62 Southern Cross Way, Allambie Heights

New DA.

The site was inspected on the 15th November, 2018.

Proposed Changes

We have reviewed the existing preliminary geotechnical report done by this firm for a previous DA and the 10 plans for a new DA by Northern Beaches Designs, project number 1825, drawings numbered DA1 to 10, dated 24/7/19.

The new DA includes:

- Adding an additional level onto the extension to the downhill side of the house.
- Various other minor internal and external changes.

The changes made to the previous DA for the new DA are considered minor from a geotechnical perspective. However, a ~2.3m fill is proposed that was not addressed in the original report. As such, we would add the following advice to the existing report, where the advice contradicts that in the existing report, it supersedes it:

Filling

From the plans, it is apparent that a fill to maximum height of ~2.3m will be placed on the downhill side of the proposed addition for a level lawn area. No fill is to be laid until retaining walls are in place. Filling to this depth without appropriate compaction will result in a significant settlement.

To avoid excessive settlement, the fill is to be placed in loose layers not exceeding 0.2m thick before being compacted as follows:

Before all fills are lain, strip the existing topsoil and remove all organic matter, stockpiling for later use as topsoil or remove from site.

Non-Cohesive Soils (sandy fills)

The proposed fill for landscaping is to be compacted to a Minimum Density Index (ID) of 65%.

Cohesive Soils (clayey fill & excavated bedrock)

The proposed fill for landscaping is to be compacted to at least 95% of Standard Maximum Dry Density.

The geotechnical consultant is to inspect and test the fill as it is laid in 1.2m rises to ensure the required density has been achieved.

Filling within 1.5m behind retaining walls should be compacted with light weight equipment such as a hand operated plate compacter or similar so as to not damage the wall. No pavements or structures are to be supported on fill.

Inspections

The client and builder are to familiarise themselves with the following required inspections as well as council geotechnical policy. We cannot provide geotechnical certification for the Occupation Certificate if the following inspections have not been carried out during the construction process.

- The geotechnical consultant is to inspect and test the fill for the level lawn area as it is raised to heights not exceeding ~1.2m. This is to ensure the required density has been achieved during compaction.

Conclusion

Provided these recommendations are followed as well as the recommendations in the original attached report carried out by this firm, we consider the proposed works have 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.,
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No. 222757
Engineering Geologist.

PRELIMINARY GEOTECHNICAL ASSESSMENT:

62 Southern Cross Way, Allambie Heights

1.0	***LANDSLIP RISK CLASS*** *(Highlight indicates Landslip Risk Class of property)*
☐	*A - Geotechnical Report not normally required*
■	*B - Geotechnical Engineer (Under Council Guidelines) to decide if Geotechnical Report is required*
☐	*C - Geotechnical Report is required*
☐	*D - Geotechnical Engineer (Under Council Guidelines) to decide if Geotechnical Report is required*
☐	*E - Geotechnical Report required*

2.0 Proposed Development

2.1 Extend the downhill side of the house and re-landscape the downhill side of the property by filling to a maximum height of ~2.0m.

2.2 Enclose the existing carport to create a garage.

2.3 No excavations are shown on the plans.

2.4 Details of the proposed development are shown on 19 drawings prepared by Northern Beaches Designs, Project number 1825, drawings numbered DA1 to 19, dated 14/11/18.

3.0 Site Location

3.1 The site was inspected on the 15th November, 2018.

3.2 The road wraps from above the W side, around the S side, to below the SE side of this residential property. It has an E aspect. It is located on the moderately graded upper reaches of a hillslope. Medium Strength Hawkesbury Sandstone bedrock outcrops and steps down the property. Where sandstone is not exposed, it is expected

to underlie the surface at relatively shallow depths. The natural surface of the block has been altered with excavations for the carport, house, and pool, and with filling used for landscaping on the downhill side of the property. The proposed development will require filling to a maximum depth of ~2.0m.

3.3 The site shows no indications of historical movement in the natural surface that could have occurred since the property was developed. We are aware of no history of instability on the property.

4.0 Site Description

From the upper boundary to the lower boundary, the natural slope falls at an average angle of ~16°. At the upper portion of the road frontage, a concrete driveway runs to a concrete parking area and carport on the uphill side of the property. The cut for the carport is supported by a concrete block retaining wall reaching ~1.8m high. The S half of the retaining wall reaches a maximum height of ~1.5m and is tilting to ~4° (Photo 1). See **Section 5.0** for recommendations. The part two-storey brick house is supported on brick walls and brick piers. The external supporting walls of the house display no significant signs of movement and the supporting brick piers stand vertical. The downhill side of the house and some of the brick piers were observed to be supported directly onto outcropping competent Medium Strength Sandstone bedrock. Sandstone outcrops on the S side of the house. The outcrop is slightly undercut but is bridged at both ends and is currently considered stable. A gently sloping lawn-covered fill extends off the downhill side of the house. The fill is supported by a stack rock retaining wall that will be demolished as part of the proposed works. An excavation has been made in the slope on the downhill side of the property for a pool. The water level of the pool indicates no ground movement has occurred in the shell of the pool since its construction. The area surrounding the house and pool is mostly paved or lawn covered. No signs of movement associated with slope instability were observed on the grounds. The adjoining neighbouring properties were observed to be in good order as seen from the road and the subject property.

5.0 Recommendations

The proposed development and site conditions were considered and applied to the Council Flow Chart.

A fill will be placed on the downhill side of the proposed extension to the house. No fills are to be laid until retaining walls are in place. The fill will reach a maximum depth of ~2.0m. The surface is to be prepared before any fills are laid by removing any organic matter and topsoil. Fills are to be laid in a loose thickness not exceeding 0.3m before being moderately compacted. Tracking the machine over the loose fill in 1 to 2 passes should be sufficient. Immediately behind the retaining structure (say to 1.5m), the fill is to be compacted with light weight equipment such as a hand-held plate compactor so as not to damage the retaining wall. Where light weight equipment is used fills are to be laid in a loose thickness not exceeding 0.2m before being compacted. No structures are to be supported on fill.

The concrete block retaining wall on the uphill side of the property is tilting downslope to ~4° (Photo 1). We recommend consideration be made to repairing/replacing the retaining wall during the proposed works to the carport. Alternatively, the retaining wall can to be inspected by the owners on an annual basis or after heavy prolonged rainfall, whichever occurs first, keeping a photographic record of the inspections. We can carry out these inspections upon request. Should any new movement be observed, the retaining walls are to be remediated or rebuilt to current engineering standards.

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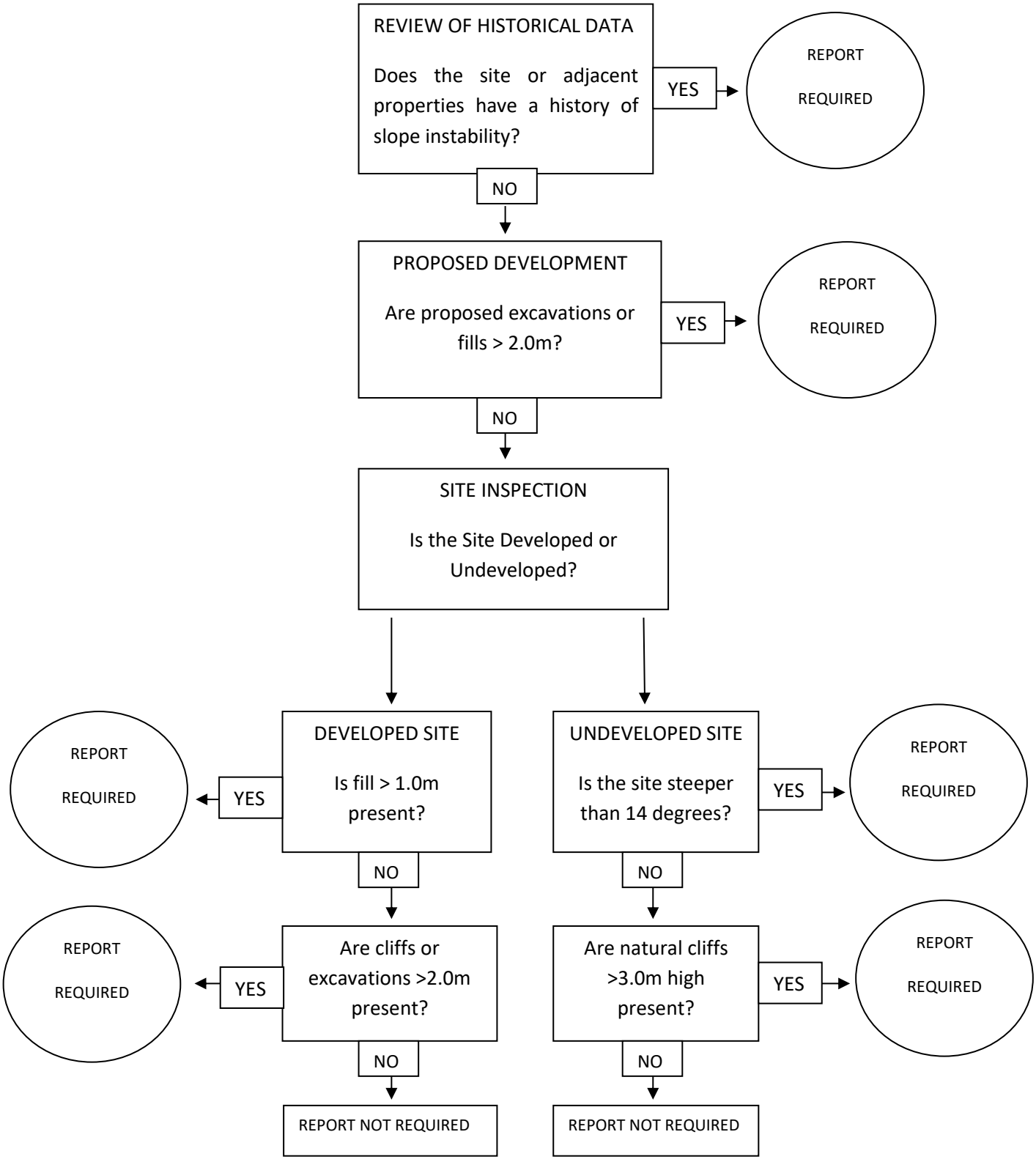
Photo 1

Preliminary Assessment Flow Chart – Northern Beaches Council (Warringah)



Information about your Preliminary Assessment

This Preliminary Assessment relies on visual observations of the surface features observed during the site inspection. Where reference is made to subsurface features (e.g. the depth to rock) these are interpretations based on the surface features present and previous experience in the area. No ground testing was conducted as part of this assessment and it is possible subsurface conditions will vary from those interpreted in the assessment.

In some cases, we will recommend no further geotechnical assessment is necessary despite the presence of existing fill or a rock face on the property that exceed the heights that would normally trigger a full geotechnical report, according to the Preliminary Assessment Flow Chart. Where this is the case, if it is an existing fill, it is either supported by a retaining wall that we consider stable, or is battered at a stable angle and situated in a suitable position on the slope. If it is a rock face that exceeds the flow chart limit height, the face has been deemed to be competent rock that is considered stable. These judgements are backed by the inspection of over 5000 properties on Geotechnical related matters.

The proposed excavation heights referred to in section 2.0 of this assessment are estimated by review of the plans we have been given for the job. Although we make every reasonable effort to provide accurate information excavation heights should be checked by the owner or person lodging the DA. If the excavation heights referred to in in section 2.0 of this assessment are incorrect we are to be informed immediately and before this assessment is lodged with the DA.