

Our Ref: 64551  
25 July 2023

Attention: Graeme McMullan

**RE: Preliminary Slope Stability Assessment at 292 Condamine Road, North Manly****1 INTRODUCTION**

Ideal Geotech has prepared this report to discuss the results of the preliminary geotechnical assessment undertaken for the proposed development at 292 Condamine Road, North Manly. Ideal Geotech was engaged to provide a preliminary landslip risk assessment.

The site is located within **Area A** on the Landslip Risk Map- Sheet LSR\_008 which does not normally require a preliminary Geotechnical Assessment, but council has requested a report to determine if further investigation is required.

**2 PROPOSED DEVELOPMENT**

With reference to the supplied drawings prepared by Group Architects, drawing no. GA2020-023-00X and dated 24 January 2023, it is understood that the proposed development comprises the construction of a new clubhouse at the Warringah Golf and Community Club. Up to approximately 0.7m of cut and 0.6m of fill will be undertaken for the construction of the clubhouse with some possible further excavation undertaken for the footings.

**4 GEOLOGY**

The Sydney 1:100,000 scale Geological Series Map indicates that the subject site is underlain by Quaternary deposits consisting of silty to peaty quartz sand, silt and clay with some shell layers.

**5 SITE DESCRIPTION**

The site is irregular in shape with a total area of approximately 1,239m<sup>2</sup>. The site is bound by Pittwater Road to the north and east, Kentwell Road to the south and the golf course to the west. The site is located on relatively flat terrain.

During the course of the inspection no slip scarps or tension cracks were documented nor was there any visible hummocking of the land. This leads to the assumption that no significant slope failures have occurred.

Existing development comprises an existing club house.

## 6 RECOMMENDATIONS

During the course of the inspection, no slip scarps or tension cracks were documented nor was there any visible hummocking of the land. This leads to the assumption that no significant slope failures or subsidence has occurred.

The stability of a site is generally governed by site factors such as slope angles, depth of in-situ soils, and strength of sub-surface material and concentrations of water. The Australian Geomechanics Society recommends that the landslide risk of a site is assessed on the basis of the likelihood of a landslide event and the consequences of that event.

A Risk Assessment related to shallow soil slips, near surface slumping and deep-seated landslides, subject to adherence to our recommendations, has been provided in Table 1 below.

**Table 1: Summary of Risk to Property and Life**

HAZARD	SOIL CREEP	NEAR SURFACE SLUMPING	ACTIVE OR DEEP SEATED LAND SLIDE	ROCK FALL (ABOVE DWELLING LOCATION)
Likelihood	Rare	Rare	Rare	Barely credible
Consequence to Property	Minor	Medium	Major	Major
Risk to Proposed Development	Very Low	Low	Low	Very low
Risk to Life	$1 \times 10^{-6}/\text{annum}$	$1 \times 10^{-5}/\text{annum}$	$1 \times 10^{-5}/\text{annum}$	$1 \times 10^{-6}/\text{annum}$
Remarks	None observed	None observed	None observed	None observed

The site is currently in a stable condition, based on a "Very Low to Low" Risk Level of instability relating to shallow soil slips and active or deep-seated land slide. With reference to the supplied drawings prepared by Group Architects, it is our assessment that the site is suitable for the proposed development and will not be subject to subsidence, slip, slope failure or erosion, provided all construction is carried out in accordance with good engineering and hill slope practices.

The soil profile consists of high permeability silty sands and stormwater discharge will not cause significant detrimental impacts as it is understood absorption trenches are to be installed in conjunction with the high permeability soils. Due to the soil profile consisting of sand and minimal excavation is proposed, subsurface flow conditions will not be impacted.

## 7 GENERAL

The scope of Ideal Geotech services are described in the report and are subject to restrictions and limitations. Ideal Geotech did not perform a complete assessment of all possible conditions or circumstances that may exist at the site. Site conditions may also change subsequent to the investigations and assessment due to ongoing use.

Where data has been supplied by the client or a third party, it is assumed that the information is correct unless otherwise stated. No responsibility is accepted by Ideal Geotech for incomplete or inaccurate data supplied by others.

Assessment was undertaken on 18 July 2023.

For and on behalf of

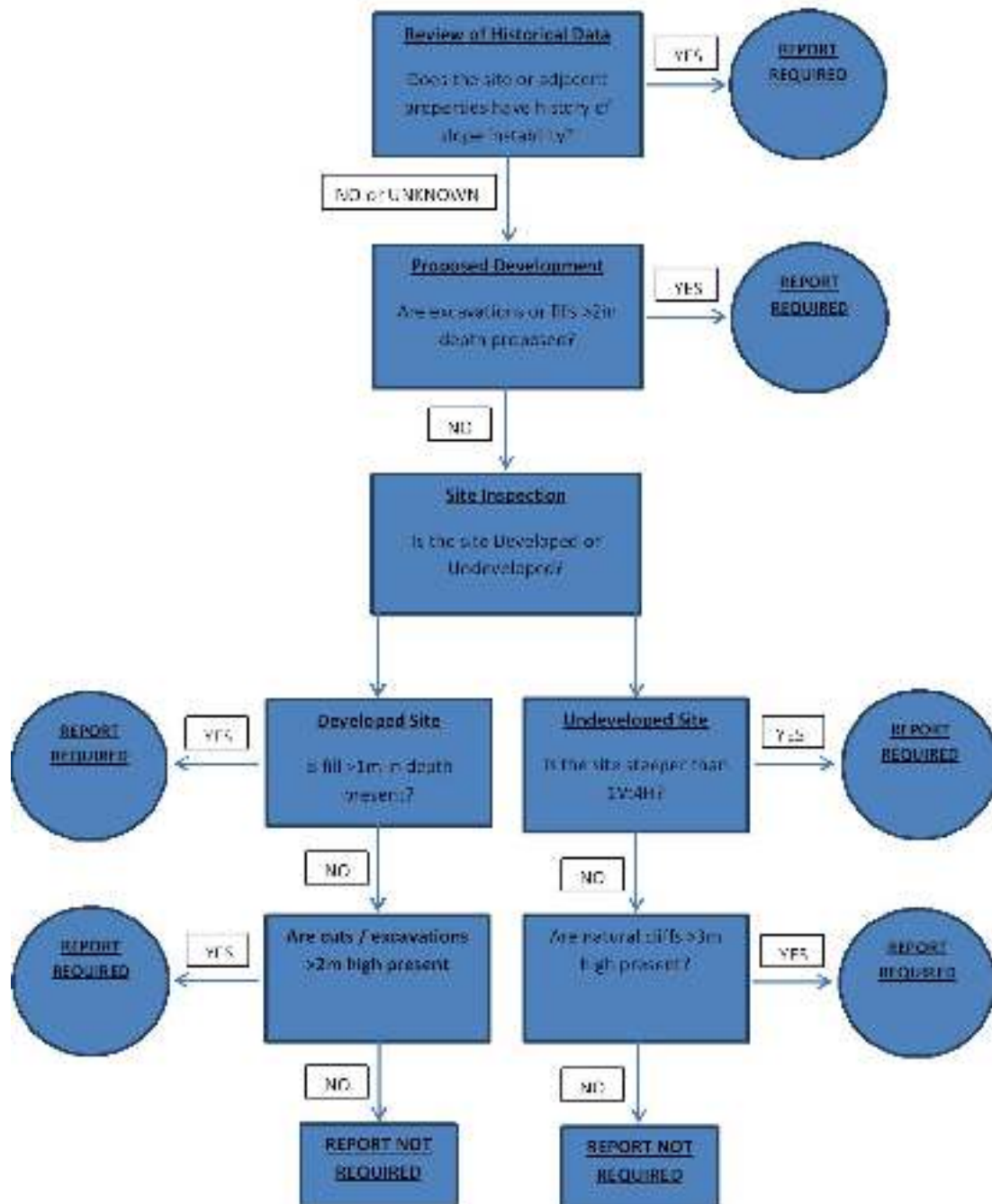
**Ideal Geotech**

A handwritten signature in black ink, appearing to read 'D. Dwyer'.

**Dane Dwyer**  
*Geotechnical Engineer*

Attachments - *Preliminary Assessment Flow Chart*

## PRELIMINARY ASSESSMENT FLOW CHART



# In-Situ Permeability

## Prepared For:

Warringah Golf Club



## Site Address:

(WGC Pro Shop) 292 Condamine Street,  
North Manly

## Ref No:

64338-IDF

## Date:

July 2023

Accredited for compliance  
With ISO/IEC 17025  
NATA Accreditation No.  
19226

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[info@idealcorp.com.au](mailto:info@idealcorp.com.au)  
Website:  
[www.idealgeotech.com.au](http://www.idealgeotech.com.au)



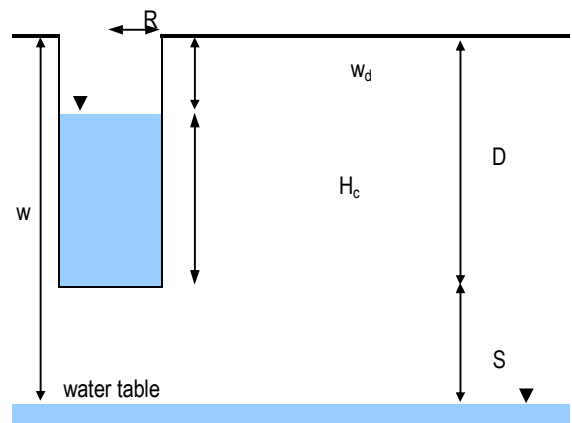

**idealgeotech**  
 a division of idealcorp  
**PERMEABILITY TEST REPORT**

Client :	Warringah Golf Club	Ideal Job Number : 64338-IDF
Project :	Soil Permeability	Test Date : 12-Jul-23
Location :	292 Condamine Street, North Manly	Tested By : I.Mackenzie Hunter

<b>Job ref / borehole ref:</b> BH1 <b>Test Method :</b> AS /NZS 1547:2000 Appendix 4.1F Soil Permeability measurement - constant head method The borehole was soaked with potable water for 10 minutes prior to commencing the test. Applies where $S > 2H_c$	<b>test location:</b> Refer to plan (refer to sketch)
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<b>Test Fluid :</b> Potable water	
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Hole Radius, R :	0.05	m	
Hole Depth, D :	1.00	m	
Depth to Water, wd :	0.10	m	
Constant Head, Hc :	0.90	m	
Depth to Water			
Table, w (if known) :	NA	m	
- date & time :	12/07/23 1:30pm		

Reading No.	Elapsed Time t (mins)	Time Interval dt (mins)	Water Added per dt (litres)	Discharge Rate (litres/min)
1	1:30:00	0.00	0.000	0.00000
2	1:30:05	0.08	0.207	2.58320
3	1:30:10	0.08	0.207	2.58320
4	1:30:15	0.08	0.207	2.58320
5	1:30:20	0.08	0.207	2.58320
6			0.000	
7			0.000	
8			0.000	
9			0.000	
10			0.000	
11			0.000	
12			0.000	

**Site conditions**

soil moisture condition : moist

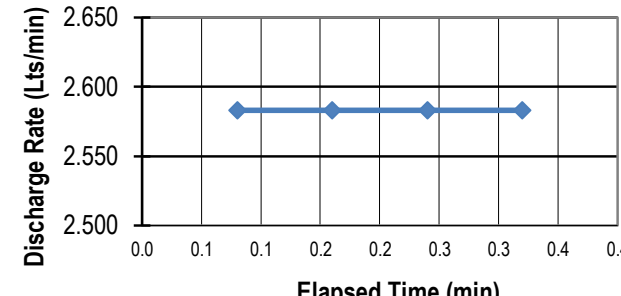
vegetaion cover at test site: grass cover, trees and shrubs

slope: 1° towards west

surface cracks: none observed

water logging: no

**Discharge Rate versus Time**



Discharge Rate Q = <b>2.5832</b> litres/min <b>Hydraulic Conductivity, K =</b> $\frac{Q \{ \sinh^{-1} (H_c/R) - 1 \}}{2 \pi H_c^2}$	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%;"><b>2.2E-05</b></td> <td style="width: 50%;"><b>m/sec</b></td> </tr> <tr> <td><b>1.8888</b></td> <td><b>m/day</b></td> </tr> <tr> <td><b>78.70</b></td> <td><b>mm/hr</b></td> </tr> <tr> <td><b>0.517</b></td> <td><b>L/m2/sec</b></td> </tr> </table>	<b>2.2E-05</b>	<b>m/sec</b>	<b>1.8888</b>	<b>m/day</b>	<b>78.70</b>	<b>mm/hr</b>	<b>0.517</b>	<b>L/m2/sec</b>
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**Notes :** 1) Material Description: Silty Gravelly SAND overlying; Silty SAND

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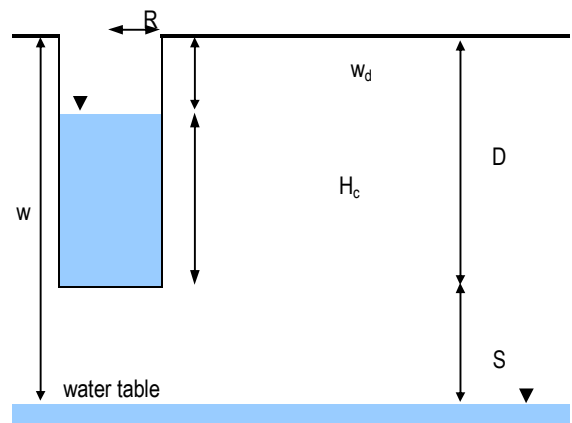

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Project :	Soil Permeability	Test Date : 12-Jul-23
Location :	292 Condamine Street, North Manly	Tested By : I.Mackenzie Hunter

<b>Job ref / borehole ref:</b> BH2 <b>Test Method :</b> AS /NZS 1547:2000 Appendix 4.1F Soil Permeability measurement - constant head method The borehole was soaked with potable water for 10 minutes prior to commencing the test. Applies where $S > 2H_c$	<b>test location:</b> Refer to plan (refer to sketch)
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10			0.000	
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12			0.000	

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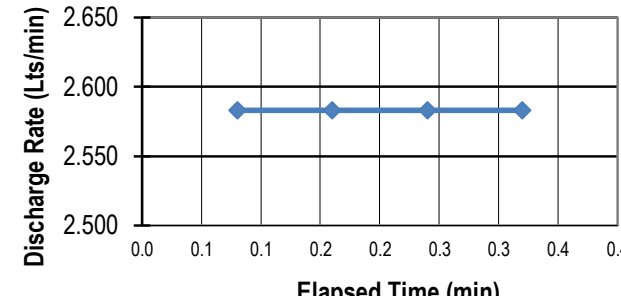
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water logging: no

**Discharge Rate versus Time**



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**NORTH POINT**

<b>Title</b>	Borehole Location Plan	<b>Council</b>	Northern Beaches Council	<b>Drawn By</b>	Ben
<b>Project</b>	In-Situ Permeability	<b>Job Number</b>	64338-IDF	<b>Checked By</b>	Dane
<b>Site Address</b>	292 Condamine Street, North Manly	<b>Figure Number</b>	Figure 1	<b>Date</b>	Jul-23

## 5.1 FIELD LOG

Water		Samples	Depth	Material Origin	FILL Depth	Classification Code	Material Description	Moisture	Density / Consistency
No water observed				FILL		SM	Silty Gravelly SAND Dark Brown	Slightly Moist	
			0.5	NATURAL		SM	Silty SAND Brown	Slightly Moist	
			1.0				End Bore (Hand Auger) 0.8m		
			1.5						
			2.0						
			2.5						
			3.0						

▼ Water Table		UTP - Unable to penetrate		DCP - 9kg Dynamic Cone Penetrometer		PP - Pocket Penetrometer			
SAND – Density Index vs Approx. Penetrometer results				SILTS & CLAY – Cu vs Approx. Penetrometer results				MOISTURE	
DENSITY		Density Index	DCP Blow Count (blows/100mm)	CONSISTENCY		Undrained Shear Strength (kPa)	DCP Blow Count (blows/100mm)		
VL	Very Loose	< 15 %	< 1	VS	Very Soft	0 – 12	< 1	D	Dry
L	Loose	15 – 35 %	1 – 3	S	Soft	12 – 25	1 – 2	M	Moist
MD	Medium Dense	35 – 65 %	3 – 9	F	Firm	25 – 50	2 – 3	W	Wet
D	Dense	65 – 85 %	9 – 15	St	Stiff	50 – 100	3 – 5	W <sub>P</sub>	Plastic Limit
VD	Very Dense	> 85 %	> 15	VSt	Very Stiff	100 – 200	5 – 8	W <sub>L</sub>	Liquid Limit
				H	Hard	> 200	> 8	m	Moisture

## 5.2 FIELD LOG

Water		Samples	Depth	Material Origin	FILL Depth	Classification Code	Material Description	Moisture	Density / Consistency
No water observed				FILL		SM	Silty Gravelly SAND Dark Brown	Slightly Moist	
			0.5	NATURAL		SM	Silty SAND Brown	Slightly Moist	
			1.0						
			1.5				End Bore (Hand Auger) 1m		
			2.0						
			2.5						
			3.0						

▼ Water Table		UTP - Unable to penetrate		DCP - 9kg Dynamic Cone Penetrometer		PP - Pocket Penetrometer			
SAND – Density Index vs Approx. Penetrometer results				SILTS & CLAY – Cu vs Approx. Penetrometer results				MOISTURE	
DENSITY		Density Index	DCP Blow Count (blows/100mm)	CONSISTENCY		Undrained Shear Strength (kPa)	DCP Blow Count (blows/100mm)		
VL	Very Loose	< 15 %	< 1	VS	Very Soft	0 – 12	< 1	D	Dry
L	Loose	15 – 35 %	1 – 3	S	Soft	12 – 25	1 – 2	M	Moist
MD	Medium Dense	35 – 65 %	3 – 9	F	Firm	25 – 50	2 – 3	W	Wet
D	Dense	65 – 85 %	9 – 15	St	Stiff	50 – 100	3 – 5	W <sub>P</sub>	Plastic Limit
VD	Very Dense	> 85 %	> 15	VSt	Very Stiff	100 – 200	5 – 8	W <sub>L</sub>	Liquid Limit
				H	Hard	> 200	> 8	m	Moisture