Under the Resource Management Act 1991

In the matter of Hearing of Submissions and Further Submissions on the Proposed Porirua District Plan

Evidence of Karen Tracy Williams on behalf of Kāinga Ora – Homes and Communities

19 November 2021

Hearing Stream 3 – Natural Hazards – Wednesday 8 December, 1.30pm

MC.

Solicitors:
Nick Whittington
PO Box 90750, Victoria Street West, Auckland 1142
DX CP24063
T: +64 9 336 7500
nick.whittington@mc.co.nz

Evidence of Karen Tracy Williams on behalf of Kāinga Ora – Homes and Communities

1 Introduction

1.1 My name is Karen Tracy Williams, and I am Principal Planner at The Property Group Limited, based in Wellington.

1.2 I am providing planning evidence on behalf of Kāinga Ora – Homes and Communities ("**Kāinga Ora**") in respect of submissions made on the Porirua Proposed District Plan ("**PDP**" or "**the Plan**"). Specifically, my evidence is in relation to the topic of Natural Hazards.

1.3 I was involved with the preparation of primary and further submissions by Kāinga Ora in relation to the PDP. I am familiar with Kāinga Ora's corporate intent in respect of the provision of housing within Porirua. I am also familiar with the national, regional and district planning documents relevant to the PDP.

1.4 In preparing this evidence I have read the Section 42A reports prepared by Council staff and structured my evidence accordingly.

1.5 I confirm that I have read the Expert Witness Code of Conduct set out in the Environment Court's Practice Note 2014. I have complied with the Code of Conduct in preparing this evidence and agree to comply with it while giving evidence. 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.

2 Expertise

2.1 I have a Master of Resource and Environmental Planning, (First Class Honours) from Massey University, and a Bachelor of Arts from the University of Otago. I have 15 years' experience in working with resource management and planning

matters under the Resource Management Act 1991. I am an Intermediate member of the New Zealand Planning Institute.

2.2 I have worked for local government and in private consultancy. My experience includes the preparation and processing of applications for resource consent and the preparation of, and submissions to, District Plans. I have also prepared evidence for, and appeared in, the Environment Court.

2.3 For completeness I note:

(a) Between April 2017 - May 2019 I was a consultant to the Council's District Plan review team. I was primarily involved in the initial policy development for the commercial chapters, and the Hongoeka Special Purpose Zone.

(b) I was the Acting Manager of Resource Consents and Compliance at Porirua City Council between February 2019 - June 2019.

(c) I continue to process occasional resource consents on behalf of the resource consent team.

(d) Between September 2019 and December 2020, I was engaged as a consultant to provide planning services specific to the Eastern Porirua Regeneration Programme (a project-based team originally formed within HLC, and then Kāinga Ora – Homes and Communities).

3 Executive Summary

3.1 Kāinga Ora made 31 submission points in relation to the Natural Hazards section of the PDP. Kāinga Ora's submission supports the general risk-based approach the PDP takes to managing natural hazards.

3.2 However, Kāinga Ora opposes the inclusion of flood hazard mapping as part of the PDP and is instead seeking that flood hazard mapping be included on a GIS viewer that sits outside the Plan. Flood hazard information is dynamic and therefore it cannot be accurately mapped as an overlay in the planning maps. It is my view that flood hazard mapping that sits outside the Plan is a useful and legitimate planning tool for plan users as to whether a site is subject to flood hazards.

Therefore, I agree with Kāinga Ora that it is appropriate to include flood hazard information in a non-statutory GIS Viewer sitting outside the Plan.

3.3 This evidence also discusses other related submission points and consequential changes in relation to this matter.

3.4 In summary, I generally support the proposed Natural Hazard provisions, and propose a number of amendments which I consider will assist to provide an appropriate framework within the Plan which achieves a balance between enabling activities and development to occur in such a way that any potential risks and/or adverse effects associated with flood hazards can be adequately identified and managed.

3.5 In my opinion, the proposed changes sought in Kāinga Ora's submission and discussed within my evidence, will provide greater flexibility to the identification of flooding hazards, while maintaining an appropriate risk-based planning response to natural hazards.

4 Scope of Evidence

4.1 Hearing Stream 3 addresses submission points relating to the following broad topics: Strategic Directions - Resilience, Efficiency, and Energy; Strategic Directions - Historic and Cultural Heritage; Hazards and Risks; and Historic and Cultural Values. The corresponding s42A reports split these matters into topic-based reports that reflect the structure of the PDP, as set out below:

(a) Strategic Directions related to Resilience, Efficiency & Energy and Historic and Cultural Heritage.

(b) Contaminated land.

(c) Hazardous substances.

(d) Natural Hazards.

(e) Coastal Environment.

(f) Historic Heritage including extent of land the subject of overlay.

(g) Sites and Areas of Significance to Māori.

(h) Notable Trees including the extent of land the subject of overlay.

4.2 This evidence addresses Kāinga Ora's submission points[1] on the **Natural Hazards** chapter within the PDP, as they relate to the recommendations of the s42A report on that topic. I acknowledge the Council recommendations that have been made in the other s42A reports for the wider balance of topics noted in 4.1 above, but present no evidence in relation to these topics and recommendations.

4.3 In preparing my evidence, I have reviewed:

(a) The notified provisions of the Natural Hazards Chapter of the PDP;

(b) The Section 32 report for Natural Hazards prepared and notified by PCC;

(c) The Section 42A Natural Hazards report by PCC;

(d) Flood Hazard Modelling evidence of Ms Nitsche; and

(e) The Wellington Regional Policy Statement (**"RPS"**)

4.4 Kāinga Ora made a number of submission and further submission points, on the Natural Hazards chapter. Kāinga Ora's submission acknowledges and supports the risk-based approach to natural hazards. It also seeks an approach to flood hazard mapping to utilise non-statutory mapping that sits outside the PDP for flood hazards to guide plan users. This latter topic forms the basis of much of my evidence.

4.5 To avoid repetition, I have consolidated my evidence into the broad themes and submission points as follows:

(a) Flood hazards as a non-statutory layer - submission points **81.402**, **81.404** and **81.928** oppose the inclusion of flood hazard mapping as part of the PDP instead seeking that flood hazard mapping be included on a GIS viewer that sits outside the Plan.

(b) Definitions relevant to natural hazards – submission points **81.112**, **81.113**, **81.73.** Additional definitions are also suggested as a

[1] 81.73, 81.96, 81.112, 81.113, 81.129, 81.142, 81.156, 81.402, 81.403, 81.404, 81.405, 81.406, 81.407, 81.408, 81.409, 81.410, 81.411, 81.412, 81.413, 81.414, 81.415, 81.416, 81.417, 81.418, 81.419, 81.420, 81.421, 81.422, 81.423, 81.884, and 81.928.

consequential change arising from submissions **81.402, 81.404,** and **81.928.**

(c) Consequential edits and amendments to assist with Plan clarity and reflect the removal of the flooding hazard mapping from the PDP and into a non-statutory GIS viewer. These consequential changes are considered to be covered broadly by various Kāinga Ora submission points, and more specially in relation to the following:

(i) Chapter introduction (submission **81.403**)

(ii) Objectives and policies (submissions **81.405 – 81.415**)

(iii) Rules (submissions **81.416** - **81.423**) and

(iv) APP10 (submission **81.884**).

(d) Other amendments sought to provisions not otherwise addressed above (submissions **81.407, 81.408, 81.409, 81.409**).

5 Submission

5.1 Kāinga Ora's submission seeks a planning framework that provides for an appropriate degree of flexibility within an otherwise well-structured risk-based natural hazards framework. This will help to facilitate the reconfiguration of existing housing stock within Porirua and enable Kāinga Ora to deliver public housing in an efficient and effective manner, so as to better contribute to the social and economic wellbeing of the Porirua community, including the health and safety of Kāinga Ora's tenants.

Mapping of Flood Hazards

5.2 The Kāinga Ora submission opposed the inclusion of flood hazard mapping as an overlay within the PDP and sought that flood hazard mapping be included on a GIS viewer that sits outside the Plan. This is reflected throughout the submission of Kāinga Ora on the Natural Hazard provisions, and specifically within submission points **81.402**, **81.404**, and **81.928**.

5.3 In the s42A report, the reporting officer rejects the request to remove the flood hazards from the Natural Hazards Overlay within the Plan and instead provide this

information in a GIS viewer sitting outside of the Plan. The reporting officer is not supportive of flood information sitting outside the Plan because changes to that information would not be subject to public participation, or any formal testing as would otherwise happen with a Schedule 1 process.

5.4 I disagree with the recommendation within the s42A report and I support the submission of Kāinga Ora to include flood hazard mapping in a GIS viewer that sits outside the Plan. In my view separate maps of this nature are a useful tool to set out information the Council holds on different matters relevant to provisions in the PDP where there is insufficient certainty and consistency over time to provide this information in a mapped District Plan overlay. The use of information outside the PDP serves purely as information or guidance in the context of certain rules in a plan.

Dynamic Nature of Flood Hazard Information

5.5 Having maps sitting outside of the Plan for information purposes is appropriate in the context of flood hazard information as this information is dynamic and subject to change over time. Changes may be due to improved understanding of the natural hazard, to interventions that change the location of natural hazard, or to changing real world conditions including climate change. Therefore, it is difficult to map flood hazards within the planning maps in a way where the information will stay accurate and relevant over time.

5.6 I acknowledge the evidence of Ms Nitsche for the Council is that the flood hazard areas have been identified through comprehensive modelling, data collection, and community engagement. While I acknowledge that the modelling is based on best information and expertise, it can also be subject to inaccuracies or errors that either overestimate or underestimate the actual flood hazard risk on a particular site or location. Ground levels are also prone to change, for example through land development site works. Other physical features, such as culverts or other water conveying vectors can be inaccurately plotted or upgraded, diminishing the accuracy of the hazard profiling. In this regard, I note that the evidence of Ms Nitsche accepts that in some cases, the flood modelling information has not reflected accurate information and her evidence accordingly suggests some

amendments to the spatial extent of identified flooding areas in response to matters raised by submitters.

5.7 I also draw on the evidence of Mr Liggett, which outlines the significant stormwater infrastructure upgrade works that are proposed in eastern Porirua as part of the wider Eastern Porirua Regeneration Programme. The evidence of Mr Liggett is that these works will considerably alter the existing flood hazard profile in this area, providing a more resilient and safer environment to existing residents and enabling further development.

5.8 In further demonstrating that the available information about flood hazard areas is uncertain, incomplete, and subject to change over the life of the plan, I note that parts of the city, at the time of the PDP being notified, were not yet modelled. In this regard, Section 8.2.5 of the Council's Section 32 Evaluation Report Part 1 – Overview to s32 Evaluation 1 notes that *"Due to budget and modelling capacity constraints, various catchments were prioritised for modelling based on growth pressures, known flood risk, and presence of existing flood information held by Council. There are catchments where modelling is yet to be completed by Wellington Water including: Aotea, Papakowhai, Paremata and Whitby. These flood maps will need to be incorporated into the PDP at a later date, possibly by variation".*

5.9 In my opinion, the above matters demonstrate the often incomplete and dynamic nature of flooding information, which despite all efforts, can contain inaccuracies and rapidly be out-of-date. In my view the approach of applying overlays within district plans to map natural hazards is best applied for matters that are well defined and less subject to constant change, as may be the case for seismic and coastal hazards for example.

5.10 I agree with the evidence of Mr Liggett that requiring changes to flood hazard information to reflect changes in the environment, such as improvement works proposed at scale within eastern Porirua, through a Schedule 1 process is not an efficient planning process. The mismatch between the maps and true position will likely add cost to any consenting process until a Schedule 1 process is undertaken to update the maps.

5.11 As noted in the submission by Kāinga Ora, and the evidence of Mr Liggett, the Auckland Unitary Plan (**AUP**) provides an example of a plan which adopts a set of

flood hazard overlay maps which sit outside the plan and operate as interactive maps on the Council's 'Geo Maps' website – a separate mapping viewer to the statutory maps. This approach is different to that of the traditional means of displaying hazard overlays on district plan maps and reflects that these maps do not have regulatory effect.

5.12 A GIS viewer outside the Plan can assist plan users in determining whether a site may be subject to a particular flooding hazard. The fact that this GIS viewer can be updated as new information becomes available outside of a formal plan change process will make it a more reliable starting point for further assessments over time, than a spatial layer within the Plan that is unable to be easily updated. Further, I have suggested that new definitions be incorporated into the Plan, to reflect the rules in relation to Flood Hazard – Stream Corridor, Flood Hazard – Overland Flow, and Flood Hazard – Inundation[2]. This will ensure that proposals upon land that is subject to these hazards will be considered against the relevant rules. The flood maps will provide the basis for this determination but will not be the exclusive determining factor. This is similar to how flood hazards are managed in the AUP and endorsed by Council planners in Tauranga City's Plan Change 27 (Flooding from Intense Rainfall), which is currently at the hearing stage.

5.13 In my opinion, this alternative approach provides greater flexibility, while appropriately ensuring that natural hazard risks are adequately understood and managed.

Public Participation

5.14 The reporting officer raises concerns regarding a lack of public participation in regard to updates to maps outside of the Plan. In my opinion, removal of the overlay from the Plan *could* result in less public engagement but it does not follow that there is no public engagement.

5.15 In my opinion, public engagement can and should remain an integral method in enhancing the accuracy of the flood hazard profile and spatial extent, despite this engagement sitting outside the formal Schedule 1 process. Indeed, the evidence of Ms Nitsche discusses the public engagement that is undertaken as part of the flood hazard modelling process generally. This is also outlined as a requisite step

[2] The latter reflecting the change in terminolgy from "ponding" to "inundation", as recommended by both Ms Nitsche and the Council's s42A reporting planner.

in the Flood Hazard Modelling Standard (Cardno NZ): Greater Wellington Regional Council (2021).

5.16 Ultimately, relocating the flooding maps outside to of the Plan would allow for a more agile response to updates and reflecting new information, but would not obviate the Council from engaging with owners of affected properties.

Statutory Framework

5.17 The relevant statutory framework for the Natural Hazards chapter has been addressed in the Natural Hazards s32 Report. This section of my evidence focuses only on whether the relief sought in the submission of Kāinga Ora is adequately aligned with the direction set down in the Wellington Regional Policy Statement ("**RPS"**). The RPS advocates a precautionary and risk-based approach to the management of natural hazard risk. It seeks to avoid inappropriate subdivision and development in areas of high risk from natural hazards and to promote the resilience of communities to the impact of natural hazards and climate changes.

5.18 In the context of Kāinga Ora submissions seeking that the flooding natural hazard overlays be removed from the Plan I consider Objective 21 and Policies 29 and 51 of the RPS to be of the most relevance to that issue.

5.19 Objective 21 requires that *Communities are more resilient to natural hazards, including the impacts of climate change, and people are better prepared for the consequences of natural hazard events*. Policy 29 seeks to *avoid inappropriate subdivision and development in areas at high risk from natural hazards.* Policy 29 requires District Plans to identify areas at high risk from natural hazards and include policies and rules to avoid inappropriate subdivision and development in those areas. Policy 29 does not require that high hazard areas are mapped in District Plans but rather that the provisions in District Plans within the Wellington region will identify high hazard areas. APP10-Table 3 and Table 4 identify the high-risk hazard areas. In the context of natural hazards in the PDP, this relates only to Stream Corridors and the Ohariu Fault Rupture Zone. It is my understanding that stream corridors consist of a buffer of five metres either side of the centre of the stream, where flood water exceeds 1m in depth and the velocity is faster than 2m per second.

5.20 In my opinion, the submission of Kāinga Ora to remove flood hazard overlays from the Plan does not conflict with the directive of Objective 21 and Policy 29 of the

RPS. For completeness, it does not seek to remove the Ohariu Fault Rupture Zone from the Plan overlay. The PDP accords with the aforementioned RPS provisions through the identification of high-hazard areas within APP10-Table 3 and Table 4 and the Plan provisions (including those recommended for change in the s42A report) ensuring inappropriate development in these areas will be avoided.

5.21 Notwithstanding my conclusions reached above, I consider that a further mechanism that could provide assurance that Plan continues to appropriately recognise the direction set down by Objective 21 and Policy 29 of the RPS to identify high risk natural hazards would be through the creation of a new definition for "High Hazard Area". This consequential amendment is discussed further in the section on definitions below.

5.22 For completeness, I note that Policy 51 of the RPS seeks, in summary, that the risks and consequences of natural hazards be minimised. In my opinion, the risk-based framework taken throughout the Natural Hazards chapter will do so.

5.23 Based on the above, it is my overall opinion that removing flood hazard overlays from the Plan would not undermine or conflict with any requirements set down by the RPS in terms of managing the risks of natural hazards.

Qualifying Matters

5.24 The s42A report surmises that the Resource Management (Enabling Housing Supply and Other Matters) Amendment Bill may require flood hazards to be included in the Plan as a spatial layer in order to be able to determine that the site is subject to a qualifying matter (thereby limiting the degree of intensification). It is anticipated, although not certain, that an assessment of a qualifying matter in the context of this Bill will be consistent in practice with the National Policy Statement on Urban Development 2020 ("**NPS-UD**").

5.25 The degree and extent as to what is appropriate in the identification of qualifying matters in relation to natural hazards under the NPS-UD remains somewhat unclear. To avoid any doubt on this issue, I acknowledge that natural hazards will, in some form, be a relevant matter for consideration when determining whether a site is subject to qualifying matters. Certainly, natural hazards presenting a significant risk can be considered as a qualifying matter under Clause 3.3.2(1)(a) of Subpart 6 of the NPS-UD. This could arguably correlate to "High Hazard Areas" discussed in my evidence above. Further, Coastal Hazards can be considered as

qualifying matters under Clause 3.3.2(1)(b) in giving effect to the NZCPS. Otherwise, where a natural hazard is present, but not assessed to be significant, the consideration of whether it meets the threshold of a qualifying matter will be subject to site-specific assessments under Clause 3.3.2(1)(h). Locating flood hazard information outside of the Plan would not limit opportunity to undertake this assessment.

Definitions

5.26 Consequential to its submission that flood hazard mapping be a non-statutory GIS tool, Kāinga Ora also sought the deletion of the definition of "Natural Hazard Overlay" (**81.113**). The s42A report disagrees with this deletion, setting out the reasoning at section 3.10 of the report.

5.27 Rather than deleting the definition, I support modifying the position set out in Kāinga Ora's submission and instead recommend a change to this definition. In my opinion, an appropriate change can be made to this definition that would achieve the intent of the submission by Kāinga Ora, while also retaining a definition for the reason(s) outlined in the s42A report. Such a change would alter the definition from "Natural Hazards Overlay" to "Natural Hazards Areas", with related clarification of content within. The recommended revisions to the definition are set out in Appendix 1 of my evidence and included below.

Natural Hazard Area ~~Overlay~~	means the areas identified in Table 3 Natural Hazards and Areas ~~Overlays~~ in APP10 - Natural Hazard Risk Assessment and shown on the mapped Natural Hazard overlays in the District Plan and flood hazard maps held with Council. ~~Council's planning maps~~

5.28 Further consequential changes are required throughout the Natural Hazard provisions, to recognise and give effect to the recommended change. These are discussed further in my evidence below.

5.29 I note that Kāinga Ora supports the recommended changes made in the s42A report to the definitions of "Potentially-Hazard-Sensitive Activities", and "Less-Hazard-Sensitive Activities". While these changes weren't sought in the submissions by Kāinga Ora (**81.96** and **81.129**), in my opinion the changes and reasons set out in the s42A report are appropriate.

5.30 With regard to the definition of "Hazard Sensitive Activities", the submission by Kāinga Ora (**81.73**) sought to remove reference to *multi-unit housing* within the definition, consistent with and consequential to its broader submissions on the

residential provisions. Appendix B to the s42A report, which outlines the recommended responses to submissions and further submissions on natural hazards, states that this submission point (**81.73**) is agreed with and that changes have been made to the definition. However, these have not been carried through to the recommended revisions set out at Appendix A of the s42A report. The s42A report is otherwise silent on this matter. I agree with the submission by Kāinga Ora that reference to *multi-unit housing* should be deleted from the definition of "Hazard Sensitive Activities". In my opinion, this is redundant, noting that "*residential units*" are embedded within the definition, which is appropriate. I otherwise support the changes suggested in the s42A report in relation to the definition of "Hazard Sensitive Activities".

5.31 Kāinga Ora also sought a change to the definition of "Natural Hazard Mitigation Activity" (**81.112**), which was rejected for the reasons set out at section 3.10 of the Council's s42A report. In my opinion, the wording sought by Kāinga Ora in its submission is clearer and succinct, while maintaining the intent of the original definition. For this reason, I support the submission by Kāinga Ora to amend the wording as follows:

Natural hazard mitigation ~~activity~~	~~means hazard mitigation earthworks, hazard mitigation structures, repair and maintenance of hazard mitigation structures, features or earthworks and emergency natural hazard mitigation activities.~~ means earthworks, structures, repair and maintenance, and emergency work to reduce or eliminate risks caused by natural hazards.

5.32 As discussed within para 5.21 above, it is my opinion that a further consequential change should be made to the PDP to recognise the submission points of Kāinga Ora while ensuring that the Plan comprehensively recognises the RPS direction at Policy 29 to identify high risk natural hazards in the Plan. In my opinion, this can be achieved through the creation of a new definition for "High Hazard Area", as follows.

High Hazard Area	Land within any of the following Natural Hazard Areas: a. Tsunami Hazard – 1:100 year inundation extent; or b. Coastal Hazard – Current Inundation; or c. Coastal Hazard – Current Erosion; or d. Stream corridor consisting of a buffer of five metres either side of the centre of the stream, where in a 1% AEP flood event (assuming 15% increase in rainfall under climate change) the water depth exceeds 1m and the water velocity is greater than 2m per second

5.33 While this definition is not specifically sought in the primary or further submissions of Kāinga Ora, I consider that this definition is an appropriate

consequential amendment giving effect to the wider relief sought by submissions 81.402, 81.404 and 81.928.

5.34 Further to this, it is recommended that additional definitions be included in the Plan to clearly articulate what constitues flooding hazards of "Flood Hazard – Stream Corridor", "Flood Hazard – Overland Flow", and "Flooding Hazard – Inundation[3]" , as referenced in the Plan provisions and APP-10 – Natural Hazards Risk Assessment.

5.35 The suggested new definitions are as follows:

Flood Hazard - Stream Corridor	Stream corridor consisting of a buffer of five metres either side of the centre of the stream, where in a 1% AEP flood event (assuming 15% increase in rainfall under climate change) the water depth exceeds 1m and the water velocity is greater than 2m per second.
Flood Hazard - Overland Flow	Area of land that conveys stormwater when the pipe or stream network capacity is exceeded or blocked in a 1% AEP flood event (assuming 15% increase in rainfall under climate change).
Flood Hazard - Inundation	Area of ponding that is greater than 50mm in depth in 1% AEP flood event (assuming 15% increase in rainfall under climate change) and which has low velocity flows.

5.36 In my opinion, the inclusion of these definitions will help to ensure that the rules are not exclusively linked to the non-statutory flood mapping, which is a concern raised within the s42A report. These definitions are also considered to be appropriate consequential modifications to give effect to the wider relief sought by submissions 81.402, 81.404 and 81.928.

Natural Hazard Overlay vs Natural Hazard Areas

5.37 The submission of Kāinga Ora sought amendments to the majority of provisions within the Natural Hazards Chapter to remove reference to the Natural Hazards Overlay and make consequential changes. Based on the recommendations outlined above, I support modifying the submissions of Kāinga Ora that would result in the removal of "Natural Hazard Overlay" to "Natural Hazard Areas". This reflects the change to the definition and is a further consequence of seeking the removal of flood hazard overlay from the Plan. These changes accordingly alter the references of the titles of the provisions, where there was original reference to a Natural Hazard Overlay. "Areas" has been used in place of "Overlay", recognising that overlays are a specific spatial tool within e-plans, as directed by

[3] Noting "Inundation" is recommended to replace "Ponding" in the s42A report.

the National Planning Standards. Using the term Natural Hazard Areas in place of Natural Hazard Overlay enables flexibility for the placement of flood hazard maps outside of the Plan.

5.38 The altered provisions (identified below) also require other minor consequential changes to the wording of the actual provisions, to reflect the recommended change in the overarching definition(s) and relief sought by Kāinga Ora to have non-statutory flood hazard maps outside of the Plan.

5.39 These changes, which are modified as consequential changes sought in submissions by Kāinga Ora, are recommended to be made to Introduction section of the Natural Hazards Chapter, NH-O1, NH-P1, NH-P2, NH-P3, NH-P4, NH-P5, NH-P6, NH-P7, NH-P9, NH-P10, NH-R1, NH-R2, NH-R3, NH-R4, NH-R5, NH-R6, NH-R7, NH-R8, and APP-10 – Natural Hazards Risk Assessment. It is noted that the majority of the submission points[4] by Kāinga Ora seeking consequential changes have not been addressed in the s42A report. I support the modified changes recommended.

5.40 These changes are outlined in the recommended changes to the provisions set out in Appendix 1 of my evidence.

Other Amendments Sought to Provisions

5.41 This section clarifies my position on the submissions that were made by Kāinga Ora on the provisions that go beyond the consequential changes discussed above. As outlined below, in many cases these submission points have not been cited or addressed in the s42A report. Unless otherwise noted below, for the most-part, I agree with the position arrived at in the s42A report on these matters.

NH-P2 Hazard-Sensitive Activities and Potentially-Hazard-Sensitive Activities within the High Hazard Areas

5.42 Kāinga Ora's submission (**81.407**) sought amendments to NH-P2 to remove the term "avoided" and replace this with "mitigated". As outlined in the s42A report, a number of other submitters sought similar relief. The Council's s42A Report has not addressed this submission point by Kāinga Ora; but I note that changes are recommended at section 3.7 of the s42A report in recognition of other

[4] 81.402, 81.403, 81.404, 81.405, 81.406, 81.407, 81.408, 81.409, 81.410, 81.411, 81.412, 81.413, 81.414, 81.415, 81.416, 81.417, 81.418, 81.419, 81.420, 81.421, 81.422, 81.423, 81.884, and 81.928.

submissions on this matter. I agree with and support the amendments proposed by the Council, and their reasoning for those amendments, as set out in section 3.7.2 the s42A report.

NH-P3 Hazard-Sensitive Activities and Potentially-Hazard-Sensitive Activities within the Medium Hazard Areas

5.43 Kāinga Ora's submission (**81.408**) sought amendments to NH-P3 to remove the term "avoided" and replace this with "mitigated". The Council's s42A Report has not proposed any amendments to NH-P3 in relation to the submission by Kāinga Ora; however, changes are recommended at section 3.7 of the s42A report in recognition of other submissions on this matter. I agree with the s42A report to alter the language to "minimised".

NH-P4 Hazard-Sensitive Activities and Potentially-Hazard-Sensitive Activities within the Low Hazard Areas

5.44 Kāinga Ora's submission (81.409) sought a change to NH-P4 to remove the term "avoided" and replace it with the term "mitigated". The Council's s42A Report has not addressed this submission point and has not recommended any amendments to this policy. I support the change sought by Kāinga Ora but suggest a modification to instead use the term "minimised". This policy relates to low hazard areas, and in my opinion the use of the term "minimised" is more consistent with the direction provided by Policy 51 in the RPS. The change in terminology to "minimised" is also consistent with changes otherwise recommended by the s42A report with regard to NH-P2 and NH-P3.

5.45 In my opinion, the amendments recommended to NH-P4 are more appropriate in terms of achieving the objectives of the PDP than the notified provision.

NH-R6 Any Hazard-Sensitive Activity and Potentially-Hazard-Sensitive Activity and associated buildings in Low Hazard Areas in a Natural Hazard Overlay

5.46 Kāinga Ora's submission (**81.410**) sought amendments to NH-R6 as follows:

- Amend NH-R6-1.a to "located above the 1:100 year flood level, where this level is the bottom of below the floor joists";
- Preclude limited notification as well as full notification; and
- Discretionary activity status for proposals that are unable to comply with NH-R6-1.b.

5.47 I have reviewed the s42A report (section 3.13.3) and support the amendments proposed by the Council, and the stated reasoning. I acknowledge the position that the s42A reporting planner has come to with the non-notification clause and the rationale in maintaining the higher activity status for proposals unable to comply with NH-R6-1.b. I accept this reasoning and suggest no further amendments.

6 Conclusion

6.1 In conclusion, I am of the opinion that the amendments sought by Kāinga Ora (as discussed in this evidence) are appropriate.

6.2 Overall, I generally support the Natural Hazards chapter and consider the amendments I have recommended will provide greater flexibility to the identification of flooding hazards, while maintaining an appropriate risk-based planning response to natural hazards.

6.3 I consider that the amendments to the structure of the Natural Hazard provisions outlined within my evidence, will be efficient and effective in achieving the purpose of the RMA, the relevant objectives of the PDP and other relevant statutory documents.

Date: 19 November 2021

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Karen Tracy Williams

Appendix 1. Consolidated Set of Recommended Amendments

Recommend changes shown as follows:

- Notified PDP text in black text
- S42A Report amendments in red text
- Amendments proposed on behalf of Kāinga Ora in blue text

Definitions

Hard engineering measures	Engineering works that use structural materials such as concrete, steel, timber or rock armour to provide a hard, inflexible edge between the land-water interface along rivers, shorelines or lake edges. Typical structures include groynes, seawalls, revetments or bulkheads that are designed to prevent erosion of the land."
Hazard-Sensitive Activities	means activities that are sensitive to natural hazards, including: a. childcare services; b. community facilities; ~~activity~~ c. educational facilities; ~~facility~~; d. emergency service facilities; e. healthcare activity; f. hospital; g. marae; h. ~~multi-unit housing~~; i. places of worship; ~~and~~ j. residential units and minor residential units (including those associated with Papk~~a~~kāinga); k. retirement villages; and l. visitor accommodation.
Potentially-Hazard-Sensitive Activities	means activities that are potentially sensitive to natural hazards, including: a. buildings associated with primary production (excluding residential units, minor residential units, residential activities or buildings identified as Less-Hazard-Sensitive Activities); b. commercial activity; c. commercial service activity; d. community corrections activity; e. entertainment facilities; ~~facility;~~ f. food and beverage activity; g. industrial activity; ~~activities~~ h. large format retail activity; i. major sports facilities; ~~facility;~~ j. offices; k. retail activity; and ~~activities~~ l. retirement village; and m. rural industry. It excludes Hazard-Sensitive Activities even if they are ancillary to Potentially-Hazard-Sensitive Activities.

Less-Hazard-Sensitive Activities	means activities that are less sensitive to natural hazards, including: a. accessory buildings used for non-habitable purposes; b. boating facilities (above MHWS); c. buildings and structures that do not have habitable rooms or are used for commercial purposes; d. parks facilities; e. parks furniture; and f. buildings associated with temporary activities. It excludes Hazard-Sensitive Activities and Potentially-Hazard-Sensitive Activities even if they are ancillary to Less-Hazard-Sensitive Activities.
Natural hazard mitigation ~~activity~~	means ~~hazard mitigation~~ earthworks, ~~hazard mitigation~~ structures, repair and maintenance ~~of hazard mitigation structures, features or earthworks~~ and emergency work to reduce or eliminate risks caused by natural hazard ~~mitigation activities.~~
Natural Hazard Area ~~Overlay~~	means the areas identified in Table 3 Natural Hazard Areas ~~Overlays~~ in APP10 - Natural Hazard Risk Assessment and shown on the mapped Natural Hazard overlays in the District Plan and flood hazard maps held with Council. ~~Council's planning maps~~
Flood Hazard - Stream Corridor	Corridor consisting of a buffer of five metres either side of the centre of the stream, where in a 1% AEP flood event (assuming 15% increase in rainfall under climate change) the water depth exceeds 1m and the water velocity is greater than 2m per second.
Flood Hazard - Overland Flow	Area of land that conveys stormwater when the pipe or stream network capacity is exceeded or blocked in a 1% AEP flood event (assuming 15% increase in rainfall under climate change).
Flood Hazard - Inundation	Area of ponding that is greater than 50mm in depth in 1% AEP flood event (assuming 15% increase in rainfall under climate change) and which has low velocity flows.
High Hazard Area	Land within any of the following Natural Hazard Areas: a. Tsunami Hazard – 1:100 year inundation extent; or b. Coastal Hazard – Current Inundation; or c. Coastal Hazard – Current Erosion; or d. Stream corridor consisting of a buffer of five metres either side of the centre of the stream, where in a 1% AEP flood event (assuming 15% increase in rainfall under climate change) the water depth exceeds 1m and the water velocity is greater than 2m per second.
Overlay	means the spatially identified sites, items, features, settings or areas with distinctive values, risks or other factors within the City which require management in a different manner from underlying zone provisions, as set out in Schedules 2 to 11 and the ~~Natural Hazard Overlay and~~ Coastal Hazard Overlay.

...

NH - Natural Hazards

Natural hazards are addressed in two chapters; the Natural Hazards chapter covers non-coastal hazards and the Coastal Environment chapter covers coastal hazards. Both chapters take the same risk-based approach to natural hazards. To avoid duplication, this chapter provides an overview of all hazards within Porirua City and the flexible risk-based approach to managing those hazards (both coastal and non-coastal). However, the objectives, policies and rules in the Natural Hazards chapter only deal with non-coastal hazards. The objectives, policies and rules in the Coastal Environment chapter address coastal hazards.

Porirua is susceptible to a wide range of natural hazards. When natural hazards occur, they can result in damage to property and infrastructure, and may lead to a loss of human life. It is therefore important to identify areas susceptible to natural hazards and to restrict or manage subdivision, use and development, including infrastructure, relative to the natural hazard risk posed in order to reduce the damage to property and infrastructure and the potential for loss of human life.

At this time, the District Plan focuses on the following natural hazards as they are the hazards that present the greatest risk to people and property, and whose future effects can be addressed through appropriate land use planning measures:

1. Flooding;
2. Fault rupture;
3. Tsunami;
4. Coastal erosion; and
5. Coastal inundation.

Porirua City Council hazard (non-coastal) areas are identified through mapped Hazard Overlays in the District Plan and Council's flood hazard maps held with Council.

The Plan requires the use of the best information available to identify land which is proposed for redevelopment which may be subject to natural hazards. This includes hazard maps, databases and reports held by the Council. The level of detail and the quality of this information is variable. This affects the Council's ability to identify and map land that may be subject to natural hazards.

The Plan has defined the criteria to identify land which may be subject to natural and coastal hazards, outlined in APP10 - Natural Hazard Risk Assessment. Each natural hazard and coastal hazard has been classified as High, Medium or Low depending on the level of relative hazard posed.

Flooding, coastal erosion and sea level rise are influenced by climate change. It is predicted that rainfall events will become more intense, storm events will become more common and sea levels will rise over the next 100 years. The flooding, sea level inundation and coastal erosion hazard layers in the Plan incorporate current climate change predictions.

Slope stability is addressed through the Earthworks provisions which require appropriate measures to be incorporated into Earthworks design to maintain the stability of sloping sites. Fire risk is addressed through requirements for firefighting water supply and access in various zone provisions and the Transport Chapter.

The City is also susceptible to natural hazards such as severe winds, wildfires, liquefaction and ground shaking from earthquakes. These hazards are managed by other statutory instruments or processes, e.g. the Building Act 2004, Civil Defence Emergency Management Act 2002, the Local Government Acts 1974 and 2002 and the Fire and Emergency Act 2017.

For the purposes of clarity, the ~~proposed~~ natural hazard rules apply to buildings, and activities within the Natural Hazard Area ~~Overlay~~. If the building or the activity is not partially or fully located within the Natural Hazard Area ~~Overlay~~, then the natural hazard rules will not be triggered.

There are other natural hazard provisions relating to subdivisions, earthworks, renewable energy generation activities and infrastructure within the District Plan. These provisions are located within their respective chapter. For Subdivision, they take a similar approach as outlined in the Natural Hazard or Coastal Environment chapters. In instances where a combination of activities are proposed (for example earthworks, subdivision and a new building) within the Natural Hazard Area ~~Overlay~~, the relevant rules from each chapter will apply to the development.

Risk

Risk is a product of both the consequences and likelihood from a natural hazard. A risk-based approach to natural hazards balances allowing for people and communities to use their property and undertake activities, while also ensuring that their lives or significant assets are not harmed or lost as a result of a natural hazard event. When addressing the consequences from natural hazards, priority has been given as follows:

1. Protection of people including loss of life, and injury;
2. Maintaining key infrastructure to ensure the health and safety of communities (such as wastewater treatment systems); and
3. Maintaining functionality of buildings after a natural hazard event and the ability for communities to recover.

While in most instances development is unable to change the likelihood side of the risk equation, incorporating mitigation measures or avoiding any further development in certain hazard areas can reduce the consequences from natural hazards, thereby over time reducing the associated risks. Potential mitigation measures that can be incorporated into developments to reduce the consequences of natural hazards include:

1. Building design (for example minimum floor levels or the ability for buildings to be relocated over time);
2. The introduction, retention or improvement of existing natural systems;
3. Use or size of materials in infrastructure design and building construction;
4. The type of activities within buildings and structures; and
5. The use of soft engineering options (for example sacrificial fill).

Within the High Natural Hazard Areas ~~of the Natural Hazard Overlay~~, it is ~~unlikely the~~ challenging to appropriately mitigate the consequences from natural hazards ~~can be appropriately mitigated~~, and therefore ~~the only option available is to avoid~~ new development will be discouraged in these areas where it will increase the risk to people's safety, wellbeing and property.

APP10 - Natural Hazard Risk Assessment sets out the approach the Council ~~has taken~~ undertakes to identify~~ing~~ Natural Hazard Areas and managing risk in Natural Hazard Areas, including ranking the likelihood of a natural hazard event and~~,~~ hazard sensitivity ~~and the use of Natural Hazard Overlay~~. This Appendix also addresses the identification and management of risk in Coastal Hazard Overlay.

Objectives	
NH- O1	**Risk from natural hazards**
Subdivision, use and development in the Natural Hazard Areas ~~Overlay~~ do not significantly increase the risk to life, infrastructure or property and do not reduce the ability for communities to recover from a natural hazard event.	
NH-O2	**Planned mitigation works**
There is reduced risk to life, infrastructure and property from flood hazards through planned mitigation works.	
Policies	
NH-P1	**Identification ~~and mapping~~ of natural hazards**
Identify ~~and map~~ natural hazards ~~in the Natural Hazard Overlay~~ and take a risk -based approach to the management of subdivision, use and development within the Natural Hazard Areas ~~Overlay~~ based on the approach outlined in APP10 - Natural Hazard Risk Assessment, including: 1. The sensitivity of the activity to loss of life, damage from a natural hazard and the ability for communities to recover after a natural hazard event; and 2. The level of risk presented to people and property from a natural hazard.	
NH-P2	**Hazard-Sensitive Activities and Potentially-Hazard-Sensitive Activities within the High Natural Hazard Areas**
Avoid the establishment of Hazard-Sensitive Activities and Potentially-Hazard-Sensitive Activities within the High Natural Hazard Areas ~~of the Natural Hazard Overlay~~ unless it can be demonstrated that: ~~1. The activity has a critical operational need and functional need to locate within the High Hazard Area and locating outside the High Hazard Area is not a practicable option;~~ 1. The resulting risk to people's lives and wellbeing will be low; 2. The activity incorporates mitigation measures that ~~demonstrate that risk to people's life and wellbeing; and~~ minimise the risk of damage to buildings ~~damage is avoided~~; 3. People can safely evacuate the property during a natural hazard event; and 4. The risk to the activity and surrounding properties is either avoided, or due to site-specific factors, and/or the scale, location and design of the activity 5. Other than within Commercial and Mixed Use Zones, the General Industrial Zone and the Hospital Zone, the activity has an operational need and functional need to locate within the High Hazard Area and locating outside the High Hazard is not a practicable option.	

NH-P3	Hazard-Sensitive Activities and Potentially-Hazard-Sensitive Activities within the Medium Natural Hazard Areas

~~Only~~ Allow Hazard-Sensitive Activities and Potentially-Hazard-Sensitive Activities within the Medium Natural Hazard Areas ~~of the Natural Hazard Overlay~~ where:

1. The activity incorporates mitigation measures that demonstrate that risk to people's lives and wellbeing, and building damage is ~~avoided~~ low, and any damage to buildings is minimised;
2. People can safely evacuate the property during a natural hazard event; and
3. The risk to adjacent properties, activities and people is not increased as a result of the activity proceeding.

NH-P4	Hazard-Sensitive Activities and Potentially-Hazard-Sensitive Activities within the Low Natural Hazard Areas

Provide for Hazard-Sensitive Activities and Potentially-Hazard-Sensitive Activities within the Low Natural Hazard Areas ~~of the Natural Hazard Overlays~~ where it can be demonstrated that:

1. The activity incorporates mitigation measures that demonstrate that risk to people's lives and wellbeing and building damage is minimised; ~~avoided;~~ and
2. The risk to adjacent properties, activities and people is not increased as a result of the activity proceeding.

NH-P5	Less-Hazard-Sensitive Activities within the Natural Hazard Areas ~~Overlay~~

Allow for Less-Hazard-Sensitive Activities within all ~~of the Hazard Areas of the~~ Natural Hazard Areas, provided ~~Overlay, providing~~:

1. They do not impede or block stream and flood water pathways;
2. Mitigation measures are incorporated, where appropriate, to reduce the risk from the natural hazard to people's lives and wellbeing; and
3. The risk to adjacent properties, activities and people is not increased as a result of the activity proceeding.

NH-P6	Less-Hazard-Sensitive Activities within a Flood Hazard - Stream Corridor or Flood Hazard - Overland Flow ~~Overlay~~

~~Only allow~~ Allow for buildings associated with Less-Hazard-Sensitive Activities within a Flood Hazard - Stream Corridor or Flood Hazard - Overland Flow ~~Overlay~~ where:

1. Flood waters are not displaced onto neighbouring properties and do not increase the risk to people and property;
2. The stream and flood water pathways are not impeded or blocked as a result of the building;
3. Mitigation measures have been incorporated to reduce the potential of damage from flooding over the lifespan of the building; and
4. There is no increase in risk to life as a result of the building being located in a Flood Hazard - Stream Corridor or Flood Hazard - Overland Flow ~~Overlay~~.

NH-P7	**Hazard-Sensitive Activities and Potentially-Hazard-Sensitive Activities within a Flood Hazard - ~~Ponding~~ Inundation Areas ~~Overlay~~**
~~Only allow~~ Allow for the establishment of buildings associated with Hazard-Sensitive Activities and Potentially-Hazard-Sensitive Activities within a Flood Hazard - ~~Ponding~~ Inundation Areas ~~Overlay~~ where the floor level is below the 1:100 flood level and where it can be demonstrated that: 1. The nature of the activity means the risk to people's lives and wellbeing is low or the potential for damage from flooding is reduced to a low level; or 2. Mitigation measures are incorporated into the design of the development so that the risk to people's lives is low or the potential for damage from flooding is reduced to a low level; and 3. People can safely evacuate from the property during a flood event.	
NH-P8	**Additions to Existing Hazard-Sensitive Activities and Potentially-Hazard-Sensitive Activities**
Provide for small-scale additions to buildings that accommodate existing Hazard-Sensitive Activities and Potentially-Hazard-Sensitive Activities where they: 1. Provide for the continued use of the existing building; 2. Incorporate mitigation measures to reduce the potential damage to the additions from the natural hazard; 3. The resulting change in risk from the additions to life and property is low; and 4. Do not increase the risks from the natural hazard to adjacent properties, activities and people.	
NH-P9	**Planned mitigation works**
Enable natural hazard mitigation or stream or river management works undertaken by a statutory agency or their nominated contractors or agents within identified Natural Hazard Areas ~~Overlay~~ where these decrease the risk to people, infrastructure, and property.	
NH-P10	**Soft engineering measures**
Encourage soft engineering measures when undertaking planned natural hazard mitigation works within the Natural Hazard Areas ~~Overlay~~ that reduce the risk from natural hazards.	
Rules	
NH-R1	**Less-Hazard-Sensitive Activities within the Low and Medium and High Natural Hazard Areas ~~contained in a Natural Hazard Overlay~~**
All zones	1. Activity status: **Permitted** Where: a. Any buildings must not be located in ~~an identified~~ Flood Hazard - Overland Flow or Flood Hazard - Stream Corridor ~~Overlay~~.

	All zones	2. Activity status: **Restricted discretionary** Where: a. Compliance is not achieved with NH-R1-1 Matters of discretion are restricted to: 1. The matters contained in NH-P6.
NH-R2		**Flood mitigation or stream or river management works undertaken by a statutory agency or their nominated contractor or agent within the Flood Hazard Areas ~~Overlays in a Natural Hazard Overlay~~**
	All zones	1. Activity status: **Permitted**
NH-R3		**Soft engineering measures undertaken by either a statutory agency or their nominated contractor or agent within a Natural Hazard Areas ~~Overlay~~**
	All zones	1. Activity status: **Permitted**
NH-R4		**Additions to existing buildings in Natural Hazard Areas ~~contained in a Natural Hazard Overlay~~**
	All zones	1. Activity status: **Permitted** Where: a. If the additions are for a Hazard-Sensitive Activity or Potentially-Hazard-Sensitive Activity in the Low Natural Hazard Areas ~~of the Natural Hazard Overlay,~~ and the additions: i. Do not establish a new additional Hazard-Sensitive Activity or Potentially-Hazard-Sensitive Activity within the Natural Hazard Area ~~Overlay~~; or ii. When are located within a Flood Hazard - ~~Ponding~~ Inundation, the finished floor levels are located above the 1:100 year flood level, where this level is the bottom of the floor joists or the base of the concrete floor slab; or b. The additions are for a Less-Hazard-Sensitive Activity in all Natural Hazard Areas ~~of the Natural Hazard Overlay~~ and: i. Are not located within a Flood Hazard - Overland Flow; or ii. Are not located within a Flood Hazard - Stream Corridor; or c. If the additions are for a Hazard-Sensitive Activity or Potentially-Hazard-Sensitive Activity in the Medium Natural Hazard Areas ~~of the Natural Hazard Overlay,~~ and the additions: i. Do not increase the building footprint by more than $30m^2$; or ii. Do not establish a new additional Hazard-Sensitive Activity or Potentially-Hazard-Sensitive Activity within the Natural Hazard Area ~~Overlay~~; or iii. Are not located within a Flood Hazard - Overland Flow; or

		d. If the additions are for a Hazard-Sensitive Activity or Potentially-Hazard-Sensitive Activity in the High Hazard Area ~~of the Natural Hazard Overlay,~~ and the additions: i. Do not increase the building footprint by more than $20m^2$; or ii. Do not establish a new additional Hazard-Sensitive Activity or Potentially-Hazard-Sensitive Activity within the Natural Hazard Area ~~Overlay~~; or iii. Are not located within a Flood Hazard - Stream Corridor. Note: For the avoidance of doubt, when an addition or alteration to a building establishes a new Hazard-Sensitive Activity or Potentially-Hazard-Sensitive Activity within the Natural Hazard Areas ~~Overlay~~, then it shall be assessed under the rule framework for Hazard-Sensitive Activities or Potentially-Hazard-Sensitive Activities and not the additions to buildings framework.
	All zones	2. Activity status: **Restricted discretionary** Where: a. Compliance is not achieved with NH-R4-1.a, NH-R4-1.b, NH-R6-1.c or NH-R4-1.d. Matters of discretion are restricted to: 1. The matters in NH-P8.
NH-R5	**Earthworks within ~~a~~ Natural Hazard Areas ~~Overlay~~ associated with hazard mitigation works undertaken by a statutory agency**	
	All zones	1. Activity status: **Permitted** Where: a. Compliance is achieved with: i. EW-S3; and ii. EW-S4.
	All zones	2. Activity status: **Restricted discretionary** Where: a. Compliance is not achieved with EW-S3 or EW-S4. Matters of discretion are restricted to: 1. The matters of discretion of any infringed standard. **Notification** An application under this rule is precluded from being publicly or limited notified in accordance with sections 95A and 95B of the RMA.
NH-R6	**Any Hazard-Sensitive Activity and Potentially-Hazard-Sensitive Activity and associated buildings in Low Natural Hazard Areas ~~in a Natural Hazard Overlay~~**	

	All zones	1. Activity status: **Restricted discretionary** Where: a. Any buildings within a Flood Hazard - ~~Ponding~~ Inundation ~~Overlay~~ are located above the 1:100 year flood level, where this level is below ~~the bottom of~~ the floor joists or the base of the concrete floor slab; or b. Any buildings and activities ~~are located~~ within the Pukerua Fault Rupture Zone or the Ohariu Fault Rupture Zone are located no closer than 20m from either fault; ~~side of either~~ c. Any buildings and activities within the Moonshine Fault Rupture Zone are located within 20m of either side of the Moonshine Fault. Matters of discretion are restricted to: 1. The matters in NH-P4. **Notification:** An application under this rule is precluded from being publicly notified in accordance with section 95A of the RMA. Note: To avoid doubt, once the Moonshine Fault is located through site-specific investigation, there are areas within the mapped Moonshine Fault Rupture Zone that will be outside of 20m of either side of the Fault Line. These areas are not a Low Hazard Area and are therefore not subject to the Natural Hazard chapter rules (unless affected by another hazard such as a Flood Hazard).
	All zones	2. Activity status: **Discretionary** Where: a. Compliance is not achieved with NH-R6-1.a. **Notification:** An application under this rule is precluded from being publicly notified in accordance with section 95A of the RMA.
	All zones	3. Activity status: **Non-complying** Where: a. Compliance is not achieved with NH-R6-1.b.
NH-R7	**Any Hazard-Sensitive Activity and Potentially-Hazard-Sensitive Activity and associated buildings within the Medium Natural Hazard Areas ~~in a Natural Hazard Overlay~~**	
	All zones	1. Activity status: **Discretionary**
NH-R8	**Any Hazard-Sensitive Activity and Potentially-Hazard-Sensitive Activity and associated buildings within the High Hazard Areas ~~in a Natural Hazard Overlay~~**	

	All zones	1. Activity status: **Non-complying**

APP10 - Natural Hazard Risk Assessment

Table 1 has been developed to rank the likelihood of a natural hazard event. This likelihood ranking provides guidance on determining the risk associated with a natural hazard event and the corresponding Natural Hazards ~~Overlays~~ in Table 3 and Table 4.

APP10-Table 1 Likelihood guidance

Likelihood	Likelihood ranking
Less than 1:100 year event (1 in 100 year event) or annual exceedance probability (AEP) 1% or more	Very likely
1:101 – 1:200 year event or AEP range 0.5% to 1%	Likely
1:201 – 1:500 year event or AEP range 0.2% to 0.5%	Unlikely
1:501 – 1:2500 year event or AEP range 0.04% to 0.2%	Very unlikely
More than 1:2500 or AEP 0.04% or less	Extremely unlikely

Hazard provisions sensitivity classification

To assist with determining the consequences associated with natural hazards, buildings and activities have been allocated a sensitivity rating (Table 2). This rating is based on the potential sensitivity to human life and property as a result of those respective activities occurring within an identified Hazard Area.

APP10-Table 2 Hazard sensitivity

Hazard provisions sensitivity classification	Land use activities
Hazard-Sensitive Activities	• Childcare services • Community facilities ~~facility~~ • Educational facilities ~~facility~~ • Emergency service facilities • Healthcare activity • Hospital • Marae • ~~Multi-unit housing~~ • Places of worship • Residential units and minor residential units (including those associated with Papakāinga) • Retirement villages • Visitor accommodation
Potentially-Hazard-Sensitive Activities	• Buildings associated with primary production (excluding residential units, minor residential units, residential activities or buildings identified as Less-Hazard-Sensitive Activities) • Commercial activity • Commercial service activity • Community corrections activity. • Entertainment facilities ~~facility~~ • Food and beverage activity • Industrial activity ~~activities~~ • ~~Integrated retail activity~~ • Large format retail activity • Major sports facilities • Offices • Retail activity • ~~Retirement village~~ • Rural industry
Less-Hazard-Sensitive Activities	Accessory buildings used for non-habitable purposes Boating facilities (above MHWS) • Buildings and structures that do not have habitable rooms or are used for commercial purposes • Parks facilities • Parks furniture • Buildings associated with temporary activities

Where one or more of the above activities are proposed to be undertaken within a Natural Hazard Area ~~Overlay~~ on a site, the most sensitive of the activities shall be used to determine the sensitivity of the proposal.

If an activity not identified in Table 2 is proposed in a Natural Hazard Area ~~Overlay~~, then for the purposes of the application it shall be assessed as a

potentially-hazard-sensitive activity.

Natural Hazard Overlays and Areas

Porirua City Council hazard (non-coastal) areas are identified through mapped Hazard Overlays for the Fault Rupture Zones in the District Plan and Council's flood hazard maps held with Council. The Plan has defined the criteria to identify land which may be subject to natural hazards, summarised in Table 3 below. Each hazard has been classified as High, Medium, or Low, depending on the level of relative hazard posed. ~~following natural hazards:~~

~~1. Flooding; and~~

~~2. Fault rupture.~~

~~The natural hazards within the District Plan have been mapped as Overlays as summarised in Table 3 below. Each Overlay has been classified as High, Medium or Low depending on the level of relative hazard posed.~~

APP10-Table 3 Natural Hazards and Areas ~~Overlays~~

Natural Hazard ~~Overlay~~	**Hazard areas**
Flood Hazard – Stream Corridor	High
Fault Rupture Zone – Ohariu (20m or closer either side of the Ohariu Fault)	
Flood Hazard – Overland Flow	Medium
Fault Rupture Zone – Pukerua (20m or closer either side of the Pukerua Fault)	
Flood Hazard – ~~Ponding~~ Inundation	Low
Fault Rupture Zone – Moonshine (20m or closer either side of the Moonshine Fault) Fault Rupture Zone – Ohariu (excluding 20m either side of Ohariu Fault) Fault Rupture Zone – Pukerua (excluding 20m either side of the Pukerua Fault)	

It is acknowledged that risk can be influenced by site or area specific factors, such as topography, elevation, natural features, soil classification etc. When assessing applications, these factors should be taken into account to allow for a site-specific determination of the risk associated with a particular proposal.

APP10-Table 4 Coastal Hazard Overlays

Coastal Hazard Overlay	**Hazard areas**
Tsunami Hazard – 1:100 year inundation extent	High
Coastal Hazard – Current Inundation; and Coastal Hazard – Current Erosion	
Tsunami Hazard – 1:500 year inundation extent	Medium
Coastal Hazard – Future Inundation (with 1m SLR); and Coastal Hazard – Future Erosion (with 1m SLR)	
Tsunami Hazard – 1:1000 year inundation extent	Low