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No. 19 Crown Road,  
Queenscliff, NSW, 2096.

### **Geotechnical Assessment of Proposed Development in Neighbouring Property**

We have been requested by the owners of No. 17, 19 and 21 Crown Road, Queenscliff to assess the geotechnical components of works proposed at the neighbouring property No. 17a Crown Road, Queenscliff which are proposed in a Development Application (DA2021-0025).

As a result, we have reviewed the following publicly available documents:

1. Architectural Design by Valdis Macens Architects Pty Ltd, Project: Alterations and Additions, Drawing No.: DA-01 to DA-14, Dated: December 2020.
2. Survey by Harrison Friedman & Associates, Reference: 68301 DT, Dated: 2/11/2020.
3. Geotechnical Report by Coffey, Reference: SYDGE279869AB-Rev.2, Dated: 8 December 2020.

It is understood that the changes to the neighbouring property, No. 17a, that have a geotechnical component involve:

- extending the south-west corner of the lower Level 1 towards the south which will require some excavation into an existing rock shelf to  $\leq 2.0\text{m}$  laterally to the south for a total volume of approximately  $6\text{m}^3$ .
- extending Level 2 in the south-east corner towards the south by excavating into an existing sub-floor space. The excavation appears up to approximately  $20\text{m}^2$  in plan and up to  $2.0\text{m}$  in depth. It is located entirely within the confines of existing walls for the overlying Level 3.

Access to inspect the subject property (No. 17a) was not available to Crozier Geotechnical Consultants however we have undertaken an inspection from No. 17, No. 19 and No. 21 on the 18<sup>th</sup> February 2021 and have reviewed the geotechnical report including photos of the subject property by Coffey.

No. 17a is located down slope of No. 17 and No. 19 with access provided by an easement along the eastern side of No. 17 that contains a paved pathway and stairs. No. 21 is located to the south-west and all three properties are located upslope of No. 17a.

To the rear of No. 17 is an approximately  $1.5\text{m}$  high stacked sandstone block retaining wall that supports a small terrace at the rear of the house. It is understood that this wall is of significant age and has the signature of the builder installed near its crest. The base of the wall is located at the south end of a small sandstone paved area and gardens. The outer northern edge of these is then supported up to  $1.50\text{m}$  above Level 3 of No. 17 by further sandstone rock retaining walls.

To the rear of No. 19 is a masonry retaining wall of up to  $3.0\text{m}$  in height that supports a terrace garden and lawn at the rear of the house lower floor level. This retaining wall is formed off a sandstone bedrock outcrop that has been previously excavated, sub-vertically, for the construction of the house within No. 17a. This excavation appears up to  $3.0\text{m}$  in height.

To the rear of No. 21 is a larger lawn and garden terrace that is supported up to  $4.0\text{m}$  above No. 17a via a series of dry stacked rock retaining walls and bedrock outcrops.

The limited inspection of the retaining walls and rock outcrops did not identify any obvious impending stability issues, with the walls to the rear of No. 17 and No. 19 appearing very well built and stable. The rock walls to the rear of No. 21 are more irregular, though inspection was very limited, they appeared relatively stable.

It appears from the Coffey geotechnical report and our inspection of the local area, that the majority of the proposed excavations in No. 17a will extend through sandstone bedrock of at least low strength. This bedrock type/quality should be suitable to stand unsupported at vertical cut slopes provided there are no poorly oriented defects or weathered seams. These were not identified by Coffey however they may exist in the final excavation faces.

Should these be encountered then the separation distances of the proposed excavations to the property boundaries of No. 17a provide sufficient separation distances that any realistic hazard exposed will not impact No. 17, No. 19 or No. 21.

The excavation of bedrock of low up to high strength will require rock excavation equipment. This equipment can generate ground vibrations of a level that can impact adjacent structures and properties. However, Coffey have stated "To reduce vibration during the proposed works, it is recommended that the excavation of rock is carried out using hand tools".

Provided hand tools are utilised in the excavation the ground vibrations generated will be limited and impact on adjacent structures should be negligible.

Coffey has identified the collapse of the dry stone wall supporting No. 21 as a hazard of the works. The report recommends "check dry stone wall for any obvious signs of loose blocks or bulging after periods of excessive rain, earth tremors or other external factors, such as construction on adjoining property".

It is considered that provided the recommendations for inspection and equipment use provided by Coffey are followed, that the risks to the neighbouring properties of No. 17, No. 19 and No. 21 from geotechnical hazards related to the works proposed in No. 17a is 'Very Low'.

However, the dry stone wall that supports No. 21 will need to be inspected at regular intervals to confirm that it remains stable/un-impacted.

Hope the above comments meet your requirements, if we can be of further assistance in regard to this matter please don't hesitate to contact the undersigned.

Yours faithfully,



Troy Crozier  
Principal  
MAIG. RPGeo.