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		Real Providence and the	A Contraction of the second	
Date:	1/05/2012 Title:	FP_BH3 Four Points 6.0m to 11.0m	CONSULTING	
Prepared by: Checked by: Scale:	M. Pickett D. Lowe CES Project ID: NTS	CES111206-CA	Suite 3, Level 1, 55 Grandview Street	
Size:	A4 Client:	Cadence Australia	Pymble NSW 2073 ph: 02 8569 2200 fax: 02 998	33 0582

		EN	DOF BOREHOLE	
Dranarad by: M. Dickett	Date: 1/05/2012 Prepared by: M. Pickett		FP_BH3 Four Points 11.0m to 15.2m	
Checked by: D. Lowe CES Project ID: CES111206-CA Suite 3, Level 1,	Checked by: D. Lowe		CES111206-CA	Suite 3. Level 1.
Scale:NTS55 Grandview Street Pymble NSW 2073 ph: 02 8569 2200 fax: 02 9983 0582		Client:	Cadence Australia	Pymble NSW 2073

Clie Pro	oject ent: oject: catio			CES11 Cadenc Four Po Wheat	e Aus oints H	tralia			55 Grandview S PH: (02) 8569 220 www	EART SCIEN Street, Pym	ITIS TS Suite 3, Level 1	F	G ID: P_BH4 Sheet: 1 of 3
Y-C	Coord Coord	:		333765 625085 (R.L) :	4	GDA 94 MGA 56 m AHD	Date Con Date Con Hole Diay	npleted				ed by: ked by:	MTP MTP
		forma		(K. L) .	1.90	LITHOLOGY					Tests		
Depth (mBGL)	R.L. (m)	Method (Support)	Water	Symbol	USCS Symbol	Description SOIL TYPE: plasticity or particle colour, moisture, secondary and m	characteristics	Consistency / Density	Samples CI aldung	Type	Las	100 Pocket 200 Penetrometer 400 (kPa)	Well Installation Detail
	-1 -0 	$-$ BB \rightarrow \land \rightarrow \rightarrow \land \rightarrow			SM	 FILL: Brick Footpath (5) FILL: sand, fine to medipale grey/brown, dry. W fine to coarse, angular gr consisting of blue metal concrete. At -1.2m becoming dark grey/brownish. At -1.7m with some woof fragments. FILL: sand, medium gragfrey/brown, wet. With scoarse angular gravel co sandstone and ironstone. SILTY SAND: fine to m grained, pale grey, wet. SILTY SAND: fine to m grained, grey to dark gre some clay and shell frag to coarse, angular). SANDY CLAY: low pla brownish with red mottle Sand is fine grained. 	ium grained, ium grained, iined, some ravel and and and and and and and and	VL S to F	Jar		2,1,5 N=6 4,4,2 N=6 3,1,2 N=3 0,1,1 N=2 2,2,2 N=4 2,2,1 N=3		
		npan Typ		Macquar 350	ie Dril	i grained, pale grey, with clay. Extremely weather ling Pty Ltd Opera	some grey	 ce No.:	Ray Dudek				10 Standard Sheets of abbreviations

Cli Pro	oject ent: oject:	:		CES11 Cadenc Four Po	e Aust oints H	tralia			55 0	Grandview S	EARTH SCIEN Su treet, Pymb	TIS TS lite 3, Level 1 le NSW 2073		G ID: P_BH4
Lo	catio	n:		Wheat	Road				PH: (0	02) 8569 220 wwv	0 FAX: (0 v.consulting	2) 9983 0582 earth.com.au		Sheet: 2 of 3
	Coord			333765		GDA 94 MGA 56	Date Con			2/05/201			ed by:	MTP
	Coord		tion	625085 (R.L) :		m AHD	Date Con Hole Diar	-		2/05/201	2	Chec	ked by:	MTP
		nforma		(K.L) :	1.90					amples		Tests		
							L		6	samples		1 0505		
Depth (mBGL)	R.L. (m)	Method (Support)	Water	Symbol	USCS Symbol	Description SOIL TYPE: plasticity or particle colour, moisture, secondary and m		Consistency / Density	Sample ID		Type	SPT	100 Pocket 200 Penetrometer 400 (kPa)	Well Installation Detail
10	l	$ \downarrow $	1			strength.								10
11 12 13 14 15 16 16 17 18						Begin Core Drilling. End of Borehole.								
19														19— - - - - - - - - - - - - - - - - - - -
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		mpan e Type	y: 1 e: 1	Macquar E50	ie Drill		tor Name: tors Licenc	e No.:	Ray Di	udek				Standard Sheets of abbreviations

Cli Pro	oject ent: oject: catio		Ca Fo	denc ur Po	1206-C e Austr pints Ho Road	alia		55 Grandview St PH: (02) 8569 2200 www	EAR SCIE	NTIS 1 uite 3, Lo le NSW 02) 9983	evel 1 2073 0582	FP_BH4 Sheet: 3 of 3
Y-(Coord Coord face I	:		52508 33376 R.L):	65	m AHD Date Commer	ed:	02/05/2012 02/05/2012 0: NMLC			Logged by Checked b	
Dri	lling I	nform	ation			LITHOLOGY	1	I	1		Natura	Defects
Depth (mBGL)	R.L. (m)	Method (Support)	% Coreloss	Water	Symbol	Rock Description ROCK TYPE: grain characteristics, colour structure, minor components	Weathering	Estimated Strength MPa $\stackrel{0}{\stackrel{\circ}{\stackrel{\circ}{\stackrel{\circ}{\stackrel{\circ}{\stackrel{\circ}{\stackrel{\circ}{\stackrel{\circ}{$	Is (50) MPa	RQD %	Spacing (mm)	Description
10			1									10
11			$\leftarrow 0^{0/6} \longrightarrow 0^{0/6}$			SANDSTONE: fine to medium grained, pale grey with some orange iron staining. Distinctly cross-bedded at 0 to 20 degrees. SANDSTONE: medium to coarse grained, pale grey/pinkish with some orange iron staining. Distinctly cross-bedded at 10 to 20 degrees.	MW			$\leftarrow 100\% \rightarrow 100\%$		BP, 0 to 30 degrees, PR, RF, CN to Sn Fe. 11 –
12		- NMLC						-	D=1.26 A=1.73			вр 12- ВР ВР ВР
13 _			- 0%0			SANDSTONE: fine to medium grained, pale grey with a trace of orange iron staining. Distinctly cross-bedded at 10 to 20 degrees.	SW		D=0.69 A=0.76	- 97%		вр вр
14		\checkmark	\checkmark			End of Borehole.				\downarrow		SM, near horizontal, grey clay, 50mm thick, PP=180kPa. 14
15												- 15-
16	-14											- 16-
- - - - - - - - - - - - - - - - - - -												17 -
18												18 -
19	-17											- 19 -
		npany Type			arie Dril	ling Pty Ltd Operator Name:	R	ay Dudek				20 o Standard Sheets ls of abbreviations

10	ES111206-CA	A FP_BH4	START	CORING AT	102
12 13					ECH
Date:	2/05/2012 Title:	FP_BH4 Four Points 10.2m to 14	.0m	CONSUL	TING
Prepared by: Checked by: Scale: Size:	M. Pickett D. Lowe CES Project ID: NTS A4 Client:	CES111206-CA Cadence Australia		Suite 3, Level 1, 55 Grandview Street Pymble NSW 2073 ph: 02 8569 2200 fax	

Clie Pro	oject ent: oject: catio	:		CES11 Cadenc Four Po Wheat	e Aus oints H	tralia			F	55 Grandview S PH: (02) 8569 220 WWW	EART SCIEN Street, Pyml 0 FAX: (uite 3, Level 1 ble NSW 2073	F	G ID: P_BH5 Sheet: 1 of 4
Y-0	Coord Coord	l:		333776 625072 (R.L) :	3	GDA 94 MGA 56 m AHD	Date Con Date Con Hole Diai	npletee	d:	27/04/201 27/04/201			ed by: ked by:	MTP MTP
		forma		(K. L) .	5.50	LITHOLOGY		neter		Samples		Tests		
Driii	ing in	-	luon				Ľ			Samples		Tests		
Depth (mBGL)	R.L. (m)	Method (Support)	Water	Symbol	USCS Symbol	Description SOIL TYPE: plasticity or particle colour, moisture, secondary and m		Consistency / Density		Sample ID	Type	SPT	100 Pocket 200 Penetrometer 400 (kPa)	Well Installation Detail
0														0
	—3	$\left \begin{array}{c} \\ \end{array} \right $				CONCRETE: consisting slabs, each 200mm thick	:. ^							
1						FILL: clayey sand, fine t grained, brown, dry. Wit to coarse, subangular to a gravel consisting of conc sandstone.	h some fine angular		Jar	/				
2	—2 —1					FILL: sand, fine to medi dark brown, dry. With a clay and subangular to a gravel consiting of brick and glass.	trace of ngular , concrete		Jar	/		3,2,2 N=4		
3-		ADTC (Casing)	\bigtriangleup		SP	SAND: coarse grained, p wet. With a trace of silt a grained sand.	bale brown,	N	Jar	/		3,1,5 N=6		31
4	—0 —-1	ADT			SM	SILTY SAND: medium grained, dark grey, wet. ' shell fragments (fine to c angular).	with some	MD	-					
5									Jar	/		2,1,10/50mm N=R		5
6-	—-3	~				SANDSTONE: fine to n grained, pale grey, with s clay. Extremely weather strength.	some grey					6,5/100mm N=R		6-
7	—-4					Begin Core Drilling.								
8	—-5													
9														
10 Dril Ma	ll Cor chine	mpan e Type		Macquar E50	ie Dril	ling Pty Ltd Opera Opera	tor Name: tors Licenc	e No.:		y Dudek				10 Standard Sheets of abbreviations

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Drilli	ing In	forma	tion		1	LITHOLOGY	Y		Samples	1	Tests		
Depth (mBGL)	R.L. (m)	Method (Support)	Water	Symbol	USCS Symbol	Description SOIL TYPE: plasticity or particle colour, moisture, secondary and n		Consistency / Density	Sample ID	Type	SPT	 Pocket Pocket Penetrometer (kPa) 	Well Installation Detail
10			1	1	1	1		1 1		1	1		<u>10</u>
11	7 												
15						End of Borehole.							······
16													16
17													17
18													18
19													19
20 [⊥] Dril Ma	ll Cor	npan e Type		Macquar E50	ie Dril	ling Pty Ltd Opera Opera	tor Name: tors Licenc	ce No.:	Ray Dudek				20 Standard Sheets of abbreviations

Cl Pr	oject ient: oject ocatio	:	Ca Fo	idenc our Po	1206-C e Austr oints Ho Road	alia		55 Grandview Stre PH: (02) 8569 2200 WWW.0	EAR1 SCIEI Su et, Pymbl FAX: (0	NTISTS uite 3, Level 1 le NSW 2073		FP_BH5 Sheet: 3 of 4
Y-	Coord Coord rface		3	52507 33377 R.L):	76	m AHD Date Comme	ted:	27/04/2012 27/04/2012): NMLC			ged by sked b	: MTP y: MTP
Depth (mBGL)	B.T. (m) R.L. (m)	Method (Support)	w Coreloss	Water	Symbol	LITHOLOGY Rock Description ROCK TYPE: grain characteristics, colour structure, minor components	Weathering	Estimated Strength MPa $\stackrel{\text{Eod}}{=} \stackrel{\text{Eod}}{=} \text{Eo$	Is (50) MPa	Spa % (n		Defects Description
0_ 1- 2- 3- 4- 5- 6-		ADTC —										0 1- 1- 2- 3- 5- 5- 5- 5- 5- 5- 5- 5- 5- 5- 5- 5- 5-
8- 9-			$\left \begin{array}{c} & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & & \\ & & & & \\ & & & & \\ & & & & \\ & & & & \\ & & & & \\ & & & & \\ & & & & \\ & & & & \\ & & & & \\ & & & & \\ & & & & \\ & & & & \\ & & & & \\ & & & & \\ & & & & \\ & & & & \\ & & & & \\ & & & & \\ & & & & \\ & & & & \\ & & & & \\ & & & & \\ & & & & \\ & & & & \\ & & & & \\ & & & & \\ & & & & \\ & & & & \\ & & & & \\ & & & & & \\ & & & & \\ & & & & \\ & & & & & \\ & & & & \\ & & & & \\ & & & & & \\ & $			SANDSTONE: fine to medium grained, pale grey/orangish. Distinctly cross- bedded at 0 to 20 degrees. Iron stained throughout. SANDSTONE: medium to coarse grained, pale grey with some orange iron staining. Distinctly cross-bedded at 0 to 20 degrees.			D=0.40 A=0.90 D=1.05 A=1.23	8%		BP BP BP BP BP SM, near horizontal, pale grey clay, 5mm thick. BP BP BP BP BP BP BP BP BP BP BP BP BP
		mpany e Type			arie Dril	ling Pty Ltd Operator Name:	F	Ray Dudek				o Standard Sheets ls of abbreviations

Cli Pro	oject ent: oject: catio	:	Ca Fo	denc ur Po	1206-C e Austr oints Ho Road	alia		E	X: (02) 998	TS Level 1 / 2073 3 0582		FP_BH5 Sheet: 4 of 4
Y-(Coord Coord face I	l:		2507 3377 R.L):	6	m AHD Date Comme Mole Diamete	ted:	27/04/2012 27/04/2012): NMLC		Logge Checl		: MTP y: MTP
Dri	lling I	nform	ation			LITHOLOGY		1 1		Na	atural	Defects
Depth (mBGL)	R.L. (m)	Method (Support)	% Coreloss	Water	Symbol	Rock Description ROCK TYPE: grain characteristics, colour structure, minor components	Weathering	$ \begin{array}{c} \text{Estimated} \\ \text{Strength} \\ MPa \\ {}^{\text{EOO}} \\ {}^{\text{FO}} \\ $	MPa RQD %	Space (m:	m)	Description
10												10
11 12		NMLC						D=1. A=2.		-		SM, near horizontal, pale grey clay, 5mm thick. BP
13	-10		- 0%0					D=1. A=1.	65 57			13— вр
14			00%			SANDSTONE: fine grained, pale grey. Distinctly cross-bedded at 0 to 20 degrees.	SW		100%			14 – SM, near horizontal, pale grey clay, 5mm thick.
15 — - - 16 —						End of Borehole.						
17 —												
												17 –
18												18-
19												19-
20 						ling Dty I td		Dov Dudol:				20
		mpan e Type	y: Ma e: E5	acqua 0		ling Pty Ltd Operator Name:	F	Ray Dudek				o Standard Sheets s of abbreviations

6789	CESIIIZOG-CA		NG AT 64m
Date:	27/04/2012 Title:	FP_BH5 Four Points 6.4m to 10.0m	
Prepared by: Checked by:	M. Pickett D. Lowe CES Project ID:	CES111206-CA	SCIENTISTS Suite 3, Level 1,
Scale:	NTS		55 Grandview Street Pymble NSW 2073
	A4 Client:		

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ate: epared by:	27/04/2012 Ti M. Pickett	tle:	FP_BH5 Four Points 10	0.0m to 15.0m			CONSULTING EARTH	
epared by: necked by:		ES Project ID:	CES111206-CA				SCIENTISTS	
ale:	NTS		~			Suite 3, Le 55 Grandvi Pymble NS	iew Street SW 2073 9 2200 fax: 02 9983 05	
ze:	A4 Cl	ient:	Cadence Australia			ph: 02 856	9 2200 fax: 02 9983 05	82



APPENDIX B

Geotechnical Laboratory Test Results



Envirolab Services Pty Ltd ABN 37 112 535 645 12 Ashley St Chatswood NSW 2067 ph 02 9910 6200 fax 02 9910 6201 enquiries@envirolabservices.com.au www.envirolabservices.com.au

CERTIFICATE OF ANALYSIS

72707

Client: Consulting Earth Scientists Pty Ltd Suite 3, Level 1 55 Grandview Street Pymble NSW 2073

Attention: Mark Pickett

Sample log in details:

Your Reference:	CES111206-C	A Four Points
No. of samples:	14 soils	
Date samples received / completed instructions received	02/05/12	/ 04/05/12

Analysis Details:

Please refer to the following pages for results, methodology summary and quality control data. Samples were analysed as received from the client. Results relate specifically to the samples as received. Results are reported on a dry weight basis for solids and on an as received basis for other matrices. *Please refer to the last page of this report for any comments relating to the results.*

Report Details:

 Date results requested by: / Issue Date:
 11/05/12
 / 11/05/12

 Date of Preliminary Report:
 Not issued

 NATA accreditation number 2901. This document shall not be reproduced except in full.

 Accredited for compliance with ISO/IEC 17025.

 Tests not covered by NATA are denoted with *.

Results Approved By:

Rhian Morgan Reporting Supervisor

Nick Sarlamis Inorganics Supervisor

Jeremy Faircloth Chemist

Envirolab Reference: 72707 Revision No: R 00 ACCREDITED FOR TECHNICAL COMPETENCE

Client Reference:

CES111206-CA Four Points

Miscellaneous Inorg - soil			
Our Reference:	UNITS	72707-7	72707-11
Your Reference		FP-BH4	FP-BH5
Depth		6.0	4.5
Date Sampled		26/04/2012	26/04/2012
Type of sample		soil	soil
Date prepared	-	11/05/2012	11/05/2012
Date analysed	-	11/05/2012	11/05/2012
pH 1:5 soil:water	pH Units	8.4	8.2
Chloride, Cl 1:5 soil:water	mg/kg	520	810
Sulphate, SO4 1:5 soil:water	mg/kg	76	110

Client Reference: CES111206-CA Four Points

MethodID	Methodology Summary
Org-016	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS. Water samples are analysed directly by purge and trap GC-MS.
Org-003	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID.
Org-012 subset	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-MS.
Org-005	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC with dual ECD's.
Org-008	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC with dual ECD's.
Org-006	Soil samples are extracted with dichloromethane/acetone and waters with dichloromethane and analysed by GC-ECD.
Metals-020 ICP- AES	Determination of various metals by ICP-AES.
Metals-021 CV- AAS	Determination of Mercury by Cold Vapour AAS.
Inorg-001	pH - Measured using pH meter and electrode in accordance with APHA 21st ED, 4500-H+.
Inorg-081	Anions - a range of Anions are determined by Ion Chromatography, in accordance with APHA 21st ED, 4110 -B.
Inorg-008	Moisture content determined by heating at 105 deg C for a minimum of 4 hours.

Client Reference: CES111206-CA Four Points								
QUALITY CONTROL Acid Extractable metals	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
in soil								
Nickel	mg/kg	1	Metals-020 ICP-AES	<1	72707-1	120 110 RPD:9	LCS-1	88%
Zinc	mg/kg	1	Metals-020 ICP-AES	<1	72707-1	45 42 RPD: 7	LCS-1	87%
QUALITYCONTROL	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results	Spike Sm#	Spike % Recovery
Miscellaneous Inorg - soil						Base II Duplicate II % RPD		
Date prepared	-			11/05/2 012	[NT]	[NT]	LCS-1	11/05/2012
Date analysed	-			11/05/2 012	[NT]	[NT]	LCS-1	11/05/2012
pH 1:5 soil:water	pH Units		Inorg-001	[NT]	[NT]	[NT]	LCS-1	100%
Chloride, Cl 1:5 soil:water	mg/kg	2	Inorg-081	~2	[NT]	[NT]	LCS-1	94%
Sulphate, SO4 1:5 soil:water	mg/kg	2	Inorg-081	~2	[NT]	[NT]	LCS-1	116%
QUALITY CONTROL	UNITS	PQL	METHOD	Blank				-
Moisture					4			
Date prepared	-			[NT]				
Date analysed	-			[NT]				
Moisture	%	0.1	Inorg-008	[NT]				
QUALITYCONTROL	UNITS	6	Dup.Sm#		Duplicate	Spike Sm#	Spike % Recovery	
vTRH&BTEX in Soil				Base+I	Duplicate + %RPD			
Date extracted	-		[NT]		[NT]	72707-2	07/05/2012	
Date analysed	-		[NT]		[NT]	72707-2	08/05/2012	
vTRHC6 - C9	mg/kę	9	[NT]	[NT]		72707-2	98%	
Benzene	mg/kę	9	[NT]	[NT]		72707-2	98%	
Toluene	mg/kę	9	[NT]	[NT]		72707-2	97%	
Ethylbenzene	mg/kę	9	[NT]	[NT]		72707-2	95%	
m+p-xylene	mg/kę	9	[NT]		[NT]	72707-2	99%	
o-Xylene	mg/kę	9	[NT]		[NT]	72707-2	100%	
<i>Surrogate</i> aaa- Trifluorotoluene	%		[NT]		[NT]	72707-2	100%	

Report Comments:

Asbestos ID was analysed by Approved Identifier: Asbestos ID was authorised by Approved Signatory: Not applicable for this job Not applicable for this job

INS: Insufficient sample for this test	PQL: Practical Quantitation Limit	NT: N
NA: Test not required	RPD: Relative Percent Difference	NA: To
<: Less than	>: Greater than	LCS: I

NT: Not tested NA: Test not required LCS: Laboratory Control Sample

Quality Control Definitions

Blank: This is the component of the analytical signal which is not derived from the sample but from reagents, glassware etc, can be determined by processing solvents and reagents in exactly the same manner as for samples. **Duplicate**: This is the complete duplicate analysis of a sample from the process batch. If possible, the sample selected should be one where the analyte concentration is easily measurable.

Matrix Spike : A portion of the sample is spiked with a known concentration of target analyte. The purpose of the matrix spike is to monitor the performance of the analytical method used and to determine whether matrix interferences exist. LCS (Laboratory Control Sample) : This comprises either a standard reference material or a control matrix (such as a blank sand or water) fortified with analytes representative of the analyte class. It is simply a check sample.

Surrogate Spike: Surrogates are known additions to each sample, blank, matrix spike and LCS in a batch, of compounds which are similar to the analyte of interest, however are not expected to be found in real samples.

Laboratory Acceptance Criteria

Duplicate sample and matrix spike recoveries may not be reported on smaller jobs, however, were analysed at a frequency to meet or exceed NEPM requirements. All samples are tested in batched of 20. The duplicate sample RPD and matrix spike recoveries for the batch were within the laboratory acceptance criteria.

Duplicates: <5xPQL - any RPD is acceptable; >5xPQL - 0-50% RPD is acceptable. Matrix Spikes and LCS: Generally 70-130% for inorganics/metals; 60-140% for organics and 10-140% for SVOC and speciated phenols is acceptable.



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POINT LOAD STRENGTH INDEX

CLIENT: Consulting Earth Scientists

Suite 55 Upper Level Jones Bay Wharf 26-32 Pirrama Road Pyrmont NSW 2009

PROJECT: Four Points CES111206-CA

LAB.	SAMPLE	LITHOLOGY		ATEN	TEST	POINT	POINT	Туре
NO.	SOURCE		DIAM	RATION HEIGHT	ORIENTATION	LOAD STRENGTH	LOAD STRENGTH	OF FAILURE
			(mm)	(mm)		Is (MPa)	Is ₍₅₀₎ (MPa)	FAILURE
70150		Canadatana	. ,	()	Diamatual	. ,		500
72158	FP_BH1 9.10 - 9.45m	Sandstone	51.5	31.1	Diametral Axial	1.52 2.21	1.54 2.11	FOB FOB
	5.10 5.45m			51.1	Axiai	2.21	2.11	FOB
72159	FP BH1	Sandstone	50.5		Diametral	1.94	1.95	FOB
	10.2 - 10.4m			30.9	Axial	1.93	1.84	FOB
72160	FP_BH1	Sandstone	51.5		Diametral	2.72	2.76	FOB
72100	13.7 - 14.0m	Gandstone	51.5	39.2	Axial	2.01	2.02	FOB
72161	FP_BH1	Sandstone	51.5		Diametral	1.76	1.79	FOB
	14.7 - 15.0m			31.6	Axial	2.11	2.03	FOB
72163	FP BH3	Sandstone	51.4		Diametral	0.77	0.78	FOB
	7.42 - 7.62m			33.1	Axial	0.85	0.82	FOB
70101								
72164	FP_BH3 10.38 -	Sandstone	51.7	29.5	Diametral Axial	1.24 1.39	1.26 1.31	FOB FOB
	10.6m			23.5	/ Kiai	1.00	1.01	100
72165	FP_BH3	Sandstone	51.6		Diametral	1.28	1.30	FOB
	13.0 -			31.5	Axial	1.52	1.45	FOB
	13.24m							
72166	FP_BH3 14.65 -	Sandstone	51.6	00.0	Diametral Axial	0.93	0.94	FOB
	14.05 - 14.95m			30.9	Axiai	1.16	1.11	FOB
NOTES	TO TESTING							
Testing	Device	ELE Point Load Tester	Failure 7	Гуре				
			FOB		through fabric of s		ique to beddii	ng
Sample	History	Unsoaked	FB		enced by weak pla along bedding	nes		
Sample	d By:	Client	FIP		influenced by pre-	-existing plan	e, microfractu	ıre,
		100 100	055		mical alteration			
Job Nu	mper:	133-100	CPF	Unip or p	artial fracture			
Date Te	ested:	07.05.12						
Test Me	ethod:	AS 4133.4.1 2007					Page 1 of	2
Appro	ved Signatory:	Chris Lloyd			Date: 08	3.05.12		
	an a							



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POINT LOAD STRENGTH INDEX

CLIENT: Consulting Earth Scientists

Suite 55 Upper Level Jones Bay Wharf 26-32 Pirrama Road Pyrmont NSW 2009

PROJECT: Four Points CES111206-CA

LAB. NO.	SAMPLE SOURCE	LITHOLOGY		ATEN RATION	TEST ORIENTATION	POINT LOAD	POINT LOAD	Type OF
NO.	SCONCE		DIAM	HEIGHT	OHENTATION	STRENGTH	STRENGTH	FAILURE
			(mm)	(mm)		ls (MPa)	Is ₍₅₀₎ (MPa)	
72168	FP_BH4 12.0 - 12.2m	Sandstone	51.5	31.0	Diametral Axial	1.24 1.81	1.26 1.73	FOB FOB
72169	FP_BH4 13.0 - 13.25m	Sandstone	51.5	32.4	Diametral Axial	0.68 0.79	0.69 0.76	FOB FOB
72170	FP_BH5 7.0 - 7.3m	Sandstone	51.7	28.7	Diametral Axial	0.40 0.96	0.40 0.90	FOB FOB
72171	FP_BH5 9.1 - 9.33m	Sandstone	51.6	28.7	Diametral Axial	1.04 1.32	1.05 1.23	FOB FOB
72172	FP_BH5 11.7 - 12.0m	Sandstone	51.6	32.5	Diametral Axial	1.83 2.07	1.86 2.00	FOB FOB
72173	FP_BH5 13.0 - 13.3m	Sandstone	51.5	28.6	Diametral Axial	1.63 1.67	1.65 1.57	FOB FOB
NOTES	TO TESTING							
Testing		ELE Point Load Tester Unsoaked	Failure 7 FOB	Fracture	through fabric of s nced by weak pla		ique to beddiı	ng
Sample	d By:	Client	FB FIP	Fracture	along bedding influenced by pre- mical alteration	-existing plan	e, microfractu	ıre,
Job Nui	mber:	133-100	CPF		artial fracture			
Date Te	ested:	07.05.12						
Test Me	ethod:	AS 4133.4.1 2007					Page 2 of	2
Approv	ved Signatory:	Chris Lloyd			Date: 08	8.05.12		
anter	- Contraction	<u> </u>						٦



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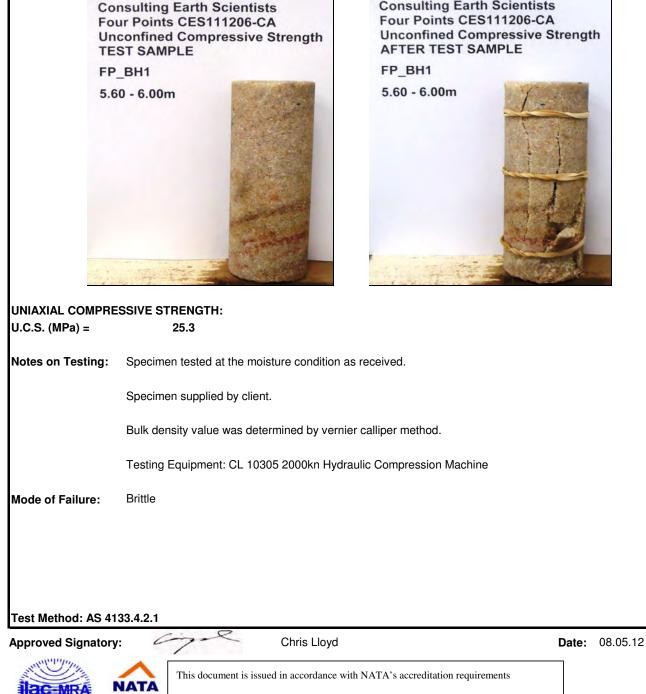


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ime of its intervention only and within the limits of client's action documents. Any unauthorized alteration, forgery or

UNIAXIAL COMPRESSIVE STRENGTH

CLIENT: PROJECT:	Consulting Earth Scientists Four Points CES111206-CA	JOB NO.: LAB NO.: Date Tested:	133-100 72157 07.05.12
Sample ID:	FP_BH1	Test Type:	Compressive Strength
Sample Length (mm):	136.2 Sample Diameter (mm): 51.8	Sample Type:	Single Individual Rock Core Specimen
Length/Diameter Ratio:	2.6	Rock Type:	Sandstone
Dry Density (t/m ³):	2.15	Depth (m):	5.60 - 6.00m
Moisture Content (%):	5.9		
0	ing Forth Onionitist	Conculting Earth S	ciontists



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Accreditation No. 2418

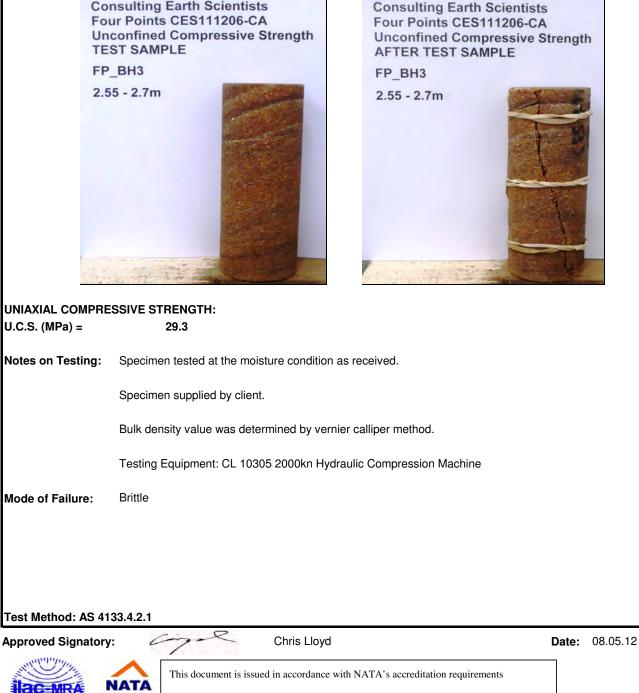


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ne of its intervention only and within the limits of client's ction documents. Any unauthorized alteration, forgery or

UNIAXIAL COMPRESSIVE STRENGTH

CLIENT:	Consulting Earth Scientists	JOB NO.:	133-100
PROJECT:	Four Points	LAB NO.:	72162
	CES111206-CA	Date Tested:	07.05.12
Sample ID:	FP_BH3	Test Type:	Compressive Strength
		Sample Type:	Single Individual Rock
Sample Length (mm):	134.4 Sample Diameter (mm): 51.7		Core Specimen
Length/Diameter Ratio:	2.6	Rock Type:	Sandstone
Dry Density (t/m ³):	2.22	Depth (m):	2.55 - 2.7m
Moisture Content (%):	6.0		
Consul	ting Earth Scientists	Consulting Earth S	cientists



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Accreditation No. 2418



TEST CERTIFICATE

SGS Australia Ptv Ltd Unit 15, 33 Maddox Street (PO Box 6432) Alexandria NSW 2015 Australia

UNIAXIAL COMPRESSIVE STRENGTH

CLIENT: PROJECT:	Consulting Earth Scientists Four Points CES111206-CA	JOB NO.: LAB NO.: Date Tested:	133-100 72167 07.05.12
Sample ID:	FP_BH4	Test Type:	Compressive Strength
		Sample Type:	Single Individual Rock
Sample Length (mm):	134.3 Sample Diameter (mm): 51.7		Core Specimen
Length/Diameter Ratio:	2.6	Rock Type:	Sandstone
Dry Density (t/m ³):	2.22	Depth (m):	11.6 - 11.8m
Moisture Content (%):	6.8		
Consult	ing Earth Scientists	Conculting Earth S	ciontists

Consulting Earth Scientists Four Points CES111206-CA **Unconfined Compressive Strength TEST SAMPLE** FP_BH4 11.6 - 11.8m



al issues established therein.

any's findings at the time of its intervention only and within the limits of client's tions under the transaction documents. Any unauthorized alteration, forgery or

UNIAXIAL COMPRESSIVE STRENGTH: U.C.S. (MPa) = 25.3

Notes on Testing: Specimen tested at the moisture condition as received.

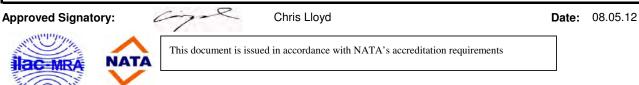
Specimen supplied by client.

Bulk density value was determined by vernier calliper method.

Testing Equipment: CL 10305 2000kn Hydraulic Compression Machine

Brittle Mode of Failure:

Test Method: AS 4133.4.2.1



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UNIAXIAL COMPRESSIVE STRENGTH

CLIENT: PROJECT:	Consulting Earth Scientis	sts	JOB NO.: LAB NO.:	133-100 72174
Sample ID:	CES111206-CA FP BH5		Date Tested: Test Type:	07.05.12 Compressive Strength
Sample Length (mm):	131.8 Sample Diameter (mm):	51.6	Sample Type:	Single Individual Rock Core Specimen
Length/Diameter Ratio:	2.6	01.0	Rock Type:	Sandstone
Dry Density (t/m ³):	2.18		Depth (m):	14.7 - 15.0m
Moisture Content (%):	6.1			
Consult	ing Earth Scientists		Consulting Earth S	cientists



Unconfined Compressive Strength AFTER TEST SAMPLE FP_BH5 14.7 - 15.0m

Date:

s findings at the time of its intervention only and within the limits of client's rs under the transaction documents. Any unauthorized alteration, forgery or

UNIAXIAL COMPRESSIVE STRENGTH: U.C.S. (MPa) = 27.7

Notes on Testing: Specimen tested at the moisture condition as received.

Specimen supplied by client.

Bulk density value was determined by vernier calliper method.

Testing Equipment: CL 10305 2000kn Hydraulic Compression Machine

NAME

Brittle Mode of Failure:

Test Method: AS 4133.4.2.1

Approved Signatory:



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