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31 May 2022

Charlie Wyer  
Fortis Group

By email:  
<[charlie.wyer@fortis.com.au](mailto:charlie.wyer@fortis.com.au)>

Dear Charlie,

**Re. 34-35 South Steyne Manly**  
Our Ref. 4235

### ***STRUCTURAL DA STATEMENT***

M+G Consulting has been engaged by Fortis Group to provide structural engineering services during the DA stage of the project at the above address.

As part of this process, we have reviewed the architectural scheme for the proposed development, as documented on the architectural DA plans by Durbach Block Jaggers (Project 1728, May-June 2022). Geotechnical report prepared by Morrow Geotechnics has also been reviewed.

The site is of rectangular shape, with a street frontage along east (South Steyne), and vehicular access from the rear via Rialto Lane. The proposed building will have three commercial levels above ground, including a lap pool at the top terrace level. There will be two basement levels with the parking and various facilities. The basement construction will intersect the ground water table, and the proximity of the development site to the coast is noted.

Based on our review of the floor layouts, and the coordination meetings we have had with the architect and the development team, we expect that the structural system suitable for the building will be concrete frame, with a combination of reinforced concrete columns and walls, supporting concrete floor slabs. Conventional structural system and conventional construction techniques are envisaged for the project.

Geotechnical report indicates sandy profile, with the sand becoming medium dense with depth. This is consistent with our experience in Manly area. Ground water was measured at 4m depth below ground level, which is also consistent with our expectations.

Principals: Simon Matthews, BE, MEngSc, CPEng, NER, RPEQ  
Zlatko Gashi, BE, CPEng, NER, RPEQ, BPBVic, BPTas



We are experienced with the basement construction below water table, having done a number of such projects (such as 46 Victoria Parade Manly, 20-26 Cross St Double Bay, 42 North Steyne and other projects in Double Bay, Mascot etc.).

Based on our experience, due to the ground conditions and ground water presence, the basement construction will require a fully tanked basement, with cut-off perimeter walls and raft hydrostatic slab. The walls will need to be watertight and prevent water ingress during construction and during the service life of the building. There are several systems available for this purpose, including secant piles and sheet piling construction. However, the systems most suitable for this location would be CSM or TSM wall construction, which is practically vibration free and allows construction very close to the adjoining buildings. The stability of the adjoining properties during construction will be of utmost importance and the walls will need to be braced by a suitable system which will adequately control deformations.

The ground slab will also need to be watertight. A suitable waterproofing system, such as bentonite membrane, will be required beneath the slab, including the treatment of all connections. The slab will need to be design to resist the expected hydrostatic pressures with the allowance for seasonal fluctuations in the ground water level. Piles may be used in conjunction with the raft slab ("piled raft") to control the settlements and uplift.

Any in-ground services will need to be sealed and connected to the basement slab for support.

Temporary dewatering will be required during the construction, up to the point when the building construction has reached such level that the building stability is no longer dependent on the dewatering. Permission from WaterNSW will be required for this purpose, though this is standard practice and the licences are readily granted on a temporary basis.

Overall, with suitable design and construction techniques, as described above, the building project will be feasible from the structural perspective.

We trust this satisfies the project requirements at the moment, and please do not hesitate to contact the undersigned should further information be required.

Yours faithfully  
**M+G Consulting**



**Zlatko Gashi**  
CPEng, NER No. 836676