

Borehole No. **HA32**

Engineering Log - Borehole

Sheet 1 of 1
Project No: **GEOTKARI02021AA**

Client: **WYONG SHIRE COUNCIL**

Date started: **4.10.2007**

Principal:

Date completed: **4.10.2007**

Project: **WARNERVALE TOWN CENTRE**


Logged by: **DH**

Borehole Location: **See Figure -**

Checked by: **SD**

drill model and mounting: HAND AUGER		Easting: 357075	slope: -90°	R.L. Surface: 44
hole diameter: 50 mm		Northing 6321122	bearing:	datum: AHD

drilling information					material substance									
method	penetration 1 2 3	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			
HA		NIL	E			SM	TOPSOIL; Silty SAND, fine to medium grained sand, brown.	D			TOPSOIL			
		None Observed												
			E	43.0 0.5			SANDSTONE; Orange/brown	D			HIGHLY WEATHERED BEDROCK			
							Borehole HA32 terminated at 0.5m							
				43.0 1.0										

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. **HA33**

Engineering Log - Borehole

Sheet 1 of 1
Project No: **GEOTKARI02021AA**

Client: **WYONG SHIRE COUNCIL**

Date started: **4.10.2007**

Principal:

Date completed: **4.10.2007**

Project: **WARNERVALE TOWN CENTRE**

Logged by: **DH**

Borehole Location: **See Figure -**

Checked by: **SD**

drill model and mounting: HAND AUGER		Easting: 357012	slope: -90°	R.L. Surface: 49
hole diameter: 50 mm		Northing 6321095	bearing:	datum: AHD

drilling information					material substance									
method	penetration 1 2 3	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		
HA		NIL	E				SM	TOPSOIL; Silty SAND, fine to medium grained sand, brown, some fine to medium grained gravel.	D			TOPSOIL		
		None Observed												
			E	48.0	0.5			SANDSTONE; Orange/brown.	D			HIGHLY WEATHERED BEDROCK		
								Borehole HA33 terminated at 0.5m						
				48.0	1.0									

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. **HA34**

Engineering Log - Borehole

Sheet 1 of 1
Project No: **GEOTKARI02021AA**

Client: **WYONG SHIRE COUNCIL**

Date started: **4.10.2007**

Principal:

Date completed: **4.10.2007**

Project: **WARNERVALE TOWN CENTRE**





Logged by: **DH**

Borehole Location: **See Figure -**

Checked by: **SD**

drill model and mounting: HAND AUGER		Easting: 357047	slope: -90°	R.L. Surface: 45
hole diameter: 50 mm		Northing 6321092	bearing:	datum: AHD

drilling information					material substance									
method	penetration 1 2 3	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			
HA		NIL	E			SM	TOPSOIL; Silty SAND, fine to medium grained sand, brown, some fine to medium grained gravel.	D			TOPSOIL			
		None Observed												
			E	44.5 0.5			SANDSTONE; Orange/brown.	D			HIGHLY WEATHERED BEDROCK			
							Borehole HA34 terminated at 0.5m							
				44.0 1.0										

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. **HA35**

Engineering Log - Borehole

Sheet 1 of 1
Project No: **GEOTKARI02021AA**

Client: **WYONG SHIRE COUNCIL**

Date started: **4.10.2007**

Principal:

Date completed: **4.10.2007**

Project: **WARNERVALE TOWN CENTRE**


Logged by: **DH**

Borehole Location: **See Figure -**

Checked by: **SD**

drill model and mounting: HAND AUGER		Easting: 356936	slope: -90°	R.L. Surface: 52
hole diameter: 50 mm		Northing 6321093	bearing:	datum: AHD

drilling information					material substance									
method	penetration 1 2 3	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		
HA		NIL	E				SM	TOPSOIL; Silty SAND, fine to medium grained sand, brown.	D			TOPSOIL		
		None Observed										DUP 64		
			E	51.0	0.5			SANDSTONE; Orange/brown.	D			HIGHLY WEATHERED BEDROCK		
				51.0	1.0			Borehole HA35 terminated at 0.5m						

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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Appendix D

Test Pit Logs

Excavation No. **ETP001**

Engineering Log - Excavation

Sheet 1 of 1
Project No: **GEOTKARI02021AA**

Client: **WYONG SHIRE COUNCIL**

Date started: **18.9.2007**

Principal:

Date completed: **18.9.2007**




Project: **WARNERVALE TOWN CENTRE**

Logged by: **DH**





Test pit location: **See Figure -**

Checked by: **SD**

equipment type and model: 8t Kubota Pit Orientation: Easting: 356723 m R.L. Surface: 43
excavation dimensions: 2m long 1m wide Northing: 6321440 m datum: AHD

excavation information						material substance								
method	penetration			support	water	notes samples, tests, etc	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
E	1	2	3	NIL	None Observed	E				FILL; Gravelly SAND, fine to medium grained sand, brown, fine to medium grained gravel.	M			FILL. DUP 14
				E										
						42.5	0.5		CL	Sandy CLAY; Medium plasticity, orange/pale white, fine to medium grained sand.	M>WP		RESIDUAL	
				E		42.0	1.0							
										Test pit ETP001 terminated at 1m				
					</									

Sketch

method	support	notes, samples, tests	classification symbols and soil description	consistency/density index
N natural exposure X existing excavation BH backhoe bucket B bulldozer blade R ripper E excavator	S shoring N nil penetration 1 2 3 4  no resistance ranging to refusal water  water level on date shown  water inflow  water outflow	U ₅₀ undisturbed sample 50mm diameter U ₆₃ undisturbed sample 63mm diameter D disturbed sample V vane shear (kPa) 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

Excavation No. **ETP002**

Engineering Log - Excavation

Sheet 1 of 1
Project No: **GEOTKARI02021AA**

Client: **WYONG SHIRE COUNCIL**

Date started: **18.9.2007**

Principal:

Date completed: **18.9.2007**

Project: **WARNERVALE TOWN CENTRE**

Logged by: **DH**





Test pit location: **See Figure -**

Checked by: **SD**

equipment type and model: 8t Kubota Pit Orientation: Easting: 356746 m R.L. Surface: 46
excavation dimensions: 2m long 1m wide Northing: 6321426 m datum: AHD

excavation information					material substance							
method	penetration	support	water	notes samples, tests, etc	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
W	1 2 3	Nil	None Observed	E			SM	TOPSOIL; Silty SAND, fine to medium grained sand, dark brown, some fine to medium grained gravel.	M			TOPSOIL
				E	45.5		CL	Sandy CLAY; Medium plasticity, orange/brown, fine to medium grained sand.	M>WP			ALLUVIUM
				E	45.0			SANDSTONE; Orange.	M			HIGHLY WEATHERED BEDROCK.
								Test pit ETP002 terminated at 1m				
					44.5							
					44.0							
					43.5							

Sketch

method	support	notes, samples, tests	classification symbols and soil description	consistency/density index
N natural exposure X existing excavation BH backhoe bucket B bulldozer blade R ripper E excavator	S shoring N nil penetration 1 2 3 4  no resistance ranging to refusal water  water level on date shown  water inflow  water outflow	U ₅₀ undisturbed sample 50mm diameter U ₆₃ undisturbed sample 63mm diameter D disturbed sample V vane shear (kPa) 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

Excavation No. **ETP003**

Engineering Log - Excavation

Sheet 1 of 1
Project No: **GEOTKARI02021AA**

Client: **WYONG SHIRE COUNCIL**

Date started: **18.6.2007**

Principal:

Date completed: **18.9.2007**




Project: **WARNERVALE TOWN CENTRE**

Logged by: **DH**

Test pit location: **See Figure -**

Checked by: **SD**

equipment type and model: 8t Kubota Pit Orientation: Easting: 356770 m R.L. Surface: 49
excavation dimensions: 2m long 1m wide Northing: 6321411 m datum: AHD

excavation information						material substance										
method	penetration			support	water	notes samples, tests, etc	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													
E				NIL	None Observed	E			SM	TOPSOIL; Silty SAND, Fine to medium grained sand, dark brown.	M				TOPSOIL	
									CL		Sandy CLAY; Medium plasticity, orange, fine to medium grained sand.	M>WP				RESIDUAL
						E	48.5	0.5			SANDSTONE; Orange/pale grey.	M				HIGHLY WEATHERED BEDROCK.
						E	48.0	1.0			Test pit ETP003 terminated at 1m					
							47.5	1.5								
							47.0	2.0								
							46.5	2.5								

Sketch

method	support	notes, samples, tests	classification symbols and soil description	consistency/density index
N natural exposure X existing excavation BH backhoe bucket B bulldozer blade R ripper E excavator	S shoring N nil penetration 1 2 3 4 no resistance ranging to refusal water water level on date shown water inflow water outflow	U ₅₀ undisturbed sample 50mm diameter U ₆₃ undisturbed sample 63mm diameter D disturbed sample V vane shear (kPa) 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

Excavation No. **ETP004**

Engineering Log - Excavation

Sheet 1 of 1
Project No: **GEOTKARI02021AA**

Client: **WYONG SHIRE COUNCIL**

Date started: **18.9.2007**

Principal:

Date completed: **18.9.2007**

Project: **WARNERVALE TOWN CENTRE**

Logged by: **DH**

Test pit location: **See Figure -**

Checked by: **SD**

equipment type and model: 8t Kubota Pit Orientation: Easting: 356795 m R.L. Surface: 52.5
excavation dimensions: 2m long 1m wide Northing: 6321394 m datum: AHD

excavation information						material substance								
method	penetration			support	water	notes samples, tests, etc	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
E	1	2	3	NIL		E				FILL; Gravelly SAND, fine to medium grained, brown, fine to medium grained gravel.	D		100 200 300 400	FILL DUP 15
				None Observed					CL	Sandy CLAY; Medium plasticity, orange, fine to medium grained sand.	M>WP			RESIDUAL
					E	52.0	0.5			SANDSTONE; Orange/pale grey.	M			HIGHLY WEATHERED BEDROCK
					E	51.5	1.0							
							51.0	1.5		Test pit ETP004 terminated at 1m				
							50.5	2.0						
							50.0	2.5						

Sketch

method	support	notes, samples, tests	classification symbols and soil description	consistency/density index
N natural exposure X existing excavation BH backhoe bucket B bulldozer blade R ripper E excavator	S shoring N nil penetration 1 2 3 4 no resistance ranging to refusal water water level on date shown water inflow water outflow	U ₅₀ undisturbed sample 50mm diameter U ₆₃ undisturbed sample 63mm diameter D disturbed sample V vane shear (kPa) 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

Excavation No. **ETP005**

Engineering Log - Excavation

Sheet 1 of 1
Project No: **GEOTKARI02021AA**

Client: **WYONG SHIRE COUNCIL**

Date started: **18.9.2007**

Principal:

Date completed: **18.9.2007**




Project: **WARNERVALE TOWN CENTRE**

Logged by: **DH**

Test pit location: **See Figure -**

Checked by: **SD**

equipment type and model: 8t Kubota Pit Orientation: Easting: 356820 m R.L. Surface: 55
excavation dimensions: 2m long 1m wide Northing: 6321380 m datum: AHD

excavation information						material substance								
method	penetration			support	water	notes samples, tests, etc	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											
LE				NIL	Observed	E			OL	TOPSOIL; Silty SAND, Fine to medium grained sand, dark brown.	M			TOPSOIL
					None		54.5		CL	Sandy CLAY; Medium plasticity, orange, fine to medium grained sand.	M>WP			RESIDUAL
										Test pit ETP005 terminated at 0.5m				
							54.0							
							53.5							
							53.0							
							52.5							

Sketch

method	support	notes, samples, tests	classification symbols and soil description	consistency/density index
N natural exposure X existing excavation BH backhoe bucket B bulldozer blade R ripper E excavator	S shoring N nil penetration 1 2 3 4 no resistance ranging to refusal water water level on date shown water inflow water outflow	U ₅₀ undisturbed sample 50mm diameter U ₆₃ undisturbed sample 63mm diameter D disturbed sample V vane shear (kPa) 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

Excavation No. **ETP006**

Engineering Log - Excavation

Sheet 1 of 1
Project No: **GEOTKARI02021AA**

Client: **WYONG SHIRE COUNCIL**

Date started: **18.9.2007**

Principal:

Date completed: **18.9.2007**

Project: **WARNERVALE TOWN CENTRE**

Logged by: **DH**





Test pit location: **See Figure -**

Checked by: **SD**

equipment type and model: 8t Kubota Pit Orientation: Easting: 356811 m R.L. Surface: 54.3
excavation dimensions: 2m long 1m wide Northing: 6321351 m datum: AHD

excavation information					material substance							
method	penetration	support	water	notes samples, tests, etc	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
E	1 2 3	NIL	None Observed	E	54.0			FILL; Gravelly SAND, fine to medium grained sand, brown, fine to medium grained gravel.	D			FILL
				E	0.5		CL	Sandy CLAY; Clay, medium plasticity, orange, fine to medium grained sand.	M>WP			RESIDUAL
				E	53.5			Sandstone; Orange/red/pale grey.	M			HIGHLY WEATHERED BEDROCK.
				E	1.0			Test pit ETP006 terminated at 1m				
					53.0							
					1.5							
					52.5							
					2.0							
					52.0							
					2.5							

Sketch

method	support	notes, samples, tests	classification symbols and soil description	consistency/density index
N natural exposure X existing excavation BH backhoe bucket B bulldozer blade R ripper E excavator	S shoring N nil penetration 1 2 3 4  no resistance ranging to refusal water  water level on date shown  water inflow  water outflow	U ₅₀ undisturbed sample 50mm diameter U ₆₃ undisturbed sample 63mm diameter D disturbed sample V vane shear (kPa) 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

Excavation No. **ETP007**

Engineering Log - Excavation

Sheet 1 of 1
Project No: **GEOTKARI02021AA**

Client: **WYONG SHIRE COUNCIL**

Date started: **18.9.2007**

Principal:

Date completed: **18.9.2007**

Project: **WARNERVALE TOWN CENTRE**

Logged by: **DH**





Test pit location: **See Figure -**

Checked by: **SD**

equipment type and model: 8t Kubota Pit Orientation: Easting: 356786 m R.L. Surface: 54
excavation dimensions: 2m long 1m wide Northing: 6321365 m datum: AHD

excavation information					material substance							
method	penetration	support	water	notes samples, tests, etc	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
W	1 2 3	NIL		E			OL	FILL; Gravelly SAND, fine to medium grained sand, grey, fine to medium grained gravel.	D		100 200 300 400	FILL
		None Observed		E	53.5			SANDSTONE; Pale grey/orange.	D			DUP 16 HIGHLY WEATHERED BEDROCK.
				E	53.0			Test pit ETP007 terminated at 1m				
					52.5							
					52.0							
					51.5							

Sketch

method	support	notes, samples, tests	classification symbols and soil description	consistency/density index
N natural exposure X existing excavation BH backhoe bucket B bulldozer blade R ripper E excavator	S shoring N nil penetration 1 2 3 4  no resistance ranging to refusal water  water level on date shown  water inflow  water outflow	U ₅₀ undisturbed sample 50mm diameter U ₆₃ undisturbed sample 63mm diameter D disturbed sample V vane shear (kPa) 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

Excavation No. **ETP008**

Engineering Log - Excavation

Sheet 1 of 1
Project No: **GEOTKARI02021AA**

Client: **WYONG SHIRE COUNCIL**

Date started: **18.9.2007**

Principal:

Date completed: **18.9.2007**

Project: **WARNERVALE TOWN CENTRE**

Logged by: **DH**





Test pit location: **See Figure -**

Checked by: **SD**

equipment type and model: 8t Kubota Pit Orientation: Easting: 356802 m R.L. Surface: 55
excavation dimensions: 2m long 1m wide Northing: 6321322 m datum: AHD

excavation information					material substance							
method	penetration	support	water	notes samples, tests, etc	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
E	1 2 3	NIL	None Observed	E				FILL; Gravelly SAND, fine to medium grained sand, brown, fine to medium grained gravel.	D			FILL
				E	54.5	0.5		SANDSTONE; Orange/pale grey.	D			HIGHLY WEATHERED BEDROCK.
				E	54.0	1.0		Test pit ETP008 terminated at 1m				
					53.5	1.5						
					53.0	2.0						
					52.5	2.5						

Sketch

method	support	notes, samples, tests	classification symbols and soil description	consistency/density index
N natural exposure X existing excavation BH backhoe bucket B bulldozer blade R ripper E excavator	S shoring N nil penetration 1 2 3 4  no resistance ranging to refusal water  water level on date shown  water inflow  water outflow	U ₅₀ undisturbed sample 50mm diameter U ₆₃ undisturbed sample 63mm diameter D disturbed sample V vane shear (kPa) 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

Excavation No. **ETP009**

Engineering Log - Excavation

Sheet 1 of 1
Project No: **GEOTKARI02021AA**

Client: **WYONG SHIRE COUNCIL**

Date started: **18.9.2007**

Principal:

Date completed: **18.9.2007**

Project: **WARNERVALE TOWN CENTRE**

Logged by: **DH**





Test pit location: **See Figure -**

Checked by: **SD**

equipment type and model: 8t Kubota Pit Orientation: Easting: 356793 m R.L. Surface: 55
excavation dimensions: 2m long 1m wide Northing: 6321290 m datum: AHD

excavation information					material substance							
method	penetration 1 2 3	support	water	notes samples, tests, etc	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
E		NIL		E				FILL; Gravelly SAND, fine to medium grained sand, brown, fine to medium grained gravel.	D			FILL
		None Observed			54.5			SANDSTONE; Orange/pale grey.	D			HIGHLY WEATHERED BEDROCK.
				E	54.0							
					53.5							
					53.0							
					52.5			Test pit ETP009 terminated at 1m				

Sketch

method	support	notes, samples, tests	classification symbols and soil description	consistency/density index
N natural exposure X existing excavation BH backhoe bucket B bulldozer blade R ripper E excavator	S shoring N nil penetration 1 2 3 4  no resistance ranging to refusal water  water level on date shown  water inflow  water outflow	U ₅₀ undisturbed sample 50mm diameter U ₆₃ undisturbed sample 63mm diameter D disturbed sample V vane shear (kPa) 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

Excavation No. **ETP010**

Engineering Log - Excavation

Sheet 1 of 1
Project No: **GEOTKARI02021AA**

Client: **WYONG SHIRE COUNCIL**

Date started: **18.9.2007**

Principal:

Date completed: **18.9.2007**

Project: **WARNERVALE TOWN CENTRE**

Logged by: **DH**





Test pit location: **See Figure -**

Checked by: **SD**

equipment type and model: 8t Kubota Pit Orientation: Easting: 356769 m R.L. Surface: 54
excavation dimensions: 2m long 1m wide Northing: 6321307 m datum: AHD

excavation information					material substance							
method	penetration	support	water	notes samples, tests, etc	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
E	1 2 3	Nil	None Observed	E				FILL; Gravelly SAND, fine to medium grained, black, fine to medium grained gravel.	D			FILL.
				E	53.5			SANDSTONE; Orange/pale grey.	D			DUP 17 HIGHLY WEATHERED BEDROCK.
				E	53.0			Test pit ETP010 terminated at 1m				
					52.5							
					52.0							
					51.5							

Sketch

method	support	notes, samples, tests	classification symbols and soil description	consistency/density index
N natural exposure X existing excavation BH backhoe bucket B bulldozer blade R ripper E excavator	S shoring N nil penetration 1 2 3 4  no resistance ranging to refusal water  water level on date shown  water inflow  water outflow	U ₅₀ undisturbed sample 50mm diameter U ₆₃ undisturbed sample 63mm diameter D disturbed sample V vane shear (kPa) 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 - Excavation

Client: **WYONG SHIRE COUNCIL**

Date started: **18.9.2007**

Principal:

Date completed: **18.9.2007**


Project: **WARNERVALE TOWN CENTRE**

Logged by: **DH**

Test pit location: **See Figure -**

Checked by: **SD**

equipment type and model:	8t Kubota	Pit Orientation:	Easting:	356778 m	R.L. Surface:	54.2
excavation dimensions:	2m long 1m wide		Northing:	6321336 m	datum:	AHD

excavation information						material substance									
method	penetration			support	water	notes samples, tests, etc	depth		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				RL	metres							
E				Nil	None Observed	E					FILL; Gravelly SAND, fine to medium grained sand, brown, fine to medium grained gravel.	D		100 200 300 400	FILL.
							54.0								
						E		0.5			SANDSTONE; Orange/pale grey.	D			HIGHLY WEATHERED BEDROCK.
							53.5								
						E		1.0							
							53.0				Test pit ETP011 terminated at 1m				
							1.5								
							52.5								
							2.0								
							52.0								
							2.5								

Sketch

method	support	notes, samples, tests	classification symbols and soil description	consistency/density index
N natural exposure X existing excavation BH backhoe bucket B bulldozer blade R ripper E excavator	S shoring N nil penetration 1 2 3 4 no resistance ranging to refusal water water level on date shown water inflow water outflow	U ₅₀ undisturbed sample 50mm diameter U ₆₃ undisturbed sample 63mm diameter D disturbed sample V vane shear (kPa) 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

Excavation No. **ETP012**

Engineering Log - Excavation

Sheet 1 of 1
Project No: **GEOTKARI02021AA**

Client: **WYONG SHIRE COUNCIL**

Date started: **18.9.2007**

Principal:

Date completed: **18.9.2007**

Project: **WARNERVALE TOWN CENTRE**

Logged by: **DH**

Test pit location: **See Figure -**

Checked by: **SD**

equipment type and model: 8t Kubota Pit Orientation: Easting: 356761 m R.L. Surface: 50.3
excavation dimensions: 2m long 1m wide Northing: 6321382 m datum: AHD

excavation information					material substance							
method	penetration	support	water	notes samples, tests, etc	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
E	1 2 3	NIL	Observed	E	50.0		SM	TOPSOIL; Silty SAND, fine to medium grained sand, dark brown	M			TOPSOIL
		None	Observed	E	0.5		CL	Sandy CLAY; Medium plasticity, orange, fine to medium grained sand.	M>WP			RESIDUAL
Test pit ETP012 terminated at 0.5m												
					49.5							
					1.0							
					49.0							
					1.5							
					48.5							
					2.0							
					48.0							
					2.5							

Sketch

method	support	notes, samples, tests	classification symbols and soil description	consistency/density index
N natural exposure X existing excavation BH backhoe bucket B bulldozer blade R ripper E excavator	S shoring N nil penetration 1 2 3 4 no resistance ranging to refusal water water level on date shown water inflow water outflow	U ₅₀ undisturbed sample 50mm diameter U ₆₃ undisturbed sample 63mm diameter D disturbed sample V vane shear (kPa) 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

Excavation No. **ETP013**

Engineering Log - Excavation

Sheet 1 of 1
Project No: **GEOTKARI02021AA**

Client: **WYONG SHIRE COUNCIL**

Date started: **18.9.2007**

Principal:

Date completed: **18.9.2007**

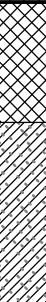
Project: **WARNERVALE TOWN CENTRE**

Logged by: **DH**

Test pit location: **See Figure -**

Checked by: **SD**

equipment type and model: 8t Kubota Pit Orientation: Easting: 356737 m R.L. Surface: 48.1
excavation dimensions: 2m long 1m wide Northing: 6321396 m datum: AHD

excavation information						material substance										
method	penetration			support	water	notes samples, tests, etc	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		
E	1	2	3	NIL	None Observed	E	48.0		CL	FILL; Gravelly SAND, fine to medium, grained sand, brown, fine to medium grained gravel.	D		100 200 300 400	FILL		
				E		0.5										RESIDUAL
				E			47.5									EXTREMELY WEATHERED BEDROCK DUP 18
				E			1.0									
							47.0							Test pit ETP013 terminated at 1m		
							1.5									
							46.5									
							2.0									
							46.0									
							2.5									

Sketch

method	support	notes, samples, tests	classification symbols and soil description	consistency/density index
N natural exposure X existing excavation BH backhoe bucket B bulldozer blade R ripper E excavator	S shoring N nil penetration 1 2 3 4 no resistance ranging to refusal water water level on date shown water inflow water outflow	U ₅₀ undisturbed sample 50mm diameter U ₆₃ undisturbed sample 63mm diameter D disturbed sample V vane shear (kPa) 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

Excavation No. **ETP014**

Engineering Log - Excavation

Sheet 1 of 1
Project No: **GEOTKARI02021AA**

Client: **WYONG SHIRE COUNCIL**

Date started: **18.9.2007**

Principal:

Date completed: **18.9.2007**

Project: **WARNERVALE TOWN CENTRE**

Logged by: **DH**

Test pit location: **See Figure -**

Checked by: **SD**

equipment type and model: 8t Kubota Pit Orientation: Easting: 356714 m R.L. Surface: 43.1
excavation dimensions: 2m long 1m wide Northing: 6321411 m datum: AHD

excavation information						material substance								
method	penetration			support	water	notes samples, tests, etc	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
E	1	2	3	NIL	Observed	E	43.0		CL	Sandy CLAY; High plasticity, orange/pale grey. fine to medium grained sand, trace fine to medium coarse gravel and extremely weathered sandstone.	M<WP		100 200 300 400	RESIDUAL
						E	0.5							EXTREMELY WEATHERED BEDROCK
							42.5			Test pit ETP014 terminated at 0.5m				
							1.0							
							42.0							
							1.5							
							41.5							
							2.0							
							41.0							
							2.5							

Sketch

method	support	notes, samples, tests	classification symbols and soil description	consistency/density index
N natural exposure X existing excavation BH backhoe bucket B bulldozer blade R ripper E excavator	S shoring N nil penetration 1 2 3 4 no resistance ranging to refusal water water level on date shown water inflow water outflow	U ₅₀ undisturbed sample 50mm diameter U ₆₃ undisturbed sample 63mm diameter D disturbed sample V vane shear (kPa) Bs bulk sample E environmental sample R refusal	based on unified classification system moisture D dry M moist W wet W _p 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

Excavation No. **ETP015**

Engineering Log - Excavation

Sheet 1 of 1
Project No: **GEOTKARI02021AA**

Client: **WYONG SHIRE COUNCIL**

Date started: **18.9.2007**

Principal:

Date completed: **18.9.2007**

Project: **WARNERVALE TOWN CENTRE**

Logged by: **DH**

Test pit location: **See Figure -**

Checked by: **SD**

equipment type and model: 8t Kubota Pit Orientation: Easting: 356688 m R.L. Surface: 43.7
excavation dimensions: 2m long 1m wide Northing: 6321427 m datum: AHD

excavation information					material substance							
method	penetration 1 2 3	support	water	notes samples, tests, etc	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
E		NIL		E	43.5		CL	FILL; Gravelly SAND, fine to medium grained sand, brown, fine to medium grained gravel.	D			FILL
		None Observed		E	0.5			Sandy CLAY; Medium plasticity, orange/pale grey, fine to medium grained sand.	M<WP			RESIDUAL
				E	43.0							
				E	1.0							
					42.5			Test pit ETP015 terminated at 1m				
					1.5							
					42.0							
					2.0							
					41.5							
					2.5							

Sketch

method	support	notes, samples, tests	classification symbols and soil description	consistency/density index
N natural exposure X existing excavation BH backhoe bucket B bulldozer blade R ripper E excavator	S shoring N nil penetration 1 2 3 4 no resistance ranging to refusal water water level on date shown water inflow water outflow	U ₅₀ undisturbed sample 50mm diameter U ₆₃ undisturbed sample 63mm diameter D disturbed sample V vane shear (kPa) 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

Excavation No. **ETP016**

Engineering Log - Excavation

Sheet 1 of 1
Project No: **GEOTKARI02021AA**

Client: **WYONG SHIRE COUNCIL**

Date started: **18.9.2007**

Principal:

Date completed: **18.9.2007**

Project: **WARNERVALE TOWN CENTRE**

Logged by: **DH**

Test pit location: **See Figure -**

Checked by: **SD**

equipment type and model: 8t Kubota Pit Orientation: Easting: 356678 m R.L. Surface: 44.2
excavation dimensions: 2m long 1m wide Northing: 6321398 m datum: AHD

excavation information					material substance							
method	penetration	support	water	notes samples, tests, etc	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
E	1 2 3	NIL		E	44.0			FILL; Sandy GRAVEL, fine to medium grained gravel, black fine to coarse grained sand.	D			FILL
		None Observed			0.5			SANDSTONE; Orange/pale grey.	D			HIGHLY WEATHERED BEDROCK
				E	43.5							
				E	1.0							
					43.0			Test pit ETP016 terminated at 1m				
					1.5							
					42.5							
					2.0							
					42.0							
					2.5							

Sketch

method	support	notes, samples, tests	classification symbols and soil description	consistency/density index
N natural exposure X existing excavation BH backhoe bucket B bulldozer blade R ripper E excavator	S shoring N nil penetration 1 2 3 4 no resistance ranging to refusal water water level on date shown water inflow water outflow	U ₅₀ undisturbed sample 50mm diameter U ₆₃ undisturbed sample 63mm diameter D disturbed sample V vane shear (kPa) 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

Excavation No. **ETP017**

Engineering Log - Excavation

Sheet 1 of 1
Project No: **GEOTKARI02021AA**

Client: **WYONG SHIRE COUNCIL**

Date started: **18.9.2007**

Principal:

Date completed: **18.9.2007**

Project: **WARNERVALE TOWN CENTRE**

Logged by: **DH**





Test pit location: **See Figure -**

Checked by: **SD**

equipment type and model: 8t Kubota Pit Orientation: Easting: 356668 m R.L. Surface: 44.5
excavation dimensions: 2m long 1m wide Northing: 6321370 m datum: AHD

excavation information					material substance							
method	penetration	support	water	notes samples, tests, etc	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
E	1 2 3	NIL		E				FILL; Sandy GRAVEL, fine to medium grained gravel, black, fine to medium grained sand.	D			FILL
								SANDSTONE; Orange/pale grey.	D			DUP 19 HIGHLY WEATHERED BEDROCK.
		None Observed		E	44.0	0.5						
				E	43.5	1.0						
					43.0	1.5						
					42.5	2.0						
					42.0	2.5						
Test pit ETP017 terminated at 1m												

Sketch

method	support	notes, samples, tests	classification symbols and soil description	consistency/density index
N natural exposure X existing excavation BH backhoe bucket B bulldozer blade R ripper E excavator	S shoring N nil penetration 1 2 3 4  no resistance ranging to refusal water  water level on date shown  water inflow  water outflow	U ₅₀ undisturbed sample 50mm diameter U ₆₃ undisturbed sample 63mm diameter D disturbed sample V vane shear (kPa) 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

Excavation No. **ETP018**

Engineering Log - Excavation

Sheet 1 of 1
Project No: **GEOTKARI02021AA**

Client: **WYONG SHIRE COUNCIL**

Date started: **19.9.2007**

Principal:

Date completed: **19.9.2007**

Project: **WARNERVALE TOWN CENTRE**

Logged by: **DH**

Test pit location: **See Figure -**





Checked by: **SD**

equipment type and model: 8t Kubota Pit Orientation: N-S Easting: 356658 m R.L. Surface: 44.2
excavation dimensions: 2m long 1m wide Northing: 6321339 m datum: AHD

excavation information						material substance								
method	penetration			support	water	notes samples, tests, etc	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
E	1	2	3	NIL		E				FILL; Gravelly SAND, fine to medium grained sand, black, fine to medium grained gravel.	D		100 200 300 400	FILL DUP 19
							44.0							
									CL	Sandy CLAY; Medium plasticity, orange/brown, fine to medium grained sand.	M<WP			RESIDUAL
						E	0.5							
							43.5							
						E	1.0							

Sketch

Test pit ETP018 terminated at 1m

method	support	notes, samples, tests	classification symbols and soil description	consistency/density index
N natural exposure X existing excavation BH backhoe bucket B bulldozer blade R ripper E excavator	S shoring N nil penetration 1 2 3 4  no resistance ranging to refusal water  water level on date shown  water inflow  water outflow	U ₅₀ undisturbed sample 50mm diameter U ₆₃ undisturbed sample 63mm diameter D disturbed sample V vane shear (kPa) Bs bulk sample E environmental sample R refusal	based on unified classification system moisture D dry M moist W wet W _p 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

Excavation No. **ETP019**

Engineering Log - Excavation

Sheet 1 of 1
Project No: **GEOTKARI02021AA**

Client: **WYONG SHIRE COUNCIL**

Date started: **19.9.2007**

Principal:

Date completed: **19.9.2007**



Project: **WARNERVALE TOWN CENTRE**

Logged by: **DH**

Test pit location: **See Figure -**





Checked by: **SD**

equipment type and model: 8t Kubota Pit Orientation: N-S Easting: 356684 m R.L. Surface: 44.3
excavation dimensions: 2m long 1m wide Northing: 6321323 m datum: AHD

excavation information						material substance								
method	penetration			support	water	notes samples, tests, etc	depth metres	graphic log	classification symbol	material soil type: plasticity or particle characteristics, colour, secondary and minor components.	moisture condition	consistency/ density index	100 pocket 200 300 penetro- meter 400 kPa	structure and additional observations
LE	1	2	3	NIL		E				FILL; Gravelly SAND, fine to medium grained sand, black, fine to medium grained gravel.	D			FILL
					None Observed		44.0			SANDSTONE; Pale grey/ orange.	M			HIGHLY WEATHERED BEDROCK
						E	0.5							
							43.5							
						E	1.0							

Sketch

Test pit ETP019 terminated at 1m

method	support	notes, samples, tests	classification symbols and soil description	consistency/density index
N natural exposure X existing excavation BH backhoe bucket B bulldozer blade R ripper E excavator	S shoring N nil penetration 1 2 3 4  no resistance ranging to refusal water  water level on date shown  water inflow  water outflow	U ₅₀ undisturbed sample 50mm diameter U ₆₃ undisturbed sample 63mm diameter D disturbed sample V vane shear (kPa) 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

Excavation No. **ETP020**

Engineering Log - Excavation

Sheet 1 of 1
Project No: **GEOTKARI02021AA**

Client: **WYONG SHIRE COUNCIL**

Date started: **19.9.2007**

Principal:

Date completed: **19.9.2007**

Project: **WARNERVALE TOWN CENTRE**

Logged by: **DH**

Test pit location: **See Figure -**





Checked by: **SD**

equipment type and model: 8t Kubota Pit Orientation: N-S Easting: 356694 m R.L. Surface: 44.3
excavation dimensions: 2m long 1m wide Northing: 6321354 m datum: AHD

excavation information						material substance						
method	penetration 1 2 3	support	water	notes samples, tests, etc	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 100 200 300 400	structure and additional observations
E		NIL		E				FILL; Gravelly SAND, fine to medium grained sand, black, fine to medium grained gravel.	D			FILL
					44.0			SANDSTONE; Orange/pale grey.	D			HIGHLY WEATHERED BEDROCK
				E	0.5							
					43.5							
				E	1.0							

Sketch

Test pit ETP020 terminated at 1m

method	support	notes, samples, tests	classification symbols and soil description	consistency/density index
N natural exposure X existing excavation BH backhoe bucket B bulldozer blade R ripper E excavator	S shoring N nil penetration 1 2 3 4  no resistance ranging to refusal water  water level on date shown  water inflow  water outflow	U ₅₀ undisturbed sample 50mm diameter U ₆₃ undisturbed sample 63mm diameter D disturbed sample V vane shear (kPa) 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

Excavation No. **ETP021**

Engineering Log - Excavation

Sheet 1 of 1
Project No: **GEOTKARI02021AA**

Client: **WYONG SHIRE COUNCIL**

Date started: **19.9.2007**

Principal:

Date completed: **19.9.2007**




Project: **WARNERVALE TOWN CENTRE**

Logged by: **DH**

Test pit location: **See Figure -**





Checked by: **SD**

equipment type and model: 8t Kubota Pit Orientation: N-S Easting: 356704 m R.L. Surface: 44.1
excavation dimensions: 2m long 1m wide Northing: 6321383 m datum: AHD

excavation information						material substance								
method	penetration			support	water	notes samples, tests, etc	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
U	1	2	3	Nil		E	44.0			FILL; Sandy GRAVEL, fine to medium grained gravel, brown, fine to medium grained sand.	D		100 200 300 400	FILL. DUP 20
										FILL; Gravelly SAND, fine to medium grained sand, black, fine to medium grained gravel.	D			FILL
										SANDSTONE; Pale grey/orange.	D			HIGHLY WEATHERED BEDROCK
				None Observed		E	0.5							
							43.5							
						E	1.0							

Test pit ETP021 terminated at 1m

Sketch

method	support	notes, samples, tests	classification symbols and soil description	consistency/density index
N natural exposure X existing excavation BH backhoe bucket B bulldozer blade R ripper E excavator	S shoring N nil penetration 1 2 3 4  no resistance ranging to refusal water  water level on date shown  water inflow  water outflow	U ₅₀ undisturbed sample 50mm diameter U ₆₃ undisturbed sample 63mm diameter D disturbed sample V vane shear (kPa) 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 - Excavation

Excavation No. **ETP022**

Sheet 1 of 1
Project No: **GEOTKARI02021AA**

Client: **WYONG SHIRE COUNCIL**

Date started: **19.9.2007**

Principal:

Date completed: **19.9.2007**

Project: **WARNERVALE TOWN CENTRE**

Logged by: **DH**

Test pit location: **See Figure -**

Checked by: **SD**

[illegible]

Engineering Log - Excavation

Excavation No. **ETP023**

Sheet 1 of 1
Project No: **GEOTKARI02021AA**

Client: **WYONG SHIRE COUNCIL**

Date started: **19.9.2007**

Principal:

Date completed: **19.9.2007**

Project: **WARNERVALE TOWN CENTRE**

Logged by: **DH**

Test pit location: **See Figure -**

Checked by: **SD**

equipment type and model:						8t Kubota		Pit Orientation: N-S		Easting: 356705 m		R.L. Surface: 49			
excavation dimensions:						2m long 1m wide		Northing: 6321348 m		datum:		AHD			
excavation information						material substance									
method	penetration			support	water	notes samples, tests, etc			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				RL	depth metres							
E				NIL		E					FILL; Gravelly SAND, fine to medium grained sand, brown, fine to medium grained gravel.	D			FILL
										CL	Sandy CLAY; Medium plasticity, orange/brown, fine to medium grained sand.	M<PI			RESIDUAL
						E	48.5	0.5							
						E									
							48.0	1.0							
Sketch															
Test pit ETP023 terminated at 1m															
<div>Method Legend: N natural exposure X existing excavation BH backhoe bucket B bulldozer blade R ripper E excavator</div> <div>Support Legend: S shoring NIL nil</div> <div>Penetration Legend: 1 2 3 4 no resistance ranging to refusal</div> <div>Water Legend: water level on date shown water inflow water outflow</div> <div>Notes, samples, tests: U₅₀ undisturbed sample 50mm diameter U₆₃ undisturbed sample 63mm diameter D disturbed sample V vane shear (kPa) Bs bulk sample E environmental sample R refusal</div> <div>Classification symbols and soil description: based on unified classification system</div> <div>Moisture: D dry M moist W wet Wp plastic limit WL liquid limit</div> <div>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</div>															

Engineering Log - Excavation

Excavation No. **ETP024**

Sheet 1 of 1
Project No: **GEOTKARI02021AA**

Client: **WYONG SHIRE COUNCIL**

Date started: **19.9.2007**

Principal:

Date completed: **19.9.2007**

Project: **WARNERVALE TOWN CENTRE**

Logged by: **DH**

Test pit location: **See Figure -**

Checked by: **SD**

equipment type and model:						8t Kubota		Pit Orientation: N-S		Easting: 356719 m		R.L. Surface: 48			
excavation dimensions:						2m long 1m wide		Northing: 6321330 m		datum: AHD					
excavation information						material substance									
method	penetration			support	water	notes samples, tests, etc	depth		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				RL	metres							
E				NIL		E					FILL; Gravelly SAND, fine to medium grained sand, brown, fine to medium grained gravel.	D			FILL DUP 21
										CL	Sandy CLAY; Medium plasticity, orange/brown, fine to medium grained sand.	M<WP			RESIDUAL
						E	47.5	0.5							
							47.0	1.0							
<div>Sketch</div> <div>Test pit ETP024 terminated at 1m</div>															
<div><div><div>method</div><div>N natural exposure X existing excavation BH backhoe bucket B bulldozer blade R ripper E excavator</div></div><div><div>support</div><div>S shoring N nil</div></div><div><div>penetration</div><div>1 2 3 4 <div>no resistance ranging to refusal</div></div><div><div>water</div><div> water level on date shown water inflow water outflow</div></div></div><div><div>notes, samples, tests</div><div>U₆₀ undisturbed sample 50mm diameter U₆₃ undisturbed sample 63mm diameter D disturbed sample V vane shear (kPa) Bs bulk sample E environmental sample R refusal</div></div><div><div>classification symbols and soil description</div><div>based on unified classification system</div><div><div>moisture</div><div>D dry M moist W wet Wp plastic limit WL liquid limit</div></div></div><div><div>consistency/density index</div><div>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</div></div></div>															

Excavation No. **ETP025**

Engineering Log - Excavation

Client: **WYONG SHIRE COUNCIL**

Principal:

Project: **WARNERVALE TOWN CENTRE**

Test pit location: **See Figure -**

Sheet 1 of 1

Project No: **GEOTKARI02021AA**Date started: **19.9.2007**Date completed: **19.9.2007**

Logged by: **DH**

Checked by: **SD**

equipment type and model:						8t Kubota		Pit Orientation: N-S		Easting: 356751 m		R.L. Surface: 51				
excavation dimensions:						2m long 1m wide		Northing: 6321352 m		datum: AHD						
excavation information									material substance							
method	penetration			support	water	notes samples, tests, etc	depth		graphic log	classification symbol	material	moisture condition	consistency/ density index	pocket penetrometer kPa	structure and additional observations	
	1	2	3				RL	metres								
E				NIL		E					FILL; Gravelly SAND, fine to medium grained sand, brown, fine to medium grained gravel.	D			FILL	
											SANDSTONE; Orange/pale grey.	D			HIGHLY WEATHERED BEDROCK	
					None Observed	E	50.5	0.5								
						E	50.0	1.0								
<div>Sketch</div> <div>Test pit ETP025 terminated at 1m</div>																
method N natural exposure X existing excavation BH backhoe bucket B bulldozer blade R ripper E excavator		support S shoring N nil		penetration 1 2 3 4 no resistance ranging to refusal		water 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 V vane shear (kPa) 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	

Excavation No. **ETP026**

Engineering Log - Excavation

Client: **WYONG SHIRE COUNCIL**

Principal:

Project: **WARNERVALE TOWN CENTRE**

Test pit location: **See Figure -**




Sheet 1 of 1

Project No: **GEOTKARI02021AA**Date started: **19.9.2007**

Date completed: **19.9.2007**

Logged by: **DH**

Checked by: **SD**

equipment type and model:				8t Kubota		Pit Orientation: N-S		Easting: 356742 m		R.L. Surface: 50.5					
excavation dimensions:				2m long 1m wide		Northing: 6321324 m		datum:		AHD					
excavation information						material substance									
method	penetration			support	water	notes samples, tests, etc	depth RL 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	
E	1	2	3	NIL	None Observed	E				FILL; Gravelly SAND, fine to medium grained sand, dark brown, fine to medium grained gravel.	D			FILL	
						E	50.0	0.5			SANDSTONE; Orange/pale grey, some medium plasticity clay.	D			HIGHLY WEATHERED BEDROCK
						E	49.5	1.0							

Sketch

Test pit ETP026 terminated at 1m

TESTPIT GEOTKARIO2021AA.GPJ COFFEY.GDT 12.12.07

method		support	notes, samples, tests	classification symbols and soil description	consistency/density index
N	natural exposure	S shoring N nil	U ₅₀ undisturbed sample 50mm diameter	based on unified classification system moisture D dry M moist W wet W _p plastic limit W _L liquid limit	VS very soft
X	existing excavation		U ₆₃ undisturbed sample 63mm diameter		S soft
BH	backhoe bucket		D disturbed sample		F firm
B	bulldozer blade		V vane shear (kPa)		St stiff
R	ripper		Bs bulk sample		VSt very stiff
E	excavator		E environmental sample		H hard
			R refusal		Fb friable
					VL very loose
					L loose
					MD medium dense
					D dense
					VD very dense

Engineering Log - Excavation

Excavation No. **ETP027**

Sheet 1 of 1
Project No: **GEOTKARI02021AA**

Client: **WYONG SHIRE COUNCIL**

Date started: **19.9.2007**

Principal:

Date completed: **19.9.2007**

Project: **WARNERVALE TOWN CENTRE**

Logged by: **DH**

Test pit location: **See Figure -**

Checked by: **SD**

equipment type and model:						8t Kubota		Pit Orientation: N-S		Easting: 356732 m		R.L. Surface: 48			
excavation dimensions:						2m long 1m wide				Northing: 6321292 m		datum: AHD			
excavation information						material substance									
method	penetration			support	water	notes samples, tests, etc	depth		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				RL	metres							
E				NIL		E					FILL; Gravelly SAND, fine to medium grained sand, black, fine to medium grained gravel.	D			FILL DUP 22
										CL	Silty CLAY; Medium plasticity, pale grey, some fine to medium grained sand.	M<WP			RESIDUAL
					None Observed	E	47.5	0.5							
						E	47.0	1.0							
<div>Sketch</div> <div>Test pit ETP027 terminated at 1m</div>															
<div><div><div>method</div><div>N natural exposure X existing excavation BH backhoe bucket B bulldozer blade R ripper E excavator</div></div><div><div>support</div><div>S shoring N nil</div></div><div><div>penetration</div><div>1 2 3 4 <div>no resistance ranging to refusal</div></div><div><div>water</div><div><div>water level on date shown</div><div>water inflow</div><div>water outflow</div></div></div><div><div>notes, samples, tests</div><div>U₅₀ undisturbed sample 50mm diameter U₆₃ undisturbed sample 63mm diameter D disturbed sample V vane shear (kPa) Bs bulk sample E environmental sample R refusal</div></div><div><div>classification symbols and soil description</div><div>based on unified classification system</div><div><div>moisture</div><div>D dry M moist W wet Wp plastic limit WL liquid limit</div></div><div><div>consistency/density index</div><div>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</div></div></div></div></div>															

Excavation No. **ETP028**

Engineering Log - Excavation

Sheet 1 of 1
Project No: **GEOTKARI02021AA**

Client: **WYONG SHIRE COUNCIL**

Date started: **19.9.2007**

Principal:

Date completed: **19.9.2007**

Project: **WARNERVALE TOWN CENTRE**

Logged by: **DH**

Test pit location: **See Figure -**

Checked by: **SD**

equipment type and model: 8t Kubota Pit Orientation: N-S Easting: 356759 m R.L. Surface: 51.2
excavation dimensions: 2m long 1m wide Northing: 6321275 m datum: AHD

excavation information						material substance							
method	penetration	support	water	notes samples, tests, etc	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	
U	1 2 3	NIL		E	51.0		CL	Sandy CLAY; Medium plasticity, orange/brown, fine to medium grained sand.	M>WP			RESIDUAL	
			None Observed										
				E	0.5			SANDSTONE; Orange/pale grey.	M			HIGHLY WEATHERED BEDROCK	
								Test pit ETP028 terminated at 0.5m					
					50.5								
					1.0								

Sketch

method	support	notes, samples, tests	classification symbols and soil description	consistency/density index
N natural exposure X existing excavation BH backhoe bucket B bulldozer blade R ripper E excavator	S shoring N nil penetration 1 2 3 4 no resistance ranging to refusal water water level on date shown water inflow water outflow	U ₅₀ undisturbed sample 50mm diameter U ₆₃ undisturbed sample 63mm diameter D disturbed sample V vane shear (kPa) Bs bulk sample E environmental sample R refusal	based on unified classification system moisture D dry M moist W wet W _p 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

Excavation No. **ETP029**

Engineering Log - Excavation

Sheet 1 of 1
Project No: **GEOTKARI02021AA**

Client: **WYONG SHIRE COUNCIL**

Date started: **19.9.2007**

Principal:

Date completed: **19.9.2007**

Project: **WARNERVALE TOWN CENTRE**

Logged by: **DH**

Test pit location: **See Figure -**

Checked by: **SD**

equipment type and model: 8t Kubota Pit Orientation: N-S Easting: 356783 m R.L. Surface: 51.8
excavation dimensions: 2m long 1m wide Northing: 6321261 m datum: AHD

excavation information						material substance							
method	penetration	support	water	notes samples, tests, etc	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
E	1 2 3	NIL		E	51.5			SANDSTONE; Orange/pale grey.	M		100	200	HIGHLY WEATHERED BEDROCK
		None Observed		E	0.5			Test pit ETP029 terminated at 0.5m			300	400	
					51.0								
					1.0								

Sketch

method	support	notes, samples, tests	classification symbols and soil description	consistency/density index
N natural exposure X existing excavation BH backhoe bucket B bulldozer blade R ripper E excavator	S shoring penetration 1 2 3 4 no resistance ranging to refusal water water level on date shown water inflow water outflow	U ₅₀ undisturbed sample 50mm diameter U ₆₃ undisturbed sample 63mm diameter D disturbed sample V vane shear (kPa) 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

Excavation No. **ETP030**

Engineering Log - Excavation

Sheet 1 of 1
Project No: **GEOTKARI02021AA**

Client: **WYONG SHIRE COUNCIL**

Date started: **19.9.2007**

Principal:

Date completed: **19.9.2007**

Project: **WARNERVALE TOWN CENTRE**

Logged by: **DH**

Test pit location: **See Figure -**

Checked by: **SD**

equipment type and model: 8t Kubota Pit Orientation: N-S Easting: 356965 m R.L. Surface: 52
excavation dimensions: 2m long 1m wide Northing: 6321426 m datum: AHD

excavation information						material substance							
method	penetration	support	water	notes samples, tests, etc	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
E	1 2 3	NIL		E	51.5			SANDSTONE; Pale grey/orange.	M		100	200	HIGHLY WEATHERED BEDROCK
			None Observed		0.5						300	400	
				E	51.0			Test pit ETP030 terminated at 0.5m					
					1.0								

Sketch

method	support	notes, samples, tests	classification symbols and soil description	consistency/density index
N natural exposure X existing excavation BH backhoe bucket B bulldozer blade R ripper E excavator	S shoring penetration 1 2 3 4 no resistance ranging to refusal water water level on date shown water inflow water outflow	U ₅₀ undisturbed sample 50mm diameter U ₆₃ undisturbed sample 63mm diameter D disturbed sample V vane shear (kPa) 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

Excavation No. **ETP031**

Engineering Log - Excavation

Sheet 1 of 1
Project No: **GEOTKARI02021AA**

Client: **WYONG SHIRE COUNCIL**

Date started: **19.9.2007**

Principal:

Date completed: **19.9.2007**

Project: **WARNERVALE TOWN CENTRE**

Logged by: **DH**





Test pit location: **See Figure -**

Checked by: **SD**

equipment type and model: 8t Kubota Pit Orientation: N-S Easting: 356923 m R.L. Surface: 52
excavation dimensions: 2m long 1m wide Northing: 6321474 m datum: AHD

excavation information						material substance							
method	penetration	support	water	notes samples, tests, etc	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
E	1 2 3	NIL		E	51.5		SM	TOPSOIL; Silty SAND, fine to medium grained sand, brown, some sandstone gravel.	M		100	200	TOPSOIL
			None Observed		0.5						300	400	DUP 25
				E	51.0			Test pit ETP031 terminated at 0.5m					
					1.0								

Sketch

method	support	notes, samples, tests	classification symbols and soil description	consistency/density index
N natural exposure X existing excavation BH backhoe bucket B bulldozer blade R ripper E excavator	S shoring N nil penetration 1 2 3 4  no resistance ranging to refusal water  water level on date shown  water inflow  water outflow	U ₅₀ undisturbed sample 50mm diameter U ₆₃ undisturbed sample 63mm diameter D disturbed sample V vane shear (kPa) 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

Excavation No. **ETP032**

Engineering Log - Excavation

Sheet 1 of 1
Project No: **GEOTKARI02021AA**

Client: **WYONG SHIRE COUNCIL**

Date started: **19.9.2007**

Principal:

Date completed: **19.9.2007**

Project: **WARNERVALE TOWN CENTRE**

Logged by: **DH**





Test pit location: **See Figure -**

Checked by: **SD**

equipment type and model: 8t Kubota Pit Orientation: N-S Easting: 356923 m R.L. Surface: 45
excavation dimensions: 2m long 1m wide Northing: 6321474 m datum: AHD

excavation information						material substance							
method	penetration	support	water	notes samples, tests, etc	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	
E	1 2 3	NIL		E	44.5			SANDSTONE; Orange/pale grey.	M			HIGHLY WEATHERED BEDROCK	
				E	0.5								
					44.0			Test pit ETP032 terminated at 0.5m					
					1.0								

Sketch

method	support	notes, samples, tests	classification symbols and soil description	consistency/density index
N natural exposure X existing excavation BH backhoe bucket B bulldozer blade R ripper E excavator	S shoring N nil penetration 1 2 3 4  no resistance ranging to refusal water  water level on date shown  water inflow  water outflow	U ₅₀ undisturbed sample 50mm diameter U ₆₃ undisturbed sample 63mm diameter D disturbed sample V vane shear (kPa) 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

Excavation No. **ETP033**

Engineering Log - Excavation

Sheet 1 of 1
Project No: **GEOTKARI02021AA**

Client: **WYONG SHIRE COUNCIL**

Date started: **19.9.2007**

Principal:

Date completed: **19.9.2007**

Project: **WARNERVALE TOWN CENTRE**

Logged by: **DH**

Test pit location: **See Figure -**

Checked by: **SD**

equipment type and model: 8t Kubota Pit Orientation: N-S Easting: 356890 m R.L. Surface: 53.5
excavation dimensions: 2m long 1m wide Northing: 6321418 m datum: AHD

excavation information						material substance							
method	penetration	support	water	notes samples, tests, etc	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			RL						100 200 300 400		
E		NIL		E				SANDSTONE; Orange/pale grey.	M			HIGHLY WEATHERED BEDROCK	
			None Observed		53.0								
				E	0.5								
					52.5			Test pit ETP033 terminated at 0.5m					
					1.0								

Sketch

method	support	notes, samples, tests	classification symbols and soil description	consistency/density index
N natural exposure X existing excavation BH backhoe bucket B bulldozer blade R ripper E excavator	S shoring penetration 1 2 3 4 no resistance ranging to refusal water water level on date shown water inflow water outflow	U ₅₀ undisturbed sample 50mm diameter U ₆₃ undisturbed sample 63mm diameter D disturbed sample V vane shear (kPa) 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

Excavation No. **ETP034**

Engineering Log - Excavation

Sheet 1 of 1
Project No: **GEOTKARI02021AA**

Client: **WYONG SHIRE COUNCIL**

Date started: **19.9.2007**

Principal:

Date completed: **19.9.2007**

Project: **WARNERVALE TOWN CENTRE**

Logged by: **DH**

Test pit location: **See Figure -**

Checked by: **SD**

equipment type and model: 8t Kubota Pit Orientation: N-S Easting: 356853 m R.L. Surface: 56.5
excavation dimensions: 2m long 1m wide Northing: 6321393 m datum: AHD

excavation information						material substance							
method	penetration	support	water	notes samples, tests, etc	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	
E	1 2 3	NIL		E	56.0			SANDSTONE; Orange/pale grey.	M			HIGHLY WEATHERED BEDROCK.	
			None Observed		0.5								
				E	55.5			Test pit ETP034 terminated at 0.5m					
					1.0								

Sketch

method	support	notes, samples, tests	classification symbols and soil description	consistency/density index
N natural exposure X existing excavation BH backhoe bucket B bulldozer blade R ripper E excavator	S shoring penetration 1 2 3 4 no resistance ranging to refusal water water level on date shown water inflow water outflow	U ₅₀ undisturbed sample 50mm diameter U ₆₃ undisturbed sample 63mm diameter D disturbed sample V vane shear (kPa) 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

Excavation No. **ETP035**

Engineering Log - Excavation

Sheet 1 of 1
Project No: **GEOTKARI02021AA**

Client: **WYONG SHIRE COUNCIL**

Date started: **19.9.2007**

Principal:

Date completed: **19.9.2007**

Project: **WARNERVALE TOWN CENTRE**

Logged by: **DH**

Test pit location: **See Figure -**

Checked by: **SD**

equipment type and model: 8t Kubota Pit Orientation: N-S Easting: 356908 m R.L. Surface: 55.5
excavation dimensions: 2m long 1m wide Northing: 6321368 m datum: AHD

excavation information						material substance							
method	penetration	support	water	notes samples, tests, etc	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			RL						100 200 300 400		
E		NIL		E				SANDSTONE; Orange/pale grey.	M			HIGHLY WEATHERED BEDROCK	
			None Observed										
				E	55.0	0.5						DUP 26	
					54.5	1.0		Test pit ETP035 terminated at 0.5m					

Sketch

method	support	notes, samples, tests	classification symbols and soil description	consistency/density index
N natural exposure X existing excavation BH backhoe bucket B bulldozer blade R ripper E excavator	S shoring penetration 1 2 3 4 no resistance ranging to refusal water water level on date shown water inflow water outflow	U ₅₀ undisturbed sample 50mm diameter U ₆₃ undisturbed sample 63mm diameter D disturbed sample V vane shear (kPa) 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

Excavation No. **ETP036**

Engineering Log - Excavation

Sheet 1 of 1
Project No: **GEOTKARI02021AA**

Client: **WYONG SHIRE COUNCIL**

Date started: **19.9.2007**

Principal:

Date completed: **19.9.2007**

Project: **WARNERVALE TOWN CENTRE**

Logged by: **DH**

Test pit location: **See Figure -**

Checked by: **SD**

equipment type and model: 8t Kubota Pit Orientation: N-S Easting: 356841 m R.L. Surface: 53
excavation dimensions: 2m long 1m wide Northing: 6321278 m datum: AHD

excavation information						material substance								
method	penetration			support	water	notes samples, tests, etc	depth metres	graphic log	classification symbol	material soil type: plasticity or particle characteristics, colour, secondary and minor components.	moisture condition	consistency/ density index	100 pocket 200 300 400 penetro- meter kPa	structure and additional observations
E				NIL		E				FILL; Gravelly SAND, fine to medium grained sand, brown/grey, fine to medium grained gravel.	D			FILL
						E	52.5	0.5						NO HYDROCARBON ODOUR
						E	52.0	1.0						
						E	51.5	1.5						
									CL	Sandy CLAY; Medium plasticity, orange/grey, fine to medium grained sand.	M>WP			RESIDUAL
						E	51.0	2.0						

Test pit ETP036 terminated at 2m

Sketch

method	support	notes, samples, tests	classification symbols and soil description	consistency/density index
N natural exposure X existing excavation BH backhoe bucket B bulldozer blade R ripper E excavator	S shoring penetration 1 2 3 4 no resistance ranging to refusal water water level on date shown water inflow water outflow	U ₅₀ undisturbed sample 50mm diameter U ₆₃ undisturbed sample 63mm diameter D disturbed sample V vane shear (kPa) 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

Excavation No. **ETP037**

Engineering Log - Excavation

Sheet 1 of 1
Project No: **GEOTKARI02021AA**

Client: **WYONG SHIRE COUNCIL**

Date started: **19.9.2007**

Principal:

Date completed: **19.9.2007**

Project: **WARNERVALE TOWN CENTRE**

Logged by: **DH**

Test pit location: **See Figure -**

Checked by: **SD**

equipment type and model: 8t Kubota Pit Orientation: N-S Easting: 356861 m R.L. Surface: 52.7
excavation dimensions: 2m long 1m wide Northing: 6321275 m datum: AHD

excavation information					material substance							
method	penetration 1 2 3	support	water	notes samples, tests, etc	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
E		NIL		E	52.5			FILL; Gravelly SAND, fine to medium grained sand, brown, fine to medium grained gravel.	M			FILL
								FILL; Gravelly SAND, fine to medium grained sand, grey, fine to medium grained gravel.				
				E	0.5			FILL; Gravelly SAND, fine to medium grained sand, brown, fine to medium grained gravel.				NO HYDROCARBON ODOUR
					52.0							
				E	1.0			Sandy CLAY; Medium plasticity, orange/brown, fine to medium grained sand,	M>WP			RESIDUAL
					51.5							DUP 30
				E	1.5			Test pit ETP037 terminated at 1.5m				
					51.0							
					2.0							

Sketch

method	support	notes, samples, tests	classification symbols and soil description	consistency/density index
N natural exposure X existing excavation BH backhoe bucket B bulldozer blade R ripper E excavator	S shoring N nil penetration 1 2 3 4 no resistance ranging to refusal water water level on date shown water inflow water outflow	U ₅₀ undisturbed sample 50mm diameter U ₆₃ undisturbed sample 63mm diameter D disturbed sample V vane shear (kPa) 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

Excavation No. **ETP038**

Engineering Log - Excavation

Sheet 1 of 1
Project No: **GEOTKARI02021AA**

Client: **WYONG SHIRE COUNCIL**

Date started: **20.9.2007**

Principal:

Date completed: **20.9.2007**

Project: **WARNERVALE TOWN CENTRE**

Logged by: **DH**

Test pit location: **See Figure -**

Checked by: **SD**

equipment type and model: 8t Kubota Pit Orientation: N-S Easting: 356882 m R.L. Surface: 51.5
excavation dimensions: 2m long 1m wide Northing: 6321270 m datum: AHD

excavation information						material substance									
method	penetration 1 2 3			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 100 200 300 400	structure and additional observations
E				NIL		E					FILL; Gravelly SAND, fine to medium grained sand, brown, fine to medium grained gravel.	D			FILL DUP 31
							51.0	0.5			FILL; Gravelly CLAY, medium plasticity, orange/brown, fine to medium grained gravel.	M<WP			NO HYDROCARBON ODOUR
						E									
						E	50.5	1.0							SOME RUBBISH INCL. PLASTIC, WOOD AND CERAMIC PIPES.
						E	50.0	1.5							
											SANDSTONE; Pale grey/orange.	D			HIGHLY WEATHERED BEDROCK
						E	49.5	2.0							

Test pit ETP038 terminated at 2m

Sketch

method	support	notes, samples, tests	classification symbols and soil description	consistency/density index
N natural exposure X existing excavation BH backhoe bucket B bulldozer blade R ripper E excavator	S shoring N nil penetration 1 2 3 4 no resistance ranging to refusal water water level on date shown water inflow water outflow	U ₅₀ undisturbed sample 50mm diameter U ₆₃ undisturbed sample 63mm diameter D disturbed sample V vane shear (kPa) 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

Excavation No. **ETP039**

Engineering Log - Excavation

Sheet 1 of 1
Project No: **GEOTKARI02021AA**

Client: **WYONG SHIRE COUNCIL**

Date started: **20.9.2007**

Principal:

Date completed: **20.9.2007**

Project: **WARNERVALE TOWN CENTRE**

Logged by: **DH**

Test pit location: **See Figure -**

Checked by: **SD**

equipment type and model: 8t Kubota Pit Orientation: N-S Easting: 356905 m R.L. Surface: 50.2
excavation dimensions: 2m long 1m wide Northing: 6321267 m datum: AHD

excavation information						material substance						
method	penetration 1 2 3	support	water	notes samples, tests, etc	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
E		NIL		E	50.0			FILL; Gravelly SAND, fine to medium grained sand, brown, fine to medium grained gravel.	M			FILL
				E	0.5			FILL; Gravelly CLAY, medium plasticity, orange/brown, fine to medium grained gravel.	M>WP			SOME RUBBISH INCL. PAINT TINS, INK CARTRIDGE AND PLASTIC.
				E	0.9							
				E	1.0							
				E	1.4		CL	Sandy CLAY; Medium plasticity, orange/brown, some fine to medium grained gravel.				RESIDUAL
				E	1.5			Test pit ETP039 terminated at 1.5m				
					1.5							
					1.8							
					2.0							

Sketch

method	support	notes, samples, tests	classification symbols and soil description	consistency/density index
N natural exposure X existing excavation BH backhoe bucket B bulldozer blade R ripper E excavator	S shoring N nil penetration 1 2 3 4 no resistance ranging to refusal water water level on date shown water inflow water outflow	U ₅₀ undisturbed sample 50mm diameter U ₆₃ undisturbed sample 63mm diameter D disturbed sample V vane shear (kPa) Bs bulk sample E environmental sample R refusal	based on unified classification system moisture D dry M moist W wet W _p 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

Excavation No. **ETP040**

Engineering Log - Excavation

Sheet 1 of 1
Project No: **GEOTKARI02021AA**

Client: **WYONG SHIRE COUNCIL**

Date started: **20.9.2007**

Principal:

Date completed: **20.9.2007**

Project: **WARNERVALE TOWN CENTRE**

Logged by: **DH**

Test pit location: **See Figure -**

Checked by: **SD**

equipment type and model: 8t Kubota Pit Orientation: E-W Easting: 356878 m R.L. Surface: 51.0
excavation dimensions: 2m long 1m wide Northing: 6321246 m datum: AHD

excavation information						material substance							
method	penetration 1 2 3	support	water	notes samples, tests, etc	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	
E		NIL		E				FILL; Gravelly SAND, fine to medium grained sand, brown, fine to medium grained gravel.	M			FILL	
												DUP 32	
				E	50.5			FILL; Gravelly CLAY, medium plasticity, grey/orange, fine to medium grained sand.	M>WP			FILL	
												RUBBISH INCL. PLASTIC AND WOOD.	
				E	50.0		CL	Sandy CLAY; Medium plasticity, orange/grey, fine to medium grained sand.				RESIDUAL	
				E	49.5								
					49.0			Test pit ETP040 terminated at 1.5m					

Sketch

method	support	notes, samples, tests	classification symbols and soil description	consistency/density index
N natural exposure X existing excavation BH backhoe bucket B bulldozer blade R ripper E excavator	S shoring N nil penetration 1 2 3 4 no resistance ranging to refusal water water level on date shown water inflow water outflow	U ₅₀ undisturbed sample 50mm diameter U ₆₃ undisturbed sample 63mm diameter D disturbed sample V vane shear (kPa) Bs bulk sample E environmental sample R refusal	based on unified classification system moisture D dry M moist W wet W _p 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

Excavation No. **ETP041**

Engineering Log - Excavation

Sheet 1 of 1
Project No: **GEOTKARI02021AA**

Client: **WYONG SHIRE COUNCIL**

Date started: **20.9.2007**

Principal:

Date completed: **20.9.2007**



Project: **WARNERVALE TOWN CENTRE**

Logged by: **DH**

Test pit location: **See Figure -**

Checked by: **SD**

equipment type and model: 8t Kubota Pit Orientation: N-S Easting: 356832 m R.L. Surface: 54.5
excavation dimensions: 2m long 1m wide Northing: 6321237 m datum: AHD

excavation information						material substance								
method	penetration			support	water	notes samples, tests, etc	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
E	1	2	3	NIL		E			SM	TOPSOIL; Silty SAND, Fine to medium grained sand, dark brown.	M		100 200 300 400	TOPSOIL
					None Observed				CL	Sandy CLAY; Medium plasticity, orange, fine to medium grained sand.	M>WP			RESIDUAL
						E	54.0			SANDSTONE; Orange/pale grey.	D			HIGHLY WEATHERED BEDROCK
						E	53.5							
							53.0			Test pit ETP041 terminated at 1m				
							52.5							

Sketch

method	support	notes, samples, tests	classification symbols and soil description	consistency/density index
N natural exposure X existing excavation BH backhoe bucket B bulldozer blade R ripper E excavator	S shoring N nil penetration 1 2 3 4 no resistance ranging to refusal water water level on date shown water inflow water outflow	U ₅₀ undisturbed sample 50mm diameter U ₆₃ undisturbed sample 63mm diameter D disturbed sample V vane shear (kPa) 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

Excavation No. **ETP042**

Engineering Log - Excavation

Sheet 1 of 1
Project No: **GEOTKARI02021AA**

Client: **WYONG SHIRE COUNCIL**

Date started: **20.9.2007**

Principal:

Date completed: **20.9.2007**

Project: **WARNERVALE TOWN CENTRE**

Logged by: **DH**

Test pit location: **See Figure -**

Checked by: **SD**

equipment type and model: 8t Kubota Pit Orientation: N-S Easting: 356874 m R.L. Surface: 53.1
excavation dimensions: 2m long 1m wide Northing: 6321228 m datum: AHD

excavation information						material substance									
method	penetration 1 2 3			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	100 pocket 200 300 400 penetro- meter kPa	structure and additional observations
E				NIL		E	53.0				FILL; Gravelly SAND, fine to medium grained sand, brown, fine to medium grained gravel.	M			FILL
						E	0.5								
							52.5								SOME RUBBISH INCL. PLASTIC AND WOOD. SOME TREE TRUNKS.
						E	1.0								DUP 33
							52.0			CL	Sandy CLAY; Medium plasticity, brown/orange, fine to medium grained sand.	M>WP			RESIDUAL
						E	1.5								
							51.5				Test pit ETP042 terminated at 1.5m				
							2.0								

Sketch

method	support	notes, samples, tests	classification symbols and soil description	consistency/density index
N natural exposure X existing excavation BH backhoe bucket B bulldozer blade R ripper E excavator	S shoring N nil penetration 1 2 3 4 no resistance ranging to refusal water water level on date shown water inflow water outflow	U ₅₀ undisturbed sample 50mm diameter U ₆₃ undisturbed sample 63mm diameter D disturbed sample V vane shear (kPa) 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

Excavation No. **ETP043**

Engineering Log - Excavation

Sheet 1 of 1
Project No: **GEOTKARI02021AA**

Client: **WYONG SHIRE COUNCIL**

Date started: **20.9.2007**

Principal:

Date completed: **20.9.2007**

Project: **WARNERVALE TOWN CENTRE**

Logged by: **DH**

Test pit location: **See Figure -**

Checked by: **SD**

equipment type and model: 8t Kubota Pit Orientation: E-W Easting: 356923 m R.L. Surface: 47.0
excavation dimensions: 2m long 1m wide Northing: 6321238 m datum: AHD

excavation information					material substance							
method	penetration 1 2 3	support	water	notes samples, tests, etc	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
E		NIL		E				FILL; Gravelly SAND, fine to medium grained sand, brown, fine to medium grained gravel.	M			FILL
					46.5			FILL; Gravelly CLAY, medium plasticity, orange/brown, fine to medium grained gravel.	M>WP			
				E	46.0							RUBBISH INCL. PLASTIC AND TREE TRUNKS.
				E	45.5							NO HYDROCARBON ODOUR
				E	45.0		CL	Sandy CLAY; Medium plasticity, orange/grey, fine to medium grained sand.				RESIDUAL

Sketch

Test pit ETP043 terminated at 2m

method	support	notes, samples, tests	classification symbols and soil description	consistency/density index
N natural exposure X existing excavation BH backhoe bucket B bulldozer blade R ripper E excavator	S shoring penetration 1 2 3 4 no resistance ranging to refusal water water level on date shown water inflow water outflow	U ₅₀ undisturbed sample 50mm diameter U ₆₃ undisturbed sample 63mm diameter D disturbed sample V vane shear (kPa) 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

Excavation No. **ETP044**

Engineering Log - Excavation

Sheet 1 of 1
Project No: **GEOTKARI02021AA**

Client: **WYONG SHIRE COUNCIL**

Date started: **20.9.2007**

Principal:

Date completed: **20.9.2007**

Project: **WARNERVALE TOWN CENTRE**

Logged by: **DH**

Test pit location: **See Figure -**

Checked by: **SD**

equipment type and model: 8t Kubota Pit Orientation: E-W Easting: 356848 m R.L. Surface: 53.5
excavation dimensions: 2m long 1m wide Northing: 6321208 m datum: AHD

excavation information						material substance						
method	penetration 1 2 3	support	water	notes samples, tests, etc	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
E		NIL		E				FILL; Gravelly SAND, fine to medium grained sand, brown, fine to medium grained gravel.	D			FILL
					53.0							RUBBISH: PLASTIC BAGS AT 0.0 - 0.5 DEPTH
				E				FILL; Gravelly CLAY, medium plasticity, orange/brown, fine to medium grained gravel.	M<WP			
					52.5							DUP 34
				E			CL	Sandy CLAY; Medium plasticity, brown/orange, fine to medium grained sand.				RESIDUAL
					52.0							
				E				Test pit ETP044 terminated at 1.5m				
					51.5							
					2.0							

Sketch

method	support	notes, samples, tests	classification symbols and soil description	consistency/density index
N natural exposure X existing excavation BH backhoe bucket B bulldozer blade R ripper E excavator	S shoring N nil penetration 1 2 3 4 no resistance ranging to refusal water water level on date shown water inflow water outflow	U ₅₀ undisturbed sample 50mm diameter U ₆₃ undisturbed sample 63mm diameter D disturbed sample V vane shear (kPa) 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

Excavation No. **ETP045**

Engineering Log - Excavation

Sheet 1 of 1
Project No: **GEOTKARI02021AA**

Client: **WYONG SHIRE COUNCIL**

Date started: **20.9.2007**

Principal:

Date completed: **20.9.2007**

Project: **WARNERVALE TOWN CENTRE**

Logged by: **DH**





Test pit location: **See Figure -**

Checked by: **SD**

equipment type and model:	8t Kubota	Pit Orientation:	E-W	Easting:	356882 m	R.L. Surface:	53.5
excavation dimensions:	2m long 1m wide	Northing:	6321180 m	datum:	AHD		

excavation information					material substance							
method	penetration 1 2 3	support	water	notes samples, tests, etc	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
E		NIL		E				FILL; Gravelly SAND, fine to medium grained sand, brown, fine to medium grained gravel.	D			FILL
												RUBBISH INCL. PLASTIC AND TREE TRUNKS
				E	53.0			SANDSTONE; Orange/red/pale grey.				HIGHLY WEATHERED BEDROCK
				E	52.5							
					52.0			Test pit ETP045 terminated at 1m				
					51.5							

Sketch

method N natural exposure X existing excavation BH backhoe bucket B bulldozer blade R ripper E excavator	support S shoring N nil penetration 1 2 3 4  no resistance ranging to refusal water  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 V vane shear (kPa) 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
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Excavation No. **ETP046**

Engineering Log - Excavation

Sheet 1 of 1
Project No: **GEOTKARI02021AA**

Client: **WYONG SHIRE COUNCIL**

Date started: **20.9.2007**

Principal:

Date completed: **20.9.2007**

Project: **WARNERVALE TOWN CENTRE**

Logged by: **DH**

Test pit location: **See Figure -**

Checked by: **SD**

equipment type and model: 8t Kubota Pit Orientation: N-S Easting: 356862 m R.L. Surface: 51.5
excavation dimensions: 2m long 1m wide Northing: 6321162 m datum: AHD

excavation information						material substance							
method	penetration	support	water	notes samples, tests, etc	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	
E	1 2 3	NIL		E			SM	TOPSOIL; Silty SAND, fine to medium grained sand, brown.	D			TOPSOIL	
			None Observed				CL	Sandy CLAY; Medium plasticity, grey/brown, fine to medium grained sand.	M<WP			RESIDUAL	
				E	51.0	0.5							
				E	50.5	1.0							
					50.0	1.5							
					49.5	2.0		Test pit ETP046 terminated at 1m					

Sketch

method	support	notes, samples, tests	classification symbols and soil description	consistency/density index
N natural exposure X existing excavation BH backhoe bucket B bulldozer blade R ripper E excavator	S shoring N nil penetration 1 2 3 4 no resistance ranging to refusal water water level on date shown water inflow water outflow	U ₅₀ undisturbed sample 50mm diameter U ₆₃ undisturbed sample 63mm diameter D disturbed sample V vane shear (kPa) 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

Excavation No. **ETP047**

Engineering Log - Excavation

Sheet 1 of 1
Project No: **GEOTKARI02021AA**

Client: **WYONG SHIRE COUNCIL**

Date started: **20.9.2007**

Principal:

Date completed: **20.9.2007**

Project: **WARNERVALE TOWN CENTRE**

Logged by: **DH**

Test pit location: **See Figure -**

Checked by: **SD**

equipment type and model: 8t Kubota Pit Orientation: E-W Easting: 356901 m R.L. Surface: 54.0
excavation dimensions: 2m long 1m wide Northing: 6321133 m datum: AHD

excavation information						material substance							
method	penetration	support	water	notes samples, tests, etc	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	
U	1 2 3	NIL		E			SM	TOPSOIL; Silty SAND, fine to medium grained sand, brown.	M			TOPSOIL	
			None Observed				CL	Sandy CLAY; Medium plasticity, grey/orange/brown, fine to medium grained sand.	M<WP			RESIDUAL	
				E	53.5	0.5						DUP 35	
				E	53.0	1.0							
					52.5	1.5							
					52.0	2.0							
Test pit ETP047 terminated at 1m													

Sketch

method	support	notes, samples, tests	classification symbols and soil description	consistency/density index
N natural exposure X existing excavation BH backhoe bucket B bulldozer blade R ripper E excavator	S shoring N nil penetration 1 2 3 4 no resistance ranging to refusal water water level on date shown water inflow water outflow	U ₅₀ undisturbed sample 50mm diameter U ₆₃ undisturbed sample 63mm diameter D disturbed sample V vane shear (kPa) 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

Excavation No. **ETP048**

Engineering Log - Excavation

Sheet 1 of 1
Project No: **GEOTKARI02021AA**

Client: **WYONG SHIRE COUNCIL**

Date started: **20.9.2007**

Principal:

Date completed: **20.9.2007**

Project: **WARNERVALE TOWN CENTRE**

Logged by: **DH**

Test pit location: **See Figure -**

Checked by: **SD**

equipment type and model: 8t Kubota Pit Orientation: E-W Easting: 356923 m R.L. Surface: 54.5
excavation dimensions: 2m long 1m wide Northing: 6321129 m datum: AHD

excavation information						material substance						
method	penetration 1 2 3	support	water	notes samples, tests, etc	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
E		NIL		E			SM	TOPSOIL; Silty SAND, fine to medium grained sand, brown.	D			TOPSOIL
			None Observed				CL	Sandy CLAY; Medium plasticity, orange/brown, fine to medium grained sand.	M<WP			RESIDUAL
				E	54.0			SANDSTONE; Orange/pale grey.	D			HIGHLY WEATHERED BEDROCK
				E	53.5							
					53.0							
					52.5							
								Test pit ETP048 terminated at 1m				

Sketch

method	support	notes, samples, tests	classification symbols and soil description	consistency/density index
N natural exposure X existing excavation BH backhoe bucket B bulldozer blade R ripper E excavator	S shoring N nil penetration 1 2 3 4 no resistance ranging to refusal water water level on date shown water inflow water outflow	U ₅₀ undisturbed sample 50mm diameter U ₆₃ undisturbed sample 63mm diameter D disturbed sample V vane shear (kPa) 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

Excavation No. **ETP049**

Engineering Log - Excavation

Sheet 1 of 1
Project No: **GEOTKARI02021AA**

Client: **WYONG SHIRE COUNCIL**

Date started: **20.9.2007**

Principal:

Date completed: **20.9.2007**

Project: **WARNERVALE TOWN CENTRE**

Logged by: **DH**

Test pit location: **See Figure -**

Checked by: **SD**

equipment type and model: 8t Kubota Pit Orientation: E-W Easting: 356952 m R.L. Surface: 55
excavation dimensions: 2m long 1m wide Northing: 6321122 m datum: AHD

excavation information						material substance							
method	penetration 1 2 3	support	water	notes samples, tests, etc	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	
E		NIL		E				FILL; Gravelly SAND, fine to medium grained sand, brown, fine to medium grained gravel.	D			FILL RUBBISH INCL. PLASTIC, WOOD AND TREE TRUNKS. NO HYDROCARBON ODOUR HIGHLY WEATHERED BEDROCK	
								FILL; Gravelly CLAY, medium plasticity, brown/orange, fine to medium grained gravel.	M<WP				
				E	54.5								
				E	54.0			SANDSTONE; Orange/pale grey.	D				
				E	53.5			Test pit ETP049 terminated at 1.5m					
					53.0								

Sketch

method	support	notes, samples, tests	classification symbols and soil description	consistency/density index
N natural exposure X existing excavation BH backhoe bucket B bulldozer blade R ripper E excavator	S shoring N nil penetration 1 2 3 4 no resistance ranging to refusal water water level on date shown water inflow water outflow	U ₅₀ undisturbed sample 50mm diameter U ₆₃ undisturbed sample 63mm diameter D disturbed sample V vane shear (kPa) 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

Excavation No. **ETP050**

Engineering Log - Excavation

Sheet 1 of 1
Project No: **GEOTKARI02021AA**

Client: **WYONG SHIRE COUNCIL**

Date started: **20.9.2007**

Principal:

Date completed: **20.9.2007**


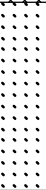
Project: **WARNERVALE TOWN CENTRE**

Logged by: **DH**

Test pit location: **See Figure -**

Checked by: **SD**

equipment type and model: 8t Kubota Pit Orientation: N-S Easting: 356970 m R.L. Surface: 53.2
excavation dimensions: 2m long 1m wide Northing: 6321143 m datum: AHD

excavation 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	
E	1	2	3	NIL												
						E		53.0			FILL; Gravelly SAND, fine to medium grained sand, brown, fine to medium grained gravel.	D			FILL	
																DUP 36
						E		0.5			SANDSTONE; Orange/pale grey.	D			RUBBISH INCL. PLASTIC BAGS	
								52.5								HIGHLY WEATHERED BEDROCK
						E		1.0								
								52.0			Test pit ETP050 terminated at 1m					
								1.5								
								51.5								
								2.0								

Sketch

method	support	notes, samples, tests	classification symbols and soil description	consistency/density index
N natural exposure X existing excavation BH backhoe bucket B bulldozer blade R ripper E excavator	S shoring N nil penetration 1 2 3 4 no resistance ranging to refusal water water level on date shown water inflow water outflow	U ₅₀ undisturbed sample 50mm diameter U ₆₃ undisturbed sample 63mm diameter D disturbed sample V vane shear (kPa) 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

Excavation No. **ETP051**

Engineering Log - Excavation

Sheet 1 of 1
Project No: **GEOTKARI02021AA**

Client: **WYONG SHIRE COUNCIL**

Date started: **20.9.2007**

Principal:

Date completed: **20.9.2007**




Project: **WARNERVALE TOWN CENTRE**

Logged by: **DH**





Test pit location: **See Figure -**

Checked by: **SD**

equipment type and model: 8t Kubota Pit Orientation: N-S Easting: 356948 m R.L. Surface: 53.5
excavation dimensions: 2m long 1m wide Northing: 6321147 m datum: AHD

excavation information								material substance							
method	penetration			support	water	notes samples, tests, etc	depth		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				RL	metres							
E				NIL		E					FILL; Gravelly SAND, fine to medium grained sand, brown, fine to medium grained gravel.	D			FILL
					None Observed										PLASTIC BAGS OBSERVED
						E	53.0	0.5			SANDSTONE; Orange/red/pale grey.				HIGHLY WEATHERED BEDROCK
						E	52.5	1.0							
							52.0	1.5			Test pit ETP051 terminated at 1m				
							51.5	2.0							

Sketch

method	support	notes, samples, tests	classification symbols and soil description	consistency/density index
N natural exposure X existing excavation BH backhoe bucket B bulldozer blade R ripper E excavator	S shoring N nil penetration 1 2 3 4  no resistance ranging to refusal water  water level on date shown  water inflow  water outflow	U ₅₀ undisturbed sample 50mm diameter U ₆₃ undisturbed sample 63mm diameter D disturbed sample V vane shear (kPa) 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 - Excavation

Client: **WYONG SHIRE COUNCIL**

Date started: **20.9.2007**

Principal:

Date completed: **20.9.2007**

Project: **WARNERVALE TOWN CENTRE**

Logged by: **DH**

Test pit location: **See Figure -**

Checked by: **SD**

equipment type and model: 8t Kubota Pit Orientation: E-W Easting: 356931 m R.L. Surface: 53.5
excavation dimensions: 2m long 1m wide Northing: 6321172 m datum: AHD

excavation information						material substance							
method	penetration 1 2 3	support	water	notes samples, tests, etc	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	
U		NIL		E				FILL; Gravely SAND, fine to medium grained sand, brown, fine to medium grained gravel.	D			FILL	
				E	53.0			FILL; Gravely CLAY, medium plasticity, orange/brown, fine to medium grained gravel.				RUBBISH INCL, PLASTIC BAGS, TREE TRUNKS AND WOOD ITEMS	
												NO HYDROCARBON ODOUR	
				E	52.5							RESIDUAL	
							CL	Sandy CLAY; Medium plasticity, orange/grey, fine to medium grained sand.	M<wp			DUP 37	
				E	52.0								
					51.5			Test pit ETP052 terminated at 1.5m					

Sketch

method	support	notes, samples, tests	classification symbols and soil description	consistency/density index
N natural exposure X existing excavation BH backhoe bucket B bulldozer blade R ripper E excavator	S shoring N nil penetration 1 2 3 4 no resistance ranging to refusal water water level on date shown water inflow water outflow	U ₅₀ undisturbed sample 50mm diameter U ₆₃ undisturbed sample 63mm diameter D disturbed sample V vane shear (kPa) 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

Excavation No. **ETP053**

Engineering Log - Excavation

Sheet 1 of 1
Project No: **GEOTKARI02021AA**

Client: **WYONG SHIRE COUNCIL**

Date started: **20.9.2007**

Principal:

Date completed: **20.9.2007**

Project: **WARNERVALE TOWN CENTRE**

Logged by: **DH**

Test pit location: **See Figure -**

Checked by: **SD**

equipment type and model: 8t Kubota Pit Orientation: N-S Easting: 356961 m R.L. Surface: 52.7
excavation dimensions: 2m long 1m wide Northing: 6321177 m datum: AHD

excavation information						material substance						
method	penetration	support	water	notes samples, tests, etc	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
U	1 2 3	NIL		E	52.5		SM	TOPSOIL; Silty SAND, fine to medium grained sand, dark brown.	D			TOPSOIL
		None Observed		E	0.5		CL	Sandy CLAY; Medium plasticity, orange/red/brown, fine to medium grained sand.	M<WP			RESIDUAL
				E	52.0			SANDSTONE; Orange/pale grey.	D			HIGHLY WEATHERED BEDROCK
				E	1.0			Test pit ETP053 terminated at 1m				
					51.5							
					1.5							
					51.0							
					2.0							

Sketch

method	support	notes, samples, tests	classification symbols and soil description	consistency/density index
N natural exposure X existing excavation BH backhoe bucket B bulldozer blade R ripper E excavator	S shoring N nil penetration 1 2 3 4 no resistance ranging to refusal water water level on date shown water inflow water outflow	U ₅₀ undisturbed sample 50mm diameter U ₆₃ undisturbed sample 63mm diameter D disturbed sample V vane shear (kPa) 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

Excavation No. **ETP054**

Engineering Log - Excavation

Sheet 1 of 1
Project No: **GEOTKARI02021AA**

Client: **WYONG SHIRE COUNCIL**

Date started: **21.9.2007**

Principal:

Date completed: **21.9.2007**




Project: **WARNERVALE TOWN CENTRE**

Logged by: **DH**

Test pit location: **See Figure -**

Checked by: **SD**

equipment type and model: 8t Kubota Pit Orientation: E-W Easting: 356750 m R.L. Surface: 47
excavation dimensions: 2m long 1m wide Northing: 6321248 m datum: AHD

excavation 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	100 pocket penetro- meter kPa	structure and additional observations	
E	1	2	3	N	None Observed	E				SM	TOPSOIL; Silty SAND, fine to medium grained, brown.	D			TOPSOIL	
																DUP 41
						E	46.5	0.5		CL	Sandy CLAY; Medium plasticity, orange and brown, fine to medium grained sand.	M<Wp				RESIDUAL
												SANDSTONE; Orange and pale grey.	D			
						E	46.0	1.0								
											Test pit ETP054 terminated at 1m					
							45.5	1.5								
							45.0	2.0								
							44.5	2.5								

Sketch

method	support	notes, samples, tests	classification symbols and soil description	consistency/density index
N natural exposure X existing excavation BH backhoe bucket B bulldozer blade R ripper E excavator	S shoring N nil penetration 1 2 3 4 no resistance ranging to refusal water water level on date shown water inflow water outflow	U ₅₀ undisturbed sample 50mm diameter U ₆₃ undisturbed sample 63mm diameter D disturbed sample V vane shear (kPa) 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

Excavation No. **ETP055**

Engineering Log - Excavation

Sheet 1 of 1
Project No: **GEOTKARI02021AA**

Client: **WYONG SHIRE COUNCIL**

Date started: **21.9.2007**

Principal:

Date completed: **21.9.2007**

Project: **WARNERVALE TOWN CENTRE**

Logged by: **DH**





Test pit location: **See Figure -**

Checked by: **SD**

equipment type and model: 8t Kubota Pit Orientation: N-S Easting: 356774 m R.L. Surface: 48
excavation dimensions: 2m long 1m wide Northing: 6321231 m datum: AHD

excavation information						material substance						
method	penetration	support	water	notes samples, tests, etc	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
W	1 2 3	N	None Observed	E			SM	TOPSOIL; Silty SAND, fine to medium grained, dark brown.	D			TOPSOIL
					47.5		CL	Sandy CLAY; Medium plasticity, orange and brown, fine to medium grained.	M<Wp			RESIDUAL
				E				SANDSTONE; Orange and pale grey.	D			HIGHLY WEATHERED BEDROCK
				E	47.0			Test pit ETP055 terminated at 1m				
					46.5							
					46.0							
					45.5							

Sketch

method	support	notes, samples, tests	classification symbols and soil description	consistency/density index
N natural exposure X existing excavation BH backhoe bucket B bulldozer blade R ripper E excavator	S shoring N nil penetration 1 2 3 4  no resistance ranging to refusal water  water level on date shown  water inflow  water outflow	U ₅₀ undisturbed sample 50mm diameter U ₆₃ undisturbed sample 63mm diameter D disturbed sample V vane shear (kPa) 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 - Excavation

Excavation No. **ETP056**

Sheet 1 of 1
Project No: **GEOTKARI02021AA**

Client: **WYONG SHIRE COUNCIL**

Date started: **21.9.2007**

Principal:

Date completed: **21.9.2007**

Project: **WARNERVALE TOWN CENTRE**

Logged by: **DH**

Test pit location: **See Figure -**

Checked by: **SD**

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