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Our Reference: 06/07390

Walsh Architects
Building 3.3/1 Dairy Street
CANBERRA. ACT 2609

Attention: **Scott Walsh**

Preliminary Stability Assessment
Nos. 1, 5, 5A & 7 Gladys Avenue, Frenchs Forest

1) Introduction

This report presents a preliminary stability assessment report for Nos. 1, 5, 5A & 7 Gladys Avenue, Frenchs Forest.

The following comments are based on observations made both on-site and in the local vicinity as well as our experience with similar geotechnical environments.

Approval for preparation of this assessment was given by Mr. Neil Walsh of Walsh Architects, on behalf of the owner.

This is not a contamination assessment.

2) Topographical Conditions & Present Development

The site presently comprises four separate single occupancy residential properties at Nos. 1, 5, 5A & 7 Gladys Avenue, Frenchs Forest.

The combined properties are located on the upper northern slopes above Oxford Falls. Gladys Avenue is close to the crest of the ridge line formed locally along Warringah Road. The site is some 120 m directly north of the Northern Beaches Hospital.

In this area Gladys Avenue is ‘L’ shaped with the site contained on the inside, south eastern side of the L. No. 1 is on the eastern side of the road where the road runs in a north south direction, Nos. 5, 5A & 7 are on the southern side of the road where it runs in a east west direction. The combined lots form a ‘U’ shaped site. No. 3 Gladys Avenue which is located inside the ‘U’, on the eastern side of the road, is not part of the site.

The existing development comprises individual one and two storey residences all situated close to the centre of the various properties. The building are of brick and timber construction. The remaining areas are grassed, paved or covered with gardens. No obvious distress was observed in the external walls of these structures during our inspection.

Adjacent development includes individual house of similar construction.

The site has overall plan dimensions of about 65 m x 93 m. The block slopes gently down in a north east direction. There is an overall fall of less than 5 m, with an average slope of 2.5^{o}.

3) Proposed Construction

We understand that it is proposed to construct a new residential complex containing some 30 townhouses. There will be up to four stories above ground with basement car parking below.

4) Geotechnical Conditions

Reference to the Sydney geological series sheet, at a scale of 1:100,000, indicates that the site is underlain by the Triassic Age Hawkesbury Sandstone contained within the Wianamatta Group. Rocks within this formation comprise fine to medium grained quartz sandstone. The landform in this area is typical of that found in the Hawkesbury sandstone environment, with rock at shallow depth, some steep cliff faces and rock exposed in numerous locations.

Available evidence suggests that the site is underlain by Hawkesbury Sandstone at shallow depth.

We have observed natural cliff faces and man made cuts in the general vicinity of significant height that have stood nearly vertical with no apparent signs of instability. In some places there has been minor undercutting of the face along relatively soft shaley layers, in other locations occasional individual blocks have become dislodged along the bedding and subvertical joint planes.

5) Landslip Assessment

This landslip assessment has been prepared in accordance with the Northern Beaches Council 2011 LEP Planning Rules, Section E-10 Landslip Risk.

The site is located in Risk Class Zone A (slopes less than 5^{0}). The average slope on this site is only 2.5^{0}.

Using the Council flow chart check list (Section E-10) we note:

History of Landslip	- No/Unknown
Proposed Excavation > 2m	- Yes
Proposed Fill > 2m	- No
Site Developed	- Yes
Existing Fill > 1 m	- No
Existing Excavation < 2m	- No
Natural Cliff > 3 m	- No

There are no obvious signs of slope instability in the immediate vicinity of the site. The slopes on, immediately above and below the site are gentle. It is considered that a detailed Landslip Risk Assessment is not required and that it is unlikely that the reported proposed new works will increase the risk of instability for this site assuming good engineering practices are followed.

FINAL COMMENT

It is concluded that a detailed slope stability/slip assessment is not required for this site.

The attached *Notes Relating To Geotechnical Report* are an intrinsic part of this report.

We do note that we have assumed in our costing for this assessment that you, the client, will contact us by phone on a number of occasions to discuss the proposed works, especially in regards to the findings presented in this report.

Please do not hesitate to contact the writer if you would like to discuss this report.

Yours Sincerely

Michael A Adler BSc, BE, MSc, DIC, MIEAust, CPEng

NOTES RELATING TO GEOTECHNICAL REPORTS
Michael Adler & Associates

Introduction

These notes outline some of the methodology and limitations inherent in geotechnical reporting. The issues discussed are not relevant to all reports and further advice should be sought if there are any queries regarding any advice or report.

When copies of reports are made, they should be reproduced in full.

Geotechnical Reports

Geotechnical reports are prepared by qualified personnel using information supplied or obtained. They are based on current engineering standards of interpretation and analysis.

Information may be gained from limited subsurface testing, surface observations, previous work often supplemented by knowledge of the local geology and experience of the range of properties that may be exhibited by the materials present. For this reason, geotechnical reports should be regarded as interpretative rather than factual documents, limited to some extent by the scope of information on which they rely.

Where the report has been prepared for a specific purpose (e.g.. design of a three-storey building), the information and interpretation may not be appropriate if the design is changed (e.g.. a twenty storey building). In such cases, the report and the sufficiency of the existing work should be reviewed by Michael Adler & Associates in the light of the new proposal.

Every care is taken with the report content, however, it is not always possible to anticipate or assume responsibility for all situations such as:

- Unexpected variations in ground conditions. The potential for this depends on the amount of investigative work undertaken.
- Changes in policy or interpretation by statutory authorities.
- The actions of contractors responding to commercial pressures.
- Interpretation by others of this report.

If these occur, Michael Adler & Associates would be pleased to resolve the matter through further investigation, analysis or advice.

Unforeseen Conditions

Should conditions encountered on site differ markedly from those anticipated from the information contained in the report, Michael Adler & Associates should be notified immediately. Early identification of site anomalies generally results in most problems being more readily resolved, and allows reinterpretation and assessment of the implications for future work.

Subsurface Information

Logs of a borehole, rock core, test pit, excavated face or cone penetration test are an engineering and/or geological interpretation of the subsurface conditions. The reliability of the logged information depends on the drilling/testing method, sampling and/or observation spacing and the ground conditions. It is not always possible or economic to obtain continuous high quality data. It should also be recognised that the volume or material observed or tested is only a fraction of the total subsurface profile.

Interpretation of the available subsurface information and application to design/ construction should take into consideration the spacing of the test locations, the frequency of observations and testing, and the possibility that geological boundaries may vary between observation points.

Groundwater observations and measurements not based on specially designed and constructed piezometers should be treated with care for the following reasons:

- In low permeability soils groundwater may not seep into an excavation or bore in the short time it is left open.
- A localised perched water table may not represent the true water table.
- Groundwater levels vary according to rainfall events or season.
- Some drilling and testing procedures such as rock coring or penetration testing mask or prevent groundwater inflow.

The installation of piezometers and long term monitoring of groundwater levels may be required to adequately identify groundwater conditions.

Supply of Geotechnical Information For Tendering Purposes

It is recommended that tenderers are provided with as much geological and geotechnical information as there is available. It is best practice to provide copies of all geotechnical related reports, opinions and data.

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