BEFORE THE HEARING PANEL

IN THE MATTER of the Resource Management Act 1991

AND

IN THE MATTER of Proposed Plan Change 12 to the Operative Hamilton City District Plan

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SUMMARY STATEMENT OF EVIDENCE OF JULIANA REU JUNQUEIRA

(FLOOD HAZARDS AND GREEN POLICIES)

Dated 4 September 2024

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INTRODUCTION

1. My full name is Dr Juliana Reu Junqueira. I hold the position of Team Lead within the Urban and Spatial Planning Unit of Hamilton City Council (**HCC**). I am responsible for the components of Plan Change 12 (**PC12**) relating to green policies and flood hazards.

2. I have produced a statement of evidence dated 26 June 2024 (**primary evidence**) and a statement of rebuttal evidence dated 14 August 2024 (**rebuttal evidence**). In response to submissions, I recommended amendments to the PC12 plan provisions which are included in the PC12 provision set dated 26 June 2024.

SUMMARY OF EVIDENCE

3. My evidence encompasses a discussion on the existing strategies for managing flood risks, as well as an assessment of the proposed amendments to the planning framework. It also delves into the interplay between Plan Change 14 - Flood Hazards (**PC14**) and Plan Change 12 and the suggested revisions aimed at enhancing flood hazard mitigation. This is particularly pertinent considering the land use intensification permitted under PC12, which precedes the additional land use controls that PC14 aims to implement.

4. My evidence also discusses the implementation of green policies particularly to give effect to Te Ture Whaimana and for stormwater management in residential zones. The green policies include tree planting, deep soil area, landscaped areas, permeable surfaces, and on-site stormwater management. These solutions have been identified as effective alternatives to traditional infrastructure and have several benefits (beyond stormwater management) such as reducing urban heat islands, improving air and water quality, and enhancing biodiversity.

Flood hazards

5. The Operative District Plan only addresses flood hazards for approximately 14% of Hamilton's total area (**Slide 1**). HCC has initiated a comprehensive programme aimed at generating detailed flood data for each urban catchment within the city (**Slide 2**). Due to time constraints on PC12, a Flood Hazard Plan Change, PC14, is yet to be notified.

6. The effective interplay between PC14 and PC12 is vital for urban development and flood hazard management in Hamilton. To further enhance the relationship between urban development and flood hazard management in Hamilton, some amendments are proposed in PC12. For example, a review in the proposed zoning and the addition of a policy, an item of discretion and assessment criteria have been proposed in the PC12 Residential Chapter (**Slide 3**).

Green policies

Permeable surfaces

7. PC12 requires a maximum of 70% of impermeable areas in the General and Medium Density Residential Zones, and 80% in the High Density Residential Zone (**Slide 4**). This requirement aids in giving effect of Te Ture Whaimana, while enhancing stormwater management by promoting ground infiltration of rainwater and reducing runoff. Notably, the policy does not mandate a separation between permeable surfaces and landscaped areas, offering developers the flexibility to integrate both elements. Despite the stormwater management focus, these permeable surfaces can also help mitigate the urban heat island effect by providing areas of natural cooling, which can improve overall urban liveability.

Landscaped areas

8. Landscaped areas not only help stormwater management and enhance water quality, but also add to streetscape amenity. A landscaped area of a minimum of 20% of a development site with grass or plants - and can include the canopy of a tree regardless of the ground treatment below them - is required by PC12 for General and Medium Density Residential Zones. In the High Density Residential Zone, residential units at ground floor must have a landscaped area of a minimum of 10% of a development site with grass or plants, and can include the canopy of a tree regardless of the ground treatment below them (**Slide 4**).

9. In order for these areas to offer additional benefits, a requirement that 50% of the required landscaped area is in 'deep soil' was introduced (400mm for shrubs and plants and 1m for trees). Deep soils are relevant to ensure that trees and other vegetation can survive and reach proper maturity, among other benefits that goes beyond that. The required deep soil can be computed as landscaped area and permeable surface concomitantly. That is, the proposed requirements aim to bring consistency and clarity on what should be expected for uncompacted soil. I maintain my position about the significance of a minimum of 50% of the landscaped area should be in deep soil.

Tree canopy coverage

10. Regarding tree canopy coverage, I concur that a 'trees per unit' metric could establish a clear standard for tree planting within permitted activities. However, a site percentage requirement allows for greater flexibility, encouraging the incorporation of tree planting from the initial design stage and providing better consistency with site's size (**Slides 5 to 11**). This approach enables developers to either

preserve mature trees or plant trees of various sizes to meet the required percentage.

11. I also wish to clarify a discrepancy between my recommendations on tree canopy coverage and landscape area requirements in High Density Residential Zones and the published provisions. I endorse a 10% allocation for both landscaped area and tree canopy coverage in High Density Residential Zones, contrary to the 20% stipulated in the provisions.

On-site stormwater management

12. After reviewing the provided evidence, I maintain my position regarding the significance of rainwater tanks. The importance of rainwater tanks transcends simple water collection; they embody a tangible commitment to water conservation, reduction on greenhouse gas emissions and environmental stewardship.

CONCLUSION

13. This evidence explains the current flood hazard scenario and the forthcoming PC14, detailing its interplay with PC12. It also delves into the rationale behind the green policies requirements under PC12 which includes requirements for a minimum tree canopy coverage, maximum impermeable area, a landscaped area with a percentage of it in deep soil, and on-site stormwater management measures. These solutions collectively aid in giving effect to Te Ture Whaimana while providing further benefits, such as enhance stormwater management and in being a climate resilient approach that can, for example, minimise urban heat island effects.

14. I have conducted a thorough review of the submissions and evidence pertaining to flood hazards and green policy. My recommendations

include the acceptance of certain points and the rejection of others. Specifically, my recommendations diverge from the presented evidence in the following matters:

a) Regarding urban trees, PC12 proposes a minimum tree canopy coverage. This contrasts with Kainga Ora's suggestion of a quantified number of trees per residential unit, as initially notified in PC12. I recommend a percentage-based requirement for tree canopy coverage to ensure flexibility and scalability across various urban landscapes. Additionally, it is important to note that it is not required for the tree canopy to be continuous.

b) In the matter of deep soils, Kainga Ora has recommended removing the deep soil requirement, despite recognising its significance. Contrary to this, my professional opinion supports retaining the original mandate that 50% of the landscaped area should consist of deep soils.

c) Concerning rainwater tanks, I reaffirm the importance of incorporating rainwater reuse systems in new residential developments. Such systems are relevant for water conservation and mitigating the impact of urban runoff.

d) I also highlight that my recommendation is a 10% allocation for both landscaped area and tree canopy coverage in High Density Residential Zones, contrary to the 20% stipulated in the provisions.

Juliana Reu Junqueira
4 September 2024