

## **PRELIMINARY GEOTECHNICAL ASSESSMENT:**

### **54 Kenneth Road, Manly Vale**

<b>1.0</b>	<b>LANDSLIP RISK CLASS</b> (Highlight indicates Landslip Risk Class of property)
<input type="checkbox"/>	A - Geotechnical Report not normally required
<input checked="" type="checkbox"/>	B - Geotechnical Engineer (Under Council Guidelines) to decide if Geotechnical Report is required
<input type="checkbox"/>	C - Geotechnical Report is required
<input type="checkbox"/>	D - Geotechnical Engineer (Under Council Guidelines) to decide if Geotechnical Report is required
<input type="checkbox"/>	E - Geotechnical Report required

## **2.0 Proposed Development**

- 2.1** Construct a new garage with deck above by excavating to a maximum depth of ~2.3m.
- 2.2** No significant filling is shown on the plans.
- 2.3** Details of the proposed development are shown on 3 drawings prepared by Network Design, drawing number 07-20-KEN, sheets numbered 1 to 3, dated July 2020.

## **3.0 Site Location**

- 3.1** The site was inspected on the 16<sup>th</sup> December, 2020.
- 3.2** This residential property is on the high side of the road and has a S aspect. It is located on the gentle to moderately graded lower reaches of a hillslope. Medium Strength Hawkesbury Sandstone bedrock outcrops on the downhill side of the house and in the foundation space of the house. 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 little with the development to date. The proposed

development will require an excavation to a maximum depth of ~2.3m for the proposed garage.

**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**

A stable Medium Strength Hawkesbury Sandstone rock face ~2.0m high is located at the downhill boundary of the property. The natural slope rises from above the rock face to the uphill property boundary at an average angle of ~5°. A near level lawn is located on the downhill side of the house. The single storey brick and timber clad house is supported by brick walls and brick piers. The supporting walls and piers stand vertical and display no significant signs of movement. Some of the brick piers are supported on outcropping sandstone bedrock. A near level lawn extends off the uphill side of the house. The area surrounding the house is mostly lawn covered or paved. 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.

An excavation to a maximum depth of ~2.3m is required to construct the new garage. The excavation will come close to flush with the brick wall supporting the downhill side of the subject house. The excavation is set back sufficiently from the E and W neighbouring houses and shallow rock is expected over the footprint of the excavation.

It is expected that the subject house wall is supported on rock. However, to be sure, exploration pits along the wall will need to be put down by the builder to determine the

foundation depth and material. These are to be inspected by the geotechnical consultant. If the foundations are found to be supported on rock, the excavation may commence. If they are not, the wall will need to be underpinned prior to the excavation commencing.

The geotechnical consultant is to inspect cut face when the excavation is not less than ~1m from the downhill side of the subject house to ensure ground materials are as expected and that additional support is not required.

Excavations through Medium Strength Rock or better should be carried out to minimise the potential to cause vibration damage to the subject house and neighbouring houses to the E and W. The excavation will come close to flush with the subject house. Allowing for backwall-drainage, the excavation is set back ~3.3m from the E and W neighbouring houses. Close controls by the contractor over rock excavation are recommended so excessive vibrations are not generated.

Excavation methods are to be used that limit peak particle velocity to 5mm/sec at the subject house and property boundaries. Vibration monitoring will be required to verify this is achieved.

If a milling head is used to grind the rock, vibration monitoring will not be required. Alternatively, if rock sawing is carried out around the perimeter of the excavation boundaries in not less than 1.0m lifts, a rock hammer up to 300kg could be used to break the rock without vibration monitoring. Peak particle velocity will be less than 5mm/sec at the subject house and property boundaries using this method provided the saw cuts are kept well below the rock to be broken.

It is worth noting that vibrations that are below thresholds for building damage may be felt by the occupants of the subject house and neighbouring properties.

## 6.0 Inspections

The following inspections are recommended and if geotechnical certification is desired/required they are mandatory.

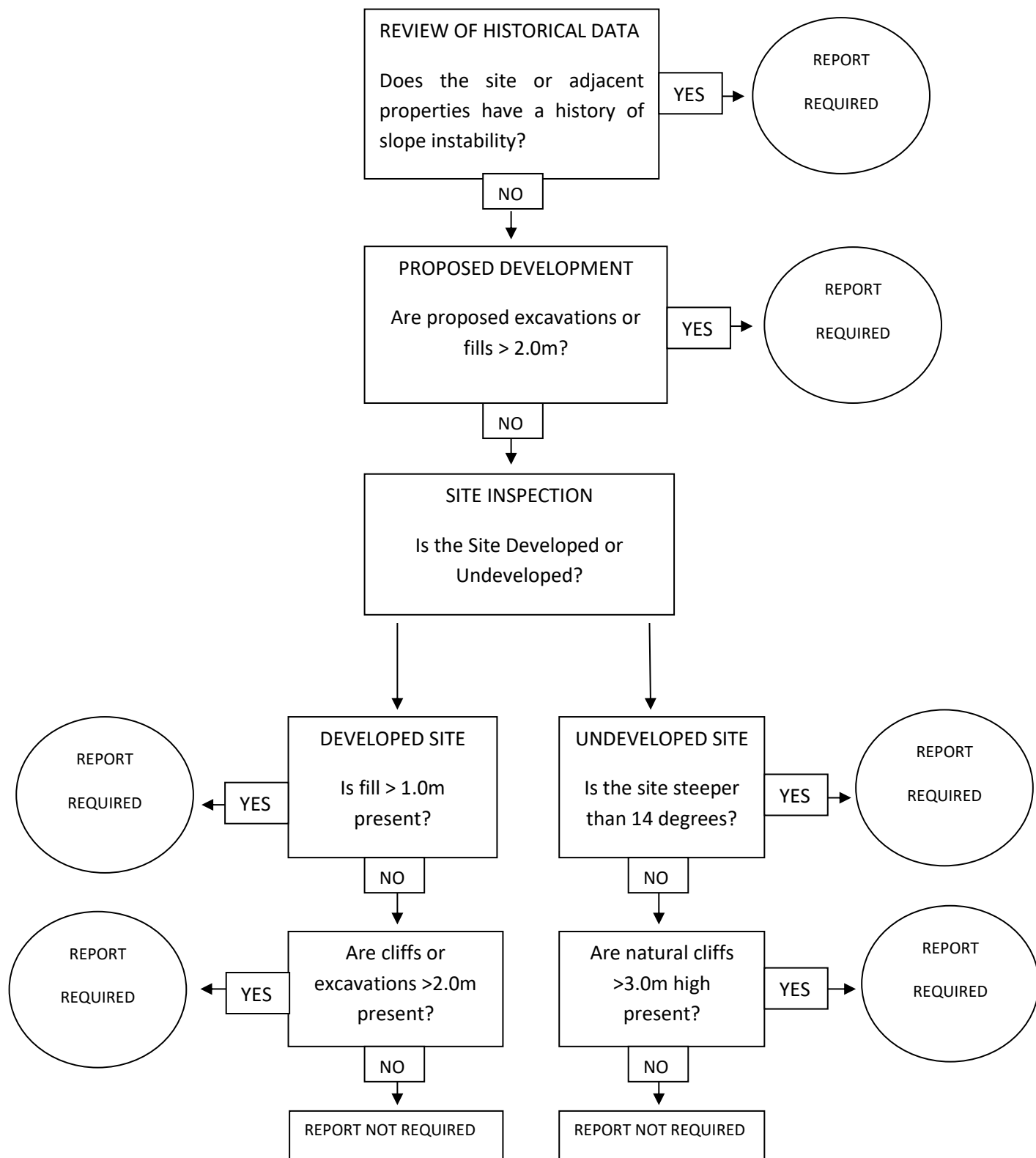
- The geotechnical consultant is to inspect any exploration pits that may be required to expose the foundation materials of the brick wall supporting the downhill side of the house.
- The geotechnical consultant is to inspect cut face when the excavation is at a distance of not less than 1m from the downhill side of the subject house to ensure ground materials are as expected and that additional support is not required.

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## 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.

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