

Anthony Fahey,
Woniara Investments Pty Ltd,
140 Warners Avenue,
Bondi Beach NSW 2026

Monday 30th August 2010

Ref 2001/091080

Dear Sir,

Additions and adjustments to 13a Ocean Road, Palm Beach
Structural letter in support of development application

Introduction

This letter is to confirm that we Tall Engineers Pty Ltd have been appointed to undertake the structural design for the above project. The project as currently proposed is documented on Smith & Tzannes on architectural drawings 09-154-103, 104, 105, 107, A200, A300 and A301

The scope of the additions and adjustments comprise -

- Addition of a second floor to the existing lower level house
- Extension at ground to second floor to the northern side of the existing lower level house
- Extension at the ground to second floor to the southern side of the existing lower level house

We shall be designing in accordance with the relevant SAA Codes, in particular the following -

- AS1684 2 - Timber Framing
- AS1170 1 and AS 1170 3 – Structural Design Actions
- AS1720 1 – Timber Structures
- AS2159 – Piling design and installation
- AS2312 – Protection of structural steel against atmospheric corrosion
- AS2870 - Residential Slabs and Footings
- AS3600 – Concrete structures
- AS3700 - Masonry Structures
- AS4100 – Steel structures

Building Structure

We envisage that the existing ground and first floor timber frame structure will be retained. The roof will be removed to allow a timber frame second storey and roof to be constructed. Columns and walls below are envisaged to require strengthening to support the additional vertical and stability loads.

The Australian Timber Framing Code AS1684.2 only provides for buildings with a maximum 2 storeys. The code does not preclude taller buildings from being constructed from timber frame, but requires that they be specially engineered for the purpose. We are undertaking the timber framing engineering design to AS 1720.1 on this basis.

From the BCA the building is class 1. While our expertise is purely structural, we believe that the building is compliant as a timber frame under section C for fire. In addition, as good practice, all new insulation installed in the cavities of the building will be non-combustible and the building will be fitted with automatic smoke alarms (this is extracted from specification C1.1, C1.3.10a, but is only mandatory for class 2 buildings of not more than 3 stories). On this basis we believe that a timber frame solution is compliant and acceptable in this situation.

Timber frame construction is in line with the guide lines for hillside construction, as it provides a flexible structure that can accommodate movement. The structural design requirements outlined in the guide lines for hillside construction (from the Australian Geomechanics News, Number 10, 1985) will be adhered to. A sole exception will be that we shall not incorporate split levels. These are not practical in this case as the first 2 storeys are already present.

There is enough space to span raking columns up to the second floor where the western side of the building extends out further than the floors below. On this basis significant cantilevers can be omitted. We propose to provide lateral support via the raking resistance of the stud walls, but where these do not exist we intend to provide steel moment frames to provide this resistance. We confirm that the structure can be designed to adequately support the scheme as architecturally depicted on the development application drawings, although the moment frames will sit proud of the floor construction concealed either in walls over or in bulk heads under the floor that they stabilise.

Retaining walls & Excavation

A certain amount of excavation into the existing slope is required. This is intended to be inspected at 1m excavation intervals by Geotechnique Pty Ltd to ensure safety is maintained and any required rock bolting is undertaken.

From the geotechnique preliminary soil report 12312/1-AA of 10/08/2010 there is no evidence of cracking to the existing shotcrete wall to the west, but cracking is present in the North retaining wall. The highest section of the North retaining wall will be removed as part of the new works and replaced and hence these cracks will be automatically remediated as part of the new design.

Foundations

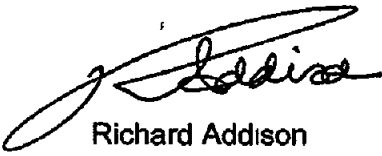
In order to avoid the zone of reduced capacity, as outlined in the AJK Design Coastal Protection Report CPR017-13A of 23/08/2010 section 6.8, all new foundations and underpinning to existing foundations (where required) will be undertaken to rock.

Full checks will be undertaken, but from experience underpinning of existing walls is only expected if they do not found on rock. In addition the extension of the 3rd storey to the rear of the house results in the heaviest new loads being applied in the historic cut zone. In this area good quality rock is expected at high level and foundations are expected to be on rock.

Further site investigations will be undertaken to verify existing foundation depth and depth to rock during the design process.

For and on behalf of Tall Engineers Pty Ltd

Yours faithfully,



Richard Addison

MIEAust 228249

Structural Principal

TALL