BEFORE THE INDEPENDENT HEARINGS PANEL
OF HUTT CITY COUNCIL

UNDER	the Resource Management Act 1991 ("**RMA**")
AND	
IN THE MATTER	of the Proposed Hutt City District Plan ("**Proposed Plan**")

STATEMENT OF EVIDENCE OF PHILIP LAWRENCE WALLACE ON BEHALF OF TE KĀREAREA LIMITED AND WASTE MANAGEMENT NZ LIMITED (HEARING STREAM FIVE)

FLOODING

5 AUGUST 2026

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Executive summary

1. This statement of evidence addresses the flood hazard classification of the Site at 30 Benmore Crescent ("**Site**") under the Proposed Plan. I have reviewed the Section 42A report prepared by Mr Stephen Davis ("**Section 42A Report**"). In summary:

   (a) I have undertaken flood modelling for the Site since 2021, initially for Rosco Ice Cream Ltd and subsequently updated to reflect significant earthworks now substantially completed on the true left bank of Dry Creek.

   (b) The Section 42A Report (Appendix B1, Mr Osborne's evidence) estimates a design flow of 55 m^3/s for Dry Creek, significantly higher than the 30 m^3/s I adopted in my original assessment. I consider this figure to be overly conservative because Mr Osborne's calculation includes catchment areas that drain to the Hutt River via the Haywards Interchange culvert network, rather than to Dry Creek.

   (c) Even adopting Mr Osborne's higher flow estimate of 55 m^3/s, my updated modelling demonstrates that the substantially completed earthworks on the true left bank of Dry Creek elevate the platform above the predicted 1% AEP flood level, with more than adequate freeboard.

2. I therefore consider it appropriate to remove the Flood Hazard Overlays from the Site on the true left bank of Dry Creek, downstream of the northernmost culvert.

Introduction

3. My name full name is Philip Lawrence Wallace. I am a Director of River Edge Consulting and have held this position since 2008.

Qualifications and experience

4. I have the qualifications of Bachelor of Engineering (Hons) in Civil Engineering from the University of Auckland (1985) and a Master of Science (Hons) in Resource Management from the University of Canterbury (1987).

5. I am a member of the following professional organisations:

   (a) New Zealand Hydrological Society;

(b) International Association for Hydro-Environment Engineering and Research;

(c) New Zealand Water and Wastes Association ("**Water New Zealand**"); and

(d) Rivers Group (a technical group of Engineering New Zealand and Water New Zealand).

6. I have over 35 years of experience in the fields of river engineering, river and flood modelling and floodplain management. My experience has included several years employment with regional councils, including six years with the Wellington Regional Council. In addition to time working as River Edge Consulting, I have worked in a range of consultancies, both in New Zealand and the United Kingdom. I have also worked as a policy analyst in local government.

7. Over my career, I have worked on various floodplain management, flood modelling and design projects for the Hutt River on behalf of Greater Wellington Regional Council ("**GWRC**"). I am therefore familiar with flooding issues in the area. In addition to numerous other flood modelling and mapping projects throughout New Zealand, I have worked on flood assessments for several land development projects in recent years, both on behalf of applicants and on behalf of consenting authorities (as a reviewer). Recent examples include:

(a) Mātangi (Whiskey Creek), Palmerston North, private plan change (for Flygers Investment Group Limited);

(b) Kapiti Terraces, Paraparaumu (for Kapiti Terraces Limited); and

(c) Woodlands Rd, Woodville (peer review for Tararua District Council).

Code of conduct

8. I confirm that I have read the Expert Witness Code of Conduct set out in the Environment Court's Practice Note 2023. I have complied with the Code of Conduct in preparing this evidence and I agree to comply with it while giving oral evidence before the Hearings Commissioners. Except where I state that I am relying on the evidence of another person, this written evidence is within my area of expertise. I have not omitted to consider material facts known to me that might alter or detract from the opinions expressed in this evidence.

Scope of evidence

9. I have been engaged by Te Kārearea Limited and Waste Management NZ Limited to present evidence on the flooding assessment I have carried out at the Site and how this informs the relevant flood hazard classification assigned to the Site under the Proposed Plan. This statement of evidence will:

   (a) explain the background of the Site, including the earthworks currently being undertaken;

   (b) set out the results of the updated flood modelling I have undertaken for the Site; and

   (c) explain why I consider the flood hazard overlay in the Proposed Plan should be removed from the Site.

Site Background

10. The Site lies on the true right bank of the Hutt River, between the river and State Highway ("**SH**") 2. The Site is elevated above the river, with the Hutt Valley Line railway running roughly parallel between the Site and the river. A small stream, Dry Creek, runs through the Site and discharges to the Hutt River. The catchment of Dry Creek is approximately 350 hectares and drains the hills behind the Dry Creek entrance to Belmont Regional Park.

11. I was commissioned by Rosco Ice Cream Limited to carry out a flood assessment of the Site in 2021. I developed a flood model of the Site and produced a flood map for a 1% Annual Exceedance Probability ("**AEP**")[1] flood event, applying a Representative Concentration Pathway ("**RCP**") 8.5 climate change scenario to 2080-2100. I estimated the Dry Creek design flow for that scenario to be 30 m^3/s. Further modelling conducted in 2022 then informed the design of the topographical platform contours, upgrades to the culvert crossing at Benmore Crescent at the northern boundary of the Site and proposed removal of the other Dry Creek culverts within the Site. Resource consents were granted by Hutt City Council ("**HCC**") and GWRC on that basis.[2]

Updated flood modelling

12. Earthworks on the true left bank of Dry Creek through the Site have since been carried out. Spencer Holmes Limited has carried out a drone survey of the

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1 A 1% AEP event is also variously referred to as a "1 in 100-year" event, as a 100-year ARI (Average Recurrence Interval) event or more simply as a "100-year" event.

2 These consents related to RM220258 and WGN230031.

Site (November 2025), and I have used data from that survey to update the flood model. The updated "existing situation" flood model therefore assumes current topography as of late 2025. No changes to the culverts have yet been made, so these have been represented as in the original "existing situation" model.

13. In Appendix B1 (Evidence of Alistair Osborne) to the Section 42A Report, Mr Osborne states that the Proposed Plan flood overlays are based on a 1% AEP storm, with a RCP 8.5 climate change scenario extended to 2130 and assuming a 4.5°C temperature increase from 1995 levels.

14. In section 22.53 of Mr Osborne's evidence, he contends that the design flow for Dry Creek under that scenario is 55 m³/s. The higher figure is attributable to two factors:

    (a) the extended time horizon for climate change (2130 rather than 2100); and

    (b) the inclusion of additional catchment areas upstream of the Holcim New Zealand Limited cement plant to the north and around the lower reaches of Haywards Hill.

15. I consider the 55 m³/s estimate to be overly conservative for two reasons.

16. First, the additional catchment area (above the cement plant and lower Haywards Hill) drains into a series of culverts in the Haywards Interchange (SH2/SH58) area, which in turn drain directly to the Hutt River - not to Dry Creek. According to the designers of the interchange upgrade works (completed approximately 10 years ago), some of these culverts were upgraded to provide 1% AEP capacity during the interchange works, while the remaining culverts provide 10% AEP capacity (with the entire network to be upgraded to 1% AEP capacity in due course).[3] Only excess flows above the 10% AEP culvert capacity may be expected to flow westward towards Dry Creek.

17. Second, the area and length of the additional catchment are smaller than those of Dry Creek itself, meaning its time of concentration is correspondingly shorter. It follows that the peak flow from the catchment above the cement plant would typically arrive earlier than the peak from the Dry Creek catchment. The effect is that the combined peak flow would be reduced. My assessment

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3 Paine, M. and Chryssafis, C. *Haywards Interchange – Innovative Drainage Design to Overcome Site Challenges.* Water New Zealand 2017 Stormwater Conference.

is that, even assuming **all** the flow from above the cement plant does reach Dry Creek at Hebden Crescent, the peak flow for the 1% AEP (RCP 8.5 to 2130) storm would be approximately 47 m^3/s - materially lower than Mr Osborne's 55 m^3/s.

18. Notwithstanding my view that the 55 m^3/s estimate is conservative, I have remodelled the existing situation (with the substantially completed earthworks to date) adopting that higher flow figure. The results demonstrate that, as a consequence of the recent earthworks, the true left bank platform downstream of the northernmost culvert within the Site is now elevated well above the predicted flood level (Figure 1 and Figure 2). The current left bank platform levels provide more than adequate freeboard (Figure 3). The stream channel itself and portions of the true right bank remain subject to flooding at present, although ultimately the true right bank will also be raised above flood levels.

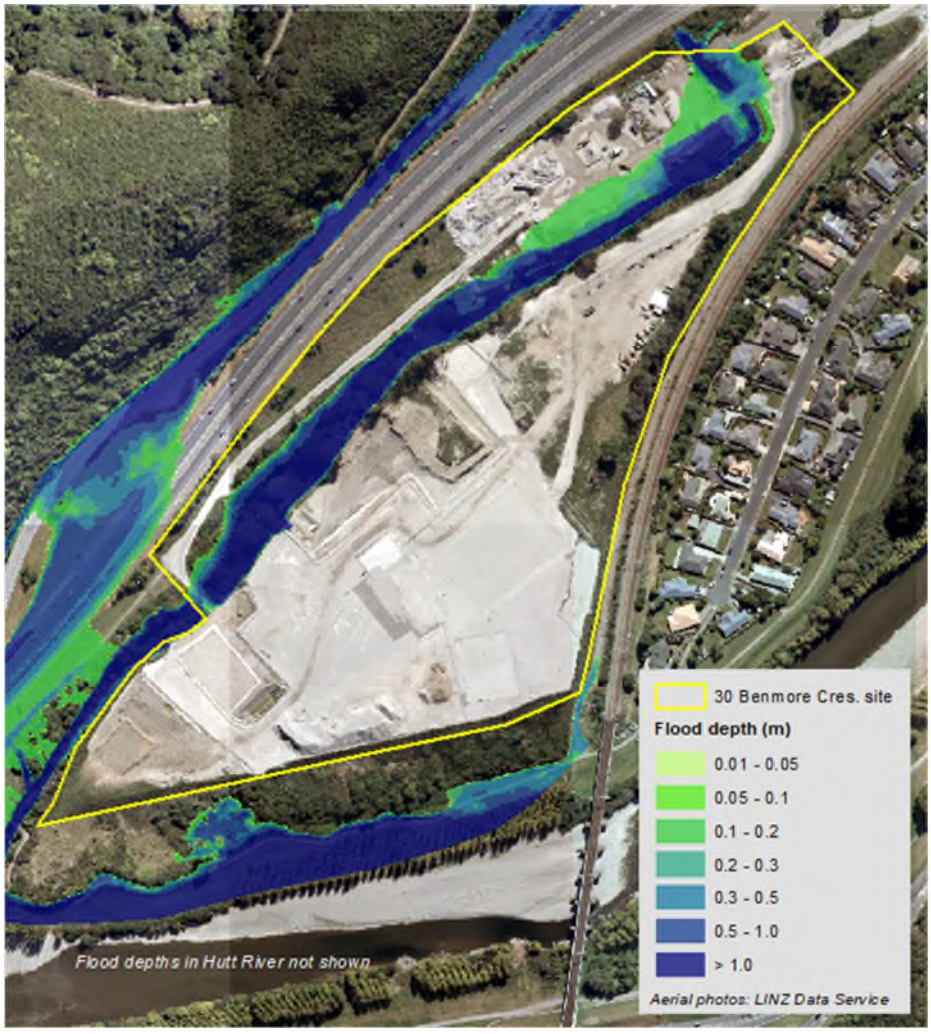

Figure 1: Predicted flood depths, 1% AEP flood (RCP 8.5 2130), current (2026) situation.

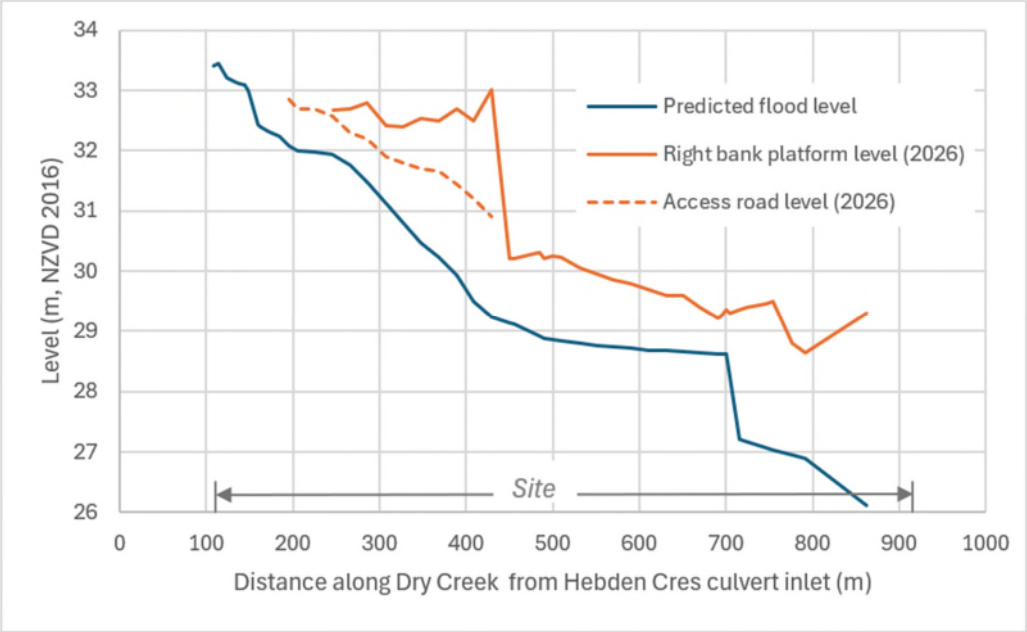

Figure 2: Predicted flood levels and current right bank ground levels, 1% AEP flood (RCP 8.5 2130), current (2026) situation.

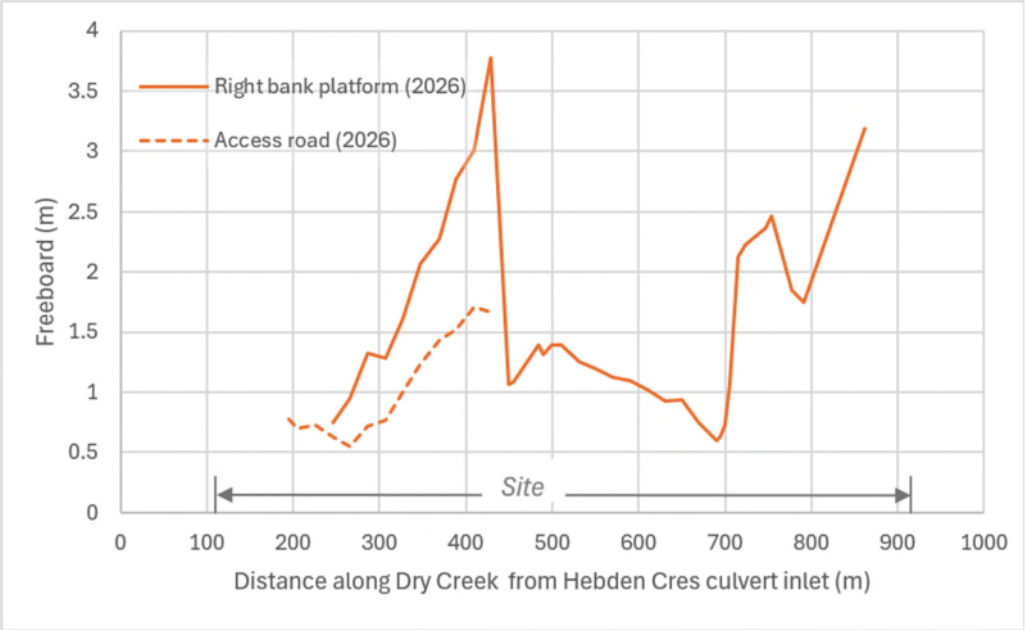

Figure 3: Predicted freeboard, 1% AEP flood (RCP 8.5 2130), current (2026) situation

Flooding overlay to be removed

19. Based on my updated modelling using the higher design flow of 55 m³/s adopted by Mr Osborne, and the current as-built platform levels on the true left bank of Dry Creek, I consider it appropriate to remove the Flood Hazard Overlays from the Site on the true left bank, downstream of the northernmost culvert (the Benmore Crescent crossing). The substantially completed

earthworks have elevated the platform above the predicted 1% AEP flood level (with climate change to 2130).

Conclusion

20. For the reasons set out above:

(a) I have undertaken flood modelling for the Site at 30 Benmore Crescent since 2021 and have updated that modelling to reflect the significant earthworks now mostly completed on the true left bank of Dry Creek.

(b) Even adopting Mr Osborne's more conservative design flow of 55 m^3/s, my modelling demonstrates that the substantially completed earthworks have elevated the true left bank platform above the predicted 1% AEP flood level, with more than adequate freeboard.

(c) I therefore support the removal of the Flood Hazard Overlays from the Site on the true left bank of Dry Creek, downstream of the northernmost culvert.

Philip Wallace
5 August 2026