Ref: SY171126

29 March 2019

Harrington Custodian Pty Ltd,
3A Macquarie Street,
Sydney, NSW, 2000

Attn: Mr Trevor Byles

Dear Trevor

CONSULTANTS

Suite 2, Level 1
33 Herbert Street
St Leonards NSW 2065

T 02 9438 5098
F 02 9438 5398

www.acor.com.au

PO Box 292
St Leonards NSW 1590

ENGINEERS
MANAGERS
INFRASTRUCTURE PLANNERS
DEVELOPMENT CONSULTANTS

RE PRELIMINARY FLOOD INVESTIGATION - FAIRFIELD FORUM SHOPPING CENTRE

1.0 INTRODUCTION

ACOR Consultants have been engaged to prepare flooding advice for Fairfield Forum Shopping Centre Master Planning stage.

This report has been undertaken with the intention of providing preliminary advice with regards to master planning of Fairfield Forum Shopping Centre in conjunction with Fairfield City Centre Urban Design Study. Fairfield City Council have identified that the site is within the Prospect Creek Catchment and is affected by overland flooding.

2.0 SITE CHARACTERISTICS

2.1 Existing Site Conditions

The existing site consists of multiple off-street open carparks, retail shopping and general commercial buildings located within the vicinity of Fairfield Forum Shopping Centre Precinct. The site is bounded to the north by Cunninghame Street, to the east by Residential housing and Smart Street, to the south by Nelson Street and to the west by Station Street.

Figure 1 Site Locality Plan

2.2 Proposed Master planning

The site is the subject of Fairfield City Urban Design Study (27 March 2018) which covers proposed Fairfield City Centre revitalisations. Specific to the site, it would include the redistribution of land use to include a range of retail and mixed-use shops, shop top housing and residential flat building opportunities. These changes would likely impact on the current open car park scheme and alter flood flows to the south.

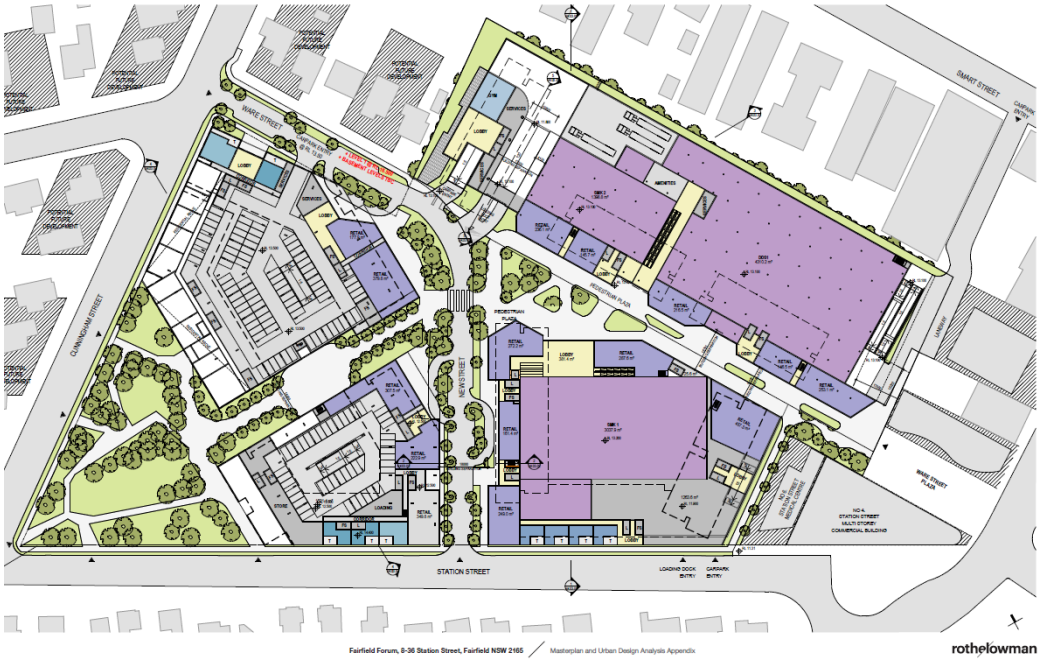


Figure 2 General Masterplan prepared by Rothelowman

3.0 FLOOD INFORMATION

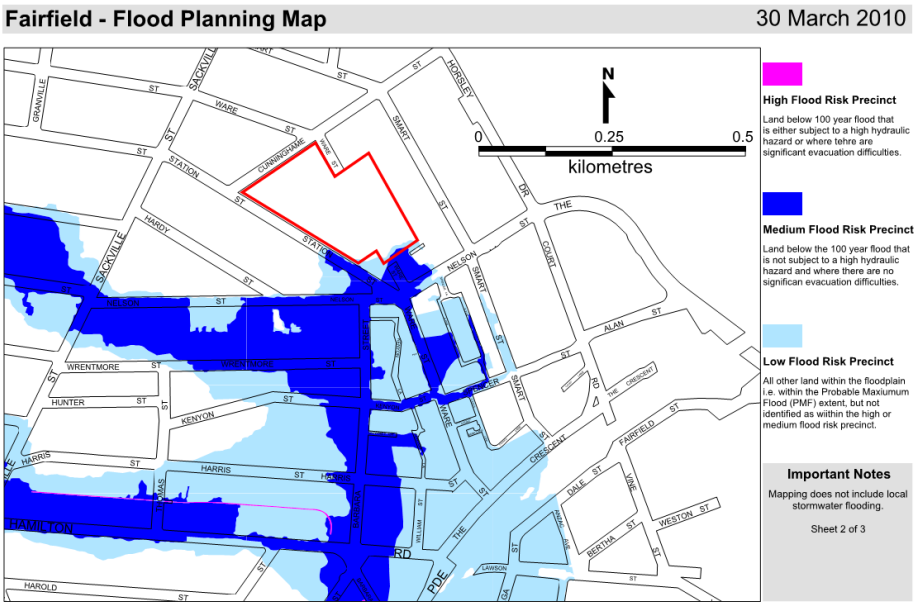
3.1 Flood Behaviour

The subject site is located within the Prospect Creek Catchment within the Fairfield LGA. An overland flood study of Fairfield City ("The Overland Flood Study") has been previously prepared by Sinclair Knight Merz (2004) to define overland flood behaviour for the study area.

The Overland Flood Study has identified that the subject site is partially within the medium flood risk precinct, being land below the 100-year ARI flood event that is not subject to a high hydraulic hazard. The site remains largely unaffected by overland flows except within the southern central portion of the site (adjacent to the corner of Nelson St, Ware St and Station St).

Site observations of the Fairfield Forum Shopping Centre and surrounding contributing catchment indicates that the catchment is almost 100% impervious, thus promoting Stormwater runoff and overland flows to downstream portions of the catchment. Overland flows are generally directed northward along Barbara Street and Ware Street towards Nelson Street. A localised low point is located along Nelson Street, directly in front of Ware Street Plaza (as per current conditions). The overland flow path of flood waters into the Shopping Precinct will be northward through Ware Street Plaza into the adjacent car parking area where the proposed master planning will be affected.

We note that the Overland Flood Study undertaken generally aligns with our site observations of the catchment, as shown in the flow path from Flood Planning Map extract in Figure 3 below.



Taken from Sinclair Knight Merz & Fairfield Consulting Services (2010) Fairfield Overland Flood Study.

Figure 3 Flood Planning Map

We note that the separate flood study prepared for Prospect Creek (Bewsher, 2004) does not identify the proposed development as affected by mainstream flooding.

3.2 Flood Levels

A previous Flood Information Sheet for the Fairfield Forum Shopping was issued by Fairfield City Council dated 19 June 2015.

The Flood Information Sheet provides overland flood levels (m AHD) for the following flood events:

- 20-year ARI Flood Event = 11.3 – 11.8 m
- 100-year ARI Flood Event = 11.3 – 11.9 m
- Probable Maximum Flood (PMF) = 11.5 – 12.2 m

Fairfield City Council's Flood Risk Management Policy (2005) identifies that a Flood Planning Level (FPL) for habitable areas should equal the 100-year ARI flood level plus 500mm freeboard. The flood planning level for non – habitable areas should equal the 100-year ARI flood level plus 300mm freeboard.

Taking the worst-case flood level for the site's 100-year ARI flood event (i.e. flood level of RL 11.9 m) a FPL of RL 12.4 m should be adopted for habitable floor levels affected by flooding and RL 12.2 m for non-habitable floor levels.

The area on site affected by flooding is primarily restricted to the proposed DDS 1 building in the south east corner of the site. Across the rest of the site, it is largely unimpacted by flooding. Review of the 100 year ARI flood event details the impact of flooding on the existing and proposed scenarios.

ACOR concludes the following:

- The proposed DDS1 building will achieve required Flood Planning Levels as required by Fairfield City Councils Flood Risk Management Policy;
- The ground floor level of the proposed DDS1 building should be at RL 12.4 m AHD or greater; and,
- The impact of the proposed development on flooding is minimal. Thus, the displacement of flooding will have no impact on the adjoining properties or critical areas.

We note that open spaces such as on-grade carparks, open urban spaces and the like will not be dictated by flood planning level requirements.

3.4 Flood Impact

As noted above, areas that are affected by flooding include re-development of the existing car parks.

To assess the impact of the proposed master plan building development, the overland flood extent within the subject site has been superimposed over the proposed architectural site plans.

Figure 4 Flood Extent and Impact on Master Planning Layout

Further to Figure 4 above, the proposed master plan layout will be partially located within tail end of the 100-year ARI flood extent (i.e. the medium flood risk precinct, shown in dark blue on Figure 3 above).

We note that during the pre-development flood scenario, the 100-year ARI flood extent will travel along the paved area from Ware Street Pedestrian Plaza and into Smart Lane and the open car parking.

In the post-development scenario, flooding will also follow this same flow path, being through the open access way from Ware Street Plaza and along the walkway to the south of the proposed retail shopping entrance. Flooding will then generally be conveyed back towards Station Street to allow for flood waters to be maintained outside of the master planning development.

We further note that based on initial investigation of existing flood impacts, we confirm that the effect of the proposed master planning layout on flooding is minimal, due to the proposed open space areas ability to cater for the flood fringe flows and thus, direct water away from site.

It is also probable that flood freeboard levels will need to be implemented once

final layouts have been provided. Therefore, it is unlikely that displacement of flooding will have any impact on the adjoining properties or critical areas.

We trust the above satisfies the preliminary investigation of flood impacts upon Fairfield Forum Shopping Centre in regard to Fairfield City Councils Master Planning layouts. If there are any queries or wish to discuss anything further, please do not hesitate to contact the undersigned.

Yours faithfully,
ACOR Consultants Pty Ltd

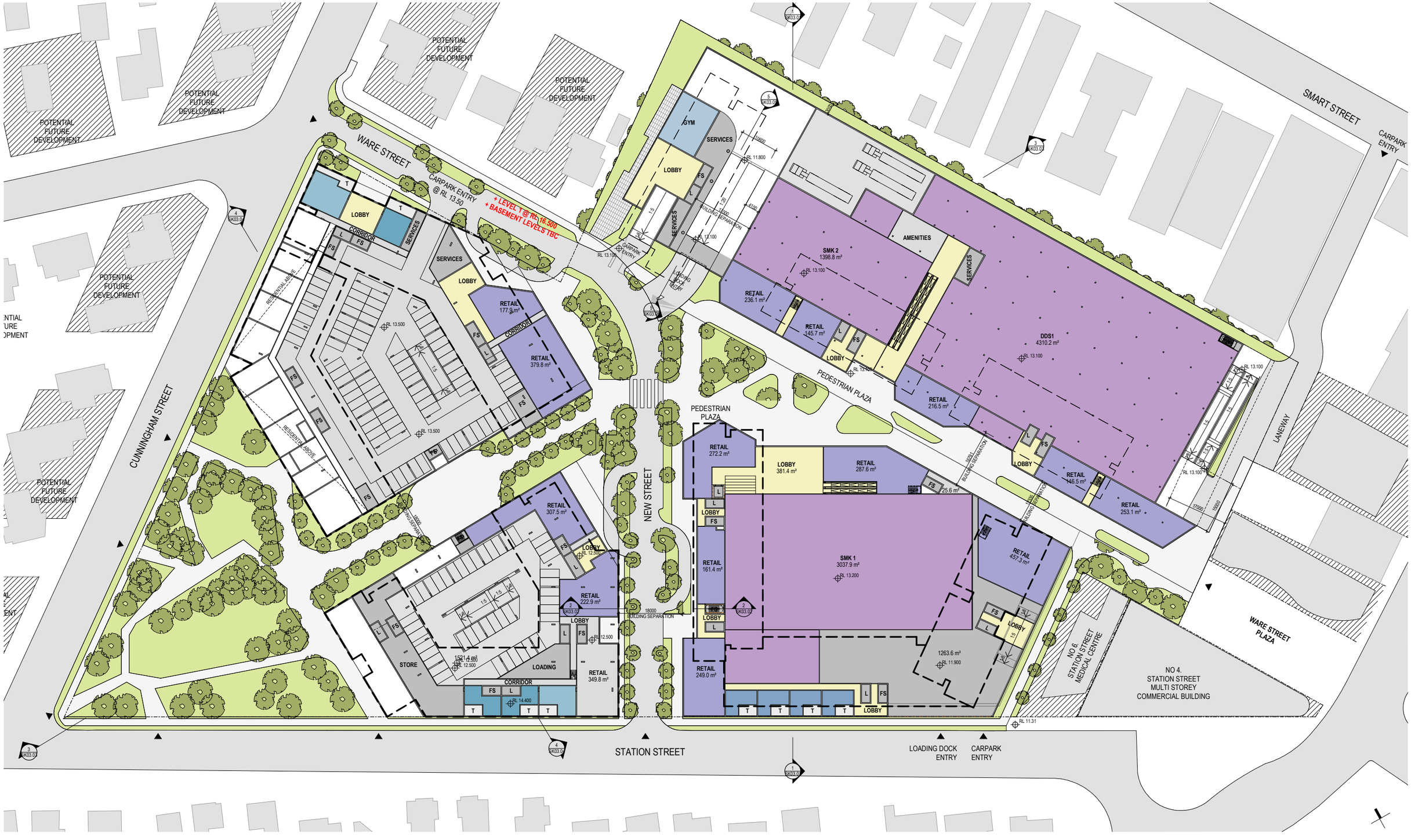
Gregory Lyell
Civil Engineer

Appendix A

Fairfield City Council Masterplan Layout for Fairfield Forum

PLANS

GROUND LEVEL



Appendix 1

Design Evolution