

Our Ref: PSM3759-005L

30 July 2019

Carmichael Tompkins Property Group Pty Ltd 28/2 Chifley Square SYDNEY NSW 2000

gcarmichael@pepper.com.au

Attention: Greg Carmichael

**Dear Greg** 

RE: KAMBALA GIRLS HIGH, ROSE BAY, NSW ADDITIONAL GEOTECHNICAL INVESTIGATION

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#### 1. Introduction

This letter presents the logs of boreholes drilled on 11 and 12 July 2019 by Pells Sullivan Meynink (PSM) at Kambala Girls School, Rose Bay, NSW. PSM has previously undertaken a geotechnical investigation at the site on 8 and 9 January 2019 and this is reported in geotechnical investigation report (Ref. PSM3759-002L dated 29 January 2019). Figure 1 presents a locality plan of the site.

The work was completed in accordance with the PSM proposal dated 9 April 2019 (Ref. PSM3759-003L), as approved by email on 14 June 2019.

Prior to the work, PSM was supplied with the following documents:

- Allen Jack + Cottier Architects drawings and sketches "Kambala Sports Precinct Summary".
- Allen Jack + Cottier Architects drawings SK\_181130-1 and SK\_181130-2 "Site Plan and Sections".
- RPS Group survey plan sheets 1 − 7.
- Douglas Partners Geotechnical Report (Ref. 37034.04), dated June 2012 (Douglas Partners Report).

#### 2. Geotechnical Investigation

#### 2.1 Fieldwork

The fieldwork was undertaken on 11 and 12 July 2019 under the full-time supervision of a PSM geotechnical engineer who undertook the following tasks:

- Directing the testing locations and drilling
- Preparing engineering logs of the materials encountered
- Conducting point load testing on recovered rock samples

Prior to testing, on-site service location "scans" were undertaken by a service locator in the presence of a PSM geotechnical engineer to assess if the locations were free from buried utilities.

A total of six (6) boreholes were drilled using 1.3 tonne a track mounted drill rig. Track-mats were used while moving and operating the rig to minimise ground disturbance. All boreholes (BH101 to BH106) were first augered to V-bit refusal and some continued with a TC-bit in rock until refusal. NMLC coring techniques were undertaken in bedrock. The boreholes were terminated at depths between 7.0 m and 7.46 m from the existing ground surface. Appendix A presents geotechnical engineering borehole logs.

The test locations were specified by others; the locations were recorded with a hand-held GPS unit with a horizontal accuracy of approximately +/- 5 m. Figure 1 presents the test locations. The existing ground levels at the borehole locations were based on the survey plan provided by Allen Jack + Cottier Architects.

At the completion of the fieldwork, the boreholes were backfilled with excavated spoil and sand and lightly tamped with a shovel. Figures 2 and 3 present selected photos of the fieldwork.

#### 2.2 Testing

Point load tests on the core were performed at approximately one metre intervals. Results are tabulated in Appendix B.

#### 2.3 Groundwater

We noted that the cuttings were wet at the following locations and depths from the ground surface:

- BH101 4.0 m
- BH103 1.5 m
- BH104 1.2 m
- BH105 2.5 m
- BH106 3.3 m

Water ponding was observed at the base of BH104 prior to rock coring. Water within the soil layers was further observed within SPT samples, refer to Figure 3 photo 4. This is consistent with our previous investigation on 8 and 9 November 2018 in which water was observed in four different holes at depths of 0.8 m to 5.2 m from the ground surface (Ref. PSM3759-002L).

Please note that based on the Douglas Partners Report (Ref. 37034.04), no ground water was observed within the depth of augering. This suggests a variability of the groundwater conditions on the site.

Partial water loss of drilling water was observed during rock coring in BH103, BH105 and BH106. This occurs when open defects are encountered during the coring procedure.

#### 3. General

If at any time, the conditions are found to vary from those described in this report, further advice should be sought.

Should there be any queries, please do not hesitate to contact the undersigned.

For and on behalf of

#### **PELLS SULLIVAN MEYNINK**

MATIAS BRAGA GEOTECHNICAL ENGINEER GARRY MOSTYN PRINCIPAL

Company

Encl.

Figure 1 Locality Plan

Figure 2 Selected Site Photographs (1 of 2)
Figure 3 Selected Site Photographs (2 of 2)

Appendix A Engineering Borehole Logs

Appendix B Geotechnical and Analytical Laboratory Testing Results

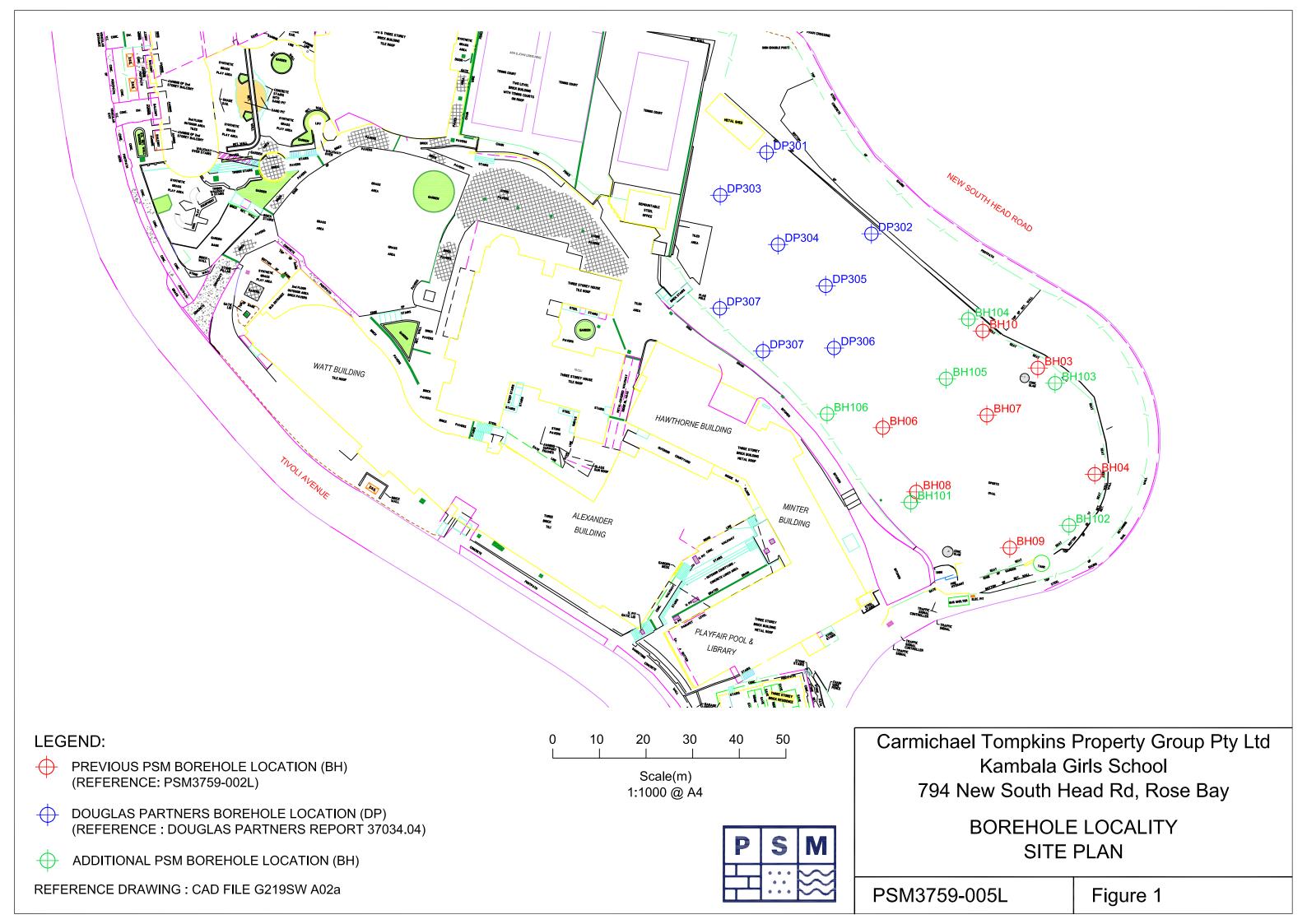




Photo 1 - General site condtions and service locating (11/07/2019)



Photo 2 - Soil profile of BH105 (11/07/2019)

Carmichael Tompkins Property Group Pty Ltd
Kambala Girls School
794 New South Head Rd, Rose Bay
SELECTED SITE PHOTOGRAPHS (1 of 2)

Pells Sullivan Meynink

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Figure 2



Photo 3 - Fill from BH106, rig set-up with track mats (11/07/2019)



Photo 4 - Standard Pennetration Test displaying groundwater in BH103 (12/07/2019)



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SELECTED SITE PHOTOGRAPHS (2 of 2)

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Figure 3

# **Appendix A Engineering Borehole Logs**



#### **BH101**

Page 1 of 3

# **Engineering Log - Non Cored Borehole**

Client: Carmichael Tompkins Property Group Pty Ltd

Kambala Girls School Project Name:

Rose Bay Hole Location: Hole Position:

340210.0 m E 6251444.0 m N MGA94 Zone 56

Drill Model and Mounting: CE180 Track Hole Diameter: 80 mm

Commenced: Completed:

12/07/2019

PSM3759

12/07/2019

Logged By: Checked By:

Project No.:

LR AS

RL Surface: 39.30 m Inclination: -90°

Bearing: Datum: AHD Operator: BM

L	Н	ole D	ıam	eter	:	80	mm				Bearing: Datum: AHD		perator: BM
			ı	Drill	ing Informati	on					Soil Description		Observations
	Method	Penetration	Support	Water	Samples Tests Remarks	Recovery	RL (m)	Depth (m)	Graphic Log	Classification Symbol	SOIL NAME: Plasticity, behaviour or particle characteristics of primary component, colour, secondary components,	Hand netrometer UCS (kPa)	r Structure, Zoning, Origin, Additional Observations
										OL	Silty SAND: medium grained, dark brown; / grass and roots.		0.00: TOPSOIL 0.05: FILL
					SPT - 2, 2, 1 N = 3 0.50 m		38.3	- - 1-			Silty SAND trace gravel: medium grained, dark brown and grey; gravel angular up to 20 mm.		0.50: SPT recovery 450 mm.
1.1 2019-03-06 Ptj: PSM 3.02.0 2019-02-24	AD/V		z		SPT - 1, 0, 2 N = 2 2.00 m		37.3	2			Silty SAND: fine to medium grained, yellow brown and grey.  M		2.00: SPT recovery 450 mm.
2019 1720 10.00.00.69 Datgel Fence and Map Tool   Lib: PSM 3.02.1 2019-03-06 Prj: PSM 3.02.0 2019-02-24							36.3	3-			Becomes dark brown.		
25/07/				12/07/19	SPT 2, 2, 2 N = 4 3.50 m		35.3	4		SM	Silty SAND: fine to medium grained, dark brown and grey.		3.50: SPT recovery 150 mm. 3.51: Inferred residual.
AU NONCORE BH NZ AU PSM3759.GPJ < <drawingfile>&gt;</drawingfile>			etho			Pe	enetrat	ion		₩ > Inflo	ater Samples and Tests Moisture C w U - Undisturbed Sample D -	Condition	Consistency/Relative Density
SM AU NON	W	'B -W	ashb	ore	ling TC bit ling V bit	<b>\</b>	lo resis	stance		✓ Par	w U - Undisturbed Sample D - ial Loss D - Disturbed Sample M - SPT - Standard Penetration Test W - plete Loss ES - Environmental Sample	Moist Wet	VS - Very soft S - Soft F - Firm St - Stiff

AD/V - Auger drilling V bit WB -Washbore SPT-Standard penetration test PT - Push tube AS - Auger Screwing

Logged in accordance with AS 1726:2017 Geotechnical site investigations

D - Disturbed Sample SPT - Standard Penetration Test ES - Environmental Sample TW - Thin Walled LB - Large Disturbed Sample

- Soff - Firm - Stiff - Very stiff - Hard - Very loose - Loose - Medium dense - Dense - Very dense - Cemented - Compact F St VSt H VL MD D VD Ce C



Hole Diameter:

Borehole ID

#### **BH101**

Page 2 of 3

# **Engineering Log - Non Cored Borehole**

Client: Carmichael Tompkins Property Group Pty Ltd

Kambala Girls School Project Name:

Rose Bay Hole Location:

Hole Position: 340210.0 m E 6251444.0 m N MGA94 Zone 56

80 mm

Drill Model and Mounting: CE180 Track Inclination: -90°

Bearing:

Checked By: RL Surface:

Project No.:

Commenced:

Completed:

Logged By:

Datum: AHD

Operator: BM

PSM3759

12/07/2019

12/07/2019

LR

AS

39.30 m

$\vdash$	- 17	ole D	ann	ci <del>c</del> i.	. (	JU 1	111111				Bearing. Datum	•	AI	טר		_	Орегают. Вім
			L	Drill	ing Informatio	n					Soil Description						Observations
	Method	Penetration	Support	Water	Samples Tests Remarks	Recovery	RL (m)	Depth (m)	Graphic Log	Classification Symbol	Material Description  SOIL NAME: Plasticity, behaviour or particle characteristics of primary component, colour, secondary components additional observations	Moisture	Consistency / Relative Density	Per 001	Han netroi UCS (kPa	mete S a)	Additional Observations
	ADIV		z		SPT - Refusal 5.00 m			_		SM	Silty SAND: fine to medium grained, dark brown and grey. (continued)	W	VL				5.00: SPT recovery 260 mm.
ONCORE BHNZ AU PSM3759.GPJ < <drawingfile> 2507/2019 1720 10.00.00.69 Datgel Fence and Map Tool   Lib: PSM 3.02.1 2019-03-06 Pr; PSM 3.02.0 2019-02-24</drawingfile>						Po	30.3 31.3 32.3 33.3			M	Continued on cored borehole sheet  Samples and Toese		Moist				5.25: SPT - refusal.
ONCOR	ΑĮ		etho Auge		ing TC hit		netrat		[	<i>W</i> >> Inflo	Vater Samples and Tests ow U - Undisturbed Sample D Disturbed Sample		<b>Moist</b> u D	ire C	Cond Dry Mois	itioi	on Consistency/Relative Density  VS - Very soft  S - Soft

AD/T - Auger drilling TC bit AD/V - Auger drilling V bit WB - Washbore SPT - Standard penetration test PT - Push tube AS - Auger Screwing

Logged in accordance with AS 1726:2017 Geotechnical site investigations

No resistance

 $\overline{eta}$  Refusal

Partial Loss Complete Loss U - Undisturbed Sample
D - Disturbed Sample
SPT - Standard Penetration Test
ES - Environmental Sample
TW - Thin Walled
LB - Large Disturbed Sample

M - Moist W - Wet

Very soft Soft Soft Firm Stiff Very stiff Hard Very loose Loose Medium dense Dense Very dense Cemented Compact S F St VSt H VL MD D VD Ce C



#### **BH101**

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12/07/2019

12/07/2019

LR

AS

Project No.:

Commenced:

Completed:

Logged By:

Checked By:

# **Engineering Log - Cored Borehole**

Client: Carmichael Tompkins Property Group Pty Ltd

Kambala Girls School Project Name:

Rose Bay Hole Location: Hole Position: 340210.0 m E 6251444.0 m N MGA94 Zone 56

-90° RL Surface: 39.30 m Drill Model and Mounting: CE180 Track Inclination:

Barrel Type and Length: NMLC - 1.5 m Bearing: Datum: AHD Operator:

		Dril	ling Info	ormat	ion			Rock Substance										R	ock Mass Defects
Method	Water	RQD (%)	Samples and Field Tests	WPT (Lugeons)	RL (m)	Depth (m)	Graphic Log	Material Description  ROCK NAME: particle/grain characteristics, colour, fabric/texture, inclusions or minor components, moisture, mineral composition, alteration	Wea ≳ }			0	0.3	50)		Spa	ım)	g	Defect Descriptions / Comments  Description, alpha/beta, infilling or coating, shape, roughness, thickness, other
						_		Continued from non-cored borehole sheet			   					     	     		
ICORE BH PSM3729G.P.J <-Chrawing-file>> 25/07/2019 17:19 10:00:00:09 Datgel Ferroe and Map Tool   Lb. PSM 3/02.12019-03-40 Prg. PSM 3/02.0 2019-02-24   NMILC		89 66	Is(50) d=0.2 a=0.2 MPa Is(50) d=1.3 a=1.4 MPa Is(50) d=0.7 a=0.6 MPa		30.3 31.3 32.3 33.3			SANDSTONE: medium to coarse grained, orange and yellow grey, poorly-developed to developed bedding, thinly bedded, inclined up to 6°.  Becomes dark grey with carbonatious bedding.  Becomes light grey.  Bedding inclined at 10°.  Hole Terminated at 7.36 m						• 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1					— BP, 5°, KL, PR, VR  — BP, 5°, FE SN, IR, VR  — BP, 5°, FE SN, PR, VR  BP, 5°, FE SN, PR, VR  BP, 5°, FE SN, PR, VR  BP, 5°, FE SN, PR, RF  — BP, 0°, KL, IR, VR  — BP, 5°, FE SN, PR, VR  — BP, 10°, KL, PR, VR  — BP, 10°, X, VN, IR, VR
CORE BH PSM37.	AE	)/T - Aug	e <b>thod</b> ger drilling 1 ger drilling \	C bit			<b>W</b> /> Inflo	ater Weathering XW - Extremely Weathered HW - Highly Weathered		FT	- Fa	ult	Type Surface		11	CN -	ng/0 - CI - St		ting Roughness SL - Slickensided POL - Polished

AD/T - Auger drilling TC bit AD/V - Auger drilling V bit WB - Washbore HQ3- Wireline core (63.5 mm) PQ3- Wireline core (85.0 mm) SPT- Standard penetration test PT - Push tube

WPT - Water pressure test

✓ Partial Loss

Complete Loss

Graphic Log/Core Loss

Core recovered (hatching indicates material) No core recovery Logged in accordance with AS 1726:2017 Geotechnical site investigations

Extremely Weathered
 Highly Weathered
 Moderately Weathered
 Slightly Weathered
 Fresh

Strength
- Very Low
- Low
- Medium L M H VH EH High Very High Extremely High

FT - Fault
SS - Shear Surface
S2 - Shear Zone
BP - Bedding parting
SM - Seam
IS - Infilled Seam
JT - Joint
CO - Contact
CZ - Crushed Zone
VN - Vein
FZ - Fracture Zone
BSH - Bedding Shear
DB - Drilling Break

CN - Clean
SN - Stain
VN - Veneer
CO - Coating
FF - Rock fragments
G - Gravel
S - Sand
Z - Sitt
CA - Calcite
CL - Clay
FE - Iron
QZ - Quartz
X - Carbonaceous

Quartz Carbonaceous

POL - Polished S - Smooth RF - Rough VR - Very Rough Shape
PR - Planar
CU - Curved
UN - Undulating
ST - Stepped
IR - Irregular





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CORE PHOTO BH101
(PHOTO 1 OF 1)

PSM3759-005L

Figure A1



#### **BH102**

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# **Engineering Log - Non Cored Borehole**

Client: Carmichael Tompkins Property Group Pty Ltd Kambala Girls School Project Name:

Rose Bay Hole Location:

Hole Position: 340244.0 m E 6251440.0 m N MGA94 Zone 56

Drill Model and Mounting: CE180 Track Hole Diameter: 80 mm

Logged By: Checked By:

Project No.:

Commenced:

Completed:

PSM3759

12/07/2019

12/07/2019

LR

AS

-90° RL Surface: 39.70 m Inclination:

Bearing: Datum: AHD Operator: BM

r	11010				ing Informatio	on					Soil Description Observations
	Penetration		Support	Water	Samples Tests Remarks	Recovery	RL (m)	Depth (m)	Graphic Log	Classification Symbol	Material Description  SOIL NAME: Plasticity, behaviour or particle characteristics of primary component, colour, secondary components, additional observations  Material Description  SUIL NAME: Plasticity, behaviour or particle characteristics of primary components, additional observations  Additional Observations  Structure, Zoning, Origin, UCS (kPa)  SUIL NAME: Plasticity, behaviour or particle characteristics of primary components, additional observations
2019-02-24	AUN		Z	Not Encountered	SPT - 3, 4, 3, N = 7 0.50 m		37.7			OL ,	Silty SAND: fine to medium grained, dark brown and grey.  Becomes mostly grey.  Silty SAND: fine grained, orange brown.  M VL  Becomes yellow-orange.
PSM AUNONCORE BH NZ AU PSM3759 GPJ <-DrawingFile> 25/07/2019 1720 10.00 00 69 Datgel Fence and Map Tool   Litr. PSM 3.02,1 2019-03-06 Ptj. PSM 3.02.0 2019-02-24					2.00 m		35.7 36.7				Continued on cored borehole sheet
M 3.02.2 LIB.GLB Log	AD/T AD/V WB - SPT - PT - AS -	Me - A - A Wa Sta Pus Aug	ishb inda sh tu ger \$	r drill r drill ore rd pe ibe Screv	ing TC bit ing V bit enetration test wing			efusal		> Inflo ⊲ Par	ater Samples and Tests Woisture Condition U - Undisturbed Sample tial Loss SPT - Standard Penetration Test SPT - Standard Penetration Test TW - Thin Walled LB - Large Disturbed Sample  B - Large Disturbed Sample CB - Large Dis





# BH102

Page 2 of 3

# **Engineering Log - Cored Borehole**

Client: Carmichael Tompkins Property Group Pty Ltd

Project Name: Kambala Girls School

Hole Location: Rose Bay Hole Position: 340244.0 m E 6251440.0 m N MGA94 Zone 56

Тур	and Me e and L	ength	•	CE18			RL Surf Datum:	ace: 39.7 AHD		natani DM
Drilli	na Info								Орс	rator: BM
	ng mo	rmat	ion			Rock Substance			F	Rock Mass Defects
RQD (%)	Samples and Field Tests	WPT (Lugeons)	RL (m)	Depth (m)	Graphic Log	Material Description  ROCK NAME: particle/grain characteristics, colour, fabric/texture, inclusions or minor components, moisture, mineral composition, alteration	ın	O - Diametral	Defect Spacing (mm)	Defect Descriptions / Comments  Description, alpha/beta, infilling or coating, shape, roughness, thickness, other
100	Is(50) d=0.3 a=0.6 MPa		36.7	3-		Continued from non-cored borehole sheet SANDSTONE: medium to coarse grained, orange brown, poorly developed bedding.				—BP, 0°, FE SN, PR, RF —BP, 0°, FE SN, PR, VR
77	ls(50) d=1.1 a=0.9 MPa		35.7	- - - 4- -		No core, 100 mm loss.  SANDSTONE: medium grained, pale grey, developed bedding, laminated.				BP, 0°, FE SN, PR, VR ↑ SM, 0°, CL, PR, S, 5 mm ■ BP, 0°, FE SN, PR, VR 1 BP, 0°, FE SN, PR, VR
92	Is(50) d=1.4 a=1 MPa			-		Becomes inclined up to 10°.				—BP, 0°, KL, PR, VR —BP, 0°, KL, PR, VR
- Auge - Auge Wasl Wirel Wirel Stand Push	er drilling To er drilling V hbore line core (6 line core (8 dard penet tube	bit 63.5 mr 35.0 mr tration t	n)	<	> Inflov ☐ Partia ☐ Comp Ohic Lo ☐ Core indica	XW - Extremely Weathered   HW - Highly Weathered   FR - Fresh   Fresh   Fresh   FR - FR	FT - F. SS - S SZ - S BP - B SM - S IS - II JT - J CO - C CZ - C VN - C FZ - F	ault near Surface near Zone edding parting eam filled Seam oint ontact rushed Zone ein acture Zone	Infilling/Coa  CN - Clean  SN - Stain  VN - Veneer  CO - Coating  RF - Rock fri  G - Gravel  S - Sand  Z - Silt  CA - Calcite  CL - Clay  FE - Iron	SL - Slickensided POL - Polished S - Smooth RF - Rough
77	Me Auge Waise Wire Spush Water Spush	Is(50) d=0.3 a=0.6 MPa  Is(50) d=1.1 a=0.9 MPa  Method  Auger drilling T  Washbore Wireline core (is Streine core (is Push tube Water pressure	Is(50) d=0.3 a=0.6 MPa  Is(50) d=1.1 a=0.9 MPa  Method  Auger drilling TC bit Auger drilling V bit Wareline core (63.5 mr Wireline core (85.0 mr Strelndard penetration t Push tube Water pressure test	Is(50) d=0.3 a=0.6 MPa   Is(50) d=1.1 a=0.9 MPa   Method  Auger drilling TC bit Auger drilling V bit Wareline core (63.5 mm) Wireline core (85.0 mm) Wireline core (85.0 mm) Strendard penetration test Push tube  Water pressure test	1	Is(50) d=0.3 a=0.6 MPa   L'SE  2  L'SE  2  L'SE  4  L'SE  AUGUST  BIRDION  BIRDION  CORP  CORP  Indicat  No co  Corp  Indicat  No co	Continued from non-cored borehole sheet	List Sign of the state of the	Continued from non-cored borehole sheet  SANDSTONE: medium to coarse grained, orange brown, poorly developed bedding.  Algorithm of the same of the sa	Continued from non-cored borehole sheet  SANDSTONE: medium to coarse grained, orange brown, poorly developed bedding.  SANDSTONE: medium to coarse grained, orange brown, poorly developed bedding.  No core, 100 mm loss.  SANDSTONE: medium grained, pale grey, developed bedding, laminated.  SANDSTONE: medium grained, pale grey, developed bedding, laminated.  SANDSTONE: medium grained, pale grey, developed bedding, laminated.  SANDSTONE: medium grained, pale grey, developed bedding laminated.

Project No.:

Commenced:

Completed:

Logged By:

Checked By:

PSM3759

12/07/2019

12/07/2019

LR

AS



#### **BH102**

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# **Engineering Log - Cored Borehole**

Client: Carmichael Tompkins Property Group Pty Ltd

Kambala Girls School Project Name:

Rose Bay Hole Location: Hole Position: 340244.0 m E 6251440.0 m N MGA94 Zone 56

Checked By: Drill Model and Mounting: CE180 Track RI Surface: Inclination: \_an°

$\vdash$											- ,		
			el and More and L		-	CE18			-90°	RL Surf Datum:	ace: 39.7 AHD		rator: BM
		Dril	ling Info	ormat	ion			Rock Substa	nce			F	Rock Mass Defects
Method	Water	RQD (%)	Samples and Field Tests	WPT (Lugeons)	RL (m)	Depth (m)	Graphic Log	Material Description  ROCK NAME: particle/grain characte colour, fabric/texture, inclusions or r components, moisture, mineral compositio	ninor	Weatherin	O - Diametral	Defect Spacing (mm)	Defect Descriptions / Comments  Description, alpha/beta, infilling or coating, shape, roughness, thickness, other
3.02.0 2019-02-24 NMLC	Not Encountered	92 92	Is(50) d=1.7 a=1 MPa Is(50) d=0.5 a=0.7 MPa		32.7 33.7	- - 6— - - 7—		SANDSTONE: medium grained, pale grey developed bedding, laminated. (continued)  Carbonaceous inclusions up to 6.0 m.  Shale clast 50 mm. Becoming horizontally bedded.  SANDSTONE: medium to coarse grained brown, developed bedding, thinly bedded up to 10°.  Becomes bedded with carbonaceous ban	, orange I, inclined				=BP, 10°, X VN, PR, VR CO, 10°, CL VN, CU, S CO, 15°, CL VN, CU, S −BP, 0°, X VN, PR, S SM, 0°, CL, PR, S, 20 mm −BP, 0°, KL, PR, RF
GLB Log PSM AU CORE BH PSM3759/GPJ <cdawmgfie>&gt; 25/07/2019 17/20 10.00.008 Dagel Fence and Map Tod   LLb. PSM 3.02.1 2019-03-06 Prj. PSM 3.02.0 2019-032-34</cdawmgfie>					30.7 31.7	8— 8— - 9— -		Hole Terminated at 7.45 m					
SLB Log PSM AU CORE BH PSN	AD WE HC PC SP	/T - Aug /V - Aug 3 - Wa 3- Wir 3- Wir	eline core ( eline core ( ndard pene	/ bit 63.5 mr 85.0 mr	m)	<	> Inflor ☐ Parti ■ Com	g, .	lly Weathered Veathered lely Weathered Weathered	FT - F SS - S SZ - S BP - B SM - S	hear Surface hear Zone edding parting eam ifilled Seam pint	Infilling/Coa  CN - Clean SN - Stain VN - Veneer CO - Coating RF - Rock fra G - Gravel S - Sand Z - Silt	SL - Slickensided POL - Polished S - Smooth RF - Rough

PT - Push tube

Core recovered (hatching indicates material) Logged in accordance with AS 1726:2017 Geotechnical site investigations

VL - Very Low
L - Low
M - Medium
H - High
VH - Very High
EH - Extremely High

CO - Contact
CZ - Crushed Zone
VN - Vein
FZ - Fracture Zone
BSH - Bedding Shear
DB - Drilling Break

Project No.:

Commenced:

Completed:

Logged By:

PSM3759

12/07/2019

12/07/2019

LR

AS

S - Salid
Z - Silt
CA - Calcite
CL - Clay
FE - Iron
QZ - Quartz
X - Carbonaceous

PR - Planar CU - Curved UN - Undulating ST - Stepped IR - Irregular





Carmichael Tompkins Property Group Pty Ltd
Kambala Girls School
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CORE PHOTO BH102
(PHOTO 1 OF 1)

PSM3759-005L

Figure A2



#### **BH103**

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# **Engineering Log - Non Cored Borehole**

Client: Carmichael Tompkins Property Group Pty Ltd

Kambala Girls School Project Name:

Rose Bay Hole Location:

Hole Position: 340243.0 m E 6251469.0 m N MGA94 Zone 56

Drill Model and Mounting: CE180 Track Hole Diameter: 80 mm

Inclination: -90° Bearing:

Checked By: RL Surface:

Project No.:

Commenced:

Completed:

Logged By:

39.70 m AHD

PSM3759

12/07/2019

12/07/2019

LR

AS

					eter	: Wounting.		mm	raok			Bearing: Datum: AHD Operator: BM	
				L	Drill	ing Informat	ion					Soil Description Observat	tions
14044	Method	Penetration		Support	Water	Samples Tests Remarks	Recovery	RL (m)	Depth (m)	Graphic Log	Classification Symbol	Material Description  SOIL NAME: Plasticity, behaviour or particle characteristics of primary component, colour, secondary components, additional observations  Material Description  Solic NAME: Plasticity, behaviour or particle characteristics of primary components, additional observations  Additional Observations  Additional Observations	ning, Origin, servations
	ADIV			Z	12/07/19	SPT - 2, 3, 3, N = 6 0.50 m SPT - 3, 6, 10 2.00 m		37.7			OL ,	Silty SAND: medium grained, dark brown; roots and grass.  Silty SAND: medium grained, pale orange brown.  M  L  Silty SAND: medium grained, dark brown.  W  2.00: Recovery 350 mm	
PSM AUNONCORE BH NZ AU PSM/3759 GPJ <-DrawingFile>> 25(07/2019 1721 10.00 00 69 Datgel Ferce and Map Tool   Lits: PSM 3.02.1 2019-03-06 Prj; PSM 3.02.0 2019-02-24								35.7 36.7	3			Continued on cored borehole sheet	
A 3.02.2 LIB.GLB Log	SI P A	D/T D/V /B - PT - T - S -	Was Star Pus Aug	uge shb nda sh tu jer \$	r drill r drill ore rd pe lbe Screv	ing TC bit ing V bit enetration test wing			stance efusal		Inflo □ Par 		oft tiff cose m dense



# BH103

Page 2 of 3

Project No.:

Commenced:

Completed:

Logged By:

Checked By:

PSM3759

12/07/2019

12/07/2019

LR

AS

# **Engineering Log - Cored Borehole**

Client: Carmichael Tompkins Property Group Pty Ltd

Project Name: Kambala Girls School

Rose Bay Hole Location: Hole Position: 340243.0 m E 6251469.0 m N MGA94 Zone 56

			and M			CE18			-90°	RL Surface:	39.70		onto an DM
-	Barre		e and L			NMLC	ا - 1.5	<u> </u>		Datum:	AHD	-	ator: BM
		Drill	ling Info	rmat	ion			Rock Sub	stance			R	ock Mass Defects
Method	Water	RQD (%)	Samples and Field Tests	WPT (Lugeons)	RL (m)	Depth (m)	Graphic Log	Material Description  ROCK NAME: particle/grain char colour, fabric/texture, inclusions components, moisture, mineral compo	acteristics, or minor	Weathering 0-	trength s(50) - Axial Diametral	Defect Spacing (mm)	Defect Descriptions / Comments  Description, alpha/beta, infilling or coating, shape, roughness, thickness, other
					38.7	- - 1— -							
2019-02-24					37.7	2-		Continued from non-cored borehole s	heet				
Datgel Fence and Map Tool   Lib: PSM 3.02.1.2019-03-06 Prj: PSM 3.02.0.2019-02-24		88	Is(50) d=1 a=0.8 MPa		36.7	3-		No core, 110 mm.  SANDSTONE: medium to coarse grain brown and pale grey, developed bedded, trace gravel, bedding inclined	ined, orange ling, thinly				— SM, 0°, CL CO, PR, RF, 10 mm — BP, 0°, KL, PR, RF — BP, 0°, KL, IR, RF — BP, 5°, FE SN, PR, RF
25/07/2019 17:20 10.00.00.69		97	Is(50) d=0.7 a=0.7 MPa		35.7	4		Becomes pale grey.  SANDSTONE: medium grained, pale developed to well-developed bedding	grey, , laminated.				— BP, 0°, FE SN, PR, RF — BP, 5°, X VN, PR, RF — BP, 0°, KL, PR, RF ¬ BP, 0°, KL, PR, RF
PSM3759.GPJ < <dr< td=""><td></td><td>93</td><td>Is(50) d=0.8 a=1.7 MPa</td><td></td><td></td><td>_</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></dr<>		93	Is(50) d=0.8 a=1.7 MPa			_							
PSM 3.02.2.LIB.GLB Log PSM AU CORE BH PSM3759.GPJ < <drawingfile>-</drawingfile>	AD/ WB HQ: PQ: SP <sup>-</sup> PT WP	/T - Aug /V - Aug 3 - Wa 3 - Win 3 - Win T - Star - Pus PT - Wa	eline core ( eline core ( ndard pene	/ bit 63.5 mr 85.0 mr etration t	n) est	Grap	> Inflov ☐ Parti ☐ Com ☐ Core indica — No co	XW - Ex	e <b>ngth</b> ery Low w edium gh	Defect Ty FT - Fault SS - Shear Su SZ - Crushed VN - Vein FZ - Fracture Z BSH - Bedding S DB - Drilling Br	rface ne barting earn Zone Zone Shear	Infilling/Coat CN - Clean SN - Stain SN - Stain VN - Veneer CO - Coating RF - Rock fra G - Gravel S - Sand Z - Silt CA - Calcite CL - Clay FE - Iron QZ - Quartz X - Carbona	SL - Slickensided POL - Polished S - Smooth RF - Rough yR - VR - Very Rough  Shape PR - Planar CU - Curved UN - Undulating ST - Stepped IR - Irregular



#### **BH103**

Page 3 of 3

# **Engineering Log - Cored Borehole**

Client: Carmichael Tompkins Property Group Pty Ltd

Kambala Girls School Project Name:

Rose Bay Hole Location: Hole Position:

340243.0 m E 6251469.0 m N MGA94 Zone 56

Drill Model and Mounting: CE180 Track Inclination: -90° RL Surface:

Project No.:

Commenced:

Completed:

Logged By:

Checked By:

PSM3759

12/07/2019

12/07/2019

LR

AS

39.70 m

L	Bar	rel Typ	e and L	_engt	h:	NMLC	- 1.5	5 m Bearing:	Datum:	AHD	Oper	ator: BM
		Dril	ling Info	ormat	tion			Rock Substance			R	ock Mass Defects
17.00	Water	RQD (%)	Samples and Field Tests	WPT (Lugeons)	RL (m)	Depth (m)	Graphic Log	Material Description  ROCK NAME: particle/grain characteristics, colour, fabric/texture, inclusions or minor components, moisture, mineral composition, alteration	Weathering	O - Diametral	Defect Spacing (mm) 000 000 000 000 000	Defect Descriptions / Comments  Description, alpha/beta, infilling or coating, shape, roughness, thickness, other
		93	Is(50) d=0.9 a=1.7 MPa		33.7	- - - 6-		SANDSTONE: medium grained, pale grey, developed to well-developed bedding, laminated.(continued) Becomes thinly bedded and inclined up to 10° at 5.02 m.  Becomes horizontally bedded.				BP, 10°, KL, PR, RF BP, 10°, KL, PR, RF — BP, 10°, FE SN, PR, RF
		18	Is(50) d=0.1 a=0.1 MPa		32.7	- - 7-		Becomes inclined up to 5°.  SANDSTONE: medium grained, pale grey to dark red brown, poorly developed bedding.				— BP, 0°, KL, PR, RF ¬ BP, 0°, CL, PR, S — SM, 0°, CL VN, PR, S ¬ SM, 0°, Fe & Clay VN, PR, S ¬ SM, 0°, Fe & Clay VN, PR, S ¬ SM, 0°, Fe & Clay VN, PR, S
M AU CORE BH PSM3759.GPJ < <drawingfile>&gt; 25/07/2019 17:20 10:000.00.69 Datgel Fence and Map Tod   Lb; PSM 3:02.1 2019-03-08-Prj. PSM 3:02.0 2019-02-24</drawingfile>			MPa		30.7 31.7	8		Hole Terminated at 7.08 m				TBP, 0°, FE SN, PR, RF BP, 0°, FE SN, PR, RF
M AU CORE BH P.	Al	D/T - Aug	e <b>thod</b> ger drilling 7 ger drilling \ shbore				<b>W</b> > Inflo □ Part	Tity Tigilly Wouldered	FT - Fai SS - Shi SZ - Shi	ear Surface	Infilling/Coat CN - Clean SN - Stain VN - Veneer CO - Coating	ring Roughness  SL - Slickensided  POL - Polished  S - Smooth  RF - Rough

AD/V - Auger drilling V bit WB - Washbore HG3- Wireline core (63.5 mm) PQ3- Wireline core (85.0 mm) SPT- Standard penetration test PT - Push tube

Logged in accordance with AS 1726:2017 Geotechnical site investigations

WPT - Water pressure test

Complete Loss

Graphic Log/Core Loss

Core recovered (hatching indicates material) No core recovery

mvv - Highly Weathered MW - Moderately Weathered SW - Slightly Weathered FR - Fresh

Strength
- Very Low
- Low
- Medium
- High
- Very High
- Extremely High L -M -H -VH -EH -

SS - Shear Surface
SZ - Shear Zone
SP - Bedding parting
SM - Seam
JT - Joint
CO - Contact
CZ - Crushed Zone
VN - Vein
FZ - Fracture Zone
BSH - Bedding Shear
DB - Drilling Break

S - Smooth
RF - Rough
VR - Very Rough

Shape
PR - Planar
CU - Curved
UN - Undulating
ST - Stepped
IR - Irregular





Carmichael Tompkins Property Group Pty Ltd
Kambala Girls School
794 New South Head Rd, Rose Bay
CORE PHOTO BH103
(PHOTO 1 OF 1)

PSM3759-005L

Figure A3



#### **BH104**

Page 1 of 3

# **Engineering Log - Non Cored Borehole**

Client: Carmichael Tompkins Property Group Pty Ltd

Kambala Girls School Project Name:

Rose Bay Hole Location:

Hole Position: 346228.0 m E 6251481.0 m N MGA94 Zone 56

Drill Model and Mounting: CE180 Track

-90° Inclination:

RL Surface:

Datum:

Project No.:

Commenced:

Completed:

Logged By:

Checked By:

39.80 m AHD

MB

AS

PSM3759

11/07/2019

11/07/2019

		le D			: Wounting.		mm				Bearing: Datum: AHD Operator: BM
				Drill	ing Informati	on					Soil Description Observations
Method		Penetration	Support	Water	Samples Tests Remarks	Recovery	RL (m)	Depth (m)	Graphic Log	Classification Symbol	Material Description  SOIL NAME: Plasticity, behaviour or particle characteristics of primary component, colour, secondary components, additional observations  Material Description  Solit Name: Plasticity, behaviour or particle characteristics of primary components, additional observations  Material Description  Solit Name: Plasticity, behaviour or particle characteristics of primary components, additional observations  Material Description  Solit Name: Plasticity, behaviour or particle characteristics of primary components, additional observations
ADV			z		SPT - 4, 8, 9, N = 17 0.50 m		38.8	- - -		OL /	Silty SAND: medium to coarse grained, dark / brown.  Silty SAND: medium grained, dark orange brown.  Silty SAND: medium grained, red brown and yellow brown.  M  Sandstone fragments up to 40 mm, sub rounded, extremely weathered, loose.
AD/T			z	11/07/19	SPT refusal 1.20 m	_	-	-			SANDSTONE: coarse grained, red-brown, extremely weathered.  Continued on cored borehole sheet    1.20: V-Bit refusal   1.21: SPT recovery 100 mm.   1.30: TC-Bit refusal.
03-06 Prj; PSM 3.02.0 2019-02-24							37.8	2-	-		
1721 10.00.00.69 Datgel Fence and Map Tool   Lib: PSM 3.02.1 2019-03-06 Pr. PSM 3.02.0 2019-02-24							36.8	3-			
25/07/2019							35.8	4-			
DG PSM A	AD AD WE SP PT	/T - / W - / W - / W - / T - St - Pu	asht anda ısh t	er dril er dril eore erd pe ube	ling TC bit ling V bit enetration test wing		enetrat No resis			>> Inflo <  Par	Fater ow U - Undisturbed Sample D - Dry VS - Very soft Surplete Loss Part Standard Penetration Test ES - Environmental Sample TW - Thin Walled LB - Large Disturbed Sample Sample CB - Ce - Cemented CC - Compact - CC - Compact - CC - Compact - CC -



#### **BH104**

Page 2 of 3

RF - Rough VR - Very Rough

Shape Planar Shape
PR - Planar
CU - Curved
UN - Undulating
ST - Stepped
IR - Irregular

# **Engineering Log - Cored Borehole**

Carmichael Tompkins Property Group Pty Ltd Client:

Kambala Girls School Project Name:

Hole Location: Rose Bay 346228.0 m E 6251481.0 m N MGA94 Zone 56 Hole Position:

Drill Model and Mounting: CE180 Track Inclination:

Barrel Type and Length: NMLC - 1.5 m

Wireline core (63.5 mm)
Wireline core (85.0 mm)
Standard penetration test

Logged in accordance with AS 1726:2017 Geotechnical site investigations

Push tube

WPT - Water pressure test

Complete Loss

Graphic Log/Core Loss

No core recovery

Core recovered (hatching indicates material)

PSM3759 Project No.:

Commenced: 11/07/2019 Completed: 11/07/2019

39.80 m

Logged By: MB Checked By: AS

RL Surface: Datum: AHD Bearing: Operator:

-90°

**Drilling Information** Rock Substance Rock Mass Defects Strength Is(50) (Lugeons) Samples and Field Tests Material Description Defect Descriptions / Comments Pog Defect Weathering - Axial 8 ROCK NAME: particle/grain characteristics, O - Diametral Spacing Description, alpha/beta, infilling Graphic Method colour, fabric/texture, inclusions or minor or coating, shape, roughness, thickness, other Water (mm) RQD MPT Depth components, moisture, mineral composition, alteration 600 1000 1000 1000 (m) (m) % ₹ § % ¤ ᄀᄝᄑᅟᆍᇳ 38. Continued from non-cored borehole sheet SANDSTONE: medium to coarse grained, orange brown, developed bedding, laminated. d=0.4 a=0.5 MPa 8 37.8 2 BP, 20°, X, PR, RF Becomes inclined up to 20° 36.8 BP, 5°, X, IR, RF SM, 5°, X, PR, S, 5 mm 3 NMLC -SM, 0°, X, PR, S, 2 mm SANDSTONE: medium to coarse grained, grey, developed to well-developed bedding, laminated. 86 4 35. SM, 5°, CL, PR, S, 3 mm 97 No core, 50 mm. Some gravel up to 5 mm, sub rounded. Weathering Infilling/Coating Water Method Defect Type Roughness Fault Shear Surface Shear Zone Bedding parting SL - Slickensi POL - Polished S - Smooth AD/T - Auger drilling TC bit AD/V - Auger drilling V bit WB - Washbore HQ3- Wireline core (63.5 r Inflow  $\triangleright$ ✓ Partial Loss

Slightly Weathered Fresh

Strength - Very Low

Low Medium

Very High Extremely High

High

L M H VH EH

Seam Infilled Seam

Joint Contact Crushed Zone Vein Fracture Zone

Bedding Shear
 Drilling Break

QZ -

Quartz Carbonaceous



# **BH104**

Page 3 of 3

Project No.:

Commenced:

Completed:

Logged By:

Checked By:

PSM3759

11/07/2019

11/07/2019

MB

AS

# **Engineering Log - Cored Borehole**

Client: Carmichael Tompkins Property Group Pty Ltd

Project Name: Kambala Girls School

Hole Location: Rose Bay
Hole Position: 346228.0 m E 6251481.0 m N MGA94 Zone 56

Tiole Fosition.

			el and M		_	CE18			-90°	RL Surface	39.80 AHD		ator: BM
			ling Info					Rock Subs	tance				ock Mass Defects
Method	Water	RQD (%)	Samples and Field Tests	WPT (Lugeons)	RL (m)	Depth (m)	Graphic Log	Material Description  ROCK NAME: particle/grain characteristics colour, fabric/texture, inclusions components, moisture, mineral compos	cteristics, or minor tion, alteration	Weathering	Strength Is(50)  • - Axial • - Diametral	Defect Spacing (mm)	Defect Descriptions / Comments  Description, alpha/beta, infilling or coating, shape, roughness, thickness, other
NMLC		94 97	Is(50) d=1.2 a=1.5 MPa Is(50) d=0.8 a=1.2 MPa		33.8	6		SANDSTONE: coarse grained, orange developed bedding.  SANDSTONE: medium to coarse grain developed bedding.					—ВР, 0°, FE SN, PR, RF —ВР, 0°, FE SN, PR, RF
Datgel Fence and Map Tod   Lib: PSM 3.02.12019-03-06 Pg: PSM 3.02.0 2019-02.24					31.8	8-		Hole Terminated at 7.00 m					
3.02.2 LIB.GLB. Log. PSM.AU.CORE.BH PSM37759.GFJ < <drawingfile>&gt; 2807/2019 1720 10.00.00.89 Datge</drawingfile>					30.8	9-							
	AD WE HO PC SP PT	0/T - Aug 0/V - Aug 3 - Wa 23 - Wir 23 - Wir 2T - Sta - Pus	eline core ( eline core ( ndard pene	/ bit 63.5 mr 85.0 mr etration	n) est	Grap	➤ Inflov ☐ Parti ☐ Com Ohic Lo ☐ Core indica — No co	XW - Extr   HW - High   Loss   MW - Mod   Silete Loss   FR - Fres   Fres   Fres   Fres   Fres   Fres   Fres   Stren   VL - Very   Less   Less   VL - Low   M - Med   H - High   re recovery   VH - Very	<b>gth</b> Low um High	Defect FT - Fault SS - Shear: SZ - Shear: SZ - Shear: BP - Beddin SM - Seam IS - Infilled JT - Joint CO - Contac CZ - Crushe VN - Vein FZ - Fractur BSH - Beddin DB - Drilling	Seam  tt d Zone ed Zone g parting Seam et d Zone ee Zone g Shear	Infilling/Coat CN - Clean SN - Stain VN - Veneer CO - Coating RF - Rock fra G - Gravel S - Sand Z - Silt CA - Calcite CL - Clay FE - Iron QZ - Quartz X - Carbona	SL - Slickensided POL - Polished S - Smooth RF - Rough yr - Very Rough  Shape PR - Planar CU - Curved UN - Undulating ST - Stepped IR - Irregular





Carmichael Tompkins Property Group Pty Ltd
Kambala Girls School
794 New South Head Rd, Rose Bay
CORE PHOTO BH104
(PHOTO 1 OF 1)

PSM3759-005L

Figure A4



#### **BH105**

Page 1 of 3

# **Engineering Log - Non Cored Borehole**

Client: Carmichael Tompkins Property Group Pty Ltd

Kambala Girls School Project Name:

Rose Bay Hole Location: Hole Position:

340219.0 m E 6251470.0 m N MGA94 Zone 56

Drill Model and Mounting: CE180 Track Hole Diameter: 80 mm

Inclination:

-90°

RL Surface:

Project No.:

Commenced:

Completed:

Logged By:

Checked By:

LR

AS

39.70 m

PSM3759

11/07/2019

11/07/2019

		le D			: iviouriting.		mm				Bearing: Datum: AHD Operator: BM
			ı	Drill	ing Informati	ion					Soil Description Observations
Method		Penetration	Support	Water	Samples Tests Remarks	Recovery	RL (m)	Depth (m)	Graphic Log	Classification Symbol	Material Description  SOIL NAME: Plasticity, behaviour or particle characteristics of primary component, colour, secondary components, additional observations  Material Description  SOIL NAME: Plasticity, behaviour or particle characteristics of primary components, additional observations  Naterial Description  Solid Name: Plasticity, behaviour or particle characteristics of primary components, additional observations  Naterial Description  Solid Name: Plasticity, behaviour or particle characteristics of primary components, additional observations
AD/V			Z		SPT - 2, 2, 3, N = 5 0.50 m		38.7	1-		OL	Silty SAND: medium grained, dark brown; grass and roots.  SAND: fine to medium grained, dark brown-grey.  M  VL  SAND: medium grained, pale grey.
17.21 TU.UU.UU.B9 Daggal Felice and Map Tool   LID PSM 3.02.1 A/19-03-06 Prj. PSM 3.02.0 ZU19-02-24				12/07/19	SPT - 1, 2, 2, N = 4 2.00 m		37.7	2-		SM	Becomes yellow brown.  2.00: SPT recovery 150 mm.  Silty SAND: medium grained, orange brown.  W
							36.7	3-			Continued on cored borehole sheet
FOW AD NONCORE BITING AD POMOZOGI, OF J. C.D. ANTIGNIES AND SOUTED BITING							35.7	4-			
W S.VZ.Z.LIB.GLB LOG	AD. AD. WE SP PT AS	/T - // V - // i -W; T-Sta - Pu - Au	Auge ashb anda ish ti iger	er dril er dril eore erd po ube Scre	ling TC bit ling V bit enetration test wing		R	stance efusal	,	> Inflo ⊲ Par	Water low U - Undisturbed Sample Intial Loss Smples and Tests Intial Loss Smplete Loss Intial Loss



# BH105

Page 2 of 3

# **Engineering Log - Cored Borehole**

Client: Carmichael Tompkins Property Group Pty Ltd

Project Name: Kambala Girls School

Hole Location: Rose Bay
Hole Position: 340219.0 m E 6251470.0 m N MGA94 Zone 56

Tiole i Osition.

Checked By: AS

Project No.:

Commenced:

Completed:

Logged By:

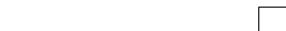
PSM3759

11/07/2019

11/07/2019

LR

	Drill Model and Mounting: CE180 Track Barrel Type and Length: NMLC - 1.5 m								clination:	-90°	RL Surfac							
$\vdash$	Barı	el Ty	e and L	.ength	1:	NMLC	C - 1.5	m Bo	earing:		Datum:	AHD	Ope	rator: BM				
		Dril	ling Info	rmati	on				Rock Sub	stance			R	Rock Mass Defects				
Method	Water	RQD (%)	Samples and Field Tests	WPT (Lugeons)	RL (m)	colour, fabric/texture, inclusions or minor			ROCK NAME: particle/grain characteristics, colour, fabric/texture, inclusions or minor components moisture mineral composition alteration			Weathering ≳ ≩ ≩ %	Strength Is(50)  • - Axial • - Diametral • • • • • • • • • • • • • • • • • • •	Defect Spacing (mm)	Defect Descriptions / Comments  Description, alpha/beta, infilling or coating, shape, roughness, thickness, other			
Dagel Fence and Map Tod I Lib: PSM 3.02.1 2019 03-06 Ptj: PSM 3.02.0 2019-02-24			<u> </u>		37.7 38.7	- - 1— - 2—		Continued from non-cored	harabala ak		X 1 8 6 tt							
ol   LID: PSM 3.02.1 2019-0	<	]		_	36.7	3-		SANDSTONE: medium to red-brown and orange, por massive. No core 180 mm. SANDSTONE: coarse grain	coarse grain orly develop ned, orange	ned, dark ed bedding,				BP, 0°, FE SN, PR, VR BP, 0°, FE SN, IR, VR BP, 0°, FE SN, IR, VR SM, 0°, CL, PR, S, 20 mm BP, 0°, FE SN, PR, RF				
25/07/2019 17:20 10:00:00:69	O	65	ls(50) d=3.3 a=2.7 MPa	_	35.7	- - 4- -		poorly developed bedding, SANDSTONE: medium to orange-brown and pale gra developed, thinly laminated  Trace sub-angular gravel u	trace grave coarse grain y, poorly-de d.	l and clay. ned,				BP, 0°, FE SN, PR, VR BP, 0°, FE SN, PR, VR BP, 0°, FE SN, PR, RF BP, 5°, FE SN, PR, RF BP, 5°, FE SN, PR, RF BP, 5°, FE SN, PR, RF				
SM3759.GPJ < <drawingfile>&gt;</drawingfile>		66	Is(50) d=1.1 a=0.9 MPa			-		SANDSTONE: medium gr grey, well-developed bedd laminated.						−BP, 0°, FE SN, PR, RF				
PSM 3.02.2 LIB.GLB Log PSM AU CORE BH PSM3759.GPJ	Method  AD/T - Auger drilling TC bit AD/V - Auger drilling V bit WB - Washbore HQ3- Wireline core (63.5 mm) PQ3- Wireline core (85.0 mm) SPT - Standard penetration test PT - Push tube WPT - Water pressure test  Wester    Inflow						> Inflov □ Parti ■ Com □ Core i □ indica □ No co	al Loss plete Loss pg/Core Loss ecovered (hatching tes material) re recovery	XW - Extr HW - Higi MW - Mod	<b>ngth</b> y Low dium n y High	FT - Faul SS - She SZ - She	ar Surface ar Zone ding parting m ed Seam t tact shed Zone t ture Zone ding Shear	Infilling/Coai CN - Clean SN - Stain VN - Veneer CO - Coating RF - Rock fre G - Gravel S - Sand Z - Silt CA - Calcite CL - Clay FE - Iron QZ - Quartz X - Carbona	SL - Slickensided POL - Polished S - Smooth RF - Rough yR - Very Rough  Shape PR - Planar CU - Curved UN - Undulating ST - Stepped IR - Irregular				



Project No.:

Commenced:

Completed:

Logged By:

Checked By:

PSM3759

11/07/2019

11/07/2019

LR

AS

Borehole ID **BH105** 

Page 3 of 3

# **Engineering Log - Cored Borehole**

Client: Carmichael Tompkins Property Group Pty Ltd

Project Name: Kambala Girls School

Rose Bay Hole Location: Hole Position: 340219.0 m E 6251470.0 m N MGA94 Zone 56

Drill Model and Mounting: CE180 Track Barrel Type and Length: NMLC - 1.5 m									on: -90°	RL Surface: 39.70 m Datum: AHD Operator: BM						
		Drill	ing Info	ormat	ion			Rock	Substance			R	ock Mass Defects			
Method	Water	RQD (%)	Samples and Field Tests	WPT (Lugeons)	RL (m)	Depth (m)	Graphic Log	Material Descripti ROCK NAME: particle/grain c colour, fabric/texture, inclusi components, moisture, mineral cor	characteristics, ons or minor		Strength Is(50)  • - Axial  • - Diametral	Defect Spacing (mm)	Defect Descriptions / Comments  Description, alpha/beta, infilling or coating, shape, roughness, thickness, other			
NMLC		66	ls(50) d=1.2 a=1 MPa		33.7	- - - 6—		SANDSTONE: medium grained, p grey, well-developed bedding, thin laminated.(continued)	ale grey and dark ly laminated to				—BP, 0°, CL VN, PR, S `\BP, 0°, CL VN, PR, S `\BP, 0°, X VN, PR, RF			
.02.0 2019-02-24		87	Is(50) d=1.5 a=0.5 MPa		32.7	7-		No core 150 mm.  Becomes inclined up to 10°.  SANDSTONE: medium grained, o poorly-developed to developed be laminated.	range brown, dding, thinly				— BP, 10°, CL VN, PR, S — BP, 0°, FE SN, PR, RF ↑ BP, 0°, FE SN, PR, RF			
3M3759.GPJ < <drawngfile>&gt; 25(072019 17:20 10.00.00 69 Dagel Fence and Map Tool   Lb: PSM 3.02.1 2019-03-06 Prj PSM 3.02.0 2019-02-24</drawngfile>			д=0.6 а=1 МРа		30.7 31.7	8— 9—		Hole Terminated at 7.46 m					-LBP, 0°, FE SN, PR, RF			
B.GLB Log PSM AU CORE BH PSM3759.GPJ	AD WE HQ PQ SP	/T - Aug /V - Aug 3 - Wa 3- Win 3- Win	eline core ( eline core ( ndard pene	/ bit 63.5 mr 85.0 mr	n)	<	> Inflor ☐ Parti ■ Com	x	Weathering  - Extremely Weathered - Highly Weathered - Moderately Weathered - Stightly Weathered - Fresh Strength - Very Low - Low	Defec FT - Fault SS - Shea SZ - Shea BP - Bedd SM - Sean IS - Infille JT - Joint CO - Cont	ar Surface ar Zone ding parting n ed Seam act	Infilling/Coat CN - Clean SN - Stain VN - Veneer CO - Coating RF - Rock fra G - Gravel S - Sand Z - Silt CA - Calcite	SL - Slīckensided POL - Polished S - Smooth RF - Rough			

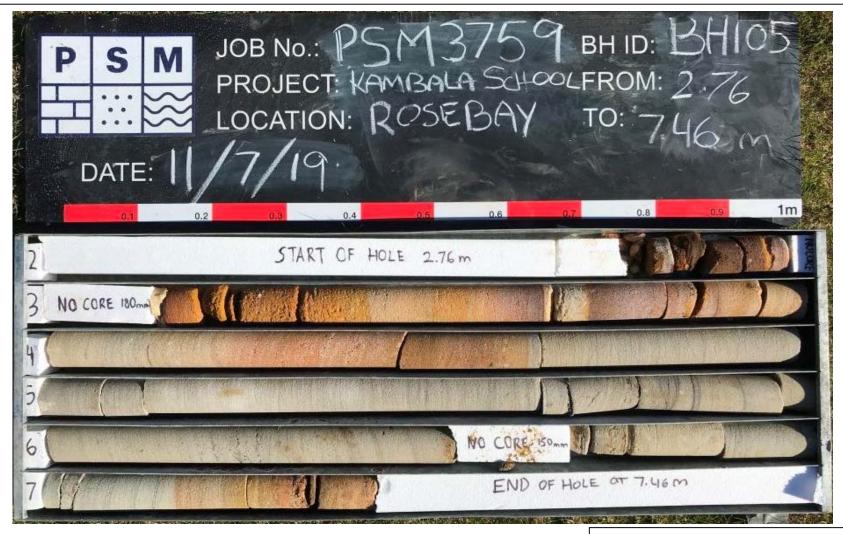
Core recovered (hatching indicates material) WPT - Water pressure test No core recovery Logged in accordance with AS 1726:2017 Geotechnical site investigations

L - Low
M - Medium
H - High
VH - Very High
EH - Extremely High

CO - Contact
CZ - Crushed Zone
VN - Vein
FZ - Fracture Zone
BSH - Bedding Shear
DB - Drilling Break

Z - Silt
CA - Calcite
CL - Clay
FE - Iron
QZ - Quartz
X - Carbonaceous

PR - Planar CU - Curved UN - Undulating ST - Stepped IR - Irregular





Carmichael Tompkins Property Group Pty Ltd
Kambala Girls School
794 New South Head Rd, Rose Bay
CORE PHOTO BH105
(PHOTO 1 OF 1)

PSM3759-005L

Figure A5



#### **BH106**

Page 1 of 3

# **Engineering Log - Non Cored Borehole**

Client: Carmichael Tompkins Property Group Pty Ltd

Kambala Girls School Project Name:

Rose Bay Hole Location:

Hole Position: 340202.0 m E 6251463.0 m N MGA94 Zone 56

Drill Model and Mounting: CE180 Track Inclination: -90° Rearing:

Checked By: RL Surface:

Project No.:

Commenced:

Completed:

Logged By:

39.40 m ΔHD Datum:

LR

AS

PSM3759

11/07/2019

11/07/2019

	Hole Diameter: 80 mm											Bearing: -90° RL Surface:  Datum:	39.2 AH[	40 m D	1	0	Operator: BM				
				D	rill	ing Informa	ntion					Soil Description					Observations				
	Method	Penetration	t	noddne	Water	Samples Tests Remarks	Consort	RL (m)	Depth (m)	Graphic Log	Classification Symbol	Material Description  SOIL NAME: Plasticity, behaviour or particle characteristics of primary component, colour, secondary components, additional observations	elative	enet U	JCS (Pa)	eter	Structure, Zoning, Origin, Additional Observations				
10.00 00 69 Datgel Ferce and Map Tool   Lib: PSM 3.02.1 2019-403-46 Pt; PSM 3.02.0 2019-02:24				_		SPT - 2, 3, N = 6 0.50 m SPT - 2, 1, 2 N = 3 2.00 m		36.4 37.4 38.4			OL	Silty SAND: medium grained, dark brown; grass and roots.  Silty SAND: medium grained, dark brown.  Silty SAND: fine to medium grained, dark brown and grey.	L VL	1 2 2	Ø,	· 6	0.00: TOPSOIL 0.05: FILL  0.50: SPT recovery 400 mm.  2.00: SPT recovery 450 mm.				
PSM AU NONCORE BH NZ AU PSM3759.GPJ < <drawingfile>&gt; 25/07/2019 17.21 10.</drawingfile>	AI	D/T D/V		ger ger	drill drill	ing TC bit	_	Penetra No resi			<i>W</i>	nter Samples and Tests Moi. W U - Undisturbed Sample	isture D M	e <b>Co</b> i	<i>ndit</i>	ion	Consistency/Relative Density VS - Very soft S - Soft F - Firm				
// 3.02.2 LIB.GLB Log	SI P A	/B - PT - T - S -	Was Stan Push Auge	hbo dar i tu er S	ore od pe be Screv	enetration test	<b>V</b> Z		efusal			splete Loss ES - Environmental Sample TW - Thin Walled LB - Large Disturbed Sample	vv	- vv	et		St - Stiff   St - Stiff				



# **BH106**

Page 2 of 3

# **Engineering Log - Cored Borehole**

Client: Carmichael Tompkins Property Group Pty Ltd

Project Name: Kambala Girls School

Hole Location: Rose Bay Hole Position: 340202.0 m E 6251463.0 m N MGA94 Zone 56

	Drill Model and Mounting: CE180 Tra Barrel Type and Length: NMLC - 1.9								nclination: Bearing:	-90°	RL Surface Datum:	ce: 39.4 AHD		erator: BM
		Dril	ling Info	rmat	ion				Rock Subs	tance				Rock Mass Defects
Method	Water	RQD (%)	Samples and Field Tests	WPT (Lugeons)	RL (m)	Depth (m)	Graphic Log	Material ROCK NAME: partic colour, fabric/textui components, moisture, m	re, inclusions or	minor ion alteration	Weathering ≳ ₹ % % £	Strength Is(50)  • - Axial • - Diametral	Defect Spacing (mm)	Defect Descriptions / Comments  Description, alpha/beta, infilling or coating, shape, roughness, thickness, other
					38.4	- - 1								
PSM 3.02.0 2019-02-24					37.4	2								
e and Map Tod   Lib: PSM 3.02.12019-03-06 Prj: PSM 3.02.0 2019-02-24					36.4	3-								
ile>> 25/07/2019 17:20 10.00.00.69 Datgel Fenc		28	ls(50) d=0.7 a=0.3 MPa		35.4	4		Continued from non-core SANDSTONE: medium to red-brown and pale grey,	o coarse graine	d,				-BP, 0°, FE SN, PR, RF -BP, 0°, FE SN, PR, RF -BP, 0°, CL VN, PR, S -BP, 0°, KL, PR, RF -SM, 0°, CL CO, PR, S, 10 mm -BP, 0°, CL VN, PR, S -BP, 0°, CL VN, PR, S -BP, 0°, FE SN, PR, RF -BP, 5°, FE SN, PR, RF
SM3759.GPJ < <drawingfile>&gt;</drawingfile>		91				-	<u> </u>	No core 130 mm.						— BP, 5°, KL, PR, RF — BP, 5°, KL, PR, RF — BP, 0°, FE SN, PR, RF
PSM 3.02.2 LIB.GLB Log PSM AU CORE BH PSM3759.GPJ	Method  Mater  AD/T - Auger drilling TC bit AD/N - Auger drilling V bit WB - Washbore HQ3- Wireline core (63.5 mm) PQ3- Wireline core (65.0 mm) SPT - Standard penetration test PT - Push tube WPT - Water pressure test  WPT - Water pressure test  Method Water Inflow Partial Loss Complete Loss  Graphic Log/Core Lo Inflow Core recovered (hat indicates material) No core recovery  Region of the core of th							ov al Loss plete Loss pg/Core Loss ecovered (hatching tes material) re recovery	HW - Highly	nely Weathered Weathered rately Weathered by Weathered weathered yth ow im	FT - Fau SS - She SZ - She BP - Bed SM - Sea IS - Infill JT - Join CO - Con CZ - Cru: VN - VE - Frac	ar Surface ar Zone ding parting m led Seam it tact shed Zone n tutzezone ding Shear	Infilling/O  CN - Clean SN - Stain VN - Vener CO - Coal RF - Rock G - Grave S - Sand Z - Silt CA - Calcit CL - Clay FE - Iron QZ - Quart X - Carbo	### Acting

Project No.:

Commenced:

Completed:

Logged By:

Checked By:

PSM3759

11/07/2019

11/07/2019

LR

AS



#### **BH106**

Page 3 of 3

# **Engineering Log - Cored Borehole**

Client: Carmichael Tompkins Property Group Pty Ltd

Kambala Girls School Project Name:

Rose Bay Hole Location: Hole Position: 340202.0 m E 6251463.0 m N MGA94 Zone 56

Drill Model and Mounting: CE180 Track Inclination: \_an° RL Surface: 39.40 m

- 1	Drill Model and Mounting: CE180 Track Barrel Type and Length: NMLC - 1.5 m								RL Surfa Datum:	ace: 39.40 AHD		rator: BM
r			ing Info					Rock Substance				Pock Mass Defects
Method	Water	RQD (%)	Samples and Field Tests	WPT (Lugeons)	RL (m)	Depth (m)	Graphic Log	Material Description  ROCK NAME: particle/grain characteristics, colour, fabric/texture, inclusions or minor components, moisture, mineral composition, alteration	Weathering	O - Diametral	Defect Spacing (mm)	Defect Descriptions / Comments  Description, alpha/beta, infilling or coating, shape, roughness, thickness, other
		91	Is(50) d=0.5 a=0.7 MPa			-		SANDSTONE: medium grained, pale grey and orange, developed bedding, thinly laminated, dark grey banding.(continued)				— BP, 0°, FE SN, PR, RF — BP, 0°, CL VN, PR, S
NMLC		59	Is(50) d=1.3 a=0.4 MPa		33.4	6		Becomes dark red brown No core 410 mm.				BP, 0°, FE SN, UN, RF BP, 0°, FE SN, UN, RF BP, 0°, FE SN, PR, RF
2.0 2019-02-24			Is(50) d=0.5 a=0.4 MPa		32.4	7-		Becomes pale grey. Becomes dark red-brown.  Hole Terminated at 7.21 m				BP, 0°, FE SN, IR, RF  - SM, 5°, Fe & Clay, PR, S, 15 mm - BP, 0°, FE SN, PR, VR - BP, 0°, KL, IR, VR
ance and Map Tool   Lib: PSM 3.02.1 2019-03-06 Prj: PSM 3.0					31.4	8-						
PSM AU CORE BH PSM3789.GPJ <-C)rawing-file>> 25/07/2019 17/20 10.00.00.69 Datgel Fence and Map Tod I Llb. PSM 30.2 1 2019-03-08-Prj. PSM 3 02.0 2019-02-24					30.4	9						
PSM AU CORE BH PSM3:	AD. WE HQ	/T - Aug /V - Aug 3 - Wa 3- Win	ethod  er drilling \ er drilling \ shbore eline core (	/ bit 63.5 mi	m)	<	> Inflo	Tilgrily Wodaliored	FT - Fa SS - Sh SZ - Sh	ear Surface ear Zone dding parting	Infilling/Coat CN - Clean SN - Stain VN - Veneer CO - Coating RF - Rock fra	SL - Slickensided POL - Polished S - Smooth RF - Rough

Project No.:

Commenced:

Completed:

Logged By:

Checked By:

PSM3759

11/07/2019

11/07/2019

LR

AS

PQ3- Wireline core (85.0 mm) SPT- Standard penetration test PT - Push tube

WPT - Water pressure test

Logged in accordance with AS 1726:2017 Geotechnical site investigations

Graphic Log/Core Loss Core recovered (hatching indicates material) No core recovery

| Strength | VL - Very Low | L - Low | M - Medium | H - High | VH - Very High | EH - Extremely High |

SM - Seam IS - Infilled Seam JT - Joint CO - Contact CZ - Crushed Zone VN - Vein FZ - Fracture Zone BSH - Bedding Shear DB - Drilling Break

RF - Rock fragment
G - Gravel
S - Sand
Z - Silt
CA - Calcite
CL - Clay
FE - Iron
QZ - Quartz
X - Carbonaceous

Shape
PR - Planar
CU - Curved
UN - Undulating
ST - Stepped
IR - Irregular





Carmichael Tompkins Property Group Pty Ltd
Kambala Girls School
794 New South Head Rd, Rose Bay
CORE PHOTO BH106
(PHOTO 1 OF 1)

PSM3759-005L

Figure A6

Appendix B
Geotechnical and Analytical Laboratory Testing
Results





# POINT LOAD STRENGTH INDEX TEST RESULTS

Job No.	PSM3759	)													Sheet	1	of	2	
Project	Kambala	Girls Scho	ool																
Test Method		.1 - 1993 Me		-		-	eering	Sampling Technique	NLMC						Sampling Date 11-12/0				
		Determinatio	on of Point	Load S	trength	Index		Storage History	North F	Ryde of	fice indo	or core	storage	area	Testing Date 11-12/07/2019				
Test Machine	GSA 6500							Moisture Condition	Natura	1					Tested B	y	MB		
Calibration Date	e 3/12/2012							Loading Rate	< 30 se	econds									
			Donth			Dia	ametral T	ests			Axial, E	Block, a	nd Irre	gular Lui	mp Tests			AS 1726	
Rock T	Гуре	Location	Depth	D	L	Р	I <sub>s(50)</sub>	E-llowe Manda	W	D	L	Р	l <sub>e</sub>	I <sub>s(50)</sub>				Strength	
			(m)	(mm)	(mm)	(kN)	(MPa)	Failure Mode	(mm)	(mm)	(mm)	(kN)	(MPa)	(MPa)	Faiit	ıre Mo	oae	Class	
Sandstone		BH101	5.78	50	75	0.4	0.2	Parallel to bedding	50	39	N/A	0.4	0.2	0.2	Through	subs	tance	L	
Sandstone		BH101	6.88	50	66	3.3	1.3	Parallel to bedding	50	35	N/A	3.3	1.5	1.4	Through			Н	
Sandstone		BH101	7.30	50	<i>5</i> 5	1.8	0.7	Parallel to bedding	50	41	N/A	1.6	0.6	0.6	Through			M	
Sandstone		BH102	2.89	50	68	0.8	0.3	Parallel to bedding	50	34	N/A	1.3	0.6	0.6	Through	subs	tance	M	
Sandstone		BH102	3.92	50	<i>7</i> 5	2.7	1.1	Parallel to bedding	50	43	N/A	2.4	0.9	0.9	Through			M/H	
Sandstone		BH102	4.98	50	95	3.6	1.4	Parallel to bedding	50	37	N/A	2.5	1	1	Through			Н	
Sandstone		BH102	5.88	50	85	4.4	1.7	Parallel to bedding	50	45	N/A	2.8	1	1	Through			Н	
Sandstone		BH102	6.91	50	<i>7</i> 3	1.3	0.5	Parallel to bedding	50	33	N/A	1.5	0.7	0.7	Through	subs	tance	M	
Sandstone		BH103	2.83	50	80	2.6	1	Parallel to bedding	50	38	N/A	1.9	0.8	0.8	Through	subs	tance	M/H	
Sandstone		BH103	3.92	50	<i>7</i> 3	1.6	0.7	Parallel to bedding	50	25	N/A	1.2	0.7	0.7	Through	subs	tance	M	
Sandstone		BH103	4.94	50	<i>5</i> 8	2.1	0.8	Parallel to bedding	50	30	N/A	3.5	1.8	1.7	Through	subs	tance	M/H	
Sandstone		BH103	5.87	50	95	2.2	0.9	Parallel to bedding	50	45	N/A	4.7	1.6	1.7	Through	subs	tance	M/H	
Sandstone		BH103	6.92	50	80	0.1	0.1	Parallel to bedding	50	38	N/A	0.1	0.1	0.1	Through	subs	tance	L	
Sandstone		BH104	1.33	50	90	1.1	0.4	Parallel to bedding	50	33	N/A	1.1	0.5	0.5	Through	subs	tance	M	
Sandstone		Bh104	2.55	50	84	2.5	1	Parallel to bedding	50	37	N/A	2.2	1	0.9	Through	subs	tance	M/H	
Sandstone		BH104	3.41	50	92	3.2	1.3	Parallel to bedding	50	44	N/A	3.5	1.3	1.3	Through	subs	tance	H	
Sandstone		BH104	4.58	50	87	2.3	0.9	Parallel to bedding	50	36	N/A	2.4	1.1	1	Through	subs	tance	M/H	
Sandstone		BH104	5.53	50	68	3.1	1.2	Parallel to bedding	50	34	N/A	3.3	1.5	1.5	Through	subs	tance	H	
Sandstone		BH104	6.66	50	77	2.1	0.8	Parallel to bedding	50	31	N/A	2.5	1.3	1.2	Through	subs	tance	M/H	
Sandstone		BH105	3.84	50	85	8.3	3.3	Parallel to bedding	50	25	N/A	4.7	2.9	2.7	Through	subs	tance	H/VH	
Sandstone		BH105	4.46	50	58	2.8	1.1	Parallel to bedding	50	32	N/A	2	1	0.9	Through	subs	tance	M/H	
Sandstone		BH105	5.69	50	90	2.9	1.2	Parallel to bedding	50	36	N/A	2.3	1	1	Through	subs	tance	M/H	
Sandstone		BH105	6.48	50	63	3.7	1.5	Parallel to bedding	50	32	N/A	1.2	0.6	0.5	Through			M/H	
Sandstone		BH105	7.35	50	50	1.4	0.6	Parallel to bedding	50	40	N/A	2.6	1	1	Through			М	
Sandstone		BH106	4.12	50	80	1.7	0.7	Parallel to bedding	50	28	N/A	0.7	0.4	0.3	Through			М	
By:	MB/LR			Check	æd:	GM									Date:		17/7/2	2019	



# **Pells Sullivan Meynink**

# POINT LOAD STRENGTH INDEX TEST RESULTS

Job No.	PSM3759														Sheet	2	of	2
Project	Kambala	Girls Scho	ool															
Test Method Test Machine	Purposes, Determination of Point Load Strength Index								NLMC North I	Ryde of	fice indo	or core	area	Samplin Testing Tested E	07/2019 07/2019			
Calibration Date								Moisture Condition  Loading Rate		econds						,	MB	
			D //			Dia	ametral 7		1 33 3		Axial. I	Block, a	and Irre	gular Lu	mp Tests	AS 1726		
Rock T	ype	Location	Depth (m)	D (mm)	L (mm)	P (kN)	I <sub>s(50)</sub> (MPa)	Failure Mode	W (mm)	D (mm)	L (mm)	P (kN)	I <sub>s</sub> (MPa)	I <sub>s(50)</sub> (MPa)	1	Failure Mode		Strength Class
Sandstone		BH106	5.26	50	63	1.3	0.5	Parallel to bedding	50	33	N/A	1.6	0.8	0.7	Throug			М
Sandstone Sandstone		BH106 BH106	6.22 6.92	50 50	50 80	3.2 1.2	1.3 0.5	Parallel to bedding Parallel to bedding	50 50	24 35	N/A N/A	0.7 0.9	0.4 0.4	0.4 0.4	Through Through			M/H M
By:	MB/LR			Check	ed:	GM									Date:		17/7/2	