

**PRELIMINARY GEOTECHNICAL ASSESSMENT
FOR
PROPOSED NEW RESIDENCE
AT
17 ARANDA DRIVE, FRENCHS FOREST**

1.0 INTRODUCTION.

1.1 This assessment has been prepared to accompany an application for development approval.

1.2 The site is located in land that is subject to predominately Area B on the Landslip Risk Map. The methods used in this Assessment are based on those described in Landslide Risk Management March 2007, published by the Australian Geomechanics Society. Also Council checklist contained within Clause E10 of Warringah DCP and the WLEP Map identifying the Landslip Risk Class as highlighted (red) below:-

	LANDSLIP RISK CLASS (<i>Highlight indicates Landslip Risk Class of property</i>)
<input type="checkbox"/>	<i>A Geotechnical Report not normally required</i>
<input checked="" type="checkbox"/>	<i>B Geotechnical Engineer (Under Council Guidelines) to decide if Geotechnical Report is required</i>
<input type="checkbox"/>	<i>C Geotechnical Report is required</i>
<input type="checkbox"/>	<i>D Council officers to decide if Geotechnical Report is required</i>
<input type="checkbox"/>	<i>E Geotechnical Report required</i>

1.3 The experience of Hodgson Consulting Engineers spans some 25 years in Northern Beaches and the Greater Sydney area.

2.0 PROPOSED DEVELOPMENT

2.1 Construct a new two storey residence to replace the existing residence that has been demolished due to fire damage.

2.2 Details of the proposed development are shown on a series of architectural drawings prepared by Advantage, Job No: 4363, Revision CC1, Dwg No: 1.1 to 1.11 and dated 17th February, 2021.

3.0 SITE LOCATION

3.1 The site was inspected for this assessment on the 7th December, 2020.

3.2 This average sized rectangular residential block has a southerly aspect. From the road frontage the gentle sloped road reserve changes to steep slope of average angles of 15 to 20 degrees at the subject property's front boundary before flattening out at the rear of the subject property to a moderate to steep slope continuing to fall towards the south at average angles of 10 to 15 degrees.

4.0 SITE DESCRIPTION

From the road frontage the short concrete driveway crossing starts near the north eastern corner of the property heading south towards the detached garage adjacent the eastern side boundary. Pedestrian access is also via the driveway. Treated log retaining walls support the cut into the road reserve and adjacent the western side boundary and appeared stable at the time of our inspection. The existing residence has been demolished due to fire damage and a soil batter of approximately 3 metres in height and 45 degrees was left by the demolition contractor to the western side of the existing garage. The soil batter falls from the front level yard to level rear yard. The demolition works exposed the concrete strip footing supporting the brick wall and concrete patio slab to the west of the existing garage. This concrete strip footing will need to be underpinned or removed and rebuilt as the footing was observed no longer to be founded on solid ground. Access to the rear of the property is via a path and a set landscaped stairs on the eastern side of the existing detached garage. Previous repair works to the masonry in the south eastern corner in the brickwork of the existing detached garage was observed with no further movement observed since the repair work was carried out. The rear yard is a gentle slope and was covered by lawn. The existing detached garage is of timber, brick and concrete construction supported by masonry walls and piers on strip and pad footings. At the time of our inspection no significant geotechnical hazards were identified and the existing buildings were in fair condition with no signs of significant movement due to geotechnical instability. Exposed Hawkesbury Sandstone was observed on the subject and neighbouring properties.

5.0 RECOMMENDATIONS

The exposed concrete strip footing supporting the brick wall and concrete patio slab to the west of the existing detached garage will need to be underpinned or demolished and rebuilt.

An engineered designed and certified retaining wall is to be constructed at the toe of the soil batter to allow the construction of the new residence and to ensure the long term stability of the soil batter.

The proposed residence and remedial works will require excavation for any new footings that are required. The depth to the underlying bedrock is approximately 0.0 to 1.5 metres. We recommend that any new foundations required are to be taken to the underlying bedrock. The design allowable bearing pressure is 850 kPa for spread footings or shallow piers. All footings are to be founded on material of equal consistency to prevent differential settlement.

All new foundations are to be inspected by the geotechnical engineer before concrete is placed.

6.0 CONCLUSION

The proposed new residence and existing site conditions were considered and applied to the Council Flow Chart for Class B area as contained within Clause E10 of Warringah DCP and the WLEP. Based on this preliminary assessment, the proposed development works would be considered satisfactory from a Geotechnical and landslip perspective subject to the application of good engineering practice for the structural design and construction methods. As it is not proposed to undertake any major excavation for the future works it is therefore recommended that no further geotechnical assessment is required.

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