



ANNEX C

Revised Flood Modelling

Our Ref LJ8596_2/L12 .McA/kb

Contact John McArthur

2 December 2008



Auspacific Engineers Pty Ltd

3/20 Nerang Street

NERANG QLD 4211

Attention: Mr Rod Holmes

Dear Rod,

**RE: GLADES ESTATE - MOONEE BEACH
UPDATED SEA LEVEL RISE MODELLING**

Cardno Lawson Treloar (CLT) has previously undertaken flood modelling incorporating a future sea level rise estimated by the Intergovernmental Panel on Climate Change (IPCC). This estimate increased the current 1% AEP ocean water level by 0.69 metres to RL 3.29mAHD.

The NSW Government Department of Environment and Climate Change has released a Floodplain Risk Management Guideline which considers a high level ocean impact of 0.91 metres and a 30% increase in storm volume.

On this basis CLT has modified the 1% AEP boundary conditions in the MIKE11 hydraulic model previously set up to establish peak water levels adjacent to the proposed Glades Estate development. Inflow hydrographs (1% AEP) have been increased by 30% and the model run with a 1% AEP ocean water level of RL 3.51mAHD.

A summary of the resulting 1% AEP peak flood levels in the vicinity of the site is presented below in Table 1. Cross-section locations are shown on the attached Figure 1 with developed flood extents including flood level contours shown on Figure 2.

Table 1 – 1% AEP Flood Levels Incorporating Climate Change

Branch	Chainage	1% AEP Flood Level (mAHD) ⁽¹⁾
Bucca	1520	3.710
Bucca	1100	3.719
Bucca	866	3.867
Bucca	810	4.103
Bucca	760	4.130
Moonee	6420	3.970
Moonee	6050	4.026
Skinners	2900	4.046
Skinners	2200	4.127
Skinners	1460	4.817
Skinners	1360	5.149

⁽¹⁾ Tailwater = 3.51mAHD and 1% AEP Flows increased by 30%

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Minimum fill levels for the Glades Estate Development have been set at RL 4.75mAHD. Based on the results presented in Table 1, freeboard in excess of 600mm is generally maintained. Lots in the north west corner of the site, adjacent to Skinner Creek and the Pacific Highway, are located at RL 6.0mAHD ensuring freeboard of at least 800mm is maintained.

In summary, a conservative modelling approach has been undertaken, combining a 1% AEP flood event with a 1% AEP ocean water level in conjunction with estimated maximum increases in flows and levels due to future climate change. On this basis it is considered the proposed fill platform levels provide an acceptable long term level of flood protection, particularly as freeboard in excess of 600 mm is still maintained throughout the Development.

Please contact the undersigned should you require any further information.

Yours sincerely



John McArthur
Principal
for **Cardno Lawson Treloar**

Enc:

Figure 1 – MIKE11 Model Layout (Site)

Figure 2 – 1% AEP Climate Change Flood Event Inundation Extent (Developed)



Source: Cardno Lawson Treloar Pty Ltd

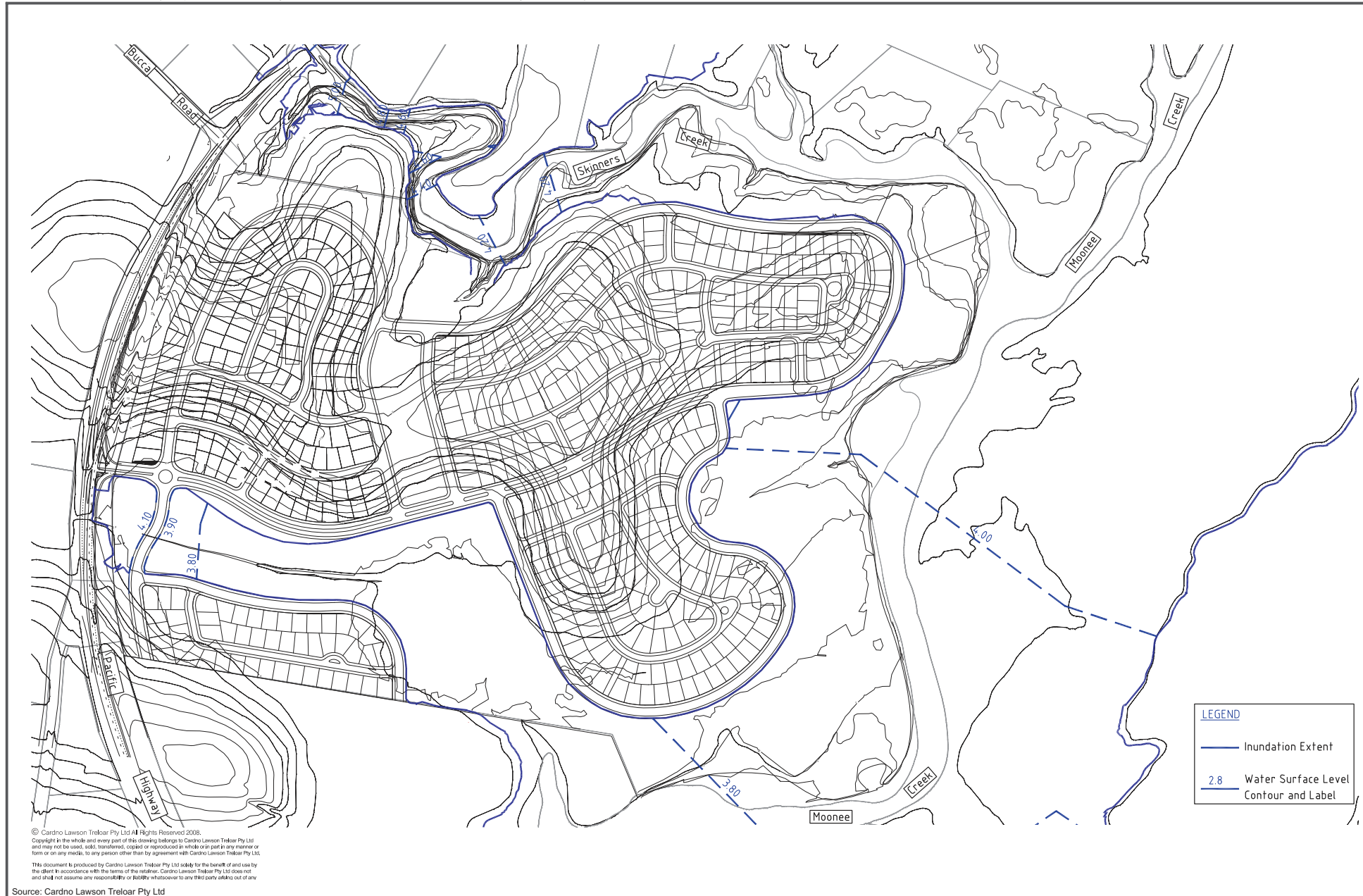


0 300m
Approximate Only

Annex C1- Figure 1

Revised Flood Modelling
- Dated December 2008

The Glades Estate, Coffs Harbour- Preferred Project Report Nov 08



0 200m
 Approximate Only

Annex C2 - Figure 2

**1% AEP Climate Change Flood Event
 Inundation Extent (Developed) - Dated
 December 2008**

The Glades Estate, Coffs Harbour- Preferred Project Report Nov 08