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05/04/2023

MR Robert Winton
1 / 1 Pavilion ST
Queenscliff NSW 2096
[REDACTED]

RE: DA2023/0278 - 3 Pavilion Street QUEENSCLIFF NSW 2096

Subject: DA2023/0278, Alterations and additions to a dwelling including construction of a swimming pool - Concerns and Objections from 1/1 Pavilion St, Queenscliff

Primary Concern:

Remarkably incomplete characterisation of the site geotechnical risks, which are well documented through other recent DA's, which exposes the applicant's site and those of neighbours to the impact of sandstone slab failures, rockfalls and loss of protected areas of cliff face, and groundwater issues.

This has led to several proposed design features that must be reassessed after further detailed Geotech investigation.

1. Swimming Pool Excavation/Support - Risk of cliff face failures

The current concept drawings show a 37.5 kL pool being constructed below the floor slab RL of the Lower ground Level. There are 2 serious problems with this, both relating to the extremely high risk of slab failure of the sandstone cliff face underneath.

1.1) First problem is with any trench excavation to facilitate top of pool being built flush with Lower Ground level floor slab, even if cantilevered.

As the rock face is already deeply undercut, any excavation into sandstone on the seaward side of the coastal hazard boundary line would likely penetrate the top sandstone slab which is only approx 500mm thick and severely weaken the next slab under which is only approx 1.4m thick at the current boundary fence. A 2-metre-deep trench to build a standard inground pool would penetrate both, including the roof of the rock overhang. We would most likely have slab failure and boulders at risk of falling down the cliff.

Solution: The pool design should avoid all excavation of the unstable sandstone substrate, especially the seaward side of the coastal hazard boundary line, with possible set back even further inland, subject to geotechnical examination of the slab joints, to allow for the shear stress in the presence of the cutback. There should be no trench excavation here. WLEP 2011 applies, and such an excavation into rock should not be allowed.

1.2) Secondly, any pool must be cantilevered if it extends beyond the coastal hazard boundary line.

Just the weight of the water alone in a 37.5 kL pool will be 37.5 tonnes. The substrate below the pool could not support such a mass should the pool not be cantilevered and failure of the unstable pancake slabs as in point 1.1 would be expected.

Solution: If the pool is not cantilevered, it should be restricted in length to short of the coastal hazard boundary line, as was the case with the prior pool build under previous owners. Should it be desired to make the pool longer than this, then it must be cantilevered and be fully supported landward side of the coastal hazard boundary line, and with some further fulcrum setback due to high point loads, and the risk of shear failure to the undercut below.

COMMENT - Geology background

The country in this area is highly weathered uplifted 150-million-year-old Gondwana sandstone capped by a series of highly weathered intersected pancake slabs, at least 2 layers deep at the surface with deep horizontal and vertical joints (refer prior geotechnical reports). To the seaward side (north) of the coastal hazard boundary line there is a deep undercut/sandstone ledge that runs out to the cliff face. The toe of this undercut/rock ledge is directly below the coastal hazard boundary line. This undercut is continuous and extends to boulders that have fallen previously in front of 5 Pavilion St. The undercut would also have likely existed in front of 1 Pavilion St in the past, but this section has already fallen into the sea. There is currently also an undocumented significant vertical joint that runs through to the surface, through which rainwater passes, and which is right in the alignment of the long axis of the proposed pool. Seaward of both 5 and 1 Pavilion St have already experienced cliff face collapses. The overhang in front of 3 Pavilion St is currently stable according to a report from Crozier Geotech engineers, 2016, so any unnecessary risks should be strongly avoided. The cliff face in this area is also protected under WLEP2011 regulations. It's in documented Heritage Conservation area C-13, sheet HER-010. Further it is on the documented Landslip Risk map LSR-010 and E10 Landskip risk applies to the site. Also, B13 Coastal Cliff Setback controls apply which means that all land seaward of the coastal hazard boundary line must be free of any construction and landscaped with local vegetation. The cliff face is also in the process of being registered by the AHO.

The community can't contemplate cliff face failures, whether during construction, or over time as weakened slabs break into large blocks and fall. Any instability to the cliff face would have serious knock-on effects to the integrity of property at 3 Pavilion St especially, and ours at 1 Pavilion St. The swimming pool may be lost down the cliff, for example.

2. Basement Garage and Lower Ground Level Living Excavation - Ground water management concerns

The current design shows a bulk excavation of approximately half the floor plan of the residence to a depth of approx 2.5m. Because of the pancake sandstone slab structures in the area, a lot of groundwater flows in the joints which can be observed flowing out for some days in the undercut area of the cliff face, as noted in 1.1)

2.1) How is ground water to be captured and managed and disposed of with a bulk excavation like that undertaken next door at 5 Pavilion Street, Queenscliff, recently?

We observe that 5 Pavilion Street must have a sump and sump pump to manage stormwater.

Our property next door at 1 Pavilion Street is at the same RL as the bottom of this proposed

excavation. We already have problems with water getting onto our floor slabs and damaging our internals. We have concern for the impact of ground water ingress into our property after excavation of the lower ground level.

What steps are going to be taken to protect us from groundwater flows arising from this excavation, at the property common boundary?

COMMENT

Council should refer to the basement excavation documentation/approvals for the neighbouring property at 5 Pavilion Street (DA2014/1338). The basement excavation to provide parking and common services is at the same depth as proposed here. It uncovered the matrix of multiple slabs which joints running diagonally across the site. The relevance here, is that this sandstone "pancake" slab structure also extends across the site of 3 Pavilion Street.

To address the unstable ground issue at 5 Pavilion St, the contractors had to engineer and install an elaborate steel reinforced concrete "Staple" system to hold the slabs together before pouring the basement floor. Are the applicants prepared for the possibility of similar rock stabilisation works and ground water redirection under their building site.

3. Extension of Ground Floor Terrace and infill below on our boundary - Loss of Amenity

The current design shows an approx. 1 metre extension of the existing ground floor terrace in the cliff face direction. It also includes an infill section on the existing external wall, with a door. This small change for the applicant, will result in a noticeable loss of amenity in our apartment. Ours is already not well lit by natural light. We will find a noticeable reduction in natural light during daylight hours. Is the ground floor terrace extension justified in this case?

Solution: If an outdoor entry is desired for access to Sunroom (Bed 5), build the door into the exiting external wall, rather than extending it.