

**Before the Hearings Panel  
At Porirua City Council**

**Under** Schedule 1 of the Resource Management Act 1991

**In the matter of** the Proposed Porirua District Plan

**Between** **Various**

**Submitters**

**And** **Porirua City Council**

**Respondent**

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**Statement of evidence of Benjamin Hugh Fountain on behalf of Porirua City  
Council (Flood Risk Management)**

**Date: 15 Dec 2021**

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## **INTRODUCTION:**

- 1 My full name is Benjamin Hugh Fountain. I am employed as a Principal Advisor – Environment at Porirua City Council.
- 2 I have prepared this statement of evidence on behalf of the Porirua City Council (**Council**) in respect of technical related matters arising from the submissions and further submissions on the Proposed Porirua District Plan (**PDP**).
- 3 Specifically, this statement of evidence relates to flooding hazards within that part of the Proposed Future Urban Zone identified as Judgeford Flats, Pāuatahanui as identified in Part 3 FUZ – Future Urban Zone.
- 4 I am authorised to provide this evidence on behalf of the Council.

## **QUALIFICATIONS AND EXPERIENCE**

- 5 I have a Bachelor of Engineering - Natural Resources (Honours), University of Canterbury. I am a Chartered Professional Engineer, and an International Professional Engineer IntPE, and I have been a member of Engineering New Zealand for 15 years.
- 6 I am currently Principal Advisor- Environment at Porirua City Council. I was previously the Chief Advisor: Stormwater at Wellington Water, with whom I was employed between 2015 and 2021. Prior to joining Wellington Water, I was a Senior Rivers Engineer at Jacobs New Zealand Limited (Jacobs) where I was employed for 11 years.
- 7 Most of my career has focused on stormwater, open channels, rivers, hydraulic modelling, civil engineering and floodplain management. I have worked on flooding related projects for many local authorities including work for Greater Wellington Regional Council, Kapiti Coast District Council and Christchurch City Council. I have also undertaken flood hazard assessments and provided expert witness testimony on

the design on major infrastructure projects such as the Puhoi to Warkworth Road of National Significance.

### **Code of conduct**

8 I have read the Code of Conduct for Expert Witnesses set out in the Environment Court's Practice Note 2014. I have complied with the Code of Conduct in preparing my evidence and will continue to comply with it while giving oral evidence before the Environment Court. My qualifications as an expert are set out above. Except where I state I rely on the evidence of another person, I confirm that the issues addressed in this statement of evidence are within my area of expertise, and I have not omitted to consider material facts known to me that might alter or detract from my expressed opinions.

### **SUMMARY**

9 My name is Benjamin Hugh Fountain.

10 I have been asked by the Council to provide flood hazard evidence in relation to the appeal on Part 3 FUZ- Future Urban Zone, which relates to the Proposed Judgeford Flats Future Urban Zone.

11 My statement of evidence addresses concerns raised by a number of submitters that all or part of the Proposed Judgeford Flats Future Urban Zone is not suitable for this zoning due to the flooding hazards.

12 My evidence highlights the importance of new development avoiding areas of deep flooding especially around the main channel of the Pāuatahanui Stream. This could be achieved through a combination of altering the boundaries of the Future Urban Zone and enforcing the objectives, policies and rules in the Three Waters and Natural Hazards Chapters in Part 2 of the PDP.

## INVOLVEMENT WITH THE PROPOSED PLAN

13 I have been involved in the PDP since 2019

## SCOPE OF EVIDENCE

14 My statement of evidence addresses the following matters:

14.1 Flood Hazards within the Proposed Judgeford Flats Future Urban Zone

15 There are flood hazards within the Proposed Judgeford Flats Future Urban Zone. The hazards originate from the water courses that run through the zone both from minor tributaries and especially from the main channel of the Pāuatahanui Stream. The large catchment above this location is almost 28km<sup>2</sup>. Within the Proposed Future Urban Zone flooding over 1m deep on the floodplain has been observed in the recent past (2016) and is also predicted by the hydraulic models of the stream developed by Wellington Water Ltd, *Pauatahanui Stormwater Catchment Model Build Report*, 2019. As part of the development of the hydraulic model the major tributaries and the main channel have been mapped.

16 The flood hazard predicted within the proposed Judgeford Future Urban Zone is shown in Figure 1. In this figure the flooding shown is the peak depth predicted in a 1% AEP (Average Exceedance Probability) Flood Event. This is also referred to as the 100-year flood event. Flooding over 1m in depth is depicted in dark blue.



- 18 The flooding hazards associated with the smaller tributaries are typically within the vicinity of the stream channel. This is not the case for the main channel of the Pāuatahanui Stream within the Proposed Judgeford Flats Future Urban Zone. In this location flood waters can escape the main channel of the Pāuatahanui Stream and spread over a wide floodplain.
- 19 While it is readily feasible through earthworks or infrastructure to manage shallow flooding hazards the locations of deeper flooding on the floodplain will be much more difficult to develop for urban purposes. The deeper flooding is potentially hazardous to buildings and people and could impede safe access. Adjacent to the main channel there are very few practical options to protect the floodplain from flooding while also avoiding exacerbating flood risks on adjacent properties or worsening the flooding downstream.
- 20 A number of submitters have identified properties that have recently experienced deep flooding including parts of No. 35 and 41 Murphys Road , No. 2 and 50 Flightys Road and No. 237 Paremata Haywards Rd. These properties are located just above the gorge section of Pāuatahanui Stream, Figure 3. The flooding in the lower parts of these properties can exceed 1m in depth.



Figure 3 Properties 35 & 41 Murphys Road, 2 & 50 Flightys Road and 237 Paremata Haywards Rd

- 21 It is unlikely that development would be viable in this area of deep flooding and there are significant practical and cost constraints to mitigating the hazard. Future development within the areas of deep flooding should not be encouraged and this area could be excluded from the Future Urban Zone. Figure 4 indicates a potential area of high hazard on the properties identified by the submitters that could be excluded from the proposed FUZ.
- 19 There are also other areas within the Proposed Judgeford Future Urban Zone that are also subject to deep flooding, particularly adjacent to the main channel of the Pāuatahanui Stream. Development should also not be encouraged in these areas. Given the geographic spread of these locations through the proposed Future Urban Zone it may be more practical to restrict development in these high hazard areas through the objectives, policies and rules that are contained in Part 2: District-Wide Matters, Hazards and Risks NH - Natural Hazards and Part 2: District-Wide Matters, Energy, Infrastructure and Transport THWT - Three Waters rather than through zoning. NH-P4 for example requires development of Hazard-Sensitive Activities and Potentially-Hazard-Sensitive Activities in locations of flood inundation to consider the impacts on adjacent properties and the risk to people's lives and wellbeing.

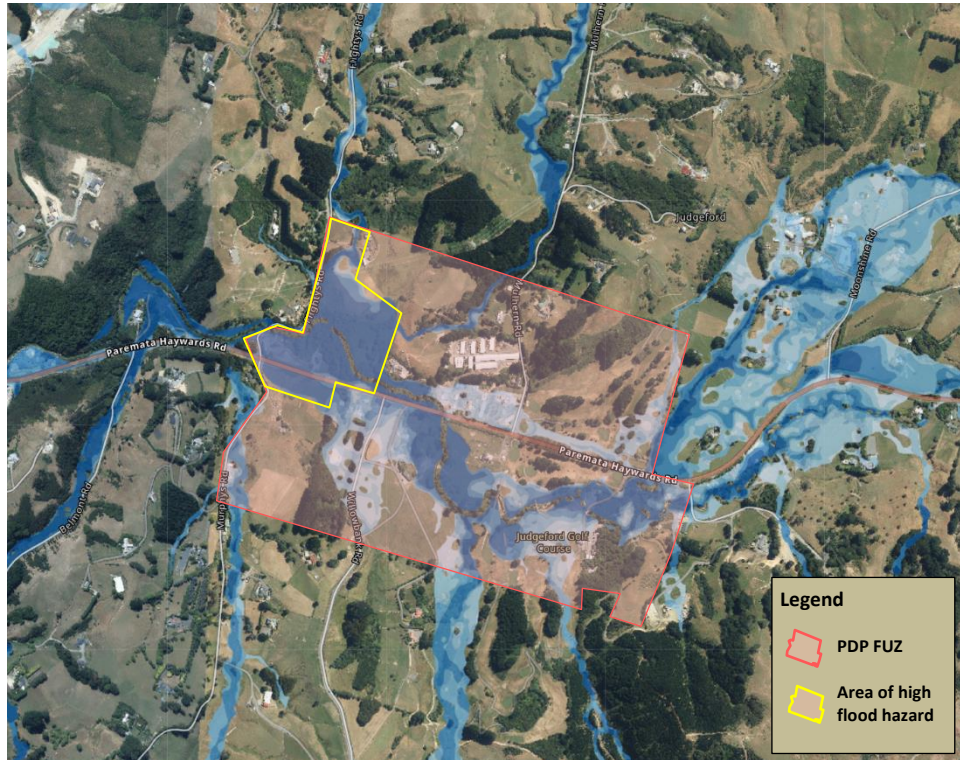


Figure 4 Area of deep and frequent flooding within No. 35 and 41 Murphys Road , No. 2 and 50 Flightys Road and No. 237 Paremata Haywards Rd that could be excluded from the proposed Future Urban Zone.

Date: 26/01/2022

Benjamin Hugh Fountain

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