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26th August 2019

Mr & Mrs Dobson
9 Evelyn Place
BELROSE NSW 2085

D-11-267450

Dear Sir and/or Madam,

Re: **Flood Statement – Proposed New Carport at 9 Evelyn Place, Belrose**

INTRODUCTION

I, Edward A. Bennett, practicing Civil, Structural, Geotechnical, Environmental Engineer, hereby confirm that the above project is subject to overland flooding in accordance with previous Flood report, prepared by Pittwater Data Services on the 29/11/2017, relevant pages are 3 & 6, refer Appendix "A", showing the 1%AEP level through the site as RL 163.80 average

The purpose of this report is to address & predict what may happen, if anything, in the event of an ARI 1:100yr flood event to the proposed Carport Development

PROPOSED DEVELOPMENT

The proposed development for the client is shown on plans provided by JAH Designs Sheets DA – 001 & DA – 005, refer Appendix "B", relevant sheet DA – 005, showing RL 163.68 as the average Carport Floor Level.

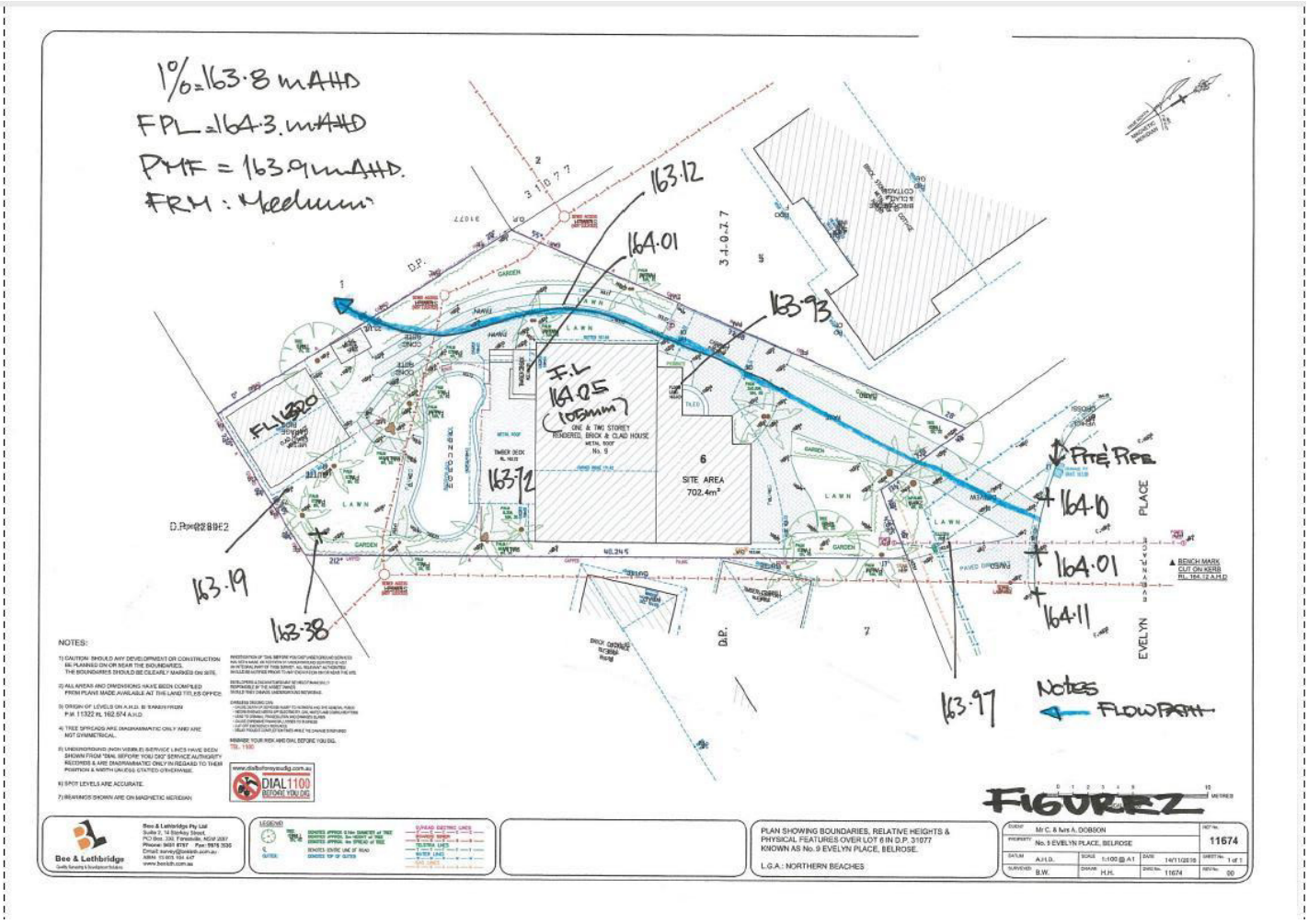
REPORTS

From the previous report, we can deduce that the carport slab would be overtopped by approx.. 120mm in the event of an ARI 1:100yr flood event and whilst both the 1% AEP and PMF floods, inundate the carport slab, as a result of overtopping from the Evelyn Place Kerb, when the Kerb & Gutter Inlet pit, outside the property becomes blocked, there will be NO resulting Damage to this Slab from these flood waters as the predicted maximum velocity is approx.. 1metre/sec at a depth of approx.. 0.3, which has a VXD of only 0.3 which represents LOW HAZARD (H1/H2), refer Appendix "A".

In addition, the Carport slab is uninhabitable and it should not have any objects placed on the slab, other than a motor vehicle, so that the free flow floodwater will continue as steady flow and not be interrupted by immoveable objects that could impact, by diverting the flow path into neighbouring properties. The Carport shall always be for vehicles only and not be used for storage, to ensure that there is NO impact and NO risk to life, as an ambulance vehicle would be likely to venture into floodwaters less than 300mm depth with such small velocities.

APPENDIX "A"

Page 6 of the report by Pittwater Data Services



Page 3 of the report by Pittwater Data Sevices

4.0 RESULTS OF THIS INVESTIGATION

The catchment characteristics for the ***site*** as discussed in Section 2 and the numerical modelling results, highlights several aspects of the natural and built infrastructure for the 1% and PMF flow processes. These are:

1. Overland flows from Forest Way to the ***site*** are distributed by the pipelines and road networks. The ***site*** northern boundary (driveway) is on the alignment of those flow processes as shown in Figure 2.
2. Overland flows at the ***site*** are a result of the pipes reaching its capacity and/or choking. Figures 3 shows the simulated flood extent of the 1%AEP event on the ***site***. This result does not characterise the impact of buildings and other infrastructure.
3. The PMF level was adopted as the Flood Planning Level due to its rarity (in excess of 10,000years recurrence). This is considered acceptable considering the depth of flow and the differences in flood level predictions as discussed in Item 4 Section 3. This allowance is covered in amendment dated 30th May 2017.

In summary the 1%AEP and PMF events inundates the ***site*** from overtopping of Evelyn Place kerb as shown in Figure 2&3. The flood velocities in the area are predicted to be a maximum of 1 metre/second at a depth of approximately 0.3 which has a VxD of 0.3: low hazard (H1/H2).

5.0 IMPACT OF THE DEVELOPMENT

The proposed additions as detailed in Figures 4 and 5 would have insignificant impact on the flooding characteristics through the ***site*** and other areas in terms of flood velocities, levels and storage for events approaching the PMF. The first floor level is above the FPL and the existing ground floor is at approximately the FPL. Potential inundation on the remaining ***site*** does occur for the 1%AEP and PMF event.

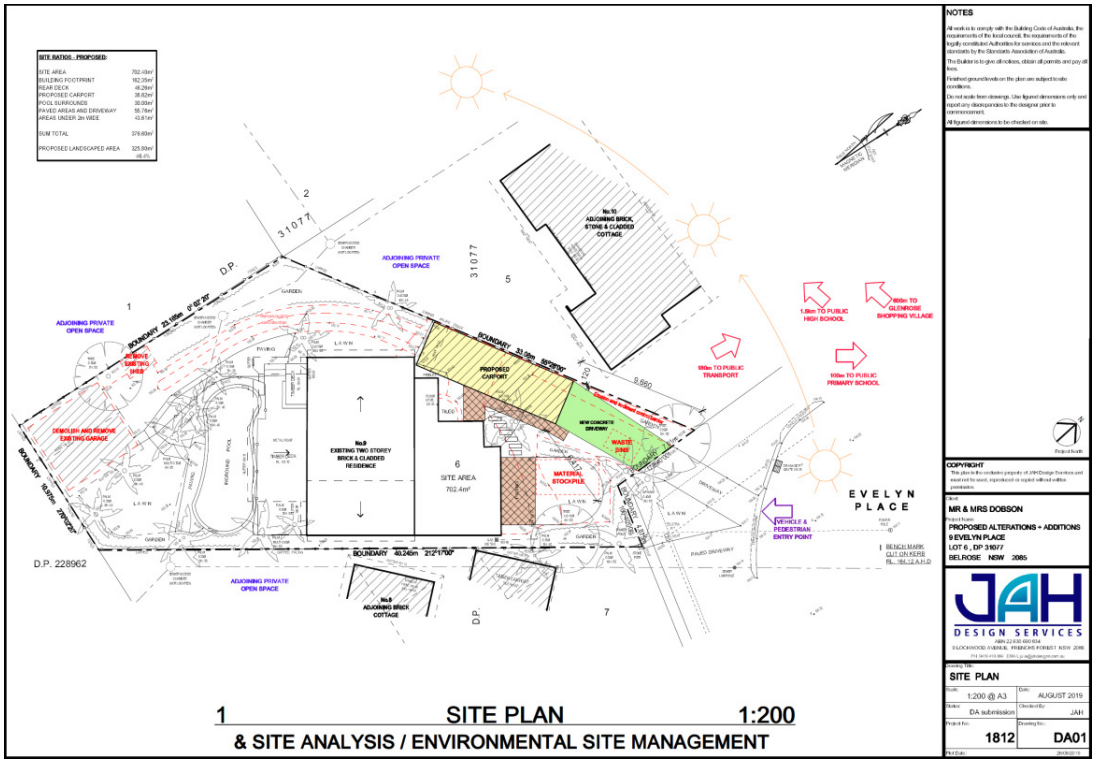
In conclusion, considering the flooding processes at the ***site*** the proposed additions as detailed in Figures 4 and 5, it is my opinion, the design will satisfy NBC DCP requirements as detailed in amendment dated 30th May 2017. That portion of the ***site*** for the development is not a flood control portion of the lot.

Yours Sincerely

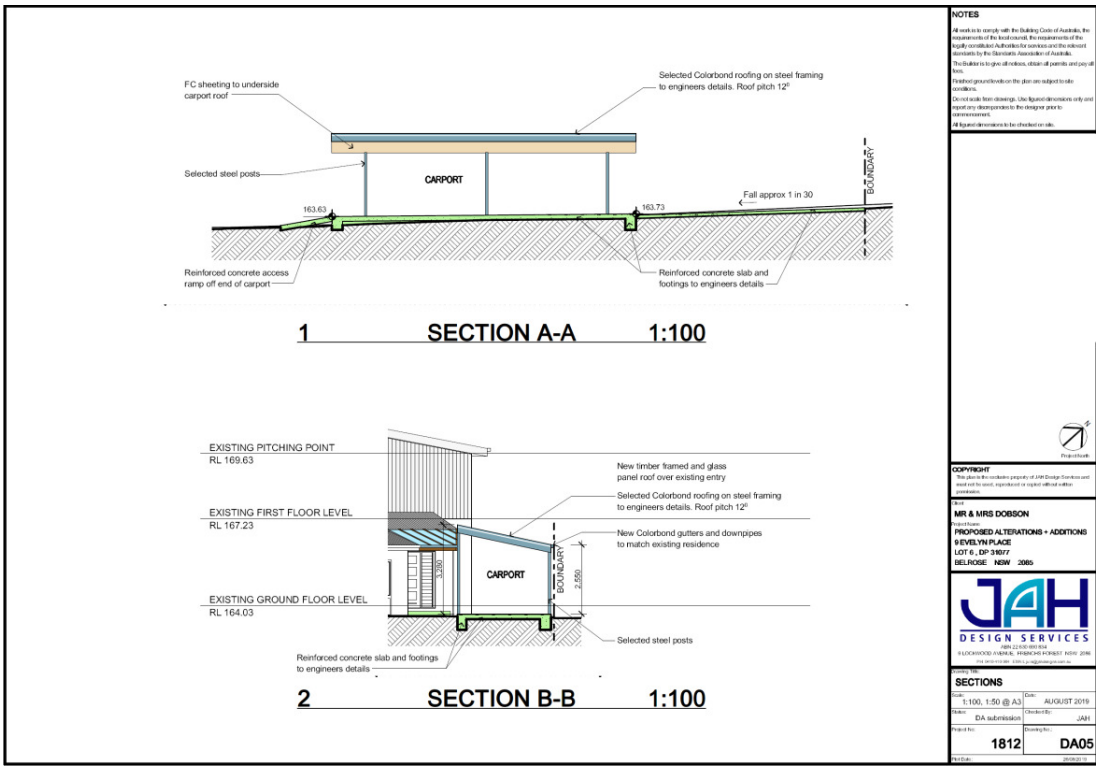
Stephen Wyllie Bsc(Eng)

Director 29/11/2017

APPENDIX “B”



1 SITE PLAN 1:200
& SITE ANALYSIS / ENVIRONMENTAL SITE MANAGEMENT



1 SECTION A-A 1:100

2 SECTION B-B 1:100

CONCLUSION

The WORST FLOOD scenario wouldn't create a RISK greater than LOW RISK for this site and for the carport construction.

Yours faithfully,

E.A. Bennett M.I.E. Aust. Cp Eng. NPER 198230, Member AGS, BPB 0820