



Mr Alan Wells  
Wells Environmental Services  
PO Box 205  
EAST MAITLAND NSW 2323

29037/L090619

22 June 2009

**Attention: Mr A Wells**

Dear Alan,

**Re: Part Lot 222 & Lot 224 DP 862015, Waterfront Road, Swan Bay – MP07\_0041**

Further to the Department of Planning's letter of 3 June 2009 (Bright, Wells) we have provided the following response to the four issues raised in the letter.

**1. Demonstrate whether Council's minimum habitable floor level incorporates freeboard and sea level rise and to what height.**

Port Stephens Council has a minimum floor level policy of 2.5 m AHD for all locations on the foreshore of the estuary. This policy is in accordance with the findings of the Port Stephens Foreshore (Floodplain) Management Study (April 2002) prepared by Webb McKeown & Associates (now known as WMAwater) for Port Stephens and Great Lakes Councils. Attached from that report are the cover page and Figures 4 and 5. Figure 5 indicates that the 1% AEP flood level at Swan Bay (Point 25) is 1.9 m AHD. Figure 4 (Point 25) indicates the same as well as the Extreme, 1% AEP and 5% AEP events including wave runup (these are all below 2.5 m AHD).

The minimum floor level of 2.5 m AHD is based on the 1% AEP flood level plus a freeboard allowance to cater for wave action, uncertainties in design flood estimation, local hydraulic factors, some component of climate change and the cumulative effects of further development. The magnitude of the individual components making up the freeboard has not been quantified and will vary within the estuary.

In the Management Study a potential climate change sea level rise of 0.2 m by the year 2050 was considered. Since publication of the study in April 2002 guidelines provided by DECC indicate a possible sea level rise of 0.9 m by the year 2090.

Based on the above our recommendation is for the floor levels of the proposed residential buildings be set at 2.5 m AHD + 0.9 m = 3.4 m AHD.

**water + environmental engineers**

**Webb, McKeown & Associates Pty Ltd (trading as WMAwater)**

**ABN 50 366 075 980**

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**2. Investigate the effects of tidal range, and inflows from the Karuah River**

An indicative tidal range at Swan Bay is from -0.7 m AHD to +0.7m AHD. The maximum annual tidal (i.e. with no ocean anomalies) level at Swan Bay would be approximately 1.1 m AHD. The surveyed ground levels (see attached) indicate typical ground levels of 1.5 m AHD, thus the existing ground is approximately 0.4 m above the maximum annual tidal level.

However, with a climate change sea level rise of 0.9 m the typical land level would be inundated by 0.1m at a "normal" high tide and be inundated by 0.5 m in the maximum annual tide.

The inflows from the Karuah River have been considered in establishing the design flood level of 1.9m AHD and this is the reason why there is a flood gradient from west to east in the estuary (refer Figure 5).

**3. Identify the impacts of the required adjusted minimum habitable floor level on future development of the site and mitigation measures required (such as filling, construction type), particularly given the range of RLs across the site as identified on Figure 5 Drainage Design, 28 January 2005.**

The land is solely to be used for residential development. Thus once the proposed houses have been constructed (floor level at 3.4 m AHD – approximately 1.9 m above the typical ground level) no further developments on the land are proposed. Should a climate change sea level rise eventuate no mitigation measures are proposed. At some point in time as sea levels rise the land would likely have to be abandoned for residential usage (due to access or other reasons). We cannot advise the sea level rise that will precipitate this action as it would depend on the individual landowner and a number of related factors. Unfortunately this is likely to be the scenario for a large number of properties along the NSW coast if a climate change sea level rise eventuates.

**4. Any supporting plans/RLs should be referenced to AHD.**

Please find attached the site plan prepared by a Registered Surveyor with all levels to AHD.

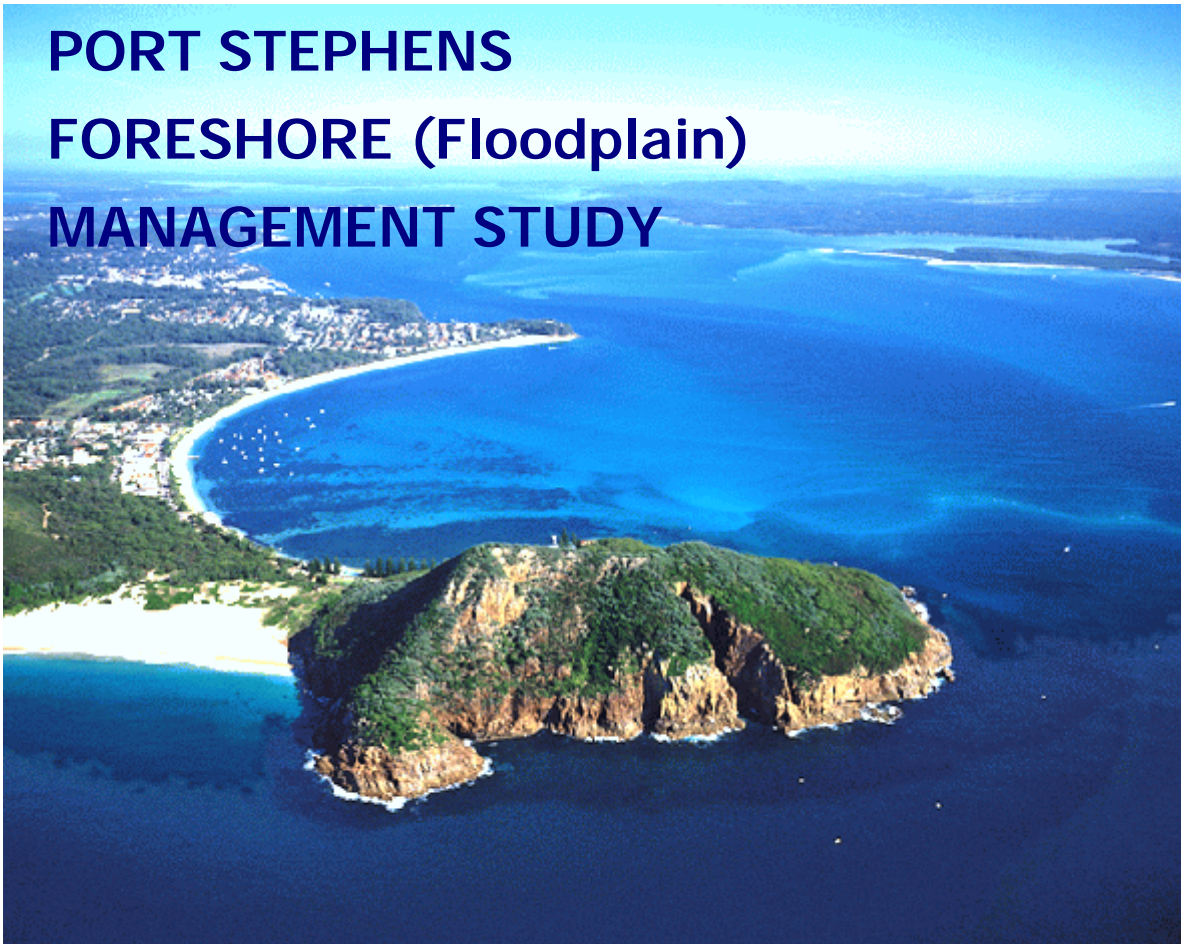
I trust that the above adequately addresses the above issues. Should you or the Department of Planning require further advice please do not hesitate to advise.

A handwritten signature in blue ink, appearing to read "R W Dewar".

Yours faithfully,  
**WMAwater**

R W Dewar  
Director

# PORT STEPHENS FORESHORE (Floodplain) MANAGEMENT STUDY



APRIL 2002

NEXUS ENVIRONMENTAL PLANNING PTY LTD

**WEBB, McKEOWN & ASSOCIATES PTY LTD**



DESIGN FLOOD LEVELS

Port Stephens Design Flood Levels

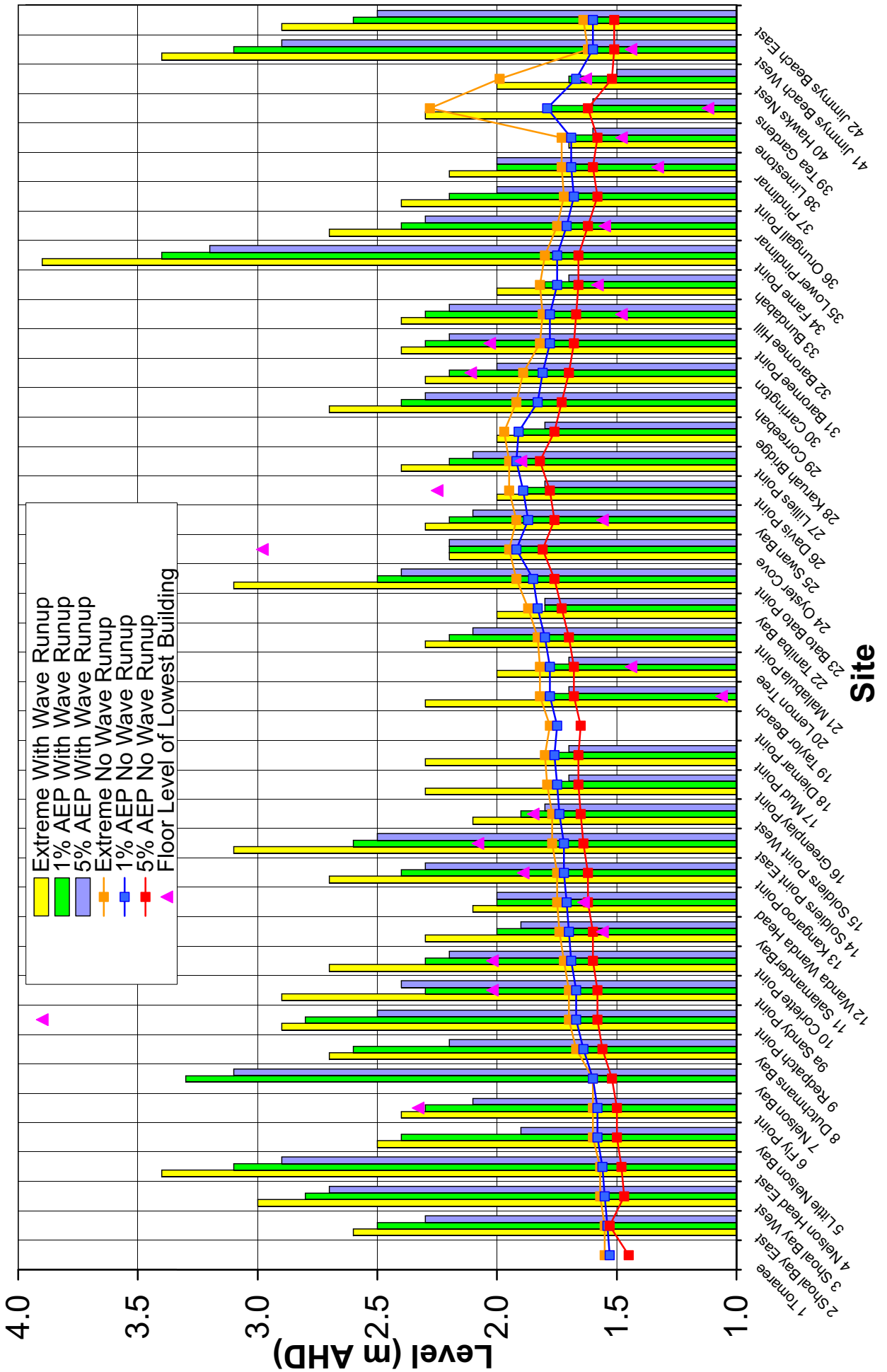


FIGURE 5

FLOOD GRADIENTS  
STILLWATER INUNDATION

