

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

Under Schedule 1 of the Resource Management Act 1991

In the matter of the Proposed Wellington City District Plan

**Stream 5 Reporting Officer Right of Reply of Jamie Sirl on behalf of Wellington
City Council**

Date: 28 August 2023

INTRODUCTION:

- 1 My full name is James (Jamie) Grant Sirl. I am employed as a Senior Planning Advisor in the District Planning Team at Wellington City Council (the Council).
- 2 I have prepared this Reply in respect of the matters in Hearing Stream 5 raised during the hearing, and in particular to those directed by the Panel in Minute 33.
- 3 I have listened to submitters in Hearing Stream 5, read and considered their evidence and tabled statements, and referenced the written submissions and further submission relevant to the Hearing Stream 5 topics.
- 4 The Natural and Coastal Hazards 42A Report section 1.2 sets out my qualifications and experience as an expert in planning.
- 5 I confirm that I am continuing to abide by the Code of Conduct for Expert Witnesses set out in the Environment Court's Practice Note 2023, as applicable to this Independent Panel hearing.
- 6 Any data, information, facts, and assumptions I have considered in forming my opinions are set out in the part of the evidence in which I express my opinions. Where I have set out opinions in my evidence, I have given reasons for those opinions.

SCOPE OF REPLY

- 7 This reply follows Hearing Stream 5 held from 1 August 2023 to 4 August 2023. *Minute 33: Directions Following Hearing Stream 5* requested that the Council submit a written reply as a formal response to matters raised during the hearing. The Minute requires this response to be supplied by 28 August 2023.

- 8 The Reply includes:
- Feedback on specific matters and questions the Panel has sought a Council and/or subject matter experts to in Minute 33.
 - Commentary on additional matters I consider it useful to clarify or that were the subject of verbal requests from the Panel at the hearing.
 - Tables included in the Appendix that illustrate the consistency of objective and policy language, and rule alignment, and the relationship between the plan provisions.
 - Where amendments to specific plan provisions are suggested in the Reply, they are shown in addition to the Natural and Coastal Hazards s42A report and Supplementary Evidence of Jamie Sirl, in [green](#). I also note that this Reply uses the plan provisions numbering that is reflected in the updated version of plan provisions included as an Appendix C to this Reply, unless stated otherwise.

Answers to questions posed by the Panel

vii. In relation to the natural hazards policies, confirmation as to whether there is a consistent use of ‘minimise’ and ‘reduced or not increased’, particularly in relation to the ensuing rules, as well as the use of ‘operational need or functional need/requirement’.

- 9 During the Stream 5 hearings, it became apparent that there was a need to review use of the proposed term ‘minimise’ and to confirm with the Panel that its use aligned with that intended with respect to policy direction and the activity status of associated rules.
- 10 Matrix tables illustrating the s42A report recommendations with respect to the terms ‘reduce or not increase’ or ‘minimise’ are included in Appendix A. The tables also incorporate changes to the s42A recommendations to provide a more effective and consistent policy

approach to low, medium and high hazard areas. The additional changes are:

- a. NH-P3: replacing 'reduce or not increased with 'minimised'.
- b. NH-P4: replacing 'reduce or not increased with 'minimised'.

11 In the case of NH-P3, that is because the specified less hazard sensitive activities represent those activities that are considered to be highly tolerant to natural hazards. In the case of NH-P4, that is because building additions in inundation areas will be required to incorporate mitigation, such as floor levels above the 1%AEP which can appropriately minimise risk, but may not be able, nor in my view need to, eliminate residual risk.

12 Section 32AA evaluation: In my opinion, the amendments to NH-P3 and NH-P4 are more appropriate in achieving the objectives of the PDP than the notified provisions for the following reasons:

- a. The amendments reflect a more nuanced and clearer policy directive with respect to the hazard sensitivity of activities, and the low, medium and high hazard areas.
- b. The recommended amendments will not have any greater environmental, economic, social, and cultural effects than the notified provisions.

13 With respect to the use of 'operational need and functional need', I note that the following hazard related provisions expressly include this term:

- a. Natural Hazards chapter: NH-P1 (s42A report recommendation); NH-P2 (s42A report recommendation); NH-P8; NH-P10 (s42A report recommendation); NH-P12 (s42A report recommendation); and,

b. Coastal Environment chapter: CE-P11 (s42A report recommendation); CE-P12; CE-P19.

- 14 Based on this I consider that there is a consistent use of the operational need and function need 'test' with respect to natural hazard and coastal hazard provisions, as I explain below.
- 15 NH-P12 which relates to the Wellington and Ohariu Fault Overlays provides for activities with an operational need or functional need to be established within the overlay subject to incorporating mitigation to minimise hazard risk.
- 16 NH-P8 which relates to Stream Corridors provides for activities with an operational need or functional need to be established within a Stream Corridor subject to incorporating mitigation to reduce or avoid an increase in the existing risk. I consider that this policy appropriately directs that where activities can demonstrate an operational or functional need that providing a consenting pathway, while requiring the minimisation of risk is an appropriate outcome.
- 17 CE-P19, which relates to the High Coastal Hazard Area, provides for activities with an operational need or functional need and is accompanied by a directive to incorporate measures to reduce or not increase existing risk. I consider this is an appropriate approach to high coastal hazard areas as it aligns with the NZCPS, in particular Policy 25.
- 18 I note that during the hearing Commissioner Daysh queried whether use the term 'functional requirement' in place of 'functional need' would be more appropriate on the basis 'functional requirement' is used in the NRP. I question whether there is any definitional difference, but even if so, "functional need" is a defined term in the National Planning Standards. In my opinion, the PDP should therefore retain the term 'functional need'. It may be that the NRP should change, but I do not see this as being inconsistent with the NRP as presently expressed.

viii. Address whether the 'language' and framing of Policy NH-P6 is appropriate for a (short) rule cascade that ends with a non-complying activity status, and consider whether this policy would be better separated into two arms or two policies.

- 19 NH-P6 provides policy direction for potentially hazard sensitive activities and hazard sensitive activities within identified inundation areas of the Flood Hazard Overlays. In particular it underpins corresponding rule NH-R6 (notified rule NH-R11), which provides for hazard sensitive activities that achieve the stipulated finished floor levels in the inundation area of the Flood Hazard Overlay as a restricted discretionary activity, and where finished floor levels are not achieved is treated as a non-complying activity.
- 20 Following further consideration, I am of the opinion that an amendment to NH-P6 that provides for a more nuanced policy direction with respect to hazard sensitive activities in inundation areas is appropriate to better support the NH-R6 non-complying activity status for buildings containing hazard sensitive activities in Flood Hazard Overlay – Inundation Area where required floor levels are not achieved. In my opinion this amendment more effectively manages the flood hazard related risks to people and property. I have outlined recommended amendments to NH-P6 below and included them in Appendix C to this Reply.
- 21 I note that I do not support separating NH-P6 into two separate policies as I consider it is more appropriate to address the matter of development and activities within inundation areas in a single policy, whilst providing greater clarity by amending the policy.

NH-P6 Potentially hazard sensitive activities and hazard sensitive activities within the identified inundation areas of the Flood Hazard Overlays

Manage subdivision, development and use associated with potentially hazard sensitive activities and hazard sensitive activities within inundation areas by:

1. Ensuring subdivision, development and use incorporates mitigation to ensure the risk to people and property is minimised from a 1% Annual Exceedance Probability flood event; and

~~Provide subdivision, development and use for potentially hazard sensitive activities and hazard sensitive activities within the inundation area provided that mitigation measures are incorporated to ensure the risk to people and property both on the site and on adjacent properties is not increased or is reduced.~~

2. Avoiding the construction of new buildings, or the conversion of existing buildings that contain a hazard sensitive activity within identified inundation areas of the Flood Hazard Overlays where the finished floor level is below the 1% Annual Exceedance Probability flood levels.

- 22 Section 32AA evaluation: In my opinion, the amendment to NH-P6 is more appropriate in achieving the objectives of the PDP than the notified provisions for the following reasons:
- a. The amendment provides clearer policy direction for the management of subdivision, development and use associated with potentially hazard sensitive activities and hazard sensitive activities within flood hazard inundation areas; and

- b. The recommended amendment will not have any greater environmental, economic, social, and cultural effects than the notified provisions.

ix. To consider whether, if enabled by the National Planning Standards, the natural hazards rules could be restructured to improve their ease of understanding and use; in particular, by collating all rules relating to each natural hazard together to show the 'cascade' of activity statuses.

23 I am of the opinion that reordering the Natural Hazard chapter and Coastal Environment chapter rules in a way that groups rules relating to each natural hazard would assist plan users as it will make it easier to identify applicable rules. I also suggest this approach is taken with respect to the relevant policies. A recommended approach is set out in Appendix C.

24 In my opinion, the revised approach set out in Appendix C remains compliant with Standard 10.3 of the National Planning Standards which states:

Any rules must be ordered in the following way: permitted, controlled, restricted discretionary, discretionary, non-complying, prohibited. Where a single rule contains more than one activity status, this order must be used within the single rule.

x. Identify whether there are any circumstances for the construction or addition to buildings in overland flow that should be a non-complying activity.

25 The approach in NH-R8 (previously NH-R13) is that any construction of a new building that will contain a hazard sensitive activity in an overland flowpath is a discretionary activity. I consider that due to the hazard sensitivity of this category of activities and the potential risk to people from the greater velocity of floodwater that can occur in overland flowpaths it would be appropriate for a rule cascade that

treats non-compliance with floor level requirements above the 1% AEP as a non-complying activity. This would improve consistency with the approach of NH-R6 (previously NH-R11) which includes a similar rule cascade and more effectively manages proposed development and activities by ensuring that any effects are minor. However, in my view an amendment to NH-R6 that results in a more restrictive activity status is not within scope of submissions. Accordingly, I suggest that the Panel consider this amendment under Schedule 1, clause 99(2)(b) of the RMA.

26 Consequently, I recommend that NH-R8 be amended as follows, and as set out in Appendix C.

NH-R8 The construction of buildings or the conversion of existing buildings that will contain a hazard sensitive activityies within the overland flowpaths of the Flood Hazard Overlay

1. **Activity Status: Discretionary**

Where

- a. When located within an overland flowpath of the Flood Hazard Overlay, the finished floor levels of the building for the hazard sensitive activity is located above the 1% Flood Annual Exceedance Probability level, plus the height of the floor joists or the base of the concrete floor slab and an allowance for freeboard.

2. **Activity Status: Non-Complying**

Where:

1. Compliance with the requirements of NH-R8.1.a cannot be achieved.

27 Additions to a building that contains a hazard sensitive activity is provided for in NH-R4.3 as a Discretionary Activity, with associated policy direction policy direction for building additions in overland

flowpaths provided in NH-P5. I note in this regard that the directive language applied in policy NH-P5 (as recommended in the Natural and Coastal Hazards s42A report) is to 'only allow' additions within overland flowpaths where it can be demonstrated that:

1. *The risk from the 1% Annual Exceedance Probability flood event is low due to either the:*
 - a. *Proposed mitigation measures;*
 - b. *Size of the addition; or*
 - c. *Nature of the activities undertaken within the addition; and*
2. *In an overland flowpath, the risk to people and property is minimised from the 1% Annual Exceedance Probability (AEP) flood event.*

28 In considering whether there are circumstances where a building addition in an overland flowpath should trigger a non-complying activity status, I note that NH-R4 takes a relatively enabling approach particularly with respect to additions to buildings containing a hazard sensitive activity. I also note that there is no size limitation for building additions in flood hazard overlays. Consequently, I consider that it would be appropriate for building additions intended to contain a hazard sensitive activity in an overland flowpath, and which do not achieve a finished floor level above the 1:100 AEP flood event, to be treated as a non-complying activity. The principal reason for this is the potential adverse effects on such activities resulting from a major flood event i.e. increased depth and velocity of flood water in an overland flowpath. I note that this amendment would result in instances where additions that are non-habitable, and relatively low value (such as decking, or attached carports/garages) would be treated as a non-complying activity. Although the minor effects s104 gateway test is an avenue for such additions to be consented, I suggest an explicit exception for non-habitable additions could be considered.

29 However, in my view, an amendment to NH-R4 that results in a more restrictive activity status is not within scope of submissions.

Accordingly, I suggest that the Panel consider this amendment under Schedule 1, clause 99(2)(b) of the RMA.

30 Consequently, I suggest that NH-R4 could be amended as follows, and as set out in Appendix C.

NH-R4 Additions to all buildings in the inundation area, overland flowpaths or the stream corridor of the Flood Hazard Overlay

...

3. Activity status: Discretionary

Where:

- a. Compliance with the requirements of NH-R4.1.b cannot be achieved; and
- b. The finished floor levels of the addition (excluding non-habitable additions) to a building containing a hazard sensitive activity located within an overland flowpath is demonstrated to be above the 1% Flood Annual Exceedance Probability level plus the height of the floor joists or the base of the concrete floor slab and an allowance for freeboard.

4. Activity status: Non-Complying

Where:

- a. Compliance with the requirements of NH-R4.1.c or NH-R4.3.b cannot be achieved.

xi. For the rules relating to the construction or alteration of buildings within the Flood Hazard Overlay Inundation Area, consider whether there could be any permitted activity standards or conditions developed.

31 For clarity it is important to note in response to this request that:

- the construction or conversion of buildings containing a less hazard sensitive activity that are not located in an overland flowpath or stream corridor are permitted under rule NH-R1.
- The construction or conversion of buildings containing a potentially hazard sensitive activity are also permitted in inundation areas, subject to complying with the required finished floor levels above a 1:100 AEP flood event.
- NH-R4.1 provides for additions to buildings containing a potentially hazard sensitive activity or hazard sensitive activity in inundation areas of the flood hazard overlay as a permitted activity subject to meeting floor level requirements.

32 In light of this the question that remains is whether there are any other instances where the construction or conversion of a building containing a hazard sensitive activity could be a permitted activity subject to standards.

33 In response it is relevant to highlight that the PDP Flood Hazard Overlay - Inundation Area mapping excludes low level depths of less than 0.05m on the basis that this level of flooding, and any displacement of flood waters from increased development in these areas, is not of a scale that justifies the need for a planning control, with any risk to property adequately addressed through the Building Code requirements.

34 In considering whether there could be a permitted activity standard for buildings containing hazard sensitive activities in the PDP Flood Hazard Overlay - Inundation Area there are, in my opinion, two options available:

- a. Option A - a permissive floor level standard applied only in areas of low-level flooding (e.g., less than 150 mm, or less than 300 mm); or

- b. Option B - a permissive floor level standard (Option A) plus a requirement for the use of pile construction where base cladding (such as baseboards or cladding) is controlled. The intent of this option is to manage the impacts of flood water displacement on nearby sites.

35 In considering Option A, I remain of the view that, consistent with the advice of Mr Osborne in paragraphs 31 and 32 of his expert evidence on this matter and, as outlined in paragraph 164 of the Natural and Coastal s42A report, it is necessary to manage the effects, including the potential for cumulative effects, of flood water displacement that can occur from additional buildings in inundation areas. As discussed during the Stream 5 hearing, flood water displacement not only has the potential to impact existing buildings with low floor levels, but also recent builds that have complied with a floor level requirement determined at the time of construction approval.

36 Regarding Option B, although I consider that this approach could work in theory, identifying cladding specifications (e.g., baseboard separation widths) sufficient to provide certainty that flood water displacement is of an acceptable scale would present a significant challenge, particularly given velocity of flood water differs, as would the practicality of compliance and enforcement. In my view, the permitted standard would have to exclude subfloor cladding as I am not aware of a permeability standard for cladding that would provide sufficient certainty. I also note that any change to ground levels on site to raise the building platform could also result in flood water displacement affects. As I am unable to advise the Panel with necessary certainty that this approach would only ever result in an acceptable level of flood water displacement in all contexts, I do not recommend this approach. I am not aware of an example of a permitted standard that manages flood water displacement affects contained in a district plan.

37 For the reasons outlined above, I do not support the introduction of a permitted activity standard to construct buildings containing a hazard sensitive activity in the Flood Hazard Overlay – Inundation Area. In particular, I am of the view that such a standard would be unable to appropriately manage potential flood water displacement effects on nearby properties, noting that these properties are also likely to be hazard sensitive activities, i.e., residential activities are for the most part located in residential zones.

xii. Consider whether an advisory note or similar could be inserted into the rules for the Flood Hazard Overlay Inundation Area to direct Plan users to Wellington Water for the technical advice required to confirm compliance with the conditions for restricted discretionary activity.

38 I consider that an advisory note would assist Plan users by clarifying how required floor levels can be determined, and suggest the following:

Advisory note: Technical advice on finished floor levels required to comply with NH-R4.1a, NH-R4.3b, NH-R5.1a, NH-R6.1a, NH-R7.1a and NH-R8.1a can be sought and obtained from Wellington Water Limited. Freeboard above the 1% Flood Annual Exceedance Probability is determined as set out in Section 4.2.8 of the Wellington Water Regional Standard for Water Services December 2021.

xiii. Consider whether any rationalising of the mapping of Flood Hazard Overlay Inundation Areas could be undertaken; in particular, to remove the very small areas that are either included within or excluded from the inundations overlay.

39 Mr Osborne (Wellington Water Limited) has reviewed the modelling used to inform the Flood Hazard Overlay Inundation Areas, and based on this, has advised the following:

- a. The Inundation layer does include some small, isolated, areas of flood inundation (less than 300 areas in total). However, a

review of data processing illustrates that these small, isolated areas are either greater than 100m², or greater than 50m² and contain a stormwater manhole or sump.

- b. The threshold of 100m² was decided upon following a discussion with WCC at the time of preparing the flood mapping to ensure that the inundation area could be suitably integrated into the district plan. A smaller area threshold was set for isolated “ponds” if they contained a stormwater manhole or sump as these represented locations where the stormwater network was surcharging.
- c. There was inadequate justification for removing any residual inundation areas any further.
- d. The ‘holes’ present in the Flood Hazard Overlay - Inundation Area layer are there because the modelling does not show flooding in these locations. There is a possibility that the absence of flooding at these locations is due to artefacts in, or peculiarities of, the ground model (surface topography) applied in the WWL modelling, however, it was the best available information at the time of the modelling.
- e. A subsequent review of the WWL data processing has shown that there were two points in the processing where holes in the layer had been removed/filled. The first involved the ‘smoothing’ process run on the raw model results where holes smaller than 60m² were removed/filled due to buffering (a process of refining the raw model results). The second was during the final round of layer preparation where holes in the smoothed layer that are less than 40m² were filled, resulting in a more coherent layer for district plan mapping purposes.
- f. There is no adequate justification for filling the remaining ‘holes’ seen in the Inundation Area overlay any further.

40 Based on Mr Osborne’s advice, I am of the view that it would be inappropriate to modify the Flood Hazard Overlay – Inundation Area mapping.

xiv. Whether further information and guidance around the provisions for the natural hazards risks relating to fault rupture can be provided (for example, in the Introduction) to assist in understanding the terminology and approach to managing activities: for example, by plain English description of technical terms, supported by graphics/maps to illustrate terms.

41 During the Stream 5 hearing, it was apparent that additional clarity may be required with respect to the Fault Hazard Overlays and terms used in associated provisions.

42 The Fault Hazard Overlay reflects the Fault Avoidance Zones identified in the GNS fault report¹. The overlay is also a spatial tool that aligns with relevant directives in the National Planning Standards 2019 and is a term that has been used in the context of faults to align with the method (overlay) by which fault hazard information has been incorporated into and illustrated in the Plan.

43 Although the term ‘fault’ is more generic in nature it essentially reflects and relates to the Fault Avoidance Zones / Fault Hazard Overlays. The term ‘fault’ has limited use within the Natural Hazards provisions, and where it is (for example NH-P10) I suggest replacing the term ‘fault’ with ‘fault hazard overlay’ to reduce the possibility for confusion.

44 The term ‘fault rupture’ is, in my opinion, easily understood at a conceptual level, as it essentially relates to deformation of land by fault movement in an earthquake. It is predicted that fault rupture will only occur within identified Fault Hazard Overlays.

¹ Active Fault Mapping and Fault Avoidance Zone for Wellington City. May 2021. GNS Science Consultancy.

- 45 Where the location of a fault is well-understood, the Fault Avoidance Zone is comprised of a Fault Deformation Zone with a 20 m buffer applied from the edge of the Fault Deformation Zone.
- 46 Conversely, where the location of a fault is less understood, a Fault Deformation Zone is unable to be identified with an appropriate degree of certainty, and the Fault Avoidance Zone is generally wider in extent to reflect that uncertainty.
- 47 The inclusion of the fault complexity terms (uncertain poorly-constrained, uncertain constrained, distributed, well-defined extended and well-defined) within the Fault Hazard Overlay mapping is recommended in the Natural and Coastal Hazards s42A report. The inclusion of this level of detail in fault hazard mapping and associated plan provisions is consistent with the MfE guidance on landuse planning around active faults², and I reiterate that in my opinion this approach should be adopted, with the exception of the amendments proposed to simplify the fault hazard policies in subsequent sections of this Reply.
- 48 During the course of the Stream 5 hearing, the Panel sought clarity on whether the recommended amendments to the fault hazard overlay mapping would define the fault deformation zone. The purpose of this was to ensure that the Plan was sufficiently clear as to when a proposed activity was consistent with the relevant policy direction / matters of discretion i.e., whether it was 20 m from the edge of a fault deformation zone.
- 49 As explained above, and following further advice from Dr Nicola Litchfield from GNS Science, defined fault deformation zones for all parts of each of the faults is not currently available.

² Planning for development of land on or close to active faults: A guideline to assist resource management planners in New Zealand. 2003. Ministry for the Environment.

50 With respect to the Wellington Fault, as outlined in paragraph 471 of the Natural and Coastal Hazard s42A report, most of the length of the Fault Overlay represents the fault deformation zone with an additional 20 m buffer from the edge of the fault deformation zone. This makes it relatively straightforward to determine whether or not a building is within 20 m of the fault deformation zone – if the building is located in the Fault Hazard Overlay, then it is within 20 m of the fault deformation zone.

51 It follows that although it is possible to include a further explanation of fault hazard overlays in the introduction section of the Natural Hazards chapter, this is likely to present a challenge as fault rupture is a complex matter and one that is not uniform across each of the Fault Hazard Overlays.

52 In my view it would be more appropriate and effective for Council to prepare non-statutory guidance to assist plan users, rather than include a detailed explanatory narrative in the introduction section.

53 However, if the Panel is of a mind to include further detail in the Natural Hazards introduction, I would suggest simply advising the following:

Fault Hazard Overlays: many of the provisions associated with the Fault Hazard Overlays reference the need to be more than 20 m from the edge of the Fault Deformation Zone. The Fault Deformation Zone is an area that can only be identified by a suitably qualified and experience geologist or geotechnical (or similar) engineer.

xv. Consider whether the mapping of fault overlays could be made more ‘user friendly’.

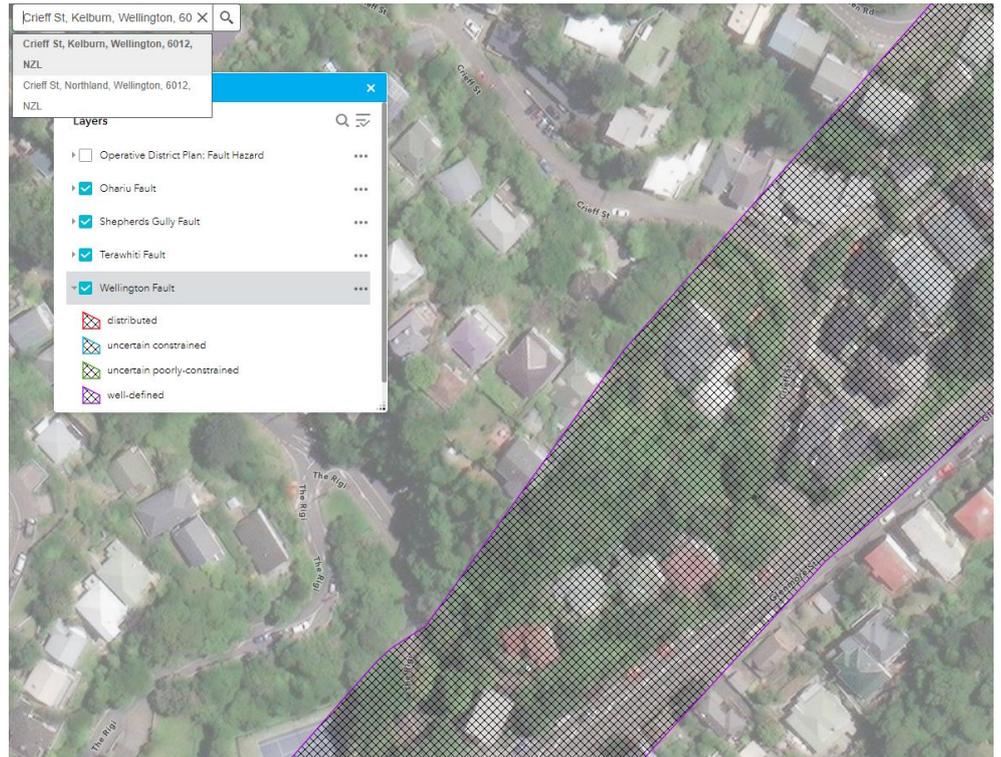
54 In my view it is not possible to simplify or amend the mapping of the fault hazard overlays without losing the nuanced approach to fault

complexity as outlined and recommended in paragraphs 167 and 178 of the Natural and Coastal Hazards s42A report. The inclusion of the fault complexity categories enables a policy and rule framework that better reflects current knowledge with respect to where fault rupture is predicted to occur.

55 As discussed in paragraph 49 of this Reply, the fault deformation zones referred to in the Natural and Coastal Hazards s42A report recommended set of provisions have not been identified and mapped by GNS Science for all of the fault hazard overlays as this level of detail is not currently known. For this reason, it is not recommended that the fault deformation zones be included in the mapping of the Fault Hazard Overlays.

56 I note that the relevant plan provisions provide direction to either locate outside of the fault deformation zone or incorporate mitigation to manage hazard risk. To achieve this a suitably qualified and experienced expert, likely a geologist or geotechnical engineer with geophysics experience, would need to determine the location of a fault deformation zone as it applies to a specific site or proposed building location within less understood faults, including parts of the Ohariu, Shepherds Gully and Terawhiti fault hazard overlays. The majority of the Wellington Fault Hazard Overlay is well-defined, with the fault deformation zone and 20 m buffer inside the boundary of the overlay. Effectively, this means that any building located in the overlay would not be 20 m from the edge of the fault deformation zone.

57 A Plan user will be able to search a specific property and with the fault overlay selected easily identify the relevant 'category' of fault hazard overlay that applies to a site. An example of this is illustrated below (noting that this is an image taken from the temporary Fault Type Viewer prepared to support the Natural and Coastal Hazards s42A report):



xvi. Whether Policies NH-P10 and P11 (as recommended in the Natural and Coastal Hazards s42A report) could be made simpler and easier to understand, such as by restructuring or potentially divided into separate policies.

58 As discussed during the Stream 5 hearing and as directed by the Panel, the proposed fault hazard policies have been reviewed with the intent of further simplification where appropriate.

59 The review has resulted in recommended changes to NH-P10 that remove references to various areas of fault complexity with respect to the Terawhiti and Shepherds Gully fault hazard overlays (e.g. uncertain poorly-constrained, uncertain constrained, distributed, well-defined and well-defined extended) on the basis that the associated provisions do not differentiate fault complexity in the same way the provisions do for the Wellington and Ohariu fault hazard overlays. This is because of the lower risk profile of the Terawhiti and Shepherds Gully faults compared to the Wellington and Ohariu faults.

- 60 While not part of the question from the Commissioners, the s42A report policy NH-P12 has also been reviewed to see if this can be simplified and made easier to understand from a plan users perspective. This is particularly in response to the questions asked by the Commissioners on the day of the hearing in respect to this Policy.
- 61 To improve the understanding of the policy response to the Wellington Fault and Ohariu Fault Overlays it is suggested that NH-P12 is broken into three separate policies that cover the following:
- a) A policy addressing additions for potentially hazard sensitive activities and hazard sensitive activities within the Wellington Fault and Ohariu Fault Overlays;
 - b) A policy addressing the construction of a residential unit on an existing vacant site within the Wellington Fault and Ohariu Fault Overlays; and
 - c) A policy addressing potentially hazard sensitive activities and hazard sensitive activities and related subdivision, buildings and structures within the well-defined or well-defined extended areas of the Wellington Fault and Ohariu Fault Overlays.
- 62 The approach to the three separate policies ensures that there is a policy approach to the different activities that could occur within the Wellington Fault and Ohariu Fault Overlays. This makes it easier to read for plan users and replaces one long policy that addresses all of the aforementioned scenarios but in an unnecessarily way which makes it less approachable for plan users.
- 63 As part of this change to the policy framework, some of the repetition within the policies has also been removed. This improves the readability of the policies for the plan users.

64 The recommended changes to NH-P10, NH-P11 and NH-P12 are contained in Appendix C to this Reply.

65 Section 32AA evaluation: In my opinion, the amendment to NH-P10, NH-P11 and NH-P12 is more appropriate in achieving the objectives of the PDP than the notified provisions and the recommended amendments in the Natural and Coastal Hazards s42A report, for the following reasons:

- a. The proposed amendments contained in Appendix C to this Reply still incorporate the fault complexity but simplify through reducing unnecessary repetition and reducing complexity by separating policies out resulting in improved clarity; and
- b. The recommended amendments will not have any greater environmental, economic, social, and cultural effects than the notified provisions.

xvii. For the rules relating to the maintenance and repair of coastal mitigation structures could be made to align or be more consistent with the equivalent rules in the Natural Resources Plan.

66 *Section 5.6.3 Maintenance, repair, additions and alterations to existing structures Rule R169: Maintenance or repair of structures – permitted activity* of the Operative Natural Resources Plan 2023 (NRP) provides for maintenance or repair of a structure in the coastal marine area (including seawalls) subject to this being contained within the form of the existing structure and no further increase in length, width, or height of the existing structure.

67 Rules R185 (controlled activity) and R186 (restricted discretionary activity) also provide for additions or alterations to, or replacements of, existing seawalls depending on the location. Of relevance is the condition that any addition cannot add more than 5m in horizontal projection at the ends of an existing structure parallel to the shoreline

and 1 m in vertical projection to the structure as it existed on 31 July 2015.

68 Although the NRP provides a less-onerous consenting pathway for upgrades, I do not consider that reason enough to simply bring these provisions through to the District Plan, particularly as no specific relief to this effect has been sought by submitters. Consequently, I consider that the current proposal to treat any upgrade of an existing hard engineering hazard mitigation structure as a discretionary activity is appropriate.

xix. Consider whether the language around the descriptions of the natural hazards rankings is appropriate in relation to the matters of national importance under section 6(h) RMA (that is, in relation to 'significant' risks from natural hazards).

69 In my opinion, the language used in the natural hazards ranking table (High, Medium and Low) is appropriate in relation to section 6(h) RMA. The hazard ranking table is not a significance hazard risk ranking, with these two matters not to be conflated.

70 As offered by Council's legal counsel Mr Whittington during the Stream 5 hearing, 'significant hazard risk' in the context of section 6(h) is undefined, with an apparent lack of relevant case law available to assist in determining if a hazard risk is significant or not. Turning then to how the term 'significant' is commonly understood I note that it is defined in the Oxford English Dictionary as 'sufficiently great or important to be worthy of attention', in other words something that is important enough to justify the need for it to be managed. On this basis I am of the opinion that all of the natural hazards (flooding, fault rupture, tsunami, etc) managed by the PDP represent a 'significant risk'.

xx. Are the recommended changes to Policies CE-P16, P17 and P18 (PDP policies CE-P15, P16 and P17) consistent with the New Zealand Coastal Policy Statement

2010? Similarly, the exceptions for the Airport and CCZ in Policy CE-P19 (PDP policy CE-P18)?

CE-P16

71 With respect to the recommended amendment in the Natural and Coastal Hazards s42A report to replace the term 'reduce or do not increase' with 'minimise' in policy CE-P16, I consider that this is consistent with the New Zealand Coastal Policy Statement 2010 (NZCPS). In particular, inclusion of the PDP coastal hazard overlays achieves Policy 24 of the NZCPS, and the 1:1000 year tsunami scenario (low hazard ranking) relevant to CE-P16 is consistent with Policy 25 as it directly responds to Policy 25(c) and (f) noting also that CE-P14 directs the need for development to mitigate the potential effects of tsunami.

CE-P17 and CE-P18

72 With respect to the recommended changes in the Natural and Coastal Hazards s42A report to replace the term 'reduce or do not increase' with 'minimise' in CE-P17 and CE-P18, I consider that this is generally consistent with the New Zealand Coastal Policy Statement 2010 (NZCPS).

73 CE-P17 and CE-P18 both provide policy direction in relation to medium coastal hazard areas, which includes the tsunami 1:500-year overlay and coastal inundation with 1.43 m sea level rise. I consider that for the 1:500-year tsunami scenario, a minimise approach is consistent with the NZCPS for similar reasons relating to return period of events to those outlined in paragraph 71 of this Reply with respect to CE-P16.

74 The PDP's approach to coastal inundation with 1.43 m sea level rise scenario is not as straight forward with respect to consistency with the NZCPS, in particular Policy 25.

- 75 In considering the PDP's approach to coastal hazard risk, I am of the view that Policy 25 (c) to (f) are clearly achieved by the PDP. However, alignment with the outcomes sought in Policy 25(a), which directs the need to avoid increasing the risk of social, environmental and economic harm from coastal hazards, and 25(b) which seeks to avoid redevelopment, or change in land use, that would increase the risk of adverse effects from coastal hazards, is less clear.
- 76 In considering Policy 25(a), I am of the opinion that the changes introducing the concept of 'minimise' recommended in the Natural and Coastal Hazards s42A report overall achieves the intent of the NZCPS as this approach ensures that development in these areas is required to reduce hazard risk as far as reasonably practicable. With respect to coastal inundation, incorporating floor levels above modelled flood depths and/or avoiding habitable rooms on ground floor in redevelopment will in many cases reduce the existing risk present in older buildings, and subsequently result in an outcome that gives effect to the NZCPS.
- 77 On balance, I consider that the PDP is consistent with the intent of Policy 25, as the PDP looks to avoid redevelopment in areas of greatest risk from coastal hazards, whilst ensuring that redevelopment in those areas where the coastal hazard related risk is not as great, but may be potentially affected by coastal hazards, is required to incorporate mitigation to ensure new development is resilient to the effects of coastal hazards. This position is equally applicable when considering the recommended changes to CE-P17 and CE-P18, noting that I consider that the policy direction and rules relevant to the medium coastal hazard overlay, in particular the coastal inundation with 1.43 m sea level rise overlay, broadly achieve the intent of Policy 25(a).
- 78 In considering the proposed changes to CE-P17 and CE-P18 and consistency with NZCPS Policy 25(b), I retain my position that there is overall consistency at a plan-wide level. However, I consider there is a slight misalignment with respect to the coastal inundation with 1.43 m

sea level rise overlay. Redevelopment is provided for in this overlay subject to minimising the risk of coastal hazards, inconsistent with the 'avoid' direction of NZCPS Policy 25(b). Consequently, I am of the view that residual risks are probable regardless of all practicable steps to mitigate being taken.

79 In considering this misalignment, I consider that this matter needs to be viewed in the context of the NPS-UD as this document has the same status as the NZCPS with respect to council's requirements when preparing a District Plan as set out in s74(1)(ea) of the RMA . In achieving the intent of the NPS-UD, development in the medium coastal hazard overlay is provided for, and only limited to the extent necessary to manage the coastal hazard risk. In my opinion, this has created a situation where strict adherence with the NZCPS is in conflict with the NPS-UD, with no additional supporting direction provided to help determine which should prevail.

80 On that basis, when turning to the purpose of the RMA to reconcile this difference, I concur with the overall assessment contained in Section 6.2 and Section 9 of the Natural and Coastal Hazards s32 evaluation report. In particular, I consider that the s32 report evaluation with respect to how the PDP achieves the purpose and principles of the RMA, remains relevant, irrespective of the proposed changes recommended in the Natural and Coastal Hazards s42A report. In my view the recommended changes in the s42A report simply resolve an existing misalignment between the coastal hazard policies and rules to achieve the intent of the PDP which is to provide for development in medium coastal hazard overlay areas subject to the incorporation of mitigation to protect people and property from the impacts of coastal hazards.

81 I consider that a strict avoid approach to redevelopment within areas where the coastal inundation with 1.43 m sea level rise overlay applies would adversely affect the social and economic well-being of future generations. Realisable development capacity is not presented in such

a way that I have been able to isolate the capacity that would be lost by changing the approach to development in the relevant overlay. However, the impact can be broadly understood by simply viewing the spatial extent of the coastal inundation with 1.43 m sea level rise overlay (that applies the CBD broadly from the harbour to Lambton Quay/Wakefield Street/Courtney Place, and large areas of Kilbirnie, Miramar, Seatoun and Lyall Bay) noting the strict constraints an avoidance approach would impose on further development within this area. I consider this is likely to be a significant reduction in the city's development capacity and ability to meet housing supply and improve housing affordability.

82 Secondly, the recommendations in the Natural and Coastal Hazards s42A report to introduce a 'minimise' risk approach, in my opinion, achieve the general intent of Policy 25. This is particularly the case when considered in the context of development in the medium coastal hazard areas being required to incorporate mitigation measures to minimise hazard related risk. For example, the need for proposed developments to incorporate floor levels above modelling coastal inundation and / or ensure ground floor levels are resilient to flooding. In many ways replacing older housing with more hazard resilient housing is meeting the intent of Policy 25. I am of the view that it is impractical to enable development and achieve a no net increase outcome with respect to hazard risk at a site-specific scale, due to residual risk.

83 For the reasons outlined above I consider that the proposed amendments recommended by the Natural and Coastal Hazards s42A report to CE-P17 and CE-P18 are generally consistent with the NZCPS, and where they are not, nonetheless give effect to Part 2.

84 In further considering CE-P18 in the context of the policy language used and the recommended incorporation of the 'minimise' concept to CE-P18, I recommend that the wording of the policy be amended to improve consistency with the wider policy response to medium coastal hazard areas, as set out below:

CE-P~~17~~18 Hazard sensitive activities in the medium coastal hazard areas

~~Only allow~~ Provide for hazard-sensitive activities in the medium coastal hazard area ~~where~~, or any subdivision where the building platform for a hazard-sensitive activity will be within the medium coastal hazard area, where it can be demonstrated that:

1. The activity, building, or subdivision incorporates measures ~~that demonstrate~~ that ~~reduce or not increase~~ minimise the risk to people and property from the coastal hazard, ~~and;~~
2. There is the ability to access safe evacuation routes for occupants of the building from the coastal hazard;
3. If the activity has a post disaster function, mitigation measures are incorporated to allow for the continued operation following a coastal hazard event; and
4. For health care facilities, retirement villages, educational facilities and childcare facilities, there is an

CE-P19

85 With respect to the recommended changes in the Natural and Coastal s42A report to exclude the Airport, Port and rail, and CCZ in CE-P19, I consider that NZCPS Policy 27 provides policy support for these exceptions. In my opinion, in lieu of any other policy that addresses 'existing infrastructure', 'significant infrastructure', or 'significant existing development', Policy 27 extends to include the protection of regionally significant infrastructure. With respect to the CCZ exception, I consider the CCZ is 'significant existing development' due to the level of investment in public infrastructure and private assets and the role of the CCZ with respect to economic, social and cultural wellbeing. I note that the NZCPS does not define 'significant existing development'.

86 Policy 27 directs consideration of the range of options to reduce the impacts of coastal hazards. In my view, 'protection' is not simply physical protection in the form of an intervention but needs to be considered in context of protecting the on-going efficient operation of infrastructure. Similarly, for the CBD, protection is provided in the context of enabling the on-going operation of the CBD (including growth) whilst incorporating measures to minimise hazard risk.

xxi Consider whether the clarity of CE-P26 (PDP policy CE-P25) could be improved by replacing 'planned' with 'public' or similar.

87 Following further consideration of CE-P26, and in the context of CE-P25, I am of the view that this policy appears somewhat redundant as currently drafted or following replacement of 'planned' with 'public', as CE-P25 adequately provides for coastal hazard mitigation works undertaken by a Crown entity, Regional or Territorial Authority.

88 It is my understanding that CE-P26 was initially intended to provide policy direction for scenarios where green infrastructure was proposed to be undertaken by an entity other than those provided for by CE-P25. An option would be to delete 'and planned' from CE-P26, with the policy then providing direction for green infrastructure not undertaken by a Crown entity. However, I note that there is no rule in the Coastal Hazards chapter that relates to 'other entities' undertaking green infrastructure, with rule CE-R17 not providing for this alternative. The result is that reliance is placed on other overlays or the underlying zone to manage the effects of any non-crown entity undertaking green infrastructure.

89 Consequently, I am of the view that deletion of 'planned' in policy CE-P26 would be an appropriate amendment as it is a minor correction that does not change the intent of the policy. I do however note that this does not resolve the issue of CE-P26 being an 'orphan' policy not directly aligned to a rule. I also note that no relief has been sought in

submissions specifically seeking deletion of CE-P26 in its entirety, and note that CE-P26 is not under the ISPP.

xxii. Advice as to whether there is appropriate scope to make changes to natural hazards provisions that are not IPI provisions.

90 Given the broad nature of this matter, I consider that this matter is best addressed by Council's legal counsel, Mr Whittington.

xviii. Whether Policy CE-P27 (PDP policy CE-P26) should be amended to enable the maintenance and repair of hard mitigation measures in the coastal environment in all hazard overlays; and, xxiii. Should Policy CE-P27 be extended to include all coastal hazard areas, or at least medium coastal hazard areas in addition to high coastal hazard areas?

91 In terms of the initial query, I anticipate that the repair and maintenance of all existing hard engineering hazard mitigation structures that are for the purpose of protecting against the impacts of coastal hazards will, due to the extent of the high hazard tsunami 1:100 year overlay and the high hazard coastal inundation layer, be provided for by CE-P27 and associated rule CE-R24 and therefore I am of the opinion that no further change to CE-P27 is required. If there is an outlier such as an existing hard engineering hazard mitigation structure located in the medium hazard area, the zones rules will apply. For example, in the Medium Density Residential Zone, MRZ-R11 provides for the maintenance and repair of buildings and structures as a permitted activity.

92 For the same reason, I do not consider it necessary to provide for new hard engineering hazard mitigation structures for the purpose of protecting against the impacts of coastal hazards in the medium coastal hazard areas. The areas near the coast, where these structures would be anticipated, are already provided for by CE-R24. I also note that associated rule CE-R24 provides for new hard engineering hazard mitigation structures as a discretionary activity. If there is an outlier,

located in the medium hazard area, the relevant zone rules will apply. For example, in the Medium Density Residential Zone, MRZ-R13 provides for the construction, addition or alteration of buildings and structures as a permitted activity, subject to standards.

A response to the evidence of Mr Morgan for Argosy.

93 The supplementary evidence I have prepared and supplied to the Panel³ along with that prepared and supplied by Mr Beban⁴, responds to Mr Morgan's Evidence-in-Chief.

94 With respect to Mr Morgan's 6 August 2023 Memorandum that was tabled at the Stream 5 hearing, I have summarised and addressed below the main points raised. For the convenience of the Panel these are as follows:

The hazard ranking only considers the spatial extent of hazard scenarios and attributes a hazard ranking that does not include assessment of the risk.

95 I agree with Mr Morgan that the hazard ranking table does not reflect a detailed assessment of hazard risk, and bundles scenarios across the various hazards primarily on the basis of probability supplemented by a high-level and relative consideration of risk. For example, 1:100 year tsunami hazard (with 1 m Sea Level Rise) is attributed a high hazard ranking due to the probability of the event scenario (there are multiple sources of a tsunami within the 100 year probability period) combined with the impact a tsunami event of the predicted scale would have, i.e. if the scale of the modelled tsunami is insignificant enough to justify a

³ [Statement of Supplementary Planning Evidence of James \(James\) Grant Sirl on Behalf of Wellington City Council, 24 July 2023.](#)

⁴ [Statement of Supplementary Planning Evidence of James Beban on Behalf of Wellington City Council, 25 July 2023.](#)

planning response then it would not be attributed a high hazard ranking.

- 96 Hazard ranking simply enables a clearer and more consistent approach to be applied to related provisions with these, in turn, focused on future risk and associated effects.

The PDP does not include water depths for the event scenarios which would be helpful to plan users in assessing the risk relevant to a specific site.

- 97 I agree with Mr Morgan on this point. The Council has been developing a publicly accessible, non-statutory webviewer that displays the modelled depths used to inform each of the coastal hazard overlays. The intention is that once this is publicly released it will enable plan users to identify the inundation depth relevant to a specific property affected by the two coastal inundation overlays or the three tsunami scenarios.

That the Medium coastal inundation extent with 1.43 sea level rise with 1% AEP storm event will only impact the overlay at and around the high tide period, and that the range in water depths that will be experienced presents very different hazard risk profiles.

- 98 In considering this point, I rely on advice provided by Mr Andrews in email correspondence to me, that Mr Morgan's description of the build-up of 1%AEP level is incorrect. The 1%AEP coastal inundation is not related to MHWS. Instead, the 1%AEP level is the extreme sea level resulting from the joint probability of astronomical tide, storm surge and wave setup.

- 99 Although I generally agree with Mr Morgan that coastal inundation depths present differing degrees of hazard risk, I am of the view that this is a matter that can be considered at the time of determining an appropriate mitigation response as part of the resource consenting process.

That the tsunami overlay extents are based upon the tsunami event occurring at high tide.

100 In considering this point raised, I rely on advice provide by Dr Burbidge in email correspondence with me, particularly that it:

- a. Confirms that the tsunami modelling does not take the likelihood of the tide being at Mean High Water Springs (MHWS) into account in calculating the probability.
- b. Notes that the probability referred to in relation to tsunami is the probability of a tsunami reaching the coast.
- c. Notes that the probability of that tsunami arriving at MHWS and then inundating as far as shown on the maps would be less than that since the tide is not always at MHWS.
- d. Notes, however, that the extents should be viewed as more of an envelope of how far the 1:100 year (or 1:500 year or 1:1000 year) tsunami could inundate depending on the tide (and sea level rise) at the time of arrival.

101 I would also reiterate that the spatial extent of the tsunami hazard overlays represents an aggregated median based on the most likely sources of a tsunami within each probability. It is therefore conceivable that a tsunami event could occur outside of high tide that has a greater spatial extent and depth than that modelled to inform each of the probability scenarios (e.g. 1:100, 1:500, and 1:1000).

Concern that the proposed scenarios and respective hazard ranking will result in disproportionate planning constraints being applied to sites that are exposed to a coastal hazard but are not subject to the same degree of risk (as defined by the NZCPS). That hazard scenarios for tsunami 1:100 year event with 1 m sea level rise and the coastal inundation 1:100 inundation event with 1.43 m sea level rise should both be assigned a medium hazard ranking as they both take into

consideration future sea level rise. High hazard ranked scenarios should not take sea level rise into account.

102 Based on the comparative example provided by Mr Morgan of the risk profile of areas on the South Coast compared to the inner harbour areas, I agree that the impacts of coastal hazards will differ slightly in different locations. Regardless, I do not share his view that the Plan results in disproportionate planning constraints because of the high hazard tsunami scenario incorporating sea level rise, and the high coastal inundation scenario not including sea level rise. In my view allocating the tsunami 1:100 year scenario with 1 m sea level rise a high hazard ranking is appropriate. This scenario reflects an event that could occur tomorrow and could affect a greater spatial extent than that illustrated by the high hazard tsunami overlay. It also relates to an area that will be most impacted by a larger scale tsunami predicted to occur within a 1:500 or 1:1000 year probability.

103 I also disagree with Mr Morgan that high hazard ranked scenarios should not take sea level rise into account. In my opinion, it is necessary and appropriate for the Plan to be future focused when planning for the impacts of natural hazard events, which is consistent with s7(i) of the Act which requires particular regard shall be given to the effects of climate change.

Inconsistent Council explanation (Mr Beban and Mr Sirl) of the rationale for 1:100 year return period being assigned a high hazard ranking;

104 In my view there is no inconsistency between the explanations provided by Mr Beban and myself in relation to hazard ranking that is cause for concern.

Concern that Council's position that the 1 m sea level rise provides a 'buffer' for identifying the tsunami hazard overlays, has not been consistently applied to the coastal inundation overlays; and A response to the alleged inconsistency (through the evidence for Argosy) in relation to classifying coastal inundation without sea

level rise as medium risk and tsunami inundation with sea level rise as high risk, and the consequential policy response.

- 105 Coastal inundation without sea level rise is categorised as a high hazard, with tsunami 1:100 year probability scenario with sea level rise also categorised as a high hazard.
- 106 As addressed above, the hazard ranking table is not a hazard risk table, it is simply a way of bundling hazards with a similar risk profile to allow for a consistent approach to their associated objective, policy and rule framework. The Plan's approach to managing risk with respect to high hazards is clear in that it generally adopts an 'avoid', 'avoid unless', 'only allow where' approach. It is the incorporation of the hazard sensitivity categories (less hazard sensitive activities, potentially hazard sensitive activities, and hazard sensitive activities) within the plan provisions that implements a risk-based approach.
- 107 In my view, there is no need, or ability, for the hazard scenarios included in the hazard ranking table to be consistent in every way. The Tsunami Hazard Overlays represent an aggregated median of multiple sources of tsunami. It is not simply one event, nor does the mapped extent represent the worst-case event predicted to occur within each of the recurrence probabilities e.g. 1:100 year.
- 108 One way of looking at it is that the 1 m Sea Level Rise incorporated into the modelling provides a degree of conservatism given any tsunami event that occurs could conceivably be greater in spatial extent and depth than the aggregated scenario used to inform the overlay. Also, as a tsunami could occur tomorrow, in 50 years' time or 100 years' time, it is in my view both necessary and appropriate to plan for a future event – with the 1:100 year probability scenario representing an event that could conceivably occur in the near future.
- 109 Also, as highlighted in paragraph 41 of my supplementary evidence, if anything, an appropriate response would be to have a high hazard

coastal inundation scenario with sea level rise incorporated (not necessarily 1.43 m, possibly a lesser extent to reflect the uncertainty of sea level rise predictions). However, for natural justice reasons I would not recommend this as part of this plan review process. I also consider it unnecessary at this point in time particularly given that in the medium coastal inundation areas, new development will need to incorporate mitigation measures in response to the impacts of inundation in 1:100 storm events. In this regard the 10-year plan review cycle and plan change process also provide avenues for the plan to respond to the evolution of understanding of climate change and sea level rise.

Commentary on additional matters

Definition of the term ‘minimise’

110 With respect to the definition of ‘minimise’, following discussion during the Stream 5 hearing, I have considered the following definition of ‘minimise’ included in the Wellington Regional Natural Resources Plan 2023 (NRP):

| | |
|------------------------|---|
| <i>Minimise</i> | <i>Reduce to the smallest amount reasonably practicable. Minimised, minimising and minimisation have the corresponding meaning.</i> |
|------------------------|---|

111 I am of the opinion that adopting the NRP definition would achieve the intended outcome sought by the recommendations in the Natural and Coastal Hazards s42A report, with reliance on the NRP version providing better alignment between the NRP and PDP. However, in this regard I would draw the Panel’s attention to the fact that related recommendations in paragraph 91 of the s42A report proposed that this definition should be expressly limited to applying to natural hazards unless a full review of the use of the terms minimise,

minimised, minimising and minimisation throughout the entire plan reveals that no unintended outcomes will occur as a result of a more widely applicable definition.

Structures in Flood Hazard Overlay – Inundation Areas, Overland Flowpaths, and Stream Corridors

112 Following further examination of the PDP provisions with respect to the provisions relating to Flood Hazard Overlay – Inundation Areas, Overland Flowpaths, and Stream Corridors, I am of the view that the management of structures in these overlays is unclear.

113 Although the PDP natural hazard related plan provisions manage buildings, which are defined in the PDP, structures that do not meet the building definition are not expressly managed. The result is that it is unclear whether a structure is managed by the hazard overlays or left to the underlying zone rule.

114 Following the above, I recommend addition of ‘and structures’ to NH-R1.1. I consider that this would improve clarity and certainty for plan users as the term ‘structures (that are not buildings)’ is included within the definition of Less Hazard Sensitive Activities, and the term ‘structures (that are not buildings)’ is also included in NH-R1. Consequently, I also recommend that NH-P3.2 is amended to reference structures to ensure that the relevant matters of discretion relating to NH-R.1.1 clearly apply to structures as well.

Minor recommendation amendments

115 The following recommended amendments are recommended as outlined in Appendix C to this report:

- The addition of ‘hazard’ to the ‘fault overlay’ and ‘liquefaction overlay’ references in the hazard ranking table contained in the

Introduction of the Natural Hazards chapter, and policies and rules to improve consistency in terminology used in the plan.

- the title of CE-P16 to be amended to remove reference to 'subdivision' as specific reference to 'subdivision' is inconsistent with the rest of the policy titles, which all apply to subdivision.
- NH-R10 is recommended to be amended to clarify that additions relate to a building not an activity.
- CE-R18.2b. is recommended to be amended to clarify that additions relate to a building not an activity.

Appendix A

Tables illustrating objective and policy use of ‘reduce or not increase’ and ‘minimise’

Natural Hazards provisions

| Table 1 Key |
|---|
| Reduce or do not increase existing risk |
| Minimise risk |

| Table 1: Natural Hazards Objectives | | Natural Hazards – Objective direction by hazard risk ranking | | |
|-------------------------------------|------------------------|--|-----------------------|---|
| | | Low hazard | Medium hazard | High hazard |
| Hazard sensitivity | Airport, port and rail | Minimise risk (NH-O5) | Minimise risk (NH-O5) | Minimise risk (NH-O5) |
| | Less | Minimise risk (NH-O2) | Minimise risk (NH-O2) | Reduce or do not increase existing risk (NH-O1) |
| | Potentially | Minimise risk (NH-O2) | Minimise risk (NH-O2) | Reduce or do not increase existing risk (NH-O1) |
| | Sensitive | Minimise risk (NH-O2) | Minimise risk (NH-O2) | Reduce or do not increase existing risk (NH-O1) |

| |
|--|
| Table 2 Key |
| Avoid / only allow – reduce or not increase risk |
| Provide for – Minimise risk |
| Allow / Enable |

| Table 2: Natural Hazard policies | | Natural Hazard Policy direction by hazard ranking | | |
|----------------------------------|------------------------|---|--|---|
| | | Low hazard area | Medium hazard area | High hazard area |
| | | Natural systems and features (NH-P15); Natural hazard mitigation works (NH-P16); Green infrastructure (NH-P17) | Natural systems and features (NH-P15); Natural hazard mitigation works (NH-P16); Green infrastructure (NH-P17) | Natural systems and features (NH-P15); Natural hazard mitigation works (NH-P16); Green infrastructure (NH-P17) |
| Hazard sensitivity | Airport, port and rail | Provide for buildings with low occupancy (NH-P13) | Provide for buildings with low occupancy (NH-P13) | Provide for buildings with low occupancy (NH-P13) |
| | | Manage buildings (NH-P14) Minimise the risk to people and buildings | Manage buildings (NH-P14) Minimise the risk to people and buildings | Manage buildings (NH-P14) Minimise the risk to people and buildings |
| | Less | Allow LHSA in NH overlays (NH-P3) Risk to people and property from 1% AEP is minimised | Allow LHSA in NH overlays (NH-P3) Risk to people and property from 1% AEP is minimised | Allow LHSA in NH overlays (NH-P3) Risk to people and property from 1% AEP is minimised |
| | Potentially | Manage PHSA in Flood – inundation areas (NH-P6) Risk to people and property is minimised | Manage PHSA in Flood - OFP (NH-P7) Risk to people and property is minimised | Avoid PHSA in Flood – Stream Corridor (NH-P8) The existing risk to people and property is reduced or avoided |
| | | Provide for Building additions in flood - inundation (NH-P4) Impact from the 1% AEP flood event is low <u>OR</u> Risk to people and property is minimised | Only allow Building additions in Flood - OFP (NH-P5) Risk to people and property is minimised | Only allow Building additions in Flood - Stream Corridor (NH-P5) Risk to people and property is reduced or not increased |
| | | Allow PHSA and HSA in Terawhiti and Shepherds Gully Faults (NH-P10) | | Provide for PHSA and HSA in uncertain poorly-constrained, uncertain constrained or distributed areas of Wellington and Ohariu Faults (NH-P11) Minimise risk to life and structural integrity |
| | | | | Only allow additions to existing buildings in well-defined or well-defined extended areas of Wellington and Ohariu Faults (NH-P12) |

| | | | | |
|--|--|---|---|--|
| | | | | <p>Minimise risk to life and structural integrity</p> <p>Avoid PHSA and HSA in well-defined or well-defined extended areas of Wellington and Ohariu Faults (NH-P14)</p> <p>Building with Operational and functional need – minimise risk</p> <p>Any other building - do not increase risk</p> |
| Sensitive | <p>Provide for Building additions in flood - inundation (NH-P4)</p> <p>Impact from the 1% AEP flood event is low OR</p> <p>Risk to people and property is reduced or not increased</p> | <p>Manage HSA in Flood - OFP (NH-P7)</p> <p>Risk to people and property is minimised</p> | <p>Only allow building additions in Flood - Stream Corridor (NH-P5)</p> <p>Risk to people and property is reduced or not increased</p> | |
| | <p>Only allow emergency service facilities in Liquefaction (NH-P9)</p> | | | <p>Avoid HSA in Flood – Stream Corridor (NH-P8)</p> <p>The existing risk to people and property is reduced or avoided</p> |
| | | | | <p>Only allow additions to existing buildings in well-defined or well-defined extended areas of Wellington and Ohariu Faults (NH-P12)</p> <p>Minimise risk to life and structural integrity</p> |
| | | | | <p>Only allow a residential unit on an existing vacant site within the well-defined or well-defined extended areas of the Wellington Fault and Ohariu Fault Overlays (NH-P13)</p> <p>Minimise risk to life and structural integrity</p> |
| | <p>Manage PHSA and HSA (NH-P6)</p> <p>Risk to people and property is minimised</p> | | | <p>Provide for PHSA and HSA in uncertain poorly-constrained, uncertain constrained or distributed areas of Wellington and Ohariu Faults (NH-P11)</p> <p>Minimise risk to life and structural integrity</p> |
| | <p>Only allow emergency service facilities in Liquefaction Overlay (NH-P9)</p> | <p>Only allow Building additions (NH-P5)</p> <p>*Risk to people and property is reduced or not increased</p> | | <p>Avoid PHSA and HSA in well-defined or well-defined extended areas of Wellington and Ohariu Faults (NH-P14)</p> <p>Building with Operational and functional need – minimise risk</p> <p>Any other building - do not increase risk</p> |
| | <p>Allow for PHSA and HSA in Terawhiti and Shepherds Gully Faults NH-P10</p> | | | |
| <p>Only allow for PHSA and HSA in Terawhiti and Shepherds Gully Faults NH-P10</p> | | | | |

Tables illustrating recommended Coastal Hazards objective and policy wording and rule alignment

| |
|---|
| Table 1 Key: |
| Reduce or do not increase existing risk |
| Minimise risk |

| Table 1: Coastal Hazards Objectives | | Coastal Hazards – Objective direction by hazard risk ranking | | |
|-------------------------------------|------------------------|--|-----------------------|---|
| | | Low hazard | Medium hazard | High hazard |
| Hazard sensitivity | City Centre Zone | Minimise risk (CE-O9) | Minimise risk (CE-O9) | Minimise risk (CE-O9) |
| | Airport, port and rail | Minimise risk (CE-O8) | Minimise risk (CE-O8) | Minimise risk (CE-O8) |
| | Less | Minimise risk (CE-O6) | Minimise risk (CE-O6) | Reduce or do not increase existing risk (CE-O5) |
| | Potentially | Minimise risk (CE-O6) | Minimise risk (CE-O6) | Reduce or do not increase existing risk (CE-O5) |
| | Sensitive | Minimise risk (CE-O6) | Minimise risk (CE-O6) | Reduce or do not increase existing risk (CE-O5) |

| |
|---|
| Table 2 Key: |
| Avoid / Only Allow- reduce or not increase risk |
| Provide for / Manage - Minimise risk |
| Allow / Enable |

| Table 2: Coastal Hazard policies | | Coastal Hazard Policy direction by hazard ranking | | |
|----------------------------------|------------------------|--|---|---|
| | | Low hazard | Medium hazard | High hazard |
| Hazard sensitivity | Airport, port and rail | Enable use and development - low occupancy (CE-P20) | Enable use and development - low occupancy (CE-P20) | Enable use and development - low occupancy (CE-P20) |
| | | Manage use and development – public occupancy (CE-P21) Minimise the risk to people, property and infrastructure | Manage use and development – public occupancy (CE-P21) Minimise the risk to people, property and infrastructure | Manage use and development – public occupancy (CE-P21) Minimise the risk to people, property and infrastructure |
| | City Centre Zone | Enable use and development - low occupancy (CE-P22) | Enable use and development - low occupancy (CH-P22) | Enable use and development - low occupancy (CH-P22) |
| | | Manage use and development – public occupancy (CE-P23) Minimise the risk to people, property and infrastructure | Manage use and development – public occupancy (CE-P23) Minimise the risk to people, property and infrastructure | Manage use and development – public occupancy (CE-P23) Minimise the risk to people, property and infrastructure |
| | Less | Allow LHSA in all Coastal Hazard Overlays (CE-P13) | Allow LHSA in all Coastal Hazard Overlays (CE-P13) | Allow LHSA in all Coastal Hazard Overlays (CE-P13) |
| | Potentially | Allow PHSA in Low Coastal (CE-P15) | Enable building additions for PHSA and HSA in medium and high coastal hazard areas (CE-P14) Where the risk to from coastal hazard is low | Enable building additions for PHSA and HSA in medium and high coastal hazard areas (CE-P14) Where the risk to from coastal hazard is low |

| | | | | |
|--|------------------|---|---|---|
| | | | <p>Provide for PHSA in medium coastal hazard areas (CH-P17)</p> <p>Minimise risk to people and property from the coastal hazard</p> | <p>Avoid HSA and PHSA in High Coastal Hazard Areas (CE-P19)</p> <p>Reduce or not increase existing risk</p> |
| | Sensitive | <p>Provide for HSA in Low Coastal hazard areas (CE-P16)</p> <p>Minimise risk to people and property from tsunami</p> | <p>Enable building additions for PHSA and HSA in medium and high coastal hazard areas (CE-P14)</p> <p>Where the risk to from coastal hazard is low</p> | <p>Enable building additions for PHSA and HSA in medium and high coastal hazard areas (CE-P14)</p> <p>Where the risk to from coastal hazard is low</p> |
| | | | <p>Provide for HSA in medium coastal hazard areas (CE-P18)</p> <p>Minimise risk to people and property from the coastal hazard</p> | <p>Avoid HSA and PHSA in High Coastal Hazard Areas (CE-P19)</p> <p>Reduce or not increase existing risk</p> |

Appendix B

Plan provision diagram illustrating the relationship between provisions

| Objective | Policy | Rule | | |
|-----------|--------|--------|--------|--|
| NH-O1 | NH-P1 | | | |
| | NH-P2 | | | |
| | NH-P3 | NH-R1 | | |
| | NH-P5 | NH-R4 | | |
| | NH-P8 | NH-R9 | | |
| | NH-P11 | NH-R13 | | |
| | NH-P12 | NH-R10 | | |
| | NH-P13 | NH-R14 | | |
| | NH-P14 | NH-R14 | | |
| NH-O2 | NH-P1 | | | |
| | NH-P2 | | | |
| | NH-P3 | NH-R1 | | |
| | NH-P4 | NH-R4 | | |
| | NH-P5 | NH-R4 | | |
| | NH-P6 | NH-R5 | NH-R6 | |
| | NH-P7 | NH-R7 | NH-R8 | |
| | NH-P9 | NH-R15 | | |
| | NH-P10 | NH-R10 | NH-R11 | |
| NH-O3 | NH-P18 | NH-R3 | | |
| | NH-P19 | NH-R2 | | |
| NH-O4 | NH-P17 | | | |
| | NH-P19 | NH-R2 | | |
| NH-O5 | NH-P1 | | | |
| | NH-P15 | NH-R12 | | |
| | NH-P16 | NH-R12 | | |

| Objective | Policy | Rule | |
|-----------|--------|--------|--------|
| CE-O5 | CE-P11 | | |
| | CE-P12 | | |
| | CE-P14 | CE-R18 | |
| | CE-P19 | CE-R25 | CE-R27 |
| CE-O6 | CE-P12 | | |
| | CE-P13 | CE-R16 | |
| | CE-P14 | CE-R18 | |
| | CE-P15 | CE-R21 | |
| | CE-P16 | CE-R22 | |
| | CE-P17 | CE-R23 | |
| | CE-P18 | CE-R26 | |
| CE-O7 | CE-P24 | | |
| | CE-P26 | | |
| CE-O8 | CE-P11 | | |
| | CE-P20 | CE-R19 | |
| | CE-P21 | CE-R19 | |
| CE-O9 | CE-P11 | | |
| | CE-P22 | CE-R20 | |
| CE-O10 | CE-P23 | CE-R20 | |
| | CE-P25 | CE-R17 | |
| | CE-P26 | CE-R18 | |
| | CE-P27 | CE-R4 | |
| | CE-P28 | CE-R24 | |

Appendix C – Tracked Changes to Natural and Coastal Chapters, and Definitions.

Note: **Red underline** and **strike-out**: show additions and deletions to the notified Natural Hazards Chapter and Coastal Environment Chapter, as recommended by in the section 42A report dated 3rd July 2023. Note that the Coastal Environment policy number has been retrospectively updated as a result of the recommended new policy.

Blue underline and **strike-out**: show further additions and deletions to the section 42A report version of Natural Hazards Chapter and Coastal Environment Chapter, as recommended by Jamie Sirl, Statement of Supplementary Planning Evidence dated 25th July 2023.

Green underline and **strike-out**: show further additions and deletions to those recommended by Jamie Sirl, Statement of Supplementary Planning Evidence dated 25th July 2023, as recommended by Jamie Sirl, Right of Reply dated 28th August 2023. Note that this version does not track the changes to the provision numbering, including where cross-referenced within the chapters.