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Robert Schofield
Kapiti Coast District Council
Rimu Road
Paraparaumu
(by email through Katie Bunker)

Dear Robert Schofield

SUBMISSION TO THE COASTAL EXPERT PANEL ASSEMBLED BY THE KCDC TO ASSIST WITH S.42A PROCESS FOR CHAPTER 4 OF PROPOSED DISTRICT PLAN, 2013

1 Introduction

I am writing to you as advised by Katie Bunker as I wish to make this written submission to the Coastal Expert Panel on behalf of the Tortell family. We are Philip and Dorothy Tortell and we have lived at 52 Ames Street in Paekakariki for the past 19 years. Our telephone number is 04-292 8506 and our email addresses are tortell@attglobal.net and dostor@attglobal.net. We are currently overseas and therefore unable to make our presentations in person.

I am a marine biologist and for the past 23 years I have been working as an international environmental consultant for the United Nations. Although coastal dynamics is not my area of expertise I have a fair understanding of coastal processes. My wife Dorothy is a Social Worker.

We came to live in Paekakariki with plans for retiring here and then leaving the property to our children and grandchildren. In other words, this is our home. When we bought our property on the beachfront in Ames Street we knew that there were risks – risks from the occasional flood events on the Paekakariki Stream and risks from the wave action and changing climate on the coastal frontage. We acknowledged those risks and set about managing them with Council approval and Council support.

I have examined the *Kapiti Coast Erosion Hazard Assessment 2012 Update* by Dr Roger Shand and his earlier report of 2008 and I wish to submit that it is not fit for purpose. I am therefore very pleased that the Council has appointed you as a Panel of Experts “to consider the coastal hazard work done to date and be part of pre-hearing expert-to-expert technical discussions with the Council’s existing coastal experts and submitters’ coastal expert witnesses,” and for the Council “to gain access to a completely impartial view on technical issues of coastal science raised by Chapter 4 submitters regarding the data and methods used by CSL in undertaking their coastal erosion hazard risk assessment.”

2 Dr Shand’s report is technically flawed

I know that expert colleagues, fellow Kapiti residents and Coastal Ratepayers United (CRU) plan to make submissions to the panel on the methodology used by Shand, his interpretation of the data, and other technical aspects. I endorse these expert submissions and I wish to add a personal perspective.

The Shand report is based on assumptions which are open to interpretation and it would have been scientifically safer to accommodate the margin of error inherent in the assumptions by using an “envelope” as shown to depict aerial photos in the inlet maps (e.g. as in section 4.4) rather than a bland and very precise line.

Regardless of whether lines or envelopes are drawn, it would have been very informative for the report to indicate the specific survey points/transect stations, from which the lines were extrapolated by joining the dots. This is particularly relevant since according to Dr Shand “*significant variation between the points could still occur*” (p.63).

In many equations, Shand quantified the negative elements (even if through assumptions) and gave them numerical values, whereas positive elements such as accretion were either zero rated or ignored altogether (see section 3.1.1). The explanation given is that this is “*a precautionary measure used by the industry*”. I submit that the equations are scientifically unsound since no consideration of coastal dynamics is meaningful without equal attention to accretion in addition to erosion. This is particularly relevant on the Kapiti Coast where, according to the report, “*an increase in sediment supply may also occur as climate change is expected to increase both the episodic and mean annual supply of sediment via rivers and streams*” (p.11).

One of the most direct and effective ways of counteracting erosion is by building defensive structures. Their effectiveness depends on the design and the quality of workmanship, not on who owns them. It is therefore inexplicable that the Shand report should admit that whereas Council-built defensive structures are given credit for a positive result, the effects of privately constructed structures “*have not been incorporated within this assessment*” (p.7). This is in spite of the fact that many of these private structures have been designed and built with Council approvals.

These and other discrepancies invalidate the coastal hazard prediction lines as provided by Dr Shand. A single methodology applied to a varied coast is not appropriate. The two lines drawn on the map ignoring coastal geomorphology, protective structures, elevation and other influences are a nonsense. Dr Shand’s report is so flawed that it was unreasonable for the Council to use it as the basis of any decision, particularly a decision such as this which has a significant and far-reaching impact on individual home-owners.

3 Dr Shand’s predictions are not supported by historical evidence and personal observations

In the 19 years that I have lived at Ames Street I have been watching the coast, for obvious reasons, and I can categorically say that there has been modest accretion as a long-term trend. When we built our wooden seawall to replace a damaged concrete one some 5 years ago, we put steps going down to the beach. Today, the last 2 to 3 steps are constantly buried and the rest of the wall attests to an accreted level some 40-50cm above where it was only 5 years ago.

This historical trend was noted by Dr Shand when he referred to the calamitous events of the 70s in Paekakariki and Raumati and noted that “*the shoreline has been relatively stable thereafter*” (p.20). Close to 50 years have passed and Gibb’s predictions about Paekakariki being in a long-term erosion phase did not come to pass. There has not been any long-term erosion in Paekakariki, either in the unprotected large sand dunes just north of the Fishermans Restaurant, or further north along the coast with its variable seawalls put up by owners and ranging from solid concrete structures, to wooden walls or simply the barricades of railway irons and car tyres.

I believe that the contribution of sediment from the cliffs south of the Fishermans Restaurant (put forward by Gibb and referred to by Shand) was never significant and the building of the Centennial Highway did not deprive the system of much. That part of the coast shows a northward long-shore drift (as recorded by Shand in Appendix G) with minimal sediment. It continues to work its way north until it reaches the lee of Kapiti Island at Ames Street where it loses its dynamic force. It is not the sediment load that is important, but the current itself which serves to prevent sediment which is

being carried by the southwards flowing, sediment laden, current from the north, being lost to the Kapiti coastal system.

In fact, also as Shand attests (Appendix G), the long-shore drift from the north is carried past the Paraparaumu cusp and with the strong current in the channel, the sediment drift continues south towards Raumati and Paekakariki. The sediment continues past QE-2 Park until it collides with the northern drifting sediment from Fishermans Restaurant and they are both deposited. The extensive apron of sediment which sits just offshore Ames Street is visible to anyone on a calm day. How it gets there is easier to postulate than why it stays there, and both can only be determined conclusively through further research.

Having accepted that the Paekakariki coast at Ames Street has been stable for close to 50 years, Shand then applies his ultra-conservative formula and determines that this stretch of coast is going to recede by over 100m in the next 50 years. His predicted values are totally inconsistent with observed events, even storm events, and just do not stand to reason.

4 Dr Shand is himself very hesitant about his findings

Dr Shand himself appears to have recognised the limitations of his study. According to the Executive Summary of his 2012 Report, (p.4, third para from the end), the report is the result of a “*generic approach*” constrained by the “*available time and funding*”, leading to “*some apparently inconsistent results*” and “*some results may be over-estimated.*” Dr Shand also recommends that the Council should emphasise “*to the public the difference between the present assessment’s local/regional hazard assessment and a site-specific assessment*” (Recommendation on p.63).

Dr Shand recognizes these limitations and says that “*Such issues can be resolved, and prediction lines thus further refined, when and where necessary, using more localized site-specific assessments as these are carried out with greater detail (and at greater cost).*” It is interesting to note that at the only locality where such site-specific assessments have been subsequently carried out, namely at the Waimeha Inlet, Dr Shand has recommended that the limits of the coastal hazard zones he had proposed, be corrected.

5 Conclusions and Recommendations

Shand’s scientific method was weak and his findings were quite preliminary and generic in nature and it was not correct for the Kapiti Coast District Council to use them in the way they did. The Council should therefore put aside any decisions and statements on coastal hazard zones and commission a new scientific study that is not hampered by limitations of time and resources in the way that Shand claims his was.

Such a study should focus on a risk assessment, including probability, and also take into account the community’s level of tolerance of risk and an identification of the options available to manage the risk. The study must also consider the costs and benefits of all the options, including the do-nothing option.

This issue affects the whole Kapiti community and it can only be resolved with the community, not for the community. The role of scientific and technical (engineering) investigations is crucial in assessing the risk and identifying options for risk management. But the decisions on what will be done in the face of this challenge must be made jointly by the community and the Council.

Yours sincerely



Philip Tortell