rf 30mm			
		SW					8.06-8.10 Cz 0-90°, Ir, R, Rf 40mm		SHALE: Medium strength, Slightly weathered, dark grey, thinly laminated, well developed bedding, fracturing along bedding planes, with occasional siltstone bands	SHALE
							8.16-8.23 3x BP 0° Pl, S, KL <1mm			
							8.23-9.6 8x BP 0-3° Pl, S-Sr, KL <1mm some with iron veneer			
							8.26 - 8.45 2x BP 15° Pl, S, KL <1mm			
							8.78-9.13 3x DI fractures 0° Pl-St, S, KL <1mm			
							9.25-9.35 2x Drillers breaks Pl-Ir, Sr, KL <1mm			
							9.45-9.6 2x BP 0° Pl, S-Sr, KL <1mm			
							JN 80° Pl, Sr, KL <1mm			

Remarks:

A proportion of the bedding plane defects described are drilling induced fractures along incipient bedding

Project Reference: **Kirrawee Brick Pit Geotech Investigation**

METHOD	RUN	TESTING	WEATHERING	STRENGTH				RQD (%)	DEFECT SPACING (mm)	DEPTH (m)	DEFECT DESCRIPTION	GRAPHIC LOG	DESCRIPTION OF STRATA	GEOLOGICAL DESCRIPTION
				EL-VL	L-M	H-W	BT							
Coring	100% CR												SHALE as above: Medium strength, Slightly weathered, dark grey, thinly laminated, well developed bedding, fracturing along bedding planes, with occasional siltstone bands	SHALE
12.25			DW										SILTSTONE: Medium to High strength, Distinctly weathered, light brown and grey, thinly laminated, poorly developed bedding, fractured to slightly fractured	SILTSTONE
			SW										As above beginning to grade into Sandstone, becoming Medium to High Strength	SANDSTONE
			DW										SANDSTONE: Medium to High strength, Distinctly weathered-Slightly weathered, light grey/brown to light brown, faintly bedded, fine to medium grained, slightly fractured to fractured, with poorly developed siltstone cross bedding and lamination & occasional laminite bands and trace carbonaceous wisps	SANDSTONE



Cored Borehole

BOREHOLE BH04

Sheet 4 of 4

URS Australia Pty Ltd
Level 3, 115 Miller St North Sydney NSW 2060Phone 02 8925 5500
Fax 02 8925 5555

Project No.: 43167393

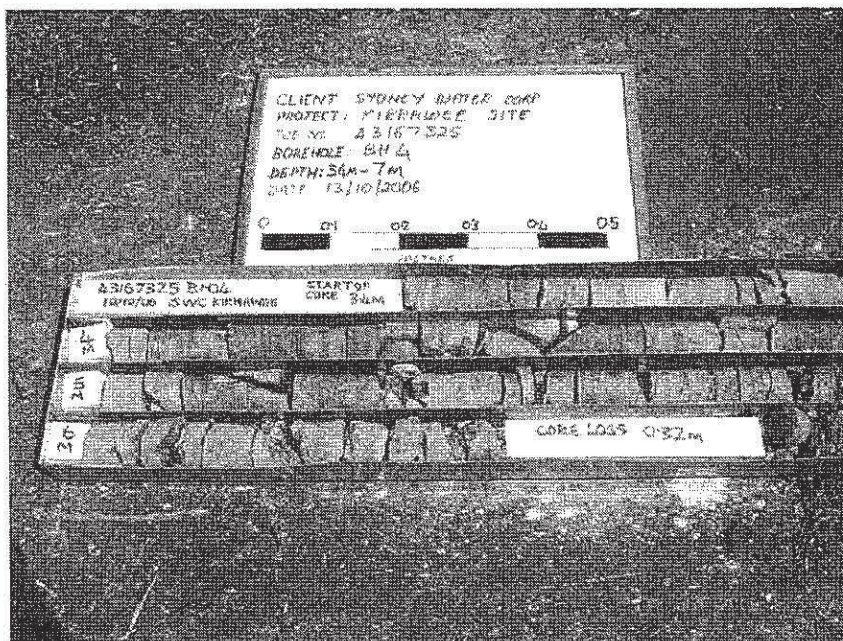
Project Reference: Kिरrawee Brick Pit Geotech Investigation

METHOD RUN	TESTING	WEATHERING	STRENGTH	RQD (%)	DEFECT SPACING (mm)	DEPTH (m)	DEFECT DESCRIPTION	GRAPHIC LOG	DESCRIPTION OF STRATA	GEOLOGICAL DESCRIPTION
100% CE	PL 14.33m D=2.30 A=1.92	SW	EL-VL L-M H-VH BH	25 50 75	0-10 10-20 20-30 30-40 40-50 50-60 60-70 70-80 80-90 90-100	14	13.25-13.3 2x BP 5° Pl, Sr, R & R Clay 2-3mm 14.15-14.78 4x BP 0-5° Pl-Wa, S-Sr, KL <1mm BP 0° Pl, S-Sr, Clay 4mm		SANDSTONE as above: Medium to High strength, Distinctly weathered-Slightly weathered, light gray/brown to light brown, fine to medium grained, slightly fractured to fractured, with poorly developed siccitic cross bedding and laminations & occasional laminite bands and trace carbonaceous wisps	SANDSTONE
						15			End of borehole @ 15m	
						16				

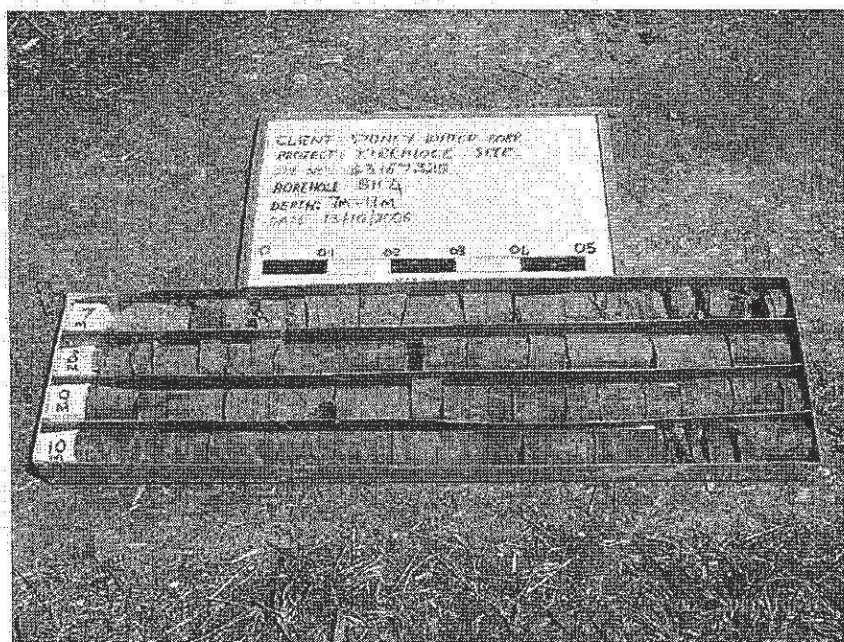
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Appendix B

Boreholes Logs, Core Photos and Well Construction Details



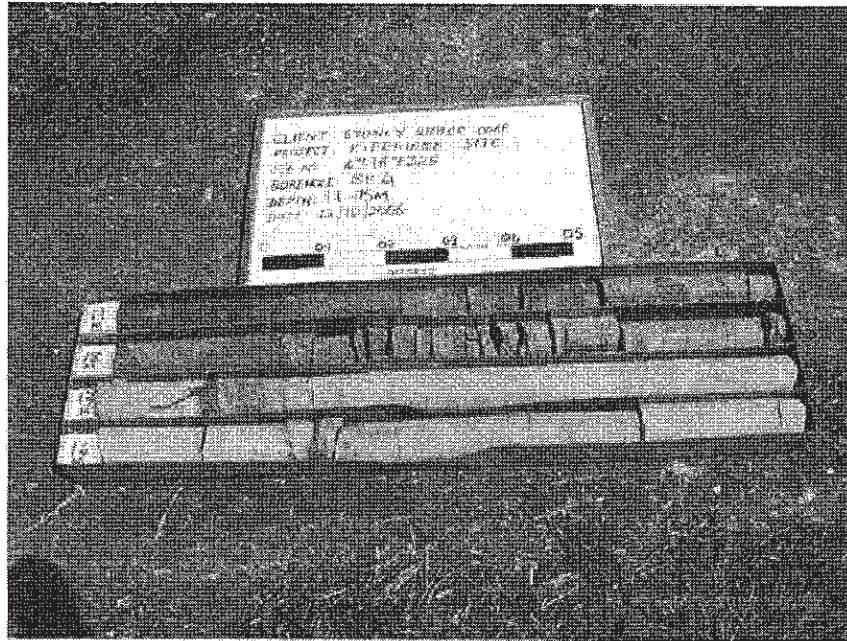
BH4: 3.4 – 7.0 m



BH4: 7.0 – 11.0 m

Appendix B

Boreholes Logs, Core Photos and Well Construction Details



BH4: 11.0 - 15.0 m

MONITORING BORE CONSTRUCTION RECORD

Project Name	KIRRAWEE BRICK PIT	Bore ID	BH1
Location	62.32576.00N 322021.7mE	Project No	43167393
Installed By	Mc ARMOTT DRILLING	Date Installed	9/10/06
Inspected By	J Donnelly	Method of Installation	

Elevation of top of riser	99.61
Height of riser above ground	Monument 0.7m
Ground Elevation	98.91m AHD
Internal diameter and type of surface casing	50
Type of surface seal	
Depth of surface seal	
Internal and external diameters, and type of riser pipe	
Type of backfill	SPOILT GROUT MIX TO SURFACE
Depth to top of seal	9m
Type of seal	benfonite
Depth to top of filter pack	11.5m
Depth to top of screen	12.2m
Type of filter pack	2mm sand.
Diameter and type of screen	Slotted, 50mm.
Screen slot size	40 micron
Depth to bottom of screen	15.2m
Type of backfill	
Depth to bottom of hole	15.2m
Diameter drilled	HQ (125mm)

Comments: Cap at base + top

MONITORING BORE CONSTRUCTION RECORD

Project Name	KIRRAUCEE BRICK PT	Bore ID	B404
Location	6332528.30N 322191.70 E	Project No	113167393
Installed By	McDermott Drilling	Date Installed	11/10/06
Inspected By	A. HAYMAN	Method of Installation	

Elevation of top of riser	_____
Height of riser above ground	Monument
Ground Elevation	96.02 m AHD
Internal diameter and type of surface casing	50mm
Type of surface seal	_____
Depth of surface seal	_____
Internal and external diameters, and type of riser pipe	_____
Type of backfill	Grout spread to surface
Depth to top of seal	_____
Type of seal	Bentonite
Depth to top of filter pack	11.5m
Depth to top of screen	12m
Type of filter pack	Grade 2 Sand 2mm
Diameter and type of screen	50mm, slotted
Screen slot size	40 microns
Depth to bottom of screen	15m
Type of backfill	_____
Depth to bottom of hole	15m
Diameter drilled	_____

Comments: cap at top & base



AUSTRALIAN SOIL TESTING PTY LTD. A.B.N. 79 003 483 823

19 Bermill Street, Rockdale, NSW, 2216 P.O. Box 2014, Rockdale D.C, NSW 2216

Tel: 9597 5599, 9597 3286 Fax: 9597 3442 Email: austst@bigpond.com

POINT LOAD STRENGTH INDEX TEST REPORT

CLIENT: URS
Level 3, 116 Miller Street North Sydney NSW 2060
PROJECT: 43167325

LAB. NO.	SAMPLE SOURCE	LITHOLOGY	PLATTEN SEPARATION		MOISTURE CONTENT (%)	DRY DENSITY (t/m ³)	TEST ORIENTATION	POINT LOAD STRENGTH Is (MPa)	POINT LOAD STRENGTH Is 50 (MPa)
			DIAM (mm)	HEIGHT (mm)					
	BH2 14.1m	-	52	52	N/A "	N/A "	Diametral Axial	0.53 1.57	0.54 1.69
	BH4 14.33m	-	52	52	N/A "	N/A "	Diametral Axial	2.26 1.79	2.30 1.92
	BH1 12.7m	-	52	50	N/A "	N/A "	Diametral Axial	0.17 0.22	0.17 0.23
	BH3 14.32	-	52	52	N/A "	N/A "	Diametral Axial	2.50 1.13	2.54 1.22
	BH1 12.16m	-	52	52	N/A "	N/A "	Diametral Axial	0.07 0.41	0.08 0.44
	BH3 13.2m	-	52	52	N/A "	N/A "	Diametral Axial	2.22 3.59	2.25 3.86
	BH1 14.85m	-	52	50	N/A "	N/A "	Diametral Axial	0.64 0.29	0.65 0.31
	BH3 14.9m	-	52	52	N/A "	N/A "	Diametral Axial	2.26 2.77	2.30 2.97

NOTES TO TESTING

Testing Device: ELE Point Load Tester

Sample History: Unsoaked

Sampled by: Client

Job Number: 119-157

Date Tested: 18.10.06

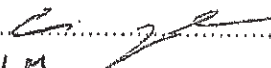
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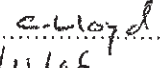
Page 1 of 2

Form R04 excel Issue 4 September 2001 CWS



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Signed: 
Title: LM

Name: 
Date: 1/11/06



AUSTRALIAN SOIL TESTING PTY LTD. A.B.N. 79 003 493 823

19 Bermill Street, Rockdale, NSW, 2216 P.O. Box 2014, Rockdale D.C. NSW 2216

Tel: 9597 5599, 9597 3286 Fax: 9597 3442 Email: austst@bigpond.com

POINT LOAD STRENGTH INDEX TEST REPORT

CLIENT: URS

Level 3, 116 Miller Street North Sydney NSW 2060

PROJECT: 43167325

LAB. NO.	SAMPLE SOURCE	LITHOLOGY	PLATTEN SEPARATION		MOISTURE CONTENT (%)	DRY DENSITY (t/m ³)	TEST ORIENTATION	POINT LOAD STRENGTH Is (MPa)	POINT LOAD STRENGTH Is 50 (MPa)
			DIAM (mm)	HEIGHT (mm)					
	BH2 14.82m	-	52	52	N/A "	N/A "	Diametral Axial	2.55 2.97	2.80 3.19
	BH2 13.8m	-	52	52	N/A "	N/A "	Diametral Axial	0.11 0.28	0.11 0.30
	BH3 11.1m	-	52	52	N/A "	N/A "	Diametral Axial	0.41 1.48	0.42 1.59

NOTES TO TESTING

Testing Device: ELE Point Load Tester

Sample History: Unsoaked

Sampled by: Client

Job Number: 119-157

Date Tested: 18.10.06

Test method: AS 4133.4.1 1993

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Form RD4 excel Issue 4 September 2001 CWS



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Signed:

Name:

Title:

Date: 1/11/06

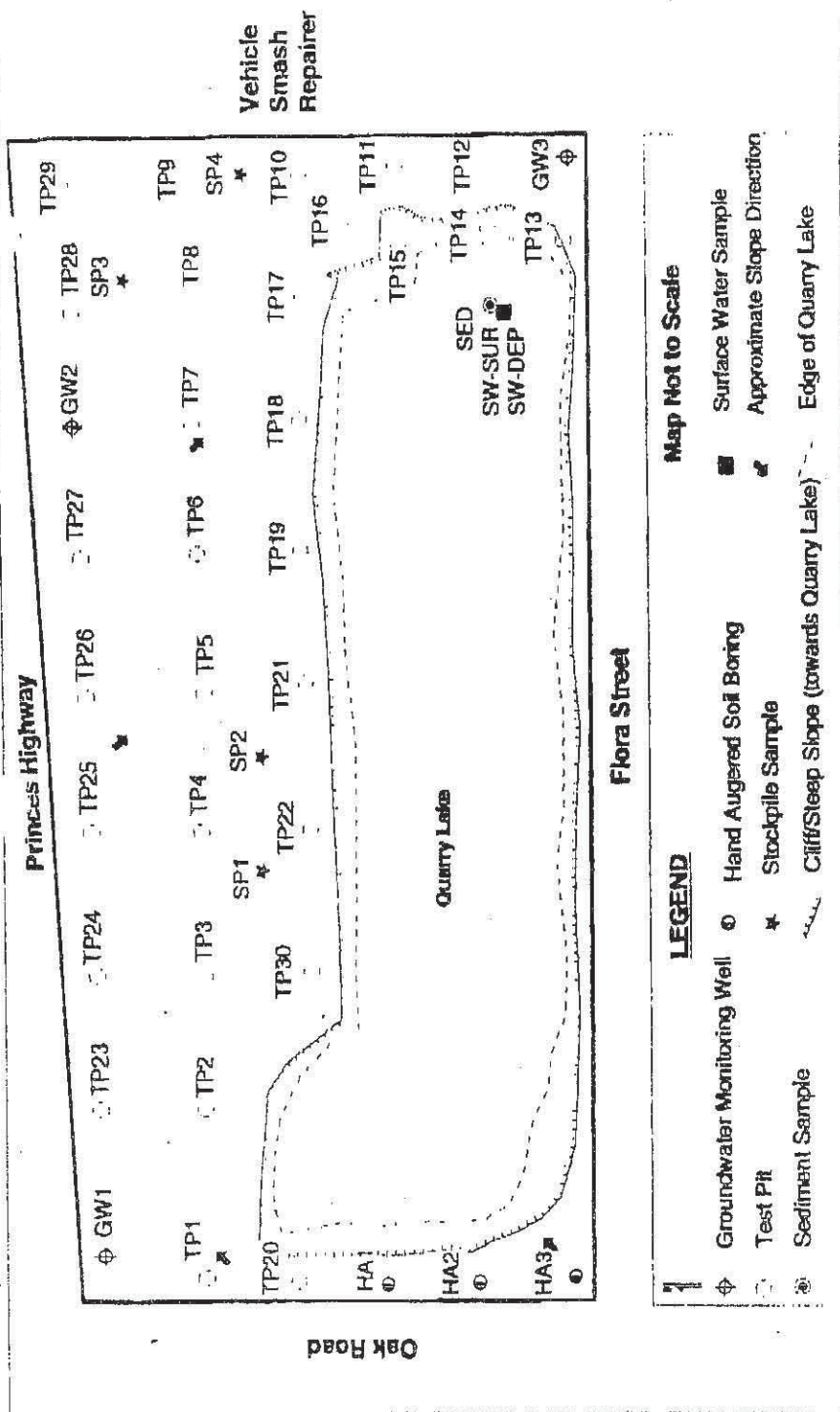


Figure 3 Site Plan and Sampling Locations

Test Pit Excavation Logs

Project and location Kirrawee Brick Pit		Date 25/05/1999
Site Number TP1		Excavation Equipment Bobcat mounted excavator
Test Depth: 1.5m		
Sample Depths	Depth Profile	Description
Surface (0.1)	0.15	Silty Clay: dark brown moist silty clay with some ironstone gravel
0.5	0.7	Clay: stiff orange brown clay with some silt and ironstone gravel
1		Clay: very stiff grey mottled red brown clay
1.5	1.5	
		Test Pit Discontinued @ 1.5 m depth Target depth reached
Comments		No free groundwater observed

Project and location Kirrawee Brick Pit		Date 25/05/1999
Site Number TP2		Excavation Equipment Bobcat mounted excavator
Test Depth: 1.2m		
Sample Depths	Depth Profile	Description
Surface (0.1)	0.2	Gravelly Clay: orange brown gravelly clay with some ironstone gravel
0.5		Clay: stiff orange brown clay with some gravel
1	0.8	Clay: very stiff to hard grey mottled red brown clay becoming very hard @ approximately 0.9m
1.2	1.2	
		Test Pit Discontinued @ 1.2 m depth Target depth reached
Comments		No free groundwater observed

Test Pit Excavation Logs

Project and location Kilrawee Brick Pit		Date 25/05/1999
Site Number TP3		Excavation Equipment Bobcat mounted excavator
Test Depth: 1.2m		
Sample Depths	Depth Profile	Description
Surface (0.1)		Gravelly Clay: orange brown gravelly clay with some ironstone gravel
0.3		
0.5		Clay: very stiff to hard orange brown clay with some ironstone gravel
0.6		Clay: very stiff to hard red brown mottled grey clay with some ironstone gravel becoming very hard @ approximately 0.9m
1		large ironstone cobbles @ approximately 1.10m
1.2	1.2	Test Pit Discontinued @ 1.2 m depth Target depth reached
Comments		No free groundwater observed

Project and location Kilrawee Brick Pit		Date 25/05/1999
Site Number TP4		Excavation Equipment Bobcat mounted excavator
Test Depth: 1.2m		
Sample Depths	Depth Profile	Description
Surface (0.1)		Fill: dark brown silty sand with some crushed bricks
0.3		
0.5		Fill+D23: coal ash and gravel
0.6		Clay: very stiff to hard red brown mottled grey clay with some ironstone gravel
1		
1.2	1.2	Test Pit Discontinued @ 1.2 m depth Target Depth Reached
Comments		No free groundwater observed

Test Pit Excavation Log

Project and location Kilrawee Brick Pit		Date 25/05/1999
Site Number TP5		Excavation Equipment Bobcat mounted excavator
Test Depth: 2.0m		
Sample Depths	Depth Profile	Description
Surface (0.1)		Fill: dark brown silty gravelly sand
0.3		
0.5		Fill: grey black ash, gravel and charcoal
0.6		
1		Fill: coarse sand and clay with some ash, gravel, crushed bricks and broken clay pipes
2	2.0	
		Test Pit Discontinued @ 2.0m depth Refusal in brick rubble
Comments		No free groundwater observed

Project and location Kilrawee Brick Pit		Date 25/05/1999
Site Number TP6		Excavation Equipment Bobcat mounted excavator
Test Depth: 1.5 m		
Sample Depths	Depth Profile	Description
Surface (0.1)		Fill: dark brown silty gravelly sand
0.2		
0.5		Fill: light brown silty gravelly sand with some ash, gravel, crushed concrete and broken bricks
0.6		
1		Clay: stiff to very stiff yellow brown clay becoming grey mottled red brown clay @ approximately 1.10m
1.4		
1.5	1.5	Siltstone: extremely low to very low strength grey siltstone
		Test Pit Discontinued @ 1.5 m depth Target depth reached
Comments		No free groundwater observed *Denotes duplicate sample Z1 collected

Test Pit Excavation Logs

Project and location Kilrawee Brick Pit		Date 25/05/1999
Site Number TP7		Excavation Equipment Bobcat mounted excavator
Test Depth: 1.4m		
Sample Depths	Depth Profile	Description
Surface (0.1)	0.15	Fill: dark brown silty gravelly sand
0.5	0.45	Fill: dark brown silty clay with some gravel, crushed bricks and charcoal
1		Clay: very stiff yellow grey clay
1.4	1.4	becoming grey mottled red brown clay @ approximately 1.0m
		Test Pit Discontinued @ 1.4 m depth Target depth reached
Comments		No free groundwater observed

Project and location Kilrawee Brick Pit		Date 25/05/1999
Site Number TP8		Excavation Equipment Bobcat mounted excavator
Test Depth: 1.5m		
Sample Depths	Depth Profile	Description
Surface (0.1)	0.2	Fill: dark brown gravelly sand with some clay
		Fill: dark brown silty sand with some ash and gravel
0.5	0.6	Fill: stiff orange brown clay
	0.7	Clay: firm orange brown clay with some gravel
1	1.0	Clay: very stiff to hard grey mottled red brown clay
1.4	1.4	
	1.45	Siltstone: extremely low to very low strength grey siltstone.
		Test Pit Discontinued @ 1.45 m depth Target depth reached
Comments		No free groundwater observed