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Ref: 20371

C/o Jackson Perry
Squillace Architects
1/80 Albion Street
SURRY HILLS NSW 2010

Dear Jackson,

Structural Engineering Report: 88 Bower St, Manly – Existing tree and structures

We attended the above site on the 3rd December 2020 to assess the existing structure and site conditions. There is a driveway entry with brick boundary wall on the Bower St side and a pedestrian entry on the northern end from Marine Parade. The existing three-storey house is on a sloping block with terraced landscaping on the South of the site, side paths and a lawn and concrete slab at the lower northern end of the site.

Existing structure and information

The existing house is masonry wall structure with suspended concrete slabs and a lightweight roof. It is thought that all structures are founded on the underlying rock. From what was visible all appears to be in good condition generally however, there are some minor cracks and concrete cancer noted on some exposed concrete faces. The southern boundary is a single skin brick wall with engaged piers and sits on a sandstone retaining wall and there is a large fig tree behind this wall. There are roots visible at the base of the brick wall which have compromised the wall which is cracked in this area and out of plumb. Temporary support structure has since been installed behind this wall.

We have obtained and reviewed a geotechnical report by JK Geotechnics 33662BMrpt Draft, dated 4th January 2021, and arborist report by All Arbor Solutions dated 15 December 2020.

The Proposed Work

The proposed work involves remodelling of the existing building with an extension to the North, South and West. The southern extension will require cutting into the existing ground and there will be a new driveway and gardens to suit.

A new wall will be required on the southern boundary either from Bower street level or from the internal ground/garden level which is subject to further investigation of the existing sandstone retaining wall structure and condition.

The construction of the new work will require careful consideration in terms of temporary support of the existing structures, site access and staging of the new works.

Potential Issues

1. Existing hidden services and structural elements

Potential for underlying issues with existing structures and services such as rusted wall ties, blocked drainage etc which can affect the functionality and structural integrity of the existing structures.

Recommendation

Further investigation involving opening up and inspection is recommended for all existing structures and services to determine the condition of the existing exposed masonry walls, cavity wall ties, boundary walls, exposed concrete, drainage, and waterproofing etc so that any underlying issues can be addressed, rectified and/or replaced.

2. Existing fig tree on southern boundary

The fig tree is noted on the geotechnical report as a hazard in terms of the potential to destabilise the sandstone retaining wall. The extent of the roots are not known but are likely to be beneath existing structures and interfere with new structures.

The existing path at the base of the tree and terraced landscaping will need to be removed for the new works and for investigation and construction of the new retaining and boundary wall. There is potential damage to the tree which highlights the potential impact on the health of the tree and makes construction of the southern boundary wall and other structures difficult.

It is understood that the tree has not stopped growing so propagation of roots has potential to cause further damage to structures. Even if root barrier or similar was possible and installed on site the tree roots will seek moisture and may grow in different directions and into public asset areas so there could potentially be damage caused to public assets e.g. footpath, kerbs, road surfaces and in ground services such as stormwater lines and other services.

Should damage to the structures occur in future due to this tree, it would not be worthwhile to try and repair such damage as trunk & root growth would soon render the repair works useless and the tree would need to be again proposed for removal but with structural damage already present.

Recommendation

In order to fix the current southern boundary wall damage and limit the potential structural damage resulting from the further growth of this tree in such close proximity to existing/new structures and assets, it is recommended that it be considered for removal. It should be noted that initially after the removal of the tree there may be some “shrink-swell” with the surrounding area until ground moisture conditions return to equilibrium.

If you have any queries on the above please call me to discuss.

Yours sincerely,

A handwritten signature in black ink that reads "Marie O'Looney". The signature is written in a cursive style with a large, stylized 'M' and a long, sweeping underline.

Marie O'Looney BE, NCEA Dip Eng, MIE (Aust)
SDA Structures P/L