BEFORE THE HEARING PANEL
APPOINTED BY KAPITI COAST DISTRICT COUNCIL

IN THE MATTER OF | I TE TAKE O	the Resource Management Act 1991
AND | ME	
IN THE MATTER OF | I TE TAKE O	Proposed Plan Change 5 (Private): 100 and 110 Te Moana Road, Waikanae, Kāpiti Coast District

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JOINT STATEMENT OF STORMWATER AND FLOOD HAZARD EXPERT WITNESSES

Dated 16th September 2026

INTRODUCTION

1. Expert conferencing on the stormwater, flooding and hydrology matters set out below took place from 1.30 pm to 2:40pm on 11 September 2026, by Teams.

2. The conference was attended by the following experts:

   (a) Mr Nick Taylor ("NT") (engaged by the Applicant);

   (b) Mr Craig Martell ("CM") (engaged by the Applicant);

   (c) Mr James Oakley ("JO") (Kāpiti Coast District Council);

CODE OF CONDUCT

3. The experts confirm that they have read the Code of Conduct for Expert Witnesses contained in the Environment Court Practice Note 2023 and referred to in the Fast-track Approvals Act 2024: Panel Conveners' Practice and Procedure Guidance 22 July 2025, and agree to comply with it. The experts confirm that the issues addressed in this Joint Witness Statement (**JWS**) are within their area of expertise, unless stated otherwise.

SCOPE OF EXPERT CONFERENCING

4. Expert conferencing addressed the following matters raised in the evidence of JO, having regard to the evidence of NT and CM, and the additional TUFLOW modelling completed for the earthworks concept plan produced as Annexure A to NT's evidence:

Flood hazard and flood risk affecting the site, including:

i. Flood depths

ii. Overland flowpaths

iii. Local flood hazards

iv. Regional flood hazards and stopbank breach scenarios.

<u>Matters agreed</u>

- JO/NT/CM: KCDC 1% AEP 2130 local Waikanae TUFLOW model is an appropriate base for assessing the local flood hazard at PC5; it incorporates M2PP, tidal boundary conditions and climate-change assumptions.

- JO/NT/CM: The modelling in the post development scenario (CM evidence paras 55-60) shows that in the 1% AEP 2130 event peak depths in the road

corridor are in the order of 0.1-0.25m, which whilst not complying with the KCDC Subdivision and Development Principals and Requirements Document, is considered sufficient to demonstrate an acceptable solution is possible with further design. A flood hazard analysis of the concept earthwork layout has been undertaken using the vulnerability curves published in the Australian Institute for Disaster Resilience (AIDR) Technical Flood Risk Management Guideline (refer Figure 1 below) and confirms the majority of the road network within the development falls within Hazard classes H1, with a small portion of a road within hazard class H2 (refer Figure 2).

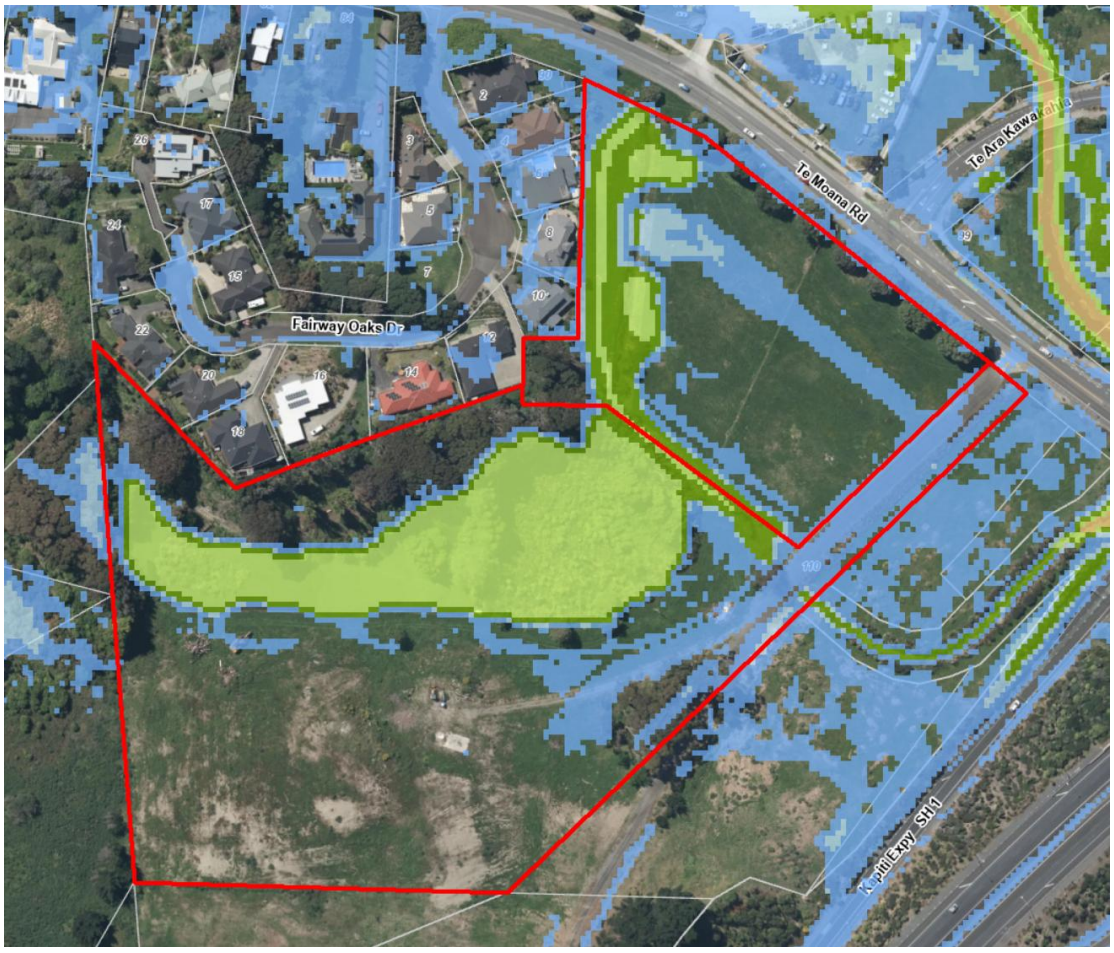

Figure 1 Hazard map (Awa Ltd)

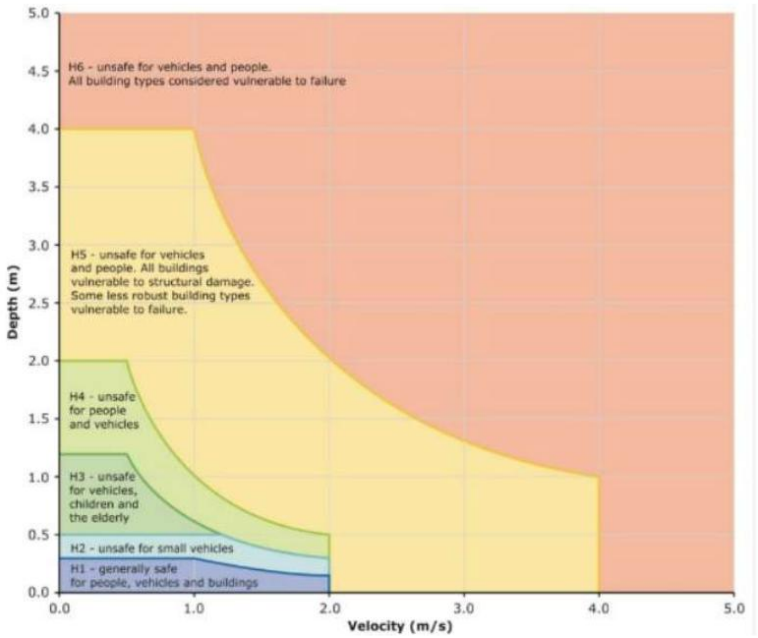

Figure 2 Hazard Classes (source: Australian Institute for Disaster Resilience (AIDR) Technical Flood Risk Management Guideline)

- JO/NT/CM: Concept earthworks competed by NT (NT evidence Annexure A) can achieve flood-free building platforms for the 1% AEP 2130 design event, whilst maintaining an overland flow path down the road corridor. This has been confirmed in the above flood modelling.

- JO/NT/CM: Modelling of the flood levels and hazards at the resource consent stage is typically an iterative process, and due to time constraints of the plan change process, only one earthworks model was analysed. Refinements will need to be made during the resource consent stage (supported by further hydraulic modelling) to demonstrate final flood hazards for the adopted development layout are acceptable and in accordance with the relevant standards and guidelines.

- JO/NT/CM: The Chillingworth stopbank breach is an extreme event which results in a Residual Overflow hazard. This event is distinct from the local 1% AEP 2130 design event. The two modelled peak depths are highly unlikely to occur at the same time; as catchments and boundary conditions differ (CM evidence para 20).

- JO/NT/CM: For the residual overflow path, the relevant requirement is to maintain its effective functioning through development. A concept development layout which maintains this residual flowpath has been demonstrated by NT.

- JO/CM agree that the likelihood of the Chillingworth stopbank overtopping or failing is low and that the coincidence with this breach event occurring at the same time as peak flood levels in the Waimeha Stream adjacent to the PC5 site is also low. Nevertheless, the PC5 site remains subject to an inherent level of flood risk associated with this breach event, as demonstrated by the existing modelling.

- JO/CM agree that updated Waikanae River modelling undertaken by GWRC is forthcoming and is expected to incorporate revised geomorphological information in the Kauri /Puriri reach of the River. However, while the inclusion of this information may influence the predicted flood behaviour in a Chillingworth stopbank breach event, there is insufficient evidence to conclude that future modelling will change the overall flood risk profile of the PC5 site.

- JO/CM/NT agree the existing Waikanae River flood model and Chillingworth breach model hydrograph used in CM's modelling as the best available information and appropriate for assessing the flood risk profile of the site.

Matters not agreed (with reasons)

- No remaining points of disagreement.

Groundwater conditions and soakage suitability

Matters agreed

- JO/NT/CM: Groundwater varies spatially and temporally; further piezometer monitoring is appropriate to establish seasonal groundwater levels and inform final device levels/design (CM evidence para 49). This is appropriately undertaken as detailed design progresses.

- JO/NT/CM: Measured site soakage is high and supports low-impact/infiltration-based solutions in suitable areas(CM evidence para 43). Final design soakage rates and locations require site-specific verification.

- JO/NT/CM: Proposed filling is with local/free-draining sand; NT/CM advise, based on Kāpiti experience and verification testing, that suitable infiltration can be retained after compaction. JO accepts this addresses his earlier concern regarding soakage within fill.

- JO/NT/CM: Soakage need not be relied on in the lowest groundwater areas;

surface attenuation/constructed wetland/storage solutions remain available.

Matters not agreed (with reasons)

- No remaining points of disagreement

Proposed Stormwater Management approaches

Matters agreed

- JO/NT/CM: Proposed stormwater management approaches are technically appropriate, including distributed soakage/Low Impact Design (LID) in suitable areas, rain tanks, swales/biofiltration and surface attenuation/constructed wetland storage where groundwater limits infiltration.

- JO/NT/CM: Maintaining infiltration/recharge, particularly for smaller events, is important to mimic natural hydrology. For larger events, including the 1% AEP event, surface storage/attenuation will likelybe required in addition to soakage.

- JO/NT/CM: There is sufficient land available to accommodate a practicable stormwater solution; exact device location, sizing and maintenance access are detailed-design matters.

Matters not agreed (with reasons)

- No remaining points of disagreement.

Earthworks (including filling), loss of flood plain storage, flood conveyance and associated effects

Matters agreed

- JO/NT/CM: The additional concept earthworks plan and modelling materially address JO's earlier concern that the scale/configuration of earthworks and resulting flood effects had not been sufficiently demonstrated. The concept design represents a feasible arrangement of earthworks and has been prepared to illustrate that the approximate quantities of flood storage can be accommodated within the site, and is not a final design.

- JO/NT/CM: Floodplain storage displaced by fill should be compensated by

above ground/surface storage, not assumed to be offset by below-ground soakage.

- NT explained the volume assessment within his evidence (para 74). JO accepts this indicates substantial additional physical storage capacity is available for compensatory storage and, if required, attenuation. Final hydraulic-neutrality storage is to be sized at detailed design.

- JO/NT/CM: CM's modelling demonstrates a practicable residual conveyance corridor can be retained through Lot 1 via the proposed road, while providing raised building platforms. Off-site effects from the first-cut concept are minor; small effects identified around the road frontage can be addressed through refinement of the earthworks/design.

Matters not agreed (with reasons)

- No remaining points of disagreement.

Potential hydrological effects on the QEII wetland

Matters agreed

- JO/NT/CM: Maintaining the hydrological function of the QEII wetland is an important design requirement. Distributed infiltration/LID in suitable areas will assist groundwater recharge and mimic the existing wetland hydrological regime.

- JO/NT/CM: Retaining existing drainage controls/invert levels is important; NT/CM noted groundwater levels controlled by the culvert crossing Te Moana Road at the northern corner of the site, which will be maintained.

- JO/NT/CM: Any reduction in direct groundwater recharge resulting from the collection of roof derived runoff in raintanks is considered to have negligible effects on wetland hydrology.

Matters not agreed (with reasons)

- No remaining points of disagreement.

Safe access and egress during flood events

Matters agreed

- JO/NT/CM: The concept provides flood-free building platforms. For the local 1% AEP 2130 design event, safe access/egress should be demonstrated by reference to depth/velocity hazard along the proposed roads, rather than building-platform levels alone.

- JO/NT/CM: The proposed access/road alignment will be refined during detailed design to provide acceptable flood hazard, and suitable access and egress whilst maintaining flood conveyance in the 1% AEP 2130 event. Where acceptable flood hazards cannot be achieved in the road, alternative flow path locations can be considered.

- JO/NT/CM: The Chillingworth breach is an extreme event with residual effects which affect the wider road network, including Te Moana Road; access limitations in this event are not unique to the PC5 site.

- JO accepts the District Plan focus for the residual overflow path associated with the Chillingworth breach event is maintenance of its effective functioning, which has been demonstrated by the preliminary modelling.

- JO accepts the Chillingworth breach scenario model is not required to achieve the same hazard profile as the 1% AEP 2130 case, within the adopted residual flowpath through the site.

Matters not agreed (with reasons)

- No remaining points of disagreement.

SIGNATURES OF EXPERTS

Craig Martell

James Oakley

Nick Taylor