

**GEOTECHNICAL RISK MANAGEMENT POLICY FOR PITTWATER**  
**FORM NO. 1 – To be submitted with Development Application**

Development Application for \_\_\_\_\_  
Name of Applicant  
Address of site 2 William Street, Avalon Beach

*Declaration made by geotechnical engineer or engineering geologist or coastal engineer (where applicable) as part of a geotechnical report*

I, Ben White on behalf of White Geotechnical Group Pty Ltd  
(Insert Name) (Trading or Company Name)

on this the 1/4/25 certify that I am a geotechnical engineer or engineering geologist or coastal engineer as defined by the Geotechnical Risk Management Policy for Pittwater - 2009 and I am authorised by the above organisation/company to issue this document and to certify that the organisation/company has a current professional indemnity policy of at least \$10million.

I:

**Please mark appropriate box**

- ☐ have prepared the detailed Geotechnical Report referenced below in accordance with the Australia Geomechanics Society's Landslide Risk Management Guidelines (AGS 2007) and the Geotechnical Risk Management Policy for Pittwater - 2009
- ☐ am willing to technically verify that the detailed Geotechnical Report referenced below has been prepared in accordance with the Australian Geomechanics Society's Landslide Risk Management Guidelines (AGS 2007) and the Geotechnical Risk Management Policy for Pittwater - 2009
- ☐ have examined the site and the proposed development in detail and have carried out a risk assessment in accordance with Section 6.0 of the Geotechnical Risk Management Policy for Pittwater - 2009. I confirm that the results of the risk assessment for the proposed development are in compliance with the Geotechnical Risk Management Policy for Pittwater - 2009 and further detailed geotechnical reporting is not required for the subject site.
- ☒ have examined the site and the proposed development/alteration in detail and I am of the opinion that the Development Application only involves Minor Development/Alteration that does not require a Geotechnical Report or Risk Assessment and hence my Report is in accordance with the Geotechnical Risk Management Policy for Pittwater - 2009 requirements.
- ☐ have examined the site and the proposed development/alteration is separate from and is not affected by a Geotechnical Hazard and does not require a Geotechnical Report or Risk Assessment and hence my Report is in accordance with the Geotechnical Risk Management Policy for Pittwater - 2009 requirements.
- ☐ have provided the coastal process and coastal forces analysis for inclusion in the Geotechnical Report


**Geotechnical Report Details:**

Report Title: Geotechnical Report 2 William Street, Avalon Beach  
Report Date: 1/4/25  
Author: BEN WHITE  
Author's Company/Organisation: WHITE GEOTECHNICAL GROUP PTY LTD

**Documentation which relate to or are relied upon in report preparation:**

Australian Geomechanics Society Landslide Risk Management March 2007.  
White Geotechnical Group company archives.

I am aware that the above Geotechnical Report, prepared for the abovementioned site is to be submitted in support of a Development Application for this site and will be relied on by Pittwater Council as the basis for ensuring that the Geotechnical Risk Management aspects of the proposed development have been adequately addressed to achieve an "Acceptable Risk Management" level for the life of the structure, taken as at least 100 years unless otherwise stated and justified in the Report and that reasonable and practical measures have been identified to remove foreseeable risk.

Signature   
Name Ben White  
Chartered Professional Status MScGEOL AIG., RPGeo  
Membership No. 10306  
Company White Geotechnical Group Pty Ltd



## **2 William Street, Avalon Beach**

### Minor Works Assessment

#### **1. Proposed Development**

A geotechnical site inspection was carried out on the 20<sup>th</sup> March, 2025.

Details of the proposed development are shown on 10 drawings prepared by C A group architects, Job number 2497, drawings numbered A0000, A1000, A2000 to 2002, A3000, A4000 to 40001, A5000, and A5100. All revision A. All dated 18.02.2025.

The proposal involves internal works to the existing dwelling and a renovation and extension of the decking on the uphill side. We have been informed that the decking extension will be supported on an existing retaining wall and that no new footings are required for the proposed works. As such, the proposal is considered minor in scope from a geotechnical perspective.

#### **2. Geotechnical Hazards and Risk Analysis**

No geotechnical hazards were observed above or beside the property. The moderate to steeply graded slope that rises across the property and continues above and below is a potential hazard (**Hazard One**).

##### **Hazard One – Qualitative Risk Assessment on Property**

This residential property is on the high side of the road and encompasses the moderate to steeply graded upper reaches of a hillslope. The property has an E aspect. The block runs lengthways to the NW so the slope is a cross-fall. The natural slope rises across the property at an average angle of ~20°. The slope above and below the property continue at similar moderate angles.

At the road frontage, a concrete driveway runs up the slope to a garage on the ground floor of the house. Fill for landscaping on the downhill side of the house is supported by a mortared sandstone retaining wall reaching ~2.1m high which approximates the downhill and NE

common boundaries. Cracking in the mortar was measured up to a maximum width of ~13mm. However, no significant deflection was observed and the wall is considered stable. To maintain ongoing stability, these walls require occasional maintenance which may involve re-mortaring/restacking. The two-story house is supported on brick walls. No significant signs of movement were observed in the visible supporting walls. Two cuts for the ground and upper floors of the house are supported by mortared sandstone block retaining walls reaching ~3.6m and ~2.4m high. Minor cracking is visible in the mortar between the blocks. However, these walls are also considered stable subject to ongoing maintenance. Concrete stairs and pathing have been laid on the backfill behind these walls and were observed to be cracked and tilting significantly, this is expected to be due to the uncompacted fill settling over time and is unrelated to the natural ground movement of the underlying clays. Mortared stone retaining walls reaching up to ~1.1m terrace the steep slope between the house and the upper common boundary. No significant signs of movement were observed on the property. The adjoining neighbouring property was observed to be in good order as seen from the subject property.

The slope across the property ranges from moderate angles below the house to steep angles above the house. The slope above and below the property continue at moderate angles. The likelihood of the land surface on or below the property failing and impacting on the property is assessed as 'Unlikely' ( $10^{-4}$ ). The consequences to property of such a failure are assessed as 'Medium' (12%). The risk to property is 'Low' ( $2 \times 10^{-5}$ ).

### **Hazard One – Quantitative Risk Assessment on Property**

For loss of life risk can be calculated as follows:

$R_{(LoI)} = P_{(H)} \times P_{(S: H)} \times P_{(T: S)} \times V_{(D: T)}$  (See Aust. Geomech. Jnl. Mar 2007 Vol. 42 No 1, for full explanation of terms)

### **Annual Probability**

No evidence of significant movement was observed on the property.

$$P_{(H)} = 0.0001/\text{annum}$$

### Probability of Spatial Impact

The probability of the subject house being impacted when a landslide occurs is estimated to be 0.1.

$$P_{(S: H)} = 0.1$$

### Possibility of the Location Being Occupied During Failure

The average household is taken to be occupied by 4 people. It is estimated that 1 person is in the house for 20 hours a day, 7 days a week. It is estimated 3 people are in the house 12 hours a day, 5 days a week.

For the person most at risk:

$$\frac{20}{24} \times \frac{7}{7} = 0.83$$

$$P_{(T: S)} = 0.83$$

### Probability of Loss of Life on Impact of Failure

Based on the volume of land sliding and its likely velocity when it hits the house, it is estimated that the vulnerability of a person to being killed when a landslide occurs is 0.1.

$$V_{(D: T)} = 0.1$$

### Risk Estimation

$$\begin{aligned} R_{(LoI)} &= 0.0001 \times 0.1 \times 0.83 \times 0.01 \\ &= 0.00000083 \end{aligned}$$

$$R_{(LoI)} = 8.3 \times 10^{-7}/\text{annum} \quad \text{NOTE: This level of risk is 'ACCEPTABLE'}$$

## Geotechnical Hazards and Risk Analysis - Risk Analysis Summary

HAZARDS	Hazard One
TYPE	The gentle to moderate slope that falls across the property and continues below failing and impacting on the property.
LIKELIHOOD	'Unlikely' ( $10^{-4}$ )
CONSEQUENCES TO PROPERTY	'Medium' (12%)
RISK TO PROPERTY	'Low' ( $2 \times 10^{-5}$ )
RISK TO LIFE	$8.3 \times 10^{-7}$ /annum
COMMENTS	This level of risk is 'ACCEPTABLE'

(See Aust. Geomech. Jnl. Mar 2007 Vol. 42 No 1, for full explanation of terms)

### 3. Conclusion

The property has an 'Acceptable Risk Level' in accordance with the 2009 Geotechnical Risk Management Policy for Pittwater.

White Geotechnical Group Pty Ltd.



Nathan Gardner B.Sc. (Geol. & Geophys. & Env. Stud.)  
AIG., RPGeo Geotechnical & Engineering.  
No. 10307  
Engineering Geologist & Environmental Scientist.

Reviewed By:



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