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SUSTAINABLE WATER
STORMWATER & RUNOFF
STREAMS & WATERWAYS
CIVIL & INFRASTRUCTURE

Iqbal Kabir
Bayside City Council
76 Royal Avenue
Sandringham VIC 3191

Dear Mr Kabir

RE: Wangara Road Netball Courts: Flood Assessment

Storm Consulting (Storm) was engaged to prepare a flood assessment of the proposed Wangara Road Netball Centre development. The aim of the modelling is to ensure that an adequate detention system is implemented to prevent flood levels increasing due to the increased stormwater runoff generated from the proposed development.

The flood modelling has been carried out using the TUFLOW and DRAINS software packages. The runoff from the netball courts, the proposed drainage network and the detention systems have been modelled using DRAINS. The stormwater system was optimised and the modelled outflow from the development was used as the inflow into the TUFLOW model. An existing TUFLOW model supplied by the Bayside Council has been used and adapted for the flood modelling study.

The modelling was based on ARR 2019 (the latest version of Australian Rainfall and Runoff which is the national guideline for flood studies). The 1% AEP flood event was modelled for seven rainfall durations including 10, 15, 30, 60, 120, 180 and 360 minute events. Ten rainfall patterns were modelled for each event. The model has shown that the 60 and 120 minute storms are the critical events for flooding in the area.

The proposed stormwater system will collect the runoff from the netball courts, carparks and roofs and will transfer the runoff into a 1350 KL detention tank located under the netball courts. A 225 mm diameter pipeline will transfer water gradually to the southern 300 KL detention tank and from there a 100 mm diameter pipe will release the water into the existing Council drainage network. Combined, the detention systems will delay the peak flow and limit the flow rate at the exit point to 24 L/s. Based on the modelling carried out, the flood levels will reduce by 0 to 3 mm on George Street, Wangara Road and Talinga Road with a total detention volume of 1650kL. The modelling has shown that the 300 KL detention tank can be built during the second stage of the development.

The flood modelling has shown that the proposed stormwater management systems will slightly reduce the peak flood levels in the adjacent streets where the water ponds during the major storm events. The peak flood afflux map is presented in the attached map and the results are summarised in the table below:

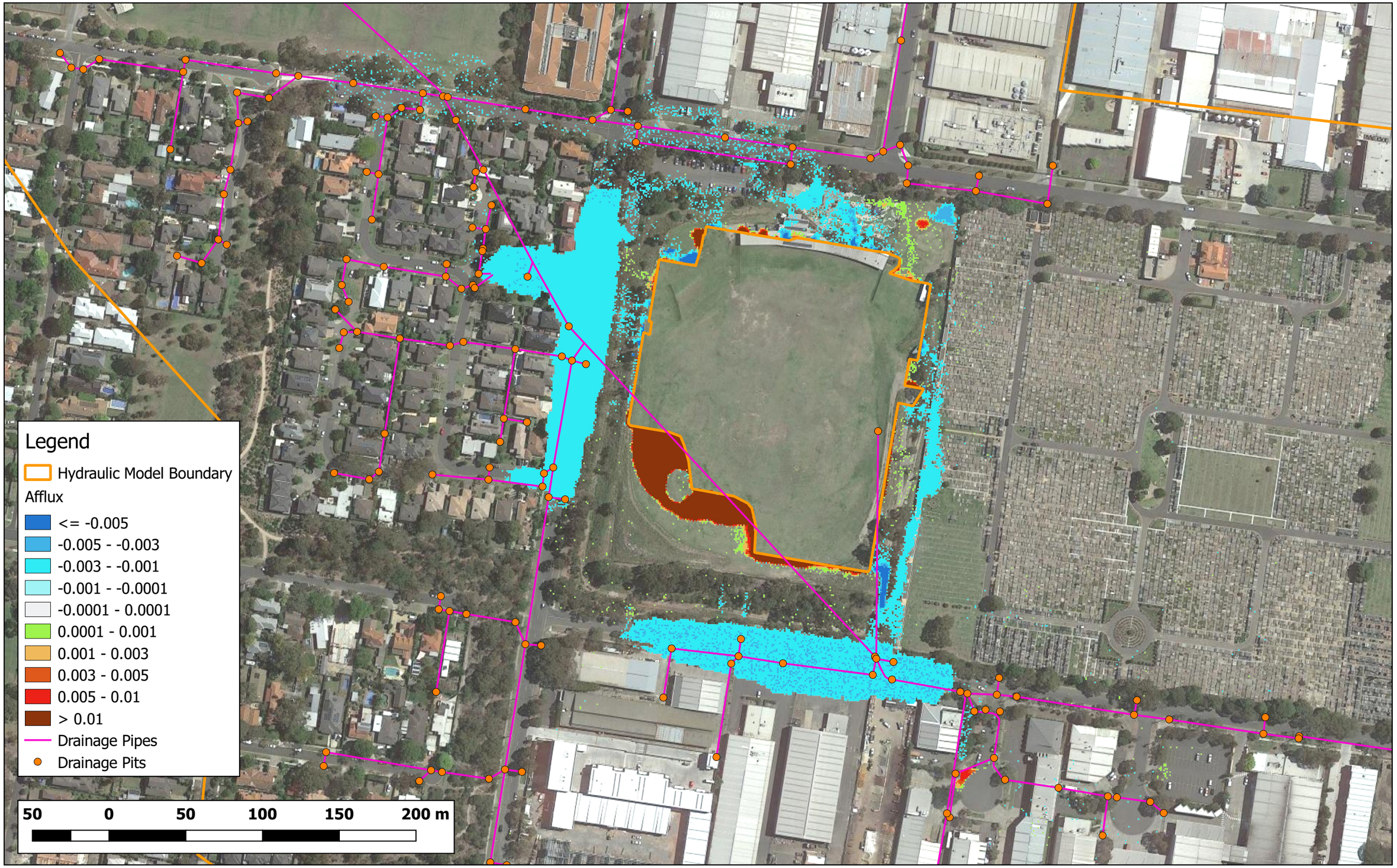
Table 1: Peak flood level reduction in the adjacent streets for 1% AEP event

Area	Reduction in peak flood level (mm)
Talinga Road	1-3
George Street	1-2
Wangara Road	0-1

The modelling shows that the proposed development will have no adverse effect on flooding in the area. It will slightly reduce the flood levels instead making it beneficial.

Yours sincerely

Farshad Lotfiazad
Water Resources Engineer
Storm Consulting (A division of Craig & Rhodes Pty. Ltd.)



Storm endeavours to ensure that the information provided in this map is correct at the time of publication. Storm does not warrant, guarantee or make representations regarding the currency and accuracy of information contained within this map.

N

Title:

Figure A1 - Option 6
Afflux - 100 year ARI
Wangara Ave Netball Courts
Project Number: 2154