

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

Development Application for _____
Name of Applicant
Address of site 17 Calvert Parade, Newport

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 31/7/19 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 17 Calvert Parade, Newport
Report Date: 31/7/19
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

MScGEOLAusIMM CP GEOL

Membership No.

222757

Company

White Geotechnical Group Pty Ltd

17 Calvert Parade, Newport

Minor Works Assessment

1. Proposed Development

A geotechnical site inspection was carried out on the 25th July, 2019.

Details of the proposed works are shown on 9 drawings prepared by Rama Architects, drawings numbered DA-000, 001, 100, 300 to 303, 400, and 401, dated 31/7/19. The work involves the construction of an awning on the E side of the house. The proposed works are 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 steep land surface that falls across the downhill side of the property 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 E flank and crest of a S-N trending ridge line immediately above and partially onto Newport Beach. In the location of the house, the slope rises across the property at an average angle of $\sim 7^\circ$. The slope falls very steeply at an average angle of $\sim 49^\circ$ from the E side of the house to Newport Beach below. The natural slope around the house has been altered with an excavation for the house. The cut for the house is supported by a stable $\sim 1.7\text{m}$ high rendered masonry retaining wall (Photo 1). The slope above the property continues at gentle angles and appears in good order as observed from the subject property. The steep slope below the property is densely vegetated and also appears in good order as observed from above and below (Photo 2). The likelihood of the land surface on or above the property failing and impacting on the house is assessed as 'Unlikely' (10^{-4}). The consequences to property of such a failure are assessed as 'Medium' (15%). The risk to property is 'Low' (2×10^{-5}).

Hazard One – Quantitative Risk Assessment on Property

For loss of life risk can be calculated as follows:

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

Annual Probability

No evidence of significant movement was observed on the property or on the slopes immediately above and below.

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

Probability of Spatial Impact

The retaining walls on the property are in good condition. The residential property above appeared in good order as observed from the subject property.

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

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:

$$\frac{20}{24} \times \frac{7}{7} = 0.83 \quad P_{(T: S)} = 0.83$$

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

$$R_{(LoI)} = 0.0001 \times 0.1 \times 0.83 \times 0.1 \\ = 0.00000083$$

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

Geotechnical Hazards and Risk Analysis - Risk Analysis Summary

| HAZARDS | Hazard One |
|--------------------------|----------------------------------------------------------------------------------------------------------------------------------------------|
| TYPE | The steep slope that falls across the property and continues above and below failing and impacting on the existing house and proposed works. |
| LIKELIHOOD | 'Unlikely' (10^{-4}) |
| CONSEQUENCES TO PROPERTY | 'Medium' (15%) |
| RISK TO PROPERTY | 'Low' (2×10^{-5}) |
| RISK TO LIFE | $8.3 \times 10^{-7}/\text{annum}$ |
| 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.



Ben White M.Sc. Geol.,
AusIMM., CP GEOL.
No. 222757
Engineering Geologist.



Photo 1



Photo 2