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Antipodean Land Developments

RE: Flood Risk Review & Advice – 11-13 Spring Street & 14-16 Argyle Street, Fitzroy

Introduction

Engeny has been engaged by the owner of the site (the client) to prepare a 1% AEP flood risk review and advice letter in response to Council's nominated flood advice for the site. Engeny is aware of ongoing flood mapping work across the City of Yarra through our involvement to assist Council and Melbourne Water in delivering this work. We are acutely aware that Council is recommending uptake of the latest 1% AEP flood levels (based on Year 2100 climate conditions) although this is not yet a statutory requirement in the Yarra Planning Scheme based on direct communications from Council.

The subject site is located on a L-shaped lot covering several existing parcels and is bordered by Argyle Street to the north, Spring Street to the east, Johnston Street to the south-west corner and private properties to the west and southern boundaries. The proposed development consists of a seven-storey residential high-rise.

This letter accompanies the submission of the architectural plans and all other supporting material.

Summary of Flood Advice

Based on the latest available flood mapping information online (via the Yarra Flood Maps Portal), there is estimated to be up to 260mm of flood depth through the site and build-up of floodwaters in both streets based on 2100 climate change conditions which is shown in Figure 1 below.

The flood extent as shown in encroaches into majority of the site and is driven mainly by flooding from Johnston Place based on the graded flood levels shown in Figure 1. Council have recommended adopting the maximum 1% AEP flood level for the site of 26.29 m AHD.

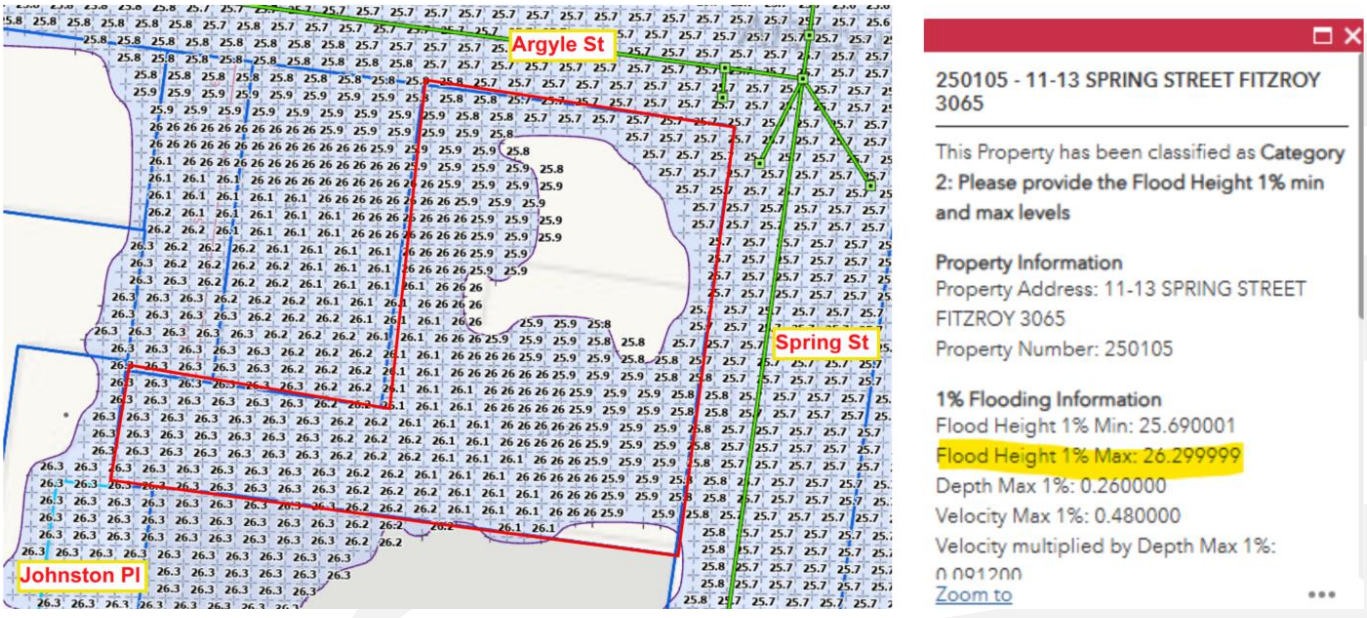

FIGURE 1: 1% AEP FLOOD EXTENT (VIA ONLINE PORTAL)

Engeny have undertaken a site-specific review of Council's 1 % AEP (2100) flooding advice against the online flood extent, existing site survey and proposed concept development layout and produced the below summary of the results for the 1% AEP storm event (2100 current climate conditions) for the site.

- Figure 1 (via Council) shows that based on the latest flood mapping, water comes from Johnston Pl and flows through the existing site (grading from a 26.29 m AHD flood level to a 25.7 m AHD flood level).
- Benchmarking the flood levels to the existing survey marks suggests that at all three street entries there will be a predicted flood depth reaching up to approx. 300mm deep.
- The development includes three entry points, two via Spring Street and one at the rear via Johnston Place. The below summarises flood affectation and mitigative measures to minimise encroachment of floodwaters:
  - At the Johnston Place entry point, existing levels (26.01 m AHD) are retained for access and maintenance purposes. A flood gate has been implemented to protect the ground floor area as this is being constructed below the 1 % AEP flood level with an FFL of 25.65 m AHD). The flood gate is designed to rise to 26.59 m AHD which is the 1% AEP flood level (26.29 m AHD) inclusive of 0.3 m freeboard. Near this location, the substation and fire pump areas are also elevated to 26.59 m AHD (to ensure 1% AEP flood immunity for these sensitive areas).
  - Along Spring Street, the ground floor levels are set to 25.65 m AHD which is below the max 1% AEP flood level for the site (26.29 m AHD). However, the design incorporates a flood gate (identical to the arrangement at Johnston Place) for vehicular entry at the existing cross over and at the entry point. The façade (excluding the driveway and entry point) has been designed to be floodproofed up to the 1 % AEP flood level plus freeboard (26.29 m AHD).
  - There are no entry points along Argyle Street, and the façade design is floodproofed up to the 1 % AEP flood level plus freeboard (26.29 m AHD).
- The development of the site is impacted by existing heritage requirements which complicate FFL requirements as they impose restrictive measures for alterations to existing heritage façade walls and features. We understand the design has incorporated flood gates to provide up to 1 % AEP flood immunity which responds to the heritage requirements whilst protecting the proposed ground floor being constructed below the 1% AEP flood level.

The design encapsulates most of the lots in terms of solid building footprints which is similar to the existing site usage. However, to provide confirmation of impacts to overland flows, a separate flood impact assessment is being conducted to better understand the impacts of the design on existing 1 % AEP flood levels through the site.

The proposed design responds to flooding and existing heritage requirements by incorporating solid floodproofed walls on its façade and flood gates at the three design entry points which rise to the 1% AEP flood level plus 0.3m freeboard. Based on this, it is considered that the proposed design has sufficient immunity in a 1% AEP storm and mitigates flooding as par as reasonably practical within the constraints of imposed heritage requirements.

Regards,

Matt Lazarides
Principal Engineer

DISCLAIMER

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