



Job Number: 180073
Date: 16 October 2019

GRC Hydro
Level 9, 233 Castlereagh Street
Sydney NSW 2000

Rod Burroughs
Van der Meer Consulting
Level 6, 39 Chandos St
St Leonards NSW 2065

Tel: 0413 631 447
www.grchydro.com.au

Dear Rod,

Re: Proposed Development – 1 Sirius Road – Flooding Issues

Introduction

Feedback on submissions to date in regard to the above referenced proposed development indicate specific issues as outlined below are required to be addressed:

- post development flood behaviour and potential impacts on upstream, downstream and adjacent property; and
- Failure to address emergency management aspects of the site.

Response

In periods of high rainfall there are two mechanisms by which the development site may be impacted. These are:

- Mainstream flood affectation – Stringybark Creek lies adjacent to the site and to the west (but not on the proposed development site). The work GRC Hydro have done assesses the design flood behaviour of Stringybark Creek. This work identified that the 1% AEP flood level in Stringybark Creek is 2.11 mAHD and hence the subject site is not impacted by mainstream flooding in the 1% AEP event (as shown in the attached Figure 1); and
- Local stormwater – The overall development site occupies space at the top of the headland. As such no exterior catchments flow into the proposed development site. It does of course generate its own runoff but as per Page 23 of the NSW Floodplain Development Manual (NSW, 2005) such flow is not designated as flooding but rather is stormwater. This runoff is dealt with elsewhere and is not considered further in this document which pertains specifically to Stringybark Creek mainstream flooding.

Since the subject site is not impacted by mainstream flooding (see Figure 1) the post-development case was not addressed in GRC's report. The logic for this is that if the development works occur on higher ground than the calculated design flood levels estimated (1% AEP level adjacent to site is 2.11 mAHD), then clearly no impact on such flooding can result.

Irrespective of the above GRC Hydro have in response to feedback from the Department carried out a number of runs and these include:

1. Impact Assessment – the results from the 1% AEP event are compared (existing versus proposed) in order to assess what impact the works have on design flood behaviour. As expected no impact is observed on Stringybark Creek flood levels. Levels for both pre and post development were calculated to be 2.11 mAHD.
2. Climate Change – As per feedback we have assessed a 2050 condition via the 0.5% AEP event combined with a tailwater level equal to the 20Y ARI Sydney Harbour level plus 0.51 m as well as a 0.2% AEP event with a Sydney Harbour equal to 20Y ARI plus 0.9 m. Results indicate that at the site flood levels are dominated by receiving water levels. Resultant flood levels are 2.26 mAHD for 2050 climate change run (0.5% AEP event with tailwater level of 1.89 mAHD and 3.18 mAHD for 2100 climate change run (0.2% AEP event with tailwater of 2.28 mAHD).

Broadly then the proposed development lies adjacent to Stringybark Creek but the works do not occur at the levels at which flood waters exist. As such there is no impact associated with the works on flood behaviour for any upstream, downstream or adjacent property.

In regard to how climate change impacts the property. The answer is not at all owing to the fact that the development occurs at levels well in excess of flood levels in Stringybark Creek.

Looking at emergency management aspects of the site we can say the following:

- Flood waters from Stringybark Creek do not impact the ability of people to exit the proposed development site; and
- Once people have exited the site they have multiple routes to exit the overall area and none of these are impacted by flooding associated with Stringybark Creek.

In regard

Yours Sincerely,



Steve Gray
Director

Email: gray@grchydro.com.au
Tel: +61 413 631 447

FIGURE 1
LANE COVE WEST DEVELOPMENT
PROPOSED CASE
1% AEP PEAK FLOOD DEPTHS

