

Restifa & Partners  
Level 2, 100 Mount Street  
North Sydney NSW 2060

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28 October 2015

**Attention: Simon Restifa**

Dear Simon,

**Re: Proposed Retail Development  
Cronulla Sharks Rugby League Club  
Floor Level Assessment**

Further to your email of 16<sup>th</sup> October 2015 WMAwater has prepared the following response for your consideration.

**BACKGROUND**

Bluestone Capital Ventures No 1 Pty Ltd is proposing to re-develop the car park on the east side of the Cronulla Sharks Rugby League Club at 461 Captain Cook Drive, Woolooware as a retail centre. The surrounding land had been subject to flooding in the past (notably March 1975 but also more recently in 1983) and as a result, WMAwater (a specialist water engineering consulting company) was engaged to provide an assessment of the floor levels.

A previous report titled Woolooware Bay Town Centre Redevelopment – Retail Site: Flood Assessment Report & Flood Management & Evacuation Plan, March 2013 was prepared by WMAwater. This stated "*The ground floor level for the retail development site is proposed to be at 4 mAHD, which is significantly higher than the 100 year ARI peak flood level of 2.46 mAHD and even the PMF peak flood level of 3.14 mAHD. With the exception of the main entrance off Captain Cook Drive whereby the crest level is proposed to be at 2.6 mAHD, which is still above the 100 year ARI peak flood level, all other entrances are proposed at a similar level to the ground flood level (4 mAHD). Therefore, the site is not subject to any flood risk and is in compliance with Council's development controls for flooding.*"

Changes to the design plans current at March 2013 have occurred and the current preliminary plans for the development are attached.

**SCOPE OF WORK**

WMAwater was engaged to only comment on the floor level of the building in the attached plans relative to the design flood levels.

WMAwater was not engaged to comment on the hydraulic impact (i.e raising of flood levels) of any associated roadworks, the need for a flood evacuation plan or any other aspect of floodplain management.

**WMA WATER Pty Ltd (trading as WMAwater)**

**DIRECTORS**

M K Babister BE(Hons), MEngSc GradDipMgt, FIEAust  
S D Gray BE, MEng  
R W Dewar BSc(Hons), MEngSc, MAIG, MIEAust  
E J Askew BE(Hons), MIEAust

**ASSOCIATES**

R Hardwick Jones BE(Hons), MEngSc, MIEAust  
M E Retallick BE(Hons), Bsc, MIEAust

**ABN 14 600 315 053**

Level 2, 160 Clarence St, SYDNEY NSW  
Phone: 02 9299 2855 Fax: 02 9262 6208  
Email: enquiry@wmawater.com.au

Website: [wmawater.com.au](http://wmawater.com.au)

## ASSESSMENT OF FLOOR LEVELS

For residential properties Sutherland Shire Council has a policy of requiring the minimum floor level to be above the 100 year ARI (or 1% AEP) flood level, assuming the year 2100 sea level rise plus a freeboard of 0.5m. For non residential properties the required minimum floor level depends upon many factors including the potential for damage, risk to life, emergency evacuation, life of the structure and use of the site.

We note that the commercial floor is at 3.38 m AHD and the entrance to the loading dock on Captain Cook Drive is at 2.6 m AHD. We presume that the entrance to the loading dock off the proposed Woolooware Road North is above 2.6 m AHD but as the final road levels have not been determined this has not been written on the plans.

The following are the design flood levels (in m AHD) on Captain Cook Drive at points A and B shown on the attached Figure 1.

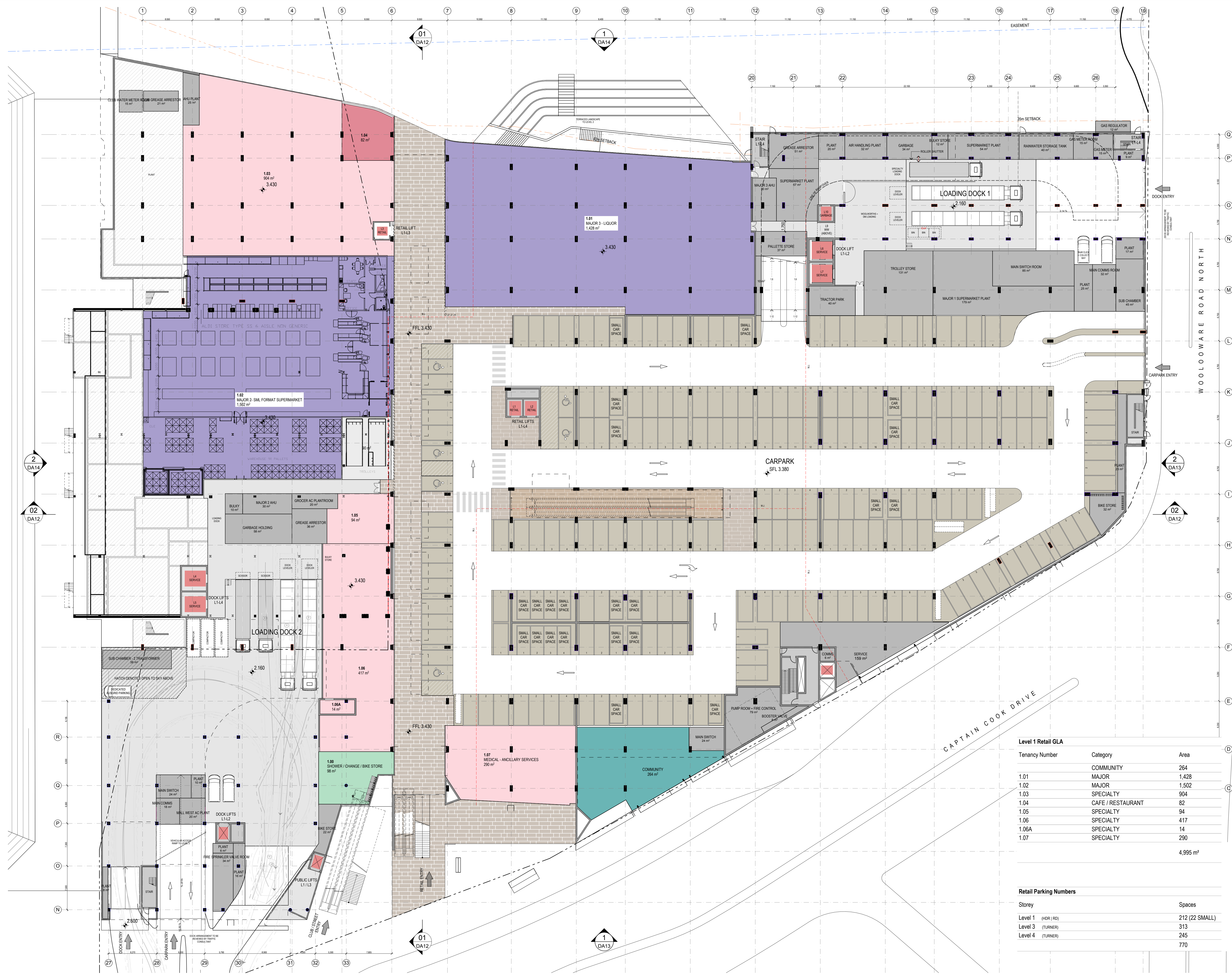
EVENT	Location A	Location B
Existing 100 year ARI no sea level rise	2.45	2.32
Post construction of Residential Stage 3 100 year ARI no sea level rise	2.45	2.32
Existing 100 year ARI Year 2100 sea level rise	2.58	2.36
Post construction of Residential Stage 3 100 year ARI Year 2100 sea level rise	2.61	2.36
Existing PMF no sea level rise	3.14	2.68

Should you require further clarification regarding the above please do not hesitate to contact me for clarification of the above.

Yours faithfully,  
**WMAwater**



**Richard Dewar**  
Director



**NORTH POINT**

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REV | DESCRIPTION OF CHANGE | DRAWN | CHECK | DATE

A	DRAFT RETAIL FSW	SG	KS	25.09.15
B	DRAFT RETAIL FSW	SG	KS	12.11.15
C	ISSUED FOR INFO - SIG DOCK ROAD LEVEL ADDED	SG	KS	16.10.15

**KEY PLAN**

**LEGEND**

- RESTAURANT
- FOOD COURT
- FRESH FOOD
- SPECIALTY
- MAJOR
- COMMUNITY ROOMS
- GYM / LIESURE
- AMENITIES
- SERVICE AREA

**Level 1 Retail GLA**

Tenancy Number	Category	Area
1.01	COMMUNITY	264
1.02	MAJOR	1,428
1.03	MAJOR	1,502
1.04	SPECIALTY	904
1.05	CAFE / RESTAURANT	82
1.06	SPECIALTY	94
1.06A	SPECIALTY	417
1.06A	SPECIALTY	14
1.07	SPECIALTY	290
		<b>4,995 m<sup>2</sup></b>

**Retail Parking Numbers**

Storey	Spaces
Level 1 (H&R   RD)	212 (22 SMALL)
Level 3 (TURNER)	313
Level 4 (TURNER)	245
	<b>770</b>

**PRELIMINARY**

**ARCHITECTS**

**RICE DAUBNEY**

Level 1, 110 Waterloo Street, North Sydney NSW 2060, Australia  
 +61 2 9556 2658 | [ricedaubney.com](http://ricedaubney.com) | [info.ricedaubney.com](http://info.ricedaubney.com)

The Rice Daubney Group (IND) PTY LTD is a trustee for The Rice Daubney Trading Trust  
 ABN 58 800 204 993

**PROJECT:**  
**BAY CENTRAL**  
**CAPTAIN COOK DRIVE,**  
**WOOLLOOMARE, NSW, 2230,**

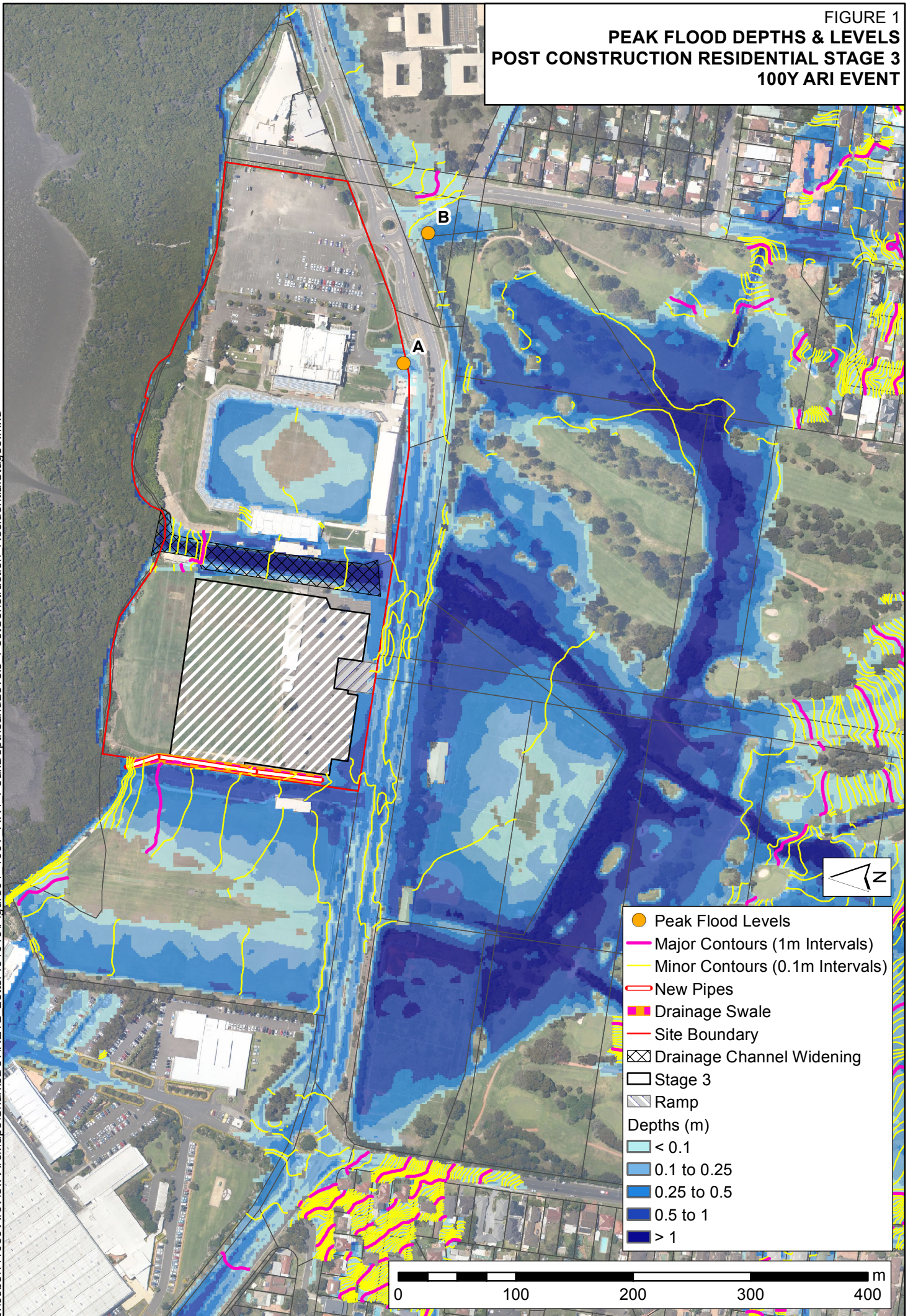
**DRAWING TITLE:**  
**DEVELOPMENT APPLICATION (DA)**  
**LEVEL 1**

SCALE: AS SHOWN | CHECKED: KS

PROJECT NUMBER: 15R Wool | DRAWING NUMBER: DA06 | ISSUE: C

**FIGURE 1  
PEAK FLOOD DEPTHS & LEVELS  
POST CONSTRUCTION RESIDENTIAL STAGE 3  
100Y ARI EVENT**

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- Peak Flood Levels
  - Major Contours (1m Intervals)
  - Minor Contours (0.1m Intervals)
  - New Pipes
  - Drainage Swale
  - Site Boundary
  - ▨ Drainage Channel Widening
  - Stage 3
  - ▨ Ramp
- Depths (m)
- < 0.1
  - 0.1 to 0.25
  - 0.25 to 0.5
  - 0.5 to 1
  - > 1

0 100 200 300 400 m