

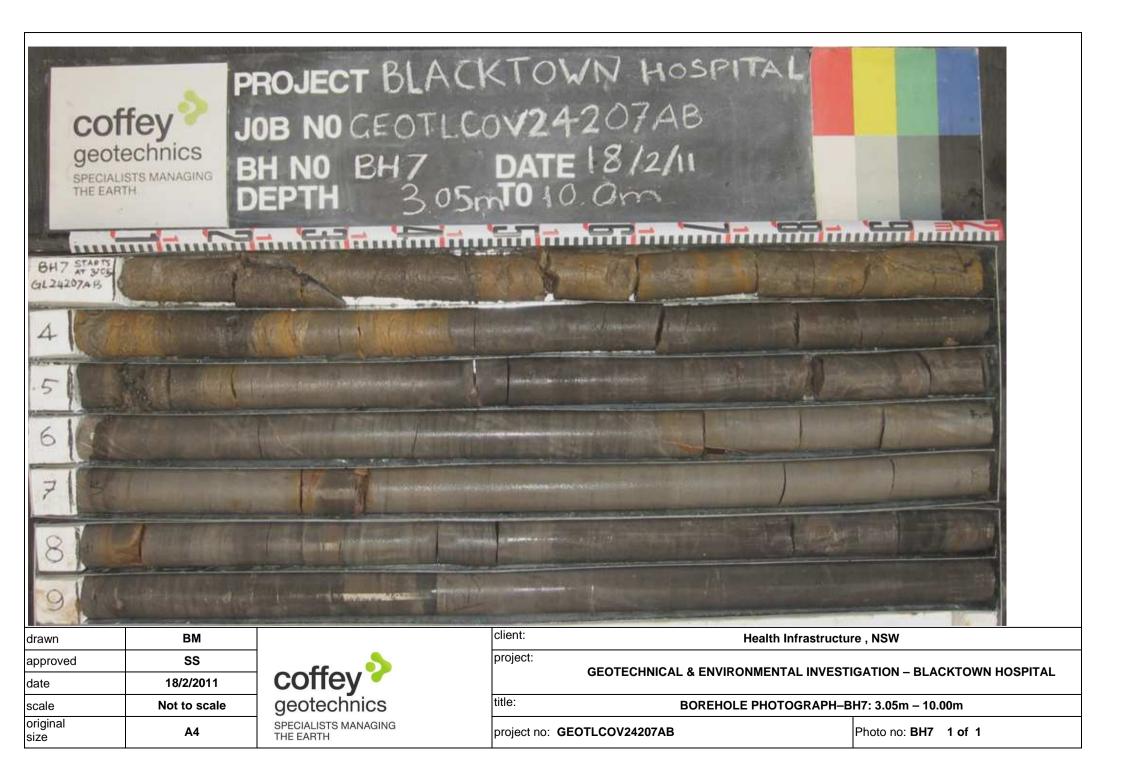
E	n	g	ine	eri	ng	Log - Cored E	301	reho		9			_			heet roject	No:	2 of 3 <b>GEOTI</b>	LCOV2420	)7AE
Clie	ent	:		I	leal	th Infrastructure									D	ate sta	arted:	17.2.20	011	
Prir	nci	pal:													D	ate co	mpleted:	17.2.20	011	
Pro	ojec	ct:		L	Blacl	ktown Hospital Develop	men	t							L	ogged	by:	VJ		
Bor	reh	ole	Loca	tion:	Black	ktown District Hospital	Carp	oark							С	hecke	d by:	SS		
						wer Scout Truck		isting:	307	104		slope:		-6	90°	-	,		61.74	
		ame				Drilling fluid:	No	orthing:	626	6065	8	bearir	ĭ				datum	:: <u> </u>	AHD	
dri	illir	ng ii	nform	nation		erial substance material			+-			1	r	ock	mas	s defe		defect descr	-tion	
ļ					graphic log core recovery	llidicitat		l ing		estim strei	nated	Is <sub>(50)</sub> MPa			efect acing				•	
method	core-lift	water		depth	uphic re rec	rock type; grain characteristics, structure, minor componen		weathering		~		D- diam- etral	2D %		mm		type, incli	nation, plana coating, thicl	rity, roughness, kness	
ae	S	wa	RL	metres	gra cor			we	۲	⊥≥	тЪ		RQD	30	- 300	parti	cular		g	jeneral
ļ	$\square$			-									Γ							_
ļ																				_
ļ			_61	_																-
				1																
																				-
ļ																				-
ļ			_60																	_
ļ				2_																
ļ				-																-
ļ				_																-
ļ			_59																	-
<u> </u>	$\vdash$			3		Continued from non-cored bord SHALE: Pale brown/dark grey mo	ottled	XW					┢			<u> </u>	T ON° IR F	RO, 120mm		
NMLC				-		orange brown, indistinctly bedded a ironstained.	at 0-5°,							┡╴		-J		0, 1201111		-
ļ		red	_58		<u> </u>	4		HW	-					1			T, ST, SO,	SN		-
ļ		Monitored		4											i		т			-
ļ		Vot M		_	<u> </u>	-									<b>\</b>	- F	Т			-
ļ		water Not						MW	-			D A	23		1				NS-N	-
ļ		mpur	_57	-		INTERLAMINATED SANDSTONE AND SHALE (40%): Fine to mediu	ùm í					D A			<b>r</b>	— F	•		0	)
ļ		Ground		5		grained, sandstone, pale grey/dark thinly bedded at 5°.	grey,					0.120.3				`\F		SO SN	S	
ļ						-		HW SW				D A		Fr		🔨		ured Zone, 60	Dmm <sup>E</sup>	-
ļ				-								0.110.2 <sup>2</sup> _D A			ł		T, 0°, IR, R		10,1	
	Ц		_56	-	ΞĘ.							0.28 0.38	3	Щ				ured Zone, 20	တ် က်က	-
				6								DA				-F	T, 0°, CU, 8	50, SN	are: F	_
				-	133	-						0.5 0.3			J	   _ F	T, 0°, CU, S	N CN	ects :	_
				-		CANDETONE. Find to modium ar	·ined					0.5 0.8	]				'T, 0°, ST, S		All defects are: PT, 0°-10°; PL-IR, SO,	_
			_55			SANDSTONE: Fine to medium graph pale grey.	aineu,						87	۴ι			T, 80-85°, 8		4	
ļ										88		0.3 0.8 -D A- 0.4 1.4				\\F		RO. SN		-
												D.4 1.4 D A 0.4 1.6		¢	┪	🚬 F	'T, 0°, PL, F 'T, 0°, IR, R	O, CN		-
			_54									D A								-
				8								1.1 2	1_		5		T, 0°, PL, F T, 0°, IR, R			_
met DT		d	diat	tube	<u> </u>	core-lift	wate	er 10/1/98 wa	ater le	evel			esh				defect typ JT join		roughness VR very rou	ıah
AS AD			aug	jer screwi jer drilling		casing used	-▼	on date sh	own	0¥0.		SW s MW m	lightl	rately	there weath		PT par SM sea	ting m	RO rough SO smooth	•
RR CB			rolle	er/tricone w or blade		barrel withdrawn	1 -	water inflo partial drill		loss		XW e	xtren	nely v	hered /eathe eather		SS she	ared zone ared surface shed seam	SL slickens	ided
NM	1LC	Q, PC	NM	LC core		graphic log/core recovery		complete of			SS		cover		and /		planarity	shed seam	coating	
19-04	, 1	ωκ,ι	(	51110 00.2		core recovered - graphic symbols	_					VL v	ery lo	w			PL plan CU cur	/ed	CN clean SN stained	
						no core recovered	25	water pres (lugeons)	for de		result	M n H h	nediu igh				ST step	lulating oped gular	VN veneer CO coating	
1								interval sh	own				ery h xtren		iah		IR Ine	gular		

Borehole No.

BH7



		U		C	y	900000							Bo	orehole No.	Bl	47	
	Ξr	ŋ	ine	eri	ng	Log - Cored	Bore	ho	le				-	neet oject No:	3 c <b>GE</b>	of 3 E <b>OTLCOV24207</b> A	B
C	lier	t:		1	Heal	th Infrastructure							Da	ate started:	17.	.2.2011	
F	rinc	ipal:											Da	ate complete	ed: <b>17</b> .	.2.2011	
F	Proje	ect:		l	Blac	ktown Hospital Devel	opment						Lo	ogged by:	VJ	1	
E	Bore	hole	Loca	tion:	Blac	ktown District Hospita	al Carpark	r					Cł	necked by:	SS	5	
_						ver Scout Truck	Easting		807104		slope:		-90°	-	.L. Surface	: 61.74	
		iame				Drilling fluid:	Northing	g: 6	6260658		bearir	ĭ.			atum:	AHD	
ŀ	drill	ing i	nform	ation		erial substance material	i					rc		defects	defect	description	_
	rrietriou core-lift	water	RL	depth metres	graphic log core recovery	rock type; grain characteristi structure, minor compo	cs, colour, nents	weathering alteration	estima streng ∽ _ ≥ ⊥	lth	Is <sub>(50)</sub> MPa D- diam- etral A- axial	RQD %	defect spacing mm			planarity, roughness, g, thickness	rol
						SANDSTONE: Fine to medium		SW	ד⊼ר<	> ш	_D A_		, , , , , , , , , , , , , , , , , , ,		PL, RO, CN	gene	a
				-	· · · · ·	pale grey. (continued)					0.2 0.5 _D A_	87		— PT, 0°, F	PL, RO, CN		
			_53	-							0.4 0.6 D A			► PT, 0°, F	PL, RO, CN		_
		1		9							0.1 0.3 _D A			- PT, 0°, F	PL, RO, CN PL, RO, CN		_
				_							0.4 0.5			─PI, 0°, F	PL, RO, CN		
				-							_D A_	100					-
			_52	-							0.2 0.3						
╞	+			10		BH7 terminated at 10m					_D A_ 0.4_0.3	1					_
				-													
			_51	-													_
			_51	 11													-
				-													_
			_50	-													-
				12													
				-													_
				-													
			_49	-													_
				1 <u>3</u>													_
				_													
			48	-													_
				14													
				-													_
				-													-
			_47	-													1
				15_													
				-													-
			10	-													
			_46	16													-
	meth DT	od	diat			core-lift	water 10/1/	/98 wate	er level			esh		JT	<b>ct type</b> joint	<b>roughness</b> VR very rough	
	AS AD		aug	er screwi er drilling		casing used	- on da	ate sho	wn		MW n	nodera	weathered ately weathered weathered	PT	parting seam	RO rough SO smooth	
	RR CB		clav	er/tricone v or blade	e bit	graphic log/core recovery	- partia		uid loss		XW e DW d	xtrem	ely weather tly weathere	ed SS ed CS	sheared zo sheared su crushed se	rface	
	NML( NQ, F	; IQ, PC		LC core line core		core recovered	- comp	plete dr	II fluid loss	5	(i strength	covers	s MW and H	IW) plana	arity	coating	
						- graphic symbols indicate material	wate	er press	ure test re:	sult	L lo	ery lo ow nediur		PL CU UN	planar curved undulating	CN clean SN stained VN veneer	
						no core recovered	윘 (luge	eons) fo val shov	r depth		H h VH v	igh ery hi		ST	stepped irregular	CO coating	





C				<b>y</b>		C	<b>)</b>			_	Boreho	le No.	BH8
Ε	nc	iir	ne	erinc	۱L	oq	- E	Bor	ehole		Sheet Project	No:	1 of 3 <b>GEOTLCOV24207AB</b>
Clie			-		-	nfras					Date st		18.2.2011
	ncipa	d:										omplete	
	ject:			Blac	kto	wn H	losn	ital D	evelopment		Logged	•	VJ
			catio				-		ospital Carpark		Checke	-	SS
						power			Easting: 307137 slope: -90°		CHECKE		Surface: 61.2
	e diam				125 m				Northing 6260722 bearing:				um: AHD
dri	illing	info	rma	tion	-		mate		ubstance				
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	o dy pocket b dy penetro- meter	structure and additional observations
ADT n	12:	3 0°			RL _61	metres	, 0, XXXX	0 %	FILL: BITUMEN: Black.		00	400 300 400	
AL				E + D					FILL: SAND: Fine grained, brown, with some medium to coarse gravel, trace of clay.				FILL – – – – – – – – – – – – – – – – – –
				SPT	1	-							0.5-0.6m PID=6.7ppm
				4,5,7 N*=12	1	1		CL	CLAY: Medium plasticity, pale grey, with some fine to coarse ironstone gravel, trace of tree roots.	<wp< td=""><td>St/VSt</td><td></td><td></td></wp<>	St/VSt		
					_60	-							-
						-							-
													-
				SPT	59	2_			CLAY: Medium to high plasticity, pale grey/pale		VSt		2.0-2.1m PID=4.1ppm
				5,9,13 N*=22					brown mottled red/brown.		VSI		RESIDUAL SOIL –
						-							-
						3							-
					_58	-							-
				SPT	-	-							- 3.5-3.6m PID=4.7ppm _
				10,29,26 N*=55		_		1	<b>SANDSTONE:</b> Extremely weathered, pale grey/pale brown, estimated to be very low strength,				SANDSTONE
					57	4_			remoulds to a sandy clay.				-
													-
						-							-
						5	· · · · ·						-
					_56	-			Borehole BH8 continued as cored hole				-
													-
						6							-
					_55								_
						-							-
						-							-
						7	-						_
					_54	-							-
													-
						8	-						-
met AS	hod	- I 8	ugers	crewing*		ipport mud	N	ı I nil		cation sy	mbols an	d	consistency/density index VS very soft
AD RR		a r	uger o oller/tr	Irilling* icone	C pe	casing			U <sub>63</sub> undisturbed sample 63mm diameter based of D disturbed sample system		classifica	tion	S soft F firm
W CT		c	vashbo able to	loc		234	no resista ranging te	ance	N         standard penetration test (SPT)           N*         SPT - sample recovered         moisture				St stiff VSt very stiff
HA DT		c	and a liatube		wa	ater	refusal		V vane shear (kPa) M n	lry noist			H hard Fb friable
B V T		١	lank b / bit C bit	IT	_	10/1/9 on dat	8 water e showr	level า	Bs bulk sample Wp p	vet Iastic lim quid limit			VL very loose L loose MD medium dense
	shown	by su				water	inflow outflow		E environmental sample W <sub>L</sub> li R refusal				D dense VD very dense



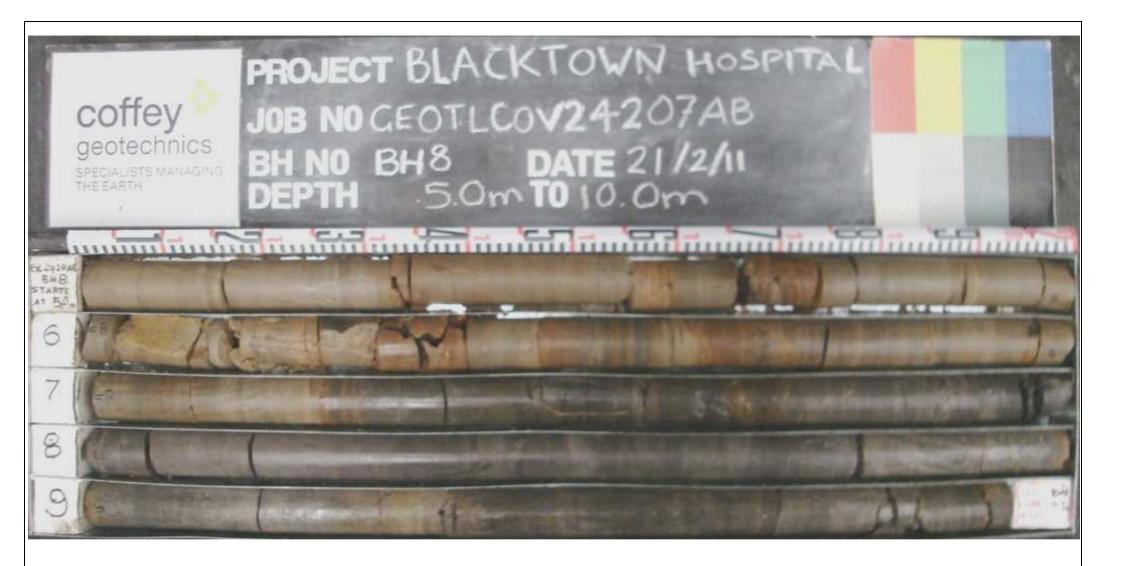
					y	3								Bo	orehole	No.	BH8		
Ε	in	gi	ine	eri	ng	Log - Cored E	3ore	•ho	le	ļ					neet oject N	No:	2 of 3 <b>GEOT</b>	LCOV24	207AB
-	ient					th Infrastructure									ate sta		18.2.2		
Pri	inci	pal:														npleted:	18.2.2	2011	
	ojec			I	Black	ktown Hospital Develop	ment								gged		VJ		
			l oca			ktown District Hospital (		k							necked	-	SS		
_						ver Scout Truck	Easting		3071:	37		slope:		-90°		R.L. Su		61.2	
hol	le dia	amet	ter:	12		Drilling fluid:	Northin	0	6260 <sup>-</sup>	722_	_	bearing				datum:		AHD	
dr	rillir	ng ir	nform	nation		erial substance					_		ro	ock mass	defec				
method	core-lift	water		depth	graphic log core recovery	material rock type; grain characteristics, c structure, minor component:		weathering alteration	st	timate	th	Is <sub>(50)</sub> MPa D- diam- etral A- axial	RQD %	defect spacing mm		type, inclin	defect desc nation, plana coating, thic	arity, roughne	
Ľ	Ō	2	RL	metres	00			on ≤	- 4	ΣI	ΗЩ	A- aniai	8	30 300 3000 3000 3000	partic	ular			general
			_61			1													-
				-		1													_
				_															-
			_60		1	1													
			Γ	-		1													-
				_		1													_
				2															
			_59	-															-
																			-
				-															-
			_58	3															
				-															_
				_															-
				4															
		 	_57	-															<u>ں</u>
						Operations of from non-corod horr	Ia												ed otherwis
NMLC	+	red	_56	5		Continued from non-cored bore <b>SANDSTONE</b> : Fine to medium gra pale grey/red brown, ironstained.		SW	++		H	-	┢┤	┥╋	-P	T, CU			s note
≧Z		Groundwater Not Monitored		-		pale grey/red brown, nonstantes.						D A 0.87 0.31		┿╣║║		T, ST, SN, F	RO		les s
		l M		_		1	ŀ	MW	1					5	P'	T M, 0°, RO, V	/N		
		ater 1		6		1						DA 2.18 0.7			P.	Г			N
		Mpung	_55	-				HW					╽╏		P'	Г			All defects are: PT, 0°-10°, PL-IR, RO, SN-CN unles
		Gro				1	ļ	MW					62	<b>Th</b>	P	Т			- РГ-IR
												DA 0.170.22 DA				r, 90°, PL, 1	00mm		- 10°,
			54	7_		1						_D A_ 0.4 0.3 D A		<u> </u>   <b>\</b>	P	T ighly Fractu	red Zone, 2	20mm	РТ, 0 
				-	<u> </u> ]	SHALE: Dark grey, with some fine grained sandstone laminations.						0.5 0.5 D A			P.	Ѓ Г			are:
				-	E	granied sandelene lana.e.e.e.						0.2 0.2				T, 0-5°, CU,	RO, SN		sfects
		 		8								A		▛Ш	P.	Г Г •			All de
DT		d		tube		core-lift		/1/98 wate		/el			esh			defect type JT joint		roughnes VR very	rough
AS AD	D		aug	ger screwinger drilling	a l	casing used     barrel withdrawn	→ on c	date show				MW m HW hig	odera ghly v	v weathered ately weathe weathered	ered	PT partii SM sean SZ shea		RO roug SO smo SL slick	oth
RF CE	в		claw	er/tricone w or blade		graphic log/core recovery	- part	rtial drill fl	luid lo			XW ex DW dis	stinct	ely weather tly weathere	d	SS shea	ared surface hed seam	02 0	Bridiada
	MLC Q, HC	Q, PQ		ILC core eline core	J.	core recovered	- com	mplete dri	ill fluid	d loss		strength		s MW and H	W)	<b>planarity</b> PL plana	or	<b>coating</b> CN clea	in.
						- graphic symbols indicate material	wat	ter pressi	ure te	est res	ult	L lov	ery lov w iediun			CU curve UN undu	ed ulating	SN stair VN vene	ned eer
						no core recovered		geons) fo erval shov		th		VH ve	gh ery hig xtrem	gh Iely high		ST stepp IR irreg		CO coat	ing

CORED BOREHOLE GEOTLCOV24207AB.GPJ COFFEY.GDT 15.3.11

GEO 5 5 lesue 3 Rev. 3

coffey	geotechnics	
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C		U		C	y	goot	00111100							Bor	rehole No.	BH8	3
E	n	gi	ine	eri	ng	Log - Co	red Bore	eho	le					She Pro	eet oject No:	3 of 3 <b>GEO</b>	3 0TLCOV24207AB
Cli	ent				Heal	th Infrastructure	9								te started:	18.2.	.2011
Pri	inci	pal:												Dat	te completed	d: <b>18.2.</b>	.2011
Pr	ojec	ct:		1	Blac	ktown Hospital	Development							Loç	gged by:	VJ	
			Loca			ktown District H	-	rk						-	ecked by:	SS	
						wer Scout Truck	Easti		307137	7	slope	<b>)</b> :	-90		-	Surface:	61.2
		amet				Drilling fluid:	North	ning:	626072	22	bear	Ĭ	- alt n			um:	AHD
<u>u</u>	111	lg ii	Nom	nation	_	terial substance	erial	+	- antir	-tad			1		defects	defect des	scription
method	core-lift	water	RL	depth metres	graphic log core recovery	rock type; grain cha structure, mino		weathering alteration	stre	nated ength ≝ ≖ <sup>⊥</sup> ∃	Is <sub>(50)</sub> MPa D- diam etral A- axial	- D	spa m	efect acing nm	type, in particular	nclination, pla coating, tl	anarity, roughness, hickness general
NMLC	+		_53	<u> </u>	<u> </u>	SHALE: Dark grey, w		SW			D A		- c + + +		WJI, 5-10;	CN, 20mm °, RO, SN, 30	
Ž	Π		Ē	-							D A		1	]	JT, 10°, PI	Ĺ, 100mm	-
				-											\  <sup>I</sup> JT, 45°, PI	°, PL, SN, 90 L, SN, 50mm	ı
				9	<u> </u>						D A	2		4	PT, 0°, IR	actured Zone	., 70mm –
			_52	-		-			_		D A 0.2 0.:	2 8			│	100mm	_
				-	<u> </u>			HW SW	-		D A			1			-
				10				MW	-		0.2 0.1 D A 0.2 0.1		╘┽╏	1	⊢ PT └ Highly Fra PT, 0°, CL	actured Zone J, IR, SN	e, 10mm —
	Π		_51	-		BH8 terminated at 10m	 N				10.2 0.					<u>, iii, oii</u>	
				-													_
				-													-
				11	-												
			_50	-													-
				-	-												_
				12													-
			_49	-	1												-
				-													-
				-	1												-
			_48	1 <u>3</u>	{												
			_40 	-													-
				-	-												-
				14													-
			_47	-													_
				-	1												-
				-	-												_
			46	1 <u>5</u>	1												
			[	-	1												-
				-													-
				16	<u> </u>						weather	ing					
DT AS		a		tube ger screwi	ina	core-lift		0/1/98 wat n date sho			FR	fresh	y weath	hered		: <b>type</b> joint parting	<b>roughness</b> VR very rough RO rough
AD	)		aug	ger drilling er/tricone	g	barrel withdrawn		ater inflow			MW HW	moder highly	rately w	weather	ed SM s SZ s	seam sheared zone	SO smooth SL slickensided
CE			claw	w or blade ILC core		graphic log/core recover	N .	artial drill f omplete di			DW	distinc	ctly wea	athered and HW	CS c V)	sheared surfac crushed seam	
NC	ג, HC	Q, PQ	) wire	eline core	1	core recovered - graphic symbols						very lo	wc			<b>ʻity</b> planar curved	<b>coating</b> CN clean SN stained
						indicate material	10 (1	ater press ugeons) fo			М	low mediu high	m		UN U ST s	undulating stepped	VN veneer CO coating
I								iterval sho				very h	nigh Delv bir	ab	IR i	irregular	



drawn	BM		client: Health Infrastructu	re , NSW
approved	SS		project: GEOTECHNICAL & ENVIRONMENTAL INVEST	
date	21/2/2011	coffey	GEOTECHNICAL & ENVIRONMENTAL INVEST	GATION - BLACKTOWN HOSFITAL
scale	Not to scale	geotechnics	title: BOREHOLE PHOTOGRAPH-B	H8: 5.00m – 10.00m
original size	A4	SPECIALISTS MANAGING THE EARTH	project no: GEOTLCOV24207AB	Photo no: BH8 1 of 1



		/		Ξy	-	5			CHIICS		Boreho	le No.	BH9
E	ng	in	ee						ehole		Sheet Project	No:	1 of 3 <b>GEOTLCOV24207AB</b>
Clie	ent:			Heal	th l	nfras	truc	ture			Date st	arted:	21.2.2011
Pri	ncipal	:									Date co	omplete	d: <b>21.2.2011</b>
Pro	oject:			Blac	kto	wn H	lospi	tal D	evelopment		Logged	d by:	VJ
Bo	rehole	e Loo	catio	n: <b>Blac</b>	kto	wn D	istri	ct Ho	spital Carpark		Checke	ed by:	SS
drill	model	and	mour	nting: H	Iydra	power S	Scout -	Fruck	Easting: 307100 slope:	-90°		R.L	Surface: 61.35
	e diame <b>illing</b> i		mot		125 m	m	mat		Northing 6260716 bearing:			dat	ium: AHD
	-		mat		1		mau				<u> </u>	т Ģ	
method	5 Denetration	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 A pocket 200 A penetro- 400 meter	structure and additional observations
ADT		С		E+D		_			FILL: BITUMEN: Black. FILL: Gravelly SAND: Fine to medium grained	_/ D			
					_61	-			sand, dark grey, fine to coarse gravel.				0.1-0.3m PID=0.9ppm _
				SPT 3,1,2					FILL: Sandy CLAY: Medium plasticity, pale brown fine to coarse sand, trace of fine gravel.	n, <wp< th=""><th></th><th></th><th>0.5-0.6m PID=3.4ppm</th></wp<>			0.5-0.6m PID=3.4ppm
				N*=3	-	1							
					60	-							-
					_00	-	$\not$	CL	CLAY: Medium plasticity, pale grey.		VSt		
								02					-
				SPT	-	2_							2.0-2.1m PID=4.1ppm
				1,2,5 N*=7	_59								
					1	_		CL	<b>CLAY:</b> Medium plasticity, pale grey/pale brown.				RESIDUAL SOIL
						3							-
					_58	_							-
				SPT 15		_	· · · · ·		SANDSTONE: Extremely weathered, fine to medium grained, pale brown/red brown, estimated	to			SANDSTONE 3.5-3.6m PID=5.4ppm
				N*=R		4	· · · · ·		be very low strength.				
					57	_	· · · · ·						-
					_57	-	· · · · · · · · · ·						-
							· · · · ·						
						5			Borehole BH9 continued as cored hole	_			
					_56	-							-
						6							4
						0_							-
					_55								
						_							-
						7							-
													-
					_54	-							-
met	thod				SU	8 pport			notes, samples, tests clas	sification s	wmbols ar		consistency/density index
GEO 5.3 Issue 3 Rev.2 T < a T H T & A B A C A T A A T A A T A A T A A A A A A A	shown l	au rol wa ca ha dia bla V TC	ger di ler/trid ashbo ble to ble to and au atube ank bi bit bit bit bit	re ol ıger	M C pe	mud casing netration 2 3 4 r ter 10/1/98	n no resista ranging to refusal 8 water e showr nflow	level	U <sub>50</sub> undisturbed sample 50mm diameter         soil           U <sub>63</sub> undisturbed sample 63mm diameter         bas           D         disturbed sample         syst           N         standard penetration test (SPT)	description ed on unifie	n d classifica		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



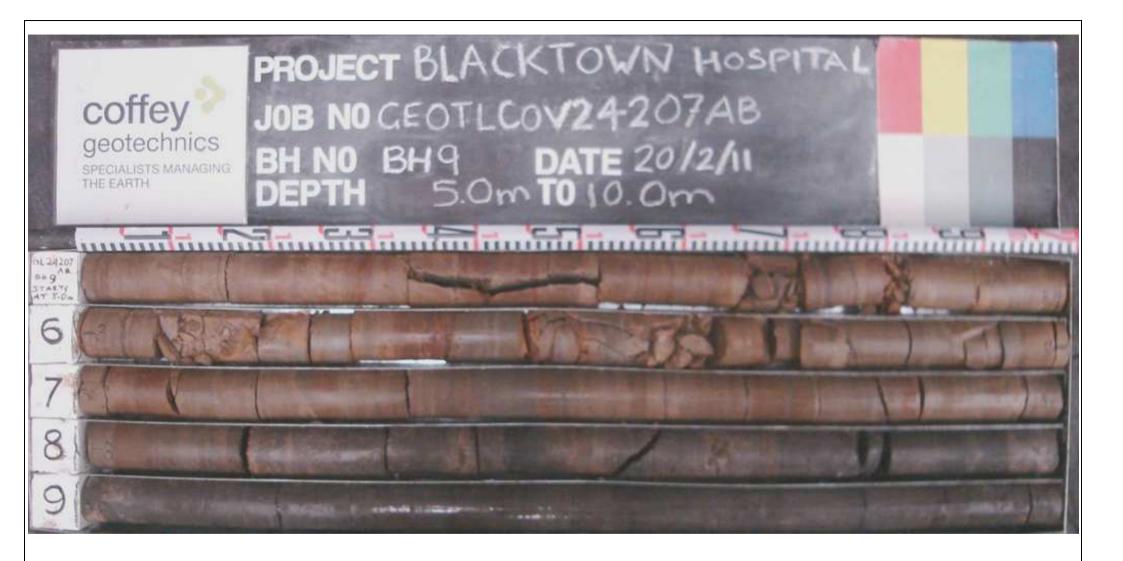
		U		0	y	3							Bo	orehole No.	BH9	
E	Er	g	ine	eri	ng	Log - Cored I	Boreho	olo	е					ieet oject No:	2 of 3 <b>GEOTLCC</b>	OV24207AB
С	lien	t:		1	leal	th Infrastructure							Da	ate started:	21.2.2011	
Ρ	rinc	ipal:											Da	ate completed:	21.2.2011	
Ρ	roje	ct:		I	Blaci	ktown Hospital Develop	oment						Lo	gged by:	VJ	
			Loca			ktown District Hospital								necked by:	SS	
_						ver Scout Truck	Easting:	30	7100	)	slope:		-90°	R.L. Su		
		iame			5 mm	Drilling fluid:	Northing:	62	6071	6	bearin	g:		datum:	AHD	
Ľ	lrilli	ng i	nform	ation		erial substance material	i				1	rc	ock mass		lefect descriptior	n
mothod	core-lift	water		depth	graphic log core recovery	rock type; grain characteristics, structure, minor componer		teration	stre	nated ngth	Is <sub>(50)</sub> MPa D- diam- etral	RQD %	defect spacing mm	type, inclin	nation, planarity, ro coating, thickness	oughness,
	5 5	ŝ	RL	metres	ъS		Ň	۲ م	¦ _ ∑	т¥ц	A- axial	Ϋ́	30 300 3000 3000 3000	particular		general
			_61	- - - 1_ -												- - - - -
			_59													
				- 3_												- - -
			_58	-												-
			_57	4 - - - - - 5		Continued from non-cored bo	rehole									ed otherwise
		Groundwater Not Monitored	_56	-		SANDSTONE: Fine to medium gr pale brown/pale grey.					DA 0.36 0.91 DA 0.11 0.15			<ul> <li>─PT</li> <li>─JT, ~90°, PL,</li> <li>─PT, 0°, PL, SN</li> <li>─Highly Fractu</li> <li>─HFZ, 30mm</li> </ul>		s no
		Groundwater	_55	6 							D A 0.180.29 D A 4.9 4.89	2		PT Highly Fractu PT PT PT Highly Fractu	red Zone, 100mm red Zone, 330mm	
			_54	7   8			MV SV				D A 0.1 0.6 D A 0.2 0.1 D A 0.2 0.4			- PT - JT, 80-85°, PL - PT - PT - PT - PT - PT - PT - PT	., SN, 110mm	All defects are: PT, 0°-10°, PL-IR, RO, SN-CN unles
	neth DT ND ND R R B JMLC NQ, H		aug aug rolle clav NM	tube ger screwi ger drilling er/tricone w or blade LC core eline core	Ĩ	core-lift         Image: casing used         barrel withdrawn         graphic log/core recovery         core recovered         - graphic symbols         indicate material         no core recovered	water ↓ 10/1/98 w on date s ↓ water infl ↓ partial dri ↓ complete water pre (lugeons) interval s	shown low ill fluic e drill f essure ) for d	n d loss fluid le e test lepth	oss	SW sli MW m HW hiv XW ex- DW di (c strength VL ve L loo M m H hiv VH ve	esh ightly odera ghly dtrem stinct overs ery lo w ediur gh ery hi	n	ed SZ shea SS shea CS crush W) planarity PL plana CU curve	N VI ng R <sup>1</sup> Ired sone SI ired surface hed seam ar C ed SI ilating VI ped C	A very rough R very rough O rough O smooth L slickensided Coating N clean N stained

Borehole No.

CORED BOREHOLE GEOTLCOV24207AB.GPJ COFFEY.GDT 15.3.11

coffey > ge	eotechnics
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	-	U	/	C	y	900100							-	Borehol	e No.	BH9	
E	Ξn	ıgi	ine	eri	ng	Log - Core	d Bore	ehe	le					Sheet Project I	No:	3 of 3 <b>GEOT</b>	LCOV24207AB
С	lien	t:			Healt	th Infrastructure								Date sta		21.2.20	011
Ρ	rinci	ipal:												Date co	mpleted:	21.2.20	011
Ρ	roje	ct:		I	Blacl	ktown Hospital Dev	elopment							Logged	by:	VJ	
			Loca			ktown District Hosp	-	'k						Checke	-	SS	
_						wer Scout Truck	Eastin		30710	0	slop	be:	-90°	-	R.L. Su		61.35
		iamet				Drilling fluid:	Northi	ing:	62607	16	bea	iring:			datum:	:	AHD
Ľ	Irilli	ng ir	1form	nation		terial substance material		+	1		1		ock ma	ss defeo		lefect descr	iption
method	core-lift	water		depth	graphic log core recovery	rock type; grain character structure, minor com		weathering alteration		nated ength	D- diar etra	m- 00	!	ng	type, inclir		rity, roughness,
		Ň	RL	metres					2 - 7	≤ ± ≯			300 300 300 300 300 300 300 300 300 300				general
CIMN			_53 _52	9 		SHALE: Grey/dark grey, thi	inly laminated.	SW			0.4 0 D 0.2 0 D 0.1 0 D 0.3 0 D 0.1 0	A- ).4 A- ).1 A ).3 A- ).4 A- ).4 A- ).4 A- ).4 A- ).4 A- ).3 A- ).4 A- ).3 A- ).3 A- ).3 A- ).3 A- ).3 A- ).3 A- ).3 A- ).3 A- ).3 A- ).4 A- ).3 A- ).4 A- ).3 A- ).5 A- A- ).5 A- A- ).5 A- A- ).5 A- A- ).5 A- A- A- ).5 A- A- A- ).5 A- A- A- ).5 A- A- ).5 A- A- A- A- A- ).5 A- A- A- ).5 A- A- A- ).5 A- A- A- A- A- A- A- A- A- A-		P VP VP VP	T S, PL T T, 45°, IR ighly Fractu T T	L	_  Dmm   
			-	-	-	BH9 terminated at 10m											_
			_51 _50 _49 _48 _48 _47 _46														
	method						→ on → wa → ⊂ cor g2 (lug	/1/98 wat date sho ater inflow rtial drill f mplete dr ater press geons) fo erval sho	own / iluid los rill fluid sure tes or depth	s loss t result	weathd FR SW MW HW XW DW streng VL L M H H VH	fresh slight mode highly extre distin (cove th very low medi high very	ly weather erately weat y weather mely weat ctly weath ers MW and low um	ithered d nered ered	SS shea CS crust planarity PL plan CU curve	ng n ared zone ared surface hed seam ar ed Jlating ped	roughness VR very rough RO rough SO smooth SL slickensided coating CN clean SN stained VN veneer CO coating



Irawn	BM		client: Health Infrastructu	re , NSW
approved	SS		project: GEOTECHNICAL & ENVIRONMENTAL INVEST	
late	20/2/2011	coffey	GEOTECHNICAL & ENVIRONMENTAL INVEST	BATION - BEACKTOWN HOSFITAE
scale	Not to scale	geotechnics	title: BOREHOLE PHOTOGRAPH-B	H9: 5.00m – 10.00m
original size	A4	SPECIALISTS MANAGING THE EARTH	project no: GEOTLCOV24207AB	Photo no: BH9 1 of 1



### Borehole No. **BH10 Engineering Log - Borehole** Sheet 1 of 3 GEOTLCOV24207AB Project No: Health Infrastructure 21.2.2011 Client: Date started: Principal: 21.2.2011 Date completed: Blacktown Hospital Development VJ Project: Logged by: Borehole Location: Blacktown District Hospital Carpark SS Checked by: drill model and mounting: Hydrapower Scout Truck Easting: 307072 slope: -90 R.L. Surface: 61.34 6260735 hole diameter: 125 mm Northing bearing: AHD datum drilling information material substance pocket penetro-meter classification symbol consistency/ density index notes penetratic material structure and g samples. moisture condition additional observations graphic I method support tests, etc water kPa soil type: plasticity or particle characteristics, depth metre RI 123 colour, secondary and minor components. FILL: BITUMEN: Black D ADT F + DFILL: SAND: Fine to medium grained sand, pale FILL 61 0.1-0.3m PID=2.7ppm brown, with some fine to coarse gravel, trace of clay. FILL: CLAY: Medium plasticity, brown, with some <Wp 0.5-0.6m PID=1.6ppm SPT 3,3,4 N\*=7 fine to medium grained sand. 1 60 2 2.0-2.1m PID=6.3ppm SPT 3.7.5 59 N\*=12 3 58 VSt/H RESIDUAL SOIL CL/CH CLAY: Medium to high plasticity, pale grey/red SPT brown, with some fine grained angular ironstone 3.5-3.6m PID=0.7ppm 4,5,5 N\*=10 gravel. 4 \_57 5 SPT 7,11,15 N\*=26 \_56 6 55 SHALE: Extremely weathered, dark grey/pale grey, SHALE SP 21 estimated to be very low strength, remoulds to a N\*=R gravelly clay. 7 54 notes, samples, tests method support classification symbols and consistency/density index undisturbed sample 50mm diameter soil description AS auger screwing M mud N nil U<sub>50</sub> VS very soft AD auger drilling\* С undisturbed sample 63mm diameter based on unified classification s casing U<sub>63</sub> soft RR W system roller/tricone D disturbed sample F firm enetration standard penetration test (SPT) washbore Ν St stiff anging to refuse СТ no re cable tool N' SPT - sample recovered moisture VSt very stiff hand auge HA SPT with solid cone Nc dry н hard D DT diatube v vane shear (kPa) Μ moist Fb friable wato В 10/1/98 water leve Р blank bit pressuremeter W wet VL very loose V plastic limit V bit Bs bulk sample Wp L loose on date shown Т TC bit environmental sample Ŵ liquid limit MD medium dense Е water inflow \*bit shown by suffix R refusal D dense ADT water outflow VD e.q. very dense

BOREHOLE GEOTLCOV24207AB.GPJ COFFEY.GDT 15.3.11

GEO 5.3 Issue 3 Rev.2



BOREHOLE GEOTLCOV24207AB.GPJ COFFEY.GDT 15.3.11

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Ε	ng	giı	ne	ering	j L	og	- E	Bor	ehole					Sheet Project	No:		<sup>2</sup> of 3 GEOTLCOV24207AB
Clie	ent:			Hea	lth I	nfras	truc	ture					[	Date st	arted	:	21.2.2011
Prir	ncip	al:											[	Date co	omple	ted:	21.2.2011
Pro	ject	:		Blac	ckto	wn H	ospi	ital D	evelopment				L	oggeo	l by:		VJ
Bor	eho	le L	ocat	ion: <b>Blac</b>	ckto	wn D	istri	ct Ho	spital Carparl	k			(	Checke	ed by:		SS
drill	mod	el an	d ma	unting:	Hydra	power S	Scout	Truck	Easting: 3070	72	slope:	-90°				R.L. S	urface: 61.34
hole	diar	metei	:		125 m	im			Northing 6260	735	bearing:					datum	:: AHD
dri	lling	g inf	orm	ation			mate	erial su	Ibstance								
method	1 5 penetration	-   -	water	notes samples, tests, etc	RL	depth metres	graphic log	classification symbol		material icity or particle c dary and minor			moisture condition	consistency/ density index	100 pocket	a	structure and additional observations
				SPT 2 N*=R	_53				Borehole BH10 cont	tinued as cored	hole						-

Borehole No.

**BH10** 

	<u> </u>		23	°	>			metres		0 0	colour, secondary and minor components.	<u> </u>	00	2 %	184	Ŧ
				С		SPT										
						2 N*=R	_53	_			Borehole BH10 continued as cored hole					
								9_								
							_52									
								_								-
								10								
							_51	-								
								_								-
								1 <u>1</u>								
							_50	_								-
								_								
								1 <u>2</u>								-
							_49	_								-
1								-								
15.3.11								1 <u>3</u>								-
COFFEY.GDI							_48									-
COFE								-								
5.GPJ								14_								-
4207AE							47									
GEOILCOV24207AB.GPJ							_47	-								-
GEOIL								15								-
10LE								1 <u>5</u>								
BOREHOLE							_46	_								-
								_								
	met AS	hod				crewing*		16 pport mud	NI	nil		cation sy scription	 mbols an	d		consistency/density index VS very soft
2	AD RR			au		rilling*	C per	casing netratio				on unified	classifica	tion		S soft F firm
3 Rev	W CT			Wa Ca	ashbo able to	ire iol	12	2 3 1	no resista anging to refusal	nce	N         standard penetration test (SPT)           N*         SPT - sample recovered         moistu	re				St stiff VSt very stiff
Issue	HA DT			di	and au atube	-	wat	ter			NcSPT with solid coneDVvane shear (kPa)M	dry noist				H hard Fb friable
0 5.3	B V			V	ank bi bit	t	┸	10/1/9 on dat	8 water e shown	evel	Bs bulk sample Wp	vet plastic limi				VL very loose L loose
Form GEO 5.3 Issue 3 Rev.2	T *bit :	sho	wn b	y su				water i			E environmental sample W <sub>L</sub> I R refusal	iquid limit				MD medium dense D dense
Ъ	e.g.			A	DT			water	JULIIOW		I					VD very dense

_			<b>.</b>			geotechr	aioo													
C		U		e	y	geoleciii	1103								В	orehol	e No.	BH10	)	
Ε	n	gi	ine	eri	ng	Log - Cored E	Bore	eho	le	<b>)</b>						neet roject l	No:	3 of 3 <b>GEOT</b>	LCOV	24207AB
Cli						th Infrastructure										ate sta		21.2.20		
Pri	nci	pal:													D	ate co	mpleted:	21.2.20	011	
Pro	oje	ct:		E	Black	ktown Hospital Develop	oment								Lo	ogged	by:	VJ		
			Loca			ktown District Hospital		k								hecke	-	SS		
						ver Scout Truck	Eastin		3070	)72		slope:		-9			R.L. Su		61.34	
		ame				Drilling fluid:	Northi	ng:	6260	)735		bearin	Ň	-			datum:	,	AHD	
dr	illiı	ng ii	nform	ation		erial substance material		1	1			i	ro	ock r	nas	s defeo		efect descr	ription	
method	core-lift	water		depth	graphic log core recovery	rock type; grain characteristics, structure, minor componen		weathering alteration	s	stimat treng	th	Is <sub>(50)</sub> MPa D- diam- etral - A- axial	RQD %	spa n	efect acing nm	3	type, inclin	ation, plana coating, thic	arity, rough	nness,
Ľ	0	\$	RL	metres	50			σ≥	, , ,	JΣI	7 1		æ	98	1000	g partio	cular			general %
NINIC		Groundwater Not Monitored	_53 _52 _51 _50 _49 _48 _48 _47 _46			Continued from non-cored born SHALE: Grey/dark grey, thinly lan BH10 terminated at 10m		HW MW				D A 0 0.06 D A 0.05 0.17 D A 0.2 0.21 D A 0.36 0.17	26			\ P J V J V J V V P	T T T S, 20mm T, 0°, CU, SI T, 0°, ST, SN T, 0°, ST, SN F, 90°, CU, F F, 30-35°, PL	N, 160mm N, SN RO, SN ~90r ., SN, ~60m	nm	All defects are PT, 0-5 PL, RO, CN; unless noted otherwise
DT AS AD RR CB NN	i 2 2 2 3 4LC		aug rolle clav NM	16 ube er screwi er drilling pr/tricone v or blade LC core eline core		core-lift         Image: casing used         barrel withdrawn         graphic log/core recovery         core recovered         - graphic symbols         indicate material         no core recovered	on wa	/1/98 wat date sho ter inflow rtial drill f mplete du ter press geons) fo erval sho	own v fluid I rill flu sure to or dep	oss id loss est res		SW si MW m HW h XW e DW d (c strength VL v L lc M m H h VH v	resh lightly nodera ighly v xtrem istinct covers	ately v weath ely we ly we MW MW w n gh	weath hered eathe athere and H	ered red ed	SS shea	ng red zone red surface ned seam ar ad lating ped	RO n SO s SL s <b>coatin</b> CN c SN s	ery rough ough mooth lickensided g lean tained eneer

CORED BOREHOLE GEOTLCOV24207AB.GPJ COFFEY.GDT 15.3.11

geot	fey 🥍 🛛	IOB NO GEOTL	CKTOWN HOSE COV24207AB DATE 20/2/11 m TO 10.0m	PITAL
910	T AB TS AT 8.2m.	TERMINATI	ED AT 10.0m	
drawn	BM	JIERIMAIL		n Infrastructure , NSW
approved	SS	· · · · · ·	project:	TAL INVESTIGATION - BLACKTOWN HOSPITAL
date	20/2/2011	coffey		TAL INVESTIGATION - BLACKTOWN HOSPITAL
scale	Not to scale	geotechnics	title: BOREHOLE PHO	TOGRAPH–BH10: 8.20m – 10.00m
original size	A4	SPECIALISTS MANAGING THE EARTH	project no: GEOTLCOV24207AB	Photo no: BH10 1 of 1



COII	ey		ye		CHHICS		Boreho	le No.	BH11
Engine	ering	Lo	g - I	Bor	ehole		Sheet Project	No:	1 of 3 GEOTLCOV24207AB
Client:	Heal	th Infra	struc	ture			Date st	arted:	22.2.2011
Principal:							Date co	ompleted:	22.2.2011
Project:	Blac	ktown	Hosp	ital D	evelopment		Logged	l by:	VJ
Borehole Location	on: <b>Blac</b>	ktown	Distri	ct Ho	spital Carpark		Checke	ed by:	SS
drill model and mou	nting: H	lydrapowe	r Scout	Truck	Easting: 307075 slope:	-90°		R.L. S	Surface: 61.6
hole diameter:		25 mm	- <b>i</b>		Northing 6260694 bearing:			datum	n: AHD
drilling informa			mat		bstance			Å	
method 1 5 2 penetration support water	notes samples, tests, etc	dep RL metr	a ∓ graphic log	classification symbol	material soil type: plasticity or particle characteristics, colour, secondary and minor components.	moisture	consistency/ density index	100 x pocket 200 x pocket 300 b penetro- 400 meter	structure and additional observations
ADT C	E		-	*	FILL: BITUMEN: Black. FILL: SAND: Fine to medium grained sand, brow	D			
	_		-	×	with some fine to coarse gravel, trace of clay.			0	.1-0.3m PID=4.5ppm
	SPT 1,2,2 N*=4	_61		CL	CLAY: Medium plasticity, brown, with some fine to medium sand and fine gravel.	o	o VSt		OSSIBLE FILL
	SPT 4,9,16 N*=25	_59		CL	<b>CLAY:</b> Medium plasticity, pale grey/pale brown, with some ironstone gravel.		VSt/H		- 
	SPT 9,8 N*=R	_58			<b>SHALE:</b> Extremely weathered, pale grey/pale brown/orange brown, estimated to be very low strength, remoulds to a gravelly clay.			S 3	
			_		Borehole BH11 continued as cored hole				-
		_56	- - - - - -						- - - -
		_55	-						
		_54	-						-
method       AS     auger s       AD     auger of       RR     roller/tri       W     washbo       CT     cable tri       HA     hand at       DT     diatube       B     blank b       V     V bit       T     TC bit       "bit shown by suffix     e.g.	cone pre pol uger	support M mud C casir penetra 1 2 3 water water 10/ on c	g ion	level	U <sub>s0</sub> undisturbed sample 50mm diameter         soi           U <sub>s3</sub> undisturbed sample 63mm diameter         bas           D         disturbed sample         sys           N         standard penetration test (SPT)		n d classifica nit		consistency/density index         VS       very soft         S       soft         F       firm         St       stiff         VSt       very stiff         H       hard         Fb       friable         VL       very loose         L       loose         MD       medium dense         D       dense         VD       very dense

BOREHOLE GEOTLCOV24207AB.GPJ COFFEY.GDT 15.3.11



	9	U			y	3								В	orehol	e No.	BH11	
ſ	Ξn	gi	ine	eri	ng	Log - Cored	Bore	ho	le						heet roject l	No.	2 of 3 <b>GEOTL</b>	.COV24207AB
-	Client					th Infrastructure									ate sta		22.2.20	
	Princi															mpleted:	22.2.20	
	Proje	•		1	Rlaci	ktown Hospital Develo	nment								ogged		VJ	
	•		Loca			ktown District Hospital	-	ŀ							hecked	-	SS	
_						wer Scout Truck	Easting		30707	75		slope:		-90°	I IEUNEN	R.L. Su		1.6
	ole di			• •		Drilling fluid:	Northir	ng:(	62606	694		bearing	g:			datum:		HD
F	drilli	ng ir	nform	nation		erial substance material			<u> </u>		_		rc	ock mas	s defec		lefect descrip	tion
					log coven			ing n		imate engt		Is <sub>(50)</sub> MPa		defect spacing				
- 40 d	method core-lift	water		depth	graphic log core recovery	rock type; grain characteristics structure, minor compone		weathering alteration		-		D- diam- etral	RQD %	mm			iation, planari coating, thickr	ity, roughness, ness
Ľ	<u> </u>	Ň	RL	metres	gr: Co			we alt	: _ ;	ΣI	ΗЩ	A- axial	Я	+ 30 300 1000	partic	ular		general
				-	-								ſ					-
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					1													
				-														-
			_60	-														-
				2	1													
				-														_
			_59	-														-
				-	-													-
				3														
				-	-													-
			_58	-														-
				4	1													
				-														- -
			_57	-														All defects are: PT, 0°-10°, PL-IR, RO, CN-SN; unle ss noted otherwise
				5		Continued from non-cored bo	orehole						ſ					ed otl
( ;		ored		-	<u> </u>	SHALE: Pale grey/red brown, th bedded at 0-5°, with some lamina	ninly	HW						╤┛	—н	ighly Fractur	red Zone, 230	Jmm g _
	ź	Aonito	50	-		fine grained sandstone.		MW				D		╘═┓	_J   _P		7 SM, 20mm	nne –
		Not	_56	-	<u> </u>	-						0.11 A D 0.44 0.22		┛	_ P	т		S S S
		water		6			= (200()	0.11				DA		2	\\P         J       P	T, 90°, PL, SI	N, 30mm	, C
		Groundwater Not Monitored		-		<b>INTERLAMINATED SANDSTONI</b> <b>AND SHALE (30%):</b> Fine to med grained sandstone, pale grey mot	dium	SW				0.3 1.01				Ť		א – א –
		Ū	_55	_	= : == = :	orange brown/dark grey, thinly be 0-5°, with some iron staining along	edded at						70	┙	\ Р		ı	, PL
				7			5							╶┓		T, 90°, IR, SN	N, ~130mm	0°-10
				-									ĺ	۱ <u>۲</u>		-		" PT,
			54	-	 	INTERLAMINATED SHALE (55% SANDSTONE (45%): Fine to me						D A 0.360.38		Ľ	<u>`</u> P		n	ts are
			_34	-		grained sandstone, pale grey to c thinly bedded at 0-5°.						D A 0.3 0.7				T, 0°, PL, SC T, 0°, PL, SC	D, SN	defec
┝	metho	d		8	2523	core-lift	water					D A weatherin	g			T, 0°, PL, SC defect type	D, CN	roughness
	DT AS			tube ger screwi	ing	casing used		/1/98 wat date sho		el		SW sli	esh ightly	weathered	d	JT joint PT partir	ng	VR very rough RO rough
	AD RR		rolle	ger drilling er/tricone		barrel withdrawn	► wat					HW hig	ghly	ately weath weathered iely weathe			n ared zone ared surface	SO smooth SL slickensided
l I	CB NMLC		NM	w or blade ILC core		graphic log/core recovery		rtial drill fl mplete dr				DW dis (ce	stinc	tly weather s MW and	ed	CS crush	hed seam	e e e time
	NQ, H	Q, PC	≀ wire	eline core		core recovered - graphic symbols					ſ	Strength VL ve	ery lo	w		planarity PL plana CU curve		<b>coating</b> CN clean SN stained
						indicate material no core recovered		ter press geons) fo			ult	M m H hig	ediur gh			ST stepp		VN veneer CO coating
							inte	erval sho	wn		-	VH ve	ery hi	gh		IR irregu	Jiar	

Borehole No.

CORED BOREHOLE GEOTLCOV24207AB.GPJ COFFEY.GDT 15.3.11



	)	U		C	y	900000						Bo	rehole No.	BH11	
E	In	gi	ine	eri	ng	Log - Core	d Bore	eho	le				eet oject No:	3 of 3 GEOTLC	OV24207AB
CI	ient	t:		1	Healt	th Infrastructure						Da	ite started:	22.2.201	1
Pr	inci	pal:										Da	te completed:	22.2.201	1
Pr	oje	ct:		I	Blacl	ktown Hospital Dev	elopment					Lo	gged by:	VJ	
			Loca			ktown District Hos	-	ĸ					ecked by:	SS	
_						ver Scout Truck	Eastin		307075	slope:		-90°	R.L. Su		;
		ame				Drilling fluid:	Northi	ing: (	6260694	bearin	ĭ	-	datum:	AHD	)
d	rilli	ng i	nf <b>or</b> m	ation		erial substance material		1	1		ro	ck mass		efect descripti	on
method	core-lift	water		depth	graphic log core recovery	rock type; grain characte structure, minor com		weathering alteration	estimated strength	Is <sub>(50)</sub> MPa D- diam- etral	RQD %	defect spacing mm	c	ation, planarity, coating, thicknes	
		8N B	RL	metres	gr C gr				, Z⊐∑⊐Z		Å	+ 30 100 1000 3000	particular		general
NMLC			_53 _52	- - 9 - - - - 10		INTERLAMINATED SHALE SANDSTONE (45%): Fine grained sandstone, pale gre thinly bedded at 0-5°. (contin	o medium y to dark grey,	SW		0.3 0.5 D A 0.4 0.8 D A 0.4 0.7 D A 0.2 0.3 D A 0.2 0.3 D A 0.2 0.3 D A 0.4 0.5 -D A 0.4 0.4	Ű		- PT, 0°, PL, SC - PT - Highly Fractur - PT - Highly Fractur - PT - PT - PT - PT	red Zone, 60mr	
			_51	- - - 1 <u>1</u> -		NO CORE: 0.03m BH11 terminated at 10m									- - - -
			_50	- - 1 <u>2</u> -											- - - - -
			_49 _48	- 1 <u>3</u> - -											- - - - -
			_47	14											- - - -
			_46	1 <u>5</u>   -   -   16											
D A A R C N	S D R B MLC		aug rolle clav NM	ube er screwi er drilling sr/tricone v or blade LC core sline core	e bit	core-lift casing used barrel withdrawn graphic log/core recovery core recovered - graphic symbols indicate material no core recovered	va Pa S (Iut S (Iut		wn / luid loss ill fluid loss ure test result yr depth	SW sli MW m HW hi XW ey DW di (c strength VL ve L lo M m H hi VH ve	esh ightly odera ghly v ktrem stinct overs ery lov ediur gh ediur gh	n	ed SZ shear SS shear d CS crush	ng red zone red surface ned seam ar ad lating ped	roughness VR very rough RO rough SO smooth SL slickensided Coating CN clean SN stained VN veneer CO coating



drawn	BM		client: Health Infrastruc	ure , NSW
approved	SS		project: GEOTECHNICAL & ENVIRONMENTAL INVES	
date	22/2/2011	coffey		HIGHTIGHT BEACKTOWN HIGHTIGE
scale	Not to scale	geotechnics	title: BOREHOLE PHOTOGRAPH-	BH11: 5.00m – 10.00m
original size	A4	SPECIALISTS MANAGING THE EARTH	project no: GEOTLCOV24207AB	Photo no: BH11 1 of 1



2.5

3.0

3.<u>5</u>

4.0

\_54.5

\_54.0

53.5

Bs

Engir	nee	ering	j L	og	- E	Exc	avation		Sheet Project	No:	1 of 1 GEOTLCOV24207AB
Client:		Hea	lth In	nfras	truc	ture			Date st	arted:	18.2.2011
Principal:									Date co	ompleted	t: <b>18.2.2011</b>
Project:		Blac	ktov	vn H	lospi	ital D	evelopment		Logged	d by:	LJG
Test pit loca	ation:	Blac	ktov	vn D	istri	ct Ho	spital Carpark		Checke	ed by:	SS
equipment typ	e and	I model:	Yanma	r 5t Ex	cavato	or	Pit Orientation: Easting: 30	7294 m		R.L	Surface: 57.3
excavation dir			3.3m lo	ong ´	1.9m w			260716 r	n	datı	ım: AHD
excavation	info	rmation			mat	erial su	ubstance	<del></del>			
method 5 5 penetration	water	notes samples, tests, etc		depth netres	graphic log	classification symbol	material soil type: plasticity or particle characteristics, colour, secondary and minor components.	moisture condition	consistency/ density index	<sup>100</sup> A pocket <sup>200</sup> A penetro- 400 meter	structure and additional observations
ш К	Groundwater Not Encountered	E + D Bs E + D Bs E	56.5	0. <u>5</u> 		CL/CH	FILL: Sandy CLAY: Low to medium plasticity, fine         grained sand, with some roots.         FILL: CLAY: Low to medium plasticity, brown, with         some fine to medium roots, trace of gravel and sand.         FILL: CLAY: Medium to high plasticity, pale         grey/red brown, with some fine ironstone gravel, trace of sand, roots and terracotta pipe.         CLAY: Medium to high plasticity, pale grey/red         brown, with some fine ironstone gravel and fine angular shale gravel, trace of sand.	J <wp< td=""><td>VSt/H</td><td>· ×</td><td>TOPSOIL      </td></wp<>	VSt/H	· ×	TOPSOIL

**SHALE:** Extremely weathered, pale grey mottled red brown, estimated to be very low strength,

SHALE: Highly weathered, pale grey mottled red brown, estimated to be low strength, remoulds to a gravelly clay. Test pit TPB1 terminated at 3m

remoulds to a gravelly clay.

Excavation No.

TPB1

SHALE

TESTPIT GEOTLCOV24207AB.GPJ COFFEY.GDT 15.3.11

Sketch

method support notes, samples, tests classification symbols and consistency/density index N X BH R very soft soft natural exposure S shoring N nil  $U_{50}$ undisturbed sample 50mm diameter soil description VS based on unified classification undisturbed sample 63mm diameter existing excavation U<sub>63</sub> s backhoe bucket D V disturbed sample system F firm Form GEO 5.2 Issue 3 Rev.2 penetration bulldozer blade vane shear (kPa) St stiff no resistance VSt Bs bulk sample very stiff ripper moisture ranging to refusal Е environmental sample excavator E R н D dry hard refusal М moist Fb friable wate water level w wet VL very loose Wp plastic limit on date shown L loose w. liquid limit MD medium dense water inflow D VD dense 4 water outflow very dense



										_			
CU			<b>- y</b>		C			0111105		E	Excava	tion No	D. <b>TPB2</b>
Engi	in	ee	ering	J L	og	- E	Exc	avation			Sheet Project	No:	1 of 1 GEOTLCOV24207AL
Client:			Hea	lth li	nfras	struc	ture			[	Date st	arted:	18.2.2011
Principal:										[	Date co	omplete	ed: <b>18.2.2011</b>
Project:			Blac	kto	vn H	lospi	tal D	evelopment		L	oggeo	l by:	LJG
Fest pit lo	ocati	on:	Blac	kto	wn D	) istri	ct Ho	spital Carpark		(	Checke	ed by:	SS
quipment t						cavato		Pit Orientation: Easting:	3073	330 m		, R.	L. Surface: 56.85
xcavation	dime	ensio	ns: 2	2.8m lo	ong	1.7m w	ide	Northing:	6260	0714 m	1	da	atum: AHD
excavati	on i	nfor	mation			mat		ubstance					
method 5 penetration	support	water	<b>notes</b> samples, tests, etc	RL 1	depth netres	graphic log	classification symbol	material soil type: plasticity or particle characteristics, colour, secondary and minor components.		moisture condition	consistency/ density index	100 A pocket 200 A penetro- 400 meter	
	N	red	E+D	-	_			FILL: Sandy CLAY: Low to medium plasticity, data brown, fine to medium grained sand, with some fin	rk e to <i>l</i>	<wp< td=""><td></td><td></td><td></td></wp<>			
		Encountered	E+D	56.5	0. <u>5</u>			Imedium roots. FILL: CLAY: Medium plasticity, brown, with some fine to medium roots, trace of fine gravel and fine	il				0.1-0.2m PID=0.2ppm DUP 2: 0.1-0.2m
		Groundwater Not	Bs	56.0			CL/CH	sand. CLAY: Medium to high plasticity, brown/pale grey with some fine rounded ironstone, trace of sand ar roots.	; — 1 id		VSt		RESIDUAL SOIL
		mdw	E+D	1	1. <u>0</u>   _		CL/CH	CLAY: Medium to high plasticity, red brown/pale grey, with some fine ironstone gravel, trace of roots			Н		– 1.0-1.2m PID=4.5ppm
		Gro		_55.5	 1.5 <sup></sup>			grey, with some line indistone gravel, trace of rook	5.				Large root at 1.25m
			Bs	55.0	-								
					2. <u>0</u>			SHALE: Extremely weathered, pale grey/red brown, iron stained, estimated to be very low stren remoulds to a gravelly clay. At 1.80m becoming with some fine to medium ang					SHALE -
	$\square$		Bs	_54.5	2.5			shale gravel. Test pit TPB2 terminated at 2.4m					
				_54.0									
				_53.5	-								-
				_00.0	3. <u>5</u>								-
				_53.0	4.0								
Sketch													

								•	
	method		support	notes, s	amples, tests	clas	sification symbols and	consisten	cy/density index
	Ν	natural exposure	S shoring N nil	U <sub>50</sub>	undisturbed sample 50mm diameter	soil	description	VS	very soft
	Х	existing excavation		U <sub>63</sub>	undisturbed sample 63mm diameter	base	ed on unified classification	S	soft
.2	BH	backhoe bucket	penetration	D	disturbed sample	syst	em	F	firm
Re	В	bulldozer blade	1234	V	vane shear (kPa)			St	stiff
e	R	ripper	no resistance ranging to	Bs	bulk sample	moi	sture	VSt	very stiff
ene	E	excavator	refusal	E	environmental sample	D	dry	н	hard
ŝŝ			water	R	refusal	М	moist	Fb	friable
5.2			water level			W	wet	VL	very loose
			on date shown			Wp	plastic limit	L	loose
0E0						WL	liquid limit	MD	medium dense
ε			water inflow					D	dense
ЪО			- water outflow					VD	very dense

# Appendix B

Geotechnical Laboratory Testing Results

	LOAD STRE	-		nod 4.1:H	Rock Stre	ength Tes	sts - Deter	mination of F	Point Load S	Strength Inde	x						Job No. Sheet		COV24207AB OF <b>11</b>
	CLIENT:	Health Infrast	ructure NSW	1						GSA bench-m Lane Cove We		orage area				of Calibration: Calibrated By:			
	PROJECT:	GEOTLCOV2 Blacktown Ho							Tested By: Test Date: Checked:	23/2/2011						Sampled Date: age Location:		West indoor s	storage area
							Diame	tral test						Axial or I	rregular lu	Imp			
	ole No. / Test Depth (m)	Rock Description	Moisture Condition <sup>(1)</sup> (N, D or S)	Length L	Diameter D (mm)	Load P (Gauge) (N)	I <sub>s</sub> =(P/D <sup>2</sup> ) x 1000 (MPa)	Size Correctio <u>n</u> F=(D/50)^ <sup>0.45</sup>	I <sub>s(50)</sub> (MPa)	Strength Class (Diametral)	Width W (core diameter) (mm)	Platen Separation D <sup>(2)</sup> (mm)	${\sf D}_{\sf e}^{\ 2}$	Load (Gauge) (kN)	I <sub>s</sub> =(P/D <sub>e</sub> <sup>2</sup> ) x 1000 (MPa)	Size Correction F=(D <sub>e</sub> /50)^0.45	I <sub>s(50)</sub> (MPa)	Strength Class (Axial)	Comments / Strength Classification
BH1	6.80	Shale	N	27.0	50.0	0	0.00	1.00	0.00	V. Low	50.0	27.0	1719	0.00	0.00	0.92	0.00	V. Low	BB
BH1	7.93	Shale	N	34.0	50.0	0.55	0.22	1.00	0.22	Low	50.0	34.0	2165	0.52	0.24	0.97	0.23	Low	
BH1	8.10	Shale	Ν	35.0	50.0	0.82	0.33	1.00	0.33	Medium	50.0	35.0	2228	0.89	0.40	0.97	0.39	Medium	
BH1	8.49	Shale	N	35.0	50.0	0.71	0.28	1.00	0.28	Low	50.0	35.0	2228	0.77	0.35	0.97	0.34	Medium	
BH1	8.87	Shale	N	37.0	50.0	0.74	0.30	1.00	0.3	Low	50.0	37.0	2355	0.53	0.23	0.99	0.2	Low	
BH1	9.0	Shale	N	29.0	50.0	0.41	0.16	1.00	0.2	Low	50.0	29.0	1846	0.56	0.30	0.93	0.3	Low	
BH1	9.44	Shale	N	44.0	50.0	0.74	0.30	1.00	0.3	Low	50.0	44.0	2801	0.87	0.31	1.03	0.3	Medium	
BH1	9.92	Shale	N	26.0	50.0	0.67	0.27	1.00	0.3	Low	50.0	26.0	1655	0.50	0.30	0.91	0.3	Low	
				l															

NOTES (1): N = Natural, D = Dry, S = Saturated (2): L > 0.5D, 0.3 < D/W < 1.0

< 0.1 Very Low 1-3 High 0.1 - 0.3 Low 3 - 10 Very High 0.3 - 1 Medium

	LOAD STRE			nod 4.1:I	Rock Stre	ength Tes	ts - Deter	mination of F	Point Load S	Strength Inde	x						Job No. Sheet		COV24207AB of <b>11</b>
	CLIENT:	Health Infrast	ructure NSW	1					ing Locality:	GSA bench-m Lane Cove W		orage area			(	of Calibration: Calibrated By:			
		GEOTLCOV2 Blacktown Ho							Tested By: Test Date: Checked:	23/2/2011						Sampled Date: age Location:		West indoor :	storage area
							Diame	tral test						Axial or I	rregular lu	Imp			
	ole No. / Test lepth (m)	Rock Description	Moisture Condition <sup>(1)</sup> (N, D or S)	Length L	Diameter D (mm)	Load P (Gauge) (N)	I <sub>s</sub> =(P/D <sup>2</sup> ) x 1000 (MPa)	Size Correctio <u>n</u> F=(D/50)^ <sup>0.45</sup>	I <sub>s(50)</sub> (MPa)	Strength Class (Diametral)	Width W (core diameter) (mm)	Platen Separation D <sup>(2)</sup> (mm)	${\sf D}_{\sf e}^{\ 2}$	Load (Gauge) (kN)	I <sub>s</sub> =(P/D <sub>e</sub> <sup>2</sup> ) x 1000 (MPa)	Size Correction F=(D <sub>e</sub> /50)^{0.45}	I <sub>s(50)</sub> (MPa)	Strength Class (Axial)	Comments / Strength Classification
BH2	8.01	Shale	Ν	28.0	50.0	0.78	0.31	1.00	0.31	Medium	50.0	28.0	1783	0.58	0.33	0.93	0.30	Medium	
BH2	8.44	Shale	Ν	31.0	50.0	0.69	0.28	1.00	0.28	Low	50.0	28.0	1783	0.61	0.34	0.93	0.32	Medium	
BH2	8.68	Shale	Ν	30.0	50.0	0.49	0.20	1.00	0.20	Low									JT/BB (diametral)
BH2	9.17	Shale	Ν	39.0	50.0	0.49	0.20	1.00	0.20	Low	50.0	30.0	1910	1.30	0.68	0.94	0.64	Medium	
BH2	9.80	Shale	N	27.0	50.0	0.63	0.25	1.00	0.3	Low	50.0	39.0	2483						BB
					a and Stre		- 10												

### Is(50) MPa and Strength Classification

 (1): N = Natural, D = Dry, S = Saturated
 < 0.1</td>
 Very Low

 (2): L > 0.5D,
 0.3 < D/W < 1.0</td>
 0.1 - 0.3
 Low

 0.3 - 1
 Medium

ry Low 1 - 3 High w 3 - 10 Very High

	LOAD STRE			nod 4.1:F	Rock Stre	ength Tes	sts - Deter	mination of F	Point Load S	Strength Inde	x						Job No. Sheet		COV24207AB of <b>11</b>
	CLIENT:	Health Infrast	ructure NSW	1					ting Locality:	GSA bench-m Lane Cove W		orage area			(	of Calibration: Calibrated By:			
	PROJECT:	GEOTLCOV2	4207AB						Tested By: Test Date:	23/2/2011						Sampled Date: age Location:		West indoor	storage area
	LOCATION:	Blacktown Ho	spital						Checked:		-								_
							Diame	tral test						Axial or I	rregular lu	ımp			
	ole No. / Test lepth (m)	Rock Description	Moisture Condition <sup>(1)</sup> (N, D or S)	Length L	Diameter D (mm)	Load P (Gauge) (N)	I <sub>s</sub> =(P/D <sup>2</sup> ) x 1000 (MPa)	Size Correctio <u>n</u> F=(D/50)^0.45	I <sub>s(50)</sub> (MPa)	Strength Class (Diametral)	Width W (core diameter) (mm)	Platen Separation D <sup>(2)</sup> (mm)	${\sf D}_{\sf e}^{\ 2}$	Load (Gauge) (kN)	I <sub>s</sub> =(P/D <sub>e</sub> <sup>2</sup> ) x 1000 (MPa)	Size Correction F=(D <sub>e</sub> /50)^0.45	I <sub>s(50)</sub> (MPa)	Strength Class (Axial)	Comments / Strength Classification
BH3	7.16	Shale	N	35.0	50.0	0	0.00	1.00	0.00	V. Low	50.0	35.0	2228	0.14	0.06	0.97	0.06	V. Low	BB
BH3	7.60	Shale	N	36.0	50.0	0.42	0.00	1.00	0.00	Low	50.0	36.0	2220	0.14	0.00	0.97	0.00	Low	BB
BH3	7.80	Shale	N	30.0	50.0	0.42	0.25	1.00	0.17	Low	50.0	30.0	1910	0.20	0.12	0.94	0.12	Low	66
BH3	8.51	Shale	N	35.0	50.0	1.07	0.43	1.00	0.43	Medium	50.0	35.0	2228	1.14	0.51	0.97	0.50	Medium	
BH3	9.96	Shale	N	40.0	50.0	0.41	0.16	1.00	0.2	Low	50.0	40.0	2546	0.55	0.22	1.00	0.2	Low	BB
BH3	9.39	Shale	N	30.0	50.0	0.64	0.26	1.00	0.3	Low	50.0	30.0	1910	0.71	0.37	0.94	0.3	Medium	
BH3	9.97	Shale	N	35.0	50.0	0.46	0.18	1.00	0.2	Low	50.0	35.0	2228	0.64	0.29	0.97	0.3	Low	
$\vdash$																			
$\vdash$																			

### Is(50) MPa and Strength Classification

(1): N = Natural, D = Dry, S = Saturated (2): L > 0.5D, 0.3 < D/W < 1.0

< 0.1 Very Low 1 - 3 High 0.1 - 0.3 Low 3 - 10 Very High 0.3 - 1 Medium

	LOAD STRE			nod 4.1:H	Rock Stre	ength Tes	sts - Deter	mination of F	Point Load S	Strength Inde	x						Job No. Sheet		COV24207AB of <b>11</b>
	CLIENT:	Health Infrast	ructure NSW	1					ting Locality:	GSA bench-m Lane Cove W		orage area			(	of Calibration: Calibrated By:			
	PROJECT:	GEOTLCOV2	4207AB						Tested By: Test Date:							Sampled Date: age Location:		West indoor	storage area
	LOCATION:	Blacktown Ho	spital						Checked:										
			Moisture				Diame	tral test						Axial or I	rregular lu	ımp			
	ole No. / Test lepth (m)	Rock Description	Length L	Diameter D (mm)	Load P (Gauge) (N)	I <sub>s</sub> =(P/D <sup>2</sup> ) x 1000 (MPa)	Size Correctio <u>n</u> F=(D/50)^ <sup>0.45</sup>	I <sub>s(50)</sub> (MPa)	Strength Class (Diametral)	Width W (core diameter) (mm)	Platen Separation D <sup>(2)</sup> (mm)	${\sf D}_{\!\!\!\!\theta}^{\ 2}$	Load (Gauge) (kN)	I <sub>s</sub> =(P/D <sub>e</sub> <sup>2</sup> ) x 1000 (MPa)	Size Correction F=(D <sub>e</sub> /50)^0.45	I <sub>s(50)</sub> (MPa)	Strength Class (Axial)	Comments / Strength Classification	
BH4	5.54	Shale	N	34.0	50.0	0.53	0.21	1.00	0.21	(Diametral)	50.0	34.0	2165	0.30	0.14	0.97	0.13	(Axiai)	
BH4	5.93	Shale	N	28.0	50.0	0.2	0.08	1.00	0.08	V. Low	50.0	28.0	1783	0.35	0.20	0.93	0.18	Low	BB
BH4	6.09	Shale	N	28.0	50.0	0	0.00	1.00	0.00	V. Low	50.0	28.0	1783	0.06	0.03	0.93	0.03	V. Low	BB
BH4	6.87	Shale	N	36.0	50.0	0.24	0.10	1.00	0.10	V. Low	50.0	36.0	2292	0.22	0.10	0.98	0.09	V. Low	BB
BH4	7.11	Shale	N	36.0	50.0	0.13	0.05	1.00	0.1	V. Low	50.0	36.0	2292	0.44	0.19	0.98	0.2	Low	BB
BH4	7.93	Shale	N	35.0	50.0	0	0.00	1.00	0.0	V. Low	50.0	35.0	2228	0.49	0.22	0.97	0.2	Low	BB
BH4	8.00	Shale	N	40.0	50.0	0.61	0.24	1.00	0.2	Low	50.0	40.0	2546	0.72	0.28	1.00	0.3	Low	
BH4	8.27	Shale	N	27.0	50.0	0.55	0.22	1.00	0.2	Low	50.0	27.0	1719	0.53	0.31	0.92	0.3	Low	
BH4	8.94	Shale	N	30.0	50.0	0.55	0.22	1.00	0.2	Low	50.0	30.0	1910	0.06	0.03	0.94	0.0	V. Low	
BH4	9.58	Shale	N	35.0	50.0	0.88	0.35	1.00	0.4	Medium	50.0	35.0	2228	1.47	0.66	0.97	0.6	Medium	
BH4	9.71	Shale	N	42.0	50.0	0.13	0.05	1.00	0.1	V. Low	50.0	42.0	2674	0.78	0.29	1.02	0.3	Low	BB
L				1	1	I								l					1

### Is(50) MPa and Strength Classification

(1): N = Natural, D = Dry, S = Saturated (2): L > 0.5D, 0.3 < D/W < 1.0

< 0.1 Very Low 1 - 3 High 0.1 - 0.3 Low 3 - 10 Very High 0.3 - 1 Medium

> 10 Extreamly High

Pointload Calc Sheet.xlsx

	LOAD STRE	-		nod 4.1:H	Rock Stre	ength Tes	ts - Deter	mination of F	Point Load S	Strength Inde	x						Job No. Sheet		COV24207AB of <b>11</b>
	CLIENT:	Health Infrast	ructure NSW	1					ing Locality:	GSA bench-m Lane Cove W		orage area			(	of Calibration: Calibrated By:			
		GEOTLCOV2 Blacktown Ho							Tested By: Test Date: Checked:	23/2/2011						Sampled Date: age Location:		West indoor s	storage area
							Diame	tral test						Axial or I	rregular lu	Imp			
											Width W (core diameter) (mm)	Platen Separation D <sup>(2)</sup> (mm)	${\sf D}_{\sf e}^{\ 2}$	Load (Gauge) (kN)	I <sub>s</sub> =(P/D <sub>e</sub> <sup>2</sup> ) x 1000 (MPa)	Size Correction F=(D <sub>e</sub> /50)^0.45	I <sub>s(50)</sub> (MPa)	Strength Class (Axial)	Comments / Strength Classification
BH5	6.77	Shale	N	35.0	50.0	0.33	0.13	1.00	0.13	Low	50.0	35.0	2228	0.44	0.20	0.97	0.19	Low	BB
BH5	6.80	Shale	N								50.0	30.0	1910	0.52	0.27	0.94	0.26	Low	
BH5	7.07	Shale	N	28.0	50.0	0.31	0.12	1.00	0.12	Low	50.0	28.0	1783	0.42	0.24	0.93	0.22	Low	BB
BH5	7.29	Shale	N	26.0	50.0	0.25	0.10	1.00	0.10	V. Low	50.0	26.0	1655	0.55	0.33	0.91	0.30	Medium	
BH5	8.0	Shale	N	35.0	50.0	0.58	0.23	1.00	0.2	Low	50.0	35.0	2228	0.64	0.29	0.97	0.3	Low	
BH5	8.7	Shale	Ν	26.0	50.0	0.53	0.21	1.00	0.2	Low	50.0	26.0	1655	0.67	0.40	0.91	0.4	Medium	BB
BH5	8.97	Shale	Ν	30.0	50.0	0.6	0.24	1.00	0.2	Low	50.0	30.0	1910	0.72	0.38	0.94	0.4	Medium	
BH5	9.07	Shale	Ν	26.0	50.0	0.08	0.03	1.00	0.0	V. Low	50.0	26.0	1655	0.50	0.30	0.91	0.3	Low	
BH5	9.68	Shale	Ν	30.0	50.0	0.47	0.19	1.00	0.2	Low	50.0	30.0	1910	0.61	0.32	0.94	0.3	Medium	
BH5	9.34	Shale	N	38.0	50.0	0.58	0.23	1.00	0.2	Low	50.0	358.0	22791	0.72	0.03	1.64	0.1	V. Low	BB

NOTES (1): N = Natural, D = Dry, S = Saturated (2): L > 0.5D, 0.3 < D/W < 1.0

< 0.1 Very Low 1-3 High 0.1 - 0.3 Low 3 - 10 Very High 0.3 - 1 Medium

Depth (m)DescriptionDescription $(n, 0 \text{ r S})$ $(n)$		tralian Standard AS4133.4.1-1993 Method 4.1:Rock Strength Tests - Determination of Point Load Strength Index																Job No. Sheet		COV24207AB of <b>11</b>
PROJECT: GEOLECO24207AB         Test Date: 23/2/2011 Checked:         Storage Location: Lane Cove Wet Checked:           LOCATION: Blacktown Hospital           Depth (m)         Rock Depth (m)         Moisture Condition <sup>(1)</sup> (N,D or S)         Diameter D         Diameter Load P (M)         Size Num         Size (MPa)         Sirength (Correction (MPa)         Video Mitton (MPa)         Load (FC/D, (MPa)		CLIENT:	Health Infrast	ructure NSW	,					ting Locality:	Lane Cove W		orage area			(	Calibrated By:			
LOCATION: Blacktown Hospital           Borehole No. / Test Depth (m)         Rock Description (N, D or S)         Moisture (Condition <sup>(1)</sup> ) (N, D or S)         Load P (D) (N)         Load P (Gauge) (N)         Load P (Gauge) (N)         Load P (Gauge) (N)         Load P (Correction (MPa)         Lig(p/D) Correction (MPa)         Strength (Diameter) (MPa)         Width W (Correction (MPa)         Platen (Class (Diameter) (Diameter)         De <sup>2</sup> (N)         Load (Gauge) (N)         Lig(p) (N)         Strength (MPa)         Width W (Correction (MPa)         Platen (Class (Diameter)         De <sup>2</sup> (Mma)         Load (Gauge)         Lig(p/D)         Strength (MPa)         Width W (Correction (MPa)         Platen (Mmm)         De <sup>2</sup> (N)         Load (Sauge)         Lig(p/D)         Strength (MPa)         Width W (Correction (MPa)         Platen (Mmm)         De <sup>2</sup> (N)         Load (Sauge)         Lig(p/D)         Strength (MPa)         Width W (Correction (MPa)         Platen (Mmm)         De <sup>2</sup> (N)         Load (N)         Lig(D)         Strength (MPa)         Width W (Correction (MPa)         Platen (Mmm)         De <sup>2</sup> (N)         Load (N)         Lig(D)         Strength (MPa)         Width W (Correction (MPa)         Platen (Mmm)         De <sup>2</sup> (N)         Load (N)         De <sup>2</sup> (N)         Load (N)         Lig(D)         Lig(D)         N           BH6         7.42         Shale         N         31.0 <td< td=""><td></td><td>PROJECT:</td><td>GEOTLCOV2</td><td>4207AB</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>•</td><td></td><td>West indoor</td><td>storage area</td></td<>		PROJECT:	GEOTLCOV2	4207AB													•		West indoor	storage area
$ \begin{array}{ c c c c c c c c c c c c c c c c c c c$		LOCATION:	Blacktown Ho	spital						Checked:										
$ \begin{array}{c c c c c c c c c c c c c c c c c c c $								Diame	tral test						Axial or I	rregular lu	ımp			
BH6         6.41         Shale         N         32.0         50.0         0.08         0.03         1.00         0.03         V. Low         50.0         32.0         20.0         0.08         0.03         1.00         0.03         V. Low         50.0         32.0         2037         0.36         0.18         0.95         0.17         V.           BH6         7.15         Shale         N         27.0         50.0         0         0.00         1.00         0.00         V. Low         50.0         22037         0.36         0.18         0.95         0.17         V.           BH6         7.15         Shale         N         31.0         50.0         0         0.00         1.00         0.00         V. Low         50.0         27.0         1719         0.00         0.00         0.00         V           BH6         7.42         Shale         N         31.0         50.0         0.31         0.12         1.00         0.12         Low         50.0         33.0         2101         0.41         0.20         0.96         0.19         V.         BH6         8.04         Shale         N         31.0         50.0         0.00         1.00         0.0		shole No. / Test Depth (m)     Rock Description     Condition <sup>(1)</sup> (N, D or S)     Length L (2)     Diameter D     Load P (Gauge)     I_s=(P/D <sup>2</sup> )     Size X 1000     Size Correction     Stre Cl       (N)     (MPa)     (MPa)     (Ma)     (Ma)     (Ma)     (Ma)							Class	(core diameter)	Separation D (2)	${\sf D}_{\sf e}^{\ 2}$	(Gauge)	x 1000	Correction		Strength Class	Comments / Strength Classification		
BH6         7.15         Shale         N         27.0         50.0         0         0.00         1.00         0.00         V. Low         50.0         27.0         1719         0.00         0.00         0.00         V           BH6         7.42         Shale         N         31.0         50.0         0         0.00         1.00         0.00         V. Low         50.0         27.0         1719         0.00         0.00         0.00         V           BH6         7.42         Shale         N         31.0         50.0         0.0         1.00         0.00         V. Low         50.0         31.0         1974         0.78         0.40         0.95         0.37         M           BH6         7.90         Shale         N         33.0         50.0         0.31         0.12         1.00         0.12         Low         50.0         33.0         2101         0.41         0.20         0.96         0.37         M           BH6         8.04         Shale         N         31.0         50.0         0.01         1.00         0.0         V. Low         50.0         31.0         1.97         0.52         0.26         0.98         0.27	BH6	6.41	Shale	N	. ,	. ,		(ivii u)		· · /		. ,		2037		, ,		· ,	(Axial)	BB
BH6         7.90         Shale         N         33.0         50.0         0.31         0.12         1.00         0.12         Low         50.0         33.0         2101         0.41         0.20         0.96         0.19           BH6         8.04         Shale         N         31.0         50.0         0.00         1.00         0.0         V. Low         50.0         31.0         1974         0.52         0.26         0.956         0.2           BH6         8.86         Shale         N         34.0         50.0         0.06         0.02         1.00         0.0         V. Low         50.0         31.0         1974         0.52         0.26         0.950         0.2           BH6         8.86         Shale         N         34.0         50.0         0.06         0.02         1.00         0.0         V. Low         50.0         34.0         2165         0.56         0.26         0.97         0.3           BH6         8.96         Shale         N         30.0         50.0         0.27         0.11         1.00         0.1         Low         50.0         36.0         292         1.10         0.48         0.98         0.5         M		-									-							-	V. Low	
BH6         8.04         Shale         N         31.0         50.0         0.0         1.00         0.00         V. Low         50.0         31.0         1974         0.52         0.26         0.95         0.2           BH6         8.86         Shale         N         34.0         50.0         0.06         0.00         V. Low         50.0         31.0         1974         0.52         0.26         0.95         0.2           BH6         8.86         Shale         N         34.0         50.0         0.06         0.02         1.00         0.0         V. Low         50.0         34.0         2165         0.56         0.26         0.97         0.3           BH6         8.96         Shale         N         30.0         50.0         0.31         1.00         0.2         Low         50.0         30.0         1910         0.72         0.38         0.94         0.4         M           BH6         9.12         Shale         N         36.0         50.0         0.27         0.11         1.00         0.1         Low         50.0         36.0         2292         1.10         0.48         0.98         0.5         M         BH6         9.72	BH6	7.42	Shale	N	31.0	50.0	0	0.00	1.00	0.00	V. Low	50.0	31.0	1974	0.78	0.40	0.95	0.37	Medium	
BH6         Shale         N         34.0         50.0         0.06         0.02         1.00         0.0         V. Low         50.0         34.0         2165         0.56         0.26         0.97         0.3           BH6         8.86         Shale         N         30.0         50.0         0.39         0.16         1.00         0.2         Low         50.0         30.0         1910         0.72         0.38         0.94         0.4         M           BH6         9.12         Shale         N         36.0         50.0         0.27         0.11         1.00         0.1         Low         50.0         36.0         2292         1.10         0.48         0.98         0.5         M           BH6         9.72         Shale         N         36.0         50.0         1.24         0.50         1.00         0.5         Medium         50.0         36.0         2292         1.10         0.48         0.98         0.5         M           BH6         9.72         Shale         N         36.0         50.0         1.24         0.50         1.00         0.5         Medium         50.0         36.0         2292         1.10         0.48	BH6	7.90	Shale	N	33.0	50.0	0.31	0.12	1.00	0.12	Low	50.0	33.0	2101	0.41	0.20	0.96	0.19	Low	
BH6         8.96         Shale         N         30.0         50.0         0.39         0.16         1.00         0.2         Low         50.0         30.0         1910         0.72         0.38         0.94         0.4         M           BH6         9.12         Shale         N         36.0         50.0         0.27         0.11         1.00         0.1         Low         50.0         36.0         2292         1.10         0.48         0.98         0.5         M           BH6         9.72         Shale         N         36.0         1.24         0.50         1.00         0.5         Medium         50.0         36.0         2292         1.10         0.48         0.98         0.5         M           BH6         9.72         Shale         N         36.0         1.00         0.5         Medium         50.0         36.0         2292         1.10         0.48         0.98         0.5         M	BH6	8.04	Shale	N	31.0	50.0	0	0.00	1.00	0.0	V. Low	50.0	31.0	1974	0.52	0.26	0.95	0.2	Low	
BH6         9.12         Shale         N         36.0         50.0         0.27         0.11         1.00         0.1         Low         50.0         36.0         2292         1.10         0.48         0.98         0.5         M           BH6         9.72         Shale         N         36.0         50.0         1.24         0.50         1.00         0.5         Medium         50.0         36.0         2292         1.10         0.48         0.98         0.5         M	BH6	8.86	Shale	N	34.0	50.0	0.06	0.02	1.00	0.0	V. Low	50.0	34.0	2165	0.56	0.26	0.97	0.3	Low	
BH6         9.72         Shale         N         36.0         50.0         1.24         0.50         1.00         0.5         Medium         50.0         36.0         2292         1.10         0.48         0.98         0.5         Medium	BH6	8.96	Shale	N	30.0	50.0	0.39	0.16	1.00	0.2	Low	50.0	30.0	1910	0.72	0.38	0.94	0.4	Medium	
	BH6	9.12	Shale	Ν	36.0	50.0	0.27	0.11	1.00	0.1	Low	50.0	36.0	2292	1.10	0.48	0.98	0.5	Medium	
BH6       9.92       Shale       N       29.0       50.0       1.16       0.46       1.00       0.5       Medium       50.0       29.0       1846       0.72       0.39       0.93       0.4       M         Image: Shale       Image: Shale <t< td=""><td>BH6</td><td>9.72</td><td>Shale</td><td>N</td><td>36.0</td><td>50.0</td><td>1.24</td><td>0.50</td><td>1.00</td><td>0.5</td><td>Medium</td><td>50.0</td><td>36.0</td><td>2292</td><td>1.10</td><td>0.48</td><td>0.98</td><td>0.5</td><td>Medium</td><td></td></t<>	BH6	9.72	Shale	N	36.0	50.0	1.24	0.50	1.00	0.5	Medium	50.0	36.0	2292	1.10	0.48	0.98	0.5	Medium	
	BH6	9.92	Shale	N	29.0	50.0	1.16	0.46	1.00	0.5	Medium	50.0	29.0	1846	0.72	0.39	0.93	0.4	Medium	
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### Is(50) MPa and Strength Classification

(1): N = Natural, D = Dry, S = Saturated (2): L > 0.5D, 0.3 < D/W < 1.0

< 0.1 Very Low 1 - 3 High 0.1 - 0.3 Low 3 - 10 Very High 0.3 - 1 Medium

> 10 Extreamly High

Pointload Calc Sheet.xlsx

	LOAD STRE	-		od 4.1:F	Rock Stre	ength Tes	sts - Deter	mination of F	Point Load S	Strength Inde	x						Job No. Sheet		COV24207AB of <b>11</b>
	CLIENT:	Health Infrast	ructure NSW						ing Locality:	GSA bench-m Lane Cove W		orage area			(	of Calibration: Calibrated By:			
		GEOTLCOV2 Blacktown Ho							Tested By: Test Date: Checked:	23/2/2011						Sampled Date: age Location:		West indoor s	storage area
							Diame	tral test						Axial or I	rregular lu	Imp			
	ole No. / Test Depth (m)	Rock Description	Moisture Condition <sup>(1)</sup> (N, D or S)	Length L	Diameter D (mm)	Load P (Gauge) (N)	I <sub>s</sub> =(P/D <sup>2</sup> ) x 1000 (MPa)	Size Correctio <u>n</u> F=(D/50)^0.45	I <sub>s(50)</sub> (MPa)	Strength Class (Diametral)	Width W (core diameter) (mm)	Platen Separation D <sup>(2)</sup> (mm)	${\sf D}_{\sf e}^{\ 2}$	Load (Gauge) (kN)	I <sub>s</sub> =(P/D <sub>e</sub> <sup>2</sup> ) x 1000 (MPa)	Size Correction F=(D <sub>e</sub> /50)^0.45	I <sub>s(50)</sub> (MPa)	Strength Class (Axial)	Comments / Strength Classification
BH7	4.4	Shale	N	36.0	50.0	0.69	0.28	1.00	0.28	Low	50.0	36.0	2292	1.13	0.49	0.98	0.48	Medium	
BH7	4.74	Shale	N	30.0	50.0	0.3	0.12	1.00	0.12	Low	50.0	30.0	1910	0.71	0.37	0.94	0.35	Medium	
BH7	5.27	Shale	N	30.0	50.0	0.27	0.11	1.00	0.11	Low	50.0	30.0	1910	0.49	0.26	0.94	0.24	Low	BB
BH7	5.60	Shale	N	40.0	50.0	0.69	0.28	1.00	0.28	Low	50.0	40.0	2546	0.97	0.38	1.00	0.38	Medium	
BH7	6.17	Sandstone	N	34.0	50.0	1.3	0.52	1.00	0.5	Medium	50.0	34.0	2165	0.75	0.35	0.97	0.3	Medium	
BH7	6.38	Sandstone	N	35.0	50.0	1.35	0.54	1.00	0.5	Medium	50.0	35.0	2228	1.79	0.80	0.97	0.8	Medium	
BH7	6.87	Sandstone	N	40.0	50.0	0.86	0.34	1.00	0.3	Medium	50.0	40.0	2546	1.98	0.78	1.00	0.8	Medium	BB
BH7	7.05	Sandstone	N	35.0	50.0	0.94	0.38	1.00	0.4	Medium	50.0	35.0	2228	3.14	1.41	0.97	1.4	High	BB
BH7	7.22	Sandstone	N	35.0	50.0	1.11	0.44	1.00	0.4	Medium	50.0	35.0	2228	3.64	1.63	0.97	1.6	High	
BH7	7.76	Sandstone	N	35.0	50.0	2.76	1.10	1.00	1.1	High	50.0	35.0	2228	4.47	2.01	0.97	2.0	High	
BH7	8.07	Sandstone	Ν	35.0	50.0	0.61	0.24	1.00	0.2	Low	50.0	35.0	2228	1.10	0.49	0.97	0.5	Medium	
BH7	8.45	Sandstone	N	27.0	50.0	1.11	0.44	1.00	0.4	Medium	50.0	27.0	1719	1.11	0.65	0.92	0.6	Medium	BB
BH7	8.70	Sandstone	N	30.0	50.0	0.30	0.12	1.00	0.1	Low	50.0	30.0	1910	0.63	0.33	0.94	0.3	Medium	BB
BH7	9.01	Sandstone	N	30.0	50.0	0.89	0.36	1.00	0.4	Medium	50.0	30.0	1910	1.10	0.58	0.94	0.5	Medium	
BH7	9.53	Sandstone	N	36.0	50.0	0.53	0.21	1.00	0.2	Low	50.0	36.0	2292	0.63	0.27	0.98	0.3	Low	
BH7	9.90	Sandstone	N	35.0	50.0	1.05	0.42	1.00	0.4	Medium	50.0	35.0	2228	1.14	0.51	0.97	0.5	Medium	

NOTES (1): N = Natural, D = Dry, S = Saturated (2): L > 0.5D, 0.3 < D/W < 1.0

< 0.1 Very Low 1-3 High 0.1 - 0.3 Low 3 - 10 Very High 0.3 - 1 Medium > 10 Extreamly High

Pointload Calc Sheet.xlsx

	LOAD STRE	-		nod 4.1:F	Rock Stre	ength Tes	sts - Deter	mination of F	Point Load S	Strength Inde	x						Job No. Sheet		COV24207AB of <b>11</b>
	CLIENT:	Health Infrast	ructure NSW							GSA bench-m Lane Cove W		orage area				of Calibration: Calibrated By:			
	PROJECT:	GEOTLCOV2	4207AB						Tested By: Test Date: Checked:	23/2/2011						Sampled Date: age Location:		e West indoor	storage area
	LOCATION:	Blacktown Ho	spital						Checked:										
							Diame	tral test						Axial or I	rregular lu	ımp			
	ole No. / Test Depth (m)	Rock Description	Moisture Condition <sup>(1)</sup> (N, D or S)	(2)	Diameter D	Load P (Gauge)	I <sub>s</sub> =(P/D <sup>2</sup> ) x 1000	Size Correctio <u>n</u> F=(D/50)^ <sup>0.45</sup>	I <sub>s(50)</sub>	Strength Class	Width W (core diameter)	Platen Separation D <sup>(2)</sup>	D <sub>e</sub> <sup>2</sup>	Load (Gauge)	I <sub>s</sub> =(P/D <sub>e</sub> <sup>2</sup> ) x 1000	Size Correction F=(D <sub>e</sub> /50)^0.45	I <sub>s(50)</sub>	Strength Class	Comments / Strength Classification
BH8	5.30	Sandstone	N	(mm)	(mm) 50.0	(N) 0.78	(MPa) 0.31		(MPa)	(Diametral)	(mm)	(mm) 30.0	1910	(kN)	(MPa) 0.93	0.94	(MPa)	(Axial)	
BH8	5.30	Sandstone	N N	30.0 30.0	50.0	1.74	0.31	1.00	0.31	Medium	50.0 50.0	30.0	1910	4.16	2.18	0.94	0.87	Medium High	
BH8	6.43	Sandstone	N	35.0	50.0	1.74	0.70	1.00	0.70	Medium	50.0	35.0	2228	0.67	0.30	0.94	0.29	Low	
BH8	6.70	Sandstone	N	38.0	50.0	0.56	0.45	1.00	0.45	Low	50.0	38.0	2220	0.67	0.30	0.97	0.29	Low	BB
BH8	6.93	Sandstone	N	32.0	50.0	0.85	0.22	1.00	0.22	Medium	50.0	32.0	2037	0.41	0.42	0.99	0.17	Medium	00
BH8	7.07	Sandstone	N	26.0	50.0	1.13	0.34	1.00	0.5	Medium	50.0	26.0	1655	0.93	0.42	0.93	0.4	Medium	
BH8	7.89	Shale	N	26.0	50.0	0.09	0.04	1.00	0.0	V. Low	00.0	20.0	1000	0.00	0.00	0.01	0.0	inourum	
BH8	7.35	Shale	N	27.0	50.0	0.47	0.19	1.00	0.2	Low	50.0	26.0	1655	0.38	0.23	0.91	0.2	Low	
BH8	8.14	Shale	N	30.0	50.0	0.80	0.32	1.00	0.3	Medium	50.0	30.0	1910	0.61	0.32	0.94	0.3	Medium	
BH8	8.44	Shale	N	35.0	50.0	0.74	0.30	1.00	0.3	Low	50.0	35.0	2228	0.78	0.35	0.97	0.3	Medium	
BH8	8.87	Shale	N	34.0	50.0	0.50	0.20	1.00	0.2	Low	50.0	34.0	2165	0.71	0.33	0.97	0.3	Medium	
BH8	9.15	Shale	N	30.0	50.0	0.60	0.24	1.00	0.2	Low	50.0	30.0	1910	0.50	0.26	0.94	0.2	Low	
BH8	9.66	Shale	N	35.0	50.0	0.17	0.07	1.00	0.1	V. Low	50.0	35.0	2228	0.39	0.18	0.97	0.2	Low	BB
BH8	9.62	Shale	N	30.0	50.0	0.52	0.21	1.00	0.2	Low	50.0	30.0	1910	0.50	0.26	0.94	0.2	Low	

NOTES (1): N = Natural, D = Dry, S = Saturated (2): L > 0.5D, 0.3 < D/W < 1.0

< 0.1 Very Low 1-3 High 0.1 - 0.3 Low 3 - 10 Very High 0.3 - 1 Medium

	LOAD STRE	-		nod 4.1:I	Rock Stre	ength Tes	sts - Deter	mination of F	Point Load S	Strength Inde	x						Job No. Sheet		COV24207AB of <b>11</b>
	CLIENT:	Health Infrast	ructure NSW	1						GSA bench-m Lane Cove W		01000 0100				of Calibration: Calibrated By:			
	PROJECT:		Diametral test												s	Sampled Date: age Location:	20/2/2011	e West indoor	storage area
							Diame	tral test						Axial or I	rregular lu	ımp			
	ole No. / Test lepth (m)	Rock Description		Length L	Diameter D (mm)	Load P (Gauge) (N)	I <sub>s</sub> =(P/D <sup>2</sup> ) x 1000 (MPa)	Size Correctio <u>n</u> F=(D/50)^ <sup>0.45</sup>	I <sub>s(50)</sub> (MPa)	Strength Class (Diametral)	Width W (core diameter) (mm)	Platen Separation D <sup>(2)</sup> (mm)	${\sf D_e}^2$	Load (Gauge) (kN)	I <sub>s</sub> =(P/D <sub>e</sub> <sup>2</sup> ) x 1000 (MPa)	Size Correction F=(D <sub>e</sub> /50)^ <sup>0.45</sup>	I <sub>s(50)</sub> (MPa)	Strength Class (Axial)	Comments / Strength Classification
BH9	5.24	Sandstone	N	31.0	50.0	0.89	0.36	1.00	0.36	Medium	50.0	31.0	1974	1.90	0.96	0.95	0.91	Medium	
BH9	5.50	Sandstone	N	32.0	50.0	0.28	0.11	1.00	0.11	Low	50.0	32.0	2037	0.31	0.15	0.95	0.15	Low	BB
BH9	6.28	Sandstone	N	31.0	50.0	0.46	0.18	1.00	0.18	Low	50.0	31.0	1974	0.60	0.30	0.95	0.29	Low	BB
BH9	6.43	Sandstone	N	27.0	50.0	12.25	4.90	1.00	4.90	V. High	50.0	27.0	1719	9.15	5.32	0.92	4.89	V. High	
BH9	7.30	Sandstone	N	34.0	50.0	0.31	0.12	1.00	0.1	Low	50.0	34.0	2165	1.35	0.62	0.97	0.6	Medium	
BH9	7.55	Sandstone	N	35.0	50.0	0.39	0.16	1.00	0.2	Low	50.0	35.0	2228	0.17	0.08	0.97	0.1	V. Low	
BH9	7.85	Sandstone	N	31.0	50.0	0.53	0.21	1.00	0.2	Low	50.0	31.0	1974	0.89	0.45	0.95	0.4	Medium	
BH9	8.02	Sandstone	N	32.0	50.0	0.93	0.37	1.00	0.4	Medium	50.0	32.0	2037	0.78	0.38	0.95	0.4	Medium	BB
BH9	8.28	Shale	Ν	27.0	50.0	0.06	0.02	1.00	0.0	V. Low	50.0	27.0	1719	0.28	0.16	0.92	0.1	Low	BB
BH9	8.46	Shale	Ν	28.0	50.0	0.61	0.24	1.00	0.2	Low	50.0	28.0	1783	0.61	0.34	0.93	0.3	Medium	BB
BH9	8.97	Sha;e	N	30.0	50.0	0.31	0.12	1.00	0.1	Low	50.0	30.0	1910	0.89	0.47	0.94	0.4	Medium	
BH9	9.17	Shale	N	31.0	50.0	0.67	0.27	1.00	0.3	Low	50.0	31.0	1974	0.89	0.45	0.95	0.4	Medium	
BH9	9.46	Shale	N	34.0	50.0	0.27	0.11	1.00	0.1	Low	50.0	34.0	2165	0.64	0.30	0.97	0.3	Low	BB
BH9	9.77	Shale	N	34.0	50.0	0.38	0.15	1.00	0.2	Low	50.0	34.0	2165	1.08	0.50	0.97	0.5	Medium	
																			<b></b>
																			L

NOTES (1): N = Natural, D = Dry, S = Saturated (2): L > 0.5D, 0.3 < D/W < 1.0

< 0.1 Very Low 1-3 High 0.1 - 0.3 Low 3 - 10 Very High 0.3 - 1 Medium



## SAMPLE RECEIPT ADVICE (SRA)

24 February 2011

Client Details Requested By		Edward Wu	Laboratory De	tails	
Client	:	Coffey Geotechnics Pty Ltd	Laboratory		SGS Environmental Services
Contact	:	Edward Wu	Manager		Edward Ibrahim
Address	:	8/12 Mars Road	Address		Unit 16, 33 Maddox Street
, dai ooo	•	LANE COVE WEST NSW 2066	/ 44/000	•	Alexandria NSW 2015
Email	:	edward_wu@coffey.com	Email	:	au.samplereceipt.sydney@sgs.com
Telephone	:	02 9911 1099	Telephone	:	61 2 8594 0400
Facsimile	:	02 9911 1002	Facsimile	:	61 2 8594 0499
Project	:	GL24207AB	Report No	:	SE85671
Order Number	:	20555,562,561,557,53	No. of Samples	:	43
Samples	:	38 Soils, 5 Waters	Due Date	:	1/03/2011
Date Instructions Received		22/02/2011			
Sample Receipt Date	÷	22/2/11			
Samples received in good ord Samples received without hea	adspa		Samples received in correct contain Sufficient quantity supplied	er:; ;	YES YES Ice Pack
Upon receipt sample temperat			Cooling Method	÷	ICE Pack YES
Sample containers provided b	у		Samples clearly Labelled		
Turnaround time requested		: Standard	Completed documentation received	•	YES

Samples will be held for 1 month for water samples and 3 months for soil samples from date of receipt of samples, unless otherwise instructed.

### Comments

Extra samples TB2 and TS2 received to be placed on hold.

To the extent not inconsistent with the other provisions of this document and unless specifically agreed otherwise in writing by SGS, all SGS services are rendered in accordance with the applicable SGS General Conditions of Service accessible at http://www.sgs.com/terms\_and\_conditions.htm as at the date of this document. Attention is drawn to the limitations of liablility and to the clauses of indemnification.

The signed chain of custody will be returned to you with the original report.

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### SAMPLE RECEIPT ADVICE (SRA) - continued

Client	:	Coffey Geotechnics Pty Ltd	Report No	:	SE85671
Project	:	GL24207AB			

### Summary of Samples and Requested Analysis

The table below represents SGS Environmental Service's understanding and interpretation of the customer supplied sample request.

Please indicate ASAP if your request differs from these details.

Testing shall commence immediately as per this table, unless the customer intervenes with a correction prior to testing. Note that a small X in the table below indicates some testing has not been requested in the package.

Sample No.	Description	Metals Prep & Inorganics - All	BTEX in Soil	TRH in soil with C6-C9 by P/T	PAHs in Soil	OC Pesticides in Soil	PCBs in Soil	Metals in Soil by ICP-OES	Mercury Cold Vapor/Hg Analyser	Asbestos ID in soil	BTEX in Water (µg/L)	TRH in water with C6-C9 by P/T	PAHs in Water	OC Pesticides in Water	PCBs in Water	Trace HM (ICP-MS)-Dissolved
1	BH1 (0.1-0.5)	x	Х	Х				Х	Х	Х						
2	BH1 (0.5-0.95)	x	Х	Х				Х	Х	Х						
3	BH1 (2.0-2.45)															
4	BH2 (0.1-0.3)	x	Х	Х	Х	Х	Х	Х	Х	Х						
5	BH2 (2.0-2.2)															
6	BH2 (0.5-0.7)	x	Х	Х				Х	Х	Х						
7	BH2 (6.5-6.7)															
8	BH2 (3.5-3.7)															
9	BH2 (5-5.20)															
10	BH4A (0.2-0.3)															
11	BH4A (0.5-0.6)															
12	BH3 (0.1-0.3)	x	Х	Х				Х	Х	Х						
13	BH3 (0.4-0.5)															
14	BH3 (0.5-0.75)	x	Х	Х	Х	Х	Х	Х	Х	Х						
15	BH3 (1.2-1.3)															
16	BH3 (2.0-2.45)															
17	BH3 (3.5-3.95)															
18	BH5 (0.3-0.4)	x	Х	Х	Х	Х	Х	Х	Х	Х						



### SAMPLE RECEIPT ADVICE (SRA) - continued

Client	:	Coffey Geotechnics Pty Ltd	Report No	:	SE85671
Project	:	GL24207AB			

Sample No.	Description	Metals Prep & Inorganics - All	BTEX in Soil	TRH in soil with C6-C9 by P/T	PAHs in Soil	OC Pesticides in Soil	PCBs in Soil	Metals in Soil by ICP-OES	Mercury Cold Vapor/Hg Analyser	Asbestos ID in soil	BTEX in Water (µg/L)	TRH in water with C6-C9 by P/T	PAHs in Water	OC Pesticides in Water	PCBs in Water	Trace HM (ICP-MS)-Dissolved
19	BH5 (1-1.1)															
20	BH5 (1.3-1.4)	х	Х	Х				Х	Х	Х						
21	BH5 (3.5-3.6)															
22	BH4 (0.1-0.3)	х	Х	Х				Х	Х	Х						
23	BH4 (0.5-0.6)															
24	BH4 (2.0-2.1)															
25	BH4 (3.5-3.6)															
26	BH6 (0.1-0.3)	x	Х	Х				Х	Х	Х						
27	BH6 (1.1-1.2)	x	Х	Х	Х	Х	Х	Х	Х	Х						
28	BH6 (2.35-2.45)															
29	BH6 (0.5-0.6)															
30	BH6 (5-5.1)															
31	TPB1 (0.2-0.4)	х	Х	Х				Х	Х	Х						
32	TPB1 (0.8-0.9)															
33	TPB1 (1.2-1.3)															
34	TPB1 (2.1-2.2)															
35	TPB2 (0.1-0.2)	х	Х	Х	Х	Х	Х	Х	Х	Х						
36	TPB2 (0.4-0.6)															
37	TPB2 (1.0-1.2)															
38	WB1	x									Х	Х	Х	Х	Х	Х
39	TB1										Х					
40	TS1										Х					
41	DUP1	x	Х	Х	Х	Х	Х	Х	Х							
42	TB2															



TS2

43

### SAMPLE RECEIPT ADVICE (SRA) - continued

_	Client Projec	: t :	Coffey Ge GL24207		ics Pty L	.td			Repo	ort No	:	SE8567	<b>'1</b>					
	Sample No.		Description	Metals Prep & Inorganics - All	BTEX in Soil	TRH in soil with C6-C9 by P/T	PAHs in Soil	OC Pesticides in Soil	PCBs in Soil	Metals in Soil by ICP-OES	Mercury Cold Vapor/Hg Analyser	Asbestos ID in soil	BTEX in Water (µg/L)	TRH in water with C6-C9 by P/T	PAHs in Water	OC Pesticides in Water	PCBs in Water	Trace HM (ICP-MS)-Dissolved

Sample No.	Description	Mercury Cold Vapor/Hg Analyser	Hold sample-NO test required	Moisture
1	BH1 (0.1-0.5)			Х
2	BH1 (0.5-0.95)			Х
3	BH1 (2.0-2.45)		Х	
4	BH2 (0.1-0.3)			Х
5	BH2 (2.0-2.2)		Х	
6	BH2 (0.5-0.7)			Х
7	BH2 (6.5-6.7)		Х	
8	BH2 (3.5-3.7)		Х	
9	BH2 (5-5.20)		Х	
10	BH4A (0.2-0.3)		Х	
11	BH4A (0.5-0.6)		Х	
12	BH3 (0.1-0.3)			Х
13	BH3 (0.4-0.5)		Х	
14	BH3 (0.5-0.75)			Х



### SAMPLE RECEIPT ADVICE (SRA) - continued

Client	:	Coffey Geotechnics Pty Ltd	Report No	:	SE85671
Project	:	GL24207AB			

Sample No.	Description	Mercury Cold Vapor/Hg Analyser	Hold sample-NO test required	Moisture
15	BH3 (1.2-1.3)		Х	
16	BH3 (2.0-2.45)		Х	
17	BH3 (3.5-3.95)		Х	
18	BH5 (0.3-0.4)			Х
19	BH5 (1-1.1)		Х	
20	BH5 (1.3-1.4)			Х
21	BH5 (3.5-3.6)		Х	
22	BH4 (0.1-0.3)			Х
23	BH4 (0.5-0.6)		Х	
24	BH4 (2.0-2.1)		Х	
25	BH4 (3.5-3.6)		Х	
26	BH6 (0.1-0.3)			Х
27	BH6 (1.1-1.2)			Х
28	BH6 (2.35-2.45)		Х	
29	BH6 (0.5-0.6)		Х	
30	BH6 (5-5.1)		Х	
31	TPB1 (0.2-0.4)			Х
32	TPB1 (0.8-0.9)		Х	
33	TPB1 (1.2-1.3)		Х	
34	TPB1 (2.1-2.2)		Х	
35	TPB2 (0.1-0.2)			Х
36	TPB2 (0.4-0.6)		Х	
37	TPB2 (1.0-1.2)		Х	
38	WB1	X		



Client	:	Coffey Geotechnics Pty Ltd	Report No	:	SE85671	
Project	:	GL24207AB				

Sample No.	Description	Mercury Cold Vapor/Hg Analyser	Hold sample-NO test required	Moisture
39	TB1			
40	TS1			
41	DUP1			Х
42	TB2		Х	
43	TS2		Х	



# ANALYTICAL REPORT

3 March 2011

**Coffey Geotechnics Pty Ltd** 8/12 Mars Road LANE COVE WEST NSW 2066

Attention: **Edward Wu** 

Your Reference: GL24207AB - Blacktown

Our Reference: SE85709 Samples: 19 Soils Received: 24/02/2011

Preliminary Report Sent: Not Issued

These samples were analysed in accordance with your written instructions.

For and on Behalf of: SGS ENVIRONMENTAL SERVICES

Sample Receipt: **Production Manager:**  Angela Mamalicos Huong Crawford

AU.SampleReceipt.Sydney@sgs.com Huong.Crawford@sgs.com

Results Approved and/or Authorised by:

Dong Liang Quality Manager

Huong Crawford Metals Signatory

**Ravee Sivasubramaniam** Asbestos Signatory

Ly Kim Ha

Organics Signatory



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Environmental Services Unit 16/33 Maddox Street Alexandria NSW 2015 Australia t +61 (0)2 8594 0400 f + 61 (0)2 8594 0499

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BTEX in Soil						
Our Reference:	UNITS	SE85709-1	SE85709-4	SE85709-8	SE85709-9	SE85709-1 2
Your Reference		BH7 (0.1-0.3)	BH8 (0.1-0.3)	BH9 (0.1-0.3)	BH9 (0.5-0.6)	BH10 (0.1-0.3)
Sample Matrix		Soil	Soil	Soil	Soil	Soil
Date Sampled		17/02/2011	18/02/2011	21/02/2011	21/02/2011	21/02/2011
Date Extracted (BTEX)		1/03/2011	1/03/2011	1/03/2011	1/03/2011	1/03/2011
Date Analysed (BTEX)		2/03/2011	2/03/2011	2/03/2011	2/03/2011	2/03/2011
Benzene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Toluene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Ethylbenzene	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Total Xylenes	mg/kg	<0.3	<0.3	<0.3	<0.3	<0.3
BTEX Surrogate (%)	%	97	103	92	101	107

BTEX in Soil			
Our Reference:	UNITS	SE85709-1	SE85709-1
		6	7
Your Reference		BH11	BH11
		(0.1-0.3)	(0.5-0.6)
Sample Matrix		Soil	Soil
Date Sampled		22/02/2011	22/02/2011
Date Extracted (BTEX)		1/03/2011	1/03/2011
Date Analysed (BTEX)		2/03/2011	2/03/2011
Benzene	mg/kg	<0.1	<0.1
Toluene	mg/kg	<0.1	<0.1
Ethylbenzene	mg/kg	<0.1	<0.1
Total Xylenes	mg/kg	<0.3	<0.3
BTEX Surrogate (%)	%	101	92



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 Environmental Services
 Unit 16/33 Maddox Street
 Alexandria NSW 2015
 Australia

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 f + 61 (0)2 8594 0499
 www.au.sgs.com

TRH in soil with C6-C9 by P/T						
Our Reference:	UNITS	SE85709-1	SE85709-4	SE85709-8	SE85709-9	SE85709-1 2
Your Reference		BH7 (0.1-0.3)	BH8 (0.1-0.3)	BH9 (0.1-0.3)	BH9 (0.5-0.6)	BH10 (0.1-0.3)
Sample Matrix		Soil	Soil	Soil	Soil	Soil
Date Sampled		17/02/2011	18/02/2011	21/02/2011	21/02/2011	21/02/2011
Date Extracted (TRH C6-C9 PT)		1/03/2011	1/03/2011	1/03/2011	1/03/2011	1/03/2011
Date Analysed (TRH C6-C9 PT)		2/03/2011	2/03/2011	2/03/2011	2/03/2011	2/03/2011
TRH C6 - C9 P&T	mg/kg	<20	<20	<20	<20	<20
Date Extracted (TRH C10-C36)		1/03/2011	1/03/2011	1/03/2011	1/03/2011	1/03/2011
Date Analysed (TRH C10-C36)		1/03/2011	1/03/2011	1/03/2011	1/03/2011	1/03/2011
TRH C10 - C14	mg/kg	<20	<40	<20	<40	<20
TRH C15 - C28	mg/kg	<50	<100	<50	<100	<50
TRH C29 - C36	mg/kg	<50	<100	<50	<100	<50

TRH in soil with C6-C9 by P/T			
Our Reference:	UNITS	SE85709-1	SE85709-1
		6	7
Your Reference		BH11	BH11
		(0.1-0.3)	(0.5-0.6)
Sample Matrix		Soil	Soil
Date Sampled		22/02/2011	22/02/2011
Date Extracted (TRH C6-C9 PT)		1/03/2011	1/03/2011
Date Analysed (TRH C6-C9 PT)		2/03/2011	2/03/2011
TRH C6 - C9 P&T	mg/kg	<20	<20
Date Extracted (TRH C10-C36)		1/03/2011	1/03/2011
Date Analysed (TRH C10-C36)		1/03/2011	1/03/2011
TRH C10 - C14	mg/kg	<20	<20
TRH C15 - C28	mg/kg	<50	<50
TRH C29 - C36	mg/kg	<50	<50



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PAHs in Soil					
Our Reference:	UNITS	SE85709-4	SE85709-8	SE85709-1 2	SE85709-1 7
Your Reference		BH8 (0.1-0.3)	BH9 (0.1-0.3)	BH10 (0.1-0.3)	BH11 (0.5-0.6)
Sample Matrix		Soil	Soil	Soil	Soil
Date Sampled		18/02/2011	21/02/2011	21/02/2011	22/02/2011
Date Extracted		1/03/2011	1/03/2011	1/03/2011	1/03/2011
Date Analysed		2/03/2011	2/03/2011	2/03/2011	2/03/2011
Naphthalene	mg/kg	<0.2	<0.10	<0.10	<0.10
Acenaphthylene	mg/kg	<0.2	<0.10	<0.10	<0.10
Acenaphthene	mg/kg	<0.2	<0.10	<0.10	<0.10
Fluorene	mg/kg	<0.2	<0.10	<0.10	<0.10
Phenanthrene	mg/kg	<0.2	<0.10	<0.10	<0.10
Anthracene	mg/kg	<0.2	<0.10	<0.10	<0.10
Fluoranthene	mg/kg	<0.2	<0.10	<0.10	<0.10
Pyrene	mg/kg	<0.2	<0.10	<0.10	<0.10
Benzo[a]anthracene	mg/kg	<0.2	<0.10	<0.10	<0.10
Chrysene	mg/kg	<0.2	<0.10	<0.10	<0.10
Benzo[b]fluoranthene	mg/kg	<0.2	<0.1	<0.1	<0.1
Benzo[k]fluoranthene	mg/kg	<0.2	<0.10	<0.10	<0.10
Benzo[a]pyrene	mg/kg	<0.2	<0.10	<0.10	<0.10
Indeno[123-cd]pyrene	mg/kg	<0.2	<0.10	<0.10	<0.10
Dibenzo[ <i>ah</i> ]anthracene	mg/kg	<0.2	<0.10	<0.10	<0.10
Benzo[ghi]perylene	mg/kg	<0.2	<0.10	<0.10	<0.10
Total PAHs (sum)	mg/kg	<3.20	<2	<2	<2
Nitrobenzene-d5	%	119	116	120	77
2-Fluorobiphenyl	%	111	110	111	71
p -Terphenyl-d14	%	87	87	89	88



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OC Pesticides in Soil					
Our Reference:	UNITS	SE85709-4	SE85709-8	SE85709-1 2	SE85709-1 7
Your Reference		BH8 (0.1-0.3)	BH9 (0.1-0.3)	BH10 (0.1-0.3)	BH11 (0.5-0.6)
Sample Matrix		Soil	Soil	Soil	Soil
Date Sampled		18/02/2011	21/02/2011	21/02/2011	22/02/2011
Date Extracted		1/03/2011	1/03/2011	1/03/2011	1/03/2011
Date Analysed		1/03/2011	1/03/2011	1/03/2011	1/03/2011
НСВ	mg/kg	<0.2	<0.1	<0.1	<0.1
alpha-BHC	mg/kg	<0.2	<0.1	<0.1	<0.1
gamma-BHC (Lindane)	mg/kg	<0.2	<0.1	<0.1	<0.1
Heptachlor	mg/kg	<0.2	<0.1	<0.1	<0.1
Aldrin	mg/kg	<0.2	<0.1	<0.1	<0.1
beta-BHC	mg/kg	<0.2	<0.1	<0.1	<0.1
delta-BHC	mg/kg	<0.2	<0.1	<0.1	<0.1
Heptachlor Epoxide	mg/kg	<0.2	<0.1	<0.1	<0.1
o,p-DDE	mg/kg	<0.2	<0.1	<0.1	<0.1
alpha-Endosulfan	mg/kg	<0.2	<0.1	<0.1	<0.1
trans-Chlordane (gamma)	mg/kg	<0.2	<0.1	<0.1	<0.1
cis-Chlordane (alpha)	mg/kg	<0.2	<0.1	<0.1	<0.1
trans-Nonachlor	mg/kg	<0.2	<0.1	<0.1	<0.1
p,p-DDE	mg/kg	<0.2	<0.1	<0.1	<0.1
Dieldrin	mg/kg	<0.2	<0.1	<0.1	<0.1
Endrin	mg/kg	<0.2	<0.1	<0.1	<0.1
o,p-DDD	mg/kg	<0.2	<0.1	<0.1	<0.1
o,p-DDT	mg/kg	<0.2	<0.1	<0.1	<0.1
beta-Endosulfan	mg/kg	<0.2	<0.1	<0.1	<0.1
p,p-DDD	mg/kg	<0.2	<0.1	<0.1	<0.1
p,p-DDT	mg/kg	<0.2	<0.1	<0.1	<0.1
Endosulfan Sulphate	mg/kg	<0.2	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	<0.2	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	<0.2	<0.1	<0.1	<0.1
Endrin Ketone	mg/kg	<0.2	<0.1	<0.1	<0.1
2,4,5,6-Tetrachloro-m-xylene (Surrogate	%	115	115	115	121



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PCBs in Soil					
Our Reference:	UNITS	SE85709-4	SE85709-8	SE85709-1	SE85709-1
				2	7
Your Reference		BH8	BH9	BH10	BH11
		(0.1-0.3)	(0.1-0.3)	(0.1-0.3)	(0.5-0.6)
Sample Matrix		Soil	Soil	Soil	Soil
Date Sampled		18/02/2011	21/02/2011	21/02/2011	22/02/2011
Date Extracted		1/03/2011	1/03/2011	1/03/2011	1/03/2011
Date Analysed		1/03/2011	1/03/2011	1/03/2011	1/03/2011
Arochlor 1016	mg/kg	<0.2	<0.1	<0.1	<0.1
Arochlor 1221	mg/kg	<0.2	<0.1	<0.1	<0.1
Arochlor 1232	mg/kg	<0.2	<0.1	<0.1	<0.1
Arochlor 1242	mg/kg	<0.2	<0.1	<0.1	<0.1
Arochlor 1248	mg/kg	<0.2	<0.1	<0.1	<0.1
Arochlor 1254	mg/kg	<0.2	<0.1	<0.1	<0.1
Arochlor 1260	mg/kg	<0.2	<0.1	<0.1	<0.1
Arochlor 1262	mg/kg	<0.2	<0.1	<0.1	<0.1
Arochlor 1268	mg/kg	<0.1	<0.1	<0.1	<0.1
Total Positive PCB	mg/kg	<1.70	<0.90	<0.90	<0.90
PCB_Surrogate 1	%	115	115	115	121



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Metals in Soil by ICP-OES						
Our Reference:	UNITS	SE85709-1	SE85709-4	SE85709-8	SE85709-9	SE85709-1
						2
Your Reference		BH7	BH8	BH9	BH9	BH10
		(0.1-0.3)	(0.1-0.3)	(0.1-0.3)	(0.5-0.6)	(0.1-0.3)
Sample Matrix		Soil	Soil	Soil	Soil	Soil
Date Sampled		17/02/2011	18/02/2011	21/02/2011	21/02/2011	21/02/2011
Date Extracted (Metals)		2/03/2011	2/03/2011	2/03/2011	2/03/2011	2/03/2011
Date Analysed (Metals)		2/03/2011	2/03/2011	2/03/2011	2/03/2011	2/03/2011
Arsenic	mg/kg	<3	<3	<3	<3	<3
Cadmium	mg/kg	0.3	0.6	0.7	0.4	0.5
Chromium	mg/kg	10	7.8	11	11	10
Copper	mg/kg	31	51	62	41	45
Lead	mg/kg	14	3	3	9.2	9.2
Nickel	mg/kg	23	58	72	27	23
Zinc	mg/kg	42	43	50	43	43

Metals in Soil by ICP-OES			
Our Reference:	UNITS	SE85709-1	SE85709-1
		6	7
Your Reference		BH11	BH11
		(0.1-0.3)	(0.5-0.6)
Sample Matrix		Soil	Soil
Date Sampled		22/02/2011	22/02/2011
Date Extracted (Metals)		2/03/2011	2/03/2011
Date Analysed (Metals)		2/03/2011	2/03/2011
Arsenic	mg/kg	<3	5
Cadmium	mg/kg	<0.3	0.5
Chromium	mg/kg	12	14
Copper	mg/kg	30	20
Lead	mg/kg	13	15
Nickel	mg/kg	17	6.4
Zinc	mg/kg	71	30



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#### **REPORT NO: SE85709**

Mercury Cold Vapor/Hg Analyser						
Our Reference:	UNITS	SE85709-1	SE85709-4	SE85709-8	SE85709-9	SE85709-1
						2
Your Reference		BH7	BH8	BH9	BH9	BH10
		(0.1-0.3)	(0.1-0.3)	(0.1-0.3)	(0.5-0.6)	(0.1-0.3)
Sample Matrix		Soil	Soil	Soil	Soil	Soil
Date Sampled		17/02/2011	18/02/2011	21/02/2011	21/02/2011	21/02/2011
Date Extracted (Mercury)		2/03/2011	2/03/2011	2/03/2011	2/03/2011	2/03/2011
Date Analysed (Mercury)		2/03/2011	2/03/2011	2/03/2011	2/03/2011	2/03/2011
Mercury	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05

Mercury Cold Vapor/Hg Analyser			
Our Reference:	UNITS	SE85709-1	SE85709-1
		6	7
Your Reference		BH11	BH11
		(0.1-0.3)	(0.5-0.6)
Sample Matrix		Soil	Soil
Date Sampled		22/02/2011	22/02/2011
Date Extracted (Mercury)		2/03/2011	2/03/2011
Date Analysed (Mercury)		2/03/2011	2/03/2011
Mercury	mg/kg	<0.05	<0.05



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Asbestos ID in soil						
Our Reference:	UNITS	SE85709-1	SE85709-4	SE85709-8	SE85709-9	SE85709-1 2
Your Reference		BH7 (0.1-0.3)	BH8 (0.1-0.3)	BH9 (0.1-0.3)	BH9 (0.5-0.6)	BH10 (0.1-0.3)
Sample Matrix		Soil	Soil	Soil	Soil	Soil
Date Sampled		17/02/2011	18/02/2011	21/02/2011	21/02/2011	21/02/2011
Date Analysed		3/03/2011	3/03/2011	3/03/2011	3/03/2011	3/03/2011
Sample Description		68g clay, soil, rocks	55g soil, rocks	58g soil, rocks	36g soil, rocks	36g soil, rocks
Asbestos ID in soil	-	No asbestos detected	No asbestos detected	No asbestos detected Organic fibres detected	No asbestos detected	No asbestos detected Organic fibres detected

Asbestos ID in soil			
Our Reference:	UNITS	SE85709-1	SE85709-1
		6	7
Your Reference		BH11	BH11
		(0.1-0.3)	(0.5-0.6)
Sample Matrix		Soil	Soil
Date Sampled		22/02/2011	22/02/2011
Date Analysed		3/03/2011	3/03/2011
Sample Description		56g soil,	37g soil,
		rocks	rocks
Asbestos ID in soil	-	No	No
		asbestos	asbestos
		detected	detected
		Organic	Organic
		fibres	fibres
		detected	detected



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Moisture Our Reference:	UNITS	SE85709-1	SE85709-4	SE85709-8	SE85709-9	SE85709-1 2
Your Reference		BH7 (0.1-0.3)	BH8 (0.1-0.3)	BH9 (0.1-0.3)	BH9 (0.5-0.6)	BH10 (0.1-0.3)
Sample Matrix		Soil	Soil	Soil	Soil	Soil
Date Sampled		17/02/2011	18/02/2011	21/02/2011	21/02/2011	21/02/2011
Date Analysed (moisture)		2/03/2011	2/03/2011	2/03/2011	2/03/2011	2/03/2011
Moisture	%	17	3	6	9	9

Moisture			
Our Reference:	UNITS	SE85709-1	SE85709-1
		6	7
Your Reference		BH11	BH11
		(0.1-0.3)	(0.5-0.6)
Sample Matrix		Soil	Soil
Date Sampled		22/02/2011	22/02/2011
Date Analysed (moisture)		2/03/2011	2/03/2011
Moisture	%	10	15



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Method ID	Methodology Summary
AN410	BTEX / C6-C9 Hydrocarbons - Soil samples are extracted with methanol, purged and concentrated by a purge and trap apparatus, and then analysed using GC/MS technique. Water samples undergo the same analysis without the extraction step. Based on USEPA 5030B and 8260B.
AN403	Determination of Hydrocarbons by gas chromatography after a solvent extraction. Detection is by flame ionisation detector (FID) that produces an electronic signal in proportion to the combustible matter passing through it. Total Recoverable Hydrocarbons (TRH) are routinely reported as four alkane groupings based on the carbon chain length of the compounds: C6-C9, C10-C14, C15-C28 and C29-C36, in accordance with the Australian Institute of Petroleum (AIP). Additionally, the volatile C6-C9 fraction may be determined by a purge and trap technique and GC/MS because of the potential for volatiles loss. Total Petroleum Hydrocarbons (TPH) follows the same method of analysis after silica gel cleanup of the solvent extract over silica with differential polarity of the elluent solvents. The GC/FID method is not well suited to the analysis of refined high boiling point materials (i.e. lubricating oils or greases) but is particularly suited for measuring diesel, kerosene and petrol (if care to control volatility is taken). This method will detect naturally occurring hydrocarbons, lipids, organic acids, phenols and PAHs if they are present at sufficient levels, dependant on the use of specific cleanup/fractionation techniques. Reference USEPA 3510B, 8015B.
AN422	Polynuclear Aromatic Hydrocarbons - determined by solvent extraction with dichloromethane / acetone for soils and dichloromethane for waters, followed by instrumentation analysis using GC/MS SIM mode.
AN400	The determination of organochlorine (OC) and organophosphorus (OP) pesticides and polychlorinated biphenyls (PCBs) in soils, sludges and groundwater. (Based on USEPA methods 3510, 3550, 8140 and 8080.)
AN320	
AN312	After digestion with nitric acid, hydrogen peroxide and hydrochloric acid, mercury ions are reduced by stannous chloride reagent in acidic solution to elemental mercury. This mercury vapour is purged by nitrogen into a cold cell in an atomic absorption spectrometer or mercury analyser. Quantification is made by comparing absorbances to those of the calibration standards. Reference APHA 3112/3500
AN602	Analysed using in house method AN602 - Qualitative identification of Asbestos Fibres, Synthetic Mineral Fibres and Organic Fibres in bulk samples (including building materials and soils) using Polarised Light Microscopy and Dispersion Staining Techniques. Our NATA Accreditation does not currently cover the identification of Synthetic Mineral Fibres and Organic Fibres, however, according to new NATA requirements, the reporting of these fibres is compulsory if detected.
AN002	



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**REPORT NO: SE85709** 

QUALITY CONTROL	UNITS	LOR	METHOD	Blank	Duplicate Sm#	Duplicate	Spike Sm#	Matrix Spike % Recovery
BTEX in Soil						Base + Duplicate + %RPD		Duplicate + %RPD
Date Extracted (BTEX)				01/03/1	SE85709-1 6	1/03/2011    1/03/2011	LCS	01/03/11
Date Analysed (BTEX)				02/03/1 1	SE85709-1 6	2/03/2011    2/03/2011	LCS	02/03/11
Benzene	mg/kg	0.1	AN410	<0.1	SE85709-1 6	<0.1    <0.1	LCS	118%
Toluene	mg/kg	0.1	AN410	<0.1	SE85709-1 6	<0.1    <0.1	LCS	118%
Ethylbenzene	mg/kg	0.1	AN410	<0.1	SE85709-1 6	<0.1    <0.1	LCS	114%
Total Xylenes	mg/kg	0.3	AN410	<0.3	SE85709-1 6	<0.3    <0.3	LCS	110%
BTEX Surrogate (%)	%	0	AN410	126	SE85709-1 6	101    98    RPD: 3	LCS	99%

QUALITY CONTROL TRH in soil with C6-C9	UNITS	LOR	METHOD	Blank	Duplicate Sm#	Duplicate Base + Duplicate +	Spike Sm#	Matrix Spike % Recovery Duplicate + %RPD
by P/T						%RPD		
Date Extracted (TRH C6-C9 PT)				01/03/1	SE85709-1 6	1/03/2011    1/03/2011	LCS	01/03/11
Date Analysed (TRH C6-C9 PT)				02/03/1	SE85709-1 6	2/03/2011    2/03/2011	LCS	02/03/11
TRH C6 - C9 P&T	mg/kg	20	AN410	<20	SE85709-1 6	<20    <20	LCS	129%
Date Extracted (TRH C10-C36)				[NT]	SE85709-1 6	1/03/2011    1/03/2011	LCS	01/03/11
Date Analysed (TRH C10-C36)				[NT]	SE85709-1 6	1/03/2011    1/03/2011	LCS	01/03/11
TRH C10 - C14	mg/kg	20	AN403	<20	SE85709-1 6	<20    [N/T]	LCS	97%
TRH C15 - C28	mg/kg	50	AN403	<50	SE85709-1 6	<50    [N/T]	LCS	119%
TRH C29 - C36	mg/kg	50	AN403	<50	SE85709-1 6	<50    [N/T]	LCS	99%



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**REPORT NO: SE85709** 

QUALITY CONTROL PAHs in Soil	UNITS	LOR	METHOD	Blank	Duplicate Sm#	Duplicate Base + Duplicate + %RPD	Spike Sm#	Matrix Spike % Recovery Duplicate + %RPD
Date Extracted				01/03/1	SE85709-8	1/03/2011    1/03/2011	LCS	01/03/11
Date Analysed				02/03/1	SE85709-8	2/03/2011    2/03/2011	LCS	02/03/11
Naphthalene	mg/kg	0.1	AN422	<0.10	SE85709-8	<0.10    <0.10	LCS	115%
Acenaphthylene	mg/kg	0.1	AN422	<0.10	SE85709-8	<0.10    <0.10	LCS	107%
Acenaphthene	mg/kg	0.1	AN422	<0.10	SE85709-8	<0.10    <0.10	LCS	116%
Fluorene	mg/kg	0.1	AN422	<0.10	SE85709-8	<0.10    <0.10	[NR]	[NR]
Phenanthrene	mg/kg	0.1	AN422	<0.10	SE85709-8	<0.10    <0.10	LCS	111%
Anthracene	mg/kg	0.1	AN422	<0.10	SE85709-8	<0.10    <0.10	LCS	114%
Fluoranthene	mg/kg	0.1	AN422	<0.10	SE85709-8	<0.10    <0.10	LCS	111%
Pyrene	mg/kg	0.1	AN422	<0.10	SE85709-8	<0.10    <0.10	LCS	114%
Benzo[a]anthracene	mg/kg	0.1	AN422	<0.10	SE85709-8	<0.10    <0.10	[NR]	[NR]
Chrysene	mg/kg	0.1	AN422	<0.10	SE85709-8	<0.10    <0.10	[NR]	[NR]
Benzo[b]fluoranthene	mg/kg	0.1	AN422	<0.1	SE85709-8	<0.1    <0.1	[NR]	[NR]
Benzo[k]fluoranthene	mg/kg	0.1	AN422	<0.10	SE85709-8	<0.10    <0.10	[NR]	[NR]
Benzo[a]pyrene	mg/kg	0.1	AN422	<0.10	SE85709-8	<0.10    <0.10	LCS	114%
Indeno[ <i>123-cd</i> ]pyren e	mg/kg	0.1	AN422	<0.10	SE85709-8	<0.10    <0.10	[NR]	[NR]
Dibenzo[ <i>ah</i> ]anthrace ne	mg/kg	0.1	AN422	<0.10	SE85709-8	<0.10    <0.10	[NR]	[NR]
Benzo[ghi]perylene	mg/kg	0.1	AN422	<0.10	SE85709-8	<0.10    <0.10	[NR]	[NR]
Total PAHs (sum)	mg/kg	1.6	AN422	<2	SE85709-8	<2    <2	[NR]	[NR]
Nitrobenzene-d5	%	0	AN422	127	SE85709-8	116    114    RPD: 2	LCS	121%
2-Fluorobiphenyl	%	0	AN422	119	SE85709-8	110    105    RPD: 5	LCS	110%
p -Terphenyl-d 14	%	0	AN422	94	SE85709-8	87    82    RPD: 6	LCS	90%



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REPORT NO: SE85709

QUALITY CONTROL	UNITS	LOR	METHOD	Blank	Duplicate Sm#	Duplicate	Spike Sm#	Matrix Spike % Recovery
OC Pesticides in Soil						Base + Duplicate + %RPD		Duplicate + %RPD
Date Extracted				01/03/2 011	[NT]	[NT]	LCS	01/03/2011
Date Analysed				01/03/2 011	[NT]	[NT]	LCS	01/03/2011
HCB	mg/kg	0.1	AN400	<0.1	[NT]	[NT]	[NR]	[NR]
alpha-BHC	mg/kg	0.1	AN400	<0.1	[NT]	[NT]	[NR]	[NR]
gamma-BHC (Lindane)	mg/kg	0.1	AN400	<0.1	[NT]	[NT]	[NR]	[NR]
Heptachlor	mg/kg	0.1	AN400	<0.1	[NT]	[NT]	LCS	127%
Aldrin	mg/kg	0.1	AN400	<0.1	[NT]	[NT]	LCS	112%
beta-BHC	mg/kg	0.1	AN400	<0.1	[NT]	[NT]	[NR]	[NR]
delta-BHC	mg/kg	0.1	AN400	<0.1	[NT]	[NT]	LCS	115%
Heptachlor Epoxide	mg/kg	0.1	AN400	<0.1	[NT]	[NT]	[NR]	[NR]
o,p-DDE	mg/kg	0.1	AN400	<0.1	[NT]	[NT]	[NR]	[NR]
alpha-Endosulfan	mg/kg	0.1	AN400	<0.1	[NT]	[NT]	[NR]	[NR]
<i>tran</i> s-Chlordane <i>(gamma)</i>	mg/kg	0.1	AN400	<0.1	[NT]	[NT]	[NR]	[NR]
cis-Chlordane (alpha)	mg/kg	0.1	AN400	<0.1	[NT]	[NT]	[NR]	[NR]
trans-Nonachlor	mg/kg	0.1	AN400	<0.1	[NT]	[NT]	[NR]	[NR]
p,p-DDE	mg/kg	0.1	AN400	<0.1	[NT]	[NT]	[NR]	[NR]
Dieldrin	mg/kg	0.1	AN400	<0.1	[NT]	[NT]	LCS	100%
Endrin	mg/kg	0.1	AN400	<0.1	[NT]	[NT]	LCS	111%
o,p-DDD	mg/kg	0.1	AN400	<0.1	[NT]	[NT]	[NR]	[NR]
o,p-DDT	mg/kg	0.1	AN400	<0.1	[NT]	[NT]	[NR]	[NR]
beta-Endosulfan	mg/kg	0.1	AN400	<0.1	[NT]	[NT]	[NR]	[NR]
p,p-DDD	mg/kg	0.1	AN400	<0.1	[NT]	[NT]	[NR]	[NR]
p,p-DDT	mg/kg	0.1	AN400	<0.1	[NT]	[NT]	LCS	104%
Endosulfan Sulphate	mg/kg	0.1	AN400	<0.1	[NT]	[NT]	[NR]	[NR]
Endrin Aldehyde	mg/kg	0.1	AN400	<0.1	[NT]	[NT]	[NR]	[NR]
Methoxychlor	mg/kg	0.1	AN400	<0.1	[NT]	[NT]	[NR]	[NR]
Endrin Ketone	mg/kg	0.1	AN400	<0.1	[NT]	[NT]	[NR]	[NR]
2,4,5,6-Tetrachloro-m-xy lene (Surrogate	%	0	AN400	116	[NT]	[NT]	LCS	123%



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**REPORT NO: SE85709** 

QUALITY CONTROL	UNITS	LOR	METHOD	Blank	Duplicate Sm#	Duplicate	Spike Sm#	Matrix Spike % Recovery
PCBs in Soil						Base + Duplicate + %RPD		Duplicate + %RPD
Date Extracted				01/03/2 011	[NT]	[NT]	LCS	01/03/2011
Date Analysed				01/03/2 011	[NT]	[NT]	LCS	01/03/2011
Arochlor 1016	mg/kg	0.1	AN400	<0.1	[NT]	[NT]	[NR]	[NR]
Arochlor 1221	mg/kg	0.1	AN400	<0.1	[NT]	[NT]	[NR]	[NR]
Arochlor 1232	mg/kg	0.1	AN400	<0.1	[NT]	[NT]	[NR]	[NR]
Arochlor 1242	mg/kg	0.1	AN400	<0.1	[NT]	[NT]	[NR]	[NR]
Arochlor 1248	mg/kg	0.1	AN400	<0.1	[NT]	[NT]	[NR]	[NR]
Arochlor 1254	mg/kg	0.1	AN400	<0.1	[NT]	[NT]	[NR]	[NR]
Arochlor 1260	mg/kg	0.1	AN400	<0.1	[NT]	[NT]	LCS	106%
Arochlor 1262	mg/kg	0.1	AN400	<0.1	[NT]	[NT]	[NR]	[NR]
Arochlor 1268	mg/kg	0.1	AN400	<0.1	[NT]	[NT]	[NR]	[NR]
Total Positive PCB	mg/kg	0.9	AN400	<0.90	[NT]	[NT]	[NR]	[NR]
PCB_Surrogate 1	%	0	AN400	116	[NT]	[NT]	LCS	121%

QUALITY CONTROL	UNITS	LOR	METHOD	Blank	Duplicate Sm#	Duplicate	Spike Sm#	Matrix Spike % Recovery
Metals in Soil by ICP-OES						Base + Duplicate + %RPD		Duplicate + %RPD
Date Extracted (Metals)				2/03/20 11	[NT]	[NT]	LCS	2/03/2011
Date Analysed (Metals)				2/03/20 11	[NT]	[NT]	LCS	2/03/2011
Arsenic	mg/kg	3	AN320	<3	[NT]	[NT]	LCS	96%
Cadmium	mg/kg	0.3	AN320	<0.3	[NT]	[NT]	LCS	101%
Chromium	mg/kg	0.3	AN320	<0.3	[NT]	[NT]	LCS	101%
Copper	mg/kg	0.5	AN320	<0.5	[NT]	[NT]	LCS	100%
Lead	mg/kg	1	AN320	<1	[NT]	[NT]	LCS	101%
Nickel	mg/kg	0.5	AN320	<0.5	[NT]	[NT]	LCS	101%
Zinc	mg/kg	0.5	AN320	<0.5	[NT]	[NT]	LCS	98%



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SGS Australia Pty Ltd ABN 44 000 964 278

## **REPORT NO: SE85709**

QUALITY CONTROL	UNITS	LOR	METHOD	Blank	Duplicate Sm#	Duplicate	Spike Sm#	Matrix Spike % Recovery
Mercury Cold Vapor/Hg Analyser						Base + Duplicate + %RPD		Duplicate + %RPD
Date Extracted (Mercury)				2/03/20 11	[NT]	[NT]	LCS	2/03/2011
Date Analysed (Mercury)				2/03/20 11	[NT]	[NT]	LCS	2/03/2011
Mercury	mg/kg	0.05	AN312	<0.05	[NT]	[NT]	LCS	109%

QUALITY CONTROL Asbestos ID in soil	UNITS	LOR	METHOD	Blank
Date Analysed				3/03/20 11

QUALITY CONTROL Hold sample- <b>NO test</b> required	UNITS	LOR	METHOD	Blank
Sample on HOLD		[NT]		[NT]

QUALITY CONTROL	UNITS	LOR	METHOD	Blank
Moisture				
Date Analysed (moisture)				[NT]
Moisture	%	1	AN002	<1

QUALITY CONTROL TRH in soil with C6-C9 by P/T	UNITS	Dup. Sm#	Duplicate Base + Duplicate + %RPD
Date Extracted (TRH C6-C9 PT)		SE85709-8	1/03/2011    1/03/2011
Date Analysed (TRH C6-C9 PT)		SE85709-8	2/03/2011    2/03/2011
TRH C6 - C9 P&T	mg/kg	SE85709-8	<20    [N/T]
Date Extracted (TRH C10-C36)		SE85709-8	1/03/2011    1/03/2011
Date Analysed (TRH C10-C36)		SE85709-8	1/03/2011    1/03/2011
TRH C10 - C14	mg/kg	SE85709-8	<20    <20
TRH C15 - C28	mg/kg	SE85709-8	<50    <50
TRH C29 - C36	mg/kg	SE85709-8	<50    <50



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#### **Result Codes**

 [INS]
 :
 Insufficient Sample for this test

 [NR]
 :
 Not Requested

 [NT]
 :
 Not tested

 [LOR]
 :
 Limit of reporting

[RPD] : Relative Percentage Difference

- : Not part of NATA Accreditation
- [N/A] : Not Applicable

### Report Comments

PAH/OC/PCB-LOR-raised for sample#4 due to insufficent sample. TRH - Sampls # 4 & 9 - LOR raised due to insufficient sample.

Sampled by the client

Even after disintegration it can be very difficult, or impossible, to detect the presence of asbestos in some asbestos-containing bulk materials using polarised light microscopy. This is due to the low grade or small length or diameter of asbestos fibres present in the material, or to the fact that very fine fibres have been distributed intimately throughout the materials.

No respirable fibres detected using trace analysis technique.

Asbestos analysed by Approved Identifier Yusuf Kuthpudin.

Samples analysed as received. Solid samples expressed on a dry weight basis.

Date Organics extraction commenced:

NATA Corporate Accreditation No. 2562, Site No 4354

Note: Test results are not corrected for recovery (excluding Air-toxics and Dioxins/Furans\*) This document is issued by the Company subject to its General Conditions of Service (www.sgs.com/terms\_and\_conditions.htm). Attention is drawn to the limitations of liability, indemnification and jurisdictional issues established therein.

This document is to be treated as an original within the meaning of UCP 600. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law.

#### **Quality Control Protocol**

**Method Blank**: An analyte free matrix to which all reagents are added in the same volume or proportions as used in sample processing. The method blank should be carried through the complete sample preparation and analytical procedure. A method blank is prepared every 20 samples.

**Duplicate**: A separate portion of a sample being analysed that is treated the same as the other samples in the batch. One duplicate is processed at least every 10 samples.

**Surrogate** Spike: An organic compound which is similar to the target analyte(s) in chemical composition and behavior in the analytical process, but which is not normally found in environmental samples. Surrogates are added to samples before extraction to monitor extraction efficiency and percent recovery in each sample.

Internal Standard: Added to all samples requiring analysis for organics (where relevant) or metals by ICP after the extraction/digestion process; the compounds/elements serve to give a standard of retention time and/or response, which is invariant from run-to-run with the instruments.

Laboratory Control Sample: A known matrix spiked with compound(s) representative of the target analytes. It is used to document laboratory performance. When the results of the matrix spike analysis indicates a potential problem due to the sample matrix itself, the LCS results are used to verify that the laboratory can perform the analysis in a clean matrix.

Matrix Spike: An aliquot of sample spiked with a known concentration of target analyte(s). The spiking occurs prior to sample preparation and analysis. A matrix spike is used to document the bias of a method in a given sample matrix.



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 Environmental Services
 Unit 16/33 Maddox Street
 Alexandria NSW 2015
 Australia

 t + 61 (0)2 8594 0400
 f + 61 (0)2 8594 0499
 www.au.sgs.com

#### **Quality Acceptance Criteria**

The QC criteria are subject to internal review according to the SGS QAQC plan and may be provided on request or alternatively can be found here: http://www.au.sgs.com/sgs-mp-au-env-qu-022-qa-qc-plan-en-09.pdf



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Environmental Services Unit 16/33 Maddox Street Alexandria NSW 2015 Australia t +61 (0)2 8594 0400 f + 61 (0)2 8594 0499

www.au.sgs.com

A v ( Li ( ?: 4 v v v v v v v v v v v v v v v v v v	Sample Matrix and Preservative Sample No.	Sole Gives MA 200 1847 (01-03) 17.2 11		• J (12, 2) # (12, 2)	3 Berz ( )	4 BINS (0	4 BUS (0-1-0-5) 12	4 BIR (0-2-1)	3 1.47 (20-21) 4 BIR (0-1-05) 12 5 (1-8 10 5 10 5 1 12
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Copies: WHITE: Sign on revenue. YELLOW; It dispatched to interstate Lab. Lab to sign on receipt and fax back to Coffey BLUE: To her

anffau S	singuning start of		No: 20567
coney •	Chain of Custody	Laboratory Quotation / Order No:	Jeb No: 22,707Ai3 Sheet 2, of 2
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Copies: WHITE: Sign on measure. YELLOW: If dispatched to interstate Lab. Lab to sign on neceptrand fax back to Colley: BLUE: To be return



# SAMPLE RECEIPT ADVICE (SRA)

1 March 2011

Client Details Requested By Client Contact	: Co : Ed	ward Wu ffey Geotechnics Pty Ltd ward Wu	Laboratory D Laboratory Manager	etails :	SGS Environmental Services Edward Ibrahim
Address		2 Mars Road NE COVE WEST NSW 2066	Address	:	Unit 16, 33 Maddox Street Alexandria NSW 2015
Email Telephone Facsimile	: 02	ward_wu@coffey.com 9911 1099 9911 1002	Email Telephone Facsimile	:	au.samplereceipt.sydney@sgs.com 61 2 8594 0400 61 2 8594 0499
Project Order Number Samples	: 20	.24207AB - Blacktown 563,20566-567 Soils	Report No No. of Samples Due Date	:	<b>SE85709</b> 19 3/03/2011
Date Instructions Received Sample Receipt Date		/02/2011 /02/2011			
Samples received in good orde Samples received without hea Upon receipt sample temperate Sample containers provided by Turnaround time requested	dspac∷ ure :	YES YES Cool SGS Standard	Samples received in correct contain Sufficient quantity supplied Cooling Method Samples clearly Labelled Completed documentation received	: : :	YES YES Ice Pack NO YES

Samples will be held for 1 month for water samples and 3 months for soil samples from date of receipt of samples, unless otherwise instructed.

#### Comments

Sample BH7(2-2.1) received labelled as BH7

To the extent not inconsistent with the other provisions of this document and unless specifically agreed otherwise in writing by SGS, all SGS services are rendered in accordance with the applicable SGS General Conditions of Service accessible at http://www.sgs.com/terms\_and\_conditions.htm as at the date of this document. Attention is drawn to the limitations of liablility and to the clauses of indemnification.

The signed chain of custody will be returned to you with the original report.



Client	:	Coffey Geotechnics Pty Ltd	Report No	:	SE85709
Project	:	GL24207AB - Blacktown			

#### Summary of Samples and Requested Analysis

The table below represents SGS Environmental Service's understanding and interpretation of the customer supplied sample request.

Please indicate ASAP if your request differs from these details.

Testing shall commence immediately as per this table, unless the customer intervenes with a correction prior to testing. Note that a small X in the table below indicates some testing has not been requested in the package.

Sample No.	Description	Metals Prep & Inorganics - All	BTEX in Soil	TRH in soil with C6-C9 by P/T	PAHs in Soil	OC Pesticides in Soil	PCBs in Soil	Metals in Soil by ICP-OES	Mercury Cold Vapor/Hg Analyser	Asbestos ID in soil	Hold sample-NO test required	Moisture
1	BH7 (0.1-0.3)	X	Х	Х				Х	Х	Х		Х
2	BH7 (0.5-0.6)										Х	
3	BH7 (2-2.1)										Х	
4	BH8 (0.1-0.3)	X	Х	Х	Х	Х	Х	Х	Х	Х		Х
5	BH8 (0.5-0.6)										Х	
6	BH8 (2.0-2.1)										Х	
7	BH8 (3.5-3.6)										Х	
8	BH9 (0.1-0.3)	X	Х	Х	Х	Х	Х	Х	Х	Х		Х
9	BH9 (0.5-0.6)	X	Х	Х				Х	Х	Х		Х
10	BH9 (2.0-2.1)										Х	
11	BH9 (3.5-3.6)										Х	
12	BH10 (0.1-0.3)	X	Х	Х	Х	Х	Х	Х	Х	Х		Х
13	BH10 (0.5-0.6)										Х	
14	BH10 (2-2.1)										Х	
15	BH10 (3.5-3.6)										Х	
16	BH11 (0.1-0.3)	X	Х	Х				Х	Х	Х		Х
17	BH11 (0.5-0.6)	X	Х	Х	Х	Х	Х	Х	Х	Х		Х
18	BH11 (2.0-2.1)										Х	



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Inorganics - All	
	cs Pty Lt cktown
soil with C6-C9 by P/T	td
in Soil	
	Repo
Soil by ICP-OES	rt No
Vapor/Hg Analyser	:
soil	SE8570
sample-NO test required	9

Moisture

Х

Sample No.	Description		
1	BH7 (0.1-0.3)		
2	BH7 (0.5-0.6)		
3	BH7 (2-2.1)		
4	BH8 (0.1-0.3)		
5	BH8 (0.5-0.6)		
6	BH8 (2.0-2.1)		
7	BH8 (3.5-3.6)		
8	BH9 (0.1-0.3)		
9	BH9 (0.5-0.6)		
10	BH9 (2.0-2.1)		
11	BH9 (3.5-3.6)		
12	BH10 (0.1-0.3)		
13	BH10 (0.5-0.6)		
14	BH10 (2-2.1)		
15	BH10 (3.5-3.6)		
16	BH11 (0.1-0.3)		
17	BH11 (0.5-0.6)		
18	BH11 (2.0-2.1)		

19

BH11 (3.5-3.6)



Client	:	Coffey Geotechnics Pty Ltd	Report No	:	SE85709
Project	:	GL24207AB - Blacktown			

Sample No.	Description
19	BH11 (3.5-3.6)