

**BEFORE INDEPENDENT HEARING COMMISSIONERS  
APPOINTED BY THAMES COROMANDEL DISTRICT COUNCIL**

**IN THE MATTER** of the Resource Management Act 1991

**AND**

**IN THE MATTER** of the hearing of submissions to Variation 3 to the  
Proposed Thames Coromandel District Plan  
(Taiwawe Catchment Structure Plan)

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**STATEMENT OF EVIDENCE OF  
MICHAEL GEORGE CHAPMAN  
ON BEHALF OF HOT WATER BEACH (NZ) LIMITED**

**Dated 1 March 2021**

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## **INTRODUCTION**

### **Qualifications and Experience**

- 1.1 My name is Michael George Chapman. I have 22 years of experience as a stormwater engineer and Hydrologist in New Zealand, North India, and the United Kingdom. My career to date has focused on stormwater catchment management in both urban and natural environments. I have worked for the private, public and NGO sectors.
- 1.2 I have a Master of Science Degree (Honours) in Hydrology and Environmental Science from the University of Waikato (1998). I am a Member of Engineering New Zealand (MENG NZ 1032906), The New Zealand Hydrological Society and Water New Zealand.
- 1.3 I currently hold the position of Director – Stormwater Engineer with Te Miro Water Consultants Ltd in Cambridge. I have held this position since 2019. Between 2010 and 2018 I held the position of Principal Engineer at Harrison Grierson Consultants Ltd in Auckland. I have been the lead author and designer for numerous stormwater management plans to support plan variations, resource consents and detailed design for land development projects.
- 1.4 I have prepared over 30 low impact design solutions and integrated catchment management plans for private sector clients as well as for district and regional councils.

### **Involvement in the Project**

- 1.5 I was engaged by the proponent to provide low impact design advice for the 38 hectare property to support the preparation of the Proposed Plan Variation 3.
- 1.6 This statement of evidence is prepared to address the latest overall development concept including landscape and conservation planting plan prepared by Brown NZ Ltd. I have also sighted the revised Structure Plan document as being produced by Mr Lawrence with his evidence and am familiar with its content as it relates to the topics covered in this evidence.

### **Purpose and Scope of Evidence**

- 1.7 The purpose of my evidence is to address matters relevant to stormwater management in particular water quality, erosion, and flood risk.

- 1.8 I have prepared a stormwater report entitled *Taiwawe Catchment Surface Water Runoff Management* (Version 4) (**attached**) which I adopt for purpose of this evidence. I present the summary and conclusions from section 1 and 8 of the report in the summary and conclusions of my evidence as set out in Section 2 and 3 below.

### **Expert Witness Code of Conduct**

- 1.9 I have been provided with a copy of the Code of Conduct for Expert Witnesses contained in the Environment Court's Consolidated Practice Note 2014. I have read and agree to comply with that Code. This evidence is within my area of expertise, except where I state that I am relying upon the specified evidence of another person. I have not omitted to consider material facts known to me that might alter or detract from the opinions that I express.

## **2. SUMMARY**

- 2.1 The stormwater management approach at Taiwawe focusses on the multiple benefits achieved through catchment scale revegetation. This approach is strongly aligned with s.1.2 (Principles of stormwater management) and s.8.5.9 (Bush re-vegetation) of the Waikato Stormwater Management Guideline (ref TR20-01, May 2020). The revegetation approach can be used on a subdivision or catchment wide basis, where areas can be set aside, converted to bush and overall subdivision or catchment stormwater runoff reduced.
- 2.2 In addition to revegetation, key aspects of the stormwater approach relate to the use of rainwater tanks for domestic water supply (re-use for house lots), as well as options such as swales and filter strips to manage runoff from accessways and parking areas. The aim is to disperse flow diffusely across moderately sloping ground. The site is in the lower half of the Taiwawe catchment and therefore peak flow attenuation is not recommended to manage storm flows. This is because storage and slow release of storm runoff from the site could increase flood risk in the lower catchment due to flood peaks coinciding (attenuated site runoff coinciding with runoff from the wider catchment). This 'pass it forward' approach is supported by s.7.1.3 in the WRC stormwater guideline.

## **3. CONCLUSIONS**

The key stormwater mitigation measures for Taiwawe are:

- a. Extensive revegetation to not only improve biodiversity, ecology, and mana whenua values, but also to offset the increase in imperviousness in accordance with WRC guidance for device sizing.
  - b. Volume control and treatment from residential impervious areas will be managed using rain tanks for domestic water supply (re-use) as well as swale/filter strips or other small scale planted gardens for private hardstand areas. Each lot has adequate space to implement a range of measures to be decided at resource consent/building consent stage.
  - c. Roadside swales are recommended to treat and convey runoff from accessways which will convey to the nearest appropriate gully outlet incorporating best practice erosion control measures such as diffuse pipe outlet and rock rip rap or bank planting set back from the stream bank and angled in the direction of flow.
  - d. Road culverts will be sized to convey the 100yr peak flow and provide for fish passage. The location of these culverts and sizing will be provided at sub-division consent stage.
2. Large scale revegetation (landscape and conservation) will significantly increase the overall site vegetation coverage and is aligned with best practice methods recommended in the WRC stormwater guidelines. This will have the effect of reducing rapid runoff to the receiving wetland, increasing absorption of rainfall at source through interception and evapotranspiration. Positive impacts of vegetation coverage on reducing rapid runoff and improving water quality treatment is well documented in various guidance document including the Waikato Regional Stormwater Guidelines.
  3. A pass it forward approach is recommended to manage peak flows from impervious areas. This is to avoid potential to merge with peak flows arriving later from the upper catchment. The idea is to let water go earlier in the storm event before water from the upper catchment arrives.

**Michael George Chapman**

**March 2021**