APPENDIX A

Jeffery and Katauskas Pty Ltd
CONSULTING GEOTECHNICAL AND ENVIRONMENTAL ENGINEERS

BOREHOLE LOG

Borehole No. 1 1/2

Client: FLETCHER CONSTRUCTION AUSTRALIA LTD
Project: GLOBAL SWITCH BUILDING ALTERATIONS
Location: CNR. HARRIS & QUARRY STREETS, ULTIMO. NSW

Job No. 15637VT **Method:** HAND AUGER **R.L. Surface:** N/A
Date: 12-12-00 **Datum:**
Logged/Checked by: A.H./

Groundwater Record	SAMPLES ES	SAMPLES U50	SAMPLES DB	SAMPLES DS	Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
DRY ON COMPLETION OF AUGERING						0			CONCRETE: 450mm.t.				6mm DIAMETER REINFORCEMENT WITH 100mm TOP COVER
									FILL: Silty sand, fine to medium grained, brown.				
									REFER TO CORED BOREHOLE LOG				
						1							
						2							
						3							
						4							
						5							
						6							
						7							

Jeffery and Katauskas Pty Ltd
CONSULTING GEOTECHNICAL AND ENVIRONMENTAL ENGINEERS

CORED BOREHOLE LOG

Borehole No. 1 2/2

Client: FLETCHER CONSTRUCTION AUSTRALIA LTD
Project: GLOBAL SWITCH BUILDING ALTERATIONS
Location: CNR. HARRIS & QUARRY STREETS, ULTIMO. NSW

Job No. 15637VT **Core Size:** TT56 **R.L. Surface:** N/A
Date: 12-12-00 **Inclination:** VERTICAL **Datum:**
Drill Type: MELVELLE **Bearing:** – **Logged/Checked by:** A.H.

Water Loss/Level	Barrel Lift	Depth (m)	Graphic Log	CORE DESCRIPTION: Rock Type, grain characteristics, colour, structure, minor components.	Weathering	Strength	POINT LOAD INDEX STRENGTH $I_{s}(50)$ (EL VL L M H VH EH)	DEFECT DETAILS: DEFECT SPACING (mm) (500 300 100 50 30 10)	DEFECT DETAILS: DESCRIPTION Type, inclination, thickness, planarity, roughness, coating. Specific / General
		0		START CORING AT 0.58m					
FULL RETURN		1		SANDSTONE: fine to medium grained, orange and grey, cross bedded at 5–10°.	DW	M–H	×		
				SANDSTONE: fine to medium grained, pale grey, bedded at 5°.	SW	L / M–H	×		- CS, 3mm.t.
		2		as above, but orange.			×		
				as above, but orange, brown and grey.			×		
		3							
				END OF BOREHOLE AT 3.49m					
		4							
		5							
		6							
		7							


Jeffery and Katauskas Pty Ltd
CONSULTING GEOTECHNICAL AND ENVIRONMENTAL ENGINEERS
JOB NO 15637VT BH1 START CORING AT 0.58m
0.
058m
1
2
3
END OF BOREHOLE AT 3.49m

Jeffery and Katauskas Pty Ltd
CONSULTING GEOTECHNICAL AND ENVIRONMENTAL ENGINEERS

BOREHOLE LOG

Borehole No. 2 1/2

Client: FLETCHER CONSTRUCTION AUSTRALIA LTD
Project: GLOBAL SWITCH BUILDING ALTERATIONS
Location: CNR. HARRIS & QUARRY STREETS, ULTIMO. NSW

Job No. 15637VT **Method:** ROTARY WASH BORING **R.L. Surface:** N/A
Date: 12-12-00 **Datum:**
Logged/Checked by: A.H./

Groundwater Record	SAMPLES ES	U50	DB	DS	Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
DRY ON COMPLETION OF WASH BORING					REFER TO D C P TEST RESULTS	0			CONCRETE: 380mm.t.				
						1			FILL: Silty sand, fine to medium grained, brown, with concrete and ceramic pieces and coarse grained gravel.				APPEARS POORLY TO MODERATELY COMPACTED
									REFER TO CORED BOREHOLE LOG				
						2							
						3							
						4							
						5							
						6							
						7							

Jeffery and Katauskas Pty Ltd
CONSULTING GEOTECHNICAL AND ENVIRONMENTAL ENGINEERS

CORED BOREHOLE LOG

Borehole No. 2 2/2

Client: FLETCHER CONSTRUCTION AUSTRALIA LTD
Project: GLOBAL SWITCH BUILDING ALTERATIONS
Location: CNR. HARRIS & QUARRY STREETS, ULTIMO. NSW

Job No. 15637VT **Core Size:** TT56 **R.L. Surface:** N/A
Date: 12-12-00 **Inclination:** VERTICAL **Datum:**
Drill Type: MELVELLE **Bearing:** – **Logged/Checked by:** A.H./

Water Loss/Level	Barrel Lift	Depth (m)	Graphic Log	CORE DESCRIPTION (Rock Type, grain characteristics, colour, structure, minor components.)	Weathering	Strength	POINT LOAD INDEX STRENGTH $I_s(50)$ (EL VL L M H VH EH)	DEFECT SPACING (mm) (500 300 100 50 30 10)	DEFECT DETAILS DESCRIPTION (Type, inclination, thickness, planarity, roughness, coating.) Specific / General
		0							
		1		START CORING AT 1.5m					
		2		SANDSTONE: fine to medium grained, orange and pale grey, bedded at 5°.	DW	M	× ×		
FULL RET-URN		3		as above, but pale grey.	SW	M-H	× ×		· XWS, 2mm.t.
		4					×		
		5		END OF BOREHOLE AT 4.36m					
		6							
		7							


Jeffery and Katauskas Pty Ltd
CONSULTING GEOTECHNICAL AND ENVIRONMENTAL ENGINEERS
JOB No 15637VT BH2 START CORING AT 1.50m
1
1.50m
2
3
4
END OF BOREHOLE AT 4.36m

Jeffery and Katauskas Pty Ltd
CONSULTING GEOTECHNICAL AND ENVIRONMENTAL ENGINEERS

BOREHOLE LOG

Borehole No. 3 1/2

Client: FLETCHER CONSTRUCTION AUSTRALIA LTD
Project: GLOBAL SWITCH BUILDING ALTERATIONS
Location: CNR. HARRIS & QUARRY STREETS, ULTIMO. NSW

Job No. 15637VT **Method:** ROTARY WASH BORING **R.L. Surface:** N/A
Date: 13-12-00 **Datum:**
Logged/Checked by: A.H./

Groundwater Record	SAMPLES ES	SAMPLES U50	SAMPLES DB	SAMPLES DS	Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
DRY ON COMPLETION OF WASH BORING					REFER TO D C P TEST RESULTS	0			CONCRETE: 400mm.t.				6mm DIAMETER REINFORCEMENT WITH 350mm TOP COVER
						1			FILL: Silty sand, fine to medium grained, brown and pale brown, with coarse grained sandstone gravel and igneous gravel and a trace of glass fragments.	M			APPEARS POORLY TO MODERATELY COMPACTED
						2							
									REFER TO CORED BOREHOLE LOG				
						3							
						4							
						5							
						6							
						7							

Jeffery and Katauskas Pty Ltd
CONSULTING GEOTECHNICAL AND ENVIRONMENTAL ENGINEERS

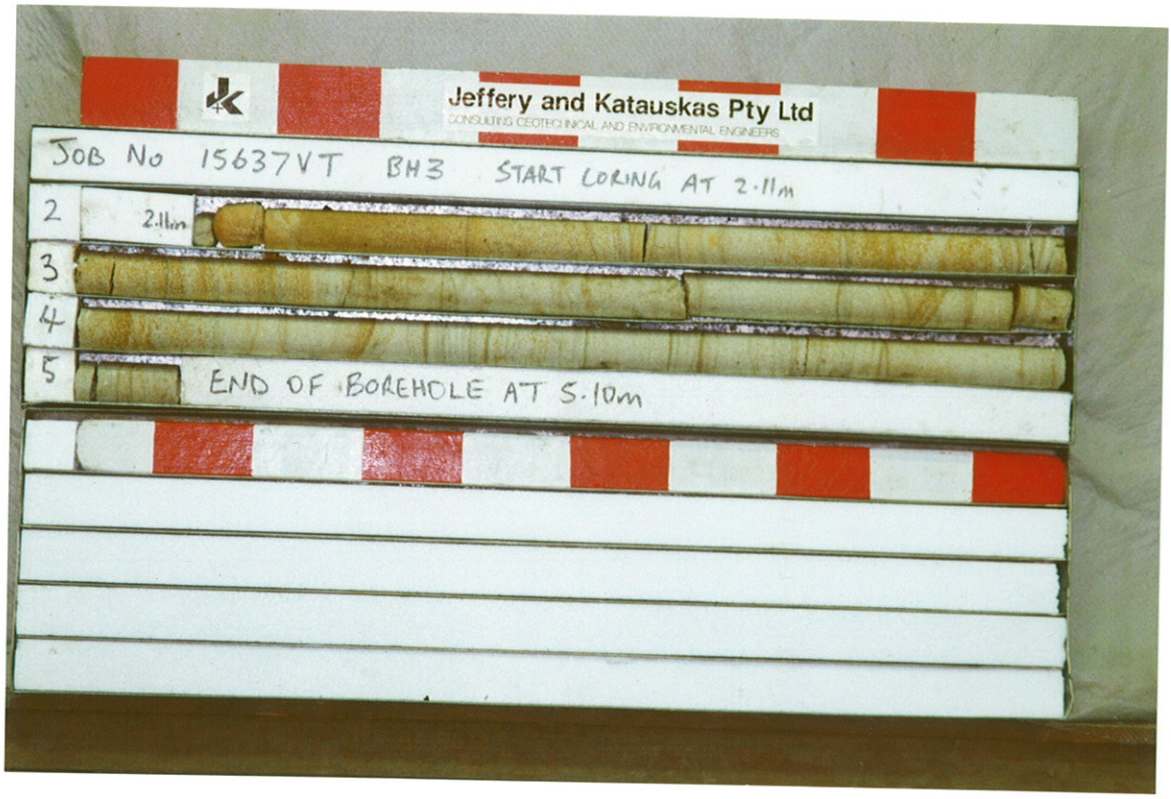
CORED BOREHOLE LOG

Borehole No. 3 2/2

Client: FLETCHER CONSTRUCTION AUSTRALIA LTD
Project: GLOBAL SWITCH BUILDING ALTERATIONS
Location: CNR. HARRIS & QUARRY STREETS, ULTIMO. NSW

Job No. 15637VT **Core Size:** TT56 **R.L. Surface:** N/A
Date: 13-12-00 **Inclination:** VERTICAL **Datum:**
Drill Type: MELVELLE **Bearing:** - **Logged/Checked by:** A.H./

Water Loss/Level	Barrel Lift	Depth (m)	Graphic Log	CORE DESCRIPTION: Rock Type, grain characteristics, colour, structure, minor components.	Weathering	Strength	POINT LOAD INDEX STRENGTH $I_s(50)$ (EL VL L M H VH EH)	DEFECT DETAILS: DEFECT SPACING (mm) (600 300 100 50 30 10)	DEFECT DETAILS: DESCRIPTION Type, inclination, thickness, planarity, roughness, coating. Specific / General
		0							
		1							
		2		START CORING AT 2.11m					
FULL RET-URN		3		SANDSTONE: fine to medium grained, pale orange and pale grey, bedded at 0-10°.	DW	M-H	×		- XWS, 2mm.t.
		4		as above, but pale grey.	SW		× × ×		
		5					×		
		6		END OF BOREHOLE AT 5.1m					
		7							


Jeffery and Katauskas Pty Ltd
CONSULTING GEOTECHNICAL AND ENVIRONMENTAL ENGINEERS
JOB No 15637VT BH3 START CORING AT 2.11m
2
2.11m
3
4
5
END OF BOREHOLE AT 5.10m

Jeffery and Katauskas Pty Ltd
CONSULTING GEOTECHNICAL AND ENVIRONMENTAL ENGINEERS

BOREHOLE LOG

Borehole No. 4 1/2

Client: FLETCHER CONSTRUCTION AUSTRALIA LTD
Project: GLOBAL SWITCH BUILDING ALTERATIONS
Location: CNR. HARRIS & QUARRY STREETS, ULTIMO. NSW

Job No. 15637VT **Method:** ROTARY WASH BORING **R.L. Surface:** N/A
Date: 13-12-00 **Datum:**
Logged/Checked by: A.H./

Groundwater Record	SAMPLES ES	SAMPLES USO	SAMPLES DB	SAMPLES DS	Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
DRY ON COMPLETION OF WASH BORING					REFER TO D C P TEST RESULTS	0			CONCRETE: 400mm.t.				
									FILL: Silty sand, fine to medium grained, brown and pale yellow brown, with medium to coarse grained igneous gravel.	M			APPEARS POORLY TO MODERATELY COMPACTED
						1							
									REFER TO CORED BOREHOLE LOG				
						2							
						3							
						4							
						5							
						6							
						7							

Jeffery and Katauskas Pty Ltd
CONSULTING GEOTECHNICAL AND ENVIRONMENTAL ENGINEERS

CORED BOREHOLE LOG

Borehole No. 4 2/2

Client: FLETCHER CONSTRUCTION AUSTRALIA LTD
Project: GLOBAL SWITCH BUILDING ALTERATIONS
Location: CNR. HARRIS & QUARRY STREETS, ULTIMO. NSW

Job No. 15637VT **Core Size:** TT56 **R.L. Surface:** N/A
Date: 13-12-00 **Inclination:** VERTICAL **Datum:**
Drill Type: MELVELLE **Bearing:** - **Logged/Checked by:** A.H./

Water Loss/Level	Barrel Lift	Depth (m)	Graphic Log	CORE DESCRIPTION Rock Type, grain characteristics, colour, structure, minor components.	Weathering	Strength	POINT LOAD INDEX STRENGTH $I_s(50)$ EL VL L M H VH EH	DEFECT DETAILS DEFECT SPACING (mm) 500 300 100 50 30 10	DESCRIPTION Type, inclination, thickness, planarity, roughness, coating. Specific / General
		0							
		1		START CORING AT 1.52m					
		2		SANDSTONE: fine to medium grained, orange, brown and pale grey, bedded at 0-10°.	DW	H	×		
FULL RN		3		as above, but orange and pale grey.	SW	M-H	× ×		- Be, 5°, P, S, CLAY COATED
		4					×		
		5		END OF BOREHOLE AT 4.52m					
		6							
		7							


Jeffery and Katauskas Pty Ltd
CONSULTING GEOTECHNICAL AND ENVIRONMENTAL ENGINEERS
JOB No 15637VT BH4 START CORING AT 1.52m
1
1.52m
2
3
4
END OF BOREHOLE AT 4.52m

Jeffery and Katauskas Pty Ltd
CONSULTING GEOTECHNICAL AND ENVIRONMENTAL ENGINEERS

BOREHOLE LOG

Borehole No. 5 1/2

Client: FLETCHER CONSTRUCTION AUSTRALIA LTD
Project: GLOBAL SWITCH BUILDING ALTERATIONS
Location: CNR. HARRIS & QUARRY STREETS, ULTIMO. NSW

Job No. 15637VT
Date: 12-12-00
Method: SPIRAL AUGER INTERTECH 550
Logged/Checked by: P.C.W./
R.L. Surface: N/A
Datum:

Groundwater Record	SAMPLES ES	SAMPLES U50	SAMPLES DB	SAMPLES DS	Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
DRY ON COMPLETION OF AUGERING						0			ASPHALTIC CONCRETE: 100mm.t over Roadbase 250mm.t.				
					SPT 6/90mm R			-	SANDSTONE: fine to medium grained, light grey.	XW-DW / DW	EL-VL / L-M	-	MODERATE 'TC' BIT RESISTANCE
						1			REFER TO CORED BOREHOLE LOG				
						2							
						3							
						4							
						5							
						6							
						7							

Jeffery and Katauskas Pty Ltd
CONSULTING GEOTECHNICAL AND ENVIRONMENTAL ENGINEERS

CORED BOREHOLE LOG

Borehole No. 5 2/2

Client: FLETCHER CONSTRUCTION AUSTRALIA LTD
Project: GLOBAL SWITCH BUILDING ALTERATIONS
Location: CNR. HARRIS & QUARRY STREETS, ULTIMO. NSW

Job No. 15637VT **Core Size:** NMLC **R.L. Surface:** N/A
Date: 12-12-00 **Inclination:** VERTICAL **Datum:**
Drill Type: INTERTECH 550 **Bearing:** - **Logged/Checked by:** P.C.W./

Water Loss/Level	Barrel Lift	Depth (m)	Graphic Log	CORE DESCRIPTION (Rock Type, grain characteristics, colour, structure, minor components.)	Weathering	Strength	POINT LOAD INDEX STRENGTH $I_s(50)$ (EL VL L M H VH EH)	DEFECT DETAILS: DEFECT SPACING (mm) (600 300 100 50 30 10)	DEFECT DETAILS: DESCRIPTION (Type, inclination, thickness, planarity, roughness, coating.) Specific / General
		0							
		1		START CORING AT 1.0m					
				SANDSTONE: fine to medium grained, pale brown, with cross beds, 5mm to 100mm spacing at 0-15°.	SW-DW	M-H	×		
		2					×		
							×		
		3							- CS, 15°, 1mm.t
							×		
		4							- CS, 10°, 1mm.t
									- CS, 15°, 1mm.t
							×		
				as above, but light grey.	XW-DW	EL-VL	×		CS, 0°, 1mm.t CS, 0°, 1mm.t CS, 0°, 3mm.t CS, 0°, 1mm.t CS, 0°, 1mm.t CS, 0°, 3mm.t CS, 0°, 3mm.t CS, 0°, 5mm.t CS, 0°, 2mm.t CS, 0°, 3mm.t CS, 0°, 3mm.t XWS, 1mm.t. XWS, 5mm.t. XWS, 15mm.t.
		5			SW	M-H			
		6					×		
				END OF BOREHOLE AT 6.48m					
		7							


Jeffery and Katauskas Pty Ltd
CONSULTING GEOTECHNICAL AND ENVIRONMENTAL ENGINEERS
JOB NO. 15637VT BH5 START CORING AT 1.0m
1
2
3
4
5
6
END OF BH AT 6.48m

Jeffery and Katauskas Pty Ltd
CONSULTING GEOTECHNICAL AND ENVIRONMENTAL ENGINEERS

BOREHOLE LOG

Borehole No. 6 1/2

Client: FLETCHER CONSTRUCTION AUSTRALIA LTD
Project: GLOBAL SWITCH BUILDING ALTERATIONS
Location: CNR. HARRIS & QUARRY STREETS, ULTIMO. NSW

Job No. 15637VT
Date: 12-12-00
Method: SPIRAL AUGER INTERTECH 550
R.L. Surface: N/A
Datum:
Logged/Checked by: P.C.W./

Groundwater Record	SAMPLES ES	SAMPLES U50	SAMPLES DB	SAMPLES DS	Field Tests	Depth (m)	Graphic Log	Unified Classification	DESCRIPTION	Moisture Condition/ Weathering	Strength/ Rel. Density	Hand Penetrometer Readings (kPa.)	Remarks
DRY ON COMPLE-TION OF AUGER-ING						0			ASPHALTIC CONCRETE: 80mm.t over Roadbase 100mm.t.				
								–	SANDSTONE: fine to medium grained, light grey.	DW	M	–	MODERATE TO HIGH RESISTANCE
									REFER TO CORED BOREHOLE LOG				
						1							
						2							
						3							
						4							
						5							
						6							
						7							

Jeffery and Katauskas Pty Ltd
CONSULTING GEOTECHNICAL AND ENVIRONMENTAL ENGINEERS

CORED BOREHOLE LOG

Borehole No. 6 2/2

Client: FLETCHER CONSTRUCTION AUSTRALIA LTD
Project: GLOBAL SWITCH BUILDING ALTERATIONS
Location: CNR. HARRIS & QUARRY STREETS, ULTIMO. NSW

Job No. 15637VT **Core Size:** NMLC **R.L. Surface:** N/A
Date: 12-12-00 **Inclination:** VERTICAL **Datum:**
Drill Type: INTERTECH 550 **Bearing:** – **Logged/Checked by:** P.C.W./

Water Loss/Level	Barrel Lift	Depth (m)	Graphic Log	CORE DESCRIPTION Rock Type, grain characteristics, colour, structure, minor components.	Weathering	Strength	POINT LOAD INDEX STRENGTH $I_s(50)$ EL VL L M H VH EH	DEFECT DETAILS DEFECT SPACING (mm) 500 300 100 50 30 10	DESCRIPTION Type, inclination, thickness, planarity, roughness, coating. Specific / General
		0		START CORING AT 0.47m					
		1		SANDSTONE: fine to medium grained, pale brown and orange brown, with cross beds 5mm to 100mm spacing at 0-15°.	DW-SW	M-H	×		
		2					×		
		3					×		- CS, 0°, 2mm.t - CS, 10°, 1mm.t
		4					×		
		5					×		- CS, 0°, 2mm.t
		6		END OF BOREHOLE AT 5.4m					
		7							


Jeffery and Katauskas Pty Ltd
CONSULTING GEOTECHNICAL AND ENVIRONMENTAL ENGINEERS
JOB NO 15637VT BH6 START AT 0.47m
1
2
3
4
5
END OF BH AT 5.40m

Jeffery and Katauskas Pty Ltd

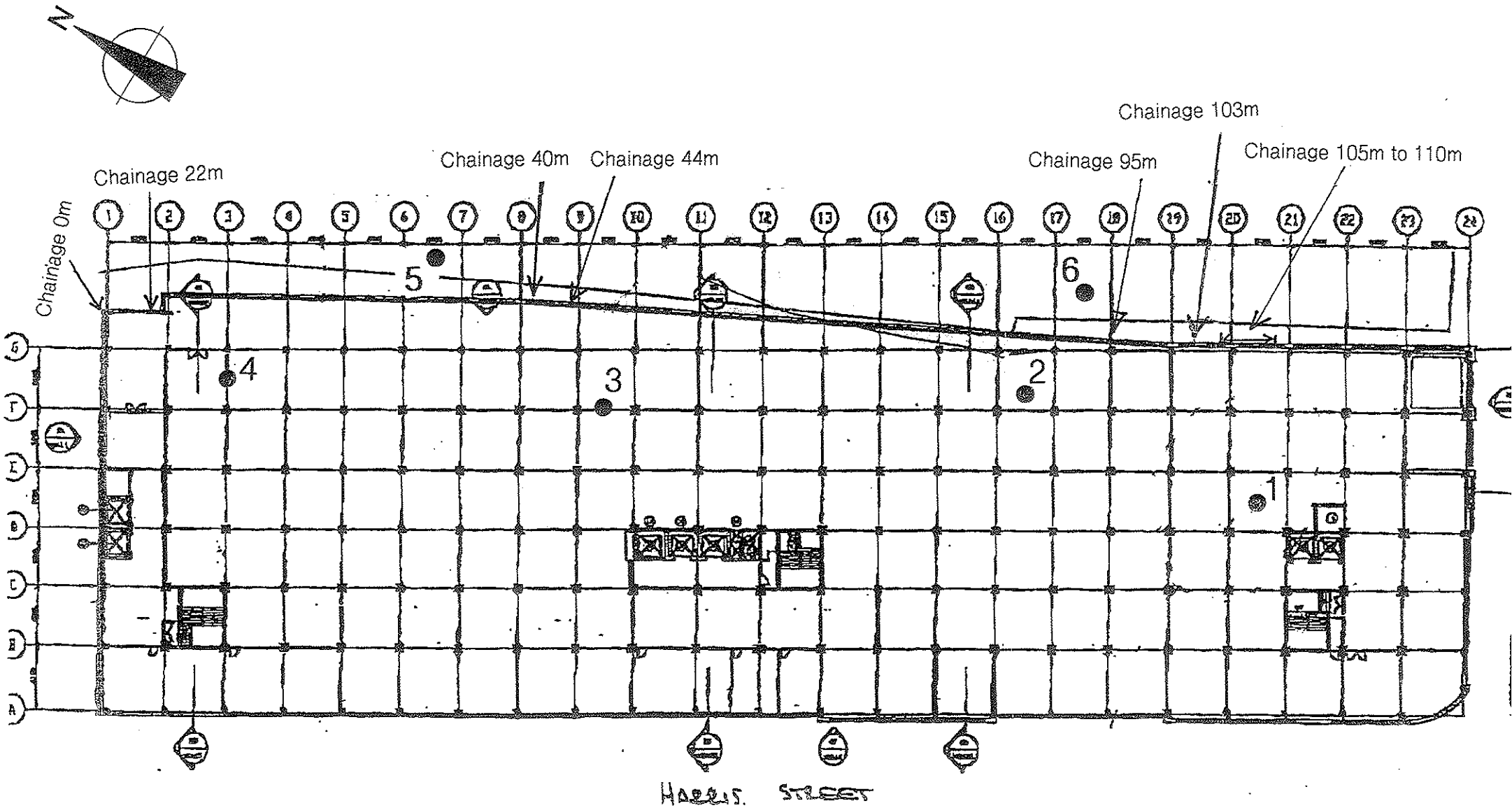
CONSULTING GEOTECHNICAL AND ENVIRONMENTAL ENGINEERS

DYNAMIC CONE PENETRATION TEST RESULTS

Client:	FLETCHER CONSTRUCTION AUSTRALIA LTD		
Project:	GLOBAL SWITCH BUILDING ALTERATIONS		
Location:	CNR. HARRIS & QUARRY STREETS , ULTIMO. NSW		
Job No.	15637VT	Hammer Weight & Drop:	9kg/510mm
Date:	13-12-00	Rod Diameter:	16mm
Tested By:	A.H.	Point Diameter:	20mm

	Number of Blows per 100mm Penetration						
Test Location							
Depth (mm)	2	3	4				
0 - 100	CONCRETE	CONCRETE	CONCRETE				
100 - 200	↓	↓	↓				
200 - 300	↓	↓	↓				
300 - 400	START	START	START				
400 - 500	22	8	2				
500 - 600	14	10	1				
600 - 700	9	3	↓				
700 - 800	8	2	1				
800 - 900	13/50mm	1	2				
900 - 1000		3	10				
1000 - 1100		3	10				
1100 - 1200		6	17				
1200 - 1300		12	REFUSAL				
1300 - 1400		14					
1400 - 1500		5					
1500 - 1600		5					
1600 - 1700		5					
1700 - 1800		7					
1800 - 1900		5					
1900 - 2000		12					
2000 - 2100		5/10mm					
2100 - 2200		REFUSAL					
2200 - 2300							
2300 - 2400							
2400 - 2500							
2500 - 2600							
2600 - 2700							
2700 - 2800							
2800 - 2900							
2900 - 3000							

Remarks: 1. The procedure used for this test is similar to that described in AS1289.6.3.2-1997, Method 6.3.2.
2. Usually 8 blows per 20mm is taken as refusal



BOREHOLE LOCATION PLAN

APPROXIMATE SCALE

0 25m

Jeffery & Katauskas Pty Ltd

Report No. 15637VT Figure No. 1

APPENDIX B

Report prepared for
Jeffery & Katauskas Pty Ltd

Earth Resistivity Testing
GLOBAL SWITCH 2 BUILDING SITE
Quarry & Pyrmont Streets, Ultimo

February 2009 ETS Project No. ET337

Report prepared by:

Earth Technology Solutions Pty Ltd
ACN 078 325 658

35 O'Keefe Crescent
Eastwood NSW 2122

P.O. Box 202
North Ryde NSW 1670

Tel: 02 9804 1752
Fax: 02 9804 1751

TABLE OF CONTENTS

1.0 INTRODUCTION

At the request of Jeffery & Katauskas Pty Ltd, earth resistivity testing was completed at the proposed Global Switch 2 Building site, at the corner of Quarry and Pyrmont Streets, Ultimo.

The objective of the resistivity testing was to provide electrical resistivity measurements of the subsurface to be used for earthing purposes. The resistivity fieldwork was carried out on 23rd February 2009.

2.0 LOCATION OF RESISTIVITY SOUNDING

It was initially proposed to complete two resistivity soundings at either side of the site. However the surface over the majority of the site was approximately 20mm asphalt cover over approximately 100m reinforced concrete. Unfortunately this surface was not suitable for surface resistivity testing.

A resistivity sounding was completed approximately 3m from the western boundary of the site centered approximately 50m from the Quarry Street boundary. In this region of the site the pavement comprised approximately 80mm AC.

3.0 RESISTIVITY METHOD

Resistivity measurements are made by injecting current into the ground through two current electrodes and measuring the resultant voltage difference at two potential electrodes. An increasing depth of investigation is obtained by expanding the separation between the current and potential electrode pairs.

From the current (I) and voltage (V) values, and apparent resistivity value (ρa) value is calculated.

$$(\rho a) = k\ V / I$$

where $k = 2 \pi r$, is the geometric factor for the Wenner Array, where a is the common spacing between each of the four electrodes.

4.0 EQUIPMENT AND FIELD PROCEDURES

An Advanced Geosciences Sting R1, AC resistivity system was used to acquire the resistivity data. This system has a minimum input impedance > 10^7 ohm.m and 16 bit AD resolution.

The Wenner resistivity array was used for the sounding, which requires four steel electrodes at a constant electrode separation (a), which were connected via individual cables to the resistivity meter.

The test involves the input of current though the outer pair of electrodes, and the measurement of resistance through the second inner pair of electrodes.

For the Wenner Array soundings the following field acquisition parameters were used :

- Electrode spacing : 1m, 1.5m, 2m, 3m, 5m, 6.5m, 10m, 15m, 20m, 30m
- Current Measurement Time per cycle : 1.2 seconds
- No of Cycles: 3
- Maximum Current : 250mA

5.0 DATA REDUCTION

The apparent resistivity data obtained at each sounding location were checked and interpreted in accordance with accepted practice using resistivity modelling software RINVERT. This program uses non-linear least squares inversion of the field data and assumes a horizontally layered earth with different electrical resistivities in each layer.

The resistivity data listings, apparent resistivity sounding curves and calculated layered earth models are provided in Appendix A, and the results are summarised below.

6.0 RESULTS

Listings of the measured resistances and calculated apparent resistivity data are provided in the table below, and following is the summary layered earth model.

Resistivity Sounding # 1

Electrode Separation (m)	Current (mA)	Resistance (Ohm)	Apparent Resistivity (Ohm.m)
1	30.2	21.09	132.5
1.5	34.6	16.45	155.1
2	13.4	13.10	164.6
3	11.3	13.36	251.9
5	23.6	10.08	316.6
6.5	10.6	9.67	394.4
10	117.2	5.616	352.9
15	46.8	2.828	266.5
20	24.7	1.608	202.0
30	36.3	0.658	124.2

LAYERED EARTH MODEL - SOUNDING # 1

Layer	Depth (m)	Thickness (m)	Resistivity (ohm m)
1	0.0	1.3	110
2	1.3	5.7	807
3	7.0	Undefined	31

7.0 CONCLUSIONS

The earth resistivity testing has been successfully completed at the proposed Global Switch 2 Building site using the Wenner test method.

3 layers of different electrical resistivity have been identified. The surface layer is interpreted to extend to approximately 1.3m depth and has a resistivity of 110ohm.m which is consistent with road base, crushed rock or weathered rock. The second layer has resistivity of 810ohm.m which is consistent with relatively fresh dry sandstone.

The basal layer identified extends from approximately 7m depth and has a resistivity of 30ohm.m which is consistent with a relatively conductive groundwater table within the sandstone bedrock.

A full set of the resistivity test results have been provided in this report, including inversion modeling of the sounding to produce layered earth resistivity model.

For and on behalf of
EARTH TECHNOLOGY SOLUTIONS PTY LTD

RESISTIVITY SURVEY
SOUNDING REPORT

SOUNDING DETAILS

SOUNDING NAME:	Global Switch 2
EQUIPMENT:	Sting R1
ELECTRODE ARRAY:	Wenner array
ACQUISITION DATE:	23/02/09

LOCATION DETAILS

LOCATION:	Pyrmont Street Site
COORDINATES:	N/A
ELEVATION:	Approx RL9m
BEARING:	North South

PROJECT DETAILS

PERSONNEL:	PF
CLIENT:	Jeffery _Katauskas
PROJECT:	Global Switch 2
PROCESSING DATE:	23/02/09

COMMENTS

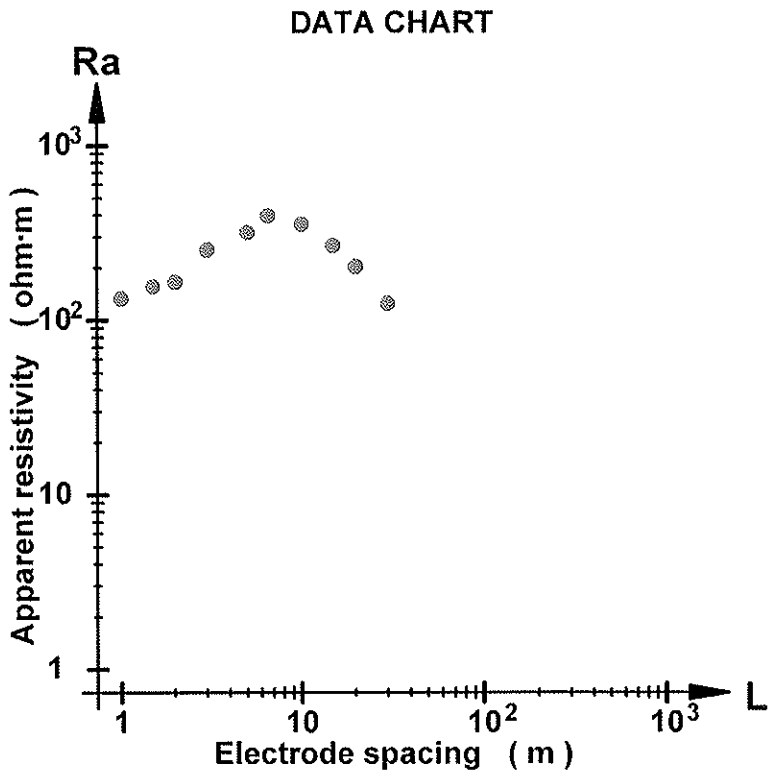


Figure 1. *Sounding curve for sounding <S1.dat> - Wenner array at "Global Switch 2".*

Point	Spacing *(m)*	App.Res. *(ohm·m)*
1	1.000	132.500
2	1.500	155.100
3	2.000	164.600
4	3.000	251.900
5	5.000	316.600
6	6.500	394.400
7	10.000	352.900
8	15.000	266.500
9	20.000	202.000
10	30.000	124.200

Table 1. *Sounding data for sounding <S1.dat> - Wenner array at "Global Switch 2".*

(a)

Point	Spacing *(m)*	App.Res. (model) *(ohm·m)*	App.Res. (field) *(ohm·m)*	Percent error
1	1.000	129.244	132.500	-2.46
2	1.468	154.450	154.581	-0.08
3	2.154	196.426	174.640	12.47
4	3.162	252.102	261.825	-3.71
5	4.642	310.415	302.455	2.63
6	6.813	351.676	401.877	-12.49
7	10.000	349.346	352.900	-1.01
8	14.678	287.045	271.255	5.82
9	21.544	184.684	185.934	-0.67

(b)

Layer	Depth *(m)*	Thickness *(m)*	Resistivity *(ohm·m)*	Thick/Res *(1/ohm)*	Thick*Res *(ohm·m²)*
1	0.000	1.333	109.500	0.012	145.963
2	1.333	5.711	807.000	0.007	4608.777
3	7.044	INFINITY	30.560	-	-
			TOTAL:	0.019	4754.740

Table 3. *Inverse modelling for sounding <S1.dat> - Wenner array at "Global Switch 2".*

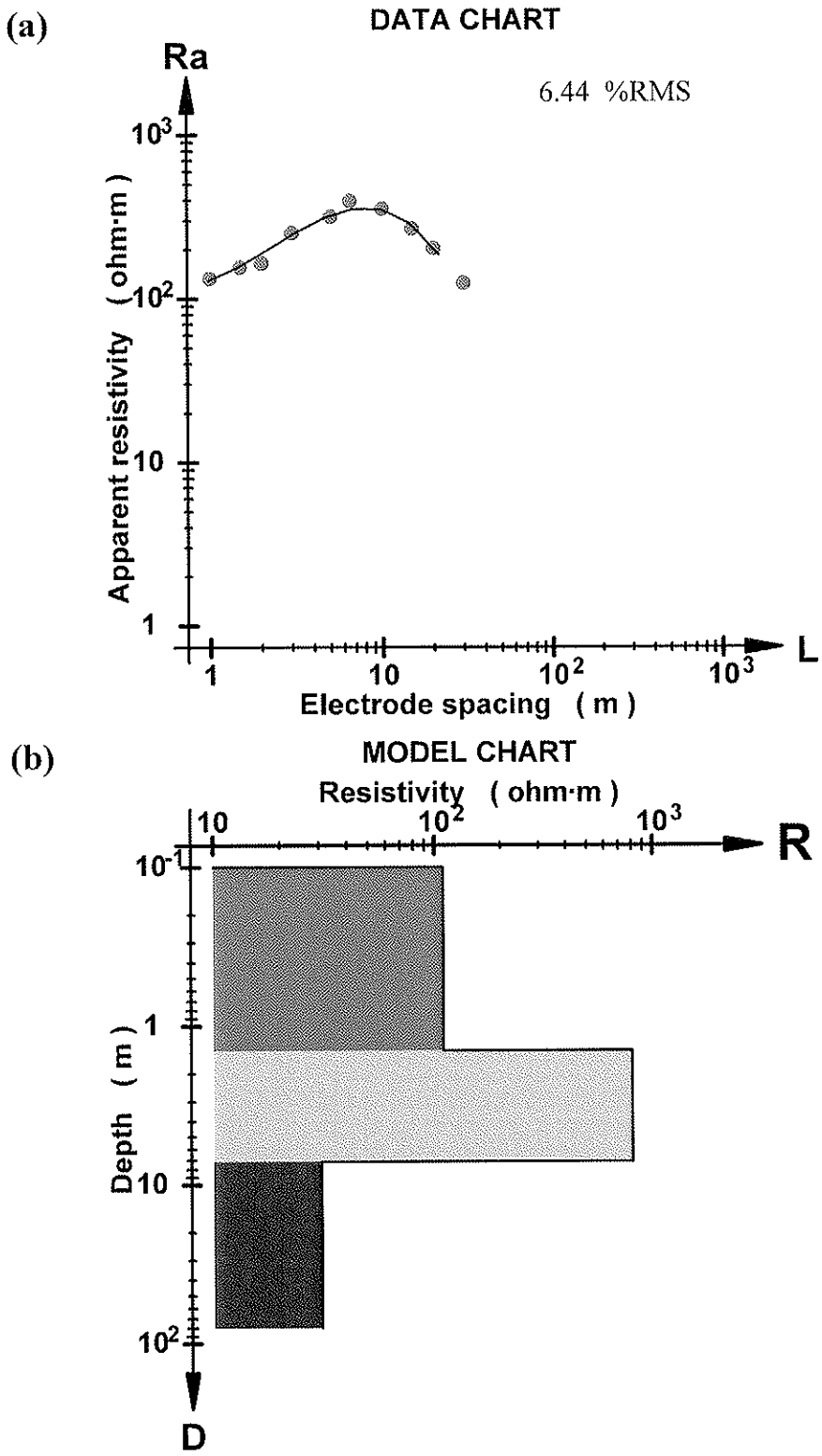


Figure 3. *Inverse modelling for sounding <S1.dat> - Wenner array at "Global Switch 2".*