Appendix A

Results of Field Investigations

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coffey	geote	chnics					
Engineering					Excava Sheet Project	tion No. No [.]	TP 1 1 of 1 GEOTPMAQ00064AA
Client: MAC	LEAY VALLEY P	ROPERTY GROUP)		Date st		15.9.2006
Principal:					Date co	mpleted	d: 15.9.2006
Project: GREC	GORY STREET, S	SOUTH WEST ROC	CKS		Logged	l by:	TLM
Test pit location: REFE	ER TO DRAWING				Checke	ed by:	
	Bobcat Mini Excavator	Pit Orientation:	Easting:	m			. Surface: Not Measured
excavation dimensions: 1. excavation information	.5m long 0.3m wide material s	ubstance	Northing:	m		datı	um:
uoitatian beuettation beuettation tests, etc tests, etc tests, etc tests, etc	LT wettee graphic log symbol symbol	mat soil type: plasticity or p colour, secondary an	erial particle characteristics, d minor components.	moisture condition	consistency/ density index	100 × pocket 200 × pocket 300 v penetro- 400 meter	structure and additional observations
None Observed	0.5 1.0 1.5 2.0 2.5	TOPSOIL: SAND, fine to m <u>orey, fine roots, trace organic</u> SAND: fine to medium grain organic fines, trace roots. Indurated SAND: fine to m brown / orange / dark grey, from 1.5m. Weakly Indurated SAND: fine dark brown / dark grey, trace Test pit TP 1 terminated at	ned, dark grey, some edium grained, dark with organic fines, wet ine to coarse grained, se clay.	W	Fb/L Fb/L		TOPSOIL AEOLIAN
Sketch method N natural exposure X existing excavation BH backhoe bucket B bulldozer blade R nipper E excavator	support S shoring N nil penetration 1 2 3 4 ranging to refusal water ✓ water level ✓ on date shown	notes, samples, tests U _{to} undisturbed sample U _{to} undisturbed sample D disturbed sample V vane shear (kPa) Bs bulk sample E environmental samp R refusal	50mm diameter soil 63mm diameter system mole	sification so description ed on unified em sture dry moist wet plastic lim liquid limit	l classificat		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

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TESTPIT 00064AA LOGS.GPJ COFFEY.GDT 13.10.0

coffey s	eotechnics	
concy a		Excavation No. TP 2
Client: MACLEAY V	- Excavation	Sheet 1 of 1 Project No: GEOTPMAQ00064AA Date started: 15.9.2006
Principal:		Date completed: 15.9.2006
Project: GREGORY S	TREET, SOUTH WEST ROCKS	Logged by: TLM
Test pit location: REFER TO D	RAWING	Checked by:
equipment type and model: Bobcat Mini E	~	R.L. Surface: Not Measured
excavation dimensions: 1.5m long (excavation information).3m wide Northing: m material substance	datum:
notes samples, to d a d 1 2 3 1 2 3 notes samples, tests, etc d dpth RL metres	ව ල ල ට ට ට ට ට ට ට ට ට ට ට ට ට ට ට ට ට	additional device the structure and the structur
W N	SM TOPSOIL: Silty SAND, brown / grey, fine roots. SM SAND: fine to medium grained, dark grey / brown, with dark organic fines.	M Fb TOPSOIL Fb/L AEOLIAN - W - - I I I -
	N nil U _{so} undisturbed sample 50mm diameter Usa soil descrip D disturbed sample 63mm diameter D based on un system o resistance nging to fusal V vane shear (kPa) E environmental sample D R refusal M vvel wet W	nified classification S soft F firm St stiff VSt very stiff H hard t Fb friable VL very loose ic limit L loose

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	ЛС	У	~ 2	,				Excava	ation No.	TP 3
Eng	gineer	ing	Log	- E	Exc	avation		Sheet	. N.a.	1 of 1 GEOTPMAQ00064AA
Client:						ROPERTY GROUP		Projec Date s		15.9.2006
Principa	al:							Date c	omplete	d: 15.9.2006
Project:	:	GREG	GORY S	TRE	ET, \$	SOUTH WEST ROCKS		Logge	d by:	TLM
Test pit	location:	REFE	R TO D	RAN	/ING			Check	ed by:	
	nt type and moo		obcat Mini E			•	m			. Surface: Not Measured
_	on dimensions: ation informa		5m long (0.3m wi mate		ubstance	m		dat	um:
method 7 T penetration	5 0	otes nples, ts, etc F	depth RL metres	graphic log	classification symbol	material soil type: plasticity or particle characteristics, colour, secondary and minor components.	moisture	consistency/ density index	100 × pocket 200 × penetro- 300 × penetro- 400 meter	structure and additional observations
Ш	N			<u>}</u>]}	SM	TOPSOIL: SAND, fine to medium grained, pale grey, fine roots.	м	Fb		TOPSOIL
			- 0. <u>5</u> -		SP	SAND: fine to coarse grained, grey, trace fine organics.		Ļ		AEOLIAN
			1. <u>0</u> -			INDURATED SAND: fine to medium grained, brown / dark brown, with fine organics.	w	D		
			1. <u>5</u> - - 2. <u>0</u>		SP	SAND: fine to coarse grained, white, trace fine shell fragments? Hole collapsing from 1.6m.		MD		
				····		Test pit TP 3 terminated at 2.2m				
			2.5							-
Sketch	h									
X BH B R	natural exposure S shoring N nil U_{so} undisturbed sample 50mm diameter soil desc							d classifica		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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	COffey Engineerin	g Log - Ex	cavation	Excava Sheet Project	ation No. TP 5 1 of 1 No: GEOTPMAQ000644
	Principal: Project: GRI		ROPERTY GROUP SOUTH WEST ROCKS	Logged	pmpleted: 15.9.2006 I by: TLM
·	equipment type and model:	Bobcat Mini Excavator 1.5m long 0.3m wide	Pit Orientation: Easting:	m	R.L. Surface: Not Measured
	excavation information excavation information interpretation pour term to a samples, tests, etc tests, etc	material s sitication bol	material	a moisture condition consistency/ density index	datum:
0	I 1.2.3 III N Instruction particular	depth RL metres end of the second second second secon	soil type: plasticity or particle characteristics colour, secondary and minor components. TOPSOIL: Silty SAND, fine to coarse grained, da brown, with fine to medium sized roots, trace charcoal. Clayey SAND: fine to coarse grained, pale brown with minor pale orange mottling, clay low plasticit trace roots. Sandy CLAY: low to medium plasticity, orange / brown, sand fine to coarse grained. Test pit TP 5 terminated at 1.8m	rk M Fb	RESIDUAL
TESTPIT 00064AA LOGS.GPJ COFFEY.CDT 19.10.06	Sketch	2.5			
TESTPIT Form GEO 5,2 Issue 3 Rev.2	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 radiusi water water level on date shown water inflow water outflow	Upp undisturbed sample 50mm diameter so Usa undisturbed sample 63mm diameter ba D disturbed sample sys V vane shear (kPa) sys		VS very soft

									chnics		-	Excava	ation N		TP 6	
E	ng	jir	1e	ering	g L	-00	J -	Ex	cavation			Sheet Project	No:	1	l of 1 GEOTPN	1AQ00064
Clie	ent:			МАС	CLE.	ΑΥν	ALL	EYP	ROPERTY GROU	IP	(Date st	tarted:		15.9.200	6
Pri	ncipa	1:									1	Date co	omplet	ed:	15.9.200	6
Pro	oject:								SOUTH WEST RC	OCKS	. 1	logged	i by:		TLM	
	st pit			REF								Check	•			
	iipmer avatio				Bobca 1.5m l	it Mini E orig 4	:xcava 0.3m w		Pit Orientation:	Easting: n Northing: n	n n			.L. S atun		Measured
ex	2	tion	info	rmation		Ť	mat		ubstance					_		
method	2 penetration	support	water	notes samples, tests, etc	RĻ I	depth metres	graphic log	classification symbol	soil type: plasticity or	terial particle characteristics, ind minor components.	moisture condition	consistency/ density index	100 Pocket 200 Appocket 300 ed penetro-			ure and observations
ш		N				_			TOPSOIL: Silty SAND, fir brown, fine to thick roots.	ne to coarse grained, dark	м	Fb			TOPSOIL	
						- - 0. <u>5</u>			SAND: fine to coarse grai clay, trace fine to medium	ned, pale brown, trace 1 roots.						
		Header Herblacker, Innerferanz z Inniana z nazlabis	None Observed	-		- - 1.0										
			~	U ₅₀					Sandy CLAY: low plastici mottles, sand fine to coar:		<wpm< td=""><td>St/VSt</td><td></td><td>-</td><td>RESIDUAL</td><td></td></wpm<>	St/VSt		-	RESIDUAL	
						1.5			Sandy CLAY: low plastici orange, sand fine to coars	se grained.	<wp< td=""><td>St/Fb</td><td></td><td></td><td>EXTREMELY WE GRANITE</td><td>EATHERED</td></wp<>	St/Fb			EXTREMELY WE GRANITE	EATHERED
						2. <u>0</u> -			Test pit TP 6 terminated a	it 1.8m						
						2.5										
S	iketc	ו														
me N BH B R E	thod	existi back	ing ex hoe b ozer b r		S	ter water li	n io resista anging to efusal			turbed sample 50mm diameter soil desi turbed sample 63mm diameter based or bed sample shear (kPa) ample moisturi onmental sample D dr		classifica			S s F fr St s VSt v H h Fb fr VL v	nsity index rery soft oft im tiff ery stiff ard riable rery toose pose endum dense

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Project:								SOUTH WE	STRUCKS			Logged	-		TLM
Test pit equípme					TO E at Mini E							Checke	ed by		
excavatio	• •			1.5m		0.3m w		Pit Orientatio		sting: m rthing: m				R.L. datu	Surface: Not Measured
		info	rmation		U			ubstance						Gata	
method penetration	support	water	notes samples, tests, etc		depth	graphíc log	classification symbol	soil type: p	material lasticity or particle charac	teristics	moisture condition	consistency/ density index	a pocket	e meter	structure and additional observatior
E 12	3 ³	Ň		RL	metres	5	SM SM	colour, se	condary and minor compo Gravelly SAND, fine to co	onents.	ĔŌ	1	8 g	89 89	
					-		OW	grained, dark br roots, large cob	own, gravel fine to coarse ples to 600mm.	grained,	IVI	Fb			TOPSOIL / COLLUVIUM
					_		CL	Sandy Gravelly	CLAY: low plasticity, brow ained, gravel fine to coard	vn, sand se grained.		Fb/F			COLLUVIAL
2000					0.5		CL	Sandy CLAY: Ic	w to medium plasticity, or	ange with		St			RESIDUAL
		irved			-			rea / white mottl	es, sand fine to coarse gr	ained.					
		Observed	U ₅₀		-										
		None													
					1. <u>0</u>										
							CL	Sandy Gravelly orange / red mo	CLAY: low plasticity, whit ttles, sand fine to coarse	e with grained.	1	Fb/VSt			EXTREMELY WEATHERED
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	existing backho bulldoz	e bu			etration			D disturbe	rbed sample 63mm diameter ed sample soor (//Po)	based or system	n unified c	lassificati	ion		S soft F firm
R	ripper excava				- n	o resistar Inging to fusal	109	Bs bulk sa	iear (kPa) mple mental sample	moisture D dr					St stiff VSt very stiff H hard
-				wat				E environ R refusal	montar admpte	1	oist				H hard Fb friable VL very loose
				–	on date					Wp pt	astic limit uid limit				L loose MD medium dense
				-	water in water of					1					D dense

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Ρ	rincipa	al:								Date c	ompleted	: 15.9.2006
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	cavatio	-			1.5m l	it Mini E long (0.3m w		Pit Orientation: Easting: m Northing: m		R.L. datu	Surface: Not Measured
e		·	n info	rmation	1		mat		ubstance		······	
method	5 penetration	11	water	notes samples, tests, etc		depth metres	graphic log	classification symbol	material soil type: plasticity or particle characteristics, colour, secondary and minor components.	condition consistency/ density index	100 pocket 200 pocket 300 penetro- 400 meter	structure and additional observations
Ľ		ľ	1			-		SM	TOPSOIL: Silty Gravelly SAND, fine to coarse f grained, dark brown, gravel fine to coarse grained, fine to medium roots with large cobbles (<400mm) of subrounded granite.	MFb		TOPSOIL / COLLUVIAL
				E	-	0. <u>5</u>		SC CL	Gravelly Clayey SAND: fine to coarse grained, dark brown, clay low plasticity, gravel fine to coarse	F/St	_ L	COLLUVIAL RESIDUAL
			Nane Observed		1				Sandy CLAY: medium plasticity, orange, red / white mottling, sand fine to coarse grained.			
			le Obs	U ₅₀								
			Nor		-	1 <u>0</u>						-
						-						
												•
						1. <u>5</u>						
						-		CL	Sandy CLAY: low to medium plasticity, white with red / orange mottling, trace gravel.	M Fb/VS		EXTREMELY WEATHERED GRANITE
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	Princi	ipal:										I	Date co	omplete	d: 15.9.200	6
	Proje									SOUTH WEST ROCKS			_oggec		TĿM	
	Test p equipm						TO L at Mini E		·	Pit Orientation: Easting:	וח	(Checke	-	. Surface: Noi	t Measured
	excava	ation	dime	ensio	ns:			0.3m w		Northing:	ភា			dat		IMEASUIEU
╞	1		on i	nfor	mation	1		mat		ubstance	· · · · ·					
	81	∾ penetration	support	water	notes samples, tests, etc	RL	depth metres		classification symbol	material soil type: plasticity or particle characteristics, colour, secondary and minor components.	moisture	condition	consistency/ density index	100 × pocket 200 × pocket 300 % penetro- 400 meter		ture and observations
ľ	Ш		N				-	BIB	SP SP	TOPSOIL: SAND, fine to medium grained, grey, fin roots.		М	Fb	-004		····
							-		3-	SAND: fine to medium grained, grey / dark grey, trace black organic fines.			L		AEOLIAN	. –
				None Observed	Bs		0. <u>5</u> 1. <u>0</u> 1. <u>5</u>			Pit collapsing from 0.6m. Wet from 1.2m. Refusal on hole collapsing. Test pit TP11 terminated at 1.3m		W				
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7742410	method N X BH B R E	na ex ba bu rip	isting Ickho	e buc er bla	vation ket	S pe 1	ेल्ल्य हर	o resistar anging to afusal evel e shown	nil	U ₅₀ undisturbed sample 50mm diameter soil U ₆₃ undisturbed sample 63mm diameter bas D disturbed sample sys V vane shear (kPa) vane shear (kPa)		ified c			S s F fi St s VSt v H h Fb fr VL v L k MD n D d	nsity index very soft voft im tiff very stiff aard every loose oose nedium dense lense very dense

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Cli	ent:			MA	CLE,	AYV	ALL	EY P	ROPERTY GROUI	2			Date st			.9.2006	
Pri	ncipa	al:											Date co	ompleter	d: 15 .	.9.2006	
Pro	oject:			GR	EGO	RYS	TRE	ЕΤ, \$	SOUTH WEST RO	скѕ			Logged	d by:	TL	М	
Tes	st pit	loc	ation	: RE	FER	TO D	RAV	VING					Checke	ed by:			
		-		d model:		it Mini E			Pit Orientation:	Easting:	nı			R.L	. Surface:	: Not Measured	
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method	penetration	ر میں میں م	water	notes samples tests, et		depth	graphic log	classification symbol		terial particle characteristic:	s,	moisture condition	consistency/ density index	A pocket ed penetro- meter	ad	structure and ditional observations	\$
Е Ш	12:	3	i S		RL	metres	5	ਦੋਠੇ SM	colour, secondary a	nd minor components		Ĕ S M	응용 Fb	200 200 200 200 200	TOPSO	11	
						-		SC	brown, fine to medium roo Silty Clayey SAND: fine to clay low plasticity.	ts.		<wp< td=""><td>Fb/F</td><td></td><td>COLLUN</td><td></td><td></td></wp<>	Fb/F		COLLUN		
				Bs	_	0. <u>5</u>		CL	Sandy CLAY: low to medi	um plasticity, orange v	vith	M <wp< td=""><td>St</td><td></td><td>RESIDU</td><td>JAL</td><td></td></wp<>	St		RESIDU	JAL	
						- - 1. <u>0</u>			red / brown mottling, sand	fine to coarse grained	i.						-
				-		- - - 1.5			ĩ								
			•						Minor water inflow at 1.6m			w			-		-
						_ 2. <u>0</u> _ _ _			Test pit TP12 terminated a	t 1.8m						:	
S	ketcł	I										<u></u>					
meti N BH B R E		exis back bulk rippe	ing ex hoe b lozer b		Ss pen 12 14 wat	ra re	o resistan nging to fusal wel shown	nil	notes, samples, tests U _{so} undisturbed sample D disturbed sample V vane shear (kPa) Bs bulk sample E environmental sam R refusal	e 50mm diameter s e 63mm diameter s ple C N V V V V	ioil desc pased on system noisture > dry A mo V we Vp pla	ription unified	mbols an		consis VS F St VSt H Fb VL L MD D	stency/density index very soft soft firm stiff hard friable very loose loose medium dense dense	

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Clien	it:			MAC	CLE	AYV	ALL	EYP	ROPERTY GROUI	2			Date st			2006	
Princ	ipal:											I	Date co	mplete	d: 15.9.	2006	
Proje	ect:			GRE	GO	RYS	TRE	ET, \$	SOUTH WEST RO	CKS		I	ogged	by.	TLM		
Test	pit lo	ocati	on:	REF	ER	TO D	RAV	VING				I	Checke	ed by:			
equipr	ment	type	and	model:	Bobca	at Mini E	xcavat	or	Pit Orientation:	Easting	: m			R.L	Surface:	Not Measured	I
excav				ns: mation	1.5m l	long (ubstance	Northin	g: m			dat	um:		
	penetration			notes						terial			ncy/ ndex	pocket penetro- meter			
	oued 2 3	support	water	samples, tests, etc	RL	depth metres	graphic log	classification symbol	soil type: plasticity or colour, secondary a	nd minor componen	ts.	moisture condition	consistency/ density index	6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6		structure and ional observatic	ns
E		N				-		SM	TOPSOIL: Silty SAND, fin brown, fine to medium roo	: to coarse grained, ls.	dark	M	Fb		TOPSOIL		
						-	15 15 /X//	SC	Clayey Silty SAND: fine to	coarse grained, pa	le		Fb/S		COLLUVIA		
			ſ	.		0. <u>5</u>	X	<i>i</i>	brown, clay low plasticity.								-
	10000			Bs		-			Wet from 0.6m, minor wat	er inflow.		w					
					1		M										
						1.0		CL.	Sandy CLAY: low to medi	um plasticity, orange	e /	M <wp< td=""><td>St/Fb</td><td></td><td>RESIDUAL</td><td></td><td></td></wp<>	St/Fb		RESIDUAL		
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etho						port			notes, samples, tests		classifica		nbols and	i		cy/density index	
	e>		exca	avation	Ss	horing	N	nil	U ₅₀ undisturbed sample U ₆₃ undisturbed sample		soil desc based on	•	lassificati	on	∨s s	very soft soft	
H	bu	ackho Ilidoz			pen 1 2	etration	o resistar	ice	D disturbed sample V vane shear (kPa)	L	system				F St	firm stiff	
		per cava	tor			ra re	nging to fusal		Bs bulk sample E environmental sam	ple	moisture D dr∖	/			VSt H	vary stiff hard	
						water le			R refusal		M mo W we	bist t			Fb VL	friable very loose	
					<u> </u>	on date	shown					istic limit uid limit			L MD	loose medium dens	e
						water in	flow	1							D	dense	

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	rojec est p		cat	ion:			ORY S R TO E			SOUTH WEST ROCI	<s< td=""><td></td><td></td><td>.ogged Checke</td><td></td><td></td><td>TLM</td><td></td><td></td></s<>			.ogged Checke			TLM		
ex	cava	tion	dim	ensio		1.5n	cat Mini E n Iong	0.3m v	vide	Pit Orientation:	Easting: Northing:	m m				R.L. Su atum:		Measured	
method		penetration	on toddns	water	notes sample tests, e	s, tc	depth	aphic log	classification symbol	ubstance mater soil type: plasticity or pa	rticle characteristics		moisture condition	consistency/ density index	ad penetro-			ure and observations	
E W	1.	23	2 St	None Observed w		RL	netres		SP SP SP	Colour, secondary and TOPSOIL: SAND, fine to med roots. SAND: fine to medium graine grey, trace roots and organic Hole collapsing from 1m. SAND: fine to coarse grained Hole collapsing. Test pit TP14 terminated at 1	minor components. dium grained, grey, d, dark grey / pale fines. , pale grey / white.		<u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u></u>	S P		ТС	DPSOIL EOLIAN		
	Sket	na ex ba bu rip	isting ckhc	e buo er bia	avation sket	S pe 1	in a state	o resistar inging to fusal ivel shown	nil	notes, samples, tests U _{so} undisturbed sample 50 U _{sa} undisturbed sample 63 D disturbed sample V vane shear (kPa) Bs bulk sample E environmental sample R refusal)mm diameter so 3mm diameter ba sy m	oil descri ased on u stem oisture dry mois f wet p plas	iption unified c	ibols and			S so F fir St st VSt ve H ha Fb fr VL ve L lo MD m	ery soft oft m	

(

coffey	n aeot	echnics	
COLLEY	- 900C	50111100	Excavation No. TP15
Principal: Project: GF	ACLEAY VALLEY	PROPERTY GROUP SOUTH WEST ROCKS	Sheet 1 of 1 Project No: GEOTPMAQ00064AA Date started: 15.9.2006 Date completed: 15.9.2006 Logged by: TLM Checked by: Checked by:
equipment type and model:	Bobcat Mini Excavator	Pit Orientation: Easting: m	R.L. Surface: Not Measured
excavation dimensions: excavation information	1.5m long 0.3m wide	Northing: m	datum:
rotes pour service sample table to the sample tests. e	s' 'ic log		condition condition condition condition condition structure and adquisition addition structure and adquisition condi
	0.5 0.5 1.0 1.0 2.0 - - - - - - - - - - - - -	brown, with fine roots and large cobbles (750mm) of subrounded granite. SAND: fine to coarse grained, pale brown, trace orange motiles, with some large (>300mm) subrounded cobbles - orange granite.	M Fb TOPSOIL
method N natural exposure X existing excavation BH backhoe bucket B buildozer blade R ripper E excavator	support S shoring N nil penetration 1 2 3 4 nor resistance ranging to refusal water water level on date shown water outflow	U _{so} undisturbed sample 50mm diameter soil descrip	ified classification S soft F firm St stiff VSt very stiff H hard Fb friable VL very loose

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Form GEO 5.2 Issue 3 Rev.2

Appendix B

Results of Laboratory Testing

1/37 Jindalee Rd Port Macquarie NSW 2444 Telephone (02) 65810142 Fax (02) 65810129

DYNAMIC PENETROMETER TEST RESULTS

DATE :

CLIENT : Macleay Valley Property Group PO Box 3254, Narellan NSW 2567

PROJECT No :GEOTPMAQ0064AA

PROJECT : Gregory Street Subdivision

REPORT No: GEOTPMAQ00064AA - 1a

15.09.06

LOCATION : South West Rocks

DEDTUDA	PENETRATION RESISTANCE BLOWS / 150mm							
DEPTHM								
	TP 1	TP 2	TP 4	TP 7	TP 8	TP 9	TP 10	TP 11
0.00 - 0.15	2	3	2	2	2	4	4	1
0.15 - 0.30	2	4	3	3	3	5	4	2
0.30 - 0.45	2	4	4	4	3	5	2	2
0.45 - 0.60	2	3	3	2	Refusal	6	1	2
0.60 - 0.75	3	4	3	3		6	1	2
0.75 - 0.90	4	5	3	3		6	2	2
0.90 - 1.05	11	4	2	4		Refusal	Refusal	1
1.05 - 1.20	7	3	2	5				3
1.20 - 1.35	5	6	3	5				3
1.35 - 1.50	5	7	4	. 6				3
1.50 - 1.65			5				· · · · · · · · · · · · · · · · · · ·	,
1.65 - 1.80								
1.80 - 1.95				-				
1.95 - 2.10								
2.10 - 2.25								<u></u>
2.25 - 2.40	- **. <u>-</u> *.			·····		· · · · · · · · · · · · · · · · · · ·		
2.40 - 2.55						<u> </u>		
2.55 - 2.70								
2.70 - 2.85	.							
2.85 - 3.00			<u> </u>					

TEST METHOD

AS1289, 6.3.3 PERTH SAND PENETROMETER

, le 1200, 0.0

Approved Signatory S Ryan Laboratory 9849

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T13

TESTED BY: BL

1/37 Jindalee Rd Port Macquarie NSW 2444 Telephone (02) 65810142 Fax (02) 65810129

DYNAMIC PENETROMETER TEST RESULTS

DATE :

CLIENT : Macleay Valley Property Group PO Box 3254, Narellan NSW 2567 PROJECT No :GEOTPMAQ0064AA

REPORT No: GEOTPMAQ00064AA - 1b

15.09.06

PROJECT : Gregory Street Subdivision

LOCATION : South West Rocks

PENETRATION RESISTANCE BLOWS / 150mm DEPTH M LOCATION TP 12a TP 13 TP 16 TP 17 **TP 18** 0.00 - 0.15 2 1 1 1 2 0.15 - 0.30 4 2 2 2 4 0.30 - 0.453 1 1 3 4 0.45 - 0.60 3 2 2 3 3 0.60 - 0.75 3 2 2 6 3 0.75 - 0.90 2 3 3 5 4 0.90 - 1.05 1 4 3 3 4 1.05 - 1.20 2 4 3 3 4 1.20 - 1.35 7 5 4 6 6 1.35 - 1.50 8 7 4 7 7 1.50 - 1.65 1.65 - 1.80 1.80 - 1.95 1.95 - 2.10 2.10 - 2.25 2.25 - 2.40 2.40 - 2.55 2.55 - 2.70 2.70 - 2.85 2.85 - 3.00

TEST METHOD

AS1289, 6.3.3 PERTH SAND PENETROMETER



Approved Signatory, S Ryan Laboratory 9849

TESTED BY: BL

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1/37 Jindalee Rd Port Macquarie NSW 2444 Telephone (02) 65810142 Fax (02) 65810129

DYNAMIC PENETROMETER TEST RESULTS

DATE :

CLIENT : Macleay Valley Property Group PO Box 3254, Narellan NSW 2567

PROJECT No : GEOTPMAQ00064AA

PROJECT : Gregory Street Subdivision

REPORT No : GEOTPMAQ00064AA - 1c

15.09.06

LOCATION : South West Rocks

DEDTUN	PENETRATION RESISTANCE BLOWS / 150mm							
DEPTH M		1	1	LOC	ATION	· · · · · · · · · · · · · · · · · · ·		
	TP 12b							
0.00 - 0.15	2							
0.15 - 0.30	5							
0.30 - 0.45	6							
0.45 - 0.60	5							
0.60 - 0.75	7							
0.75 - 0.90	10		· · · · · · · · · · · · · · · · · · ·					
0.90 - 1.05	12							
1.05 - 1.20	15							
1.20 - 1.35	15							
1.35 - 1.50	17							
1.50 - 1.65			· · ·					
1.65 - 1.80								
1.80 - 1.95								
1.95 - 2.10								
2.10 - 2.25		*******						
2.25 - 2.40					· · · · · · · · · · · · · · · · · · ·	<u> </u>		
2.40 - 2.55								· ·
2.55 - 2.70								
2.70 - 2.85							,	
2.85 - 3.00			L	·····		····		

TEST METHOD

AS1289, 6.3.2 CONE PENETROMETER

TESTED BY: BL



Approved Signatory: S Ryan Laboratory 9849

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PO BOX 5727 Port Macquarie NSW 2444 Ph: (02) 6581 0142 Fax: (02) 6581 0129

client : Macleay Valley Property Grou	p job no : GEOTPMAQ00064AA
orincipal : project : Gregory Street Subdivision ocation : South West Rocks	laboratory :PORT MACQUARIEdate :October 17, 2006test report no. :2
test procedure : AS1289 3.8.1 sample number: PM 7271 sample identification: TP 9, 0.6 - 1.0m	date sampled: 11.10.06 material source:
test data	immersion of air dried crumbs
air dried crumbs	does not slake
ime dispersion commences:	does not swell (8)
time dispersion completed:	partial dispersion (2) no dispersion
remoulded material	immersion of remoulded material
time start of test: time dispersion commences: time dispersion completed:	disperses 3 does not disperse calcite or gypsum
material description	present (4) absent
Silty CLAY	vigorous shaking disperses 🛛 (5) flocculates 🗋 (6)
ype of water used: <i>distilled</i>	Emerson 5



PO BOX 5727 Port Macquarie NSW 2444 Ph: (02) 6581 0142 Fax: (02) 6581 0129

ient : Macleay Valley Property Group	job no : GEOTPMAQ00064AA
rincipal :	laboratory : PORT MACQUARIE
roject : Gregory Street Subdivision	date : October 17, 2006
cation : South West Rocks	test report no. : 3
est procedure : AS1289 3.8.1 ample number: PM 7277 ample identification: TP 7, 1.5 - 1.6m	date sampled: 11.10.06 material source:
test data	immersion of air dried crumbs
air dried crumbs	does not slake
me start of	succes (A) swell (7)
ist:	does not swell 🔲 🛞
ne dispersion	
ommences:	complete dispersion 1
me dispersion ompleted:	partial dispersion (2)
	no dispersion
remoulded material	immersion of remoulded material
ne start of	r
st:	disperses 🔲 ③
	does not disperse
ne dispersion ommences:	LI
me dispersion	calcite or gypsum
ompleted:	
	present (4)
material description	absent 🛛
	$\bigcup_{i=1}^{n} (i \in \mathbb{N}) $
	vigorous shaking
Silty CLAY	
	flocculates (6)
	Emerson
pe of water used: distilled	
pe of water used: <i>distilled</i> ater temperature: 23° C	class number 5

1/37 Jindalee Road Port Macquarie NSW 2444 Telephone 02 65810142 Fax 02 65810129

SOIL REACTIVITY TEST DETERMINATION OF SHRINK-SWELL INDEX

CLIENT : Macleay Valley Property Group ADDRESS :PO Box 3254 Narellan NSW 2567 DATE: 21.09.06

PROJECT NO : GEOTPMAQ00064AA

PROJECT : Gregory Street, South West Rocks

REPORT NO :GEOTPMAQ00064AA-1

SAMPLE LOCATION : TP 6, 1.0-1.4m

SAMPLE DESCRIPTION :PM 7268, Sandy CLAY, moderate to high plasticity, mc>wp, light brown with some orange mottling, fine to coarse grained sand.

CORE SHRINKAGE TEST

Moisture content - air dried 3.3%

Shrinkage - air dried 2.26%

Field Moisture content 24.6%

Shrinkage - oven dried 2.26%

SWELL TEST

Pocket penetrometer - initial 380kPa

Pocket penetrometer – final 160kPa

Moisture content - final 21.0%

Swell under load Nil



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SOIL REACTIVITY TEST **DETERMINATION OF SHRINK-SWELL INDEX**

CLIENT : Macleay Valley Property Group ADDRESS :PO Box 3254 Narellan NSW 2567

PROJECT : Gregory Street, South West Rocks

PROJECT NO : GEOTPMAQ00064AA REPORT NO :GEOTPMAQ00064AA-2

SAMPLE LOCATION : TP 7, 1.1-1.5m

SAMPLE DESCRIPTION : PM 7269, Sandy CLAY, moderate plasticity, mc>wp, light brown with orange mottling, fine to medium grained sand.

CORE SHRINKAGE TEST

Moisture content - air dried 2.9%

Shrinkage - air dried 1.7%

Field Moisture content 22.6%

Shrinkage - oven dried 1.7%

SWELL TEST

DATE: 21.09.06

Pocket penetrometer - initial 470kPa

Pocket penetrometer - final 460kPa

Moisture content – final 23.1%

Swell under load Nil



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SOIL REACTIVITY TEST **DETERMINATION OF SHRINK-SWELL INDEX**

CLIENT : Macleay Valley Property Group ADDRESS : PO Box 3254 Narellan NSW 2567

DATE: 21.09.06

PROJECT NO : GEOTPMAQ00064AA

PROJECT : Gregory Street, South West Rocks

REPORT NO :GEOTPMAQ00064AA-3

SAMPLE LOCATION : TP 8, 0.5-0.9m

SAMPLE DESCRIPTION :PM 7270, Sandy CLAY, moderate to high plasticity, mc>wp, Orange brown, fine to coarse grained sand, traces of fine gravel.

CORE SHRINKAGE TEST

Moisture content - air dried 23.8%

Shrinkage - air dried 0.8%

Field Moisture content 29.1%

Shrinkage - oven dried 1.5%

SWELL TEST

Swell under load Nil

Pocket penetrometer - initial 380kPa

Pocket penetrometer – final 340kPa

Moisture content - final 30.7%

Strain % 0 3 6 9 12 15 18 24 27 30 33 36 21 39 42 45 **Moisture Content %**



Test Method AS 1289.7.1.1-2003

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SOIL REACTIVITY TEST DETERMINATION OF SHRINK-SWELL INDEX

CLIENT : Macleay Valley Property Group ADDRESS :PO Box 3254 Narellan NSW 2567

DATE: 21.09.06

PROJECT NO : GEOTPMAQ00064AA

PROJECT :Gregory Street, South West Rocks

REPORT NO :GEOTPMAQ00064AA-4

SAMPLE LOCATION : TP 9, 0.6-1.0m

SAMPLE DESCRIPTION :PM 7272, Sandy CLAY, moderate to high plasticity, mc>wp, Orange brown with some pale grey mottling, somefine to coarse grained sand.

CORE SHRINKAGE TEST

Moisture content - air dried 18.6%

Shrinkage - air dried 2.50%

Field Moisture content 32.1%

Shrinkage - oven dried 2.60%

SWELL TEST

Swell under load Nil

Pocket penetrometer - initial 340kPa

Pocket penetrometer – final 290kPa

Moisture content – final 32.6%

Strain % Û. 3 6 Q 12 15 18 21 24 27 30 33 36 39 42 45 **Moisture Content %** Shrink - swell index (lss) 1.44 Test Method AS 1289.7.1.1-2003

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CALIFORNIA BEARING RATIO

CLIENT: Macleay Valley Property Group ADDRESS: PO Box 3254 Narellan NSW 2567 PROJECT NO: GEOTPMAQ00064AA

REPORT NO: GEOTPMAQ00064AA - 5

PROJECT: Gregory Street Subdivision

DATE: 11.10.06

LOCATION: South West Rocks

Sample No:	PM 7273
Sample description:	Silty SAND
Sample location:	TP 10, 0.2 - 0.5m
Date sampled:	5.10.06

TEST PROCEDURES

9.10.06
AS1289, 6.1.1
4 Days
100.0%
Standard
300mm
2.7kg
4.5kg

TEST RESULTS:

Field moisture content %: Maximum dry density (kg/m³): Optimum moisture content %: Dry density prior to soaking (kg/m³): Dry density after soaking (kg/m³); Moisture content moulded % : Moisture content after soaking % : Top 30mm after test % Swell after soaking % :

C.B.R.VALUES:

2.5mm penetration % : 25%

5.0mm penetration % :

25%



Approved Signatory: S Chandler Laboratory 9849

15.9%

1.83

13.6%

1.84

1.84

12.5%

14.2%

14.7%

0.1%

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CALIFORNIA BEARING RATIO

DATE:

 CLIENT:
 Macleay Valley Property Group
 PROJECT N

 ADDRESS:
 PO Box 3254
 REPORT NO

 Narellan NSW 2567
 REPORT NO

PROJECT NO: GEOTPMAQ00064AA

REPORT NO: GEOTPMAQ00064AA - 6

11.10.06

PROJECT: Gregory Street Subdivision

LOCATION: South West Rocks

Sample No:	PM 7274
Sample description:	Silty SAND
Sample location:	TP 11, 0.3 - 0.5m
Date sampled:	21.09.06

TEST PROCEDURES

Date Tested:	25.09.06
Test Method:	AS1289, 6.1.1
Duration of soaking:	4 Days
Compaction level % :	100.0%
Compactive effort:	Standard
Drop of rammer (mm):	300mm
Mass of rammer (kg):	2.7kg
Surcharge (kg):	4.5kg

TEST RESULTS:

Field moisture content %:	6.1%	
Maximum dry density (kg/m³):	1.67	
Optimum moisture content %:	14.7%	
Dry density prior to soaking (kg/m³):	1.669	
Dry density after soaking (kg/m³);	1.67	
Moisture content moulded % :	14.3%	
Moisture content after soaking % :	16.3%	
Top 30mm after test %	16.3%	
Swell after soaking % :	Nil	

C.B.R.VALUES:

2.5mm penetration % : 14%

5.0mm penetration % :

16%



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CALIFORNIA BEARING RATIO

CLIENT:
ADDRESS:Macleay Valley Property Group
PO Box 3254
Narellan NSW 2567PROJECT NO:GEOTPMAQ00064AA
REPORT NO:GEOTPMAQ00064AA - 7PROJECT:Gregory Street SubdivisionDATE: 11.10.06

LOCATION: South West Rocks

Sample No:	PM 7275
Sample description:	Silty SAND
Sample location:	TP 13, 0.4 - 0.7m
Date sampled:	21.09.06

TEST PROCEDURES

Date Tested:	25.09.06
Test Method:	AS1289, 6.1.1
Duration of soaking:	4 Days
Compaction level % :	100.0%
Compactive effort:	Standard
Drop of rammer (mm):	300mm
Mass of rammer (kg):	2.7kg
Surcharge (kg):	4.5kg

TEST RESULTS:

Field moisture content %:	18.8%	:
Maximum dry density (kg/m³):	1.99	en al filler
Optimum moisture content %:	9.7%	
Dry density prior to soaking (kg/m³):	2.0	
Dry density after soaking (kg/m ³);	2.0	
Moisture content moulded % :	9.5%	
Moisture content after soaking % :	9.8%	
Top 30mm after test %	10.1%	
Swell after soaking % :	Nil	

C.B.R.VALUES:

2.5mm penetration % : 35%

5.0mm penetration % :

45%



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CALIFORNIA BEARING RATIO

 CLIENT:
 Macleay Valley Property Group
 PROJECT NO:GEOTPMAQ00064AA

 ADDRESS:
 PO Box 3254
 REPORT NO:GEOTPMAQ00064AA - 8

 Narellan NSW 2567
 REPORT NO:GEOTPMAQ00064AA - 8

 PROJECT:
 Gregory Street Subdivision
 DATE: 11.10.06

LOCATION: South West Rocks

Sample No:	PM 7276
Sample description:	Silty SAND
Sample location:	TP 12, 0.3 - 0.6m
Date sampled:	5.10.06

TEST PROCEDURES

Date Tested:	9.10.06
Test Method:	AS1289, 6.1.1
Duration of soaking:	4 Days
Compaction level % :	100.0%
Compactive effort:	Standard
Drop of rammer (mm):	300mm
Mass of rammer (kg):	2.7kg
Surcharge (kg):	4.5kg

TEST RESULTS:

Field moisture content %:	14.1%	
Maximum dry density (kg/m³):	1.95	
Optimum moisture content %:	11.5%	
Dry density prior to soaking (kg/m³):	1.97	
Dry density after soaking (kg/m³);	1.97	
Moisture content moulded % :	10.4%	
Moisture content after soaking % :	11.2%	
Top 30mm after test %	11.9%	
Swell after soaking % :	Nil	

C.B.R.VALUES:

2.5mm penetration % : 25%



Q

5.0mm penetration % :

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Coffey Geotechnics Pty Ltd

ACID SULPHATE SOIL SCREENING REPORT

LOCATION: South Weest Rocks **CLIENT: Macleay Valley Property Group** PROJECT: Gregory Street Subdivision

REPORT NO: GEOTPMAQ00064AA - 9

PROJECT NO: GEOTPMAQ00064AA

DATE: 12.10.06

TECHNICIAN: AA

COMMENTS						
LAB ANALYSIS	No					
pH CHANGE	0.5					
EFFERVESSCENCE REACTION	Slight					
рНFоХ	5.3	-	i			
TIME	60m					
pHF	5.8					
 DEPTH pH	-*					
DESCRIPTION	Sand					-
CORE SAMPLE DEPTH	TP 11 0.3-0.5m					
SAMPLE NO:	PM7309					

Notes on Test: Test method as per ASSMAC Guidelines, Appendix 1.

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Appendix C

Flexible Pavement Thickness Design Summary

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	эу 🗳 g	PECIALISTS MANAGING THE I	EARTH	Job No	PM00064/1
Flexible	Pavement	Thickness Design S	ummary	Sheet	1 of 1
Client	Macleay Valley F	roperty Group	-	Office	Port Macquarie
Principal				Date	17-Oct-06
D11	Crowner Street			Ву	TLM
	Gregory Street South West Roc	k.		Checked	SRM
· · · · · · · · · · · · · · · · · · ·			Access Road	Access Road	SKM
road name or type chainage interval:		Access Road Natural Sand Subgrade*	Natural Sandy Clay Subgrade*	Select Fill	
design traffic load			5 x 10 ⁴	5 x 10 ⁴	
<u> </u>		5 x 10 ⁴			
wearing course th	ickness: (mm)	40	40	40	
base course thick	ness: (mm)	100	100	100	
subbase thickness	s: (mm)	150	150	100	
select thickness: (mm)			300	
total thickness: (m	ım)	290	290	540	
CBR used for des	ign: (%)	10	7	7	
	nding:		commercial vehicle axle groups (CVAG) in the de ment Design* Austroads. Refer covering letter/re		
Material Qual	ity:	For definitions, refer Appendix A "Pave	ment Design* Austroads. Refer covering letter/re		
Material Qual wearing course	ity:	For definitions, refer Appendix A "Pave Meeting requirements of Kemp	ment Design* Austroads. Refer covering letter/re		
Material Qual wearing course base course:	ity:	For definitions, refer Appendix A "Pave Meeting requirements of Kemp Meeting requirements of ARRB	ment Design* Austroads. Refer covering letter/re sey Shire Council Special Report 41		
Material Qual wearing course base course: subbase:	ity:	For definitions, refer Appendix A "Pave Meeting requirements of Kemps Meeting requirements of ARRB Meeting requirements of ARRB	ment Design* Austroads. Refer covering letter/re sey Shire Council Special Report 41 Special Report 41		
Material Qual wearing course base course: subbase: select:	ity: e:	For definitions, refer Appendix A "Pave Meeting requirements of Kemps Meeting requirements of ARRB Meeting requirements of ARRB Minimum CBR 15, Maximum P	ment Design* Austroads. Refer covering letter/re sey Shire Council Special Report 41 Special Report 41		
Material Qual wearing course base course: subbase: select:	i ty: e: * Natural subgrade ** Pavement desiga	For definitions, refer Appendix A "Pave Meeting requirements of Kemp Meeting requirements of ARRB Meeting requirements of ARRB Minimum CBR 15, Maximum P to be assessed by proof rolling an n shown assumes a minimum 500	ment Design* Austroads. Refer covering letter/re sey Shire Council Special Report 41 Special Report 41 I of 12 d inspection at the time of exposure. mm thick layer of imported fill at subgra	port.	
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