

G3 56 Delhi Road North Ryde NSW 2113

**P** +61-2 9812 5000

F +61-2 9812 5001E mailbox@psm.com.au

www.psm.com.au

Our Ref: PSM3828-008L REV1

13 December 2022

Associate JBS&G Level 1 50 Margeret Street Sydney NSW 2000 MHodgins@jbsg.com.au

Attention: Mitchell Hodgins

**Dear Mitchell** 

### RE: RYDE HOSPITAL REDEVELOPMENT RESULTS OF GEOTECHNICAL INVESTIGATION

### 1. Introduction

This report has been prepared in response to the submissions and agency advice received for SSD-36778089, being the Ryde Hospital Redevelopment (Concept and Stage 1). This report also provides an assessment of the design changes made to the development following SSDA lodgement. The design changes include the following:

- Stage 1 Works:
  - Minor expansion of Stage 1 Works area.
  - Removal of temporary decanting structure
  - Removal of some civil works to the at-grade car park and existing loading dock area.
- Concept Proposal:
  - Refinements to the podium and tower building envelopes to reflect further design development
  - Relocation of the indicative canopy areas
  - Removal of the multi-deck car park building envelope located along the Ryedale Road frontage and replacement with at-grade car parking
  - Introduction of a new building envelope to accommodate a low-height multi-deck car park located along the Denistone Road frontage
  - Inclusion of a single basement level to accommodate car parking below ground.

For further description of the changes refer to the Submissions Report prepared by Ethos Urban and the Architectural Drawings prepared by STH.

This letter presents the results of the geotechnical investigation and slope stability analysis undertaken by Pells Sullivan Meynink (PSM) for the proposed re-development of Ryde Hospital, Eastwood. The investigation was undertaken in accordance with our proposal PSM3828-007L, dated 10 May 2022. Approval to proceed was provided in an email from Mitchell Hodgins dated 14 June 2022.

To assist us in preparing this proposal, we were provided with the following document:

• Request for Quotation – Geotechnical & Contamination (ref. HIxxx dated April 2022).

### 2. Geotechnical Investigation

The fieldwork was undertaken between 1 and 3 August 2022. The works occurred under the full-time supervision of a PSM geotechnical engineer, who undertook the following tasks:

- Setting out the investigation locations
- Directing the reinstatement of concrete and asphalt surfaces where required
- Preparing engineering logs of the materials encountered
- Collection of disturbed samples for laboratory testing.

Prior to the investigation, on-site service location "scans" were undertaken by a licensed service locator under the direction of PSM.

Ten (10) boreholes (BH01A to BH10A) were drilled at the site, locations presented on Figure 1. Drilling was undertaken using a track mounted drill rig. The investigation locations of boreholes were recorded with a handheld GPS unit with a horizontal accuracy of approximately +/- 5 m.

Boreholes were drilled to depths of 6m. Boreholes were advanced initially using a V-bit in soil units and very low strength rock before changing over to a TC-bit in more competent rock units.

Engineering borehole logs are included in Appendix A.

Figures 2 to 4 present some selected site photographs of the fieldwork.

On 24 August 2022 a Principal Geotechnical Engineer and a Geotechnical Engineer from PSM completed a site walkover of the land south of the Hospital Site. The purpose of the inspection was to assess the geotechnical condition and performance of the steep slope immediately south of the Hospital Site. Access to the steep batter immediately south of the site was limited due to dense vegetation and uneven ground. This batter is referred to herein as the **Southern Fill Batter**.

### 3. Geotechnical Laboratory Testing

Five (5) bulk soil samples from the site were recovered for California Bearing Ratio (CBR) testing at an accredited geotechnical laboratory.

The following sample preparation was undertaken for the CBR testing:

- Compact to 98% standard MDD, at optimum moisture content (OMC)
- Four (4) day-soaked sample; and
- 4.5 kg surcharge.

Table 1 presents a summary of the CBR test results. The test result sheets are included in Appendix B.

### Table 1 – CBR Test Results

Sample ID (Depth)	Material Description	Soaked CBR (%)	OMC (%)	Standard Maximum Dry Density (t/m <sup>3</sup> )	Swell (%)
BH03A (0.5m – 1.1m)	CLAY trace gravel trace sand	2.5	19.0	1.71	1.0
BH05A (0.5m – 1.2m)	CLAY with gravel	4.0	18.0	1.72	0.5
BH06A (0.3m – 0.8m)	CLAY	1.5	21.4	1.63	3.0
BH08A (0.6m – 1.3m)	Gravelly CLAY	7.0	17.2	1.76	0.0
BH09A (0.3m – 1.1m)	CLAY with gravel	5.0	15.8	1.82	0.5

### 4. Site Conditions

### 4.1 Geological Setting

The 1:100,000 Sydney Geological Map indicates the site is underlain by Ashfield Shale of the Wianamatta group (Rwa) which consists of black to dark-grey shale and laminite. Inset 1 presents an indicative site locality on the geological map.



Inset 1: Sydney geological map indicating approximate site location

### 4.2 Surface Conditions

The site is currently occupied by existing buildings, internal roads and various carparking areas with either asphalt or concrete pavement surfaces. The site is bounded by Fourth Avenue to the north, Denistone Road to the east and Ryedale Road to the west.

An ecological endangered community, the Blue Gum high forest, is located at the south of the site.

The site is sloped from the northeast boundary towards the southwest with a steep slope at the southern boundary, the Southern Fill Batter.

The level pads for buildings and carparks appear to have been formed by permanent cuts on the high side and fill platforms on the low side. The cuts are in residual clay and shale and were observed to be performing satisfactorily.

The downhill portions of the fill platforms are either retained by small retaining walls or are shaped to form a permanent batter. Along the southern boundary with the nature reserve, the Southern Fill Batter is inferred to have been formed by pushing fill over a steep natural batter comprising of shallow colluvium overlying residual clay overlying shale.

The Southern Fill Batter occurs immediately south of the Hospital site with an approximate 10 m change in elevation over a 20 m horizontal distance down to the bottom of the gully. During our inspection the following observations were made:

- The batter immediately south of the Site was heavily vegetated and was thus not able to be inspected
- At some locations the batter was estimated to be sloping between 1H:1V and 1.5H:1V
- The ground is generally uneven with some significant erosion gullies observed at location of preferential surface flows
- Significant amounts of debris including construction rubble was observed on the surface
- No significant land slips or instability was observed
- Evidence of surficial movement of the slope was observed.

Figures 5 and 6 present the existing slope and batter conditions.

### 4.3 Subsurface Conditions

The subsurface conditions are summarised in Table 2 and the depth at which each unit was encountered are summarised in Table 3.

Inferred Geotechnical Unit	Material Description			
CONCRETE / ASPHALT CONCRETE / ASPHALT: Up to 0.3 m thick				
ROADBASE: Gravelly SAND: fine to coarse grained, light brown, gr sub-angular to sub-rounded up to 20mm FILL				
	CLAY trace / with gravel with sand: medium to high plasticity, brown, gravel is sub-angular up to 20mm, sand is fine to medium grained			
NATURAL	CLAY: medium to high plasticity, brown mottled grey and red			
BEDROCK	SHALE: light grey to grey, extremely weathered to highly weathered, very low strength to low strength			

### Table 3 – Approximate Depth to Top of Inferred Geotechnical units Encountered in the Boreholes

	Elevation to Top of Inferred Unit (RL m AHD)						
BH ID	ASPHALT/ CONCRETE/ TOPSOIL	FILL	NATURAL	BEDROCK	EOH <sup>1</sup>		
BH01A	93.03	92.93	89.43	N/E	87.03		
BH02A	92.69	92.59	91.29	89.39	86.69		
BH03A	92.16	92.16	90.46	88.96	86.16		
BH04A	96.05	95.95	95.35	91.85	90.05		
BH05A	94.68	94.68	N/E	N/E	88.68		
BH06A	100.00	99.84	99.20	99.10	94.00		
BH07A	97.69	97.65	97.49	96.19	91.69		
BH08A	95.16	95.06	91.36	N/E	89.16		
BH09A	95.39	95.30	92.19	N/E	89.39		
BH10A	93.81	93.63	91.51	90.41	87.81		

<sup>1</sup> EOH = End of Hole

<sup>2</sup> N/E = Not Encountered

<sup>3</sup> Elevations are approximated from survey plans by Monteath & Powys with an estimated accuracy of approximately ±0.02 m

### 4.4 Groundwater

No groundwater monitoring was conducted for this investigation.

### 5. Slope Stability Analysis

We have completed global stability analysis of the Southern Fill Batter to determine the suitability and safety of the proposed road in this area.

### 5.1 Background

### 5.1.1 Documents Reviewed

The following documents were provided to PSM:

- Fire Trail Sections by ACOR Consultants Pty Ltd (ref. NSW210886-SK-CI-FIRE-TRAIL-SECTIONS dated 8 July 2022)
- Fire Trail Levels of section A and B by ACOR Consultants Pty Ltd (ref. NSW210886-SK-CI-FIRE-TRAIL-01-LEVELS dated 8 July 2022)
- Fire Trail Levels of section C by ACOR Consultants Pty Ltd (ref. NSW210886-SK-CI-FIRE-TRAIL-02-LEVELS dated 8 July 2022)
- Lower Ground EEC Line and Survey Contours by STH Consultants (ref. 10520, RHR-ARC-DR-SK\_0031 dated 24 February 2022)
- Detail Survey and Services Plan of Ryde Hospital by Monteath & Powys (ref. 21/0247 Sheet 1-5 dated 9 July 2021).

Based on the reviewed documents, we understand the following:

- The final top of embankment level of the development is at RL97.0 m
- We understand the proposed development in the drawing provided by STH Consultants is likely not the final design of the road and is a preliminary concept
- There are no changes planned envisaged for the Southern Fill Batter as access to this area is constrained by environmental issues.

### 6. Global Stability Assessment

Two-dimensional (2D) limit equilibrium stability analyses were undertaken using the commercial software package Slide2 v9.019 by Rocscience.

### 6.1 Geological Model

The geological model was developed based on the geotechnical investigation undertaken by PSM in 2019 (ref. PSM3828-002R) and 2022 (ref. PSM3828-008L) and our observations of the slope topography and condition.

The inferred ground conditions varied across the Site. The general ground conditions from the top of the slope comprise:

- Up to 0.3 m of ASPHALT/ CONCRETE/ TOPSOIL overlying
- Up to 6.0 m of existing FILL overlying
- Up to 1.0 m of NATURAL overlying
- Up to 12.0 m Class IV/ V Bedrock overlying
- Class III Bedrock.

We note that the deepest completed borehole over both geotechnical investigations was 11.27 m.

### 6.2 Analysis Sections

In this analysis, we have assessed three separate sections deemed critical along the preliminary geometry of the road. Inset 2 presents the locations of the analysed sections. The ground conditions of the sections have been assessed using borehole data from both geotechnical investigations. At other locations the road is located further than 7 m from the crest of the Southern Fill Batter and are thus considered less critical.



Inset 2: Analysed section for future development.

Geometry of the sections were derived using the commercially available data package Elvis Elevation and Depth – Foundation Spatial Data portal. From the reviewed documents, the FFL of the development is deemed to be at RL97.0 m hence geometry of the proposed road was assumed to be at RL 97.00 with a 2H:1V batter.

Insets 3 to 5 show the inferred subsurface conditions at the sections which have been adopted in the analysis.

### 6.3 Analysis Inputs and Assumptions

### 6.3.1 General

The following analysis inputs and assumptions were adopted in the assessment:

- The analyses above were undertaken assuming dry conditions (fully drained) for the slope. We understand that the previous investigation has conducted groundwater monitoring at boreholes located within the hospital and not around the slope area. Groundwater was not observed in the drilling of boreholes over both investigations. Furthermore, from observations on Site, we note that drainage of surface flows occurs over the face of the existing slope
- The following surcharge loads were adopted in the analyses:
  - 20 kPa along the location of the proposed road to be constructed.
- Deformations have not been assessed, nor their effects on adjacent structures e.g., proposed buildings etc.

Inset 3 to 5 present the base geometry adopted for each Section.

Material Name	Colo	or	Unit Weight (kN/m3)	Strength Type	Cohesion (kPa)	Phi (deg)	Water Surface
Fill			18	Mohr-Coulomb	4	25	None
Residual			18	Mohr-Coulomb	4	25	None
Bedrock A			22	Mohr-Coulomb	10	30	None
Bedrock B			22	Mohr-Coulomb	20	30	None

### Inset 3: Base Geometry for Section A



Mohr-Coulomb

30

30

None

22

### Inset 4: Base Geometry for Section B

Bedrock B



Material Name	Colo	r	Unit Weight (kN/m3)	Strength Type	Cohesion (kPa)	Phi (deg)	Water Surface
Fill			18	Mohr-Coulomb	4	25	None
Natural			18	Mohr-Coulomb	4	30	None
Bedrock A			22	Mohr-Coulomb	10	30	None
Bedrock B			22	Mohr-Coulomb	30	30	None

### Inset 5: Base Geometry for Section C

### 6.3.2 Geotechnical Parameters

Table 4 presents the summary of geotechnical parameters adopted for the stability analyses. The selected parameters are consistent with our general experience and also result in marginal stability of the steep portions of the Southern Fill Batter. This is consistent with the observed performance of these batters.

### Table 4 - Summary of Adopted Geotechnical Parameters

Unit Name	Unit Weight, γ (kN/m³)	Effective Cohesion, c' (kPa)	Effective Friction Angle, φ' (°)
ENGINEERED FILL	18	0	30
FILL	18	4	25
RESIDUAL	18	4	25
CLASS IV/V BEDROCK	22	10	30
CLASS III BEDROCK	22	20	30

Values have been adopted conservatively

1

### 6.4 Results of Global Stability Analyses

In our analysis we have explored the effect of the road embankment and traffic loads on the stability of the fill batter by analysing a road position between 1 and 10 m from the crest of the batter. The intention is to locate the distance at which the presence of the road embankment and traffic loads has close to no effect on the batter stability. We have assessed this to be where the FOS affecting the road embankment is more than 1.5 for the selected parameters, geometry, and groundwater conditions.

Table 5 presents the minimum required horizontal offsets of each section. The slip surfaces with FOS less than 1.5 at the minimum distance from the crest of the batter are presented in Appendix C for each section.

Section	Model Description	Minimum distance required from crest of batter (m)
Section A	<ul><li>Groundwater not considered</li><li>Circular surface search method</li></ul>	6
Section B	<ul><li>Groundwater not considered</li><li>Circular surface search method</li></ul>	7
Section C	<ul><li>Groundwater not considered</li><li>Circular surface search method</li></ul>	7

Table 5 – Summary of Required Horizontal Offsets

### 7. Discussion

### 7.1 Recommendations for road embankment

The purpose of this investigation and analysis has been to investigate the conditions of the steep fill batter located at the south of the site and the effect of a proposed road embankment at this location. We understand that it is not possible for environmental reasons to complete any stabilising works south of the boundary.

The slope in its current condition is marginally stable.

Following the results of the investigation and analyses in order to have negligible effects on the stability of this slope, we recommend that:

- A detailed survey of the boundary be completed identifying clearly the crest of the batter.
- Where a road embankment is proposed, this is located a minimum horizontal distance 7 m from the crest of the batter of the slope. This assumes that the road embankment is no higher than RL97.0m.
- Stormwater drainage be designed to capture surface flow on the site and thus reduce surface into the neighbouring site and particularly over the batter slope.

Alternatively, the road could be built on a "bridge" supported on piles founded in the Bedrock unit. In this case the road could be closer to the crest. Should this option be pursued specific geotechnical advice should be sought. Preliminary sizing of the piles should be based on advice below.

### 7.2 Piles (Compression)

Where piles are required, they should be designed in accordance with the requirements of an appropriate standard, such as AS 2159-2009, *Piling – Design and Installation*.

The parameters provided in Table 6 may assist in the preliminary design of piles BEDROCK A and B unit. INCLUDE ULTIMATE

Inferred Unit	Bulk Unit Weight (kN/m <sup>3</sup> )	Ultimate Shaft Adhesion (kPa) <sup>(1), (4)</sup>	Ultimate Bearing Pressure <sup>(3)</sup>	Allowable Bearing Pressure <sup>(2),</sup> <sup>(3)</sup>	Typical Long-Term Young's Modulus (MPa)	Poisson's Ratio
BEDROCK A	22	200	3000	1000	100	0.3
BEDROCK B	24	400	6000	3,500	700	0.25

### Table 6 - Foundation Engineering Parameters of Inferred Geotechnical Units

Notes:

- 2. End bearing pressure associated with a settlement of <1% of minimum pile dimension (assuming a clean pile base, to be verified during construction).
- 3. Under vertical centric loading in compression only.
- 4. Coincidence of shaft adhesion and end bearing to be considered in design.

For settlement of bored piles founded in BEDROCK, the following should be noted:

- Where the pile is sized using the serviceable end bearing pressure in Table 6 (i.e. assuming all the serviceability load is carried by the base), the settlement would be expected to be less than 1% of the pile diameter, and
- Where the design utilises the shaft resistance of socketed piles in rock, Pells (1999)<sup>1</sup> provides guidance on methods to assess settlements for such piles.

The location of the pile toes relative to the batter slope shall be reviewed by a suitably qualified geotechnical engineer to confirm the road is not affected by global stability issues.

Pile inspections to confirm the foundation conditions and verify the assumed design parameters are recommended. The inspection should be performed by a suitably qualified geotechnical engineer prior to pouring concrete. Details of the inspection regime are to be finalised once loading and construction details are finalised by the designer.

Where adjacent foundation details differ (e.g. pile and pad, differing loads or ground conditions) differential settlement should be assessed.

<sup>1.</sup> Assumes clean socket with roughness category R2 or better, to be verified during construction.

<sup>&</sup>lt;sup>1</sup> P.J.N. Pells (1999), State of Practice For the Design of Socketed Piles in Rock

### 7.3 Pavement advice

Subgrade CBR for pavement design depends on the material at the finished subgrade levels. Based on the CBR tests undertaken by PSM, we recommend a design subgrade CBR of 2.0% be adopted for the pavement design at the site. Should a higher design CBR be required, further testing at specific locations may be required and further advice should be sought.

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

**Yours Sincerely** 

Dal P.

KEN TONG LEE GEOTECHNICAL ENGINEER

DAVID PICCOLO PRINCIPAL

### Encl.

- Figure 1 Geotechnical Investigation Site Locality Plan
- Figure 2 Selected Site Photos (1 of 5)
- Figure 3 Selected Site Photos (2 of 5)
- Figure 4 Selected Site Photos (3 of 5)
- Figure 5 Selected Site Photos (4 of 5)
- Figure 6 Selected Site Photos (5 of 5)
- Appendix A Engineering Borehole Logs
- Appendix B CBR Results
- Appendix C Results of Slope Stability Analyses



### Legend



Notes

Aerial image sourced from Nearmap dated 17 May 2022.



Borehole Locations

50 m	S&G lospital Eastwood NSW/				
	GEOTECHNICAL INVESTIGATION				
Revision: A	SITE LOCALITY PLAN				
Paper Size: A3	PSM3828-008L	Figure 1			
50 m Revision: A Paper Size: A3	Ryde H Denistone Rd, I GEOTECHNICAL SITE LOCA PSM3828-008L	lospital Eastwood NSW INVESTIGATION LITY PLAN Figure 1			



Photo 1: General site photo looking north west from BH02A



Photo 2: General site photo looking south around BH07A



JBS&G Ryde Hospital Denistone Road, Eastwood NSW SELECTED SITE PHOTOGRAPHS (1 OF 5) 01/08/2022, 03/08/2022 and 24/08/2022 PSM3828-008L FIGURE 2



Photo 3: Typical FILL material encountered



Photo 4: Typical NATURAL material encountered



JBS&G Ryde Hospital Denistone Road, Eastwood NSW SELECTED SITE PHOTOGRAPHS (2 OF 5) 01/08/2022, 03/08/2022 and 24/08/2022 PSM3828-008L FIGURE 3



Photo 5: Typical BEDROCK unit encountered



Photo 6: Rig used for drilling

JBS&G

Ryde Hospital Denistone Road, Eastwood NSW SELECTED SITE PHOTOGRAPHS (3 OF 5) 01/08/2022, 03/08/2022 and 24/08/2022 PSM3828-008L FIGURE 4



O:\PSM3828\Docs Out\PSM3828-008L\Tools\[Figure 2-4.xlsx]Fig 2



Photo 7: Southern slope batter with dense vegetation



Photo 8: Southern slope looking North at Ryde Hospital



JBS&G Ryde Hospital Denistone Road, Eastwood NSW SELECTED SITE PHOTOGRAPHS (4 OF 5) 01/08/2022, 03/08/2022 and 24/08/2022 PSM3828-008L FIGURE 5



Photo 9: Exposed cut face at slope



Photo 10: Cracks and Deformations present on footpath

![](_page_16_Picture_4.jpeg)

JBS&G Ryde Hospital Denistone Road, Eastwood NSW SELECTED SITE PHOTOGRAPHS (5 OF 5) 01/08/2022, 03/08/2022 and 24/08/2022 PSM3828-008L FIGURE 6

O:\PSM3828\Docs Out\PSM3828-008L\Tools\[Figure 2-4.xlsx]Fig 2

Appendix A Engineering Borehole Logs

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		**

Method

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PSM S ADV

2019-03-06 Pri-

Fool | Lib: PSM 3.02.1

nd Man

2.04

AD/ TH NZ ALL

AD/V AD/V WB SPT PT

AS 8 -IB.GLB |

ALL NONCORF

SM

PSM

Borehole ID

**BH01A** 

### Page 1 of 2 **Engineering Log - Non Cored Borehole** PSM3828 Project No .: JBS&G Client: Commenced: 01/08/2022 Project Name: Ryde Hospital Redevelopment Completed: 01/08/2022 Hole Location: Refer to Figure 1 Logged By: KTL/SD Hole Position: 323260.0 m E 6258747.0 m N MGA94 Zone 56 Checked By: AS Drill Model and Mounting: Geoprobe 7822DT Inclination: -90° RL Surface: 93.03 m Hole Diameter: 120 mm Bearing: Datum: AHD Terratest Operator: **Drilling Information** Soil Description Observations Consistency / Relative Density Material Description Classification Symbol g Hand Samples Penetration SOIL NAME: Plasticity, behaviour or particle characteristics of primary Structure, Zoning, Origin, Additional Observations Moisture Condition Penetrometer Recovery Graphic L Tests Support UCS Water Remarks component, colour, secondary components, additional observations (kPa) RL Depth (m) (m) 100 200 300 500 z ASPHALT: Approx. 100mm.t. 0.10: INFERRED FILL ROADBASE: Gravelly SAND: fine to coarse D grained, light brown, gravel is sub-angular to sub-rounded up to 20mm and of SHALE origin. CLAY with gravel: medium to high plasticity, brown, gravel is sub-angular up to 20mm. SPT 0.50-0.95 m 5,9,12 N=21 VSt 92.0 1.50: SHALE PRESENT AT BOTTOM SPT 1.50-1.95 m OF SPT 5,5,7 N=12 91.0 D 2 Observed z St Not 90.0 3 SPT 3.00-3.45 m 4,5,7 N=12 3.60<sup>-</sup> INFERRED NATURAL CLAY: high plasticity, brown. СН 89.0 D н SPT 4.50-4.95 m 20,31,37 N=68

 
 Method
 Penetration

 - Auger drilling V bit
 No resistance

 - Washbore
 No resistance

 - Standard penetration test
 Refusal

 - Auger screwing
 Continuous push tube 1.5m long 76mm diameter

 Consistency/Relative Density

 VS
 Very soft

 S
 Soft

 F
 Firm

 St
 Stiff

 VSt
 Very stiff

 H
 Hard

 VL
 Very loose

 L
 Loose
 Samples and Tests Moisture Condition Water 
 Samples and Tests

 U
 - Undisturbed Sample

 D
 - Disturbed Sample

 SPT
 - Standard Penetration Test

 ES
 - Environmental Sample

 TW
 - Thin Walled

 LB
 - Large Disturbed Sample
 D M W - Dry - Moist - Wet  $\triangleright$ Inflow Partial Loss Complete Loss Loose Medium dense Dense Very dense Cemented Compact L MD D VD Ce C

Ρ	S	Μ
H		**

Borehole ID

BH01A Page 2 of 2

Cleart:       JBS430       Commenced:       01082022         Project Name:       Ryde Hospital Redevelopment       Complete State:       01082022         Hole Location:       Refer to Figure 1       Complete State:       01080202         Dell Model and Mounting:       Geogrado 7822DT       Inclination:       -90°       RL Surface:       92.03 m         Dell Model and Mounting:       Geogrado 7822DT       Inclination:       -90°       RL Surface:       92.03 m         Diffing Information:       Soll Description       Soll Description       Observations         Image: State of the state of	E	Ξn	ngineering Log - Non Cored Borehole												Project N	No.:		P	SM	382	28		
Drill Model and Mounting:     Geoprice 7822DT     Inclination:     -90'     RL Surface:     93.03 m       Hele Dammer:     120 mm     Bearing:     Datum:     AHD     Operator:     Translet       Image: Strates:     120 mm     Strates:		C P H H	lien roje ole ole	nt: ect Lo Po	Nai cat	ne: on: on:	JBS&G Ryde H Refer to 323260	i losp o Fię ).0 n	ital R gure 1 n E 62	edeve I 25874	lopm 7.0 m	ent n N MG	A94 Zone 5	56		Commer Complet Logged Checked	nced: ed: By: I By:		0 <sup>.</sup> 0 <sup>.</sup> K	1/08 1/08 TL/\$ S	3/20 3/20 SD	022	2
Drilling Information     Sold Description     Observations       using and construction restriction     sold Description     sold Description     sold Description       using and construction restruction     sold Description     sold Description     sold Description       using and construction restruction     sold Description     sold Description     sold Description       using and construction restruction     sold Description     sold Description     sold Description       using and construction restruction     sold Description     sold Description     sold Description       using and construction restruction     sold Description     sold Description     sold Description       using and construction restruction     sold Description     sold Description     sold Description       using and construction restruction     sold Description     sold Description     sold Description       using and construction restruction     sold Description     sold Description     sold Description       using and construction restruction     sold Description     sold Description     sold Description       using and construction restruction     sold Description     sold Description     sold Description       using and construction restruction     sold Description     sold Description     sold Description       using and construction restruction     sold Description     sold Descr		D H	rill I ole	Mo Dia	del ame	and eter:	Mounting:	Ge 12(	oprob ) mm	be 782	2DT		Inclin Beari	ation: ing:	-90°	RL Surface: 93.03 m Datum: AHD				Ор	erator: Terratest		
Notes       Samolas Treas					Ľ	Drilli	ng Informat	ion			Soil Description											Observations	
1000       0		Method	Penetration	Samples Tests A A A B C C C C C C C C C C C C C C C C C C C							Graphic Log	Classification Symbol	SOIL N partic componen	viour or rimary omponents, s	Moisture Condition	Consistency / Relative Density	Per	Har netro UC (kPa 000	nd ome S a)	ter	Structure, Zoning, Origin, Additional Observations		
24		AD/T				Not Observed			0	-		СН	CLAY: high	plasticity	, brown. <i>(con</i>	tinued)	D	н					
Method       Penetration       Water       Samples and Tests       Moisture Condition       Consistency/Relative Densi         AD/T - Auger drilling TC bit       AD/T - Auger drilling TC bit       No resistance       Inflow       U       Undisturbed Sample       D       Dry       VS       Very soft         SPT - Standard penetration test       Partial Loss       Partial Loss       ST - Standard penetration Test       W       W       Wet       F       - Firm         AS - Auger screwing       Refusal       Refusal       Refusal       W       Thin Walled       B       - Large Disturbed Sample       H       H       Hard         Logged in accordance with AS 1726:2017 Geotechnical site investigations       C       Cemented       C       - Compact	VZ AU PSN3828.GPJ < <drawingfile> 19/08/2022 12:04 10.03.00.09 Daglel Fence and Map Tool   LB: PSM 3.02.1 2019-03-06 Pf; PSM 3.02.0 2019-02-24</drawingfile>								84.0 85.0 86.0 87.	6   7   8           -			Hole Termin Target depth	nated at 6	5.00 m								
	PSM 3.02.2. LIB.GLB Log PSM AU NONCORE BH		D/T D/V B PT T S T	<i>Me</i> - A - A - S - P - A - C	thoo uge /ash tanc ush uge onti	drilli drilli bore ard p tube scre nuous	ng TC bit ng V bit penetration test wing s push tube 1.4		lo resis lo resis Rong 761	Lion stance efusal mm dia	meter	Infl □ Infl □ Parl ■ Co	iater ow tial Loss mplete Loss	U - D - SPT - ES - TW - LB -	Samples ar Undisturbed Disturbed Sa Standard Pel Environment Thin Walled Large Disturt	<b>nd Tests</b> Sample mple netration Test al Sample bed Sample	<u> </u>	l D M W	   -   - / -	Dry Mois Wet	litio	⊔ n	Consistency/Relative Density         VS       - Very soft         S       - Soft         F       - Firm         St       - Stiff         VSt       - Very stiff         H       - Hard         VL       - Very loose         L       - Loose         MD       - Medium dense         D       - Dense         VD       - Very dense         Ce       - Cemented         C       - Compact

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Borehole ID

BH02A Page 1 of 2

Engineering Log - Non Cored Borehole											Project No.: PSM38					
Client: Project Hole Lo Hole P	losp o Fię .0 n	ital Ro gure 1 n E 62	edeve 25874	lopme 7.0 m	Commen Complete Logged E Checked	nced: ed: By: By:		01/ 01/ KT AS	'08/2 '08/2 L/SI	202 202 D	2 2					
Drill Mo Hole D	Drill Model and Mounting:Geoprobe 7822DTInclination:-90°RL Surface:92.69 mHole Diameter:120 mmBearing:Datum:AHDO												perator: Terratest			
		Drill	ing Informati	ion					Soil Descripti	ion						Observations
							-	ç	Material Description			// nsity				
Method	Support	Water	Samples Tests Remarks	Recovery	RL (m)	Depth (m)	Graphic Loç	Classificatic Symbol	SOIL NAME: Plasticity, behavic particle characteristics of prim component, colour, secondary com additional observations	our or ary iponents,	Moisture Condition	Consistency Relative De	۲ Pene ا) (I 2000	trom JCS kPa)		Structure, Zoning, Origin, Additional Observations
D/T 	z					_			ASPHALT: Approx. 100mm.t. ROADBASE: Gravelly SAND: coarse dark brown, gravel is sub-angular to	e grained,						0.10: INFERRED FILL
<b>d</b>			SPT 0.50-0.95 m 4,5,7						CLAY trace gravel: high plasticity, br red, gravel is sub-angular up to 15m	/ own and m.	М	St				
			N=12		91.7	1			SAND: coarse grained, yellow.		D	MD				
			SPT 1 50-1 95 m			-		СН	CLAY: high plasticity, dark brown.							1.40: INFERRED NATURAL
esm 3.02.0 2019-02-24 ADIV	z	/ed	2,2,3 N=5		90.7	2			Becomes brown mottled grey			F				
e and Map Tool (Lik: PSN 3.02.1.2019.03-06 Pg. P		Not Observ	SPT 3.00-3.45 m 14,37,40 HB		89.7						M					3.00: 'V' BIT REFUSAL
alex 1908/2022 1204 10.03.00.09 Dagel Fence AD/T	z		N=77		88.7	- - 4			SHALE: grey, extremely weathered, strength.	very low						
BH NZ AU PS/N3828.GP1 < <drawing< td=""><td></td><td></td><td></td><td></td><td></td><td>_</td><td></td><td></td><td>SHALE: grey, highly weathered, low</td><td>strength.</td><td></td><td></td><td></td><td></td><td></td><td>4.50: INCREASED RESISTANCE</td></drawing<>						_			SHALE: grey, highly weathered, low	strength.						4.50: INCREASED RESISTANCE
Method       Penetration       Water       Samples and Tests       Moisture Condition         AD/T - Auger drilling TC bit       No resistance       Inflow       U       - Undisturbed Sample       D       D       D ry         WB - Washbore       Partial Loss       Partial Loss       Complete Loss       SPT - Standard penetration Test       W       W       W wet         PT - Push tube       Refusal       Refusal       ES       Environmental Sample       W       W       Wet         CT - Continuous push tube 1.5m long 76mm diameter       Logged in accordance with AS 1726:2017 Geotechnical site investigations       Logged in accordance with AS 1726:2017 Geotechnical site investigations       Logged in accordance with AS 1726:2017 Geotechnical site investigations												Consistency/Relative Density         VS       - Very soft         S       - Soft         F       - Firm         St       - Stiff         VSt       - Very stiff         H       - Hard         VL       - Very toose         L       - Loose         MD       - Medium dense         D       - Dense         VD       - Very dense         Ce       - Compact				

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Borehole ID

BH02A Page 2 of 2

E	Engineering Log - Non Cored Borehole											Project No.: PSM3828						
	Client: Projec Hole L Hole P	t Na oca Posit	me: tion: ion:	JBS&G Ryde H Refer to 323304	osp o Fię .0 n	ital Ro gure 1 n E 62	edeve 25874	lopme 7.0 m	ent N MG	A94 Zone 56	Commer Complet Logged I Checked	nced: ed: By: d By:		0 0 K A	1/0 1/0 (TL) (S	8/2 8/2 /SE	022 022	2 2
	Drill M Hole D	odel )iam	and eter:	Mounting:	Ge 12(	oprob ) mm	e 782	2DT		Inclination: -90° Bearing:	RL Surfa Datum:	ace:	92 AH	.69 ID	m		Op	perator: Terratest
			Drilli	ng Informati	on					Soil Descript							Observations	
Method	Penetration	Support	Water	Samples Tests Remarks	Recovery	RL (m)	Depth (m)	Graphic Log	Classification Symbol	Material Description SOIL NAME: Plasticity, behavi particle characteristics of prin component, colour, secondary cor additional observations	our or nary nponents,	Moisture Condition	Consistency / Relative Density	Per 100	Ha netro UC (kF	ind ome CS Pa)	eter	Structure, Zoning, Origin, Additional Observations
AD/T		z	Not Observed			7	-			SHALE: grey, highly weathered, low (continued)	/ strength.							
H.N.Z.AU PSM8828.GPJ < <drawingfite> 19/08/2022 12:04 10.05.00.09 Dagel Fence and Map Tool ILB: PSM 3.02.1 2019-03-06 Prg PSM 3.02.0 2019-02-24</drawingfite>						83.7 84.7 85.7 86	- 6 - - - - - - - - - - - - - - - - - -			Hole Terminated at 6.00 m Target depth								
PSM 3.02.2. LIB.GLB Log PSM AU NONCORE BI	MD/T - AD/V - AD/V - SPT - SPT - PT - AS - CT - C	Auge Auge Was Stan Push Auge Cont	d er drilli hbore dard p tube er scre inuou	ng TC bit ng V bit penetration test ewing s push tube 1.5 AS 1726:2017 Geote		enetrat lo resis Re ong 76r	i <b>ion</b> stance efusal mm dia	meter	<i>W</i> ▷ Infld ⊲ Par ◀ Cor	ater Samples and Sw U - Undisturbed Sr D - Disturbed Sam tial Loss SPT - Standard Pene SYT - Standard Pene ES - Environmental TW - Thin Walled LB - Large Disturbe	l <b>Tests</b> ample iple stration Test Sample id Sample	ι Λ	loistu D M W	re C	Con Dry Moi We	ditio	on	Consistency/Relative Density         VS       - Very soft         S       - Soft         F       - Firm         St       - Stiff         VSt       - Very stiff         H       - Hard         VL       - Very toose         L       - Loose         MD       - Medium dense         D       Dense         VD       - Very dense         Ce       - Cemented         C       - Compact

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Borehole ID

BH03A Page 1 of 2

Engi	Engineering Log - Non Cored Borehole									Project N	0.:		PSN	1382	28	
Clier Proje Hole Hole	nt: ect N Loc Pos	lam atio	JBS&C e: Ryde I n: Refer n: 32335	G Hospit to Figi 8.0 m	tal Ro ure 1 E 62	edeve   25874	lopme 5.0 m	ent N MG	A94 Zone 56	Commene Complete Logged B Checked	ced: d: by: By:		01/0 01/0 KTL/ AS	8/20 8/20 /SD	)22 )22	
Drill Hole	Mod Dia	lel a met	nd Mounting: er:	Geo 120	prob mm	e 782	2DT		Inclination: -90° Bearing:	RL Surfac Datum:	ce:	92. AHI	16 m D		Оре	erator: Terratest
		Dr	illing Informa	tion			Soil Description									Observations
Method Penetration	toorio	Support	Samples Tests Remarks	Recovery	RL (m)	Depth (m)	Graphic Log	Classification Symbol	Material Description SOIL NAME: Plasticity, behavio particle characteristics of prim component, colour, secondary com additional observations	otion pehaviour or of primary ary components, ations			Monsture Monsture Condition Consistency/ Boo (edv) Relative Consist Consist Relative Consist Consist Relative Consist Condition Relative Consist Condition Condition Condition Condition Consist Condition Consist Consist Condition Consist C			Structure, Zoning, Origin, Additional Observations
ADIV ADIT		Net Observed	SPT 0.50-0.95 m 3.2,5 N=7 CBR 0.50-1.10 m SPT 1.50-1.95 m 2,4,6 N=10		2 90.2 91.2			СН	CLAY with silt trace sand: medium pl grey mottled brown, sand is fine to m grained, rootlets present. CLAY trace gravel trace sand: mediu plasticity, dark brown mottled brown i sand is fine grained, gravel is fine to grained. CLAY: high plasticty, light grey and light brown, rootlets present.	asticity, ledium and grey, medium	м м л	F St St				1.70: INFERRED FILL
		z hod ger ( ashb	SPT 3.00-3.45 m 1,7,16 N=23 SPT 4.50-4.90 m 3,22,32/100m N=R trilling TC bit trilling V bit ore	m Perr	- <sup>68</sup> 88 - 88 - 88 - 88 - 88 - 88 - 88 - 88	3		<i>W</i> ⊘ Inflo ⊲ Par	SHALE: light grey and light brown, exweathered, very low strength, with classes         Weathered, very low strength, with classes         SHALE: grey, highly weathered, very low strength.         ater       Samples and some strength.         ater       Samples and some strength.         ater       Samples and some strength.         bw       U       - Undisturbed Samples and some strength.         bw       U       - Disturbed Samples and some strength.	tremely ay bands.	 M	oisture D M W	• 2 <b>Con</b> - Dry - Moi	<i>ditio</i>	on .	4.50: 'V' BIT REFUSAL <b>Consistency/Relative Density</b> VS - Very soft S - Soft F - Firm
SPT - Standard penetration test       Complete Loss       ES - Environmental Sample       VSt - W         PT - Push tube       Refusal       TW - Thin Walled       VSt - W         AS - Auger screwing       CT - Continuous push tube 1.5m long 76mm diameter       LB - Large Disturbed Sample       VL - Lc         MD - M       D       D       VD       VC       VC         Logged in accordance with AS 1726:2017 Geotechnical site investigations       C - C       C       C												St - Stiff VSt - Very stiff H - Hard VL - Very loose L - Loose MD - Medium dense D - Dense VD - Very dense Ce - Cemented C - Compact				

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Borehole ID

BH03A Page 2 of 2

Engineering Log - Non Cored Borehole	Project No.: PSM3828											
Client:JBS&GProject Name:Ryde Hospital RedevelopmentHole Location:Refer to Figure 1Hole Position:323358.0 m E 6258745.0 m N MGA94 Zone 56	Commenced:01/08/2022Completed:01/08/2022Logged By:KTL/SDChecked By:AS											
Drill Model and Mounting:Geoprobe 7822DTInclination:-90°Hole Diameter:120 mmBearing:	RL Surface: 92.16 m Datum: AHD Operator: Terratest											
Drilling Information Soil Desc	ription Observations											
Waterial Description Samples Tests Remarks R	n haviour or primary components, ons W O O W See See See See See See See See See S											
LICE Provide the second	very low to											
Hole Terminated at 6.00 m Target depth Hole Terminated at 6.00 m Target depth												
Method       Penetration       Water       Samples and Tests       Moisture Condition       Consistency/Relative Dentition         AD/T - Auger drilling T bit       AD/T - Auger drilling V bit       No resistance       □       <												

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Borehole ID

BH04A

Page 1 of 2

E	Engineering Log - Non Cored Borehole											Project N	lo.:		PSM	3828	
Γ	Client: JBS&G Project Name: Byde Hespitel Bedevelopment												nced:		01/08	3/202	2
	Projec Hole L	t Na .ocat	me: ion:	Ryde H Refer to	ospi o Fig	ital Re gure 1	edeve	lopme	ent			Complet Logged I	ed: By:		01/08 KTL/	3/202 SD	2
	Hole P	Positi	on:	323271	.0 m	ם E 62	25881	1.0 m	N MG	A94 Zone 56		Checked	By:		AS		
	Drill M Hole D	odel )iam	ano eter	d Mounting:	Ge 120	oprob ) mm	e 782	2DT	DT Inclination: -90° Bearing:			RL Surface: 9 Datum: A			.05 m ID	0	perator: Terratest
		I	Drill	ing Informati	on					Soil I	Descripti	ion					Observations
F								_	Ľ	Material Des	cription			// nsity			
	tration	to	L	Samples Tests	very			hic Log	sificatio	SOIL NAME: Plastici particle characterisi	ty, behavic	our or ary	ure ition	istenc: ive De	Hai Penetro UC	na ometei :S	Structure, Zoning, Origin, Additional Observations
11-11	Pene	Supp	Wate	Remarks	Reco	RL (m)	Depth (m)	Grap	Class Symb	component, colour, seco additional obse	ndary com ervations	ponents,	Moist Cond	Cons Relat	(kP)	a) 200 400	
E 4 V		z						***		ASPHALT: Approx. 100m ROADBASE: Gravelly SA	m.t. ND: dark c	rev. fine					0.10: INFERRED FILL
										to medium grained.	brown mot	tled					
				SPT			-			brown, trace of ash.			D	VSt			
				0.50-0.95 m 4,8,12 N=20			-		СН		 brown.		<u> </u>				0.70: INFERRED NATURAL
				11-20		5	_										
						95	1										
							-										
				SPT			-										
				1.50-1.95 m 5,6,11			-			Becomes light grey mottle	d orange b	prown.					
9-02-24				IN-17		-	-							VSt			
02.0 2018						- 6	2-										
Prj: PSM 3		z	erved				-										
19-03-061			ot Obs				-						D				
3.02.1 20			ž				-										
Lib: PSM						_	-										
Map Tool				SPT 3.00-3.45 m		93.1	3-										
ence and				6,14,24 N=38			-										
9 Datgel F							-										
0.03.00.05							-							н			
22 12:04 1							-										
19/08/202						92.1	4-										
vingFile>>							-			SHALE: light grey, extrem	iely weathe	ered, very					
oJ < <drav< td=""><td></td><td></td><td></td><td></td><td></td><td></td><td>-  </td><td></td><td></td><td>low strength.</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></drav<>							-			low strength.							
\$M3828.GF				SPT 4.50-4.95 m 2 30 32			-										4.50: 'V' BIT REFUSAL
NZ AU PS		z		N=62			-										
ORE BH	M	letho	d .		Pe	netrat	ion		W	ater San	nples and	Tests	N N	loistu	re Cond	lition	Consistency/Relative Density
AU NONC	AD/T - AD/V - WB -	Auge Auge Wasl	r dril r dril 1bore	ling TC bit ling V bit ə		o resis	stance		> Inflo ⊲ Par	ow U - Undis tial Loss D - Distu SPT - Stand	sturbed Sa irbed Sam dard Pene	imple ple tration Test		D M W	- Dry - Moi - Wet	st	VS - Very soft S - Soft F - Firm
Log PSM	SPT - PT - AS -	Stano Push Auge	dard tube r scr	penetration test e ewing		R	efusal		Cor	mplete Loss ES - Envir TW - Thin LB - Large	onmental S Walled	Sample					St - Stiff VSt - Verystiff H - Hard
LIB.GLB	CT -	Cont	nuoi	us pušh tube 1.5	im lo	ng 76r	mm dia	meter				- campic					v∟ - very loose L - Loose MD - Medium dense
SM 3.02.2.	.ogged in acc	cordan	e with	AS 1726:2017 Geote	chnica	l site inve	estigations	5									VD - Very dense Ce - Cemented C - Compact

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Borehole ID

BH04A Page 2 of 2

				Project No.: PSM3828									
Client: JBS& Project Name: Ryde Hole Location: Refe Hole Position: 3232	G Hospital Redeve r to Figure 1 71.0 m E 625881	elopment 1.0 m N MGA94 Zone 56	Commenced: Completed: Logged By: Checked By:	01/08/2022 01/08/2022 KTL/SD AS	2 2								
Drill Model and Mounting Hole Diameter:	: Geoprobe 782 120 mm	22DT Inclination: Bearing:	-90° RL Surface: Datum:	96.05 m AHD Op	perator: Terratest								
Drilling Inform	ation	So	il Description		Observations								
Method Method Method Mater Samples Memarks Memarks	S Lievos RL Deptr	Material I Material I SOIL NAME: Plas particle characte component, colour, s additional c	Description ticity, behaviour or pristics of primary condary components, bservations	Consistency / Relative Density 100 200 300 ed. 500 500 500 500	Structure, Zoning, Origin, Additional Observations								
AD/T AD/T N Not Observed	5	SHALE: light grey, extr low strength. (continue SHALE: grey, highly w medium strength	emely weathered, very d) eathered, low to										
EE BH IZ AU PSIABER GEJ <-DanvingFlee> 19/08/2012 12/04 10 0.00 Daglel Farce and Map Tool L&: PSM 3.02 1 2019-02-06 Pi; PSM 3.02 0.2019-02-24		Hole Terminated at 6.0 Target depth	0 m										
Method AD/T - Auger drilling TC bit AD/V - Auger drilling V bit WB - Washbore SPT - Standard penetration t PT - Push tube AS - Auger screwing CT - Continuous push tube	Method       Penetration       Water       Samples and Tests       Moisture Condition       Consistency/Relative Density         AD/T - Auger drilling TC bit       AD/T - Auger drilling TC bit       No resistance       Inflow       U - Undisturbed Sample       D - Dry       VS - Very soft         AD/T - Suger drilling V bit       No resistance       Partial Loss       Partial Loss       Partial Loss       Standard Penetration Test       M - Moist       S - Soft         SPT - Standard penetration test       Proventuble       A - Moist       S - Firm       St - Stiff         PT - Push tube       Refusal       Complete Loss       TW - Thin Walled       H - Hard         CT - Continuous push tube 1.5m long 76mm diameter       LB - Large Disturbed Sample       M - Medium dense       L - Loose         MD - Dense       V - Very dense       C - Compented       C - Compact       C - Compact												

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ADV ADV

302.2 LIB.GLB Log PSM AU NONCORE BH NZ AU PSN3828.GPJ << ProvingFiles> 19/08/2022 12:04 10.03.00.09 Daglel Fence and Map Tool | Lb: PSM 3.02.1 2019-03:06 Pt; PSM 3.02.0 2019-02:24

AD/T AD/V WB SPT PT AS CT

Borehole ID

BH05A

	<u>-</u> 1.	••	~	2															Page 1	of 2
E	ngin	ee	rin	g Log - I	Noi	n Co	ored	Во	reho	le	Project N	lo.:		F	PSI	M3	828	3		
)     	Client: Projec Hole L Hole F	t Na oca 'osit	ame tion tion:	JBS&0 Ryde H Refer t 32316	G Hosp to Fig 1.0 r	iital R gure ∕ n E 6:	edeve 1 25878	lopme 0.0 m	ent N MG	A94 Zone 56	Commenced:01/08/2Completed:01/08/2Logged By:KTL/SEChecked By:AS			202 202 D	22 22					
	Drill M Hole C	ode	l an	d Mounting:	Ge	oprot	be 782	2DT		Inclination: -90° Bearing:	RL Surfa	ice:	94 Al	4.68 HD	8 m	n	C	)perator:	Terrate	st
-		han	Dril	ling Informat	tion	0 11111				Soil Descri	ption								Observa	tions
Method	Penetration	Support	Water	Samples Tests Remarks	Recovery	RL (m)	Depth (m)	Graphic Log	Classification Symbol	Material Description SOIL NAME: Plasticity, beha particle characteristics of p component, colour, secondary c additional observation	iviour or rimary omponents, s	Moisture Condition	Consistency / Relative Density	Pe	H enet U (k	land trom JCS (Pa)	d nete	er S A	ructure, Zo ditional Ol	ning, Origin, bservations
ADV AD/T		z	Not Observed	SPT 0.50-0.95 m 1,1,1 N=2 CBR 0.50-1.20 m SPT 1.50-1.95 m 1,2,2 N=4 SPT 3.00-3.45 m 10,7,3 N=10		7 93.7 92.7 93.7				CLAY with gravel: medium plastic brown, gravel is fine to coarse gra CLAY trace gravel: medium plasti grey brown, gravel is fine to mediu deteterious materials and rootlets	ity, dark grey ined.	M	S F St	-			44	0.00: INFI 3.30: BAN FROM TH MATERIA	RRED FILL	RESISTANCE

CLAY with gravel: low plasticity, dark grey brown, gravel is fine to medium grained, deleterious materials present.

Water Inflow

Partial Loss Complete Loss

 $\triangleright$ 

 Samples and Tests

 U
 - Undisturbed Sample

 D
 - Disturbed Sample

 SPT Standard Penetration Test

 ES
 - Environmental Sample

 TW
 - Thin Walled

 LB
 - Large Disturbed Sample

М F

Moisture Condition D - Dry M - Moist W - Wet

 Method
 Penetration

 Auger drilling TC bit
 Auger drilling V bit

 - Auger drilling V bit
 No resistance

 - Standard penetration test
 Push tube

 - Push tube
 Refusal

 - Auger screwing
 Continuous push tube 1.5m long 76mm diameter

SPT 4.50-4.95 m 2,2,3 N=5

# Consistency/Relative Density VS - Very soft S - Soft F - Firm St - Stiff VSt - Very stiff H - Hard VL - Very loose L - Loose MD - Medium dense D - Dense VD - Very dense CE - Cemented C - Compact

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Borehole ID

BH05A Page 2 of 2

E	Engineering Log - Non Cored Borehole												Project No.: PSM3828				i	
	Cl Pr Ho Ho	lient roje ole l ole l	t: ct Na Loca Posi	ime: tion: ion:	JBS&G Ryde H Refer tø 323161	iosp o Fię I.0 n	ital R gure 1 n E 62	edeve 1 25878	lopme 0.0 m	ent N MG	A94 Zone 56	Commer Complet Logged Checked	nced: ed: By: d By:		01 01 K1 AS	/08/ /08/ FL/S	202 202 D	2 2
	Dr Ho	rill N ole	∕lode Dian	l and ieter:	Mounting:	Ge 120	oprob ) mm	be 782	2DT		Inclination: -90° Bearing:	RL Surfa Datum:	ace:	94 AH	.68 ID	m	0	perator: Terratest
				Drilli	ing Informati	ion					Soil Descri	otion						Observations
Mathod		Penetration	Support	Water	Samples Tests Remarks	Recovery	RL (m)	Depth (m)	Graphic Log	Classification Symbol	Material Description SOIL NAME: Plasticity, beha particle characteristics of pi component, colour, secondary c additional observation	viour or imary omponents, s	Moisture Condition	Condition Consistency / Relative Density 100 800 ad month approximation S00 ad month approximation Condition Condition Condition Condition Condition Condition Consistency / Consistency / Constant Consta		1 nete	r Structure, Zoning, Origin, Additional Observations	
			 	Not Observed			.7	-			CLAY with gravel: low plasticity, da brown, gravel is fine to medium gr deleterious materials present. (co	ark grey ained, <i>ttinued</i> )	М	F				
NZ AU PSN3528.GPJ < <drawingfile>&gt; 19005202 1204 10 0300.09 Date Fence and Map Tool Lb: PSM 3.02.1 2019-03-06 Pt; PSM 3.02.0 2019-02-24</drawingfile>							86.7 86.7 87.7 88				Hole Terminated at 6.00 m Target depth							
PSM 3.02.2. LIB.GLB Log PSM AU NONCORE BH	AE AE SF PT AS CT	// - // D/T - D/V - B - D/V - B - PT - F -	Metho Aug Aug Vas Star Pus Aug Con	<b>D</b> <b>d</b> er drill hbore dard   h tube er scre tinuou	ing TC bit ing V bit penetration test ewing is push tube 1.4	Pe t 5m lc	lo resis lo resis R ong 76	Lion stance efusal mm dia	I meter	₩ ▷ Infl ⊲ Par ◄ Cor	l fater Samples ar ow U - Undisturbed D - Disturbed Sa SPT - Standard Pe mplete Loss ES - Environment TW - Thin Walled LB - Large Disturb	<b>Id Tests</b> Sample mple netration Tes al Sample ped Sample	t	l D M W	re Ca - [ - M - N	ondi Dry Moist Wet	tion	Consistency/Relative Density           VS         - Very soft           S         - Soft           F         - Firm           St         - Stiff           VSt         - Very stiff           H         - Hard           VL         - Very loose           L         - Loose           MD         - Medium dense           D         - Dense           VD         - Very dense           Ce         - Cempact
ST L	ogge	ed in a	iccordai	ice with	AS 1726:2017 Geote	echnica	al site inve	estigations	5									C - Compact

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Borehole ID

BH06A

Page 1 of 2

Client:     JBS&G     Commenced:     02/08/2022       Project Name:     Refer to Figure 1     Logged By:     KLESD       Hole Deation:     3238.0 m E 625687.0 m N MGA44 Zone 56     Checked By:     AS       Diff Model and Mounting:     George Project     Stanface:     10:00 m       Hole Deator:     120 mm     Bearing:     Datafrace:     10:00 m       Diff Model and Mounting:     George Project     Stanface:     10:00 m       Diff Model and Mounting:     George Project     Stanface:     0:00 m       Diff Model and Mounting:     George Project     Stanface:     Oo 0 m       Diff Model and Mounting:     George Project     Stanface:     Oo 0 m       Material Description     Observations     Observations     Observations       Diff Model and Mounting:     George Project     Stanface:     Observations       Stanface:     Stanface:     Stanface:     Stanface:       Stanface:     Stanface:     Stanface:     Stanface:       Stanface:	Engin	ee	rin	g Log - N	lor	n Co	ored	Boi	reho	le	Project No.: PSM3828				
Hole Location:     Refer to Figure 1     Logged By:     KTLSD       Hole Docation:     32183.00 m N MGA94 Zone 56     Checked By:     A.S       Dull Model and Mounting:     Geoprobe 7822DT     Inclinator:     -90°     RL Surface:     100.00 m       Hole Diameter:     120 mm     Bearing:     Datum:     AHD     Operator:     Terratest       Drill Model and Mounting:     Geoprobe 7822DT     Inclinator:     -90°     RL Surface:     100.00 m       Drill Model and Mounting:     Samples     Bit R:     Samples     Samples     Samples     Samples       Bit Bit Bit Bit Bit R:     Samples     Bit R:     Samples     Samples <td>Client: Projec</td> <td>t Na</td> <td>me:</td> <td>JBS&amp;G Ryde H</td> <td>i Iospi</td> <td>ital R</td> <td>edeve</td> <td>lopme</td> <td>ent</td> <td></td> <td>Commenced Completed:</td> <td>d:</td> <td>02/08 02/08</td> <td>3/202 3/202</td> <td>2</td>	Client: Projec	t Na	me:	JBS&G Ryde H	i Iospi	ital R	edeve	lopme	ent		Commenced Completed:	d:	02/08 02/08	3/202 3/202	2
Drill Model and Mounting:         Geoprobe 7822DT         Inclination:         -90°         RL Surface:         100.00 m         Operator:         Terratest           Drilling Information         Sold Description         Sold Description         Sold Description         Observations           1         Semidation         Semidation         Sold Description         Sold Description         Observations           1         1         Semidation         Semidation         Sold Description         Sold Description           1         1         Semidation         Semidation         Semidation         Semidation         Structure, Zoning ( Sold NAME: Peakdow, Lebinovan or particle characteristics of phrasy componentional description         Structure, Zoning ( Sold Sold Sold Sold Sold Sold Sold Sold	Hole L Hole F	.oca Posit	tion: ion:	Refer to 323183	o Fig 8.0 m	gure 1 า E 62	l 25888 <sup>-</sup>	7.0 m	N MG	A94 Zone 56	Logged By: Checked By	:	KTL/S AS	SD	
Hole Diameter:     120 mm     Bearing:     Datum:     AHD     Operator:     Terratest       Drilling Information     Soil Description     Observations     Observations       0     5     1     1     1     0 <td>Drill M</td> <td>ode</td> <td>lano</td> <td>d Mounting:</td> <td>Ge</td> <td>oprob</td> <td>e 782</td> <td>2DT</td> <td></td> <td>Inclination: -90°</td> <td>RL Surface:</td> <td>100</td> <td>).00 m</td> <td></td> <td></td>	Drill M	ode	lano	d Mounting:	Ge	oprob	e 782	2DT		Inclination: -90°	RL Surface:	100	).00 m		
Drilling Information     Soll Description     Observations       1     Samples Tests Tests Remarks     1     1     1       1     1     Samples Tests Remarks     1     1     1       1     1     1     1     1     1       1     2     CBR Samples     1     1     1       1     1     1     1     1     1       1     1     1     1     1     1       1     1     1     1     1     1       1     1     1     1     1     1       1     1     1     1     1     1       1     1     1     1     1     1       1     1     1     1     1     1       1     1     1	Hole D	Diam	eter	:	120	) mm		Bearing:			Datum:	AH	D	0	perator: Terratest
Bage     Samples Training Bage     Samples Training Bage     Samples Training Bage     Samples Training Bage     Samples Training Bage     Samples Training Bage     Samples Training Company			Drill	ing Informati	ion					Soil Descript	ion				Observations
Log       L       CBR       CBR       Caster of the strength of the strengt	Method Penetration	Support	Water	Samples Tests Remarks	Recovery	RL (m)	Depth (m)	Graphic Log	Classification Symbol	Material Description SOIL NAME: Plasticity, behavi particle characteristics of prin component, colour, secondary cor additional observations	our or nary nponents, io No	Condition Consistency / Relative Density	Har Penetro UC (kP: 00 00	nd meter S a)	r Structure, Zoning, Origin, Additional Observations
SPT     SPT     0.500.05 m     0.5	AD/T	z		CBR 0.30-0.80 m			-			ASPHALT: Approx. 160mm.t Sandy CLAY with gravel: low plastic sand is fine to medium grained, gra to medium grained, brick fragments	ity, brown, vel is fine				0.16: INFERRED FILL
00       z       -0       1       -0       1       -0       1       -0       1       -0       1       -0       1<				SPT 0.50-0.95 m 1,10,43 N=53			-		CI-CH	CLAY: medium plasticity, grey brow light grey.		H VSt-			0.80: INFERRED NATURAL
3     10     TC     BT       10     1     -0     2       10     1     -0     3       10     1     -0     3       11     -0     3     -0       11     -0     3     -0       11     -0     3     -0       11     -0     3     -0       12     -0     3     -0       13     10     TC     BIT RESISTANCE CO       00     -0     -0     -0       11     -0     -0     -0       12     -0     -0     -0       14     -0     -0     -0       15     -0     -0     -0       16     -0     -0     -0       17     -0     -0     -0       18     -0     -0     -0       19     -0     -0     -0       10     -0     -0     -0       10     -0     -0     -0       10     -0     -0     -0       10     -0     -0     -0       11     -0     -0     -0       10     -0     -0     -0       10     -0     -0	AD	z				0.66	1			Mottled orange brown. SHALE: grey, distinctly weathered, i strength to low strength	/ very low				1.10: 'V' BIT REFUSAL
SHALE: grey, highly weathered, very low to	1940-00 Pl. Pom ouk. a Aurence		ot Observed			 98.0	- - 2 -			CUALT- and distingthe worth and					
Method       Penetration       Water       Smaller       Samples and Tests       Moisture Condition       Consistency/Relative         Method       Penetration	ADIT	z	No			97.0				sandstone laminae and clay bands.	ight grey				3.10: 'TC' BIT RESISTANCE DROPS OFF DUE TO THE CLAY BANDS
Method       Penetration       Water       Samples and Tests       Moisture Condition       Consistency/Relative         AD/T - Auger drilling TC bit       No resistance       > Inflow       U       - Undisturbed Sample       D       Dry       VS       - Very soft         WB - Washbore       SPT - Standard penetration test       No resistance       Inflow       U       - Disturbed Sample       M       Moist       S       - Soft         SPT - Standard penetration test       Complete Loss       SPT - Standard Penetration Test       W - Wet       F       - Firm										SHALE: grey, highly weathered, ver low strength.	y low to				
Method       Penetration       Water       Samples and Tests       Moisture Condition       Consistency/Relative         ADJC - Auger drilling V bit       No resistance       Inflow       U       - Undisturbed Sample       D       - Dry       VS       - Very soft         WB - Washbore       Partial Loss       SPT - Standard penetration Test       W - Wet       F       - Firm         SPT - Standard penetration test       Complete Loss       ES       - Environmental Sample       W - Wet       St							-								
PT - Push tube       VSt - Very stiff         AS - Auger screwing       Image: CT - Continuous push tube 1.5m long 76mm diameter         CT - Continuous push tube 1.5m long 76mm diameter       Image: CT - Continuous push tube 1.5m long 76mm diameter         VL - Very long       VL - Very long         D - Dense       VL - Very long         VL - Very long       VE - Very long         VL - Very long       VE - Very long <t< td=""><td>AD/T - AD/T - AD/V - WB - SPT - PT - AS - CT -</td><td colspan="12">Method       Penetration       Water       Samples and Tests       Moisture Condition       Consistency/Relative Density         AD/T - Auger drilling V bit       No resistance       &gt; Inflow       U       - Undisturbed Sample       D       - Dry       VS       - Very soft         AD/Y - Auger drilling V bit       No resistance       Partial Loss       D       - Disturbed Sample       M       - Moist       S       - Soft         WB - Washbore       Partial Loss       SPT - Standard Penetration Test       W       W       W       W       VS       - Very soft         PT - Push tube       Refusal       Refusal       W       TW       Thin Walled       W       W       W       W       VS       - Very soft         CT - Continuous push tube 1.5m long 76mm diameter       Isome provide the diameter       ES       Environmental Sample       W       W       VL       - Loose         MD - Medium dense       D       D       Disturbed Sample       W       W       VU       - Loose         DT - Dense       D       D       D       D       D       D       D       D         DT - Dense       D       D       D       D       D       D       D       D       D       D</td></t<>	AD/T - AD/T - AD/V - WB - SPT - PT - AS - CT -	Method       Penetration       Water       Samples and Tests       Moisture Condition       Consistency/Relative Density         AD/T - Auger drilling V bit       No resistance       > Inflow       U       - Undisturbed Sample       D       - Dry       VS       - Very soft         AD/Y - Auger drilling V bit       No resistance       Partial Loss       D       - Disturbed Sample       M       - Moist       S       - Soft         WB - Washbore       Partial Loss       SPT - Standard Penetration Test       W       W       W       W       VS       - Very soft         PT - Push tube       Refusal       Refusal       W       TW       Thin Walled       W       W       W       W       VS       - Very soft         CT - Continuous push tube 1.5m long 76mm diameter       Isome provide the diameter       ES       Environmental Sample       W       W       VL       - Loose         MD - Medium dense       D       D       Disturbed Sample       W       W       VU       - Loose         DT - Dense       D       D       D       D       D       D       D       D         DT - Dense       D       D       D       D       D       D       D       D       D       D													

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Borehole ID

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Enginee	ring Log - I	Non Corec	Borehole	Proje	ct No.:	PSM3828	
Client: Project Na Hole Loca Hole Posi	JBS&C ame: Ryde H tion: Refer t tion: 32318	G Hospital Redeve to Figure 1 3.0 m E 625888	elopment 37.0 m N MGA94 Z	Comr Comp Logge one 56 Chec	menced: bleted: ed By: ked By:	02/08/2022 02/08/2022 KTL/SD AS	
Drill Mode Hole Diam	l and Mounting: neter:	Geoprobe 782 120 mm	22DT	Inclination: -90° RL Su Bearing: Datur	urface: 100 m: AH	).00 m D Ope	rator: Terratest
	Drilling Informat	tion		Soil Description			Observations
Method Penetration Support	Samples Tests Remarks	Alao RL Deptr (m) (m)	Graphic Log Symbol Symbol Classification	Material Description COIL NAME: Plasticity, behaviour or particle characteristics of primary ponent, colour, secondary component additional observations	'st Moisture Condition Consistency / Relative Density	Hand Penetrometer UCS (kPa) 0 8 8 8 8	Structure, Zoning, Origin, Additional Observations
ADIT	Not Observed	0	SHAL low str	E: grey, highly weathered, very low to ength. ( <i>continued</i> )			
uz Aul PSNR828. GPJ <comwingflee> 19/08/2002 12:04 10 03:00 06 Dagel Fence and Map Tool LLk: PSM 3.02.1 2019-02:24</comwingflee>			Hole T Target	erminated at 6.00 m t depth			
Method AD/T - Aug AD/T - Aug AD/T - Aug MB - Waa SPT - Star PT - Pusi AS - Aug CT - Con	d er drilling TC bit er drilling V bit hbore dard penetration tes n tube er screwing tinuous push tube 1.	Penetration No resistance Refusal .5m long 76mm dia	Water ▷ Inflow ⊲ Partial Los ◄ Complete I ameter	Samples and Tests U - Undisturbed Sample D - Disturbed Sample SPT - Standard Penetration 7 Loss ES - Environmental Sample TW - Thin Walled LB - Large Disturbed Samp	Moistur D M Test W	Condition - Dry - Moist - Wet	Consistency/Relative Density         VS       - Very soft         S       - Soft         F       - Firm         St       - Stiff         H       - Hard         VL       - Very soft         L       - Loose         MD       - Medium dense         D       - Dense         VD       - Very dense         Ce       - Compact

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Borehole ID

BH07A

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Engineering Log - Non Cored Borehole Project													PSI	л 3828	
Client: Projec Hole L Hole F	t Na .oca Posit	me: tion: ion:	JBS&G Ryde Ho Refer to 323118.	ospi Fig 0 m	tal Re jure 1 n E 62	edeve 25890	lopme 0.0 m	ent N MG	494 Zone 56	Commer Complet Logged Checked	nced: ed: By: I By:		02/0 02/0 KTL AS	)8/202 )8/202 /SD	2 2
Drill M Hole D	lodel Diam	and eter	d Mounting:	Geo 120	oprob ) mm	e 782	2DT		Inclination: -90° Bearing:	RL Surfa Datum:	ace:	97 AH	.69 m ID	0	perator: Terratest
		Drill	ing Informatio	on					Soil Descrip	tion					Observations
Method Penetration	Support	Water	Samples Tests Remarks	Recovery	RL (m)	Depth (m)	Graphic Log	Classification Symbol	Material Description SOIL NAME: Plasticity, behav particle characteristics of prir component, colour, secondary cor additional observations	our or nary nponents,	Moisture Condition	Consistency / Relative Density	Hi Penet U (k	and rometer CS Pa)	- Structure, Zoning, Origin, Additional Observations
Афи	z		SPT 0.50-0.95 m 3,3,5 N=8			-		CI-CH	ASPHALT: Approx. 40mm.t ROADBASE: Sandy GRAVEL, fine grained, dark grey, sand is fine to n (grained	 to medium  d brown					0.04: INFERRED FILL 0.20: INFERRED NATURAL
ADN	z				 96.7	1			Becomes orange brown. Becomes light grey.		М	F			
3-06 Pig PSM 3.02.02019-02-24		Dbserved	SPT 1.50-1.88 m 7,17,20/80mm N=R		 95.7	- 2- -			SHALE: light grey, extremely weath low strength. SHALE: grey and brown, highly weath very low to low strength.	athered,	-				1.80: 'V' BIT REFUSAL
09 Danger Ferror and Map tool (LE: PSM 3.02.1 2014) AD/T	z	Not (			 94.7	- 3- -									
100000 1971 20220061 conjecture 100000 1971					93.7	- 4 - -									
Method ADT - Auger drilling TC bit ADV - Auger drilling V bit WB - Washbore SPT - Standard penetration test PT - Push tube AS - Auger screwing CT - Continuous push tube 1.5m long 76mm diameter       Penetration Inflow Partial Loss Complete Loss       Water D - Undisturbed Sample D - Disturbed Sample D - Disturbed Sample SPT - Standard Penetration Test SPT - Standard Penetration Test ES - Environmental Sample TW - Thin Walled LB - Large Disturbed Sample       Moisture Condition M - Dry M - Moist W - Wet       Consistency/Relative Density VS - Very soft W - S - Soft W - Wet         Image: Complete Loss       Penetration Partial Loss       Partial Loss EST - Standard Penetration Test B - Environmental Sample TW - Thin Walled LB - Large Disturbed Sample       Moisture Condition M - Moist W - Wet       Consistency/Relative Density VS - Very soft VS - Very sof															

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Borehole ID

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### **Engineering Log - Non Cored Borehole** PSM3828 Project No.: JBS&G Client: Commenced: 02/08/2022 Project Name: Ryde Hospital Redevelopment Completed: 02/08/2022 Hole Location: Refer to Figure 1 Logged By: KTL/SD Hole Position: 323118.0 m E 6258900.0 m N MGA94 Zone 56 Checked By: AS Drill Model and Mounting: Geoprobe 7822DT Inclination: -90° RL Surface: 97.69 m Hole Diameter: 120 mm Bearing: Datum: AHD Terratest Operator: **Drilling Information** Soil Description Observations Consistency / Relative Density Material Description Classification Symbol g Hand Samples Penetration SOIL NAME: Plasticity, behaviour or particle characteristics of primary component, colour, secondary components, additional observations Structure, Zoning, Origin, Additional Observations Moisture Condition Penetrometer Recovery Tests Graphic I Method Support UCS Water Remarks (kPa) RL Depth (m) (m) 100 200 300 500 SHALE: grey and brown, highly weathered, very low to low strength. *(continued)* Not Observed Becomes dark grey and brown, with clay bands AD/ z 1 9 Hole Terminated at 6.00 m Target depth 2019-03-06 Pri: PSM 3.02.0 2019-02-24 90.7 7 1111 ||||||||| | | | ||||nd Map Tool | Lib: PSM 3.02.1 89.7 1111 8 1111 1111 -ence 1111 0.03.00.09 Datael ||||||||||||12:04 9/08/2022 88.7 9 ||||PSM3828.GPJ |||| Method Penetration AD/T - Auger drilling TC bit Alder Auger drilling V bit No resistance WB - Washbore SPT - Standard penetration test Refusal PT - Push tube Refusal AS - Auger screwing CT - Continuous push tube 1.5m long 76mm diameter Consistency/Relative Density VS - Very soft S - Soft F - Firm St - Stiff VSt - Very stiff H - Hard VL - Very loose L - Loose Samples and Tests Moisture Condition Water Samples and rests U - Undisturbed Sample D - Disturbed Sample SPT - Standard Penetration Test ES - Environmental Sample TW - Thin Walled LB - Large Disturbed Sample D M W - Dry - Moist - Wet $\triangleright$ Inflow Partial Loss PSM. Complete Loss .02.2. LIB.GLB Log Loose Medium dense Dense Very dense Cemented Compact L MD D VD Ce C PSM Logged in accordance with AS 1726:2017 Geotechnical site investigations

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19/08/2022 12:04 10.03:00:09 Datgel Fence and Map Tool | Lib: PSM 3.02.1 2019-03-06 Pri: PSM 3.02.0 2019-02-24

<<DrawingFile>>

PSM3828.GPJ

3.02.2. LIB.GLB Log PSM AU NONCORE BH NZ AU

PSM 3

AD/T AD/V WB SPT PT AS CT

Borehole ID

BH08A

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E	ingir	nee	rin	g Log - l	Noi	n Co	ored	Во	reho	le	Project N	lo.:		PS	SM:	382	8
	Client Projec Hole I Hole F	: ct Na _oca Posit	me: tion: ion:	JBS&C Ryde H Refer 1 32313	∃ Hosp to Fiq 2.0 r	ital R gure ∕ n E 62	edeve I 25880	lopme 9.0 m	ent N MG	A94 Zone 56	Commer Complet Logged Checked	nced: ed: By: I By:		02 02 K1 AS	2/08 2/08 FL/\$ S	8/20 8/20 SD	22 22
	Drill M Hole [	lode Diam	l and eter	d Mounting:	Ge 12	oprob 0 mm	be 782	2DT		Inclination: -90° Bearing:	RL Surfa Datum:	ice:	95 Al-	5.16 HD	m	C	Operator: Terratest
			Drill	ling Informat	tion	-				Soil Descrip	tion						Observations
Mathod	Penetration	Support	Water	Samples Tests Remarks	Recovery	RL (m)	Depth (m)	Graphic Log	Classification Symbol	Material Description SOIL NAME: Plasticity, behav particle characteristics of pri component, colour, secondary co additional observations	iour or mary mponents,	Moisture Condition	Consistency / Relative Density	Pen	Har etro UC (kPa	nd mete S a) 000 000	er Structure, Zoning, Origin, Additional Observations
		z		0.77			-			ASPHALT: Approx. 100mm.t. Gravelly SAND: fine to medium gra brown, gravel is fine to medium gra	nined, dark nined.	м					0.10: INFERRED FILL
				SPT 0.50-0.95 m 2,4,5 N=9 CBR 0.60-1.30 m		94.2	- - 1-			Gravelly CLAY: low to medium plas brown, gravel is fine to medium gra concrete fragments present.	sticity, dark	м	St				
			pe	SPT 1.50-1.95 m 2,3,3 N=6		93.2	2-			SAND trace gravel: fine to coarse g dark grey brown, gravel is fine to rr grained, slag and glass fragments	grained, iedium present.						
		           	Not Observe	SPT		 92.2						м	L - MD				
Þ				1,2,1 N=3			-		CI	CLAY trace gravel: low to medium dark grey mottled orange brown ar grey, gravel is fine to medium grain CLAY with sand: medium plasticity mottled cragge brewne conditions	plasticity, id light ied. 	 M	 S				3.80: INFERRED NATURAL
				SPT 4.50-4.95 m 2,5,8 N=13		91.2	4			moued orange brown, salid is lifte	yran ICU.	м	St				

 

 Consistency/Relative Density

 VS
 - Very soft

 S
 - Soft

 F
 - Firm

 St
 - Stiff

 VSt
 - Very stiff

 H
 - Hard

 VL
 - Very loose

 L
 - Loose

 MD
 - Medium dense

 D
 - Dense

 VD
 - Very dense

 CE
 - Cernented

 C
 - Compact

 Method
 Penetration

 - Auger drilling TC bit
 - Auger drilling V bit

 - Auger drilling V bit
 - No resistance

 - Standard penetration test
 - Push tube

 - Push tube
 - Auger screwing

 - Continuous push tube 1.5m long 76mm diameter

 Samples and Tests

 U
 - Undisturbed Sample

 D
 - Disturbed Sample

 SPT - Standard Penetration Test
 ES - Environmental Sample

 TW
 - Thin Walled

 LB
 - Large Disturbed Sample
 Moisture Condition D - Dry M - Moist W - Wet *Water* ⊳ Inflow Partial Loss Complete Loss

Logged in accordance with AS 1726:2017 Geotechnical site investigations

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Borehole ID

BH08A Page 2 of 2

E	Ingi	nee	rin	g Log - N	loi	n Co	ored	Bo	reho	le	Project N	No.:		PS	SM3	882	28	
	Clien Proje	t: ct Na	ime:	JBS&G Ryde H Refer te	losp	ital R	edeve	lopme	ent		Commer Complet	nced: ed: Bv:		02 02	/08/ /08/	/20 /20	)22 )22	
	Hole	Posit	ion:	323132	2.0 n	n E 62	25880	9.0 m	N MG	A94 Zone 56	Checked	d By:		AS	L/C	J		
	Drill I Hole	Mode Diarr	l anc ieter	I Mounting:	Ge 12(	oprob ) mm	e 782	2DT		Inclination: -90° Bearing:	RL Surfa Datum:	ace:	95 AH	.16 i ID	m	(	Оре	erator: Terratest
			Drill	ing Informati	ion					Soil Descrip	tion							Observations
	Method Penetration	Support	Water	Samples Tests Remarks	Recovery	RL (m)	Depth (m)	Graphic Log	Classification Symbol	Material Description SOIL NAME: Plasticity, behav particle characteristics of pri component, colour, secondary co additional observations	riour or mary mponents,	Moisture Condition	Consistency / Relative Density	Pene (	Hangetror UCS	d mete 3 1) 005	er	Structure, Zoning, Origin, Additional Observations
	ADIV	 	Not Observed			2	-		CI	CLAY with sand: medium plasticity mottled orange brown, sand is fine (continued)	, light grey grained.	м	St					
RE BH NZ AU PSM0828 GPJ < <onawingfile> 19/08/2022 12/04 10 03:00:09 Dagel Fence and Map Tool   Lb: PSM 3.02.1 2019-03:06 Prj. PSM 3.02.0 2019-02:24</onawingfile>						86.2 87.2 88.2 89 <u>.</u>	- 6			Hole Terminated at 6.00 m Target depth								
M 3.02.2. LIB.GLB Log PSM AU NONCOR	AD/T AD/V WB SPT PT AS CT	Metho - Auge - Auge - Was - Stan - Pusł - Auge - Cont	od er drill hbore dard n tube er scr	ling TC bit ling V bit penetration test ewing us push tube 1.5	Pe om lo	lo resis References Re	t <b>ion</b> stance efusal mm dia	meter	₩ > Inflo ⊲ Par ◀ Cor	ater         Samples an           ow         U         - Undisturbed Sa           bital Loss         D         - Disturbed Sa           mplete Loss         SPT - Standard Pen           ES         - Environmente           TW         - Thin Walled           LB         - Large Disturb	<i>d Tests</i> Sample nple etration Test I Sample ed Sample	<b>Λ</b>	<b>floistu</b> D M W	re Co - D - N - V	ondi Dry Moist Vet	t t	n	Consistency/Relative Density VS - Very soft S - Soft F - Firm VSt - Very stiff VSt - Very stiff H - Hard VL - Very loose L - Loose MD - Medium dense D - Dense VD - Very dense Qe - Cemented
ĭ L	-oggea in a	accordar	ice with	AG 1120.2011 GEOLE	SUILING	a site inve	รอแฐสแอกร	, ,										

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Borehole ID

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Cleart:       JBSA0       Commence:       Q2082022         Project Name:       Refer to Figure 1       Complete Name:       Q2082022         Hole Location:       Refer to Figure 1       Complete Name:       Q2082022         Total Model and Mounting:       Geographic Relevation MMCA4 Zone 56       Character       96.39 m         Drill Model and Mounting:       Geographic Relevation       Soil Description       Operator:       Terratest         Drill Model and Mounting:       Geographic Relevation       Soil Description       Observations       Material Description         Status       Series       S	Er	ngin	ineering Log - Non Cored Borehole								le	Project N	lo.:		PSN	1382	28	
Dott Model and Mounting:       Generation:       Searching:       95.30 m         Hole Diamoder:       120 mm       Bearing:       Datum:       AHD       Operator:       Tratalest         Diffing Information       Soil Description       Soil Description       Observations       Observations         Image: Soil Soil Soil Soil Soil Soil Soil Soil	C F F	Client Projec Hole L Hole F	: ct Na _oca Posi	ime: tion: ion:	JBS&0 Ryde I Refer 32321	G Hosp to Fię 6.0 n	ital R gure <i>1</i> n E 62	edeve I 25877	lopme 8.0 m	ent N MG	A94 Zone 56	Commen Complete Logged E Checked	ced: ed: 3y: By:		02/0 02/0 KTL AS	18/20 18/20 /SD	)22 )22	2 2
Drilling Information     Soil Description     Observations       19     10     10     Servations     10     Servations     Servations       19     10     10     Servations     10     Servations     Servations       10     10     10     Servations     10     Servations     Servations       10     10     10     10     10     10     Servations     Servations       10     10     10     10     10     10     10     10     10       10     10     10     10     10     10     10     10     10		Drill M Hole [	lode Dian	l an neter	d Mounting:	Ge 12(	oprot ) mm	be 782	2DT		Inclination: -90° Bearing:	ce:	95 AH	.39 m ID		Op	perator: Terratest	
10       10 <td< th=""><th></th><th></th><th></th><th>Dril</th><th>ling Informa</th><th>tion</th><th></th><th></th><th></th><th></th><th>Soil Descrip</th><th>tion</th><th></th><th></th><th></th><th></th><th></th><th>Observations</th></td<>				Dril	ling Informa	tion					Soil Descrip	tion						Observations
End     Z     CBR	Method	Penetration	Support	Water	Samples Tests Remarks	Recovery	RL (m)	Depth (m)	Graphic Log	Classification Symbol	Material Description SOIL NAME: Plasticity, behavi particle characteristics of prir component, colour, secondary cor additional observations	our or nary nponents,	Moisture Condition	Consistency / Relative Density	Ha Penetr U( (kl	and comet CS Pa)	ter	Structure, Zoning, Origin, Additional Observations
3.00-3.45 m       4.7.8         4.7.7       N=15         5.7       5.8.15         7.7       4.9.15         1.7       1.5.25 <td>ADV</td> <td></td> <td></td> <td>Not Observed</td> <td>CBR 0.30-1.10 m SPT 0.50-0.95 m 1.2.2 N=4 SPT 1.50-1.95 m 2.4.2 N=6</td> <td></td> <td>92.4 93.4 94.4</td> <td></td> <td></td> <td></td> <td>ASPHALT: Approx. 90mm.t. ROADBASE: Gravelly SAND, fine t grained, dark grey brown, gravel is (medium grained. CLAY with gravel: medium plasticity brown mottled light grey and orange gravel is fine to medium grained, as CLAY trace gravel: low to medium p dark grey brown, gravel is fine to m grained, slag present.</td> <td>o medium fine to /, dark e brown, sh present.</td> <td> D</td> <td>F</td> <td></td> <td></td> <td></td> <td>0.09: INFERRED FILL</td>	ADV			Not Observed	CBR 0.30-1.10 m SPT 0.50-0.95 m 1.2.2 N=4 SPT 1.50-1.95 m 2.4.2 N=6		92.4 93.4 94.4				ASPHALT: Approx. 90mm.t. ROADBASE: Gravelly SAND, fine t grained, dark grey brown, gravel is (medium grained. CLAY with gravel: medium plasticity brown mottled light grey and orange gravel is fine to medium grained, as CLAY trace gravel: low to medium p dark grey brown, gravel is fine to m grained, slag present.	o medium fine to /, dark e brown, sh present.	 D	F				0.09: INFERRED FILL
MD - Medium dense D - Dense VD - Very dense Ce - Cemented Ce - Compact			Metho Aug Star Pusi Con	od er dri hbor dard n tub er sc tinuo	3.00-3.45 m 4.7,8 N=15 SPT 4.50-4.95 m 5.8,15 N=23 lling TC bit e penetration tes e rewing us push tube 1	Pe st .5m kc	+: 	4	meter	CI D Infl ⊂ Pa Co	CLAY: medium plasticity, light grey orange brown. Samples and ow U - Undisturbed Sam tial Loss D - Disturbed Sam mplete Loss SPT - Standard Pene ES - Environmental TW - Thin Walled LB - Large Disturbed	mottled Tests ample ple stration Test Sample ed Sample	D	VSt Doistu D M W	re Con - Dŋ - Ma - We	ditio /ist tt	n	3.20: INFERRED NATURAL Solution:
	Log	ged in ac	corda	ice wit	n AS 1726:2017 Geo	technica	al site inv	estigations	3									MD - Loose MD - Medium dense D - Dense VD - Very dense Ce - Cemented C - Compact

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Borehole ID

BH09A

		i i i i į														M3NJ3828					
Client: Projec Hole L	t Na .oca	ime: tion:	JBS&G Ryde H Refer to	ospi o Fig	tal Re jure 1	edeve	lopme	ent		Comme Complet Logged	nced: ted: By:		02 02 K1	2/08 2/08 FL/\$	s/20 s/20 SD	22 22					
Drill M	osit ode	ion: I and	323216 Mounting:	.0 m Geo	oprob	25877 e 782	8.0 m 2DT	N MG	A94 Zone 56 Inclination: -90°	RL Surface: 95.39 m											
Hole D	Diam	eter:		120	) mm				Bearing:	Datum:		A	HD		(	Oper	rator: Terratest				
	T	Drilli	ng Informati	on					Soil Desci	iption		5					Observations				
Method Penetration	Support	Water	Samples Tests Remarks	Recovery	RL (m)	Depth (m)	Graphic Log	Classification Symbol	Material Description SOIL NAME: Plasticity, beh particle characteristics of component, colour, secondary additional observatio	n aviour or primary components, ns	Moisture Condition	Consistency / Relative Densit	Pen	Han etro UC: (kPa	nd met S a)	er	Structure, Zoning, Origin, Additional Observations				
	z	Not Observed			4	-		CI	CLAY: medium plasticity, light gr orange brown, with extremely we shale bands.	ey mottled athered	D	VSt									
					89.4	- 6			Hole Terminated at 6.00 m Target depth												
					 88.4	- - 7 -															
					 87.4	- - 8- - -															
					 86.4	- - 9 -															
<i>M</i> AD/T - AD/V - AD/V - SPT - SPT - AD/V - AD/V - AD/V - CT - AD/V -	<b>Tetho</b> Auge Auge Stan Push Auge Cont	od er drilli hbore dard p n tube er scre tinuou	ng TC bit ng V bit penetration test wing s push tube 1.5	Pe. N	netrat o resis 2 Re ng 76r	<i>ion</i> stance efusal mm dia		<b>V</b> > Infl ⊲ Pai ■ Co	ater Samples a ow U - Undisturbed tial Loss D - Disturbed S SPT - Standard P mplete Loss ES - Environmen TW - Thin Walled LB - Large Distu	Ind Tests I Sample ample enetration Tes tal Sample rbed Sample	t	<b>foistu</b> D M W	re C - [ - N - \	ond Dry Mois Wet	litio	n	Consistency/Relative Dens VS - Very soft S - Soft F - Firm St - Stiff VSt - Very stiff H - Hard VL - Very loose L - Loose MD - Medium dense D - Dense VD - Very dense				

Page 2 of 2

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Borehole ID

BH10A Page 1 of 2

E	Eng	in	ee	rin	g Log - I	Nor	n Co	ored	Bo	reho	le	Project N	Project No.: PSM382					
	Clie Pro Hol Hol	ent: ject e Lo e P	t Na oca osit	me: tion: ion:	JBS&G Ryde H Refer t 32305	G Hosp to Fig 1.0 n	ital R gure <i>1</i> n E 62	edeve I 25881	lopme 8.0 m	ent N MG	A94 Zone 56	Commer Complet Logged Checked	nced: ed: By: I By:		02/ 02/ KT AS	'08/: '08/: L/SI	202 202 D	2 2
	Dril Hol	l Mo e D	ode iam	l and eter	d Mounting:	Ge 120	oprok ) mm	be 782	2DT		Inclination: -90° Bearing:	RL Surfa Datum:	ace:	93 AH	.81 r ID	n	O	perator: Terratest
				Drill	ing Informat	tion					Soil Descrip	tion						Observations
	Method	Penetration	Support	Water	Samples Tests Remarks	Recovery	RL (m)	Depth (m)	Graphic Log	Classification Symbol	Material Description SOIL NAME: Plasticity, behav particle characteristics of prir component, colour, secondary cor additional observations	iour or mary mponents,	Moisture Condition	Consistency / Relative Density	۲ Pene ا) (100	land trom JCS kPa)	neter	Structure, Zoning, Origin, Additional Observations
b; PSM 3.02.1 Z019-03-06 Prj; PSM 3.02.0 Z019-02-24	AUN		Z	Not Observed	SPT 0.50-0.95 m 2,5,5 N=10 SPT 1.50-1.95 m 2,1,2 N=3		91.8 92.8			CI	CONCRETE: 185mm.t ROADBASE: Gravelly SAND, fine t grained, dark brown, gravel is fine t grained. CLAY with sand trace gravel: mediu plasticity, dark brown and brown, sz to medium grained, gravel is fine to grained, concrete fragments preser CLAY: low plasticity, dark grey brow orange brown, rootlets present. CLAY trace gravel: medium plastici mottled orange brown, gravel is fine medium grained, rootlets present.	o medium o medium / um and is fine medium nt.	M M M	St S S				0.19: INFERRED FILL 2.30: INFERRED NATURAL
PSM 3.02.2. LIB.GLB Log PSM AU NONCORE BH NZ AU PSM3828.GPU < <ur> <li>PSM 3.02.2. LIB.GLB Log PSM AU NONCORE BH NZ AU PSM3828.GPU &lt;<ur> <li>PSM 3.02.2. LIB.GLB Log PSM AU NONCORE BH NZ AU PSM3828.GPU &lt;</li> <li>P</li> </ur></li></ur>		I I I I I I I I I I I I I I I I I I I	ethc Auge Was Stan Pust Auge	od er drii hbon dard a tubo inuol	SPT 3.00-3.45 m 2,8,21 N=29 SPT 4.50-4.95 m 10,15,21 N=36 ling TC bit ling V bit e penetration tes ewing us push tube 1.	Pee st 5m lo	R netrai lo resis	3	meter	W ⊳ Infl ⊲ Par ◀ Col	SHALE: light grey, extremely weath low strength, with occasional clay b bow U - Undisturbed S tial Loss D - Disturbed San splete Loss SPT - Standard Pen ES - Environmental TW - Thin Walled LB - Large Disturbed	d Tests ands. d Tests ample apple etration Test I Sample ed Sample	D D	 Doistu D M W	- D - M - W	ondit ry loist /et	ion	Consistency/Relative Density         VS       - Very soft         S       - Soft         F       - Firm         St       - Stiff         VSt       - Very stiff         H       - Hard         VL       - Very loose         L       - Loose         MD       - Medium dense         D       Dense         VD       - Very dense         Ce       - Cemented         C       - Compact
-																		

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Borehole ID

BH10A Page 2 of 2

Enginee	ring Log - N	Non Cored	l Boreho	le	Project No.:	PSM	3828	
Client: Project Na Hole Locat Hole Positi	JBS&G me: Ryde H ion: Refer to on: 323051	i lospital Redeve o Figure 1 I.0 m E 625881	elopment 8.0 m N MG	A94 Zone 56	Commenced Completed: Logged By: Checked By:	: 02/04 02/04 KTL/ AS	3/202: 3/202: SD	2
Drill Model Hole Diam	and Mounting: eter:	Geoprobe 782 120 mm	22DT	Inclination: -90° Bearing:	RL Surface: Datum:	93.81 m AHD	Op	perator: Terratest
	Drilling Informati	ion		Soil Descript	tion			Observations
Method Penetration Support	Samples Tests Remarks	Zieno Oo 2 RL Depth (m) (m)	Graphic Log Classification Symbol	Material Description SOIL NAME: Plasticity, behavi particle characteristics of prin component, colour, secondary cor additional observations	our or end nary training nponents, io c	Consistency / Consistency / Relative Density Ann Ann Ann Ann Ann Ann	nd ometer S a)	Structure, Zoning, Origin, Additional Observations
AD/T AD/T	Not Observed			SHALE: light grey, extremely weath low strength, with occasional clay ba (continued)	ered, very ands.			
NZ-AU PSNB828.GPJ < <drawingfite> 19(08/2022 12:04 10.03.00 0b Dagel Fence and Map Tool IL&amp;: PSM 3.02.1 2019-03-06 Pit PSM 3.02.0 2019-02-24</drawingfite>				Hole Terminated at 6.00 m Target depth				
AD/T - Auge AD/V - Auge WB - Wasi SPT - Stan PT - Push AS - Auge CT - Cont	d d r drilling TC bit r drilling V bit bore dard penetration test tube r screwing inuous push tube 1.5 with AS 1726:2017 Geote	Penetration Penetration No resistance Refusal 5m long 76mm dia	w ⊢ Infl ⊲ Par Con ameter	ater Samples and ow U - Undisturbed S D - Disturbed Sam tial Loss SPT - Standard Pene nplete Loss ES - Environmental TW - Thin Walled LB - Large Disturbe	ample ample ple stration Test Sample d Sample	Moisture Cond D - Dry M - Moi W - We	st	Consistency/Relative Density         VS       - Very soft         S       - Soft         F       - Firm         St       - Stiff         VS       - Very stiff         H       - Hard         VL       - Very loose         L       - Loose         MD       - Medium dense         D       - Dense         VD       - Very dense         Ce       - Cemented         C       - Compact

# Appendix B CBR Results

 115 Wicks Road

 Macquarie Park, NSW 2113

 Telephone:
 02 9888 5000

 Facsimile:
 02 9888 5001

![](_page_39_Picture_1.jpeg)

### FOUR DAY SOAKED CALIFORNIA BEARING RATIO TEST REPORT

Client: Pells Sullivan Meynink

PSM Job No.: PSM3828

Location: Ryde Hospital

 Report No.:
 L4800 - 1

 Report Date:
 9/08/2022

 Page 1 of 1
 1

BOREHOLE NUMBE	R	BH 03	BH 05	BH 06	BH 08	BH 09	
DEPTH (m)		0.50 - 1.10	0.50 - 1.20	0.30 - 0.80	0.60 - 1.30	0.30 - 1.10	
Surcharge (kg)		4.5	4.5	4.5	4.5	4.5	
Maximum Dry Densit	ty (t/m <sup>3</sup> )	1.71 STD	1.72 STD	1.63 STD	1.76 STD	1.82 STD	
Optimum Moisture C	ontent (%)	19.0	18.0	21.4	17.2	15.8	
Moulded Dry Density	(t/m <sup>3</sup> )	1.68	1.69	1.60	1.72	1.77	
Sample Density Ratio	o (%)	98	98	98	98	98	
Sample Moisture Rat	tio (%)	96	100	101	100	105	
Moisture Contents							
Insitu (%)		20.4	20.9	27.3	16.5	15.8	
Moulded (%)		18.3	17.9	21.6	17.2	16.6	
After soaking a	nd						
After Test, Top	30mm(%)	28.6	25.0	33.3	26.9	21.7	
	Remaining Depth (%)	22.4	20.3	24.7	21.2	18.8	
Material Retained on	19mm Sieve (%)	0	7*	2*	1*	1*	
Swell (%)		1.0	0.5	3.0	0.0	0.5	
C.B.R. value:	@2.5mm penetration			15	7	5	
	@5.0mm penetration	2.5	4.0			Ŭ	

NOTES: Sampled and supplied by client. Samples tested as received.

· Refer to appropriate Borehole logs for soil descriptions

• Test Methods : AS 1289 6.1.1, 5.1.1 & 2.1.1.

• Date of receipt of sample: 01/08/2022 & 02/08/2022.

![](_page_39_Picture_12.jpeg)

Number:1327

Accredited for compliance with ISO/IEC 17025 - Testing. This document shall not be reproduced except In full without approval of the laboratory. Results relate only to the items tested or sampled.

5 09/08/2022

· \* Denotes not used in test sample.

Authorised Signature / Date (D. Treweek)

All services provided by STS are subject to our standard terms and conditions. A copy is available on request.

Appendix C Results of Slope Stability Analyses

![](_page_41_Figure_0.jpeg)

0.00	Material Name	Color	Unit Weight (kN/m3)	Strength Type	Cohesion (kPa)	Phi (deg)	Water Surface
0.50	Fill		18	Mohr-Coulomb	4	25	None
1.00	Residual		18	Mohr-Coulomb	4	25	None
1.50	Bedrock A		22	Mohr-Coulomb	10	30	None
2.00	Bedrock B		22	Mohr-Coulomb	20	30	None
2.50	9. <del></del>						

3.00 3.50 4.00 4.50 5.00 5.50 6.00+

JBS&G

Ryde Hospital

Denistone Rd, Eastwood NSW

SECTION A

PSM3828-008L

![](_page_41_Picture_6.jpeg)

BASE MODEL

![](_page_42_Figure_0.jpeg)

Safety	Factor
	0.00
	0.50
	1.00
	1.50
	2.00
	2.50
	3.00
	3.50
	4.00
	4.50
	5.00
	5.50
	6.00+

Material Name	Color	Unit Weight (kN/m3)	Strength Type	Cohesion (kPa)	Phi (deg)	Water Surface
Fill		18	Mohr-Coulomb	4	25	None
Residual		18	Mohr-Coulomb	4	25	None
Bedrock A		22	Mohr-Coulomb	10	30	None
Bedrock B		22	Mohr-Coulomb	20	30	None
Engineered FILL		18	Mohr-Coulomb	0	30	None

JBS&G

Ryde Hospital

Denistone Rd, Eastwood NSW

SECTION A

![](_page_42_Picture_7.jpeg)

SLIP SURFACES AT 6m OFFSET

PSM3828-008L

![](_page_43_Picture_0.jpeg)

3.00 3.50 4.00 4.50 5.00 5.50 6.00+

y Factor 0.00	Material Name	Color	Unit Weight (kN/m3)	Strength Type	Cohesion (kPa)	Phi (deg)	Water Surface
0.50	Fill		18	Mohr-Coulomb	4	25	None
1.00	Residual		18	Mohr-Coulomb	4	25	None
1.50	Bedrock A		22	Mohr-Coulomb	10	30	None
2.00	Bedrock B		22	Mohr-Coulomb	30	30	None
2.50							

JBS&G
-------

Ryde Hospital

Denistone Rd, Eastwood NSW

# SECTION B BASE MODEL

PSM3828-008L

P S M

![](_page_44_Figure_0.jpeg)

Safety Factor	<b>Material Name</b>	Color	Unit Weight (kN/m3)	Strength Type	Cohesion (kPa)	Phi (deg)	Water Surface
0.50	Fill		18	Mohr-Coulomb	4	25	None
1.00	Residual		18	Mohr-Coulomb	4	25	None
1.50	Bedrock A		22	Mohr-Coulomb	10	30	None
2.00	Bedrock B		22	Mohr-Coulomb	30	30	None
2.50	Engineered FILL		18	Mohr-Coulomb	0	30	None

2.00
2.50
3.00
3.50
4.00
4.50
5.00
5.50
6.00+

JBS&G

Ryde Hospital

Denistone Rd, Eastwood NSW

SECTION B

SLIP SURFACES AT 7m OFFSET

PSM3828-008L

SM

Ρ

![](_page_45_Picture_0.jpeg)

Safety Factor	Material Name	Color	Unit Weight (kN/m3)	Strength Type	Cohesion (kPa)	Phi (deg)	Water Surface
0.00	Fill		18	Mohr-Coulomb	4	25	None
0.50	Residual		18	Mohr-Coulomb	4	30	None
1.00	Bedrock A		22	Mohr-Coulomb	10	30	None
1 50	Bedrock B		22	Mohr-Coulomb	30	30	None

1.00
1.50
2.00
2.50
3.00
3.50
4.00
4.50
5.00
5.50
6.00+

JBS&G

Ryde Hospital

Denistone Rd, Eastwood NSW

## SECTION C

![](_page_45_Picture_7.jpeg)

BASE MODEL

PSM3828-008L

![](_page_46_Picture_0.jpeg)

Safety Factor	Material Name	Color	Unit Weight (kN/m3)	Strength Type	Cohesion (kPa)	Phi (deg)	Water Surface
0.00	Fill		18	Mohr-Coulomb	4	25	None
0.50	Residual		18	Mohr-Coulomb	4	30	None
1.00	Bedrock A		22	Mohr-Coulomb	10	30	None
1 50	Bedrock B		22	Mohr-Coulomb	30	30	None
1.50	Engineered FILL		18	Mohr-Coulomb	0	30	None

	1.00
	1.50
	2.00
	2.50
	3.00
	3.50
	4.00
	4.50
	5.00
	5.50
	6.00+

JBS&G

Ryde Hospital

Denistone Rd, Eastwood NSW

SECTION C

![](_page_46_Picture_7.jpeg)

SLIP SURFACES AT 7m OFFSET

PSM3828-008L