

Appendix A

Coffey Borehole Logs, DCP Testing and Explanation Sheets

Borehole No. **BH1**

Sheet 1 of 1

Project No: **GEOTKPAR01560AA**

Date started: **15.6.2009**

Date completed: **15.6.2009**

Logged by: **DF**

Checked by:

Engineering Log - Borehole

Client: **BROWN CONSULTING (QLD) PTY LTD**

Principal:

Project: **BELLVISTA 2**

Borehole Location: **REFER TO SITE PLAN**

drill model and mounting:				EDSON CPI				Easting:				slope: -90°				R.L. Surface:				NOT MEASURED													
hole diameter:				100 mm				Northing				bearing:				datum:				GDA94													
drilling information								material substance																									
method	penetration			support	water	notes samples, tests, etc	RL	depth metres	graphic log	classification symbol	material soil type: plasticity or particle characteristics, colour, secondary and minor components.	moisture condition	consistency/ density index	pocket penetrometer				structure and additional observations															
	1	2	3											100 kPa	200 kPa	300 kPa	400 kPa																
ADT					CBR					SM	SILTY SAND: fine to medium grained, dark grey, trace of organics.	M	L																				
										SP	SAND: fine to medium grained, pale brown, trace of silt and clay fines.	W																					
										SC			CLAYEY SAND: fine to medium grained, pale brown/orange, low plasticity fines.																				
										CL	SANDY CLAY: low plasticity, pale brown/orange and red, fine to medium sand, trace of gravel.	M	St										DIST PP=110kPa										
										CH	SANDY CLAY: medium plasticity/high plasticity, orange/red and pale grey, fine to medium sand, trace of gravel.	VSt											DIST PP=190kPa										
										CH	SANDY CLAY: high plasticity, red and pale grey, fine to medium sand.												DIST PP=250kPa										
																							DIST PP=290kPa										
																																DIST PP=280kPa	
																																	DIST PP=250kPa

method AS auger screwing* AD auger drilling* RR roller/tricone W washbore CT cable tool HA hand auger DT diatube B blank bit V V bit T TC bit *bit shown by suffix e.g. ADT	support M mud C casing penetration 1 2 3 4 no resistance ranging to refusal water 10/1/98 water level on date shown water inflow water outflow	notes, samples, tests U ₅₀ undisturbed sample 50mm diameter U ₆₃ undisturbed sample 63mm diameter D disturbed sample N standard penetration test (SPT) N* SPT - sample recovered Nc SPT with solid cone V vane shear (kPa) P pressuremeter Bs bulk sample E environmental sample R refusal	classification symbols and soil description based on unified classification system moisture D dry M moist W wet Wp plastic limit WL liquid limit	consistency/density index VS very soft S soft F firm St stiff VSt very stiff H hard Fb friable VL very loose L loose MD medium dense D dense VD very dense
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Borehole No. **BH2**

Engineering Log - Borehole

Sheet 1 of 1
Project No: **GEOTKPAR01560AA**

Client: **BROWN CONSULTING (QLD) PTY LTD**

Date started: **1.5.2009**

Principal:

Date completed: **1.5.2009**

Project: **BELLVISTA 2**

Logged by: **DF**

Borehole Location: **REFER TO SITE PLAN**

Checked by:

drill model and mounting: EDSON CPI Easting: 509232.017 slope: -90° R.L. Surface: 40.28
hole diameter: 100 mm Northing 7035296.399 bearing: datum: GDA94

drilling information						material substance									
method	penetration			support	water	notes samples, tests, etc	RL	depth metres	graphic log	classification symbol	material soil type: plasticity or particle characteristics, colour, secondary and minor components.	moisture condition	consistency/ density index	pocket penetro- meter kPa	structure and additional observations
	1	2	3												
ADT				N			40			SM	SILTY SAND: fine to medium grained, dark grey, trace of organics.	M	L		
										SM	SILTY SAND: fine to medium grained, dark grey.				
										SP	SAND: fine to medium grained, grey, trace of silt.	M/W			
							1			SP	SAND: fine to coarse grained, pale grey.	W	L/MD		
										CL	SANDY CLAY: medium plasticity, orange/red and pale grey, fine to coarse grained sand, trace of gravel.	M	St	X	DIST PP=140kPa
							2								
										CH	SANDY CLAY: high plasticity, red and pale grey, fine to medium grained sand.				
							3						VSt	X	DIST PP=220kPa
							4								
							5							X	DIST PP=250kPa
							6								
											Borehole BH2 terminated at 6m				LIMIT OF INVESTIGATION
							7								
							8								
method AS auger screwing* AD auger drilling* RR roller/tricone W washbore CT cable tool HA hand auger DT diatube B blank bit V V bit T TC bit *bit shown by suffix e.g. ADT						support M mud N nil C casing penetration 1 2 3 4 water 10/1/98 water level on date shown water inflow water outflow		notes, samples, tests U ₅₀ undisturbed sample 50mm diameter U ₆₃ undisturbed sample 63mm diameter D disturbed sample N standard penetration test (SPT) N* SPT - sample recovered Nc SPT with solid cone V vane shear (kPa) P pressuremeter Bs bulk sample E environmental sample R refusal				classification symbols and soil description based on unified classification system moisture D dry M moist W wet W _p plastic limit W _L liquid limit		consistency/density index VS very soft S soft F firm St stiff VSt very stiff H hard Fb friable VL very loose L loose MD medium dense D dense VD very dense	

method AS auger screwing* AD auger drilling* RR roller/tricone W washbore CT cable tool HA hand auger DT diatube B blank bit V V bit T TC bit *bit shown by suffix e.g. ADT	support M mud N nil C casing penetration 1 2 3 4 no resistance ranging to refusal water 10/1/98 water level on date shown water inflow water outflow	notes, samples, tests U ₅₀ undisturbed sample 50mm diameter U ₆₃ undisturbed sample 63mm diameter D disturbed sample N standard penetration test (SPT) N* SPT - sample recovered Nc SPT with solid cone V vane shear (kPa) P pressuremeter Bs bulk sample E environmental sample R refusal	classification symbols and soil description based on unified classification system moisture D dry M moist W wet Wp plastic limit WL liquid limit	consistency/density index VS very soft S soft F firm St stiff VSt very stiff H hard Fb friable VL very loose L loose MD medium dense D dense VD very dense
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Borehole No. **BH3**

Engineering Log - Borehole

Sheet 1 of 1
Project No: **GEOTKPAR01560AA**

Client: **BROWN CONSULTING (QLD) PTY LTD**

Date started: **18.4.2009**

Principal:

Date completed: **18.4.2009**

Project: **BELLVISTA 2**

Logged by: **DF**

Borehole Location: **REFER TO SITE PLAN**

Checked by:

drill model and mounting: EDSON CPI Easting: 509425.371 slope: -90° R.L. Surface: 5.683
hole diameter: 100 mm Northing 7035521.319 bearing: datum: GDA94

drilling information						material substance									
method	penetration			support	water	notes samples, tests, etc	RL	depth metres	graphic log	classification symbol	material soil type: plasticity or particle characteristics, colour, secondary and minor components.	moisture condition	consistency/ density index	pocket penetro- meter kPa	structure and additional observations
ADT	1	2	3	N						SC	CLAYEY SAND: fine to medium grained, pale brown, low plasticity fines. SILTY SAND: fine to medium grained, dark grey, trace of organics. SAND: fine to medium grained, grey/brown, trace of silt and clay. SANDY CLAY: high plasticity, pale brown/orange and pale grey, fine to medium grained sand. ...colour changing to pale grey.	M	MD		FILL
						5			SM	NATURAL					
						1			SP						
						4			CH	St		X	DIST PP=180kPa		
						2			VSt	X		DIST PP=240kPa			
						3			X	DIST PP=200kPa					
						3					X	DIST PP=250kPa			
						3					X	DIST PP=340kPa			
						2									
						4			CH	SANDY CLAY: high plasticity, pale grey, fine to coarse grained sand.			X	DIST PP=350kPa	
						1									
						5									
						0			SC	CLAYEY SAND: fine to coarse grained, pale grey, medium plasticity fines.		D			
						6									
											Borehole BH3 terminated at 6m				LIMIT OF INVESTIGATION
						-1		7							
						-2		8							

method AS auger screwing* AD auger drilling* RR roller/tricone W washbore CT cable tool HA hand auger DT diatube B blank bit V V bit T TC bit *bit shown by suffix e.g. ADT	support M mud N nil C casing penetration 1 2 3 4 no resistance ranging to refusal water 10/1/98 water level on date shown water inflow water outflow	notes, samples, tests U ₅₀ undisturbed sample 50mm diameter U ₆₃ undisturbed sample 63mm diameter D disturbed sample N standard penetration test (SPT) N* SPT - sample recovered Nc SPT with solid cone V vane shear (kPa) P pressuremeter Bs bulk sample E environmental sample R refusal	classification symbols and soil description based on unified classification system moisture D dry M moist W wet Wp plastic limit WL liquid limit	consistency/density index VS very soft S soft F firm St stiff VSt very stiff H hard Fb friable VL very loose L loose MD medium dense D dense VD very dense
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Borehole No. **BH4**

Engineering Log - Borehole

Sheet 1 of 1
Project No: **GEOTKPAR01560AA**

Client: **BROWN CONSULTING (QLD) PTY LTD**

Date started: **18.4.2009**

Principal:

Date completed: **18.4.2009**

Project: **BELLVISTA 2**

Logged by: **DF**

Borehole Location: **REFER TO SITE PLAN**

Checked by:

drill model and mounting: EDSON CPI Easting: 509573.345 slope: -90° R.L. Surface: 6.686
hole diameter: 100 mm Northing 7035673.856 bearing: datum: GDA94

drilling information					material substance				
method	penetration	support	water	notes samples, tests, etc	depth metres	graphic log	classification symbol	material	structure and additional observations
ADT	1 2 3	N					SM	SILTY SAND: fine to medium grained, dark grey, trace of organics.	
					6		SP	SAND: fine to medium grained, grey.	
					1			...colour changing to dark brown.	
							SP	SAND: fine to medium grained, brown, with silt and trace of gravel.	
					5		CH	SANDY CLAY: medium to high plasticity, pale brown/orange and pale grey, fine to medium grained sand.	DIST PP=100kPa
					2			...colour changing to pale grey.	DIST PP=220kPa
					4				
					3				
					3				
					4				DIST PP=400kPa
					2				
					5				DIST PP=240kPa
							CL	SANDY CLAY: medium plasticity, pale grey, fine to coarse grained sand, trace of gravel.	
					1		CH	SANDY CLAY: high plasticity, pale grey, fine to medium grained sand.	DIST PP=200kPa
					6				DIST PP=200kPa
								Borehole BH4 terminated at 6m	LIMIT OF INVESTIGATION
					0				
					7				
					-1				
					8				

method AS auger screwing* AD auger drilling* RR roller/tricone W washbore CT cable tool HA hand auger DT diatube B blank bit V V bit T TC bit *bit shown by suffix e.g. ADT	support M mud C casing penetration 1 2 3 4 no resistance ranging to refusal water 10/1/98 water level on date shown water inflow water outflow	notes, samples, tests U ₅₀ undisturbed sample 50mm diameter U ₆₃ undisturbed sample 63mm diameter D disturbed sample N standard penetration test (SPT) N* SPT - sample recovered Nc SPT with solid cone V vane shear (kPa) P pressuremeter Bs bulk sample E environmental sample R refusal	classification symbols and soil description based on unified classification system moisture D dry M moist W wet Wp plastic limit WL liquid limit	consistency/density index VS very soft S soft F firm St stiff VSt very stiff H hard Fb friable VL very loose L loose MD medium dense D dense VD very dense
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Borehole No. **BH5**

Engineering Log - Borehole

Sheet 1 of 1
Project No: **GEOTKPAR01560AA**

Client: **BROWN CONSULTING (QLD) PTY LTD**

Date started: **1.5.2009**

Principal:

Date completed: **1.5.2009**

Project: **BELLVISTA 2**

Logged by: **DF**

Borehole Location: **REFER TO SITE PLAN**

Checked by:

drill model and mounting: EDSON CPI Easting: 509257.586 slope: -90° R.L. Surface: 2.941
hole diameter: 100 mm Northing 7035081.794 bearing: datum: GDA94

drilling information							material substance								
method	penetration			support	water	notes samples, tests, etc	RL	depth metres	graphic log	classification symbol	material soil type: plasticity or particle characteristics, colour, secondary and minor components.	moisture condition	consistency/ density index	pocket penetro- meter kPa	structure and additional observations
	1	2	3												
ADT				N						SM	SILTY SAND: fine to medium grained, dark grey, trace of organics.	M	L		
										SP	SAND: fine to medium grained, grey, trace of silt.				
										SP	SAND: fine to medium grained, pale grey. ...colour changing to pale grey and brown. ...colour changing to dark brown.	M/W	D/V/D		
										SC	CLAYEY SAND: fine to medium grained, dark brown, low plasticity fines. ...colour changing to pale grey.	W	MD		
										CH	SANDY CLAY: medium to high plasticity, pale grey, fine to medium grained sand.	M	VSt	X	DIST PP=220KPa
														X	DIST PP=240kPa
														X	DIST PP=280kPa
										CH	SANDY CLAY: high plasticity, pale grey/orange and red, fine to medium grained sand, trace of gravel.			X	DIST PP=250kPa
											Borehole BH5 terminated at 6m				LIMIT OF INVESTIGATION
							</								

method	support	notes, samples, tests	classification symbols and soil description	consistency/density index
AS AD RR W CT HA DT B V T *bit shown by suffix e.g. ADT	M mud C casing penetration 1 2 3 4  no resistance ranging to refusal water 10/1/98 water level on date shown water inflow water outflow	U ₅₀ undisturbed sample 50mm diameter U ₆₃ undisturbed sample 63mm diameter D disturbed sample N standard penetration test (SPT) N* SPT - sample recovered Nc SPT with solid cone V vane shear (kPa) P pressuremeter Bs bulk sample E environmental sample R refusal	based on unified classification system moisture D dry M moist W wet Wp plastic limit WL liquid limit	VS very soft S soft F firm St stiff VSt very stiff H hard Fb friable VL very loose L loose MD medium dense D dense VD very dense

Borehole No. **BH6**

Sheet 1 of 1

Project No: **GEOTKPAR01560AA**

Date started: **1.5.2009**

Date completed: **1.5.2009**

Logged by: **DF**

Checked by:

Engineering Log - Borehole

Client: **BROWN CONSULTING (QLD) PTY LTD**

Principal:

Project: **BELLVISTA 2**

Borehole Location: **REFER TO SITE PLAN**

drill model and mounting: EDSON CPI Easting: 509369.352 slope: -90° R.L. Surface: 4.099
hole diameter: 100 mm Northing 7035242.058 bearing: datum: GDA94

drilling information						material substance																		
method	penetration			support	water	notes samples, tests, etc	RL	depth metres	graphic log	classification symbol	material soil type: plasticity or particle characteristics, colour, secondary and minor components.	moisture condition	consistency/ density index	pocket penetro- meter kPa				structure and additional observations						
	1	2	3											100	200	300	400							
ADT				N		ASS	-4		SM	SILTY SAND: fine to medium grained, dark grey, trace of organics and clay.	M	L												
							SC		CLAYEY SAND: fine to medium grained, dark grey, medium plasticity fines.															

method AS auger screwing* AD auger drilling* RR roller/tricone W washbore CT cable tool HA hand auger DT diatube B blank bit V V bit T TC bit *bit shown by suffix e.g. ADT	support M mud N nil C casing penetration 1 2 3 4  no resistance ranging to refusal water  10/1/98 water level on date shown  water inflow  water outflow	notes, samples, tests U ₅₀ undisturbed sample 50mm diameter U ₆₃ undisturbed sample 63mm diameter D disturbed sample N standard penetration test (SPT) N* SPT - sample recovered Nc SPT with solid cone V vane shear (kPa) P pressuremeter Bs bulk sample E environmental sample R refusal	classification symbols and soil description based on unified classification system moisture D dry M moist W wet Wp plastic limit WL liquid limit	consistency/density index VS very soft S soft F firm St stiff VSt very stiff H hard Fb friable VL very loose L loose MD medium dense D dense VD very dense
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Borehole No. **BH7**

Engineering Log - Borehole

Sheet 1 of 1
Project No: **GEOTKPAR01560AA**

Client: **BROWN CONSULTING (QLD) PTY LTD**

Date started: **26.4.2009**

Principal:

Date completed: **26.4.2009**

Project: **BELLVISTA 2**

Logged by: **DF**

Borehole Location: **REFER TO SITE PLAN**

Checked by:

drill model and mounting: EDSON CPI Easting: 509511.686 slope: -90° R.L. Surface: 4.749
hole diameter: 100 mm Northing 7035329.518 bearing: datum: GDA94

drilling information						material substance										
method	penetration			support	water	notes samples, tests, etc	RL	depth metres	graphic log	classification symbol	material soil type: plasticity or particle characteristics, colour, secondary and minor components.	moisture condition	consistency/ density index	pocket penetro- kPa	penetro- meter	structure and additional observations
	1	2	3													
ADT				N						SM	SILTY SAND* fine to medium grained, dark grey, trace of organics.	M	L			
								4		SP	SAND: fine to medium grained, grey, trace of silt.					
								1			...with gravel.	W	MD			
								3		SC	SILTY CLAYEY SAND: fine to medium grained, pale brown and grey, low plasticity fines.	M	MD/D			
								2		SP	SAND: fine to medium grained, dark brown, trace of silt.		VD			
								2		CH	SANDY CLAY: medium to high plasticity, pale grey/brown, fine to medium grained sand.		VSt			
								3								
								1								DIST PP=250kPa
								4								
								0			...fine to coarse grained sand, trace of gravel.					
								5								
								6		SC	CLAYEY SAND: fine to coarse grained, pale grey/brown, low plasticity fines.	W	D			DIST PP=280kPa
								-1								
								6			Borehole BH7 terminated at 6m					LIMIT OF INVESTIGATION
								-2								
								7								
								-3								
								8								
method AS auger screwing* AD auger drilling* RR roller/tricone W washbore CT cable tool HA hand auger DT diatube B blank bit V V bit T TC bit *bit shown by suffix e.g. ADT						support M mud C casing penetration 1 2 3 4  no resistance ranging to refusal water  10/1/98 water level on date shown  water inflow  water outflow		notes, samples, tests U ₅₀ undisturbed sample 50mm diameter U ₆₃ undisturbed sample 63mm diameter D disturbed sample N standard penetration test (SPT) N* SPT - sample recovered Nc SPT with solid cone V vane shear (kPa) P pressuremeter Bs bulk sample E environmental sample R refusal				classification symbols and soil description based on unified classification system moisture D dry M moist W wet Wp plastic limit WL liquid limit		consistency/density index VS very soft S soft F firm St stiff VSt very stiff H hard Fb friable VL very loose L loose MD medium dense D dense VD very dense		

Borehole No. **BH8**

Sheet 1 of 1
Project No: **GEOTKPAR01560AA**

Engineering Log - Borehole

Client: **BROWN CONSULTING (QLD) PTY LTD**

Date started: **21.4.2009**

Principal:

Date completed: **21.4.2009**

Project: **BELLVISTA 2**

Logged by: **DF**

Borehole Location: **REFER TO SITE PLAN**

Checked by:

drill model and mounting: EDSON CPI Easting: 509564.073 slope: -90° R.L. Surface: 5.018
hole diameter: 100 mm Northing 7035499.905 bearing: datum: GDA94

drilling information						material substance									
method	penetration			support	water	notes samples, tests, etc	RL	depth metres	graphic log	classification symbol	material soil type: plasticity or particle characteristics, colour, secondary and minor components.	moisture condition	consistency/ density index	pocket penetro- meter kPa	structure and additional observations
	1	2	3												
ADT				N		D				SM	SILTY SAND: fine to medium grained, dark grey, trace or organics.	M	MD		DIST PP=200kPa
										SP	SAND: fine to medium grained, grey. ...trace of clay.	M/W			
							4	1					D		
										CH	SANDY CLAY: medium to high plasticity, pale grey, fine to medium grained sand.	M	St	*	
						ASS	3	2		SC	CLAYEY SAND: fine to medium grained, pale grey, low plasticity fines. ...fine to coarse grained, colour changing to pale grey and pale brown.	W	MD		
							2	3							
										CH	SANDY CLAY: medium to high plasticity, pale grey and orange, fine to medium grained sand.	M	St	*	DIST PP=150kPa
							1	4							DIST PP=160kPa
										CL	SANDY CLAY: medium plasticity, pale grey, fine to coarse grained sand.				
							0	5						*	
							-1	6							
											Borehole BH8 terminated at 6m				LIMIT OF INVESTIGATION
							-2	7							
								8							
method AS auger screwing* AD auger drilling* RR roller/tricone W washbore CT cable tool HA hand auger DT diatube B blank bit V V bit T TC bit *bit shown by suffix e.g. ADT						support M mud C casing penetration 1 2 3 4  no resistance ranging to refusal water  10/1/98 water level on date shown  water inflow  water outflow		notes, samples, tests U ₅₀ undisturbed sample 50mm diameter U ₆₃ undisturbed sample 63mm diameter D disturbed sample N standard penetration test (SPT) N* SPT - sample recovered Nc SPT with solid cone V vane shear (kPa) P pressuremeter Bs bulk sample E environmental sample R refusal				classification symbols and soil description based on unified classification system moisture D dry M moist W wet Wp plastic limit WL liquid limit		consistency/density index VS very soft S soft F firm St stiff VSt very stiff H hard Fb friable VL very loose L loose MD medium dense D dense VD very dense	

method AS auger screwing* AD auger drilling* RR roller/tricone W washbore CT cable tool HA hand auger DT diatube B blank bit V V bit T TC bit *bit shown by suffix e.g. ADT	support M mud C casing penetration 1 2 3 4  no resistance ranging to refusal water  10/1/98 water level on date shown  water inflow  water outflow	notes, samples, tests U ₅₀ undisturbed sample 50mm diameter U ₆₃ undisturbed sample 63mm diameter D disturbed sample N standard penetration test (SPT) N* SPT - sample recovered Nc SPT with solid cone V vane shear (kPa) P pressuremeter Bs bulk sample E environmental sample R refusal	classification symbols and soil description based on unified classification system moisture D dry M moist W wet Wp plastic limit WL liquid limit	consistency/density index VS very soft S soft F firm St stiff VSt very stiff H hard Fb friable VL very loose L loose MD medium dense D dense VD very dense
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Borehole No. **BH9**

Sheet 1 of 1
Project No: **GEOTKPAR01560AA**

Engineering Log - Borehole

Client: **BROWN CONSULTING (QLD) PTY LTD**

Date started: **1.5.2009**

Principal:

Date completed: **1.5.2009**

Project: **BELLVISTA 2**

Logged by: **DF**

Borehole Location: **REFER TO SITE PLAN**

Checked by:

drill model and mounting: EDSON CPI Easting: 508688.458 slope: -90° R.L. Surface: 4.859
hole diameter: 100 mm Northing 7035509.614 bearing: datum: GDA94

drilling information						material substance									
method	penetration			support	water	notes samples, tests, etc	RL	depth metres	graphic log	classification symbol	material soil type: plasticity or particle characteristics, colour, secondary and minor components.	moisture condition	consistency/ density index	pocket penetro- meter kPa	structure and additional observations
	1	2	3												
ADT				N						SM	SILTY SAND: fine to medium grained, dark grey, trace of organics.	M	L		
							4	1		SP	SAND: fine to medium grained, grey, trace of silt.	M/W			
										CL	SANDY CLAY: medium plasticity, grey, fine to medium grained sand.	M	St		
							3	2		SP	SAND: fine to medium grained, pale grey.	W	MD		
										CL	SANDY CLAY: medium plasticity, pale grey, fine to medium grained sand.		St		
										SP	SAND: fine to medium grained, pale grey.		MD		
					ASS		2	3		CH	SANDY CLAY: medium to high plasticity, pale grey and orange, fine to medium grained sand.	M	VSt	X	DIST PP=220kPa
										SC	CLAYEY SAND: fine to medium grained, pale grey, medium plasticity fines.	W	MD		
							1	4		CH	SANDY CLAY: medium to high plasticity, pale grey, fine to medium grained sand.	M	St	X	DIST PP=150kPa
							0	5						X	DIST PP=190kPa
							-1	6						X	DIST PP=200kPa
											Borehole BH9 terminated at 6m				DIST PP=200kPa LIMIT OF INVESTIGATION
							-2	7							
							-3	8							

method	support	notes, samples, tests	classification symbols and soil description	consistency/density index
AS AD RR W CT HA DT B V T *bit shown by suffix e.g. ADT	M mud C casing penetration 1 2 3 4  no resistance ranging to refusal water 10/1/98 water level on date shown water inflow water outflow	U ₅₀ undisturbed sample 50mm diameter U ₆₃ undisturbed sample 63mm diameter D disturbed sample N standard penetration test (SPT) N* SPT - sample recovered Nc SPT with solid cone V vane shear (kPa) P pressuremeter Bs bulk sample E environmental sample R refusal	based on unified classification system moisture D dry M moist W wet Wp plastic limit WL liquid limit	VS very soft S soft F firm St stiff VSt very stiff H hard Fb friable VL very loose L loose MD medium dense D dense VD very dense

Engineering Log - Borehole

Borehole No. **BH10**

Sheet 1 of 1
Project No: **GEOTKPAR01560AA**

Client: **BROWN CONSULTING (QLD) PTY LTD**

Date started: **24.4.2009**

Principal:

Date completed: **24.4.2009**Project: **BELLVISTA 2**

Logged by: **DF**

Borehole Location: **REFER TO SITE PLAN**

Checked by:

drill model and mounting: EDSON CPI						Easting: 509347.645		slope: -90°		R.L. Surface: 2.135											
hole diameter: 100 mm						Northing: 7034935.693		bearing:		datum: GDA94											
drilling information						material substance															
method	penetration			support	water	notes samples, tests, etc	RL	depth metres	graphic log	classification symbol	material	moisture condition	consistency/ density index	pocket penetro- meter kPa	structure and additional observations						
	1	2	3																		
ADT			N		ASS	-2		SM	SILTY SAND: fine to medium grained, dark grey, trace of organics.	M	L										
							SP	SAND: fine to medium grained, grey.													
							SP	SAND: fine to medium grained, grey and brown, trace of clay fines.	M/W												
							SC	CLAYEY SAND: fine to medium grained, pale grey and brown, low plasticity fines.	M	MD											
							SC	CLAYEY SAND: fine to medium grained, pale grey and orange, medium plasticity fines.													
							CH	SILTY CLAY: high plasticity, pale grey and orange, with fine grained sand.	VSt		X	DIST PP=220kPa									
							CH	SANDY CLAY: high plasticity, pale grey, fine to medium grained sand. ...colour changing to pale grey and red.			X	DIST PP=250kPa									
													X	DIST PP=340kPa							
							-3	5		SP	SAND: fine to medium grained, pale grey, trace of clay fines.	W	D								
							-4				Borehole BH10 terminated at 6m				LIMIT OF INVESTIGATION						
							-5	7													
							-6	8													
method AS auger screwing* AD auger drilling* RR roller/tricone W washbore CT cable tool HA hand auger DT diatube B blank bit V V bit T TC bit *bit shown by suffix e.g. ADT						support M mud N nil C casing penetration 1 2 3 4 no resistance ranging to refusal water 10/1/98 water level on date shown water inflow water outflow				notes, samples, tests U ₅₀ undisturbed sample 50mm diameter U ₆₃ undisturbed sample 63mm diameter D disturbed sample N standard penetration test (SPT) N* SPT - sample recovered Nc SPT with solid cone V vane shear (kPa) P pressuremeter Bs bulk sample E environmental sample R refusal				classification symbols and soil description based on unified classification system moisture D dry M moist W wet Wp plastic limit W _L liquid limit				consistency/density index VS very soft S soft F firm St stiff VSt very stiff H hard Fb friable VL very loose L loose MD medium dense D dense VD very dense			

Borehole No. **BH11**

Engineering Log - Borehole

Client: **BROWN CONSULTING (QLD) PTY LTD**

Principal:

Project: **BELLVISTA 2**

Borehole Location: **REFER TO SITE PLAN**

Sheet 1 of 1

Project No: **GEOTKPAR01560AA**Date started: **24.4.2009**Date completed: **24.4.2009**

Logged by: **DF**

Checked by:

drill model and mounting:						EDSON CPI		Easting:		509495.374		slope:		-90°		R.L. Surface:		3.650		
hole diameter:						100 mm		Northing:		7035133.363		bearing:				datum:		GDA94		
drilling information								material substance												
method		penetration			support water	notes samples, tests, etc	RL	depth metres	graphic log	classification symbol	material soil type: plasticity or particle characteristics, colour, secondary and minor components.	moisture condition	consistency/ density index	pocket penetrometer				structure and additional observations		
		1	2	3										kPa	100	200	300		400	
ADT					N						SM	M	L							
										SP	SILTY SAND: fine to medium grained, grey, trace of organics.									
										SP	SAND: fine to medium grained, pale grey.	D/M	VD							
										SP	SAND: fine to medium grained, brown, trace of fine grained gravel.									
										SP	SAND: fine to medium grained, pale brown/orange. ...colour changing to pale brown.	M	D							
												W	MD							
										SC	CLAYEY SAND: fine to medium grained, pale brown/orange and pale grey, medium plasticity fines.	M								
										CH	SANDY CLAY: high plasticity, pale grey and orange, fine grained sand. ...medium to high plasticity, pale grey and red, fine to medium grained sand. ...fine to coarse grained sand.		VSt							
															X				DIST PP=250kPa	
																X				DIST PP=300kPa
																</				

Borehole No. **BH12**

Engineering Log - Borehole

Sheet 1 of 1
Project No: **GEOTKPAR01560AA**

Client: **BROWN CONSULTING (QLD) PTY LTD**

Date started: **26.4.2009**

Principal:

Date completed: **26.4.2009**

Project: **BELLVISTA 2**

Logged by: **DF**

Borehole Location: **REFER TO SITE PLAN**

Checked by:

drill model and mounting: EDSON CPI Easting: 509628.73 slope: -90° R.L. Surface: 3.672
hole diameter: 100 mm Northing 7035225.86 bearing: datum: GDA94

drilling information						material substance																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																			
method	penetration			support	water	notes samples, tests, etc	RL	depth metres	graphic log	classification symbol	material soil type: plasticity or particle characteristics, colour, secondary and minor components.	moisture condition	consistency/ density index	pocket penetro- meter				structure and additional observations																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																							
	1	2	3											100 kPa	200 kPa	300 kPa	400 kPa																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
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method AS auger screwing* AD auger drilling* RR roller/tricone W washbore CT cable tool HA hand auger DT diatube B blank bit V V bit T TC bit *bit shown by suffix e.g. ADT	support M mud C casing penetration 1 2 3 4 no resistance ranging to refusal water 10/1/98 water level on date shown water inflow water outflow	notes, samples, tests U ₅₀ undisturbed sample 50mm diameter U ₆₃ undisturbed sample 63mm diameter D disturbed sample N standard penetration test (SPT) N* SPT - sample recovered Nc SPT with solid cone V vane shear (kPa) P pressuremeter Bs bulk sample E environmental sample R refusal	classification symbols and soil description based on unified classification system moisture D dry M moist W wet Wp plastic limit WL liquid limit	consistency/density index VS very soft S soft F firm St stiff VSt very stiff H hard Fb friable VL very loose L loose MD medium dense D dense VD very dense
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Borehole No. **BH14**

Engineering Log - Borehole

Client: **BROWN CONSULTING (QLD) PTY LTD**

Principal:

Project: **BELLVISTA 2**

Borehole Location: **REFER TO SITE PLAN**

Sheet 1 of 1

Project No: **GEOTKPAR01560AA**Date started: **24.4.2009**Date completed: **24.4.2009**

Logged by: **DF**

Checked by:

drill model and mounting:				EDSON CPI		Easting: 509565.138		slope: -90°		R.L. Surface: 2.787						
hole diameter:				100 mm		Northing: 7035049.18		bearing:		datum: GDA94						
drilling information						material substance										
method	penetration			support	water	notes samples, tests, etc	RL	depth metres	graphic log	classification symbol	material soil type: plasticity or particle characteristics, colour, secondary and minor components.	moisture condition	consistency/ density index	pocket penetro- meter kPa	structure and additional observations	
	1	2	3													
ADT				N								M	L			
										SM	SILTY SAND: fine to medium grained, dark grey, trace of organics.		L/MD			
										SP	SAND: fine to medium grained, grey.					
										SP	SAND: fine to medium grained, grey, trace of silt.	D	VD			
										SP	SAND: fine to medium grained, dark brown, with silt.	M/W	MD			
										SC	CLAYEY SAND: fine to medium grained, brown, medium plasticity fines.	W				
										CH	SANDY CLAY: medium to high plasticity, pale grey, fine to medium grained sand.	M	St	X	DIST PP=160kPa	
													VSt	X	DIST PP=250kPa	

Borehole No. **BH15**

Engineering Log - Borehole

Sheet 1 of 1
Project No: **GEOTKPAR01560AA**

Client: **BROWN CONSULTING (QLD) PTY LTD**

Date started: **26.4.2009**

Principal:

Date completed: **26.4.2009**

Project: **BELLVISTA 2**

Logged by: **DF**

Borehole Location: **REFER TO SITE PLAN**

Checked by:

drill model and mounting: EDSON CPI Easting: 509730.812 slope: -90° R.L. Surface: 2.543
hole diameter: 100 mm Northing 7035153.4 bearing: datum: GDA94

drilling information						material substance									
method	penetration			support	water	notes samples, tests, etc	RL	depth metres	graphic log	classification symbol	material soil type: plasticity or particle characteristics, colour, secondary and minor components.	moisture condition	consistency/ density index	pocket penetro- meter kPa	structure and additional observations
ADT	1	2	3	N						SM	SILTY SAND: fine to medium grained, dark grey, trace of organics.	M	L	100 200 300 400	
							-2			SP	SAND: fine to medium grained, grey, trace of silt.		L/MD		
							1			SP	SAND: fine to medium grained, dark brown, trace of silt.		MD		
										CH	SANDY CLAY: high plasticity, pale grey and pale brown/orange, fine to medium grained sand.		VSt		
							-1							x	DIST PP=210kPa
							2								
							-0							x	DIST PP=300kPa
							3			CH	SANDY CLAY: medium to high plasticity, pale grey, fine to coarse grained sand.		St		
														x	DIST PP=150kPa
							-1								
							4								
							-2							x	DIST PP=200kPa
							5								
							-3			CH	SANDY CLAY: high plasticity, pale grey/orange and red, fine to coarse grained sand.			x	DIST PP=160kPa
							6								
							-4				Borehole BH15 terminated at 6m				LIMIT OF INVESTIGATION
							7								
							-5								
							8								

method	support	notes, samples, tests	classification symbols and soil description	consistency/density index
AS AD RR W CT HA DT B V T *bit shown by suffix e.g. ADT	M mud C casing penetration 1 2 3 4  no resistance ranging to refusal water 10/1/98 water level on date shown water inflow water outflow	U ₅₀ undisturbed sample 50mm diameter U ₆₃ undisturbed sample 63mm diameter D disturbed sample N standard penetration test (SPT) N* SPT - sample recovered Nc SPT with solid cone V vane shear (kPa) P pressuremeter Bs bulk sample E environmental sample R refusal	based on unified classification system moisture D dry M moist W wet Wp plastic limit WL liquid limit	VS very soft S soft F firm St stiff VSt very stiff H hard Fb friable VL very loose L loose MD medium dense D dense VD very dense

Borehole No. **BH16**

Engineering Log - Borehole

Client: **BROWN CONSULTING (QLD) PTY LTD**

Principal:

Project: **BELLVISTA 2**

Borehole Location: **REFER TO SITE PLAN**

Sheet 1 of 1

Project No: **GEOTKPAR01560AA**Date started: **1.5.2009**Date completed: **1.5.2009**

Logged by: **DF**

Checked by:

drill model and mounting:				EDSON CPI		Easting: 509152.052		slope: -90°		R.L. Surface: 3.124													
hole diameter:				100 mm		Northing: 7035206.822		bearing:		datum: GDA94													
drilling information						material substance																	
method	penetration			support	water	notes samples, tests, etc	RL	depth metres	graphic log	classification symbol	material soil type: plasticity or particle characteristics, colour, secondary and minor components.	moisture condition	consistency/ density index	pocket penetro- meter kPa	structure and additional observations								
	1	2	3																				
ADT		N	NONE OBSERVED	ASS	-3		SM	SILTY SAND: fine to medium grained, dark grey, trace of organics.	M/W	L	X	X	X	DIST PP=200kPa									
					SP		SAND: fine to medium grained, grey, trace of silt.	M/W		SEEPAGE													
					CL		SANDY CLAY: medium plasticity, orange and pale grey, fine to medium grained sand.	M	St														
					CH		SANDY CLAY: high plasticity, orange and pale grey, fine to medium grained sand.																
					CH		SANDY SILTY CLAY: high plasticity, pale grey, fine grained sand.		St/VSt							DIST PP=250kPa							
							...colour changing to pale grey and red.									DIST PP=240kPa							
							...colour changing to pale grey.																

Borehole No. **BH17**

Sheet 1 of 1
Project No: **GEOTKPAR01560AA**

Engineering Log - Borehole

Client: **BROWN CONSULTING (QLD) PTY LTD**

Date started: **18.4.2009**

Principal:

Date completed: **18.4.2009**

Project: **BELLVISTA 2**

Logged by: **DF**

Borehole Location: **REFER TO SITE PLAN**

Checked by:

drill model and mounting: EDSON CPI Easting: 509321.925 slope: -90° R.L. Surface: 6.130
hole diameter: 100 mm Northing 7035385.16 bearing: datum: GDA94

drilling information						material substance											
method	penetration			support	water	notes samples, tests, etc	RL	depth metres	graphic log	classification symbol	material soil type: plasticity or particle characteristics, colour, secondary and minor components.	moisture condition	consistency/ density index	pocket penetro- meter			structure and additional observations
	1	2	3											kPa 100 200 300 400			
ADT				N			6			CH	SANDY CLAY: medium to high plasticity, pale brown/orange and red, fine to medium grained sand, trace of gravel.	M	St				FILL DIST PP=150kPa
								1		SM	SILTY SAND: fine to medium grained, dark grey, trace of organics.		MD				NATURAL
							5			SP	SAND: fine to medium grained, brown, trace of silt.		M/W				
										SC	CLAYEY SAND: fine to medium grained, pale brown, low plasticity fines, trace of gravel.						
							4	2		CH	SANDY CLAY: medium to high plasticity, orange/red and pale grey, fine to medium grained sand, trace of gravel.	M	St				DIST PP=140kPa DIST PP=150kPa DIST PP=220kPa
							3	3			...medium plasticity, colour changing to red and pale grey.		VSt				
							4	4									
							2				Borehole BH17 terminated at 4m						LIMIT OF INVESTIGATION
								5									
							1										
							6										
							0										
							-1	7									
								8									

method	support	notes, samples, tests	classification symbols and soil description based on unified classification system	consistency/density index
AS AD RR W CT HA DT B V T *bit shown by suffix e.g. ADT	M mud C casing penetration 1 2 3 4  no resistance ranging to refusal water  10/1/98 water level on date shown  water inflow  water outflow	U ₅₀ undisturbed sample 50mm diameter U ₆₃ undisturbed sample 63mm diameter D disturbed sample N standard penetration test (SPT) N* SPT - sample recovered Nc SPT with solid cone V vane shear (kPa) P pressuremeter Bs bulk sample E environmental sample R refusal		VS very soft S soft F firm St stiff VSt very stiff H hard Fb friable VL very loose L loose MD medium dense D dense VD very dense
			moisture D dry M moist W wet Wp plastic limit WL liquid limit	

Borehole No. **BH18**

Engineering Log - Borehole

Sheet 1 of 1
Project No: **GEOTKPAR01560AA**

Client: **BROWN CONSULTING (QLD) PTY LTD**

Date started: **18.4.2009**

Principal:

Date completed: **18.4.2009**

Project: **BELLVISTA 2**

Logged by: **DF**

Borehole Location: **REFER TO SITE PLAN**

Checked by:

drill model and mounting: EDSON CPI Easting: 509520.833 slope: -90° R.L. Surface: 6.418
hole diameter: 100 mm Northing 7035613.057 bearing: datum: GDA94

drilling information						material substance																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																		
method	penetration			support	water	notes samples, tests, etc	RL	depth metres	graphic log	classification symbol	material soil type: plasticity or particle characteristics, colour, secondary and minor components.	moisture condition	consistency/ density index	pocket penetro- meter kPa				structure and additional observations																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																						
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ADT		N	N	ASS		6		SM	SILTY SAND: fine to medium grained, dark brown, trace of organics.	M	MD	X	X	X	DIST PP=160kPa																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																									
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								CH	SANDY CLAY: medium to high plasticity, orange/red and pale grey, fine to medium grained sand.	M	St																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																													
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						4		CH	SANDY CLAY: high plasticity, pale grey, fine to medium grained sand. ...medium to high plasticity.	M	VSt																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																													
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Borehole No. **BH19**

Engineering Log - Borehole

Sheet 1 of 1
Project No: **GEOTKPAR01560AA**

Client: **BROWN CONSULTING (QLD) PTY LTD**

Date started: **1.5.2009**

Principal:

Date completed: **1.5.2009**

Project: **BELLVISTA 2**

Logged by: **DF**

Borehole Location: **REFER TO SITE PLAN**

Checked by:

drill model and mounting: EDSON CPI Easting: 509311.852 slope: -90° R.L. Surface: 3.410
hole diameter: 100 mm Northing 7035155.992 bearing: datum: GDA94

drilling information						material substance													
method	penetration			support	water	notes samples, tests, etc	RL	depth metres	graphic log	classification symbol	material soil type: plasticity or particle characteristics, colour, secondary and minor components.	moisture condition	consistency/ density index	pocket penetro- meter kPa				structure and additional observations	
	1	2	3											100	200	300	400		
ADT				N						SM	SILTY SAND: fine to medium grained, dark grey, trace of organics. SAND: fine to medium grained, grey. ...colour changing to pale grey. ...colour changing to dark grey. ...colour changing to dark brown.	M	L						
									SP	MD									
										D									
										VD									
										W		D							
					ASS														
										CH	SANDY CLAY: medium to high plasticity, pale grey, fine to medium grained sand.	M	St	X				PP=100kPa	
															X			PP=150kPa	
															X			PP=200kPa	
											Borehole BH19 terminated at 4m								LIMIT OF INVESTIGATION

method AS auger screwing* AD auger drilling* RR roller/tricone W washbore CT cable tool HA hand auger DT diatube B blank bit V V bit T TC bit *bit shown by suffix e.g. ADT	support M mud N nil C casing penetration 1 2 3 4  no resistance ranging to refusal water  10/1/98 water level on date shown  water inflow  water outflow	notes, samples, tests U ₅₀ undisturbed sample 50mm diameter U ₆₃ undisturbed sample 63mm diameter D disturbed sample N standard penetration test (SPT) N* SPT - sample recovered Nc SPT with solid cone V vane shear (kPa) P pressuremeter Bs bulk sample E environmental sample R refusal	classification symbols and soil description based on unified classification system moisture D dry M moist W wet Wp plastic limit WL liquid limit	consistency/density index VS very soft S soft F firm St stiff VSt very stiff H hard Fb friable VL very loose L loose MD medium dense D dense VD very dense
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Borehole No. **BH20**

Engineering Log - Borehole

Client: **BROWN CONSULTING (QLD) PTY LTD**

Principal:

Project: **BELLVISTA 2**

Borehole Location: **REFER TO SITE PLAN**

Sheet 1 of 1

Project No: **GEOTKPAR01560AA**Date started: **21.4.2009**Date completed: **21.4.2009**

Logged by: **DF**

Checked by:

[illegible]

Borehole No. **BH21**

Engineering Log - Borehole

Client: **BROWN CONSULTING (QLD) PTY LTD**

Principal:

Project: **BELLVISTA 2**

Borehole Location: **REFER TO SITE PLAN**

Sheet 1 of 1

Project No: **GEOTKPAR01560AA**Date started: **17.4.2009**Date completed: **17.4.2009**

Logged by: **DF**

Checked by:

[illegible]

Borehole No. **BH22**

Engineering Log - Borehole

Sheet 1 of 1
Project No: **GEOTKPAR01560AA**

Client: **BROWN CONSULTING (QLD) PTY LTD**

Date started: **1.5.2009**

Principal:

Date completed: **1.5.2009**

Project: **BELLVISTA 2**

Logged by: **DF**

Borehole Location: **REFER TO SITE PLAN**

Checked by:

drill model and mounting: EDSON CPI Easting: 509636.907 slope: -90° R.L. Surface: 5.440
hole diameter: 100 mm Northing 7035571.222 bearing: datum: GDA94

drilling information						material substance										
method	penetration			support	water	notes samples, tests, etc	RL	depth metres	graphic log	classification symbol	material soil type: plasticity or particle characteristics, colour, secondary and minor components.	moisture condition	consistency/ density index	pocket penetro- meter kPa	structure and additional observations	
	1	2	3													
ADT				N						SM	SILTY SAND: fine to medium grained, dark grey, trace of organics.	M	L			
							5			SP	SAND: fine to medium grained, dark grey, trace of silt.					
							1			SP	SAND: fine to medium grained, grey. ...colour changing to brown, with silt.	M/W				
											...colour changing to pale brown and grey, with silt and trace of clay.		MD			
					D		4						D			
						ASS				SC	CLAYEY SAND: fine to medium grained, pale grey, medium plasticity fines.	M	MD			
							2			CH	SANDY CLAY: high plasticity, pale grey and orange, fine to medium grained sand.		VSt	X	DIST PP=280kPa	
							3							X	DIST PP=350kPa	
							2			SC	CLAYEY SAND: fine to medium grained, pale grey, fine to coarse grained sand.	W	MD			
							4									
											Borehole BH22 terminated at 4m				LIMIT OF INVESTIGATION	
							1									
							5									
							0									
							6									
							-1									
							7									
							-2									
							8									

method AS auger screwing* AD auger drilling* RR roller/tricone W washbore CT cable tool HA hand auger DT diatube B blank bit V V bit T TC bit *bit shown by suffix e.g. ADT	support M mud N nil C casing penetration 1 2 3 4  no resistance ranging to refusal water  10/1/98 water level on date shown  water inflow  water outflow	notes, samples, tests U ₅₀ undisturbed sample 50mm diameter U ₆₃ undisturbed sample 63mm diameter D disturbed sample N standard penetration test (SPT) N* SPT - sample recovered Nc SPT with solid cone V vane shear (kPa) P pressuremeter Bs bulk sample E environmental sample R refusal	classification symbols and soil description based on unified classification system moisture D dry M moist W wet Wp plastic limit WL liquid limit	consistency/density index VS very soft S soft F firm St stiff VSt very stiff H hard Fb friable VL very loose L loose MD medium dense D dense VD very dense
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Borehole No. **BH23**

Engineering Log - Borehole

Sheet 1 of 1
Project No: **GEOTKPAR01560AA**

Client: **BROWN CONSULTING (QLD) PTY LTD**

Date started: **21.4.2009**

Principal:

Date completed: **21.4.2009**

Project: **BELLVISTA 2**

Logged by: **DF**

Borehole Location: **REFER TO SITE PLAN**

Checked by:

drill model and mounting: EDSON CPI Easting: 509330.049 slope: -90° R.L. Surface: 3.141
hole diameter: 100 mm Northing 7035075.585 bearing: datum: GDA94

drilling information							material substance										
method	penetration			support	water	notes samples, tests, etc	RL	depth metres	graphic log	classification symbol	material soil type: plasticity or particle characteristics, colour, secondary and minor components.	moisture condition	consistency/ density index	pocket penetro- meter kPa	structure and additional observations		
	1	2	3														
ADT				N			-3			SM	SILTY SAND: fine to medium grained, dark grey, trace of organics.	M	MD				
								1		SP	SAND: fine to medium grained, grey. ...fine to coarse grained, colour changing to dark brown and brown, trace of gravel. ...fine to medium grained, colour changing to dark brown.		D				
							-2			CH	SANDY CLAY: medium to high plasticity, pale grey and orange, fine to medium grained sand. ...colour changing to pale grey.	W					
								2				M	St	X		DIST PP=160kPa	
							-1								X		DIST PP=120kPa
							0						VSt		X		DIST PP=320kPa
								4						X			DIST PP=240kPa
							-1				Borehole BH23 terminated at 4m						LIMIT OF INVESTIGATION
								5									
							-2										
								6									
							-3										
								7									
							-4										
								8									

method	support	notes, samples, tests	classification symbols and soil description	consistency/density index
AS auger screwing* AD auger drilling* RR roller/tricone W washbore CT cable tool HA hand auger DT diatube B blank bit V V bit T TC bit *bit shown by suffix e.g. ADT	M mud C casing penetration 1 2 3 4  no resistance ranging to refusal water 10/1/98 water level on date shown water inflow water outflow	U ₅₀ undisturbed sample 50mm diameter U ₆₃ undisturbed sample 63mm diameter D disturbed sample N standard penetration test (SPT) N* SPT - sample recovered Nc SPT with solid cone V vane shear (kPa) P pressuremeter Bs bulk sample E environmental sample R refusal	based on unified classification system moisture D dry M moist W wet Wp plastic limit WL liquid limit	VS very soft S soft F firm St stiff VSt very stiff H hard Fb friable VL very loose L loose MD medium dense D dense VD very dense

Borehole No. **BH24**

Engineering Log - Borehole

Sheet 1 of 1
Project No: **GEOTKPAR01560AA**

Client: **BROWN CONSULTING (QLD) PTY LTD**

Date started: **21.4.2009**

Principal:

Date completed: **21.4.2009**

Project: **BELLVISTA 2**

Logged by: **DF**

Borehole Location: **REFER TO SITE PLAN**

Checked by:

drill model and mounting: EDSON CPI Easting: 509432.876 slope: -90° R.L. Surface: 3.970
hole diameter: 100 mm Northing 7035172.124 bearing: datum: GDA94

drilling information							material substance											
method	penetration			support	water	notes samples, tests, etc	RL	depth metres	graphic log	classification symbol	material soil type: plasticity or particle characteristics, colour, secondary and minor components.	moisture condition	consistency/ density index	pocket penetro- meter				structure and additional observations
	1	2	3											kPa	meter			
ADT				N				3	1		SILTY SAND: fine to medium grained, dark grey, trace of organics.	M	MD					DIST PP=160kPa DIST PP=200kPa
											SAND: fine to medium grained, pale grey. ...colour changing to dark grey. colour changing to brown, trace of silt and clay fines.	M/W	VD					
											SANDY CLAY: medium to high plasticity, pale brown/orange and pale grey, fine to medium grained sand. ...colour changing to pale grey, fine to coarse grained sand.	M	St		X			
											CLAYEY SAND: fine to coarse grained, pale grey, medium plasticity fines.		MD		X			
								0	4									LIMIT OF INVESTIGATION
								-1	5		Borehole BH24 terminated at 4m							
								-2	6									
								-3	7									
								-4	8									

method AS auger screwing* AD auger drilling* RR roller/tricone W washbore CT cable tool HA hand auger DT diatube B blank bit V V bit T TC bit *bit shown by suffix e.g. ADT	support M mud N nil C casing penetration 1 2 3 4  no resistance ranging to refusal water  10/1/98 water level on date shown  water inflow  water outflow	notes, samples, tests U ₅₀ undisturbed sample 50mm diameter U ₆₃ undisturbed sample 63mm diameter D disturbed sample N standard penetration test (SPT) N* SPT - sample recovered Nc SPT with solid cone V vane shear (kPa) P pressuremeter Bs bulk sample E environmental sample R refusal	classification symbols and soil description based on unified classification system moisture D dry M moist W wet Wp plastic limit WL liquid limit	consistency/density index VS very soft S soft F firm St stiff VSt very stiff H hard Fb friable VL very loose L loose MD medium dense D dense VD very dense
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Borehole No. **BH25**

Engineering Log - Borehole

Sheet 1 of 1
Project No: **GEOTKPAR01560AA**

Client: **BROWN CONSULTING (QLD) PTY LTD**

Date started: **17.4.2009**

Principal:

Date completed: **17.4.2009**

Project: **BELLVISTA 2**

Logged by: **DF**

Borehole Location: **REFER TO SITE PLAN**

Checked by:

drill model and mounting: EDSON CPI Easting: 509566.743 slope: -90° R.L. Surface: 4.351
hole diameter: 100 mm Northing 7035287.423 bearing: datum: GDA94

drilling information						material substance									
method	penetration			support	water	notes samples, tests, etc	RL	depth metres	graphic log	classification symbol	material soil type: plasticity or particle characteristics, colour, secondary and minor components.	moisture condition	consistency/ density index	pocket penetro- meter kPa	structure and additional observations
	1	2	3												
ADT				N			4			SM	SILTY SAND: fine to medium grained, dark grey/grey.	M	D		
							1			SP	SAND: fine to medium grained, grey. ...colour changing to dark brown, trace of silt.	W	MD		
							3			CH	SANDY CLAY: medium to high plasticity, pale brown/orange and pale grey, fine to medium grained sand.	M	St	X	DIST PP=100kPa
							2							X	DIST PP=120kPa
							2							X	DIST PP=130kPa
							3						VSt	X	DIST PP=240kPa
							3							X	DIST PP=280kPa
							1			SC	CLAYEY SAND: fine to coarse grained, pale grey, medium plasticity fines.	W	MD/D		
							4			SP	SAND: fine to medium grained, pale grey, trace of clay fines.		MD		
							0				Borehole BH25 terminated at 4m				LIMIT OF INVESTIGATION
							5								
							-1								
							6								
							-2								
							7								
							-3								
							8								

method AS auger screwing* AD auger drilling* RR roller/tricone W washbore CT cable tool HA hand auger DT diatube B blank bit V V bit T TC bit *bit shown by suffix e.g. ADT	support M mud N nil C casing penetration 1 2 3 4  no resistance ranging to refusal water  10/1/98 water level on date shown  water inflow  water outflow	notes, samples, tests U ₅₀ undisturbed sample 50mm diameter U ₆₃ undisturbed sample 63mm diameter D disturbed sample N standard penetration test (SPT) N* SPT - sample recovered Nc SPT with solid cone V vane shear (kPa) P pressuremeter Bs bulk sample E environmental sample R refusal	classification symbols and soil description based on unified classification system moisture D dry M moist W wet Wp plastic limit WL liquid limit	consistency/density index VS very soft S soft F firm St stiff VSt very stiff H hard Fb friable VL very loose L loose MD medium dense D dense VD very dense
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Borehole No. **BH26**

Sheet 1 of 1
Project No: **GEOTKPAR01560AA**

Engineering Log - Borehole

Client: **BROWN CONSULTING (QLD) PTY LTD**

Date started: **26.4.2009**

Principal:

Date completed: **26.4.2009**

Project: **BELLVISTA 2**

Logged by: **DF**

Borehole Location: **REFER TO SITE PLAN**

Checked by:

drill model and mounting: EDSON CPI Easting: 509688.974 slope: -90° R.L. Surface: 3.873
hole diameter: 100 mm Northing 7035386.053 bearing: datum: GDA94

drilling information						material substance									
method	penetration			support	water	notes samples, tests, etc	RL	depth metres	graphic log	classification symbol	material soil type: plasticity or particle characteristics, colour, secondary and minor components.	moisture condition	consistency/ density index	pocket penetro- meter kPa	structure and additional observations
	1	2	3												
ADT				N						SM	SILTY SAND: fine to medium grained, dark grey, with organics present.	M	L		
								1		SP	SAND: fine to medium grained, dark grey, trace of silt.	W			
								2		SP	SAND: fine to medium grained, grey/brown, trace of silt.	M	D/VD		
								3		SP	SAND: fine to medium grained, pale grey, trace of clay.	W	MD		
								4		SC	CLAYEY SAND: fine to medium grained, pale grey and pale brown/orange, medium plasticity fines.	M			
								5		CH	SANDY CLAY: medium to high plasticity, pale grey, fine to medium grained sand.		St		
								6		CH	SANDY CLAY: high plasticity, pale grey, fine to medium grained sand.		VSt		
								7			...medium to high plasticity.		St		
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Borehole No. **BH28**

Engineering Log - Borehole

Client: **BROWN CONSULTING (QLD) PTY LTD**

Principal:

Project: **BELLVISTA 2**

Borehole Location: **REFER TO SITE PLAN**

Sheet 1 of 1

Project No: **GEOTKPAR01560AA**Date started: **21.4.2009**Date completed: **21.4.2009**

Logged by: **DF**

Checked by:

drill model and mounting:						EDSON CPI		Easting: 509427.641		slope: -90°		R.L. Surface: 3.281				
hole diameter:						100 mm		Northing: 7035083.781		bearing:		datum: GDA94				
drilling information						material substance										
method	penetration			support	water	notes samples, tests, etc	RL	depth metres	graphic log	classification symbol	material soil type: plasticity or particle characteristics, colour, secondary and minor components.	moisture condition	consistency/ density index	pocket penetro- meter kPa	structure and additional observations	
	1	2	3													
ADT				N			-3			SM SP	SILTY SAND: fine to medium grained, dark grey, trace or organics. SAND: fine to medium grained, brown. ...colour changing to orange/brown, wirth silt and trace of gravel. ...colour changing to dark grey/brown, trace of silt.	M M/W M W	MD D			
							-1			SC	CLAYEY SAND: fine to coarse grained, pale grey, medium plasticity fines.		MD			
							-0			CL	SANDY CLAY: medium plasticity, pale grey, fine to coarse grained sand.	M	St	X		DIST PP=150kPa
							-4				Borehole BH28 terminated at 6m					LIMIT OF INVESTIGATION
							-1									
							-2									
							-3									
							-4									
							-5									
							-6									
							-7									
							-8									
method AS auger screwing* AD auger drilling* RR roller/tricone W washbore CT cable tool HA hand auger DT diatube B blank bit V V bit T TC bit *bit shown by suffix e.g. ADT						support M mud N nil C casing penetration 1 2 3 4  no resistance ranging to refusal water  10/1/98 water level on date shown  water inflow  water outflow		notes, samples, tests U ₅₀ undisturbed sample 50mm diameter U ₆₃ undisturbed sample 63mm diameter D disturbed sample N standard penetration test (SPT) N* SPT - sample recovered Nc SPT with solid cone V vane shear (kPa) P pressuremeter Bs bulk sample E environmental sample R refusal				classification symbols and soil description based on unified classification system moisture D dry M moist W wet Wp plastic limit W _L liquid limit		consistency/density index VS very soft S soft F firm St stiff VSt very stiff H hard Fb friable VL very loose L loose MD medium dense D dense VD very dense		

Engineering Log - Borehole

Borehole No. **BH29**

Sheet 1 of 1
Project No: **GEOTKPAR01560AA**

Client: **BROWN CONSULTING (QLD) PTY LTD**

Date started: **20.4.2009**

Principal:

Date completed: **20.4.2009**Project: **BELLVISTA 2**

Logged by: **DF**

Borehole Location: **REFER TO SITE PLAN**

Checked by:

drill model and mounting:						EDSON CPI		Easting: 509559.217		slope: -90°		R.L. Surface: 3.531			
hole diameter:						100 mm		Northing: 7035174.326		bearing:		datum: GDA94			
drilling information						material substance									
method	penetration			support	water	notes samples, tests, etc	RL	depth metres	graphic log	classification symbol	material soil type: plasticity or particle characteristics, colour, secondary and minor components.	moisture condition	consistency/ density index	pocket penetro- meter kPa 100 200 300 400	structure and additional observations
	1	2	3												
ADT				N		ASS	-3			SM	SILTY SAND: fine to medium grained, dark grey, trace of organics. SAND: fine to medium grained, grey/brown.	M	MD		
							-1			SP			M/W		
							-2							VD	
							-2			SP	SAND: fine to medium grained, pale brown and pale grey, with clay fines and trace of silt and gravel.	M	D		
							-2			SC	CLAYEY SAND: fine to medium grained, pale brown and grey, low plasticity fines.	W	MD		
							-1								
							-3								
							-0			CL	SANDY CLAY: medium plasticity, pale brown and pale grey, fine to coarse grained sand.	M	St	x	DIST PP=100kPa
							-4							x	DIST PP=140kPa
												Borehole BH29 terminated at 4m			
							-1								
							-5								
							-2								
							-6								
							-3								
							-7								
							-4								
							-8								
method AS auger screwing* AD auger drilling* RR roller/tricone W washbore CT cable tool HA hand auger DT diatube B blank bit V V bit T TC bit *bit shown by suffix e.g. ADT						support M mud N nil C casing penetration 1 2 3 4  no resistance ranging to refusal water  10/1/98 water level on date shown  water inflow  water outflow		notes, samples, tests U ₅₀ undisturbed sample 50mm diameter U ₆₃ undisturbed sample 63mm diameter D disturbed sample N standard penetration test (SPT) N* SPT - sample recovered Nc SPT with solid cone V vane shear (kPa) P pressuremeter Bs bulk sample E environmental sample R refusal				classification symbols and soil description based on unified classification system moisture D dry M moist W wet Wp plastic limit W _L liquid limit		consistency/density index VS very soft S soft F firm St stiff VSt very stiff H hard Fb friable VL very loose L loose MD medium dense D dense VD very dense	

Borehole No. **BH30**

Engineering Log - Borehole

Sheet 1 of 1
Project No: **GEOTKPAR01560AA**

Client: **BROWN CONSULTING (QLD) PTY LTD**

Date started: **26.4.2009**

Principal:

Date completed: **26.4.2009**

Project: **BELLVISTA 2**

Logged by: **DF**

Borehole Location: **REFER TO SITE PLAN**

Checked by:

drill model and mounting: EDSON CPI Easting: 509680.433 slope: -90° R.L. Surface: 3.168
hole diameter: 100 mm Northing 7035269.958 bearing: datum: GDA94

drilling information						material substance									
method	penetration			support	water	notes samples, tests, etc	RL	depth metres	graphic log	classification symbol	material soil type: plasticity or particle characteristics, colour, secondary and minor components.	moisture condition	consistency/ density index	pocket penetro- meter kPa	structure and additional observations
ADT	1	2	3	N			3			SM	SILTY SAND: fine to medium grained, dark grey, with organics present.	M	L	100	DIST PP=150kPa DIST PP=230kPa DIST PP=220kPa DIST PP=130kPa
										SP	SAND: fine to medium grained, grey, trace of silt.			200	
							1			SP	SAND: fine to medium grained, dark brown, trace of silt. ...colour changing to brown. ...colour changing to pale brown.	W	D/V/D	300	
					ASS		2			CH	SILTY CLAY: medium to high plasticity, pale brown/orange and pale grey, fine to medium grained sand. ...colour changing to pale grey.	M	St	400	
													VSt	X	
							1							X	
														X	
							3						St	X	
							0								
							4								
							-1				Borehole BH30 terminated at 4m				LIMIT OF INVESTIGATION
								5							
							-2								
								6							
							-3								
								7							
							-4								
								8							

method AS auger screwing* AD auger drilling* RR roller/tricone W washbore CT cable tool HA hand auger DT diatube B blank bit V V bit T TC bit *bit shown by suffix e.g. ADT	support M mud C casing penetration 1 2 3 4  no resistance ranging to refusal water 10/1/98 water level on date shown  water inflow  water outflow	notes, samples, tests U ₅₀ undisturbed sample 50mm diameter U ₆₃ undisturbed sample 63mm diameter D disturbed sample N standard penetration test (SPT) N* SPT - sample recovered Nc SPT with solid cone V vane shear (kPa) P pressuremeter Bs bulk sample E environmental sample R refusal	classification symbols and soil description based on unified classification system moisture D dry M moist W wet Wp plastic limit WL liquid limit	consistency/density index VS very soft S soft F firm St stiff VSt very stiff H hard Fb friable VL very loose L loose MD medium dense D dense VD very dense
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Borehole No. **BH31**

Engineering Log - Borehole

Sheet 1 of 1
Project No: **GEOTKPAR01560AA**

Client: **BROWN CONSULTING (QLD) PTY LTD**

Date started: **24.4.2009**

Principal:

Date completed: **24.4.2009**

Project: **BELLVISTA 2**

Logged by: **DF**

Borehole Location: **REFER TO SITE PLAN**

Checked by:

drill model and mounting: EDSON CPI Easting: 509404.583 slope: -90° R.L. Surface: 2.542
hole diameter: 100 mm Northing 7034963.245 bearing: datum: GDA94

drilling information						material substance									
method	penetration			support	water	notes samples, tests, etc	RL	depth metres	graphic log	classification symbol	material soil type: plasticity or particle characteristics, colour, secondary and minor components.	moisture condition	consistency/ density index	pocket penetro- meter kPa	structure and additional observations
	1	2	3												
ADT				N						SM	SILTY SAND: fine to medium grained, dark grey, trace of organics.	M	L		
							2			SP	SAND: fine to medium grained, grey.	M/W			
										SP	SAND: fine to medium grained, brown, trace of clay.	W	MD		
					D		1			CH	SANDY CLAY: medium to high plasticity, grey and brown, fine to medium grained sand.	M	VSt	x	DIST PP=200kPa
										CH	SANDY CLAY: high plasticity, pale grey and red, fine grained sand.			x	DIST PP=250kPa
					ASS		2				...fine to medium grained sand.			x	DIST PP=280kPa
							0								
							3							x	DIST PP=300kPa
							-1								
							4								
											Borehole BH31 terminated at 4m				LIMIT OF INVESTIGATION
							-2								
							5								
							-3								
							6								
							-4								
							7								
							-5								
							8								

method	support	notes, samples, tests	classification symbols and soil description based on unified classification system	consistency/density index
AS AD RR W CT HA DT B V T *bit shown by suffix e.g. ADT	M mud C casing penetration 1 2 3 4  no resistance ranging to refusal water  10/1/98 water level on date shown  water inflow  water outflow	U ₅₀ undisturbed sample 50mm diameter U ₆₃ undisturbed sample 63mm diameter D disturbed sample N standard penetration test (SPT) N* SPT - sample recovered Nc SPT with solid cone V vane shear (kPa) P pressuremeter Bs bulk sample E environmental sample R refusal		VS very soft S soft F firm St stiff VSt very stiff H hard Fb friable VL very loose L loose MD medium dense D dense VD very dense

Borehole No. **BH32**

Engineering Log - Borehole

Sheet 1 of 1
Project No: **GEOTKPAR01560AA**

Client: **BROWN CONSULTING (QLD) PTY LTD**

Date started: **24.4.2009**

Principal:

Date completed: **24.4.2009**

Project: **BELLVISTA 2**

Logged by: **DF**

Borehole Location: **REFER TO SITE PLAN**

Checked by:

drill model and mounting: EDSON CPI Easting: 509493.701 slope: -90° R.L. Surface: 2.600
hole diameter: 100 mm Northing 7035010.479 bearing: datum: GDA94

drilling information					material substance									
method	penetration	support	water	notes samples, tests, etc	RL	depth metres	graphic log	classification symbol	material soil type: plasticity or particle characteristics, colour, secondary and minor components.	moisture condition	consistency/ density index	pocket penetro- kPa	meter	structure and additional observations
ADT	1 2 3	N						SM	SILTY SAND: fine to medium grained, dark grey, trace of organics.	M	L			DIST PP=110kPa DIST PP=120kPa
					2	1		SP	SAND: fine to medium grained, grey, trace of silt. ...colour changing to dark brown.	W				
					1			SC	CLAYEY SAND: fine to medium grained, grey, low plasticity fines.		MD			
					1			SC	CLAYEY SAND: fine to medium grained, pale grey and pale brown/orange, medium plasticity fines.	M				
					2			CH	SANDY CLAY: medium to high plasticity, pale grey, fine to medium grained sand.		St	X		
					0			SC	CLAYEY SAND: fine to medium grained, pale grey, medium plasticity fines.	M/W	MD			
					3			CH	SANDY CLAY: medium to high plasticity, pale grey, fine to medium grained sand.	M	St	X		
					-1			SP	SAND: fine to medium grained, pale grey, with clay fines.	W	MD			
					4									
									Borehole BH32 terminated at 4m					LIMIT OF INVESTIGATION
					-2									
					5									
					-3									
					6									
					-4									
					7									
					-5									
					8									

method AS auger screwing* AD auger drilling* RR roller/tricone W washbore CT cable tool HA hand auger DT diatube B blank bit V V bit T TC bit *bit shown by suffix e.g. ADT	support M mud N nil C casing penetration 1 2 3 4  no resistance ranging to refusal water  10/1/98 water level on date shown  water inflow  water outflow	notes, samples, tests U ₅₀ undisturbed sample 50mm diameter U ₆₃ undisturbed sample 63mm diameter D disturbed sample N standard penetration test (SPT) N* SPT - sample recovered Nc SPT with solid cone V vane shear (kPa) P pressuremeter Bs bulk sample E environmental sample R refusal	classification symbols and soil description based on unified classification system moisture D dry M moist W wet Wp plastic limit WL liquid limit	consistency/density index VS very soft S soft F firm St stiff VSt very stiff H hard Fb friable VL very loose L loose MD medium dense D dense VD very dense
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Borehole No. **BH33**

Sheet 1 of 1
Project No: **GEOTKPAR01560AA**

Engineering Log - Borehole

Client: **BROWN CONSULTING (QLD) PTY LTD**

Date started: **24.4.2009**

Principal:

Date completed: **24.4.2009**

Project: **BELLVISTA 2**

Logged by: **DF**

Borehole Location: **REFER TO SITE PLAN**

Checked by:

drill model and mounting: EDSON CPI Easting: 509617.391 slope: -90° R.L. Surface: 2.728
hole diameter: 100 mm Northing 7035092.444 bearing: datum: GDA94

drilling information						material substance									
method	penetration			support	water	notes samples, tests, etc	RL	depth metres	graphic log	classification symbol	material soil type: plasticity or particle characteristics, colour, secondary and minor components.	moisture condition	consistency/ density index	pocket penetro- meter kPa	structure and additional observations
	1	2	3												
ADT				N								M	L		
										SM	SILTY SAND: fine to medium grained, dark grey, trace of organics.				
										SP	SAND: fine to medium grained, grey, trace of silt.	W			
													MD		
										CH	SANDY CLAY: medium to high plasticity, pale grey and orange, fine to medium grained sand.	M	St/VSt	X	DIST PP=200kPa
														X	DIST PP=220kPa
											...fine to coarse grained sand.				
										CL	SANDY CLAY: medium plasticity, pale grey, fine to medium grained sand, trace of fine to medium grained gravel.		VSt	X	DIST PP=260kPa
														X	DIST PP=300kPa
											Borehole BH33 terminated at 4m				LIMIT OF INVESTIGATION

Borehole No. **BH34**

Engineering Log - Borehole

Sheet 1 of 1
Project No: **GEOTKPAR01560AA**

Client: **BROWN CONSULTING (QLD) PTY LTD**

Date started: **24.4.2009**

Principal:

Date completed: **24.4.2009**

Project: **BELLVISTA 2**

Logged by: **DF**

Borehole Location: **REFER TO SITE PLAN**

Checked by:

drill model and mounting: EDSON CPI Easting: 509680.634 slope: -90° R.L. Surface: 2.649
hole diameter: 100 mm Northing 7035131.239 bearing: datum: GDA94

drilling information					material substance									
method	penetration	support	water	notes samples, tests, etc	RL	depth metres	graphic log	classification symbol	material	moisture condition	consistency/ density index	pocket penetro- meter kPa	structure and additional observations	
ADT	1 2 3	N						SM	SILTY SAND: fine to medium grained, dark grey, trace of organics.	M	L		DIST PP=150kPa DIST PP=220kPa	
						2		SP	SAND: fine to medium grained, grey. ...colour changing to grey/brown, trace of silt.		MD			
						1		SP	SAND: fine to medium grained, grey and brown, with silt and a trace of clay.	W				
						1		CH	SANDY CLAY: high plasticity, pale brown/orange and pale grey, fine to medium grained sand.	M	St	X		
						2		CH	SILTY CLAY: high plasticity, pale grey and orange, with fine grained sand.		VSt			
						3		SC	CLAYEY SAND: fine to medium grained, pale grey, low plasticity fines.	W	MD	X	LIMIT OF INVESTIGATION	
						4			Borehole BH34 terminated at 4m					
						5								
						6								
						7								
						8								

method AS auger screwing* AD auger drilling* RR roller/tricone W washbore CT cable tool HA hand auger DT diatube B blank bit V V bit T TC bit *bit shown by suffix e.g. ADT	support M mud N nil C casing penetration 1 2 3 4  no resistance ranging to refusal water  10/1/98 water level on date shown  water inflow  water outflow	notes, samples, tests U ₅₀ undisturbed sample 50mm diameter U ₆₃ undisturbed sample 63mm diameter D disturbed sample N standard penetration test (SPT) N* SPT - sample recovered Nc SPT with solid cone V vane shear (kPa) P pressuremeter Bs bulk sample E environmental sample R refusal	classification symbols and soil description based on unified classification system moisture D dry M moist W wet Wp plastic limit WL liquid limit	consistency/density index VS very soft S soft F firm St stiff VSt very stiff H hard Fb friable VL very loose L loose MD medium dense D dense VD very dense
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Borehole No. **BH35**

Engineering Log - Borehole

Sheet 1 of 1
Project No: **GEOTKPAR01560AA**

Client: **BROWN CONSULTING (QLD) PTY LTD**

Date started: **24.4.2009**

Principal:

Date completed: **24.4.2009**

Project: **BELLVISTA 2**

Logged by: **DF**

Borehole Location: **REFER TO SITE PLAN**

Checked by:

drill model and mounting: EDSON CPI Easting: 509769.144 slope: -90° R.L. Surface: 2.471
hole diameter: 100 mm Northing 7035180.815 bearing: datum: GDA94

drilling information						material substance									
method	penetration			support	water	notes samples, tests, etc	RL	depth metres	graphic log	classification symbol	material soil type: plasticity or particle characteristics, colour, secondary and minor components.	moisture condition	consistency/ density index	pocket penetro- meter kPa	structure and additional observations
	1	2	3												
ADT				N								M	L		
							-2			SM	SILTY SAND: fine to medium grained, dark grey, trace of organics.				
										SP	SAND: fine to medium grained, grey, trace of silt. ...fine to coarse grained.				
							1			SC	CLAYEY SAND: fine to coarse grained, grey and brown, low plasticity fines.	W	MD		
										CH	SANDY CLAY: medium to high plasticity, pale grey/brown, fine to medium grained sand. ...colour changing to pale grey.	M	VSt	X	DIST PP=250kPa
							-1							X	DIST PP=240kPa
							2							X	DIST PP=280kPa
							3							X	DIST PP=300kPa
							-1							X	
							4								
											Borehole BH35 terminated at 4m				LIMIT OF INVESTIGATION
							-2								
							5								
							-3								
							6								
							-4								
							7								
							-5								
							8								
method AS auger screwing* AD auger drilling* RR roller/tricone W washbore CT cable tool HA hand auger DT diatube B blank bit V V bit T TC bit *bit shown by suffix e.g. ADT						support M mud N nil C casing penetration 1 2 3 4  no resistance ranging to refusal water  10/1/98 water level on date shown  water inflow  water outflow		notes, samples, tests U ₅₀ undisturbed sample 50mm diameter U ₆₃ undisturbed sample 63mm diameter D disturbed sample N standard penetration test (SPT) N* SPT - sample recovered Nc SPT with solid cone V vane shear (kPa) P pressuremeter Bs bulk sample E environmental sample R refusal				classification symbols and soil description based on unified classification system moisture D dry M moist W wet Wp plastic limit WL liquid limit		consistency/density index VS very soft S soft F firm St stiff VSt very stiff H hard Fb friable VL very loose L loose MD medium dense D dense VD very dense	

Borehole No. **BH36**

Engineering Log - Borehole

Client: **BROWN CONSULTING (QLD) PTY LTD**

Principal:

Project: **BELLVISTA 2**

Borehole Location: **REFER TO SITE PLAN**

Sheet 1 of 1

Project No: **GEOTKPAR01560AA**Date started: **1.5.2009**Date completed: **1.5.2009**

Logged by: **DF**

Checked by:

drill model and mounting:						EDSON CPI		Easting: 509204.707		slope: -90°		R.L. Surface: 2.801				
hole diameter:						100 mm		Northing: 7035133.306		bearing:		datum: GDA94				
drilling information						material substance										
method	penetration			support water	notes samples, tests, etc	RL	depth metres	graphic log	classification symbol	material soil type: plasticity or particle characteristics, colour, secondary and minor components.	moisture condition	consistency/ density index	pocket penetro- meter kPa 100 200 300 400	structure and additional observations		
	1	2	3													
ADT				N						SILTY SAND: fine to medium grained, dark grey, trace of organics. SAND: fine to medium grained, grey.	M	L				
						-2			SP	SAND: fine to medium grained, brown, trace of silt.		L/MD				
							1		SP	SAND: fine to medium grained, brown, trace of silt.		D/VD				
									SC	CLAYEY SAND: fine to medium grained, pale grey and brown, low plasticity fines.	W	MD				
					D ASS	-1			CL	SANDY CLAY: medium plasticity, pale grey and red, fine to coarse grained sand.	M	VSt	X		(BORDERLINE CLAYEY SAND) DIST PP=240kPa	
							2		CH	SANDY CLAY: high plasticity, pale grey and red, fine to medium grained sand.			X		DIST PP=250kPa	
						0							X		DIST PP=380kPa	
						3				Borehole BH36 terminated at 3m						LIMIT OF INVESTIGATION
						-1										
						-2										
						-3										
						-4										
						-5										
method						support		M mud N nil		notes, samples, tests		classification symbols and soil description based on unified classification system		consistency/density index		
AS AD RR W CT HA DT B V T *bit shown by suffix e.g. ADT						auger screwing* auger drilling* roller/tricone washbore cable tool hand auger diatube blank bit V bit TC bit		penetration 1 2 3 4  no resistance ranging to refusal		U ₅₀ undisturbed sample 50mm diameter U ₆₃ undisturbed sample 63mm diameter D disturbed sample N standard penetration test (SPT) N* SPT - sample recovered Nc SPT with solid cone V vane shear (kPa) P pressuremeter Bs bulk sample E environmental sample R refusal		D dry M moist W wet Wp plastic limit W _L liquid limit		VS very soft S soft F firm St stiff VSt very stiff H hard Fb friable VL very loose L loose MD medium dense D dense VD very dense		
						water  10/1/98 water level on date shown  water inflow  water outflow										

Borehole No. **BH37**

Engineering Log - Borehole

Sheet 1 of 1
Project No: **GEOTKPAR01560AA**

Client: **BROWN CONSULTING (QLD) PTY LTD**

Date started: **1.5.2009**

Principal:

Date completed: **1.5.2009**

Project: **BELLVISTA 2**

Logged by: **DF**

Borehole Location: **REFER TO SITE PLAN**

Checked by:

drill model and mounting: EDSON CPI Easting: 509273.373 slope: -90° R.L. Surface: 4.154
hole diameter: 100 mm Northing 7035220.329 bearing: datum: GDA94

drilling information				material substance									
method	penetration	support	water	notes samples, tests, etc	RL	depth metres	graphic log	classification symbol	material soil type: plasticity or particle characteristics, colour, secondary and minor components.	moisture condition	consistency/ density index	pocket penetro- meter kPa	structure and additional observations
ADT	1 2 3	N			4			SM	SILTY SAND: fine to medium grained, dark grey, trace of organics.	M	L		
						1		SP	SAND: fine to medium grained, grey, trace of silt.		L/MD		
						3			...colour changing to dark grey.		VD		INDURATED SAND
						2		SP	SAND: fine to medium grained, dark brown, with silt.	M/W	MD		
						2		SP	SAND: fine to medium grained, pale grey and grey.	W			
						3			...colour changing to dark brown.				
					1				Borehole BH37 terminated at 3m				LIMIT OF INVESTIGATION
					4								
					0								
					5								
					-1								
					6								
					-2								
					7								
					-3								
					8								

method AS auger screwing* AD auger drilling* RR roller/tricone W washbore CT cable tool HA hand auger DT diatube B blank bit V V bit T TC bit *bit shown by suffix e.g. ADT	support M mud N nil C casing penetration 1 2 3 4  no resistance ranging to refusal water  10/1/98 water level on date shown  water inflow  water outflow	notes, samples, tests U ₅₀ undisturbed sample 50mm diameter U ₆₃ undisturbed sample 63mm diameter D disturbed sample N standard penetration test (SPT) N* SPT - sample recovered Nc SPT with solid cone V vane shear (kPa) P pressuremeter Bs bulk sample E environmental sample R refusal	classification symbols and soil description based on unified classification system moisture D dry M moist W wet Wp plastic limit WL liquid limit	consistency/density index VS very soft S soft F firm St stiff VSt very stiff H hard Fb friable VL very loose L loose MD medium dense D dense VD very dense
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Borehole No. **BH38**

Engineering Log - Borehole

Client: **BROWN CONSULTING (QLD) PTY LTD**

Principal:

Project: **BELLVISTA 2**

Borehole Location: **REFER TO SITE PLAN**

Sheet 1 of 1

Project No: **GEOTKPAR01560AA**Date started: **20.4.2009**Date completed: **20.4.2009**

Logged by: **DF**

Checked by:

drill model and mounting:				EDSON CPI		Easting: 509348.703		slope: -90°		R.L. Surface: 4.929							
hole diameter:				100 mm		Northing: 7035309.243		bearing:		datum: GDA94							
drilling information						material substance											
method	penetration			support	water	notes samples, tests, etc	RL	depth metres	graphic log	classification symbol	material	moisture condition	consistency/ density index	pocket penetro- meter kPa	structure and additional observations		
ADT	1	2	3	N						SM	SILTY SAND: fine to medium grained, grey, trace of organics. SAND: fine to medium grained, pale brown. ...colour changing to brown. ...colour changing to dark brown.	M	MD		CEMENTED		
									SP			D/M	D				
						ASS	-4	1		CH		SANDY CLAY: medium to high plasticity, pale brown/orange, fine to medium grained sand, trace of gravel. ...colour changing to orange.	M/W	St		x	DIST PP=90kPa
							-3	2				...colour changing to orange and pale grey. ...colour changing to orange/red and pale grey, fine to coarse grained sand.				x	DIST PP=100kPa
														x	DIST PP=150kPa		
							-2	3						x	DIST PP=160kPa		
											Borehole BH38 terminated at 3m				LIMIT OF INVESTIGATION		
							-1	4									
							0	5									
							-1	6									
							-2	7									
							-3	8									
method AS auger screwing* AD auger drilling* RR roller/tricone W washbore CT cable tool HA hand auger DT diatube B blank bit V V bit T TC bit *bit shown by suffix e.g. ADT						support M mud N nil C casing penetration 1 2 3 4  no resistance ranging to refusal water  10/1/98 water level on date shown  water inflow  water outflow			notes, samples, tests U ₅₀ undisturbed sample 50mm diameter U ₆₃ undisturbed sample 63mm diameter D disturbed sample N standard penetration test (SPT) N* SPT - sample recovered Nc SPT with solid cone V vane shear (kPa) P pressuremeter Bs bulk sample E environmental sample R refusal			classification symbols and soil description based on unified classification system moisture D dry M moist W wet Wp plastic limit W _L liquid limit			consistency/density index VS very soft S soft F firm St stiff VSt very stiff H hard Fb friable VL very loose L loose MD medium dense D dense VD very dense		

Borehole No. **BH39**

Engineering Log - Borehole

Sheet 1 of 1
Project No: **GEOTKPAR01560AA**

Client: **BROWN CONSULTING (QLD) PTY LTD**

Date started: **17.4.2009**

Principal:

Date completed: **17.4.2009**

Project: **BELLVISTA 2**

Logged by: **DF**

Borehole Location: **REFER TO SITE PLAN**

Checked by:

drill model and mounting: EDSON CPI Easting: 509443.453 slope: -90° R.L. Surface: 5.250
hole diameter: 100 mm Northing 7035404.116 bearing: datum: GDA94

drilling information						material substance										
method	penetration			support	water	notes samples, tests, etc	RL	depth metres	graphic log	classification symbol	material soil type: plasticity or particle characteristics, colour, secondary and minor components.	moisture condition	consistency/ density index	pocket penetro- meter kPa	structure and additional observations	
	1	2	3													
ADT				N				5		SC	SILTY CLAYEY SAND: fine to medium grained, dark grey/brown, low plasticity fines, trace of gravel.	M	VD		DIST PP=120kPa	
								1		SC	CLAYEY SAND: fine to medium grained, dark grey, medium plasticity fines.		MD			
								4		CL	SANDY CLAY: medium plasticity, dark grey, fine to medium grained sand. ...colour changing to pale brown/orange and grey.		St	x		
				▶		ASS		2		SP	SAND: fine to medium grained, pale grey, with clay fines. ...trace of clay fines.	W	MD		DIST PP=180kPa	
								3		SC	CLAYEY SAND: fine to medium grained, pale grey, medium plasticity fines.		St			
								3		CL	SANDY CLAY: medium plasticity, pale grey, fine to coarse grained sand.	M	VSt	x		
								2			Borehole BH39 terminated at 3m				LIMIT OF INVESTIGATION	
								4								
								1								
								5								
								0								
								6								
								-1								
								7								
								-2								
								8								
method AS auger screwing* AD auger drilling* RR roller/tricone W washbore CT cable tool HA hand auger DT diatube B blank bit V V bit T TC bit *bit shown by suffix e.g. ADT						support M mud N nil C casing penetration 1 2 3 4 no resistance ranging to refusal water 10/1/98 water level on date shown water inflow water outflow			notes, samples, tests U ₅₀ undisturbed sample 50mm diameter U ₆₃ undisturbed sample 63mm diameter D disturbed sample N standard penetration test (SPT) N* SPT - sample recovered Nc SPT with solid cone V vane shear (kPa) P pressuremeter Bs bulk sample E environmental sample R refusal				classification symbols and soil description based on unified classification system moisture D dry M moist W wet Wp plastic limit W _L liquid limit		consistency/density index VS very soft S soft F firm St stiff VSt very stiff H hard Fb friable VL very loose L loose MD medium dense D dense VD very dense	

Borehole No. **BH40**

Engineering Log - Borehole

Sheet 1 of 1
Project No: **GEOTKPAR01560AA**

Client: **BROWN CONSULTING (QLD) PTY LTD**

Date started: **21.4.2009**

Principal:

Date completed: **21.4.2009**

Project: **BELLVISTA 2**

Logged by: **DF**

Borehole Location: **REFER TO SITE PLAN**

Checked by:

drill model and mounting: EDSON CPI Easting: 509487.436 slope: -90° R.L. Surface: 5.401
hole diameter: 100 mm Northing 7035480.836 bearing: datum: GDA94

drilling information					material substance									
method	penetration	support	water	notes samples, tests, etc	RL	depth metres	graphic log	classification symbol	material soil type: plasticity or particle characteristics, colour, secondary and minor components.	moisture condition	consistency/ density index	pocket penetro- meter kPa	structure and additional observations	
ADT	1 2 3	N						SM	SILTY SAND: fine to medium grained, dark grey, trace of organics.	M	MD		DIST PP=150kPa DIST PP=310kPa DIST PP=250kPa LIMIT OF INVESTIGATION	
					5			SP	SAND: fine to medium grained, grey. ...colour changing to pale grey. ...colour changing to dark brown.	W				
					4			SC	CLAYEY SAND: fine to medium grained, grey, low plasticity fines.		D			
					2			CL	SANDY CLAY: medium plasticity, pale grey, fine to coarse grained sand.	M	St	X		
					3			CH	SANDY CLAY: medium to high plasticity, pale grey/orange, fine to medium grained sand.		VSt	X		
					3				Borehole BH40 terminated at 3m			X		
					2									
					4									
					1									
					5									
					0									
					6									
					-1									
					7									
					-2									
					8									

method AS auger screwing* AD auger drilling* RR roller/tricone W washbore CT cable tool HA hand auger DT diatube B blank bit V V bit T TC bit *bit shown by suffix e.g. ADT	support M mud C casing penetration 1 2 3 4  no resistance ranging to refusal water  10/1/98 water level on date shown  water inflow  water outflow	notes, samples, tests U ₅₀ undisturbed sample 50mm diameter U ₆₃ undisturbed sample 63mm diameter D disturbed sample N standard penetration test (SPT) N* SPT - sample recovered Nc SPT with solid cone V vane shear (kPa) P pressuremeter Bs bulk sample E environmental sample R refusal	classification symbols and soil description based on unified classification system moisture D dry M moist W wet Wp plastic limit WL liquid limit	consistency/density index VS very soft S soft F firm St stiff VSt very stiff H hard Fb friable VL very loose L loose MD medium dense D dense VD very dense
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Borehole No. **BH41**

Engineering Log - Borehole

Client: **BROWN CONSULTING (QLD) PTY LTD**

Principal:

Project: **BELLVISTA 2**

Borehole Location: **REFER TO SITE PLAN**

Sheet 1 of 1

Project No: **GEOTKPAR01560AA**Date started: **18.4.2009**Date completed: **18.7.2009**

Logged by: **DF**

Checked by:

[illegible]

Borehole No. **BH42**

Engineering Log - Borehole

Sheet 1 of 1
Project No: **GEOTKPAR01560AA**

Client: **BROWN CONSULTING (QLD) PTY LTD**

Date started: **18.4.2009**

Principal:

Date completed: **18.4.2009**

Project: **BELLVISTA 2**

Logged by: **DF**

Borehole Location: **REFER TO SITE PLAN**

Checked by:

drill model and mounting: EDSON CPI Easting: 509618.281 slope: -90° R.L. Surface: 6.407
hole diameter: 100 mm Northing 7035632.379 bearing: datum: GDA94

drilling information						material substance									
method	penetration			support	water	notes samples, tests, etc	RL	depth metres	graphic log	classification symbol	material soil type: plasticity or particle characteristics, colour, secondary and minor components.	moisture condition	consistency/ density index	pocket penetro- meter kPa	structure and additional observations
ADT	1	2	3	N						CL	GRAVELLY SANDY CLAY: low plasticity, pale brown and grey, fine to coarse sand and gravel. SILTY SAND: fine to medium grained, dark grey, trace of clay fines.	M	St	100 200 300 400	FILL
							6		SM			D	NATURAL		
					▲			1		SP	SAND: fine to medium grained, dark brown/brown, trace of silt and clay fines. ...colour changing to pale brown.	M/W	MD		
						ASS	5			CH	SANDY CLAY: medium to high plasticity, pale brown/orange and pale grey, fine to medium grained sand.	M	St	X	DIST PP=130kPa
								2		SC	CLAYEY SAND: fine to medium grained, pale brown/orange and pale grey, low plasticity fines.	W	MD		
							4								
								3		CH	SANDY CLAY: medium to high plasticity, pale grey and orange, fine to medium grained sand.	M	St	X	DIST PP=150kPa
											Borehole BH42 terminated at 3m				LIMIT OF INVESTIGATION
							3								
							4								
							2								
							5								
							1								
							6								
							0								
							7								
							-1								
							8								

method AS auger screwing* AD auger drilling* RR roller/tricone W washbore CT cable tool HA hand auger DT diatube B blank bit V V bit T TC bit *bit shown by suffix e.g. ADT	support M mud N nil C casing penetration 1 2 3 4  no resistance ranging to refusal water  10/1/98 water level on date shown  water inflow  water outflow	notes, samples, tests U ₅₀ undisturbed sample 50mm diameter U ₆₃ undisturbed sample 63mm diameter D disturbed sample N standard penetration test (SPT) N* SPT - sample recovered Nc SPT with solid cone V vane shear (kPa) P pressuremeter Bs bulk sample E environmental sample R refusal	classification symbols and soil description based on unified classification system moisture D dry M moist W wet Wp plastic limit WL liquid limit	consistency/density index VS very soft S soft F firm St stiff VSt very stiff H hard Fb friable VL very loose L loose MD medium dense D dense VD very dense
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Borehole No. **BH44**

Engineering Log - Borehole

Sheet 1 of 1
Project No: **GEOTKPAR01560AA**

Client: **BROWN CONSULTING (QLD) PTY LTD**

Date started: **21.4.2009**

Principal:

Date completed: **21.4.2009**

Project: **BELLVISTA 2**

Logged by: **DF**

Borehole Location: **REFER TO SITE PLAN**

Checked by:

drill model and mounting: EDSON CPI Easting: 509372.387 slope: -90° R.L. Surface: 3.591
hole diameter: 100 mm Northing 7035128.667 bearing: datum: GDA94

drilling information					material substance									
method	penetration	support	water	notes samples, tests, etc	RL	depth metres	graphic log	classification symbol	material	moisture condition	consistency/ density index	pocket penetro- meter	structure and additional observations	
ADT	1 2 3	N						SM	SILTY SAND: fine to medium grained, dark grey, trace of organics.	M	MD			
						3		SP	SAND: fine to medium grained, pale grey/brown, trace of silt.	M/W				
						1		SC	CLAYEY SAND: fine to medium grained, dark brown, low plasticity fines.	M				
						2		SP	SAND: fine to medium grained, grey/brown. ...colour changing to grey.					
						2		SP	SAND: fine to coarse grained, pale grey, trace of clay fines.	W				
						1								
						3								
						0			Borehole BH44 terminated at 3m					
						4								
						-1								
						5								
						-2								
						6								
						-3								
						7								
						-4								
						8								

method	support	notes, samples, tests	classification symbols and soil description	consistency/density index
AS AD RR W CT HA DT B V T *bit shown by suffix e.g. ADT	M mud C casing penetration 1 2 3 4 water 10/1/98 water level on date shown water inflow water outflow	U ₅₀ undisturbed sample 50mm diameter U ₆₃ undisturbed sample 63mm diameter D disturbed sample N standard penetration test (SPT) N* SPT - sample recovered Nc SPT with solid cone V vane shear (kPa) P pressuremeter Bs bulk sample E environmental sample R refusal	based on unified classification system moisture D dry M moist W wet Wp plastic limit WL liquid limit	VS very soft S soft F firm St stiff VSt very stiff H hard Fb friable VL very loose L loose MD medium dense D dense VD very dense

Borehole No. **BH45**

Sheet 1 of 1
Project No: **GEOTKPAR01560AA**

Engineering Log - Borehole

Client: **BROWN CONSULTING (QLD) PTY LTD**

Date started: **21.4.2009**

Principal:

Date completed: **21.4.2009**

Project: **BELLVISTA 2**

Logged by: **DF**

Borehole Location: **REFER TO SITE PLAN**

Checked by:

drill model and mounting: EDSON CPI Easting: 509494.887 slope: -90° R.L. Surface: 4.214
hole diameter: 100 mm Northing 7035236.499 bearing: datum: GDA94

drilling information						material substance									
method	penetration			support	water	notes samples, tests, etc	RL	depth metres	graphic log	classification symbol	material soil type: plasticity or particle characteristics, colour, secondary and minor components.	moisture condition	consistency/ density index	pocket penetro- meter kPa	structure and additional observations
ADT	1	2	3	N			4			SM	SILTY SAND: fine to medium grained, grey, trace of organics. SAND: fine to medium grained, grey/brown. ...colour changing to pale brown/orange. ...colour changing to brown.	M	MD	100	
							1		SP	D		VD	200		
							3			W			300		
							2			MD			400		
							2			SC	CLAYEY SAND: fine to medium grained, pale grey and brown, low plasticity fines, trace of gravel.				
							3			CH	SANDY CLAY: medium to high plasticity, pale grey and orange, fine to medium grained sand.	M	St	x	DIST PP=180kPa
							1				Borehole BH45 terminated at 3m				LIMIT OF INVESTIGATION
							4								
							0								
							5								
							-1								
							6								
							-2								
							7								
							-3								
							8								

method AS auger screwing* AD auger drilling* RR roller/tricone W washbore CT cable tool HA hand auger DT diatube B blank bit V V bit T TC bit *bit shown by suffix e.g. ADT	support M mud N nil C casing penetration 1 2 3 4  no resistance ranging to refusal water  10/1/98 water level on date shown  water inflow  water outflow	notes, samples, tests U ₅₀ undisturbed sample 50mm diameter U ₆₃ undisturbed sample 63mm diameter D disturbed sample N standard penetration test (SPT) N* SPT - sample recovered Nc SPT with solid cone V vane shear (kPa) P pressuremeter Bs bulk sample E environmental sample R refusal	classification symbols and soil description based on unified classification system moisture D dry M moist W wet Wp plastic limit WL liquid limit	consistency/density index VS very soft S soft F firm St stiff VSt very stiff H hard Fb friable VL very loose L loose MD medium dense D dense VD very dense
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Borehole No. **BH46**

Engineering Log - Borehole

Sheet 1 of 1
Project No: **GEOTKPAR01560AA**

Client: **BROWN CONSULTING (QLD) PTY LTD**

Date started: **20.4.2009**

Principal:

Date completed: **20.4.2009**

Project: **BELLVISTA 2**

Logged by: **DF**

Borehole Location: **REFER TO SITE PLAN**

Checked by:

drill model and mounting: EDSON CPI Easting: 509595.979 slope: -90° R.L. Surface: 4.045
hole diameter: 100 mm Northing 7035365.144 bearing: datum: GDA94

drilling information						material substance										
method	penetration			support	water	notes samples, tests, etc		depth metres	RL	graphic log	classification symbol	material soil type: plasticity or particle characteristics, colour, secondary and minor components.	moisture condition	consistency/ density index	pocket penetro- meter kPa	structure and additional observations
ADT	1	2	3	N												
											SM	SILTY SAND: fine to medium grained, grey, trace of organics.	M	MD		
											SP	SAND: fine to medium grained, grey/brown, trace of silt.	W			
								1			CL	SANDY CLAY: medium plasticity, pale grey/orange and red, fine to medium grained sand.	M	St	X	DIST PP=100kPa
								2			CH	SANDY CLAY: medium to high plasticity, pale grey and red, fine to medium grained sand. ...colour changing to pale grey.			X	DIST PP=100kPa
								3							X	DIST PP=140kPa
								4				Borehole BH46 terminated at 3m				LIMIT OF INVESTIGATION
								5								
								6								
								7								
								8								

Borehole No. **BH47**

Engineering Log - Borehole

Sheet 1 of 1
Project No: **GEOTKPAR01560AA**

Client: **BROWN CONSULTING (QLD) PTY LTD**

Date started: **26.4.2009**

Principal:

Date completed: **26.4.2009**

Project: **BELLVISTA 2**

Logged by: **DF**

Borehole Location: **REFER TO SITE PLAN**

Checked by:

drill model and mounting: EDSON CPI Easting: 509628.376 slope: -90° R.L. Surface: 4.395
hole diameter: 100 mm Northing 7035457.209 bearing: datum: GDA94

drilling information						material substance																							
method	penetration			support	water	notes samples, tests, etc	RL	depth metres	graphic log	classification symbol	material soil type: plasticity or particle characteristics, colour, secondary and minor components.	moisture condition	consistency/ density index	pocket penetro- meter kPa	structure and additional observations														
	1	2	3																										
ADT				N						SM	SILTY SAND: fine to medium grained, dark grey, trace of organics.	M	L																
							4			SP	SAND: fine to medium grained, grey, trace of silt.																		
							1			SP	SAND: fine to medium grained, brown, trace of silt.	M/W	MD/D																
							3			SP	SAND: fine to medium grained, dark brown, trace of silt.	D/M	VD																
							2			SC	CLAYEY SAND: fine to coarse grained, grey, medium plasticity fines.	W	MD																
							2			CH	SANDY CLAY: medium to high plasticity, pale grey, fine to medium grained sand.	M	VSt	x		DIST PP=300kPa													
							3						St	x		DIST PP=150kPa													
											Borehole BH47 terminated at 3m					LIMIT OF INVESTIGATION													
							1																						
							4																						
							0																						
							5																						
							-1																						
							6																						
							-2																						
							7																						
							-3																						
							8																						
method AS auger screwing* AD auger drilling* RR roller/tricone W washbore CT cable tool HA hand auger DT diatube B blank bit V V bit T TC bit *bit shown by suffix e.g. ADT						support M mud N nil C casing penetration 1 2 3 4  no resistance ranging to refusal water  10/1/98 water level on date shown  water inflow  water outflow						notes, samples, tests U ₅₀ undisturbed sample 50mm diameter U ₆₃ undisturbed sample 63mm diameter D disturbed sample N standard penetration test (SPT) N* SPT - sample recovered Nc SPT with solid cone V vane shear (kPa) P pressuremeter Bs bulk sample E environmental sample R refusal						classification symbols and soil description based on unified classification system moisture D dry M moist W wet Wp plastic limit W _L liquid limit						consistency/density index VS very soft S soft F firm St stiff VSt very stiff H hard Fb friable VL very loose L loose MD medium dense D dense VD very dense					

Borehole No. **BH49**

Engineering Log - Borehole

Sheet 1 of 1
Project No: **GEOTKPAR01560AA**

Client: **BROWN CONSULTING (QLD) PTY LTD**

Date started: **26.4.2009**

Principal:

Date completed: **26.4.2009**

Project: **BELLVISTA 2**

Logged by: **DF**

Borehole Location: **REFER TO SITE PLAN**

Checked by:

drill model and mounting: EDSON CPI Easting: 509700.242 slope: -90° R.L. Surface: 4.094
hole diameter: 100 mm Northing 7035440.237 bearing: datum: GDA94

drilling information					material substance									
method	penetration	support	water	notes samples, tests, etc	RL	depth metres	graphic log	classification symbol	material soil type: plasticity or particle characteristics, colour, secondary and minor components.	moisture condition	consistency/ density index	pocket penetro- meter kPa	structure and additional observations	
ADT	1 2 3	N			4			SM	SILTY SAND: fine to medium grained, dark brown, trace of organics.	M	L			
						1		SP	SAND: fine to medium grained, grey, trace of silt.	M/W				
								SP	SAND: fine to medium grained, pale grey.	W	MD			
					3			CL	SANDY CLAY: medium plasticity, pale brown/orange and pale grey, fine to medium grained sand.	M	St	x	DIST PP=140kPa	
						2		CH	SANDY CLAY: medium to high plasticity, pale grey, fine to coarse grained sand.		St/VSt	x	DIST PP=200kPa	
												x	DIST PP=240kPa	
					1				Borehole BH49 terminated at 3m				LIMIT OF INVESTIGATION	
						4								
						5								
						6								
						7								
						8								

method AS auger screwing* AD auger drilling* RR roller/tricone W washbore CT cable tool HA hand auger DT diatube B blank bit V V bit T TC bit *bit shown by suffix e.g. ADT	support M mud C casing penetration 1 2 3 4  no resistance ranging to refusal water  10/1/98 water level on date shown  water inflow  water outflow	notes, samples, tests U ₅₀ undisturbed sample 50mm diameter U ₆₃ undisturbed sample 63mm diameter D disturbed sample N standard penetration test (SPT) N* SPT - sample recovered Nc SPT with solid cone V vane shear (kPa) P pressuremeter Bs bulk sample E environmental sample R refusal	classification symbols and soil description based on unified classification system moisture D dry M moist W wet Wp plastic limit WL liquid limit	consistency/density index VS very soft S soft F firm St stiff VSt very stiff H hard Fb friable VL very loose L loose MD medium dense D dense VD very dense
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