

Section 42A Hearing Report

Proposed Otago Regional Policy Statement 2021

Chapter 12:

HAZ – Hazards and risks

Andrew Maclellan



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12. HAZ – Hazards and Risks

12.1. Introduction

1. The management of significant risks from natural hazards is a matter of national importance under the RMA that councils must recognise and provide for in accordance with s6(h) of the RMA. The NZCPS requires councils to avoid increasing risk in coastal hazard areas and to encourage development that reduces the risk of effects from hazards, while also providing direction on managing hazards.
2. In addition to the requirement for councils to manage significant risks from natural hazards (as a matter of national importance in accordance with s6(h) of the RMA), s7(i) of the RMA requires that people exercising functions, including councils, must have particular regard to the effects of climate change.
3. The management of contaminated land and waste is largely managed through national guidance, being the NESCS and Waste Minimisation Act 2008. Therefore the management of contaminated land here focuses on managing adverse effects on other receptors not captured by the NESCS, and providing direction on the waste management hierarchy and management of waste materials in the context of the RMA.
4. This section of the pORPS has been developed in accordance with the National Planning Standards 2019. Hazards and Risks is provided as a topic chapter for a regional policy statement. While there is no specific guidance on the management of natural hazards and contaminated land specific to regional policy statements alone, for a regional policy statement and regional plan are combined, contaminated land and natural hazards are captured in the Hazards and Risks topic.
5. The chapter has two sections:
HAZ-NH-Natural hazards
HAZ-CL-Contaminated land

12.2. Author

6. My full name is Andrew Cameron MacLennan. I am an Associate at the firm Incite. I hold a Bachelor of Science in Land Planning and Development from Otago University and a Master of Resource Management from Massey University. I am an Associate Member of the New Zealand Planning Institute and a member of the Resource Management Law Association.
7. I have 9 years' planning experience working in both local government and the private sector. During this time, I have worked policy planning roles, consent processing roles, and consent applicant roles. My policy planning experience includes working for a range of Councils drafting provisions for regional policy statements, regional plans, coastal plans, and district plans. I have also assisted with the drafting of associated section 32 evaluation reports, section 42A reports and reporting officer roles. I have experience participating in Environment Court processes such as expert conferencing, mediation, and hearings on plans and plan changes. While I have a particular focus on coastal

environments and natural hazard management, I have a broad range of experience working on the development of indigenous biodiversity, coastal environment, natural hazards, landscapes, and urban planning provisions.

8. I have been involved in the review of the pORPS 2019 and the preparation of the pORPS since January 2020. I have assisted in the development of the CE - Coastal Environment Chapter, HAZ – Hazards and Risk Chapter, and the NFL – Natural Features and Landscapes Chapter, including assisting with provision drafting, the section 32 evaluation report, and this section 42A report.

12.3. Definitions

9. There are a range of submissions relating to defined terms used in this section, some of which are addressed in other parts of this report. In summary:

- Defined terms used throughout the pORPS, including in this section, are addressed in *Chapter 1: Introduction and general themes*.
- Defined terms, including requests for new definitions of terms, used only in the HAZ chapter are addressed in this section of this report.

10. In relation to the second point above, I have addressed the following terms in this section:

- Hard protection structure
- Major hazard facility
- Resilient or resilience
- Residual risk
- Vulnerability

12.3.1. Hard protection structure

11. The notified definition of ‘hard protection structure’ within the pORPS states:

Hard protection structure

within the coastal environment, has the same meaning as in the Glossary of the New Zealand Coastal Policy Statement 2010 (as set out in the box below)

includes a seawall, rock revetment, groyne, breakwater, stop bank, retaining wall or comparable structure or modification to the seabed, foreshore or coastal land that has the primary purpose or effect of protecting an activity from a coastal hazard, including erosion,

and

outside the coastal environment, means any dam, weir, stopbank, carriageway, groyne, or reservoir, and any structure or appliance of any kind which is specifically established for the purpose of natural hazard risk mitigation.

12.3.1.1. Submissions

12. There are three submissions on the definition of hard protection structure. Kāi Tahu ki Otago supports the definition and considers it to be appropriate and clear¹.
13. Te Ao Marama requests further clarification with regard to the management of dams and weirs within the definition of hard protection structure as the damming of waterbodies is considered a significant issue for Kāi Tahu². They note that there is a lack of clarity in relation the management expectations, including the relationship between dams and weirs and natural hazard management.
14. Forest and Bird considers that the definition is very broad in its purpose which may result in the unforeseen use of hard protection structures³. They note that the wording could make it difficult to distinguish between lawfully established hard protection structures and new hard protection structures. Forest and Bird requests that the definition is amended as follows:

...outside the coastal environment, means any dam, weir, stopbank, carriageway, groyne, or reservoir, and any structure ~~or appliance of any kind which is specifically established for~~ that has the primary purpose or effect of protecting an activity from or mitigating effects of natural hazard flooding risk mitigation.

15. Waka Kotahi NZ requests the following addition to the definition⁴:

...and,

Outside the coastal environment, means any dam, weir, stopbank, carriageway, groyne, or reservoir, rip rap, and any structure or appliance of any kind which is specifically established for the purpose of natural hazard mitigation

12.3.1.2. Analysis

16. In relation to the submission from Te Ao Marama, I understand the concern relates to whether dam and weirs unrelated to the management of natural hazards, are captured by the definition. I consider an amendment to the definition would help to clarify that it only applies to structures or appliances which have been specifically established for the purpose of natural hazard risk mitigation.
17. In response to the submission from Forest and Bird, I agree in part with the amendments sought. I agree with the removal of 'appliance'. I note that this is not a defined word with the pORPS or the RMA, and therefore I consider it is unclear what this includes. I disagree that the definition should be limited to the management of flood mitigation.
18. In relation to the submission from Waha Kotahi, I disagree this amendment is required. I note that the definition is not exclusive and therefore structures such as rip rap

¹ 00226.026 Kāi Tahu ki Otago

² 00223.117 Ngāi Tahu ki Murihiku

³ 00230.006 Forest and Bird

⁴ 00305.002 Waka Kotahi

specifically established for the purpose of natural hazard mitigation are already captured by the definition.

12.3.1.3. Recommendation

19. I recommend amending the definition of 'hard protection structure' as follows:

Hard protection structure

...outside the coastal environment, means any kind of structure which is specifically established for the purpose of natural hazard risk mitigation, including any dams, weirs, stopbanks, carriageways, groynes, or reservoirs ~~and any structure or appliance of any kind which is specifically established for the purpose of natural hazard risk mitigation.~~

12.3.2. Major hazard facility

12.3.2.1. Submissions

20. The Fuel Companies⁵ have sought the inclusion of a new definition of Major hazard facility as follows:

Major hazard facility means a facility that WorkSafe has designated as a lower tier major hazard facility or an upper tier major hazard facility under regulation 19 or 20 of the Health and Safety at Work (Major Hazard Facilities) Regulations 2016.

21. Related to this definition, The Fuel Companies have also sought amendments to the CE and UFD chapters to include reference to Major Hazard Facilities.

12.3.2.2. Analysis

22. I note that section 42a officers of the CE and UFD chapters have not recommended including Major Hazard Facilities within either the CE or UFD chapter. Given this I disagree with the addition of definition.

12.3.2.3. Recommendation

23. I do not recommend any amendments.

12.3.3. Risk

24. The notified definition of 'risk' within the pORPS states:

Risk

has the same meaning as in the Glossary in the New Zealand Coastal Policy Statement 2010 (as set out in the box below)

⁵ 00510.011 The Fuel Companies

Risk is often expressed in terms of a combination of the consequences of an event (including changes in circumstances) and the associated likelihood of occurrence (AS/NZS ISO 31000:2009 Risk management – Principles and guidelines, November 2009)

12.3.3.1. Submissions

25. Forest and Bird⁶ seeks clarification as to whether the definition is to be applied beyond the coastal environment.

12.3.3.2. Analysis

26. I note that the term ‘risk’ is used extensively throughout the pORPS in a range of contexts. It is largely referred to in the context of natural hazards. However, it is also used in the context of health risk, biodiversity risks, soil risk, etc. Given this, I consider it is appropriate that the definition is limited to use within the context of natural hazard management to avoid any unintended consequences.

12.3.3.3. Recommendation

27. I recommend amending the definition of ‘risk’ as follows:

Risk

within the context of natural hazard management,⁷ has the same meaning as in the Glossary in the New Zealand Coastal Policy Statement 2010 (as set out in the box below)

Risk is often expressed in terms of a combination of the consequences of an event (including changes in circumstances) and the associated likelihood of occurrence (AS/NZS ISO 31000:2009 Risk management – Principles and guidelines, November 2009)

12.3.4. Resilient or resilience

28. The notified definition of ‘Resilient or resilience’ within the pORPS states:

means the capacity and ability to withstand or recover quickly from adverse conditions.

12.3.4.1. Submissions

29. Three submissions were made in relation to the definition of resilient or resilience. They request that the definition is amended as follows⁸:

Resilient or resilience

⁶ 00230.013 Forest and Bird

⁷ 00230.013 Forest and Bird

⁸ 00119.034 Forest and Bird, 00206.011 Trojan, 0411.018 Wayfare

means the capacity and ability to withstand or recover quickly from adverse conditions.

30. Blackthorn Lodge Glenorchy comments that a community may not always need to recover quickly from an event, as the speed of recovery will be commensurate to the nature and scale of the event. Likewise, Trojan Holdings does not consider that recovery needs to be 'quick'.

12.3.4.2. Analysis

31. I agree in part with the submitter. I agree that recovery from adverse conditions depends on the scale and magnitude of event. However, I also consider the speed and efficiency of recovery relative to the magnitude of the event is an important aspect of resilience. I have considered whether 'quickly' is the correct language within this context or whether 'quickly' could be replaced with language such as 'in a timely and efficient manner'. I note that the dictionary definition of 'resilient' is: 'able to withstand or recover quickly from difficult conditions'. Given this I consider the use of the term 'quickly' it appropriate within this definition.

12.3.4.3. Recommendation

32. I recommend the definition of 'Resilient or resilience' is retained as notified.

12.3.5. Residual risk

33. The notified definition of 'residual risk' within the pORPS states:

Residual risk

means the risk remaining after the implementation or undertaking of all available and practicable risk management measures.

12.3.5.1. Submissions

34. Two submissions have been received in relation to the definition of residual risk. Forest and Bird⁹ seeks that the definition is amended to include 'in relation to natural hazard risk'

35. Meridian Energy¹⁰ seeks that the definition be deleted or amended as follows:

means the risk remaining after the implementation or undertaking of ~~all available~~ and practicable risk management measures.

12.3.5.2. Analysis

36. The term 'Residual risk' is only used in the pORPS in the context on natural hazards (Step 3 of APP6). Therefore, I disagree that the amendment is required.

⁹ 00230.012 Forest and Bird

¹⁰ 00306.008 Meridian Energy

12.3.5.3. Recommendation

37. I recommend the definition of 'residual risk' is retained as notified.

12.3.6. Vulnerability

38. The notified definition of 'Vulnerability' within the pORPS is:

Vulnerability

means the conditions determined by physical, social, economic and environmental factors or processes which increase the susceptibility of an individual, a community, assets or systems to the impacts of hazards.

12.3.6.1. Submissions

39. One submission in relation to the definition of vulnerability was made. Forest and Bird queries whether the definition is intended to apply beyond the impacts of natural hazards, and request the following amendment¹¹:

In relation to natural hazards, means the conditions determined by physical, social, economic and environmental factors or processes which increase the susceptibility of an individual, a community, assets or systems to the impacts of hazards.

12.3.6.2. Analysis

40. Vulnerability is referred through predominantly in relation to natural hazards. There is one reference within SRMR-I8 – Otago's coast is a rich natural, cultural and economic resource that is under threat from a range of terrestrial and marine activities, related to the vulnerability of natural features, landscapes, seascapes and surf breaks to the impacts of human activity, climate change and natural hazards. I disagree that the amendment is required, as the definition already includes reference to hazards. However, to avoid any potential confusion within the SRMR section, I consider that an amendment should be made to SRMR-I8 to replace 'vulnerability' with 'susceptibility'. This will ensure that 'vulnerability' is only used within the context of natural hazards.

12.3.6.3. Recommendation

41. I recommend the definition for 'vulnerability' is retained as notified.

42. I recommend that SRMR-I8 is amended by replacing 'vulnerability' with 'susceptibility'.

12.4. HAZ – NH – Natural hazards

12.4.1. Introduction

43. This section of the report assesses the provisions in the pORPS which establish the framework for natural hazards management within regional and district plans. Due to the

¹¹ 00230.020 Forest and Bird

variety of landscapes that make up the Otago region, the natural hazards threats range from coastal erosion and flooding in the lowland coastal areas of the region to alluvial fan deposition, fires, landslip, rock fall, and river breaches in the alpine areas of the region. The Otago region will also be subject to a changing environment through climate change. Likely outcomes may include rising sea levels (and groundwater), and an increased frequency of natural hazards, although there is significant uncertainty around the rate and scale of change.

44. There are overlapping responsibilities between regional and district councils for managing activities as they relate to hazards and risks under the RMA. In addition, there is a suite of regulations under several other statutes which interface with RMA functions; these include:
- Civil Defence Emergency Management Act 2002;
 - Building Act 2004; and
 - Climate Change Response (Zero Carbon) Amendment Act 2019.
45. Many of the hazard and risk matters also traverse the coastal environment, both within the coastal marine area and adjacent to it. This complexity means that it is important the region has a clearly articulated approach to managing these activities and their environmental effects.
46. In total more than 250 submission points have been received on this section of the pORPS. Key issues include:
- Clarifying of the meaning of ‘significant’, ‘tolerable’, and ‘acceptable’ risk.
 - Clarifying when risk assessments are required and who is required to undertake them.
 - Clarifying the methodology for natural hazard risk assessment within APP6.
 - Incorporating community consultation into risk assessment process
 - Providing for hard protection structures and natural or modified features and systems that can mitigate or manage natural hazard risks
 - Clarifying the how natural hazard risks within the coastal environment are to be managed
 - Whether there needs to be exclusions for some activities to locate in areas at significant risk from natural hazards.
47. The relevant provisions for this chapter are:
- HAZ-NH-P1 – Identifying areas subject to natural hazards
 - HAZ-NH-P2 – Risk assessments
 - HAZ-NH-P3 – New activities
 - HAZ-NH-P4 – Existing activities
 - HAZ-NH-P5 – Precautionary approach to natural hazard risk
 - HAZ-NH-P6 – Protecting features and systems that provide hazard mitigation
 - HAZ-NH-P7 – Mitigating natural hazards

HAZ-NH-P8 – Lifeline utilities and facilities for essential or emergency services
HAZ-NH-P9 – Protection of hazard mitigation measures
HAZ-NH-P10 – Coastal hazards
HAZ-NH-P11 – Kaitiaki decision making
HAZ-NH-M1 – Statement of responsibilities
HAZ-NH-M2 – Local authorities
HAZ-NH-M3 – Regional plans
HAZ-NH-M4 – District plans
HAZ-NH-M5 – Other incentives and mechanisms
APP6 – Methodology for natural hazard risk assessment

48. A number of the submission received on this topic are very technical in nature and relate to how natural hazard risk it to be assessed. GNS Science has provided a technical letter responding to the submissions of a more technical nature. This technical letter is attached as Appendix 1 of this section of the s42a report. Where relevant I have quoted the response provided by GNS Science in the analysis section.
49. This section begins with an assessment of two ‘General Themes’; the first relating to whether the HAZ-NH chapter includes the protection of the natural environment from natural hazards, and the second concerning the architecture of the chapter and how coastal hazards and the risk assessment methodology are used within the chapter. Following this, the report considers the submissions on a provision-by-provision basis.

12.4.2. General themes

12.4.2.1. Protection of the natural environment

Submissions

50. Forest and Bird and DOC note that a number of the objectives and polices in the HAZ-NH chapter including HAZ-NH-O1, HAZ-NH-O2, HAZ-NH-P1¹² do not include the protection of the natural environment from the effects of natural hazards. DOC identifies that hazard responses may affect the natural environment and requests that this be appropriately recognised. Forest and Bird requests amendment to include ‘ecosystem health and indigenous biodiversity’, into a number of provisions.

Analysis

51. In relation to the submission from Forest and Bird seeking amendments to the objectives based on the concern that ‘hazard responses’ may affect the natural environment, I consider that the protection of the ecosystem health and indigenous biodiversity from all activities, including hazard responses, is more appropriately considered in the ECO – Ecosystems and indigenous biodiversity. As such I disagree an amendment is required. I consider the intent of HAZ-NH-O1 relates to the management of people and property. I consider objectives related to ecosystem health and indigenous biodiversity’s ability to

¹² 00230.135, 00230.136, 00230.137 Forest and Bird, 00137.122, 00137.123 DOC

adapt to natural hazards is better placed within the ECO, CE, NFL, LF chapters of the pORPS which provide for the protection ecosystem health and indigenous biodiversity. I am unclear how provisions within the pORPS would assist ecosystem and indigenous biodiversity to be prepared and adaptable for the effects of natural hazards.

52. Additionally, in the context of HAZ-NH-O1 which is seeking to ensure that levels of risk do not exceed a tolerable level, I am unclear how natural hazard risk 'tolerance' would be assessed in the context of ecosystem health, indigenous biodiversity, or how management methods would be implemented to reduce the natural hazard risk to ecosystem health and indigenous biodiversity.

Recommendation

53. No change

12.4.2.2. Coastal hazards and use of APP6

Submissions

54. Port Otago has made submissions on HAZ-NH-P2, HAZ-NH-P10, and AP66. They seek clarification as to the application of HAZ-NH-P2, particularly in relation to infrastructure projects¹³. Port Otago notes that the provisions as drafted leave uncertainty as to the application of the risk assessment in APP6. They state that under HAZ-NH-M3 and HAZ-NH-M4, APP6 is only intended to be applied to land use change where the regional and district plan changes to identify hazard areas has not been completed. The provisions should clarify that the APP6 process should be applied to any proposal. To address this, Port Otago requests clarification as to the application triggers for the APP6 process and associated provisions, and whether these apply to infrastructure projects requiring resource consent from the regional council and/or apply to plan changes by a territorial authority.
55. Port Otago also states that HAZ-NH-P10 reflects Policy 25 of the NZCPS but considers it necessary to clarify the need for this policy given HAZ-NH-P1 to HAZ-NH-P9¹⁴. Port Otago considers this is duplication and that there are currently differing, and conflicting policy tests applied to the consideration of hazards in the coastal environment. Port Otago considers this unnecessary and likely to impact effective decision making. Moreover, they state it is not clear how this provision relates to the risk assessment process outlined in APP6. Port Otago seeks that the provision is deleted to avoid duplication of provisions relating to the coastal environment. In addition, they request clarification regarding the relationship between the provision and the risk assessment in APP6.

Analysis

56. I consider the Port Otago submission raises two important points on the architecture of the chapter which I consider will be helpful to address at the outset. The first point relates

¹³ 00301.047 Port Otago

¹⁴ 00301.051 Port Otago

to is how policies HAZ-HN-P2, HAZ-NH-P3, and APP6 apply to coastal hazards given HAZ-NH-P10 applies specifically to coastal hazards. The second point relates to clarifying when the risk assessment methodology within APP6 is triggered.

57. In relation to the first point, I agree that there is a potential internal conflict between the requirement to adopt a risk-based approach within HAZ-HN-P2, HAZ-NH-P3, and APP6, and the requirement within HAZ-NH-P10 to manage the risk of coastal hazards in a manner that gives effect to Policy 25 of the NZCPS. I note that policies HAZ-NH-P2 – to HAZ-NH-P4 set out a risk-based approach to the management of natural hazards that could result in a risk assessment determining that an activity is ‘acceptable’ or ‘tolerable’ and therefore policy HAZ-NH-P3 requires the management or maintenance of that risk. The requirement within policy HAZ-NH-P10, however, provides a more directive approach to areas potentially affected by coastal hazards over at least the next 100 years (as required by Policy 25 of the NZCPS). Given Section 61(1)(da) of the RMA requires that the pORPS must be prepared in accordance within the NZCPS, I recommend that HAZ-NH-P10 is amended to remove the conflicting policy tests by removing reference to policies HAZ-NH-P2 and HAZ-NH-P3. I also recommend an amendment to HAZ-NH-M3 and HAZ-NH-M4 to clarify that activities undertaken on land that is potentially affected by coastal hazards over at least the next 100 years are not managed by HAZ-NH-P2, HAZ-NH-P3, and APP6.

58. In relation to the second point, I note that the methods within the HAZ-NH section sets out the two potential situations when the methodology within APP6 will be engaged. In essence these are:

- During a district or regional plan review:

HAZ-NH-M2 – Local authorities

Local authorities must:

- (1) assess the level of natural hazard risk in their region or district in accordance with HAZ-NH-P2 and APP6, including by:
 - (a) consulting with communities, stakeholders and partners regarding *risk* levels thresholds, and
 - (b) developing a Risk Table in accordance with Step 3 of APP6 at a district or community scale,

HAZ-NH-M3 – Regional plans

Otago Regional Council must prepare or amend and maintain its regional plans to:

- (1) manage activities in the coastal marine area [notwithstanding the analysis above relates coastal hazards], beds of lakes and rivers, and wetlands to achieve policies HAZ-NH-P2 to HAZ-NH-P6 and APP6.

HAZ-NH-M4 – District plans

Territorial authorities must prepare or amend and maintain their *district plans* to:

- (1) achieve policies HAZ-NH-P2 to HAZ-NH-P6 and APP6 on *land* outside the *coastal marine area, beds of lakes and rivers, and wetlands* by managing the

location, scale and density of activities that may be subject to *natural hazard risk*

- Where an activity requires a plan change or resource consent to change the use of land which will increase the risk from natural hazards within areas subject to natural hazards, and where the application is lodged prior to the natural hazard risk assessment required by HAZ-NH-M2(1) being completed.

HAZ-NH-M3 – Regional plans

(7) require a *natural hazard risk* assessment be undertaken where an activity requires a *resource consent* to change the use of *land* which will increase the *risk* from *natural hazards* within areas subject to *natural hazards*, and where the *resource consent* is lodged prior to the *natural hazard risk* assessment required by HAZ-NH-M2(1) being completed, the *natural hazard risk* assessment must include:

- (a) an assessment of the level of natural hazard risk associated with the proposal in accordance with APP6, and
- (b) an assessment demonstrating how the proposal will achieve the outcomes set out in Policies HAZ-NH-P3 and HAZ-NH-P4.

HAZ-NH-M4 – District plans

(7) require a *natural hazard risk* assessment be undertaken where an activity requires a plan change or *resource consent* to change the use of *land* which will increase the *risk* from *natural hazards* within areas subject to *natural hazards*, and where the application is lodged prior to the *natural hazard risk* assessment required by HAZ-NH-M2(1) being completed, the *natural hazard risk* assessment must include:

- (a) an assessment of the level of natural hazard risk associated with the proposal in accordance with APP6, and
- (b) an assessment demonstrating how the proposal will achieve the outcomes set out in Policies HAZ-NH-P3 and HAZ-NH-P4.

59. The first methods essentially require a collaborative approach to determining risk thresholds and the creation risk table. These methods do not require a replication of APP6 into district or regional plans, nor do they necessarily require a risk table be incorporated into a district or regional plan. They simply require that policies HAZ-NH-P2 to HAZ-NH-P6 are achieved.

60. The latter methods essentially act as a holding pattern until a district or regional plan has been reviewed and has given effect to the HAZ- NH section of the pORPS. Prior to the risk assessment and community consultation process being undertaken in accordance with HAZ-NH-M2(1) any activity that requires a resource consent to change the use of land which will increase the risk from natural hazards within areas subject to natural hazards will need to undertake a natural hazard assessment in accordance with APP6. I agree that these methods could be amended to provide greater certainty that once the natural

hazard risk assessment required by HAZ-NH-M2(1) has been incorporated into the relevant regional or district plan, a natural hazard risk assessment in accordance with APP6 will not be required for resource consent applications.

Recommendation

61. I recommend the chapeau of HAZ-NH-P10 is amended as follows:

HAZ-NH-P10 – Coastal hazards

In addition to HAZ-NH-P1 and HAZ-NH-P5¹⁵ to HAZ-NH-P9 above, on any *land* that is potentially affected by coastal hazards over at least the next 100 years:

62. I recommended HAZ-M3 is amended as follows:

HAZ-NH-M3 – Regional plans

Otago Regional Council must prepare or amend and maintain its *regional plans* to:

[...]

(7) require a *natural hazard risk* assessment commensurate with the level of risk from the proposed activity¹⁶ be undertaken where an activity requires a *resource consent* to change the use of *land* ~~which will increase the risk from natural hazards with~~¹⁷ in areas subject to *natural hazards*, and where the *resource consent* is lodged prior to the *natural hazard risk* assessment required by HAZ-NH-M2(1) being completed, included in the regional plan and made operative,¹⁸ the *natural hazard risk* assessment must include:

(a) an assessment of the level of *natural hazard risk* associated with the proposal in accordance with APP6, and

(b) an assessment demonstrating how the proposal will achieve the outcomes set out in Policies HAZ-NH-P3 and HAZ-NH-P4, ~~and~~

(8) not require a *natural hazard risk* assessment in accordance with APP6 for resource consent applications, once the *natural hazard risk* assessment required by HAZ-NH-M2(1) has been completed, included in the relevant district plan and made operative, unless otherwise expressly required by the relevant district plan.¹⁹

63. I recommended HAZ-NH-M4(7) is amended as follows:

HAZ-NH-M4 – District plans

require a *natural hazard risk* assessment commensurate with the level of risk from the proposed activity²⁰ be undertaken where an activity requires a plan change or

¹⁵ 00301.051 Port Otago

¹⁶ 00236.089 Horticulture NZ

¹⁷ 00138.158 QLDC

¹⁸ 00301.052 Port Otago

¹⁹ 00301.047 Port Otago

²⁰ 00236.090 Horticulture NZ

~~resource consent to change the use of land which will increase the risk from natural hazards with~~²¹in areas subject to *natural hazards*, and where the application is lodged prior to the *natural hazard risk* assessment required by HAZ-NH-M2(1) being completed, included in the district plan and made operative²², the *natural hazard risk* assessment must include:

- (a) an assessment of the level of *natural hazard risk* associated with the proposal in accordance with APP6, and
- (b) an assessment demonstrating how the proposal will achieve the outcomes set out in Policies HAZ-NH-P3 and HAZ-NH-P4.

(8) not require a *natural hazard risk* assessment in accordance with APP6 for resource consent applications, once the *natural hazard risk* assessment required by HAZ-NH-M2(1) has been completed, included in the relevant district plan and made operative, unless otherwise expressly required by the relevant district plan.²³

12.4.3. HAZ-NH-O1 – Natural hazards

12.4.3.1. Introduction

64. As notified, HAZ-NH-O1 reads:

HAZ-NH-O1 – *Natural hazards*

Levels of risk to people, communities and property from natural hazards within Otago do not exceed a tolerable level.

12.4.3.2. Submissions

65. There are 12 submissions on HAZ-NH-O1. Seven submissions support of the objective²⁴.

66. Ravensdown comments that the level of acceptability of the natural hazard risks should be quantified and identified, in order to determine the risk management measures²⁵. They note that the level of tolerable risk will vary, but the objective is generally appropriate.

67. Oceana Gold supports the objective and agrees that it is appropriate to manage natural hazard risk in the region to ensure it does not exceed a tolerable or acceptable level, but requests confirmation that ‘tolerable’ is consistent with the acceptable hazard risk which appears to be more commonly used in practice²⁶.

68. QLDC observes that the objective ‘provides strong and specific guidance for regional and district plans’ and asks that the intent to set a maximum level of risk as tolerable is

²¹ 00138.158 QLDC

²² 00301.047 Port Otago

²³ 00301.047 Port Otago

²⁴ 00139.192 DCC, 00122.029 Sanford, 00226.246 Kāi Tahu ki Otago, 00121.078 Ravensdown, 00321.072 Te Waihangā, 00115.026 Oceana Gold, 00510.048 The Fuel Companies

²⁵ 00121.078 Ravensdown

²⁶ 00115.026 Oceana Gold

retained²⁷. However, they highlight that HAZ-NH-P3 goes beyond the intent of the objective, as it seeks to maintain the level of risk at an acceptable level. QLDC seeks an amendment to the objective to clarify that acceptable levels of risk should be maintained, to provide greater support to HAZ-NH-P3.

69. Several submissions seek clarification on what ‘tolerable’ means in the context of hazards and question how this will be measured, and what criteria will be used to determine what tolerable risk means for the region²⁸.
70. Federated Farmers consider that this concept requires clarification in the context of pORPS and outlines the categories of risk defined by Standards New Zealand, as follows²⁹:
1. *‘Acceptable risks, where positive or negative risks are negligible, or so minimal that no mitigation measures are required;*
 2. *Tolerable risks, where opportunities (benefits) are balanced against potential adverse consequences (costs). Tolerable risk is a willingness by society (although perhaps not by specific individuals) to live with risk in order to gain certain benefits, and requires the risk to be managed in some way (Health & Safety Executive, 2001); and*
 3. *Intolerable risks, where the risks are intolerable regardless of the benefits the activity may bring, and risk reduction measures are essential no matter the cost.’*

12.4.3.3. Analysis

71. In relation to the submitters that have sought clarity on how the tolerance of risk is quantified, I noted that APP6 is included within the pORPS to provide a methodology for quantifying risk across a range of thresholds. I consider APP6 provides the quantification sought by these submitters.
72. In relation to the observations made by QLDC between HAZ-NH-01 and HAZ-NH-P3, I agree that HAZ-NH-P3 provides additional direction which is not picked up explicitly within HAZ-NH-01. I agree that it would provide greater clarity if additions were made to HAZ-NH-01 that broadens the objective statement to clarify that activities with an acceptable risk are to maintain at that level of risk.
73. In relation to the Federated Farmers submission point that seeks clarification on how the proposed risk scales included within the pORPS align with the categories of risk defined by Standards New Zealand, I consider the risks within APP6 are aligned with the descriptions set out above. I consider the ‘Acceptable’ and ‘Tolerable’ risks definition from Standards New Zealand accurately captures the intent of the ‘Acceptable’ and ‘Tolerable’ risk thresholds in APP6 of the pORPS. Similarly, the definition of ‘intolerable risk’ from Standards New Zealand is reasonably consistent with the significant risk threshold within APP6. However, in the context of the Standards New Zealand definition,

²⁷ 00138.142 QLDC

²⁸ 00201.037 CODC, 00239.135 Federated Farmers, 00115.026 Oceana Gold

²⁹ 00239.135 Federated Farmers

which states that *'risk reduction measures are essential no matter the cost'*, the pORPS policy direction is to avoid significant risk. The term 'significant risk' has been adopted within the pORPS as this is the term used in Section 6(h) of the RMA.

12.4.3.4. Recommendation

74. I recommend HAZ-NH-O1 is amended as follows:

HAZ-NH-O1 – Natural hazards

~~Levels of *Risks*~~³⁰ to people, communities and property from *natural hazards* within Otago are maintained where they are acceptable, and managed to ensure they³¹ do not exceed a tolerable level.

12.4.4. HAZ-NH-O2 – Adaption

12.4.4.1. Introduction

75. As notified, HAZ-NH-O2 reads:

HAZ-NH-O2 – Adaption

Otago's people, property and communities are prepared for and able to adapt to the *effects of natural hazards, including climate change.*

12.4.4.2. Submissions

76. Nine submissions were made regarding HAZ-NH-O2, five of which are in support of the provision³².

77. NZ Infrastructure broadly supports the objective, but comments that it is odd to describe climate change itself as a natural hazard³³. Instead, it is more appropriate to refer to the types of hazard events that will be exacerbated by climate change which the objective is aimed at. New Zealand Infrastructure Commission requests that the objective is reworded to refer to adaptation to the effects of climate change and its associated risks such as flooding, storm surge and sea level rise, in addition to natural hazards.

78. QLDC requests an amendment in relation to terminology. QLDC highlights that 'adaptation' is the more generally accepted term than 'adaption' and ask that it is replaced³⁴.

12.4.4.3. Analysis

79. In relation to the amendment requested by NZ Infrastructure, I agree that it is not clear as to what is indented by the reference to climate change within the objective. I consider

³⁰ 00138.145 QLDC

³¹ 00138.142 QLDC

³² 00307.031 CIAL, 00139.193 DCC, 00226.247 Kāi Tahu ki Otago, 00121.079 Ravensdown, 00510.049 The Fuel Companies

³³ 00321.073 Te Waihangā

³⁴ 00138.143 QLDC

the objective would benefit from an addition which clarifies that the reference to climate change is related to ‘natural hazard risks that are exacerbated by climate change’.

80. In relation to QLDC requested amendment, I consider both adaption and adaptation are correct terms, however adaptation is the more generally accepted term in relation to climate change. Furthermore, ‘adaptation’ is used elsewhere within the pORPS, therefore I support this amendment.
81. As set out in the analysis of HAZ-NH-P1, I also recommend a minor consequential amendment to HAZ-NH-O2 moving the location of the word ‘property’ to ensure consistent language between HAZ-NH-O2 and HAZ-NH-P1

12.4.4.4. Recommendation

82. I recommend HAZ-NH-O2 is amended as follows:

HAZ-NH-O2 – Adaptation³⁵

Otago’s people, ~~property and communities, and property~~³⁶ are prepared for and able to adapt to the *effects of natural hazards*, including *natural hazard risks that are exacerbated by*³⁷ *climate change*.

12.4.5. HAZ-NH-P1 – Identifying areas subject to natural hazards

12.4.5.1. Introduction

83. As notified, HAZ-NH-P1 reads:

HAZ-NH-P1 – Identifying areas subject to *natural hazards*

Identify areas where *natural hazards* may adversely affect Otago’s people, communities and property by assessing:

- (1) the hazard type and characteristics,
- (2) multiple and cascading hazards, where present,
- (3) any cumulative *effects*,
- (4) any effects of climate change,
- (5) likelihood, using the best available information, and
- (6) any other exacerbating factors.

12.4.5.2. Submissions

84. Nine submissions in relation to HAZ-NH-P1 were received, with five in support of the provision³⁸.

³⁵ 00138.143 QLDC

³⁶ 00139.194 DCC

³⁷ 00321.073 New Zealand Infrastructure Commission

³⁸ 00137.124 DOC, 00226.248 Kāi Tahu ki Otago, 00121.080 Ravensdown, 00321.074 Te Waihanga, 00510.050 The Fuel Companies

85. QLDC supports the approach of HAZ-NH-P1 in the identification of natural hazards, but considers that identifying the natural hazards in the region is a missing fundamental step³⁹. They state that the identification of matters for assessment of natural hazards is not considered helpful in a policy, which should instead focus on a description of what is needed. QLDC highlights that these matters are considered in later policies that address natural hazard risk assessments. Furthermore, information on matters for consideration may not be available, but this should not prevent identification of those hazards. QLDC suggests that the policy direction should be to identify the natural hazards of interest in the region and to require information on their characteristics to be collected, including locations where they affect people, communities and property, which is subsequently described in a schedule to the PORPS. QLDC notes that this would simplify the policy and enable the detail to be included as an appendix, with references to relevant evidence. QLDC requests that HAZ-NH-P1 be amended as follows:

Identify areas where natural hazards, including those in the following list, may adversely affect Otago's people, communities and property, and describe the characteristics of those hazards in Appendix X:

- Flooding and erosion
- Land instability, including subsidence, landslip and rockfall
- Faultlines and liquefaction
- Avalanche
- Tsunami/seiche
- Fire

~~by — assessing:~~

- ~~(1) the hazard type and characteristics,~~
- ~~(2) multiple and cascading hazards, where present,~~
- ~~(3) any cumulative effects,~~
- ~~(4) any effects of climate change,~~
- ~~(5) likelihood, using the best available information, and~~
- ~~(6) any other exacerbating factors.~~

86. CODC supports the provision in principle, but requests clarification regarding who is responsible for identifying natural hazards⁴⁰. CODC notes that hazard identification at a regional level seems appropriate and that it should be recorded at a land use activity level, reflecting the actual risk to communities.

87. DCC notes that use of the 'best available information' currently only applies to the evaluation of likelihood but should be expanded to take into account the other matters for assessment, such as effects and the identification of hazards⁴¹. DCC also identifies that the order in which 'people, property and communities' appear should be amended for consistency with HAZ-NH-O2.

³⁹ 00138.144 QLDC

⁴⁰ 00201.038 CODC

⁴¹ 00139.194 DCC

12.4.5.3. Analysis

88. In relation to the amendment requested by QLDC, I note that the definition of ‘natural hazard’ referred to in the policy includes:

means any atmospheric or earth or water related occurrence (including earthquake, tsunami, erosion, volcanic and geothermal activity, landslip, subsidence, sedimentation, wind, drought, fire, or flooding) the action of which adversely affects or may adversely affect human life, property, or other aspects of the environment.

89. This is supported by a technical letter from GNS Science as set out in Appendix 1, GNS has advised:

“The definitions section of the pRPS defines natural hazard as per the RMA. The inclusion of the list proposed by the submitter would result in unnecessary duplication of this definition and the RMA. As proposed, HAZ-NH-P1 guides the assessment of natural hazards to provide the information required for a risk assessment to be undertaken as per APP6.

It is advised that HAZ-NH-P1 is retained as per it’s pRPS drafting.

An appendix containing a description of each natural hazard’s characteristics and potential consequences would be useful to assist the policy framework and risk assessment consultation process sought by APP6. Cross reference to this could be included within the Natural hazards chapter.”

90. I agree with the advice from GNS. Therefore, I disagree with the removal of clauses (1) to (6) because these items add value to the policy.

91. In relation to the question raised in the submission from CDOC regarding who is responsible for identifying natural hazards, I note that Method HAZ-NH-M1(2)(b) states that the regional council is responsible for identifying areas in the region subject to natural hazards and describing their characteristics as required by Policy HAZ-NH-P1, mapping the extent of those areas in the relevant regional plan(s) and including those maps on a natural hazard register or database.

92. I agree within the submission from DCC seeking that ‘the best available information’ should apply to all six clauses rather than just clause (5). I consider minor amendments are also required to clause (5) to ensure the language within the clause works with the chapeau. I also agree that HAZ-NH-01, HAZ-NH-O2 and HAZ-NH-P1 should all consistently refer to ‘people, communities and property’ . I note HAZ-NH-01 and HAZ-NH-P1 are consistent and therefore a change is required to HAZ-NH-02.

12.4.5.4. Recommendation

93. I recommend HAZ-NH-P1 is amended as follows:

HAZ-NH-P1 – Identifying areas subject to *natural hazards*

Using the best available information,⁴² identify areas where *natural hazards* may adversely affect Otago’s people, communities and property, by assessing:

- (1) the hazard type and characteristics,
- (2) *multiple and cascading hazards*, where present,
- (3) any *cumulative effects*,
- (4) any *effects of climate change*,
- (5) the likelihood of an event occurring using the best available information⁴³, and
- (6) any other exacerbating factors.

12.4.6. HAZ-NH-P2 – Risk assessments

12.4.6.1. Introduction

94. As notified, HAZ-NH-P2 reads:

HAZ-NH-P2 – Risk assessments

Assess the level of *natural hazard risk* by determining a range of *natural hazard* event scenarios and their potential consequences in accordance with the criteria set out within APP6.

12.4.6.2. Submissions

95. There are 14 submissions on HAZ-NH-P2. Three submissions support the policy⁴⁴. DOC notes that the policies appropriately achieve the natural hazard objectives, while also recognising the need to manage the environmental effects of hazard responses and the need to minimise the use of hard structures and similar engineering responses⁴⁵.

96. QLDC comments that referencing the ‘level of risk’ is incorrect as it implies that there is only one level of risk for each hazard, rather than recognising that a range of risks are associated with each hazard⁴⁶. QLDC requests that the requirement should instead be to ‘assess the risk’:

~~Assess the level of~~ natural hazard risk by determining a range of natural hazard event scenarios and their potential consequences in accordance with the criteria set out within APP6.

97. Horticulture NZ requests clarification that local authorities will assess the level of natural hazard risk using the criteria set out in Appendix 6 to develop a risk table for their communities⁴⁷. Horticulture NZ also notes that not all land uses should be required to

⁴² 00139.194 DCC

⁴³ 00139.194 DCC

⁴⁴ 00137.125 DOC, 00226.249 Kāi Tahu ki Otago, 00121.081 Ravensdown, 00510.051 The Fuel Companies

⁴⁵ 00137.125 DOC

⁴⁶ 00138.145 QLDC

⁴⁷ 00236.085 Horticulture NZ

undertake a risk assessment and it should only be required where there is a risk from an identified natural hazard.

98. CODC requests clarification as to who undertakes the risk assessment, and comments that this is most appropriately undertaken at a regional level⁴⁸.
99. The New Zealand Infrastructure Commission requests clarification regarding the circumstances in which risk assessments are required to be undertaken⁴⁹.
100. Trojan requests that the provision is amended so that risk assessments are carried out in accordance with a risk table in the first instance, and if this has not been undertaken, in accordance with the criteria set out in APP6⁵⁰. They state that the risk table should be at a district or community scale and undertaken in consultation with communities, stakeholders and partners regarding risk level thresholds.
101. Several submissions are made in relation to APP6, to which HAZ-NH-P2 refers⁵¹. Wayfare requests the following amendment⁵²:

Assess the level of *natural hazard risk* by determining a range of *natural hazard* event scenarios and their potential consequences in accordance with:

- (1) A risk table or matrix at a district or community scale undertaken in a consultation process with communities, stakeholders and partners regarding risk levels thresholds; or if this process has not been undertaken
- (2) the criteria set out within APP6.

102. Blackthorn Lodge requests that the policy is amended as follows⁵³:

Assess the level of natural hazard risk by determining a range of natural hazard event scenarios and their potential consequences in accordance with ~~the criteria set out within APP6.~~

- (a) the table of risk level thresholds (risk table) at a district or community scale prepared in meaningful consultation with affected communities and stakeholders; or
- (b) if the process in (1) has not been undertaken the criteria set out within APP6.

In assessing the level of natural hazard risk acknowledge that community tolerance is likely to be higher in relation to existing

⁴⁸ 00201.039 CODC

⁴⁹ 00321.075 Te Waihanga

⁵⁰ 00206.054 Trojan

⁵¹ 00139.197 DCC, 00236.085 Horticulture NZ, 00301.047 Port Otago, 00121.081 Ravensdown, 411.068 Wayfare, 206.054 Trojan

⁵² 00411.068 Wayfare

⁵³ 00119.015 Blackthorn Lodge

communities with lawfully established land uses and existing enabling zoning compared to new areas of development.

103. Wise Response comments that the tone of the climate and related provisions lacks the urgency and firmness necessary⁵⁴. Wise Response notes that in applying the risk assessment process set out in APP6 to climate change and its consequences for health and safety, the risk level is considered to be catastrophic. However, this is not reflected in the provisions. Amendments to the policy are requested to address this, as follows:

Assess and compare the level of natural hazard risk by determining the probability of a range of natural hazard event scenarios and their potential consequences in accordance with the criteria set out within APP6. so that rational priorities can be set.

12.4.6.3. Analysis

104. In relation to the submission from QLDC, I agree that the policy should recognise that a range of risks are associated with natural hazards. I agree that the amendment requested better aligns with the requirement of APP6, which requires that a range of natural hazard risks are assessed.

105. This amendment is supported by the technical letter from GNS Science included within Appendix 1, GNS has advised:

“The submitter’s rationale sets out that “the level” implies only one level of natural hazard risk exists for each natural hazard, reasoning which is supported. The amendment would also simplify and clarify the policy.

It is advised that the submitter’s amendment to HAZ-NH-P2 is adopted.

The following consequential change to HAZ-NH-O1 is advised:

~~Levels of~~ Risk to people, communities and property from natural hazards within Otago does not exceed a tolerable level,..”

106. I agree with the advice on GNS Science for the reason set out above. As such, I recommend that the amendment and consequential amendment are adopted.

107. In relation to the submission from Horticulture NZ I note that HAZ-NH-M2(1) clarifies that local authorities must assess the level of natural hazard risk in their region or district in accordance with HAZ-NH-P2 and APP6, including by:

- consulting with communities, stakeholders and partners regarding risk levels thresholds, and
- developing a Risk Table in accordance with Step 3 of APP6 at a district or community scale.

⁵⁴ 00509.104 Wise Response

108. I agree with Horticulture NZ that not all land uses should be required to undertake a risk assessment. I note that HAZ-M4(1) states that territorial authorities must prepare or amend and maintain their regional and district plans to:

achieve HAZ-NH-P2 to HAZ-NH-P6 and APP6 on land outside the coastal marine area, beds of lakes and rivers, and wetlands by managing the location, scale and density of activities that may be subject to natural hazard risk, (emphasis added)

109. However, I acknowledge that this is not reflected in HAZ-NH-P2. Therefore, I recommend an amendment to HAZ-NH-P2, to clarify that the natural hazard risk assessment is only required where an activity is subject to a natural hazard risk.

110. In relation to the New Zealand Infrastructure Commission submission seeking clarification as to the circumstances in which risk assessments will be required, I note that these matters have been considered within the general theme set out above, and include:

- During a district or regional plan review; and
- Where an activity requires a plan change or resource consent to change the use of land which will increase the risk from natural hazards within areas subject to natural hazards, and where the application is lodged prior to the natural hazard risk assessment required by HAZ-NH-M2(1) being completed.

111. In relation to the submissions from Blackthorn Lodge, Trojan and Wayfare seeking amendments to HAZ-NH-P2, I agree in part with the requested amendments. I consider the amendments will clarify that once the risk assessment has been undertaken in accordance with APP6, and provisions are incorporated into a district or regional plan, an applicant is not required to undertake a full natural hazard risk assessment in accordance with APP6. However, if a resource consent or plan change is lodged prior to these provisions being incorporated into the relevant plan, a risk assessment must be undertaken in accordance with the methodology in APP6. In either case, I consider the action required by the policy (the assessment of natural hazard risk in accordance with APP6) is appropriate, and it is my view that the methods within the HAZ- NH section are the best place to articulate the two pathways for determining the natural hazard risk of a particular proposal. As such, I disagree an amendment to HAZ-NH-P2 is required. However, as noted in the General Themes section above, I consider an amendment is required to HAZ-NH-M3(7) and HAZ-NH-M4(7) to clarify this.

112. Finally, when considering the submissions from Blackthorn Lodge, Trojan, and Wayfare seeking to include the requirement to undertake consultation with affected communities and stakeholders within the policy, I agree that this is an important step in developing a risk-based planning framework. However, I disagree that it needs to be incorporated into the policy, as this requirement is already captured with HAZ-NH-M2. I also note that this is incorporated into Step 3 of APP6 which states:

Table 8 above has been included as a region-wide baseline. As set out in HAZ-NH-M2(1) local authorities are required to undertake a consultation process with communities, stakeholders and partners regarding risk levels thresholds and develop a risk table at a district or community scale. This region-wide baseline is

to be used in the absence of a district or community scale risk table being developed.

113. I therefore disagree an amendment is required.

114. In relation to the Wise Response submission, I note that HAZ-NH-P2 sets out the requirement to assess the level of natural hazard risk in accordance with APP6 and HAZ-NH-P3 then directs how activities within each of these risk thresholds are to be managed. I do not consider the requested amendments are required as the probability of an event occurring is captured by HAZ-NH-P2 and priorities for managing these risks are considered within HAZ-NH-P3.

12.4.6.4. Recommendation

115. I recommend HAZ-NH-P2 is amended as follows:

HAZ-NH-P2 – Risk assessments

Within areas identified under HAZ-NH-P1 as being subject to natural hazards, Assess⁵⁵ the level of⁵⁶ natural hazard risk by determining a range of *natural hazard* event scenarios and their potential consequences in accordance with the criteria set out within APP6.

12.4.7. HAZ-NH-P3 – New activities

12.4.7.1. Introduction

116. As notified, HAZ-NH-P3 reads:

HAZ-NH-P3 – New activities

Once the level of *natural hazard risk* associated with an activity has been determined in accordance with HAZ–NH–P2, manage new activities to achieve the following outcomes:

- (1) when the *natural hazard risk* is significant, the activity is avoided,
- (2) when the *natural hazard risk* is tolerable, manage the level of *risk* so that it does not become significant, and
- (3) when the *natural hazard risk* is acceptable, maintain the level of *risk*.

12.4.7.2. Submissions

117. Several submissions in relation to HAZ-NH-P3 were made. There are two submissions in support of the provision.

118. QLDC⁵⁷ supports the policy approach which uses three levels of direction depending on the level of risk. QLDC considers this a targeted and fair approach to risk management that is commensurate to the level of risk. In particular, avoidance of significant risk and a

⁵⁵ 00236.085 Horticulture NZ

⁵⁶ 00138.145 QLDC

⁵⁷ 00138.148 QLDC

requirement to maintain acceptable levels of risk are supported. The submitter considers the requirement to manage tolerable risk so that it does not become significant conflicts with HAZ-NH-O1, which suggests that levels of risk for new activities could be between tolerable and significant. QLDC requests that clause (2) is amended to ensure the level of risk to new activities does not exceed tolerable, as follows:

(2) when the natural hazard risk is tolerable, manage the level of risk so that it does not ~~become significant~~ exceed tolerable, and ...

119. DCC⁵⁸ requests clarification as to the establishment of new activities, such as a road, in areas subject to significant natural hazard risk.
120. The New Zealand Infrastructure Commission⁵⁹ broadly supports the provision, but notes that it is unclear how hazard risks, in particular coastal, would be maintained over time given the expected effects of climate change. The New Zealand Infrastructure Commission requests that clause (3) is revised or expanded upon to address this.
121. Port Otago⁶⁰ expresses concern that a distinction is made between new and existing activities as they are not always clearly defined, in particular, infrastructure related activities that are in the middle. For example, a modification, such as the construction of a new structure to protect an existing asset, or the re-siting of an existing facility to a new, safer site. In addition, Port of Otago considers that 'avoid' should be removed or refined so that activities that do not increase natural hazard risk and those that provide an overall improvement are not prevented. Port of Otago considers this approach would be more consistent with for example, Policy 25 of the NZCPS. As an example, an activity may improve resilience to a natural hazard risk, but not decrease the risk level from significant. In this instance and under the current drafting of the policy, the activity would need to be avoided. Furthermore, Port of Otago considers that reducing risk to tolerable or acceptable can be difficult to achieve and may inevitably lead to a deterioration elsewhere. Port of Otago requests that HAZ-NH-P3 is deleted, and that the title of HAZ-NH-P4 is amended to apply to both new and existing activities.
122. Port Otago⁶¹ also state that there is a lack of clarity as to whether the natural hazard provisions and APP6 apply to infrastructure projects or activities within the coastal marine area.
123. Transpower⁶² and Aurora Energy⁶³ oppose the policy as it does not recognise situations where there is a functional or operational need to locate in areas at significant risk from natural hazards, such as the National Grid. The submitters note that clause (1) manages the activity by 'avoiding' but should instead provide a path for managing the risk in certain situations. The submitters request that the policy is amended as follows:

⁵⁸ 00139.196 DCC

⁵⁹ 00321.076 Te Waihangā

⁶⁰ 00301.047 Port Otago

⁶¹ 00301.048 Port Otago

⁶² 00314.044 Transpower

⁶³ 00315.061 Aurora Energy

Once the level of natural hazard risk associated with an activity has been determined in accordance with HAZ-NH-P2, manage new activities to achieve the following outcomes:

1. when the natural hazard risk is significant, the activity is avoided unless the activity is nationally significant infrastructure that has a functional need or operational need for its location and the risk is appropriately managed, ...

124. Aurora Energy⁶⁴ requests that the policy also applies to regionally significant infrastructure.
125. Chris Thomson considers that management of the natural hazard risk to Glenorchy from the Rees River is very achievable and practical and furthermore that there is sufficient natural riverbed to accommodate flooding without modifying the natural parameters of the river⁶⁵. The submitter requests the deletion of HAZ-NH-P3, or amendment to allow modification of braided river character if it is required to protect existing communities from natural hazard risk. Any alternative or consequential relief to address this is also requested.
126. Wayfare and Trojan state that the whole Otago region is subject to some type of natural hazard risk, including risks associated with a major earthquake. They note that this risk cannot be avoided. Amendments are requested as follows:⁶⁶
- ‘Once the level of natural hazard risk associated with an activity has been determined in accordance with HAZ-NH-P2(1), manage new activities to achieve the following outcomes:
- (1) when the natural hazard risk of new activities is significant, the activity is avoided, ...
127. Five submitters request that risk assessments consider the risk to development over its lifetime and take into account all mitigation measures⁶⁷.
128. Graymont observes that mineral extraction often occurs in areas subject to significant natural hazard risk. Graymont notes that it is not possible for mineral extraction activities to avoid these areas without impacting the social, cultural and economic wellbeing of people and communities. Furthermore, it is highlighted that gravel extraction from floodplains is a form of flood management undertaken in accordance with regional resource consents, that also provides a valuable resource. Graymont NZ considers that it would be more appropriate to manage mineral extraction activities in areas subject to significant natural hazard risk through minimisation and robust management⁶⁸. An amendment to the provision is requested as follows:

⁶⁴ 00315.061 Aurora Energy

⁶⁵ 00215.001 Chris Thomson

⁶⁶ 00411.069 Wayfare, 00206.055 Trojan

⁶⁷ 00211.030 LAC, 00118.056 Maryhill Limited, 00114.056 Mt Cardrona Station, 00209.030 Universal Developments, 00210.030 Lane Hocking

⁶⁸ 00022.021 Graymont

Once the level of natural hazard risk associated with an activity has been determined in accordance with HAZ-NH-P2, manage new activities to achieve the following outcomes:

- (1) when the natural hazard risk is significant, the activity is avoided except where the activity may be functionally required to be undertaken in an area where the natural hazard risk is significant, then the activity must be managed so that it does not further increase the natural hazard risk, ...

129. Oceana Gold⁶⁹ also considers that natural hazard risk can be appropriately managed by adopting conservative hazard risk assumptions in the design of structures and activities. Oceana Gold request that the policy is amended to acknowledge that natural hazard risk, even significant risk, may exist but activities can be managed to reduce natural hazard effects. Amendments to the policy wording is suggested as follows:

Once the level of natural hazard risk associated with an activity has been determined in accordance with HAZ-NHP2, manage new activities to achieve the following outcomes:

- (1) When the natural hazard risk remains is-significant (despite mitigation or management of that risk), the activity is avoided,
- (2) When the natural hazard risk is tolerable (either with or without mitigation), manage the level of risk so that it does not become significant, and
- (3) When the natural hazard risk is acceptable (either with or without mitigation), maintain the level of risk.

12.4.7.3. Analysis

130. In relation to the amendment suggested by QLDC, the technical letter from GNS Science states:

“The submitter’s rationale for the amendment sought is that “...it suggests that levels of risk for new activities could lie between tolerable and significant.”. The risk table in APP6 and the other limbs of HAZ-NH-P3 make it clear that the RPS contemplates risk at three levels: acceptable, tolerable and significant. Therefore, not becoming significant and not exceeding tolerable have the same meaning. Objective 1 seeks that risk does not exceed a tolerable level, therefore for consistency it may be more appropriate to adopt the submitters drafting.”

131. I support the amendment, as it provided consistency with HAZ-NH-O1. However, I agree with the GNS Science analysis that the amendment does not change the intent of the policy.

132. In relation to the submitters that seek an exemption for functional or operational needs of nationally or regionally significant infrastructure or new roads, I am unconvinced an exemption is required. I note that APP6 requires an assessment of the likelihood and consequence of an event occurring. This assessment takes place through plan reviews,

⁶⁹ 00115.027 Oceana Gold

plan changes, or resource consents. If an infrastructure project was considered a 'significant' risk, it would mean that the consequences of undertaking that project would be considerable. In this instance I consider it is appropriate that the significant risk is avoided. Given the nature of nationally or regionally significant infrastructure, I consider most if not all new infrastructure projects would likely have an 'Insignificant' or 'Minor' consequence when assessed in accordance with APP9 (or even reduce the risk of natural hazards) and therefore would not trigger the 'significant' risk threshold.

133. Port Otago seeks clarification as to the distinction between new and existing activities. I consider that it is difficult to provide this distinction within a regional policy statement as there are a range of nuances that need to be considered at a district plan level to give effect to policy HAZ-NH-P2 and HAZ-NH-P3. Therefore, I am hesitant to suggest a definition be added to the pORPS that would provide a blanket definition of an 'existing activity'.
134. In response to the submitters seeking the removal HAZ-NH-P2 and expansion HAZ-NH-P3 to manage both existing and new activities, I disagree with this amendment. I consider it is important that HAZ-NH-P2 ensures the avoidance of significant natural hazard risk, as these are risks, when assessed using APP6, that would result in injury, death and a number of functionality compromised buildings. I consider it is appropriate that these types of risks are avoided when considering new activities. I would also note that, as set out within the 'General Themes' section and also in the analysis of the submission on HAZ-NH-P10, I have recommend that HAZ-NH-P10 is amended to remove reference to policies HAZ-NH-P2 to HAZ-NH-P4, to clarify that on any land that is potentially affected by coastal hazards over at least the next 100 years, activities are managed accordance with HAZ-NH-P10, which may resolve the submitters' concerns.
135. I disagree with the submission from Chris Thomson seeking deletion or an amendment to HAZ-NH-P3. The submitter seeks an additional provision within the pORPS to provide for the modification of braided rivers to protect existing communities from natural hazard risk. I disagree that a specific amendment of this nature is required. I note HAZ-NH-P4 manages the risks associated with existing activities and does not specify particular management methods. As such, I disagree an amendment is required. I do not recommend accepting this submission point.
136. In relation to the amendments requested by Wayfare and Trojan, I note that HAZ-NH-P3 only relates to the management of new activities, and therefore the suggested amendment is not required.
137. In response to the submitters that seek that the risk assessments take into account mitigation measures, I note that Step 2 within APP6 requires consideration of 'available and viable risk reduction and hazard mitigation measures' therefore I consider mitigation measures are taken into account when assessing the natural hazard risk within APP6.
138. Finally, in relation to the amendment sought by Oceana Gold and Graymont, I note that the methodology set out within APP6 of the pORPS requires an assessment of natural hazard risk. This risk assessment requires an assessment of the likelihood of an event occurring and the consequence of that event, including potential mitigation measures.

When considering activities such as mineral extraction activities, these are likely to have a lesser consequence, or have the ability to mitigate the consequences to ensure the risk is reduced to a less than significant level. As such, I disagree an amendment is required.

12.4.7.4. Recommendation

139. I recommend HAZ-NH-P3 is amended as follows:

HAZ-NH-P3 – New activities

Once the level of *natural hazard risk* associated with an activity has been determined in accordance with HAZ-NH-P2, manage new activities to achieve the following outcomes:

- (1) when the *natural hazard risk* is significant, the activity is avoided,
- (2) when the *natural hazard risk* is tolerable, manage the level of *risk* so that it does not ~~become significant~~ exceed tolerable⁷⁰, and
- (3) when the *natural hazard risk* is acceptable, maintain the level of *risk*.

12.4.8. HAZ-NH-P4 – Existing activities

12.4.8.1. Introduction

As notified, HAZ-NH-P4 reads:

HAZ-NH-P4 – Existing activities

Reduce existing *natural hazard risk* by:

- (1) encouraging activities that reduce *risk*, or reduce community vulnerability,
- (2) restricting activities that increase *risk*, or increase community vulnerability,
- (3) managing existing *land* uses within areas of significant *risk* to people and communities,
- (4) encouraging design that facilitates:
 - (a) recovery from *natural hazard* events, or
 - (b) relocation to areas of acceptable *risk*, or
 - (c) reduction of *risk*,
- (5) relocating *lifeline utilities*, and facilities for essential and emergency services, away from areas of significant *risk*, where appropriate and practicable, and
- (6) enabling development, upgrade, maintenance and operation of *lifeline utilities* and facilities for essential and emergency services.

⁷⁰ 00138.148 QLDC

12.4.8.2. Submissions

140. Several submissions were made in relation to HAZ-NH-P4, with six in support⁷¹.
141. Queenstown Airport comments that airports are resilient to the impacts from natural disasters and extreme weather events and play a critical role in connecting people and regions when other land-based networks are compromised. Queenstown Airport supports HAZ-NH-P4 and considers it appropriate to enable the development, ongoing use and maintenance of lifeline utilities in the region⁷².
142. Trustpower Limited and Waka Kotahi support recognition of the functional or operational needs of lifeline utilities to locate in areas of natural hazard risk in some circumstances⁷³.
143. Port Otago supports the policy as it encourages and enables investment in resilience works but notes that hazard protection works are likely to be hampered by the need to comply with other provisions, such as those in the CE chapter⁷⁴. Port Otago requests clarification as to what constitutes development or upgrade of existing activities and infrastructure, as opposed to new activities and infrastructure. Further, it considers that an amendment to the title of the provision is suitable for both scenarios and that HAZ-NH-P3 is not required. The suggested amendment is as follows:

HAZ-NH-P4 – New and Existing activities

144. QLDC makes several comments in relation to HAZ-NH-P4⁷⁵. Firstly, they state that the provision should specify the level to which risk is to be reduced, and that for consistency with HAZ-NH-O1, this should not be greater than tolerable. QLDC notes that this is also necessary to achieve HAZ-NH-AER4. An amendment to the provision to achieve this is requested, as follows:

Reduce existing natural hazard risk to a tolerable or lower level by...

145. QLDC states that the 'or' option indicated in the clauses below is inappropriate, and that both outcomes are important and should be sought:
- (1) encouraging activities that reduce risk, or reduce community vulnerability,
 - (2) restricting activities that increase risk, or increase community vulnerability,
146. QLDC considers that clause (3) should include property as a matter for consideration to ensure the built environment is appropriately recognised and to improve consistency with other policies in the chapter⁷⁶. Furthermore, risk reduction is only possible under clause (3), and the other sub-clauses only provide for maintaining risk at current levels or

⁷¹ 00139.197 DCC, 00137.127 DOC, 00305.068 Waka Kotahi, 00311.053 Trustpower, 00313 Queenstown Airport, 00510.053 The Fuel Companies

⁷² 00313 Queenstown Airport

⁷³ 00305.068 Waka Kotahi, 00311.053 Trustpower

⁷⁴ 00301.049 Port Otago

⁷⁵ 00138.149 QLDC

⁷⁶ 00138.149 QLDC

preventing risk from increasing. Risk may only be reduced where the existing characteristics of people, property and communities are changed, and not by simply managing future characteristics. QLDC requests amendments to ensure that the provision provides helpful direction on the reduction of risk.

147. QLDC comments that the provision should consider timelines and different methods for risk reduction⁷⁷. For example, risk reduction may be required now or over a longer timeframe. Moreover, non-RMA methods that may be effective for risk reduction should also be considered. Clarification is sought regarding what constitutes vulnerable activities, such as activities that accommodate vulnerable populations such as tourists or aged populations.
148. QLDC points out that clause (4)(a) does not support the intent of the provision to reduce risk and in fact suggests that a design which provides for recovery alone will reduce risk⁷⁸. QLDC requests that the clause is removed from this provision and moved instead to HAZ-NH-P3 (3).
149. QLDC requests that HAZ-NH-P4 is amended to provide clarification and greater direction to address the issues identified⁷⁹. Moreover, QLDC recommends that clauses (5) and (6) which refer to lifeline utilities and facilities, are moved to HAZ-NH-P8 which applies to lifeline utilities and facilities for essential or emergency services⁸⁰.
150. Kāi Tahu ki Otago supports the provision in principle and considers it appropriate to reduce existing risk by restricting activities that increase risk or community vulnerability⁸¹. However, the provision does not provide clarification with regard to levels of risk and may therefore lead to overly restrictive interpretation, particularly for whanau living in areas with relatively low levels of natural hazard risk. It is also noted that the approach is more restrictive for existing activities than for new activities. Kāi Tahu ki Otago request that clause (2) is amended to include a hierarchy similar to that in HAZ-NH-P3, for new activities, where activities may result in increased risk or vulnerability are restricted.
151. Aurora Energy opposes clause (5) noting that relocation of the network, which is a lifeline utility, may reduce resilience of the electricity supply to a particular location and create additional health and safety risks⁸². Aurora Energy supports clause (6) to the extent that it seeks to enable lifeline utilities for essential and emergency services. Aurora Energy requests that clause (6) is retained, and that clause (5) is deleted, or amended as follows:

- (5) ~~relocating lifeline utilities, and~~ facilities for essential and emergency services, away from areas of significant risk, where appropriate and practicable, and

⁷⁷ 00138.149 QLDC

⁷⁸ 00138.149 QLDC

⁷⁹ 00138.149 QLDC

⁸⁰ 00138.149 QLDC

⁸¹ 00226.251 Kāi Tahu ki Otago

⁸² 00315.062 Aurora Energy

152. The Telecommunications Companies oppose clause (5) on the basis that the appropriate location of lifeline utilities is adequately addressed under the Civil Defence and Emergency Management Act 2002 and does not require duplication of process under the RMA⁸³. Furthermore, clause (5) does not provide policy support for finding a new location which may also be at risk from a natural hazard. The submitters note that telecommunications equipment may have an operational or functional need to be located in an area at risk from natural hazards. In addition, the NESTF specifically disapplies natural hazard rules in district plan to regulated activities under Regulation 57, following a consideration of the risk profile of this type of equipment in making the regulations. Clause (6) is supported as notified as it promotes enabling development, upgrade, maintenance and operation of lifeline utilities for essential and emergency services as a means of reducing natural hazard risk. Chorus NZ, Spark NZ and Vodafone NZ request that clause (5) is deleted, and clause (6) is retained.
153. The New Zealand Infrastructure Commission broadly supports the provision but notes that it is unclear whether it is intended to be focussed on existing activities, as indicated in the heading, or if it applies to new activities, as indicated in clauses (1) and (2)⁸⁴. It is also unclear how, or if, the policy relates to the risk assessment required under HAZ-NH-P2, and if there are any circumstances, or degrees of risk in which existing activities would need to be relocated.
154. Graymont comments that mineral extraction activities may result in significant adverse effects and that ensuring these effects are remedied, mitigated or off-set is the fundamental and over-riding requirement⁸⁵. Graymont requests an amendment to sub-clause (3) so that it may apply to both the use of the land and the activities associated with that use, and for consistency with sub-clauses (1) and (2).
155. Ravensdown considers the provision should aim to manage, not reduce, natural hazard risk⁸⁶. Furthermore, the provision should apply to natural hazard risks generally and should not be restricted to existing risks as the natural hazard risk profile will change over time. Amendments are sought as follows:
- ~~Reduce existing~~ Manage natural hazard risk by:
- (1) encouraging and providing for activities that reduce risk, or reduce community vulnerability,...
156. There are five submissions generally on HAZ-NH-P3 – HAZ-NH-P7 stating that natural hazard risk can be appropriately managed through resource consent conditions and other controls⁸⁷.

⁸³ 00310.009 The Telecommunications Companies

⁸⁴ 00321.077 Te Waihangā

⁸⁵ 00022.022 Graymont

⁸⁶ 00121.082 Ravensdown

⁸⁷ 00211.030 LAC, 00118.057 Maryhill Limited, 00114.057 Mt Cardrona Station, 00209.030 Universal Development, 00206.056 Trojan

157. Trojan and Wayfare consider it unnecessary and inappropriate to restrict existing activities that will not result in significant natural hazard risk and seek an amendment to clause (2) as follows⁸⁸:

- (2) restricting activities that increase risk to a significant risk, or increase community vulnerability to a significant risk, ...

158. Blackthorn Lodge requests the insertion of a new clause as follows⁸⁹:

- (4) ...
- (5) encouraging community scale mitigation
- (6) relocating lifeline utilities...

12.4.8.3. Analysis

159. The technical letter from GNS Science has responded to each of the 8 submission points within the QLDC submission on HAZ-NH-P4. The analysis states:

“The amendments sought by the submitter are broadly agreed with. Consistency with Objective 1 is suggested by amending the introductory limb to the policy through the inclusion of tolerable and acceptable levels.

Point 2 of this submission identifies that the use of “or” results in an ‘either or’ option, when what is sought is ‘either, or, or both’ in recognition that some activities may not have capacity to address both, but should not be omitted owing to this. The addition of “and/or” within each limb would better reflect the intention behind the policy, but would convolute the policy and be inconsistent with the drafting of the rest of the RPS. In this instance, “or” should be viewed as being generally inclusive.

The inclusion of “property” within Limb (3) is supported as it reflects Objectives 1 and 2. A consequential change should also be made to include “property” in HAZ-NH-P10.2.

Point 4 seeks the inclusion of risk reduction direction. Other RPS’s include an appendix with risk reduction measures, an approach that could usefully be adopted here. Appendix M of the Bay of Plenty Regional Policy Statement (BOPRS 2016) contains an example of this approach.

Point 5 primarily seeks that timeframes for risk reduction should be considered. It is considered that territorial authorities are best placed to consider timeframes on a case-by-case basis with regard to activities in relation to the limbs of the policy. The amendments sought by the submitter are broadly agreed with. Consistency with Objective 1 is suggested by amending the introductory limb to the policy through the inclusion of tolerable and acceptable levels.

⁸⁸ 00206.056 Trojan, 00411.070 Wayfare

⁸⁹ 00119.016 Blackthorn Lodge

Point 5 primarily considers that timeframes for risk reduction should be considered. It is considered that territorial authorities are best placed to consider timeframes on a case-by-case basis with regard to activities in relation to the limbs of the policy.

Point 6 seeks guidance of what constitutes a vulnerable activity. Vulnerability and other related or similar terms occur several times within the pRPS, however the RPS may not be best placed to define this in the context of natural hazards when district councils manage many of the land use activities likely to be included.

This could be usefully provided as an appendix or definition.

Point 7 seeks that the policy outline when existing risk needs to be reduced. This could be done by including “significant risk” within the introductory limbs of the policy however, this would rule out the reduction of risk that is not significant. The policy framework in its entirety makes it clear that the adoption of significant risk should not be contemplated. On balance, leaving the policy open to provide for all risks to be reduced will provide for increased risk reduction across the region.

The deletion of Limb 4(a) is supported owing to the submitter’s rationale that it does not support the policy’s intention to reduce risk, instead focusing on recovery. While design that facilitates recovery fits better with Policy 3 in relation to new activities, it does not comfortably sit within that policy’s context. Elevating its consideration to the concept of recovery, this would be best set out within an appendix as part of an explanation of risk reduction, or via cross reference with the CDEM Groups Plans and national level documents.’

160. I agree with the amendments recommended by GNS Science for the reasons outlined above. In relation to risk reduction, I note that HAZ–NH–M5(1) includes direction that Local authorities are encouraged to consider the preparing natural hazard strategies or other similar documents to assist in the management and reduction of natural hazard risk. As such, I disagree a new appendix with the pORPS is required.

161. I also disagree that with the recommendation to move limbs (5) and (6) to HAZ-NH-P8. GNS state that:

“Limbs 5 and 6 of the policy address lifeline utilities and other essential services and facilities. It would be simpler for all natural hazard related directives for these activities to be located in a single policy, and Policy 8 appears to be the natural fit for this. This requires amendment to Policy 8 to ensure integration without the purpose of Policy 8, as drafted, being lost. Recommendation for Limb 5’s relocation are provided below however, Limb 6 requires more substantial changes to incorporate.”

162. I consider clauses (5) and (6) are appropriately located within HAZ-NH-P4 as this is the policy related to the management of existing natural hazard risk. I consider it would be preferable to retain these clauses within HAZ-NH-P4 and make an amendment to HAZ-NH-P8 to remove the word ‘re-locate’ from the chapeau to that policy. This would ensure the HAZ-NH-P4 relates to existing activities and HAZ-NH-P8 relates to the location and design of lifeline utilities and facilities for essential or emergency services.

163. In relation to the amendments requested by Kāi Tahu ki Otago, I agree that the policy as drafted does not provide direction as to the level of natural hazard risk that is sought. I consider the amendment suggested by QLDC which requires that existing natural hazard risk is reduced to a tolerable or lower level, will resolve this concern.
164. Several submitters have raised concerns with clause (2) of the policy. In relation to the New Zealand Infrastructure Commission submission, I agree that the policy is unclear whether it relates to existing activities, or whether it applies to new activities, particularly given the drafting of clause (2). I consider NH-P4 should be limited to the management of existing activities as is described in the title to the policy. Therefore, I consider clause (2) of the policy should be deleted to remove the overlap between this clause and the management of new activities within HAZ-NH-P3. I consider the deletion of clause (2) will also resolve the concerns raised by Trojan Holdings and Wayfare Group.
165. In relation to the concerns raised by The Telecommunications Companies and Aurora Energy, I note that clause (5) requires the relocation of lifeline utilities, and essential emergency services where it is appropriate and practical to do so. I consider this provides considerable flexibility for these submitters to choose not to relocate infrastructure if it is not appropriate and practical to do so. Therefore, I do not support the removal of this limb.
166. I agree in part with the submission from Graymont that the reference to clause (3) should be amended to ensure consistency of the wording within clause (1), to refer to activities rather than land uses. I disagree with the amendments suggested by Ravensdown that the policy should apply to natural hazard risks generally not just existing activities. As noted above, I consider that the management of new activities is managed by HAZ-NH-P3 and therefore, to avoid overlap with HAZ-NH-P3, I agree amendments need to be made to HAZ-NH-P4 to make this distinction clear.
167. Finally, I agree in part with the submitters that note that natural hazard risk can be appropriately managed through resource consent conditions and other controls. However, I consider it is the role of the regional policy statement to set the overarching framework and direct outcomes for district and regional plans. Once this framework is established, I agree that natural hazard risk can be appropriately managed through resource consent conditions.

12.4.8.4. Recommendation

168. I recommend HAZ-NH-P4 is amended as follows:

HAZ-NH-P4 – Existing activities

Reduce existing *natural hazard risk* to a tolerable or acceptable level⁹⁰ by:

[...]

~~(2) – restricting activities that increase risk, or increase community vulnerability,~~⁹¹

⁹⁰ 00138.149 QLDC

⁹¹ 00321.077 New Zealand Infrastructure Commission

- (3) managing existing ~~land uses activities~~⁹² within areas of significant *risk* to people, ~~and communities and property~~,⁹³
 - (4) encouraging design that facilitates:
 - ~~(a) recovery from natural hazard events, or~~⁹⁴
- [...]

12.4.9. HAZ-NH-P5 – Precautionary approach to natural hazard risk

12.4.9.1. Introduction

169. As notified, HAZ-NH-P5 reads:

HAZ-NH-P5 – Precautionary approach to *natural hazard risk*

Where the *natural hazard risk*, either individually or cumulatively, is uncertain or unknown, but potentially significant or irreversible, apply a precautionary approach to identifying, assessing and managing that *risk* by adopting an avoidance or adaptive management response to diminish the *risk* and uncertainty.

12.4.9.2. Submissions

170. Several submissions were made regarding HAZ-NH-P5, with five of these in support⁹⁵. Waka Kotahi supports the policy as the natural hazard management approach includes avoidance and adaptive management which facilitates consideration of the functional and operational needs of infrastructure⁹⁶. Graymont considers the precautionary approach prescribed by the policy is appropriate for natural hazard risk⁹⁷.

171. QLDC supports the provision in principle, noting that a precautionary approach is the best way to prevent the creation of new areas of significant risk⁹⁸. However, QLDC requests amendments to provide clarity, as follows:

Where the natural hazard risk, ~~either individually or cumulatively~~, is uncertain or unknown, but potentially significant or irreversible, apply a precautionary approach to identifying, assessing and managing that risk by adopting an avoidance or adaptive management response ~~to diminish the risk and uncertainty~~

172. DCC requests clarification as to what the ‘precautionary approach’ is and how it will be applied⁹⁹.

⁹² 00022.022 Graymont NZ

⁹³ 00138.149 QLDC

⁹⁴ 00138.149 QLDC

⁹⁵ 00137.128 DOC, 00226.252 Kāi Tahu ki Otago, 00022.023 Graymont, 00321.078 Te Waihanga, 00305.069 Waka Kotahi

⁹⁶ 00305.069 Waka Kotahi

⁹⁷ 00022.023 Graymont

⁹⁸ 00138.150 QLDC

⁹⁹ 00139.138 DCC

173. Federated Farmers considers it unlikely that a natural hazard risk would be uncertain, or unknown and yet potentially significant¹⁰⁰. Federated Farmers notes that if the risk remains uncertain or unknown following application of the natural hazard provisions, it should not be subject to the precautionary approach due to the implications this would have on residents and resource users. As such, Federated Farmers seeks the deletion of HAZ-NH-P5.
174. Ravensdown opposes HAZ-NH-P5 and seeks its deletion¹⁰¹. Ravensdown considers application of a precautionary approach inappropriate and notes that the process for identification and quantification of risk is based on available information but does not signify that all information is known or certain. Therefore, the application of a precautionary approach is inappropriate for quantification of natural hazard risk. Furthermore, under the RMA and Policy 3 of the NZCPS, the precautionary approach applies where the adverse effects of a resource use activity may be uncertain, unknown or little understood, but potentially significantly adverse. Ravensdown highlights that the pORPS relates to uncertain or unknown natural hazard risks, rather than the effects of activities being uncertain and unknown.
175. Four submissions, request that the precautionary approach is only applied where scientific information is not available and where the effects are likely to be significant and adverse¹⁰².

12.4.9.3. Analysis

176. I agree in part with the amendments suggested by QLDC, I agree that ‘to diminish the risk and uncertainty’ can be removed from the policy as these words are unnecessary. However, I disagree with the removal of reference to the risk being ‘either individually or cumulatively’ being uncertain or unknown. I consider these words are helpful as it ensures that natural hazards risks are not considered on a one-off basis where cumulative effects may be present.
177. In relation the submission from the DCC, the drafting of the policy states that the precautionary approach to natural hazard risk requires that where the natural hazard risk, either individually or cumulatively, is uncertain or unknown, but potentially significant or irreversible the risk shall be managed by adopting an avoidance or adaptive management response. I do not consider it is the role of the pORPS to be prescriptive as to how the precautionary approach is to be applied. Therefore, I disagree any amendments are required.
178. I disagree with the Federated Farmers submission that a natural hazard risk would be uncertain, or unknown and yet potentially significant. I consider there are a range of scenarios where a natural hazard risk could be uncertain, or unknown and yet potentially significant, particularly where an initial assessment has been undertaken which has identified a potential risk and further work is required to understand the extent of a risk.

¹⁰⁰ 00239.136 Federated Farmers

¹⁰¹ 00121.083 Ravensdown

¹⁰² 00322.032 LAC, 00118.058 Maryhill Limited, 00114.058 Mt Cardrona Station, 00209.032 Universal Developments, 00210.032 Land Hocking.

Additionally, in the case of multiple or cascading risk – these risks can be very difficult to quantify but could be potentially significant. In these examples, I consider it is appropriate to adopt a precautionary approach.

179. In relation to the submission from Ravensdown, I understand the concern raised. I acknowledge that natural hazard risk assessments are based on predictions, models, or previous events, using the best available information. Therefore, there will always be some element of uncertainty in these assessments. However, I consider that because the range of uncertainty varies, HAZ-NH-P5 provides that ability to promote a precautionary approach where the uncertainty is such that precaution is required. I also note that the policy requires two elements for the precautionary approach to apply:

- the natural hazard risk is uncertain or unknown; and
- the natural hazard risk is potentially significant or irreversible.

180. Therefore, an uncertain or unknown understanding of the natural hazard risk on its own, does not require a precautionary approach; it must be a combination of the two. Given this, I disagree that the policy should be deleted.

181. In relation to the submitters that seek that the precautionary approach is only applied where scientific information is not available and where the effects are likely to be significant and adverse, I consider the term 'scientific information' is very broad and unqualified as to the accuracy of the scientific information. Therefore, I do not think that qualification would be helpful in directing when a precautionary approach should be applied.

12.4.9.4. Recommendation

182. I recommend HAZ-NH-P5 is amended as follows:

HAZ-NH-P5 – Precautionary approach to *natural hazard risk*

Where the *natural hazard risk*, either individually or cumulatively, is uncertain or unknown, but potentially significant or irreversible, apply a precautionary approach to identifying, assessing and managing that *risk* by adopting an avoidance or adaptive management response to diminish the *risk* and uncertainty.¹⁰³

12.4.10. HAZ-NH-P6 – Protecting features and systems that provide hazard mitigation

12.4.10.1. Introduction

183. As notified, HAZ-NH-P6 reads:

HAZ-NH-P6 – Protecting features and systems that provide hazard mitigation

Protect natural or modified features and systems that contribute to mitigating the *effects of natural hazards and climate change*.

¹⁰³ 00138.150 QLDC

12.4.10.2. Submissions

184. Several submissions were made in relation to HAZ-NH-P6, with five in support¹⁰⁴. Forest and Bird comments that the provision recognises natural ecosystem services may contribute to the reduction of natural hazard risks and impacts¹⁰⁵. QLDC supports the provision, noting that it is consistent with achieving the objectives¹⁰⁶. Likewise, Kāi Tahu ki Otago considers the policy is an appropriate response to the natural hazard risks¹⁰⁷.
185. DCC seeks clarification regarding how this policy is balanced against the need to provide infrastructure in these locations¹⁰⁸. An amendment is sought to recognise that this provision should operate consistently with infrastructure policies. The submitter has not proposed suggested amendments.
186. Blackthorn Lodge requests the following amendment¹⁰⁹:

Protect existing and encourage new natural or modified features and systems that contribute to mitigating the effects of natural hazards and climate change.

12.4.10.3. Analysis

187. In relation to the DCC submission, I note that this policy needs to be read in conjunction with the other provisions within the pORPS that provide for infrastructure. Therefore, I disagree an amendment is required.
188. In relation to the amendment requested by Blackthorn Lodge, which would expand the policy to encourage new natural or modified features and systems that contribute to mitigating the effects of natural hazards and climate change, I agree with the concept that natural or modified systems are preferable to hard protection structures. However, I note that HAZ-NH-P7 provides for risk management approaches that reduce the need for hard protection structures or similar engineering interventions. I consider the intention of HAZ-NH-P6 is to protect existing features and systems, and HAZ-NH-P7 contemplates new risk management approaches. Therefore, I consider the amendment is not necessary.

12.4.10.4. Recommendation

189. I recommend HAZ-NH-P6 is retained as notified.

12.4.11. HAZ-NH-P7 – Mitigating natural hazards

12.4.11.1. Introduction

190. As notified, HAZ-NH-P7 reads:

¹⁰⁴ 00137.129 DOC, 00230.138 Forest and Bird, 00138.151 QLDC, 00321.079 Te Waihanga, 00226.253 Kāi Tahu ki Otago

¹⁰⁵ 00230.138 Forest and Bird

¹⁰⁶ 00138.151 QLDC

¹⁰⁷ 00226.253 Kāi Tahu ki Otago

¹⁰⁸ 00139.199 DCC

¹⁰⁹ 00119.018 Blackthorn Lodge

HAZ-NH-P7 – Mitigating *natural hazards*

Prioritise *risk* management approaches that reduce the need for *hard protection structures* or similar engineering interventions, and provide for *hard protection structures* only when:

- (1) *hard protection structures* are essential to manage *risk* to a level the community is able to tolerate,
- (2) there are no reasonable alternatives that result in reducing the *risk* exposure,
- (3) *hard protection structures* would not result in an increase in *risk* to people, communities and property, including displacement of *risk* off-site,
- (4) the adverse *effects* of the *hard protection structures* can be adequately managed, and
- (5) the mitigation is viable in the reasonably foreseeable long term or provides time for future adaptation methods to be implemented, or
- (6) the *hard protection structure* protects a *lifeline utility*, or a facility for essential or emergency services.

12.4.11.2. Submissions

191. There are several submissions on HAZ-NH-P7, including five in support of the provision¹¹⁰. Waka Kotahi supports the policy as it provides for the use of hard protection structures to protect lifeline utilities, which includes state highways¹¹¹.
192. QLDC requests the deletion of clause (1) as it conflicts with the intent of the policy to avoid those levels of risk where hard protection or engineered structures are necessary¹¹². QLDC considers the intent is more effectively achieved by clause (2).
193. Forest and Bird generally supports the provision but highlights that protection and restoration or enhancement of natural features and systems that reduce natural hazard risks should be considered first¹¹³. Furthermore, the risk to indigenous biodiversity or ecosystem health should not be increased as a result of hard protection measures. Forest and Bird seeks the following amendments:

Prioritise *risk* management approaches that reduce the need for *hard protection structures* or similar engineering interventions, and provide for *hard protection structures* only when:

- (1) natural systems or features, or natural systems and features with restoration or improvements, are unable to manage the risk to a level the community is able to tolerate

¹¹⁰ 00137.130 DOC, 00139.200 DCC, 00305.070 Waka Kotahi, 00306.065 Meridian, 00510.054 The Fuel Companies

¹¹¹ 00305.070 Waka Kotahi

¹¹² 00138.152 QLDC

¹¹³ 00230.139 Forest and Bird

- (2) *hard protection structures* are essential to manage *risk* to a level the community is able to tolerate,
- (3) there are no reasonable alternatives that result in reducing the *risk* exposure,
- (4) *hard protection structures* would not result in an increase in *risk* to people, communities, ecosystem health, indigenous biodiversity and property, including displacement of risk off-site, ...

194. Ngāi Tahu ki Murihiku states that reducing reliance on hard protection structures accords with the kaupapa of Te Tangi a Tauira, therefore it is important to clarify the circumstances in which they are used both within and outside the coastal marine area¹¹⁴. Te Ao Marama points out the definition of ‘hard protection structures’ includes dams and weirs which may have purposes unrelated to natural hazard management. Ngāi Tahu ki Murihiku requests that the provision is amended to include ‘and’ after each sub-clause for clarification, or that the structure of the provision is amended as follows:

Prioritise risk management approaches ..., and provide for hard protection structures ~~only when~~:

(1) only when:

~~(1)~~(a) hard protection structures are essential ...; and

~~(2)~~(b) there are no reasonable alternatives ...; and

~~(3)~~(c) hard protection structures would not result; and

~~(4)~~(d) the adverse effects ...; and

~~(5)~~(e) the mitigation is viable; or

(2) when the hard protection structure protects a lifeline utility ...

195. Kāi Tahu ki Otago also supports limitations on the use of hard protection structures for risk management purposes as they may have adverse effects on natural systems and Kāi Tahu values¹¹⁵. Nevertheless, the provision must provide direction regarding the types of effects to be considered. An amendment to the provision is requested as follows:

Prioritise risk management approaches that reduce the need for hard protection structures or similar engineering interventions, and provide for hard protection structures only when: ...

(4) the adverse effects of the hard protection structures on natural processes, indigenous ecosystems and Kāi Tahu values can be adequately managed ...

196. The New Zealand Infrastructure Commission supports confirmation that protection of lifeline utilities is a reason for providing hard protection structures in clause (6) but seeks

¹¹⁴ 00223.115 Ngāi Tahu ki Murihiku

¹¹⁵ 00226.254 Kāi Tahu ki Otago

that this is widened to cover other types of significant infrastructure¹¹⁶. The New Zealand Infrastructure Commission comments that hard protection structures should be prioritised if the cost of a non-physical option significantly exceeds that of hard protection. As such, it is requested that clause (6) is amended to cover other types of significant infrastructure and that hard protection structures are given priority where the non-physical option has a significantly higher cost.

197. Port Otago considers it may be necessary to build or replace seawalls or hard protection structures in the future to retain the functionality of commercial port activities in response to climate change¹¹⁷. Port Otago notes that in terms of clauses (1) and (2) 'essential' is a high bar to satisfy. In addition, clause (3) does not allow for any increase or balancing of risk. Risk reduction measures often increase hazard risk to a minor level elsewhere but may improve the overall resilience of essential community infrastructure. Port Otago seeks amendments as follows:

Prioritise risk management approaches that reduce the need for hard protection structures or similar engineering interventions, and provide for hard protection structures only when:

- (a) ~~hard protection structures are essential to manage risk to a level the community is able to tolerate,~~
- (b) there are no reasonable alternatives available that ~~result in~~ would ~~reducing~~ the risk exposure,
- (b) hard protection structures would not result in an increase in risk to lifeline utility, or a facility for essential or emergency services, or a more than minor risk to other people, communities and property, including displacement of risk off-site, ...

198. Several submissions seek that all applicable mitigation measures are considered when determining any risk assessment, but do not identify specific amendments¹¹⁸.

199. Blackthorn Lodge requests that the provision is amended as follows¹¹⁹:

~~Encourage~~ Prioritise risk management approaches that reduce the need for *hard protection structures* or similar engineering interventions, and seek alternatives to hard protection structures where practicable.

Provide for hard protection surfaces, particularly at a community scale to reduce risk to a tolerable level for existing communities where the adverse effects of hard protection structures can be adequately managed and the mitigation is viable in the reasonably foreseeable long term. ~~provide for hard protection structures only when:~~

¹¹⁶ 00321.080 Te Waihanga

¹¹⁷ 00301.050 Port Otago

¹¹⁸ 00211.031 LAC, 00118.060 Maryhill Limited, 00114.060 Mt Cardrona Station, 00209.031 Universal Development, and 00210.032 Land Hocking

¹¹⁹ 00119.019 Blackthorn Station

- ~~(1) — *hard protection structures* are essential to manage *risk* to a level the community is able to tolerate,~~
- ~~(2) — there are no reasonable alternatives that result in reducing the *risk* exposure,~~
- ~~(3) — *hard protection structures* would not result in an increase in *risk* to people, communities and property, including displacement of *risk* off-site,~~
- ~~(4) — the adverse *effects* of the *hard protection structures* can be adequately managed, and~~
- ~~(5) — the mitigation is viable in the reasonably foreseeable long term or provides time for future adaptation methods to be implemented, or~~
- ~~(6) — the *hard protection structure* protects a *lifeline utility*, or a facility for essential or Emergency services. ‘~~

12.4.11.3. Analysis

200. Given the submissions on this policy have covered a range of matters, the following assessment will consider the submission points on each of the clauses individually.
201. In relation to the clause (1), I agree with both QLDC and Port Otago that this clause can be removed as the intent of the clause can be achieved through clause (2), which provides a more succinct and directive course of action. In relation to the amendment sought by Forest and Bird, that seeks to re-draft clause (1) to place additional emphasis on the natural systems or features being the preferred method of managing the natural hazard risk, I note that clause (2) requires a consideration of reasonable alternatives that result in reducing the risk exposure, which could include natural systems or features. Therefore, I disagree that the amendment is necessary.
202. In relation to clause (2), Port Otago has suggested an amendment that refers to the ‘availability’ of alternatives to hard protection structures. I disagree that this amendment is necessary, as I consider that the ‘availability’ of option can be considered as part of the ‘reasonable alternative’ assessment.
203. In relation to clause (3) Port Otago suggests amendments to allow for a balancing of risk. They note that risk reduction measures often increase hazard risk to a minor level elsewhere but may improve the overall resilience of essential community infrastructure. I consider that the drafting of policy requires that the hard protection structures would not result in an increase in risk to people, communities and property as a whole. Therefore, I consider the implementation of the policy does allow of a balancing of risk provided, on balance, the policy requires that risk is reduced.
204. In relation to clause (4) Kāi Tahu ki Otago seeks amendments to ensure that the adverse effects of the hard protection structures ‘on natural processes, indigenous ecosystems and Kāi Tahu values’ can be adequately managed. I disagree that this suggested amendment is required. I consider this amendment inappropriately narrows the scope of the clause. As currently drafted within the pORPS, the clause allows consideration of any

potential adverse effect resulting from the hard protection structure. By limiting the effects consideration to 'natural processes, indigenous ecosystems and Kāi Tahu values' this will restrict the consideration, and adverse effects such as visual effects, construction effects, etc will not be considered. I also note that adverse effects on natural processes, indigenous ecosystems, and Kāi Tahu values are considered within other chapters of the pORPS, which need to be and implemented alongside the HAZ-NH section. As such, I disagree with the suggested amendment.

205. Regarding the New Zealand Infrastructure Commission, seeking that clause (6) be amended to cover other types of 'significant infrastructure', it is unclear what other kinds of significant infrastructure is sought to be captured within clause. I note that the definition of 'lifeline utility' in the pORPS links to Schedule 1 of the Civil Defence Emergency Management Act 2002 and includes a broad range of infrastructure networks including: gas, electricity, water, wastewater, telecommunication, road, petroleum, rail services, airports, ports, and radio. I consider this a broad group of infrastructure providers, so I disagree an amendment is required. I also disagree that an amendment is required to give priority to hard protection structure where the non-physical option has a significantly higher cost. I consider that clause (2) requires an assessment as to whether there are reasonable alternatives. If the non-physical option has a significantly higher cost, I consider this can be considered as part of the assessment within clause (2).
206. There have also been a number of submissions that seek general amendments to the policy. In relation to the submission from Blackthorn Lodge that seeks HAZ-NH-P7 be split into two policies, one providing encouragement for risk management approaches that reduce the need for hard protection structures and one that provides for hard protection structures under particular circumstances, I consider the proposed amendments drive similar outcomes to those within HAZ-NH-P7, albeit that the submitter seeks the removal of clauses (1), (2), (3), part of (5), and (6) and their replacement with the requirement to 'reduce risk to a tolerable level for existing communities'. I consider it is preferable to retain the HAZ-NH-P7 as one policy. I consider the policy needs to be read as two interrelated actions being the prioritisation of risk management approaches that reduce the need for hard protection structures and only providing for hard protection structures in specific instances. I also disagree with the removal of clauses (2), (3), (5) and (6) as I consider these are important limitations within the policy. If the Hearing Panel prefer the drafting style proposed by the submitter, I recommend that clauses (2) to (6) are retained.
207. Ngāi Tahu ki Murihiku points out the definition of 'hard protection structures' includes dams and weirs which may have purposes unrelated to natural hazard management. I note that the definition of 'Hard protection structure' within the pORPS outside the coastal environment, states:

outside the coastal environment, means any dam, weir, bank, carriageway, groyne, or reservoir, and any structure or appliance of any kind which has or may have the effect of stopping, diverting, controlling, restricting, or otherwise regulating the flow or spread or subsidence, in or out of a water body, of water including flood waters, which is specifically established for the purpose of flood hazard mitigation. – emphasis added.

208. Given the definition only relates to hard protection structures specifically established for the purpose of flood hazard mitigation, I do not think the provision will capture structures unrelated to natural hazards management. This is discussed further when considering the definition of ‘Hard protection structure’ in the definitions section below.

209. Ngāi Tahu ki Murihiku also suggest the word ‘and’ be included after each sub-clause for clarification. While I agree that each of the limbs are conjunctive, with the exception of clause (6), a drafting decision has been made within the pORP that ‘and’ will only be used once to demonstrate where clauses are conjunctive. Therefore, I disagree an amendment is required.

12.4.11.4. Recommendation

210. I recommend HAZ-NH-P7 is amended as follows:

HAZ-NH-P7 – Mitigating *natural hazards*

Prioritise *risk* management approaches that reduce the need for *hard protection structures* or similar engineering interventions, and provide for *hard protection structures* only when:

~~(1) *hard protection structures* are essential to manage *risk* to a level the community is able to tolerate,~~¹²⁰

[...]

12.4.12. HAZ-NH-P8 – Lifeline utilities and facilities for essential or emergency services

12.4.12.1. Introduction

211. As notified, HAZ-NH-P8 reads:

HAZ-NH-P8 – *Lifeline utilities* and facilities for essential or emergency services

Locate, relocate, and design *lifeline utilities* and facilities for essential or emergency services to:

- (1) maintain their ability to function to the fullest extent possible, during and after *natural hazard* events, and
- (2) take into account their operational co-dependence with other *lifeline utilities* and essential services to ensure their effective operation.

12.4.12.2. Submissions

212. Eleven submissions were made regarding HAZ-NH-P8, with seven in support¹²¹. DOC comments that the provisions achieve the NH objectives, but also recognise the need to manage the environmental effects of hazard responses. QLDC also considers the policy is

¹²⁰ 00301.050 Port Otago

¹²¹ 00137.131 DOC, 00307.032CIAL, 00139.201 DCC, 00226.255 Kāi Tahu ki Otago, 00321.081 NZ Infrastructure, 00138.055 QLDC, 00510.055 The Fuel Companies

consistent with achieving the relevant objectives, and Kāi Tahu ki Otago considers it an appropriate response to the natural hazard risk.

213. Waka Kotahi¹²² notes that the policy generally aligns with the Agency’s commitment to provide a safe and enduring state highway system. However, the term ‘relocate’ implies that existing infrastructure is included. Waka Kotahi requests that the policy is amended as follows:

‘Locate, relocate (where practicable), and design lifeline utilities and facilities for essential or emergency services to: ...’

214. Trustpower Limited¹²³ supports recognition of the functional or operational need to locate lifeline utilities in areas of natural hazard risk in some circumstances and considers that this needs to be integrated into the policy. Trustpower Limited requests the addition of a new clause to address this, as follows:

(3) recognise that there can be a functional and operational need for lifeline utilities and facilities for essential or emergency services to locate in areas of natural hazard risk in some circumstances.

215. The Telecommunications Companies¹²⁴ and Aurora Energy consider that the appropriate location and design of lifeline utilities is adequately addressed under the CDEM Act and does not require duplication under the RMA.

216. The Telecommunications Companies also note that telecommunications equipment may need to be located in areas at risk from natural hazards for operational or functional requirements. The NESTF specifically disapplies natural hazard rules in district plans to activities under Regulation 57 following consideration of the risk profile of the type of equipment in making the regulations. Instead, it is more appropriate for the policy to focus on requiring district plans to adequately map and identify areas subject to natural hazards. The Telecommunications Companies request that the policy is amended as follows:

Locate, relocate, and design ~~lifeline utilities and~~ facilities for essential or emergency services to:

- (1) maintain their ability to function to the fullest extent possible, during and after natural hazard events, and
- (2) take into account their operational co-dependence with ~~other~~ lifeline utilities and essential services to ensure their effective operation.

217. Similarly, Aurora Energy submits that electricity distribution infrastructure may need to be maintained, repaired or upgraded including through the provision of temporary generators in areas at risk from natural hazards for functional or operational needs in order to serve communities. It is more appropriate that district plans should adequately identify and map natural hazards so adequate information is available to enable decision

¹²² 00305.071 Waka Kotahi

¹²³ 00311.054 Trustpower

¹²⁴ 00310.010 Telecommunications Companies

making by lifeline utility providers regarding the appropriate location of infrastructure. Aurora Energy requests that the policy is amended as follows:

- (2) Take into account their operational co-dependence with ~~other~~ lifeline utilities and essential services to ensure their effective operation.¹²⁵

12.4.12.3. Analysis

218. I agree in part with the amendment suggested by Waka Kotahi. I agree that if the 'relocation' aspect of the policy is retained within the policy it should be qualified with the addition of 'where practical'. However, as noted in the analysis of HAZ-NH-P4, I consider this policy should be limited to 'locate and design lifeline utilities and facilities for essential or emergency services', leaving HAZ-NH-P4 to direct the management of existing natural hazard risk. Accordingly, I recommend the deletion of 'relocate'.

219. In relation the submission from Trustpower Limited, I note that the policy does not restrict the location of lifeline utilities; instead the policy sets design outcomes for lifeline utilities and facilities for essential or emergency services, regardless of their location. Therefore, I disagree the additional clause is required within this policy.

220. In relation the concerns raised by a number of submitters that the content of the policy is already required within the CDEM Act and does not require duplication under the RMA, I agree in part with these submissions. I note that Section 60(a) of the CDEM Act states:

Every lifeline utility must—

- (a) ensure that it is able to function to the fullest possible extent, even though this may be at a reduced level, during and after an emergency: ...

221. Therefore, clause (1) within HAZ-NH-P8 essentially replicates the requirement of the CDEM Act. As far as I am aware, the CDEM Act does not include a requirement to take into account their operational co-dependence with other lifeline utilities and essential services to ensure their effective operation, as required by clause (2). Other than the duplication of the from the CDEM Act requirement in the RMA, I am unclear what the nuisance is in retaining the provision. Therefore, I disagree that the policy should be deleted.

12.4.12.4. Recommendation

222. I recommend HAZ-NH-P8 is amended as follows:

HAZ-NH-P8 – *Lifeline utilities and facilities for essential or emergency services*

Locate, ~~relocate~~,¹²⁶ and design *lifeline utilities* and facilities for essential or emergency services to:

[...]

¹²⁵ Aurora Energy 00315.063

¹²⁶ 00138.149 QLDC

12.4.13. HAZ-NH-P9 – Protection of hazard mitigation measures

12.4.13.1. Introduction

223. As notified, HAZ-NH-P9 reads:

HAZ-NH-P9 – Protection of hazard mitigation measures

Protect the *functional needs* of hazard mitigation measures, *lifeline utilities*, and essential or emergency services, including by:

- (1) avoiding significant adverse *effects* on those measures, utilities or services,
- (2) avoiding, and only where avoidance is not practicable, remedying or mitigating other adverse *effects* on those measures, utilities or services,
- (3) maintaining access to those measures, utilities or services for maintenance and operational purposes, and
- (4) restricting the establishment of other activities that may result in reverse sensitivity *effects* on those measures, utilities or services.

12.4.13.2. Submissions

224. There are 12 submissions on HAZ-NH-P9. Seven submissions are in support¹²⁷. Submissions in support observe that the provision is consistent with achieving the objectives. Waka Kotahi comments that the policy recognises the importance of protecting the functional needs of hazard mitigation measures and lifeline utilities such as the state highway network from adverse effects arising from other land use or development activities¹²⁸.

225. Both DCC and The Fuel Companies¹²⁹ seek an amendment to the title of the provision to more clearly identify the facilities covered¹³⁰. An amendment to the title is requested as follows:

Protection of hazard mitigation measures, lifeline utilities, and essential or emergency services.

226. The New Zealand Infrastructure Commission point out that the definition of ‘functional need’ means the need for a proposal or activity to traverse, locate or operate in a particular environment because the activity can only occur in that environment¹³¹. As such they seek that the ongoing operation, maintenance, performance, and function should be protected and/or provided for, rather than providing direction to ‘protect the functional need’ of lifeline utilities. It is requested that the provision is amended to reflect this.

¹²⁷ 00315.064 Aurora Energy, 00137.132 DOC, 00138.154 QLDC, 00226.256 Kāi Tahu ki Otago, 00305.072 Waka Kotahi, 00307.033 CIAL, 00306.066 Meridian

¹²⁸ 00305.072 Waka Kotahi

¹²⁹ 00510.056 The Fuel Companies

¹³⁰ 00139.202 DCC

¹³¹ 00321.082 Te Waihanga

227. Similarly, Queenstown Airport considers it appropriate to protect lifeline utilities, particularly as this relates to reverse sensitivity effects and notes that the operational, as well as functional needs of lifeline utilities should be protected¹³². Queenstown Airport requests the following amendment:

Protect the functional and operational needs of hazard mitigation measures, lifeline utilities, and essential or emergency services, including by: ...

228. Horticulture NZ points out that ‘hazard mitigation measures’ is not defined, and therefore it is unclear what activities this may encompass¹³³. Horticulture NZ notes that limiting other activities which may result in reverse sensitivity effects, as required under clause (4), is not a natural hazard issue in terms of achieving the objectives to manage or reduce risk. As such, Horticulture NZ requests the deletion of clause (4).

229. Matakanui Gold observes that there is no policy recognition for the functional need of mining activities to take place where the resource exists¹³⁴. Matakanui Gold notes that HAZ-NH-P9 provides for hazard mitigation by the regional council and that there is a gap in the policy for the recognition of and provision for mining, while managing its adverse effects on the environment.

12.4.13.3. Analysis

230. I agree with the amendment sought by DCC that the title of the policy should be amended to reflect the facilities covered by the policy.

231. In relation to the submitters seeking recognition of the functional and operation needs of hazard mitigation measures, lifeline utilities, and essential or emergency services, I agree with the suggested amendment. I agree it is important to recognise the technical, logistical or operational characteristics or constraints of hazard mitigation measures, lifeline utilities, and essential or emergency services in a particular environment. I note that both ‘functional need’ and ‘operational need’ are defined terms within the pORPS, which ensures there is clarity as to the interpretation of the policy.

232. In relation to the Horticulture NZ submission seeking the deletion of clause (4), I disagree that limiting other activities that may result in reverse sensitivity effects is not a natural hazard issue. If an activity is established near a hazard mitigation structure, lifeline utilities, and essential or emergency services, and then is concerned about the effects of these activities this could affect their ability to function. Therefore, I disagree that the clause should be removed.

233. Finally, in relation to the submission from Matakanui Gold seeking policy recognition for the functional need of mining activities to take place where the resource exists, I disagree that policy HAZ-NH-P9 is the appropriate location for such a policy. The focus of this policy is on protecting hazard mitigation measures, lifeline utilities, and essential or emergency services.

¹³² 00313.026 Queenstown Airport

¹³³ 00236.086 Horticulture NZ

¹³⁴ 00021.001 Matakanui Gold

12.4.13.4. Recommendation

234. I recommend HAZ-NH-P9 is amended as follows:

HAZ-NH-P9 – Protection of hazard mitigation measures, lifeline utilities, and essential or emergency services¹³⁵

Protect the *functional needs and operational*¹³⁶ needs of hazard mitigation measures, *lifeline utilities*, and essential or emergency services, including by:

[...]

12.4.14. HAZ-NH-P10 – Coastal hazards

12.4.14.1. Introduction

235. As notified, HAZ-NH-P10 reads:

HAZ-NH-P10 – Coastal hazards

In addition to HAZ-NH-P1 to HAZ-NH-P9 above, on any *land* that is potentially affected by coastal hazards over at least the next 100 years:

- (1) avoid increasing the *risk* of social, environmental and economic harm from coastal hazards,
- (2) ensure no *land* use change or redevelopment occurs that would increase the *risk* to people and communities from that coastal hazard,
- (3) encourage *land* use change or redevelopment that reduces the *risk* from that coastal hazard, and
- (4) ensure decision making about the nature, scale and location of activities considers the ability of Otago's people and communities to adapt to, or mitigate the *effects* of, sea level rise and *climate change*.

12.4.14.2. Submissions

236. Eight submissions were made with regard to HAZ-NH-P10, with four in support¹³⁷.

237. Ravensdown notes that the Dunedin Works are located alongside Otago Harbour and may therefore be affected by coastal hazards over the next 100 years. Ravensdown considers the approach appropriate and acknowledges that any future redevelopment within the site should address the approaches set out in the provision¹³⁸.

238. DCC comments that almost every development could increase risk and does not consider that the provision aligns with the risk-based approach set out in other relevant provisions, such as HAZ-NH-P3¹³⁹. In addition, land use changes or redevelopment may reduce short-

¹³⁵ 00139.202 DCC

¹³⁶ 00313.026 Queenstown Airport

¹³⁷ 00137.133 DOC, 00226.257 Kāi Tahu ki Otago, 00121.084 Ravensdown, 00321.083 Te Waihanga

¹³⁸ 00121.084 Ravensdown

¹³⁹ 00139.203 DCC

term risk, which is encouraged, but may result in off-setting or redirection of risk or may increase risk in the long term. DCC requests clarification on the meaning and application of 'redevelopment', and questions whether this means that houses may not be built or extended in a Hazard 3 (Coastal) Overlay Zone. DCC also comments that 'ensure' in this context has the same meaning as 'avoid'.

239. Port Otago states that HAZ-NH-P10 reflects Policy 25 of the NZCPS but considers it necessary to clarify the need for this policy given HAZ-NH-P1 to HAZ-NH-P9¹⁴⁰.

240. Federated Farmers considers 'avoidance' to be a significant imposition on land use and is based on significant uncertainty¹⁴¹. Federated Farmers does not consider it possible to make predictions over the next 100 years in relation to natural hazards and notes that this goes beyond the direction of the other provisions. Federated Farmers seeks amendments as follows:

In addition to HAZ-NH-P1 to HAZ-NH-P9 above, on any land that is otherwise potentially affected by coastal hazards ~~over at least the next 100 years:~~

(1) avoid increasing the risk of ~~social, environmental and economic~~ harm from coastal hazards, ...

241. The Fuel Companies request that clause (2) is deleted¹⁴².

12.4.14.3. Analysis

242. In relation to the submitters that are concerned HAZ-NH-P10 is in conflict with other policies in the HAZ chapter, I agree with their concern. As stated in the 'General Themes' section above, I recommend that HAZ-NH-P10 is amended by removing reference to policies HAZ-NH-P2 to HAZ-NH-P4.

243. In relation to the concerns raised by DCC and Federated Farmers, I note that this policy is largely driven by the requirement to give effect to Policy 25 of the NZCPS. Therefore, I disagree that it is appropriate to replace 'avoid' with 'ensure'. I note that this policy only applies to areas of the coastal environment that are potentially affected by coastal hazards over at least the next 100 years. Within these areas the NZCPS set a clear policy direction that redevelopment, or change in land use, that would increase the risk of adverse effects from coastal hazards should be avoided. In relation to the questions raised by DCC as to the effect this policy will have on housing development in coastal hazard zones of the district plan, I consider that it is the role of the district plan to give effect to the pORPS and the NZCPS and determine the nuances of when 'redevelopment' of a particular area of the coastal environment would increase the risk of adverse effects from coastal hazards. I disagree that detail needs to be provided on a regional wide basis in the pORPS.

¹⁴⁰ 00301.051 Port Otago

¹⁴¹ 00239.137 Federated Farmers

¹⁴² 00510.057 The Fuel Companies

244. In relation to the submission from The Fuel Companies, I disagree that clause (2) should be deleted because I consider this clause is necessary to give effect to Policy 25 (a) and (b) of the NZCPS.

12.4.14.4. Recommendation

245. I recommend HAZ-NH-P10 is amended as follows:

HAZ-NH-P10 – Coastal hazards

In addition to HAZ-NH-P1 and HAZ-NH-P5¹⁴³ to HAZ-NH-P9 above, on any *land* that is potentially affected by coastal hazards over at least the next 100 years:

[...]

12.4.15. HAZ-NH- P11 – Kaitiaki decision making

12.4.15.1. Introduction

246. As notified, HAZ-NH-P11 reads:

HAZ-NH-P11 – Kaitiaki decision making

Recognise and provide for the role of Kāi Tahu as kaitiaki over *wāhi tūpuna*, Māori reserves and freehold land that is susceptible to *natural hazards* by involving *mana whenua* in decision making and management processes.

12.4.15.2. Submissions

247. Seven submissions regarding HAZ-NH-P11 were made, with one in support¹⁴⁴.

248. Kāi Tahu ki Otago supports the requirement for that mana whenua be involved in decision making relating to hazards affecting *wāhi tūpuna*, Māori reserves and freehold land. However, they note that this should derive from the recognition of *rakatirataka*¹⁴⁵. Kāi Tahu ki Otago notes that kaitiakitaka is part of the practical exercise of *rakatirataka*. Kāi Tahu ki Otago seeks amendments as follows:

‘Recognise the rakatirataka role of Kāi Tahu as ~~kaitiaki~~ over *wāhi tūpuna*, Māori reserves and freehold land that is susceptible to natural hazards and enable mana whenua to exercise kaitiakitaka by involving ~~mana whenua~~ them in decision making and management processes.’

249. Several submitters question why Kāi Tahu have a specific role in decision making and management processes for freehold land that is susceptible to natural hazards. It is requested that the provision is amended to apply to all owners of freehold land susceptible to natural hazards¹⁴⁶.

¹⁴³ 00301.051 Port Otago

¹⁴⁴ 00137.134 DOC

¹⁴⁵ 00226.258 Kāi Tahu ki Otago

¹⁴⁶ 00139.204 DCC, 00235.129 OWRUG

250. Horticulture NZ, Federated Farmers and OWRUG all make a similar point¹⁴⁷. Horticulture NZ considers all landowners should have the ability to be involved in decision making and management processes related to their land. Federated Farmers notes that many areas of wāhi tupuna and freehold land are privately owned, therefore it is appropriate that the landowner is involved in any decision making or management processes¹⁴⁸. OWRUG also considers all owners of freehold land that is susceptible to natural hazards should have the ability to be involved in decision making and management processes¹⁴⁹.
251. Horticulture NZ, Federated Farmers and OWRUG all request that the provision be amended to apply to all owners of freehold land¹⁵⁰. They request the following amendment¹⁵¹:

Kaitiaki Decision making

Recognise and provide for the role of Kāi Tahu as kaitiaki over wāhi tupuna, Māori reserves and freehold land and landowners over private property where land is susceptible to natural hazards by involving mana whenua and landowners in decision making and management processes.

252. The Telecommunications Companies observe that it is unclear what the role of kaitiaki decision making would be with regard to freehold land susceptible to natural hazards¹⁵². They request that the reference to freehold land is deleted and note that if clarity on the intent is provided, they will consider this relief further.

12.4.15.3. Analysis

253. I agree with the submitters that raise questions with this policy. I agree that all landowners should have the ability to be involved in decision making and management processes related to their land. I consider the requirement to include communities, stakeholders, and partners in the assessment of natural hazard risk is provided for within the methods of the HAZ-NH chapter. I note the method HAZ-NH-M2(1) requires this consultation, as does Step 3 of APP6. I also note that method HAZ-NH-M5(2) also states that Local Authorities are encouraged to develop community relevant responses to the impacts of natural hazards and climate change, in collaboration with key stakeholders and affected community. Given there is already clear pathways for communities, stakeholders, and partners to be included in the assessment of natural hazard risk that, I consider this policy can be removed and that the existing methods within the pORPS can be relied on. I recommend a minor change to HAZ-NH-M2(a) be made to clarify that the reference to 'partners' refers to a partnership with Kāi Tahu ki Otago.

¹⁴⁷ 00236.087 Horticulture NZ, 00239.138 Federated Farmers, 00235.129 OWRUG

¹⁴⁸ 00239.138 Federated Farmers

¹⁴⁹ 00235.129 OWRUG

¹⁵⁰ 00236.087 Horticulture NZ, 00239.138 Federated Farmers, 00235.129 OWRUG

¹⁵¹ 00236.087 Horticulture NZ

¹⁵² 00310.011 The Telecommunications Companies

12.4.15.4. Recommendation

254. I recommend deleting HAZ-NH-P11 as follows:

~~HAZ-NH-P11 – Kaitiaki decision making~~

~~Recognise and provide for the role of Kāi Tahu as kaitiaki over wāhi tūpuna, Māori reserves and freeholdland that is susceptible to natural hazards by involving mana whenua in decision making and management processes.~~¹⁵³

255. I recommend amending HAZ-NH-M2(a) as follows:

(1) assess the level of *natural hazard risk* in their region or district in accordance with HAZ-NH-P2 and APP6, including by:

(a) consulting with communities, stakeholders and partners (Kāi Tahu)¹⁵⁴,

12.4.16. New policies

256. A number of submitters seek the introduction new policies within the HAZ – NH section. The requested policies cover a range of different topic areas, so to assist with readability I have individually assessed each request and provided a recommendation.

12.4.16.1. Aurora Energy

Submission

257. Aurora Energy expresses concern that the existing policies do not adequately provide for the ongoing nature of upgrades and developments to the distribution network to adapt and respond to the effects of climate change and the consequential increase in the frequency or magnitude of natural hazards¹⁵⁵. Aurora Energy considers that developing the network to respond to the effects of climate change is an ongoing task, requiring long-term strategic planning and integrated management with lifeline utilities. This adaptation is about increasing the resilience of the network to climate change and increased demand, rather than being ‘event-based’. Aurora Energy requests the addition of a new policy, and any consequential relief to HAZ-NH-M3 and M4, to address these concerns as follows¹⁵⁶:

HAZ-NH-PX

Recognise and provide for the ongoing development and upgrade of the distribution network to adapt to the effects of climate change by:

(1) Encouraging long-term planning for the development and upgrade of the distribution network; and

¹⁵³ 00310.011 The Telecommunications Companies

¹⁵⁴ 00226.258 Kāi Tahu ki Otago

¹⁵⁵ 00315.087 Aurora Energy

¹⁵⁶ 00315.065, 00315.068 Aurora Energy

(2) Integrated management with infrastructure and lifeline utilities.

Analysis

258. I am unclear from Aurora Energy's submission how the provisions within the HAZ-NH chapter will prevent the ongoing development and upgrade of the distribution network. I note that HAZ-NH-P4 enables the development, upgrade, maintenance and operation of lifeline utilities and facilities for essential and emergency services. Also, as noted in the assessment of HAZ-NH-P2 above, given the risk-based approach taken within the HAZ chapter, I consider it is unlikely that the ongoing development and upgrade of the distribution network will generate a significant risk, even if it is required to be located within an area of natural hazard risk. Therefore, I disagree that an additional policy is required.

Recommendation

259. I do not recommend any amendments.

12.4.16.2. Blackthorn Lodge

Submission

260. Blackthorn Lodge requests the addition of a new policy in relation to community tolerance, as follows¹⁵⁷:

HAZ-NH-Px – Community Tolerance

When assessing tolerance of risk the following matters shall be considered:

- (1) the nature and scale of the anticipated activities;
- (2) that tolerance is likely to be higher in relation to existing lawfully established land use or zoning;
- (3) the significance of an existing lawfully established land use or zoning to the community;
- (4) the outcomes of meaningful community consultation in accordance with HAZ-NHP2(1)
- (5) the actual and potential adverse effects of the natural hazard on people and communities;
- (6) those people's and communities' awareness or experience of the risk, including any investigations, initiatives or natural hazard risk engagement that have been undertaken;
- (7) the consequence of and response to past natural events;

¹⁵⁷ 00119.017 Blackthorn Lodge

(8) the effectiveness and implementation of responses, adaptations or mitigation measures.

Analysis

261. I disagree that the policy is necessary. I note that the risk thresholds (significant, tolerable, and acceptable) are determined using the methodology within APP6. I consider community tolerance is considered within this assessment. I also note HAZ-NH-M2 (1)(a), requires that consultation with communities, stakeholders and partners regarding risk level thresholds must be undertaken when assessing the level of natural hazard risk in their region or district in accordance with HAZ-NH-P2 and APP6. In addition, Step 3 of APP6 states:

Table 8 above has been included as a region-wide baseline. As set out in HAZ-NH-M2(1) local authorities are required to undertake a consultation process with communities, stakeholders and partners regarding risk levels thresholds and develop a risk table at a district or community scale. This region-wide baseline is to be used in the absence of a district or community scale risk table being developed.

262. I consider this is the appropriate place within the pORPS to acknowledge the consultation undertaken with the community. As such, I disagree the additional policy is required.

Recommendation

263. I do not recommend any amendments.

12.4.16.3. Sanford

Submission

264. Sanford expresses concern that several of the NH provisions do not adequately recognise that natural hazard risks at a property level can be managed by the landowner through appropriate design of developments¹⁵⁸. Sanford requests that the provisions do not direct that individual developments are avoided where the risk can be suitably mitigated. Sanford observes that the Kaitangata Hatchery is located in an area subject to flood hazard risk and that the policy in its current form may prevent continued and future development at the site. As such, Sanford requests that policies HAZ-NH-P2-P4, methods HAZ-NHM2-M3 and APP6 are amended so they do not direct individual developments to be avoided where significant natural hazard risk to the site can be suitably mitigated.

Analysis

265. I disagree that an additional policy is necessary. HAZ-NH-P2 and HAZ-NH-P3 require that a risk assessment be undertaken either through a plan review process or a resource consent process. This risk assessment takes into account the likelihood of a natural hazard

¹⁵⁸ 00122.030 Sanford

event occurring and the consequences. If an individual development can suitably mitigate the natural hazard risk, and the risk is not considered significant, then the avoid policy within HAZ-NH-P3 does not apply.

266. This analysis is support by the technical letter provided by GNS which states:

“Explicit implementation of the amendments sought by the submitted would provide for activities that generate significant risk, which would be contrary to Objective 1.

Following a risk assessment and determining that a significant risk is present, risk management or mitigation measure should be incorporated into the risk assessment to reduce the risk. Should these measures result in a reduction to a tolerable level, the risk would not need to be avoided.”

267. As such, I recommend the submission point is rejected.

Recommendation

268. I do not recommend any amendments.

12.4.16.4. Fulton Hogan

Submission

269. Fulton Hogan comments that the focus of the pORPS is on environmental resilience but that economic and social resilience and the ability to recover from natural hazard and climate change events is also important¹⁵⁹. Fulton Hogan requests the addition of a new policy that recognises the role of activities that enable communities to recover from the adverse effects of natural hazards and climate change in providing for social, economic and cultural resilience, as follows:

IM-PX

Provide for activities that enhance social, economic and cultural resilience to the adverse effects of natural hazards and climate change including activities that enhance the community’s ability to recover.

Analysis

270. I am unclear how this policy will assist in achieving HAZ-NH-O1 or HAZ-NH-O2. I consider the drafting of this policy is vague and it is unclear which activities it is seeking to provide for. As such, I disagree the suggested policy is required and I recommend rejecting this submission point.

Recommendation

271. I do not recommend any amendments.

¹⁵⁹ 00322.049 Fulton Hogan

12.4.16.5. Off-Road Adventures

Submission

272. A submission by Off Road Adventures in relation to the location of new and existing activities, seeks amendments to ensure these can occur in areas known to be subject to natural hazard risk¹⁶⁰. The submission relates to new and existing commercial activities including ancillary and support facilities or services, and existing residential activities, including maintenance and upgrades. Furthermore, Off Road Adventures seeks to prevent the classification of activities, particularly outdoor recreation activities, as having significant natural hazard risk, if they do not involve critical or lifeline buildings or structures and will not result in the death of more than 20 people, or the injury of more than 100 people.
273. Off Road Adventures requests that the pORPS be amended to direct regional and district plans, and decision makes on consent applications to:
- Ensure existing and new commercial recreation activities (including ancillary/supporting facilities and services) are provided for/can occur within areas known to be subject to natural hazard risk.
 - Ensure existing residential activities, including their maintenance and upgrading, can continue without being compromised by provisions seeking to protect these areas or manage natural hazard risk within areas known to be subject to natural hazard risk.
 - Prevent activities, particularly outdoor recreation, from being classified as having a “significant natural hazard risk” if they: do not involve critical or lifeline buildings/structures; will not result in the death of >20 people or injury of >100 people.’

Analysis

274. I disagree that this amendment is required. I note that the HAZ-NH section takes a risk-based approach to the management of natural hazards. I am unconvinced that outdoor recreation activities would trigger a ‘significant risk’ when using the risk-based methodology set out within APP6. I note that APP6 requires an assessment of the likelihood and consequence of an event occurring. Given the nature of outdoor recreation activities, I consider there would be a range of mitigation measures used to ensure that the consequence of an event occurring are not ‘major’ or ‘catastrophic’ and therefore would not trigger the ‘significant’ risk threshold. If these activities are considered to have a significant risk from natural hazards, I consider avoiding the significant risk is an appropriate planning response. In relation to the management of exiting activities, I consider HAZ-NH-P4(3) requires the management of existing land uses within areas of significant risk to people and communities. Therefore, I disagree an amendment is required. I recommended that this submission point be rejected.

¹⁶⁰ 00205.004 Off Road Adventures, 00205.005 Off Road Adventures

Recommendation

275. I do not recommend any amendments.

12.4.16.6. Other submitters

Submissions

276. Jim Hopkins observes that the risk of coastal erosion in Waitaki District is identified, but notes that the PORPS should explicitly allow more responses than simply managed retreat¹⁶¹. Furthermore, councils should be enabled to selectively protect identified settlements or areas where protection is sought, and viable.

277. Several submissions from individuals are opposed to the natural hazard provisions, and request that they are deleted or amended to ensure that ORC and QLDC cannot remove existing use rights or avoid proposals until after they have engaged with the Glenorchy Community on what constitutes 'significant' risk¹⁶². The submissions note that the community is resilient and has a high tolerance to natural hazard risk. The submissions also note that they expect the councils to protect existing development rights for current and future generations.

278. A submission by Wayfare requests that the current provisions are amended, or a new provision added that provides for people to clear debris from landslips or movements out of waterbodies or adjoining land¹⁶³.

Analysis

279. In response to the Jim Hopkins submission, it is not clear what relief is sought. I note that HAZ-NH-P4 directs the management of existing activities and does not require a specific management approach, such as managed retreat. Therefore, I disagree an amendment is required. I recommended that this submission point be rejected.

280. In relation to the submitters seeking to preserve existing use rights and requesting community consultation, I disagree an amendment is required. I note that the HAZ-NH section does not direct that existing use rights are removed. Reference to existing use rights within the HAZ-NH section is limited to HAZ-NH-P4 (3) which requires the management of existing land uses within areas of significant risk to people and communities. In relation to what constitutes 'significant risk', the generally accepted method for determining this is based on a consideration of consequences and probability¹⁶⁴. This is the approach set out in Step 3 of APP6, which considers that significant risk exists where a natural hazard scenario is:

¹⁶¹ 00420.014 Jim Hopkins

¹⁶² 00308.001 Sonya Poteos, 00103.003 Angus and others, 00028.002 Kelly Ann Sharpe, 00112.002 Andrew Richard Howson, 418.002 Danelle Jones, 217.002 Pete Reid, 00029.002 Toby William Montague Sharpe, 00216.002 Dwayne Terry, 00214.002 Dawn Thomson, 00111.002 Emese Erika, 00215.003 Chris Thomson

¹⁶³ 00411.005 Wayfare

¹⁶⁴ AS/NZS IEC 31010:2020 Risk Management - Risk assessment techniques

- almost certain and will have major consequences, or
- possible, likely or almost certain and will have catastrophic consequences

281. Finally, in relation to the submission from Wayfare, I disagree that the additional provisions are required. I consider this detailed activity specific provision is better suited to district and regional plans. I recommended that this submission point be rejected.

Recommendation

282. I do not recommend any amendments.

12.4.17. HAZ-NH-M1 – Statement of responsibilities

12.4.17.1. Introduction

283. As notified, HAZ-NH-M1 reads:

HAZ-NH-M1 – Statement of responsibilities

In accordance with section 62(1)(i)(i) of the RMA 1991, the responsibilities for the control of *land* use to avoid or mitigate *natural hazards* or any group of hazards are as follows:

- (1) the Regional Council and *territorial authorities* are both responsible for specifying objectives, policies and methods in *regional* and *district plans* for managing *land* subject to *natural hazard risk*,
- (2) the Regional Council is responsible for:
 - (a) specifying objectives, policies and methods in *regional plans*:
 - (i) in the coastal marine area,
 - (ii) in *wetlands, lakes and rivers*, and
 - (iii) in, on or under the *beds of rivers and lakes*,
 - (b) identifying areas in the region subject to *natural hazards* and describing their characteristics as required by Policy HAZ–NH–P1, mapping the extent of those areas in the relevant *regional plan(s)* and including those maps on a *natural hazard register* or database,
 - (c) in the coastal environment, identifying the coastal hazards as required by CE–P2(3) in accordance with Policy 24 of the NZCPS, mapping the extent of those areas in the relevant *regional plan(s)* and including those maps on a *natural hazard register* or database, and
- (3) *territorial authorities* are responsible for
 - (a) specifying objectives, policies and methods in *district plans for land* outside of the areas listed in (2)(a), and
 - (b) mapping or identifying via the *natural hazard register* or database, areas identified in 2(a), (b) and (c) above subject to natural hazards

and describing the characteristics and the extent of those areas in the relevant *district plan(s)*.

12.4.17.2. Submissions

284. Four submissions were made on HAZ-NH-M1, with two in support¹⁶⁵.
285. Kāi Tahu ki Otago considers the methods are an appropriate response to the risks of natural hazards¹⁶⁶. Ravensdown considers the identification and mapping of natural hazard areas in regional and district plans is appropriate and allows users to recognise the presence of natural hazard risks and to assess options to avoid or mitigate the risk in accordance with the provisions of the statutory planning documents¹⁶⁷.
286. QLDC notes that the statement of responsibilities is important as regional councils and territorial authorities have overlapping responsibilities for managing natural hazards under the RMA¹⁶⁸. QLDC considers that this method should go further than the RMA to provide greater clarification of these responsibilities, and there should be an additional method to resolve issues of overlapping responsibility, such as an agreement outside of the RMA relevant to a particular hazard issue. QLDC identifies that the regional council has the power to create land use rules in a regional plan to manage the risk from natural hazards. In particular, regional land use rules may reduce risk to existing communities through the management of existing uses and this should be identified in this method.
287. The submitter also notes that sub-clause (3)(b) creates dual responsibilities with respect to identifying or mapping natural hazards. QLDC considers the regional council is best placed to undertake identification and mapping within the region due to the professional staff available, while territorial authorities maintain hazard registers as new information is made available. QLDC remarks that territorial authorities do not have responsibility for managing land use in the areas identified in (2)(a), and that (3) refers to (2)(b) and (c), rather than (2)(a)(i-iii).
288. QLDC requests that clause (1) is deleted as it repeats the RMA and does not provide helpful direction, and further amendments as follows:

In accordance with section 62(1)(i)(i) of the RMA 1991, the responsibilities for the control of land use to avoid or mitigate natural hazards or any group of hazards are as follows:

- ~~(1) the Regional Council and territorial authorities are both responsible for specifying objectives, policies and methods in regional and district plans for managing land subject to natural hazard risk,~~
- (2) the Regional Council is responsible for:
 - (a) specifying objectives, policies and methods in regional plans:
 - (i) in the coastal marine area,
 - (ii) in wetlands, lakes and rivers, and

¹⁶⁵ 00226.259 Kāi Tahu ki Otago, 00121.085 Ravensdown

¹⁶⁶ 00226.259 Kāi Tahu ki Otago

¹⁶⁷ 00121.085 Ravensdown

¹⁶⁸ 00138.155 QLDC

- (iii) in, on or under the beds of rivers and lakes,
- (iv) on land in relation to risk reduction,
- (b) identifying areas in the region subject to natural hazards and describing their characteristics as required by Policy HAZ-NH-P1, mapping the extent of those areas in the relevant regional plan(s) and including those maps on a natural hazard register or database,
- (c) in the coastal environment, identifying the coastal hazards as required by CE-P2(3) in accordance with Policy 24 of the NZCPS, mapping the extent of those areas in the relevant regional plan(s) and including those maps on a natural hazard register or database, and
- (3) territorial authorities are responsible for
 - (a) specifying objectives, policies and methods in district plans for land outside of the areas listed in (2)(a) for purposes other than risk reduction, and
 - ~~(b) mapping or identifying via the natural hazard register or database, areas identified in 2(a), (b) and (c) above subject to natural hazards and describing the characteristics and the extent of those areas in the relevant district plan(s). ‘~~

289. DOC notes that the reference to CE-P2(3) is incorrect and should be amended to refer to CE-P2(4)¹⁶⁹.

12.4.17.3. Analysis

290. In relation to the amendments sought by QLDC, I note that these have been considered within the GNS Science technical letter. GNS state:

“The submitter makes a valuable point with regard to natural hazard responsibilities between regional councils and territorial authorities, and clear responsibilities would likely result in notable progression. However, these responsibilities should only be clarified with the agreement of both parties, and in this instance the one regional council and five territorial authorities.

The submitter seeks that Limb 1 of the method is deleted. While repetition of high order documents or provisions is not best practise for policy development, its inclusion does provide a useful reminder. A simpler approach could be to cross reference to Section 62(1)(i)(i) of the RMA, and provide clear responsibilities beyond the RMA beneath this.

The submitter also seeks the more explicit inclusion of the regional council’s ability to reduce risk via the management of existing use rights (Section 20A of the RMA), and see also Grace, et al. (2019). In this regard, the following are noted:

In this regard, the following are noted:

HAZ–NH–P4 – Existing activities

Reduce existing natural hazard risk by:

...

¹⁶⁹ 00137.135 DOC

3. *managing existing land uses within areas of significant risk to people and communities,*

...

HAZ–NH–M2 – Local authorities

Local authorities must:

...

3. *investigate options for reducing the level of natural hazard risk within areas of existing development to a tolerable or lower level, including by managing existing use rights under Sections 10 and 20A of the RMA,*

...

There is clear direction that Otago Regional Council is ensuring that existing land uses may be managed to manage significant risk. Further direction in this regard could be provided by the inclusion of the submitter’s proposed point (iv), as follows:

HAZ–NH–M1 – Statement of responsibilities

...

1. *the Regional Council is responsible for:*
 - a. *specifying objectives, policies and methods in regional plans:*

...

iv. on land in relation to risk reduction,

The submitter also addresses HAZ-NH-M1(3)(b) and its creation of dual responsibilities for mapping and identifying natural hazards. This has long been an area of tension, and while both regional council and territorial authorities should be involved in the process, regional councils are generally better placed to take the lead in this, and this should be acknowledged. To state that territorial authorities are responsible for mapping or identifying natural hazards via a register that Otago Regional Council maintains is impractical. Clearer drafting of the method would set out that territorial authorities make reference to the Otago Natural Hazards Database (<https://www.orc.govt.nz/managing-our-environment/natural-hazards/otago-natural-hazards-database>).

291. I agree with the analysis provided by GNS. As such, I recommend an amendment to HAZ-NH-M1(2)(a). I disagree that an amendment is required to reference Otago Natural Hazards Database specifically. I consider HAZ-NZ-M1(b) and HAZ-NZ-M1(2)(b) and HAZ-NZ-M1(3)(b) provides the flexibility for ‘mapping or identifying via the *natural hazard* register or database’, and I consider it is appropriate to retain that flexibility.

292. In relation to the submission from DOC, I agree the cross reference in incorrect. I agree the correct cross reference is to CE-P2(4).
293. When considering this provision, I noted that a colon was missing from the end of clause (3). I recommend including a colon and consider this is an amendment of minor effect in accordance with clause 16(2) of Schedule 1 of the RMA.

12.4.17.4. Recommendation

294. I recommend HAZ-NH-M1 is amended as follows:

HAZ-NH-M1 – Statement of responsibilities

In accordance with section 62(1)(i)(i) of the RMA 1991, the responsibilities for the control of *land* use to avoid or mitigate *natural hazards* or any group of hazards are as follows:

[...]

(2) the Regional Council is responsible for:

(a) specifying objectives, policies and methods in *regional plans*:

[...]

(iii) in, on or under the *beds of rivers and lakes, and*

(iv) on land in relation to risk reduction,¹⁷⁰

[...]

(c) in the coastal environment, identifying the coastal hazards as required by CE–P2(~~3~~)(4)¹⁷¹ in accordance with Policy 24 of the NZCPS, mapping the extent of those areas in the relevant *regional plan(s)* and including those maps on a *natural hazard* register or database, and

[...]

12.4.18. HAZ-NH-M2 – Local authorities

12.4.18.1. Introduction

295. As notified, HAZ-NH-M2 reads:

HAZ-NH-M2 – Local authorities

Local authorities must:

(1) assess the level of *natural hazard risk* in their region or district in accordance with HAZ–NH–P2 and APP6, including by:

(a) consulting with communities, stakeholders and partners regarding *risk levels thresholds*, and

¹⁷⁰ 00138.155 QLDC

¹⁷¹ 00137.135 DOC

- (b) developing a Risk Table in accordance with Step 3 of APP6 at a district or community scale,
- (2) continue to undertake research on the identification of *natural hazard risk* and amend *natural hazard* registers, databases, *regional* and/or *district plans* as required,
- (3) investigate options for reducing the level of *natural hazard risk* within areas of existing development to a tolerable or lower level, including by managing existing use rights under Sections 10 and 20A of the RMA,
- (4) prepare or amend and maintain their *regional* or *district plans* to take into account the *effects* of *climate change* by:
 - (a) using the best relevant *climate change* data and projections to 2115,
 - (b) taking a precautionary approach when assessing and managing the *effects* of *climate change* where there is scientific uncertainty and potentially significant or irreversible *effects*,
 - (c) providing for activities that assist to reduce or mitigate the *effects* of *climate change*, and
 - (d) encouraging system *resilience*.

12.4.18.2. Submissions

296. There are 14 submissions regarding HAZ-NH-M2. Three submissions are in support¹⁷².
297. FENZ notes that they would endorse local authority engagement with communities and stakeholders regarding risk level thresholds, as noted in clause (1)(a)¹⁷³. They also seek that ‘emergency services’ is added to the stakeholder list in M2(1)(a).
298. ECan supports the intent of HAZ-NH-M2 but seeks an amendment to require consultation with neighbouring local authorities when identifying the level of natural hazard risk, particularly where they are not considered a partner organisation¹⁷⁴. ECan refers to the Canterbury Regional Policy Statement Policy 11.3.9 *Integrated Management of, and preparedness for, natural hazards*, which requires the Canterbury Regional Council to work as a co-ordinating agency in partnership with others, including across local and regional boundaries, to manage natural hazards. ECan seeks amendment of the provision as follows:

Local authorities must:

- (1) assess the level of natural hazard risk in their region or district in accordance with HAZ-NH- P2 and APP6, including by:

¹⁷² 00137.136 DOC, 00226.260 Kāi Tahu ki Otago, 00219.002 FENZ

¹⁷³ 00219.002 FENZ

¹⁷⁴ 00013.015 ECan

- (a) consulting with communities, stakeholders and partners, including with local authorities in neighbouring regions, regarding risk levels thresholds, and ...

299. QLDC considers that the method should more clearly assign roles and responsibilities to either the regional council or territorial authorities for natural hazard risk¹⁷⁵. QLDC notes that it would be preferable to develop collaborative agreements on how to assess risk and should specify the responsibilities of the regional council and territorial authorities in order to avoid overlapping tasks and associated inefficiency. QLDC requests that the provision is amended to state that ORC 'and' TAs should undertake the task in a collaborative manner, and further should set out how the collaboration is to be achieved, and the timeframe for achieving it.
300. DCC states that HAZ-NH-M2 requires the council to undertake a community consultation process to develop a risks and consequences table but note that DCC recently carried this out in collaboration with the regional council when developing the second-generation Dunedin City District Plan¹⁷⁶. DCC is concerned at any requirement to undergo this process again within the coming six years. It is requested that the provision is amended to provide an exemption for local authorities with an existing risk assessment framework in their district plan, for example the Dunedin City District Plan, and a consequential amendment to ensure that resource consent applicants do not have to undertake the risk assessment in the interim (see APP6 below).
301. OWRUG comments that HAZ-NH-M2 requires local authorities to assess the level of risk and to produce a risk table at a district or community scale, while HAZ-NH-M3 and HAZ-NH-M4 set out the resource consent requirements where identification has not occurred¹⁷⁷. The submitter considers that in order to provide certainty for consent applicants, clause (1) should be amended to include a timeframe requiring the development of the risk table by December 2023.
302. Horticulture NZ makes a similar submission, also noting that any risk assessment needs to be commensurate with the level of risk from the proposed activity¹⁷⁸. Horticulture NZ requests that clause (1) be amended so that it begins "By December 2022 ...".
303. Wayfare, Trojan, and Blackthorn Lodge note that HAZ-NH-M2 repeats HAZ-NH-P2¹⁷⁹. Both state that the method can refer back to the policy and clarify how it is to be implemented, and request that the method is amended as follows:

Local authorities must:

- ~~(1)~~ *assess the level of natural hazard risk in their region or district in accordance with HAZ-NH-P2 and APP6, including by:*

¹⁷⁵ 00138.156 QLDC

¹⁷⁶ 00139.205 DCC

¹⁷⁷ 00235.130 OWRUG

¹⁷⁸ 00236.088 Horticulture NZ

¹⁷⁹ 00411.071 Wayfare, 00206.057 Trojan, 00119.020 Blackthorn Lodge

~~(2) consulting with communities, stakeholders and partners regarding risk levels thresholds, and~~

~~(3)(1) developing a Risk Table in accordance with Step 3 of APP6 at a district or community scale,~~

~~(4)(2) continue to undertake research on the identification of natural hazard risk and amend natural hazard registers, databases, regional and/or district plans as required,~~

~~(5)(3) investigate options for reducing the level of natural hazard risk within areas of existing development to a tolerable or lower level, including by managing existing use rights under Sections 10 and 20A of the RMA,~~

~~(6)(4) prepare or amend and maintain their regional or district plans to take into account the effects of climate change by: ...~~

304. Ravensdown seeks amendments to clause (4) to reflect amendments sought elsewhere¹⁸⁰. The amendment sought is as follows:

~~Reduce existing~~ Manage natural hazard risk by:

(1) encouraging and providing for activities that reduce risk, or reduce community vulnerability, ...

305. Jim Hopkins comments that the requirement on councils to develop a natural hazards table should be optional and that as the nature and magnitude of risk will be addressed in district plans, this requirement may be an unnecessary obligation¹⁸¹. Furthermore, councils should at least have the option of achieving the outcome sought through other means.

12.4.18.3. Analysis

306. I agree with the amendment sought by ECan to include local authorities in neighbouring regions within the method as I consider this amendment will assist with consistency across regional boundaries. I also agree that emergency services should be consulted as part the consultation process. However, I consider emergency services would be a stakeholder in this consultation process given their integral part in natural hazard management.

307. In relation to the submission from QLDC, I agree that the responsibilities of local authorities, ORC, and territorial authorities in relation to HAZ-NH-P2, APP6 and consequentially HAZ-NH-P3 should be more clearly articulated within the methods section. As set out within HAZ-NH-M2(1) local authorities must assess the level of natural hazard risk in their region or district in accordance with HAZ-NH-P2 and APP6 including by undertaking a consultation process and developing a risk table. I agree that this should

¹⁸⁰ 00121.086 Ravensdown

¹⁸¹ 00420.021 Jim Hopkins

be a collaborative process involving both the Otago Regional Council and territorial authorities.

308. In relation to the submission from DCC seeking an exemption for local authorities with an existing risk assessment framework in their district plan, I note this submission point was considered by the technical letter from GNS Science, it states:

'DCC's initiative in developing a risk-based approach should be commended and recognised. HAZ-NH-P2 and HAZ-NH-M2 directs that local authorities "assess the level of natural hazard risk ... in accordance with(in) ... APP6...". Should it be able to be demonstrated that DCC's assessment is in general accordance with that in the RPS, an amendment is not required to either document.'

309. I agree with the analysis of GNS Science. Based on a brief review to Chapter 11 – Natural hazards within the DCC 2GP, I consider the risk-based approach incorporated into this chapter appears to give effect to the HAZ chapter in a general sense.

310. I disagree that a specific amendment is required to ensure that resource consent applicants under the 2GP do not have to undertake the risk assessment in accordance with APP6. As noted in the General Themes section above, the drafting of the HAZ-NH section requires that once a risk-based approach has been incorporated into a district or regional plan in accordance with APP6, resource consent applications do not need to undertake an assessment in accordance with APP6.

311. In relation to the submissions from OWRUG and Horticulture NZ seeking a timeframe be added to HAZ-NH-M2, I note that timeframes have been included within the pORPS where possible to provide as much clarity as possible as to when the Otago Regional Council intends to complete certain work streams. These timeframes are linked to work programmes budgeted within the Otago Regional Council Long-Term Plan. Given the actions within HAZ-NH-M2 require collaboration between the Otago Regional Council and territorial authorities, I disagree that including a timeframe for this method is appropriate.

312. In relation to Horticulture NZ's submission seeking that any risk assessment needs to be commensurate with the level of risk from the proposed activity, I agree in part with the submission. I disagree that an amendment is required within HAZ-NH-M2 as this is the method that requires a natural hazard risk assessment at a regional or district scale. I also note that Schedule 4(3)(c) of the RMA requires that an application must include an assessment of the activity's effects on the environment that includes such detail as corresponds with the scale and significance of the effects that the activity may have on the environment. As such, I consider this qualifier is already included within the RMA. However, I acknowledged that it would add clarity to HAZ-NH-M3(7) and HAZ-NH-M4(7) if and addition was included to acknowledge that the assessments should be commensurate with the level of risk from the proposed activity.

313. In relation to the submission from Wayfare, Trojan, and Blackthorn Lodge, I agree in part with this submission point. I agree that HAZ-NH-P2 refers to APP6 and therefore reference to APP6 does not need to be repeated within HAZ-NH-M2(1). I disagree that

HAZ-NH-M2(2) and (3) should be deleted as I consider these methods are integral to the application of APP6.

12.4.18.4. Recommendation

314. I recommend HAZ-NH-M2 is amended as follows:

HAZ-NH-M2 – Local authorities

*Local authorities must work collaboratively to*¹⁸²

(1) assess the level of *natural hazard risk* in their region or district in accordance with HAZ-NH-P2 and APP6, including by:

(a) consulting with communities, stakeholders and partners, including with local authorities in neighbouring regions¹⁸³ regarding *risk levels thresholds*, and

[...]

12.4.19. HAZ-NH-M3 – Regional plans

12.4.19.1. Introduction

315. As notified, HAZ-NH-M3 reads:

HAZ-NH-M3 – Regional plans

Otago Regional Council must prepare or amend and maintain its *regional plans* to:

- (1) manage activities in the *coastal marine area, beds of lakes and rivers, and wetlands* to achieve policies HAZ–NH–P2 to HAZ–NH–P6 and APP6,
- (2) include *natural hazard* reduction measures, such as removing or restricting existing *land* uses, where there is significant *risk* to people or property,
- (3) protect natural or modified features and systems that provide mitigation from the adverse *effects* of *natural hazards* in accordance with HAZ–NH–P6,
- (4) provide for *hard protection structures* in accordance with HAZ–NH–P7,
- (5) provide for the *functional needs* of hazard mitigation measures, *lifeline utilities*, and essential or emergency services in accordance with HAZ–NH–P8 and HAZ–NH–P9,
- (6) include provisions that require decision makers to apply the precautionary approach set out in HAZ–NH–P5 when considering applications for *resource consent* for activities that will change the use of *land* and thereby increase the *risk* from *natural hazards* within areas subject to *natural hazard risk* that is uncertain or unknown, but potentially significant or irreversible, and
- (7) require a *natural hazard risk* assessment be undertaken where an activity requires a *resource consent* to change the use of *land* which will increase the

¹⁸² 00138.156 QLDC

¹⁸³ 00013.015 ECan

risk from natural hazards within areas subject to *natural hazards*, and where the *resource consent* is lodged prior to the *natural hazard risk* assessment required by HAZ–NH–M2(1) being completed, the *natural hazard risk* assessment must include:

- (a) an assessment of the level of *natural hazard risk* associated with the proposal in accordance with APP6, and
- (b) an assessment demonstrating how the proposal will achieve the outcomes set out in Policies HAZ–NH–P3 and HAZ–NH–P4.

12.4.19.2. Submissions

316. Several submissions were made in relation to HAZ-NH-M3, with three in support¹⁸⁴.
317. QLDC generally supports HAZ-NH-M3 and considers that it provides appropriate direction to regional plans¹⁸⁵. QLDC requests a minor amendment to include ‘risk’ in clause (2) as follows:
- (2) include natural hazard risk reduction measures, such as removing or restricting existing land uses, where there is significant risk to people or property
318. Port Otago finds HAZ-NH-P3 unclear as to what regional consent activity constitutes land use change as this is not usually regulated through regional plans¹⁸⁶. Port of Otago does not consider that assessment of natural hazard risk through land use change aspects of regional plans provides a robust or complete approach. Rather this should be managed through district plans under HAZ-NH-M4. As an alternative it is suggested that HAZ-NH-M3 is amended to clarify which regional resource consents are required to follow the APP6 process, and exemptions provided for small scale and/or low risk activities. Additionally, Port of Otago seeks the deletion of clause (7).
319. Horticulture NZ and OWRUG consider any risk assessment should be commensurate with the level of risk from the proposed activity and seek an amendment to clause (7)(a) to add ‘commensurate with the level of risk from the proposed activity’¹⁸⁷.
320. Federated Farmers makes a similar submission, and requests that clause (7) is amended so that natural hazard risk assessments are commensurate with the level of risk¹⁸⁸. Federated Farmers opposes the use of the precautionary principle as proposed in relation to HAZ-NH-M3. As noted in relation to HAZ-NH-P5, if the risk remains uncertain or unknown following application of the natural hazard provisions, the precautionary approach should not be implemented due to the implications this would have on

¹⁸⁴ 00226.261 Kāi Tahu ki Otago, 00137.137 DOC, 00315.066 Aurora Energy

¹⁸⁵ 00138.157 QLDC

¹⁸⁶ 00301.052 Port Otago

¹⁸⁷ 00236.089 Horticulture NZ, 00235.131 OWRUG

¹⁸⁸ 00239.139 Federated Farmers

residents and resource users and seeks the deletion of clause (6). Federated Farmers requests that the provision is amended as follows:

- ~~(6) — include provisions that require decision makers to apply the precautionary approach set out in HAZ-NH-P5 when considering applications for resource consent for activities that will change the use of land and thereby increase the risk from natural hazards within areas subject to natural hazard risk that is uncertain or unknown, but potentially significant or irreversible, and~~
- (7) require a natural hazard risk assessment commensurate with the level of risk to be undertaken where an activity requires a resource consent to change the use of land ...

321. Ravensdown requests the deletion of clause (6) to reflect amendments requested to relevant provisions elsewhere¹⁸⁹.

322. Wayfare and Trojan note that clause (2) could have significant and adverse implications that have not been justified¹⁹⁰. Wayfare does not consider it appropriate to restrict existing land use until after community involvement in decision making processes regarding the consequences of the removal of existing use rights. As such, amendments to HAZ-NH-M3 are requested as follows:

- (1) manage activities in the coastal marine area, beds of lakes and rivers, and wetlands to achieve policies HAZ-NH-P2 to HAZ-NH-P6 and APP6,
- (2) include natural hazard reduction measures, ~~such as removing or restricting existing land uses, where there is significant risk to people or property, ...~~

323. Blackthorn Lodge requests that the method is amended as follows¹⁹¹:

- (2) include natural hazard reduction measures, ~~such as removing or restricting existing land uses, where there is significant risk to people or property,~~
- (3) protect natural or modified features and systems that provide mitigation from the adverse effects of natural hazards in accordance with HAZ-NH-P6,
- (4) provide for hard protection structures in particular community scale mitigation in accordance with HAZ-NH-P7, ...

12.4.19.3. Analysis

324. In relation to the submission from QLDC, I agree that the addition of 'risk' is required with methods HAZ-NH-M3(2).

325. In relation to the submission from Port Otago seeking clarity as to what regional consent activity constitutes land use change as this is usually regulated through district plans, I

¹⁸⁹ 00121.087 Ravensdown

¹⁹⁰ 00411.072 Wayfare, 00206.058 Trojan

¹⁹¹ 00119.021 Blackthorn Lodge

agree with the submitter that land use change is generally managed through district plan consenting. However, I do note that section 30(1)(c)(iv) of the RMA states:

(1) Every regional council shall have the following functions for the purpose of giving effect to this Act in its region:

[...]

(c) The control of the use of land for the purpose of—

[...]

(iv) the avoidance or mitigation of natural hazards:

326. Also, section 30(1)(d)(v) of the RMA states:

(1) Every regional council shall have the following functions for the purpose of giving effect to this Act in its region:

[...]

(d) in respect of any coastal marine area in the region, the control (in conjunction with the Minister of Conservation) of—

[...]

(v) any actual or potential effects of the use, development, or protection of land, including the avoidance or mitigation of natural hazards:

327. Finally, section 65(3)(c) of the RMA states:

(3) Without limiting the power of a regional council to prepare a regional plan at any time, a regional council shall consider the desirability of preparing a regional plan whenever any of the following circumstances or considerations arise or are likely to arise:

[...]

(c) any risks from natural hazards:

328. Given this I consider it is appropriate that methods are included within the pORPS that require the management of natural hazards within a regional plan. I consider there are a range of activities that occur within the coastal marine area, beds of lakes and rivers, and wetlands that may need to consider natural hazard risk. I disagree that the pORPS should clarify which regional resource consents are required to follow the APP6 process, and exemptions provided for small scale and/or low risk activities. I note that the APP6 process is only required where:

- an activity requires a plan change or resource consent to change the use of land which will increase the risk from natural hazards within areas subject to natural hazards
- where the application is lodged prior to the natural hazard risk assessment required by HAZ-NH-M2(1) being completed

329. In addition, I have recommended an amendment to HAZ-NH-M3(7) that allows the risk assessment to be commensurate with the level of risk from the proposed activity. Therefore, I disagree explicit exclusions are required for small scale or low risk activities.
330. In relation to the submitters that seek an amendment to HAZ-NH-M3(7), as noted in the assessment above, I agree that it is appropriate that a qualifier such as ‘commensurate with the level of risk from the proposed activity’ is added to the method.
331. I disagree with the Federated Farmers and Ravensdown submissions seeking that HAZ-M3(6) be deleted. As noted in the assessment of HAZ-NH-P5, I consider there are a range of scenarios where a natural hazard risk could be uncertain, or unknown and yet potentially significant, particularly where an initial assessment has been undertaken which has identified a potential risk and further work is required to understand the extent of a risk. As such, I consider it is appropriate that methods are retained within the HAZ-NH chapter that require a precautionary approach in particular situations.
332. Finally in relation to the submissions from Blackthorn Lodge, Wayfare and Trojan I agree in part with the requested changes. I agree that ‘and APP6’ can be removed from the method as HAZ-NH-P3 requires a risk assessment in accordance with APP6 and therefore reference to APP6 is not necessary. However, with regard to the submission point seeking the deletion of ‘such as removing or restricting existing land uses, where there is significant risk to people or property’, I do not think that the deletion sought will change the effect of the method. I note that the method is non-exclusive and highlights one of the potential mitigation measures that may be included within a regional plan. In addition, I note that any change in the management of existing use rights within a regional plan will be associated with a Schedule 1 RMA process which would include community consultation in accordance with APP6.

12.4.19.4. Recommendation

333. I recommend amending HAZ-NH-M3 as follows:

HAZ-NH-M3 – Regional plans

Otago Regional Council must prepare or amend and maintain its *regional plans* to:

- (1) manage activities in the *coastal marine area, beds of lakes and rivers, and wetlands* to achieve policies HAZ-NH-P23¹⁹² to HAZ-NH-P6, ~~and APP6~~ and the outcomes of the Risk Table established within HAZ-NH-M2(1)¹⁹³,
- (2) include *natural hazard risk*¹⁹⁴ reduction measures, such as removing or restricting existing *land* uses, where there is significant *risk* to people or property,

[...]

¹⁹² 00138.158 QLDC

¹⁹³ 00119.021 Blackthorn Lodge

¹⁹⁴ 00138.157 QLDC

- (7) require a *natural hazard risk* assessment commensurate with the level of risk from the proposed activity¹⁹⁵ be undertaken where an activity requires a *resource consent* to change the use of *land* which will increase the risk from ~~*natural hazards*~~ with¹⁹⁶ in areas subject to *natural hazards*, and where the *resource consent* is lodged prior to the *natural hazard risk* assessment required by HAZ-NH-M2(1) being completed, included in the regional plan and made operative,¹⁹⁷ the *natural hazard risk* assessment must include:
- (a) an assessment of the level of *natural hazard risk* associated with the proposal in accordance with APP6, and
 - (b) an assessment demonstrating how the proposal will achieve the outcomes set out in Policies HAZ-NH-P3 and HAZ-NH-P4, and
- (8) not require a *natural hazard risk* assessment in accordance with APP6 for resource consent applications, once the *natural hazard risk* assessment required by HAZ-NH-M2(1) has been completed, included in the relevant regional plan and made operative, unless otherwise expressly required by the relevant regional plan.¹⁹⁸

12.4.20. HAZ-NH-M4 – District plans

12.4.20.1. Introduction

334. As notified, HAZ-NH-M4 reads:

HAZ-NH-M4 – District plans

Territorial authorities must prepare or amend and maintain their *district plans* to:

- (1) achieve policies HAZ-NH-P2 to HAZ-NH-P6 and APP6 on *land* outside the *coastal marine area*, *beds of lakes and rivers*, and *wetlands* by managing the location, scale and density of activities that may be subject to *natural hazard risk*,
- (2) require implementation of *natural hazard risk* reduction measures, including to existing activities in accordance with HAZ-NH-P4,
- (3) protect the role of natural or modified features and systems that provide mitigation from the adverse *effects* of *natural hazards* in accordance with HAZ-NH-P6,
- (4) provide for *hard protection structures* in accordance with HAZ-NH-P7,
- (5) provide for the *functional needs* of hazard mitigation measures, *lifeline utilities*, and essential or emergency services in accordance with HAZ-NH-P8 and HAZ-NH-P9,

¹⁹⁵ 00236.089 Horticulture NZ

¹⁹⁶ 00138.158 QLDC

¹⁹⁷ 00301.052 Port Otago

¹⁹⁸ 00301.052 Port Otago

- (6) include provisions that require decision makers to apply the precautionary approach set out in HAZ–NH–P5 when considering applications for *resource consent* for activities that will change the use of *land* and which may increase the *risk* from *natural hazards* within areas subject to *natural hazard risk* that is uncertain or unknown, but potentially significant or irreversible, and
- (7) require a *natural hazard risk* assessment be undertaken where an activity requires a plan change or *resource consent* to change the use of *land* which will increase the *risk* from *natural hazards* within areas subject to *natural hazards*, and where the application is lodged prior to the *natural hazard risk* assessment required by HAZ–NH–M2(1) being completed, the *natural hazard risk* assessment must include:
 - (a) an assessment of the level of *natural hazard risk* associated with the proposal in accordance with APP6, and
 - (b) an assessment demonstrating how the proposal will achieve the outcomes set out in Policies HAZ–NH–P3 and HAZ–NH–P4.

12.4.20.2. Submissions

- 335. Several submissions were made in regard to HAZ-NH-M4, with four in support¹⁹⁹. Aurora Energy requests that the method is retained insofar as it is consistent with the submitter’s requested relief on policies²⁰⁰.
- 336. QLDC observes that HAZ-NH-M4 places responsibility for undertaking risk assessment on territorial authorities²⁰¹. QLDC notes this is in contrast to HAZ-NH-M2(1), which requires local authorities to assess natural hazard risk in accordance with HAZ-NH-P2. QLDC seeks greater clarity on which authority has responsibility, whilst also noting it is more appropriate for the regional council and territorial authorities to undertake natural hazard risk assessments collaboratively.
- 337. QLDC notes that clause (2) requires district plans to implement risk reduction measures but that this is not legally possible under section 10 of the RMA, as district rules cannot apply to existing activities²⁰². While district plans cannot be proactive about risk reduction, they may provide a pathway for change to less vulnerable land use. QLDC requests that the requirement for district plans to implement risk reduction measures is deleted.
- 338. In relation to clause (7), QLDC points out that if a risk assessment is required, then it cannot be clear at the outset that the risk will increase as a result of a plan change or resource consent. In this regard, the clause should be amended to clarify that risk assessment is required to be undertaken when a plan change or resource consent is

¹⁹⁹ 00137.138 DOC, 00226.262 Kāi Tahu ki Otago, 00315.067 Aurora Energy, 00305.073 Waka Kotahi

²⁰⁰ 00315.067 Aurora Energy

²⁰¹ 00138.158 QLDC

²⁰² 00138.158 QLDC

within an area that is known to be subject to a natural hazard²⁰³. An amendment is sought as follows:

require a natural hazard risk assessment be undertaken where an activity requires a plan change or resource consent to change the use of land which will ~~increase the risk from natural hazards~~ be located within areas subject to natural hazards, and where the application is lodged prior to the natural hazard risk assessment required by HAZ-NH-M2(1) being completed, the natural hazard risk assessment must include...

339. CODC supports the method in principle but considers that the regional council and adjoining regional authorities should produce natural hazard information and disseminate this to territorial authorities for inclusion in district plans²⁰⁴.
340. FENZ points out that the agency is likely to have a role in any emergency arising from a natural hazard event, such as a fire²⁰⁵. FENZ requests that clause (6) is amended to include consultation with other agencies, including FENZ.
341. Federated Farmers, Horticulture NZ and OWRUG request that (7)(a) is amended to add 'commensurate with the level of risk from the proposed activity'²⁰⁶. Federated Farmers proposes the following amendment to clause (7):

Require a natural hazard risk assessment commensurate with the level of risk to be undertaken where an activity requires a resource consent ...

342. Federated Farmers and Ravensdown seek the deletion of HAZ-NH-M4(6)^{207 208}.
343. Trojan and Wayfare consider that territorial authorities should not be directed to amend their district plans unless activities are subject to tolerable or significant natural hazard risk, as there should not be any need to amend plans where the risk is insignificant²⁰⁹. An amendment is sought as follows:

Territorial authorities must prepare or amend and maintain their district plans to:

- (1) achieve policies HAZ-NH-P2 to HAZ-NH-P6 and APP6 on land outside the coastal marine area, beds of lakes and rivers, and wetlands by managing the location, scale and density of activities that are ~~may be~~ subject to tolerable or significant natural hazard risk,...

344. Blackthorn Lodge requests the following amendment to the provision²¹⁰:

- (1) achieve policies HAZ-NH-P2 to HAZ-NH-P6 and APP6 on land outside the coastal marine area, beds of lakes and rivers, and wetlands by managing

²⁰³ 00138.158 QLDC

²⁰⁴ 00201.04 CODC

²⁰⁵ 00219.004 FENZ

²⁰⁶ 00239.140 Federated Farmers, 00236.090 Horticulture NZ, 00235.132 OWRUG

²⁰⁷ 00239.140 Federated Farmers, 00121.088 Ravensdown

²⁰⁸ 00239.140 Federated Farmers

²⁰⁹ 00206.059 Trojan, 00411.073 Wayfare

²¹⁰ 00119.022 Blackthorn Lodge

the location, scale and density of activities that ~~are~~ ^{may be} subject to natural hazard risk,...

12.4.20.3. Analysis

345. In relation to the submission from QLDC, the technical letter from GNS Science states:

'The submitter sets out that HAZ-NH-M4 requires district plans to implement risk reduction measures including in relation to existing activities, but contends that this is not legally possible under Section 10 of the RMA. While this is strictly true, should the regional council make amendments to its regional plan in this regard, the District Plan would be required to reflect this, as was the case on the Awatarariki Fanhead, Matatā, Bay of Plenty. Less onerous drafting for territorial authorities would be:

HAZ-NH-M4 – District Plans

Territorial authorities must prepare or amend and maintain their district plans to:

...

2. ~~require implementation of~~ implement natural hazard risk reduction measures, including to existing activities in accordance with HAZ-NH-P4,

The submitter also identifies that clause (7) makes assumptions about risk that will not be clear at the outset. The following amendment is advised.

HAZ-NH-P4 – District Plans

...

7. *require a natural hazard risk assessment be undertaken where an activity requires a plan change or resource consent to change the use of land ~~which will increase the risk from natural hazards within areas subject to natural hazards, and where the application is lodged prior to the natural hazard risk assessment required by HAZ-NH-M2(1) being completed, the natural hazard risk assessment must include...~~*

346. I agree with the analysis from GNS. As such, I recommend HAZ-NH-M4(2) and (7) are amendment as recommended. I also recommend a consequential amendment to HAZ-NH-M3(7) for consistency.

347. In relation to QLDC's submission on clause (2) requiring that district plans implement risk reduction measures, further to the analysis provided by GNS above, I disagree that the management of existing use rights under section 10 of the RMA is the only method of implementing risk reduction measures set out within HAZ-NH-P4. I note that clause (1) encourages activities that reduce risk, or reduce community vulnerability, clause (4) encourages design that facilitates recovery from natural hazard events and reduction of risk, and clause (6) enables development, upgrade, maintenance and operation of lifeline

utilities and facilities for essential and emergency services. I consider these actions can be addressed within the provisions of a district plan.

348. I agree with QLDC that the responsibilities of local authorities, the ORC, and territorial authorities in relation to HAZ-NH-P2, APP6 and consequentially HAZ-NH-P3 should be more clearly articulated within the methods section. As set out within HAZ-NH-M2(1) local authorities must assess the level of natural hazard risk in their region or district in accordance with HAZ-NH-P2 and APP6 including by undertaking a consultation process and developing a risk table. Once this risk table has been established, I consider it is the role of the Otago Regional Council and territorial authorities to implement this risk table within the relevant regional and district plans.
349. As noted in the 'General themes' section at the start of this report, the methods within the HAZ-NH chapter do not require the replication of APP6 into district or regional plans, nor do they necessarily require a risk table be incorporated into a district or regional plan. They require that policies HAZ-NH- HAZ-NH-P2 to HAZ-NH-P6 are achieved. I consider this could be made more explicit by introducing an amendment to HAZ-NH-M4 which specifically relates to incorporating the outcomes of the Risk Table established within HAZ-NH-M2(1). I also recommend a consequential amendment to HAZ-NH-M3(1) which will provide the same clarity within regional plans.
350. In relation to the submissions from Federated Farmers, Horticulture NZ and OWRUG seeking that natural hazard risk assessment commensurate with the level of risk, I agree with this amendment. I disagree with the deletion of HAZ-NH-M4(6) for the reasons set out in the HAZ-NH-M3 analysis above.
351. In relation to the submission from FENZ seeking that clause HAZ-NH-M4(6) is amended to include consultation with other agencies, including FENZ, I consider that FENZ would be included within the consultation required by HAZ-NH-M2(1). I disagree that HAZ-NH-M4(6) is the right place within the HAZ-NH section to provide for consultation. I recommend the submission is rejected.
352. Finally, in relation to the submission from Trojan and Wayfare that seeks that HAZ-NH-M4(2) only directs that district plans manage activities that are subject to tolerable or significant natural hazard risk, I disagree that this amendment is required. I note that if a natural hazard risk is 'acceptable' when assessed in accordance with the methodology within APP6, HAZ-NH-P3 requires that this level of risk is maintained. I consider this is an appropriate planning approach.

12.4.20.4. Recommendation

353. I recommend amending HAZ-NH-M4 as follows:

HAZ-NH-M4 – District plans

Territorial authorities must prepare or amend and maintain their district plans to:

- (1) achieve policies HAZ-NH-P2²¹¹ to HAZ-NH-P6, and APP6 and incorporate the outcomes of the Risk Table established within HAZ-NH-M2(1),²¹² on land outside the coastal marine area, beds of lakes and rivers, and wetlands by managing the location, scale and density of activities that are ~~may be~~²¹³ subject to natural hazard risk,
- (2) ~~require implementation of~~ implement²¹⁴ natural hazard risk reduction measures, including to existing activities in accordance with HAZ-NH-P4,
[...]
- (7) require a natural hazard risk assessment commensurate with the level of risk from the proposed activity²¹⁵ be undertaken where an activity requires a plan change or resource consent to change the use of land which will increase the risk from natural hazards with²¹⁶ in areas subject to natural hazards, and where the application is lodged prior to the natural hazard risk assessment required by HAZ-NH-M2(1) being completed, included in the district plan and made operative²¹⁷, the *natural hazard risk* assessment must include:
 - (a) an assessment of the level of *natural hazard risk* associated with the proposal in accordance with APP6, and
 - (b) an assessment demonstrating how the proposal will achieve the outcomes set out in Policies HAZ-NH-P3 and HAZ-NH-P4.
- (8) not require a natural hazard risk assessment in accordance with APP6 for resource consent applications, once the natural hazard risk assessment required by HAZ-NH-M2(1) has been completed, included in the relevant district plan and made operative, unless otherwise expressly required by the relevant district plan.²¹⁸

12.4.21. HAZ-NH-M5 – Other incentives and mechanisms

12.4.21.1. Introduction

354. As notified, HAZ-NH-M5 reads:

HAZ-NH-M5 – Other incentives and mechanisms

Local authorities are encouraged to consider the use of other mechanisms or incentives to assist in achieving Policies HAZ–NH–P1 to HAZ–NH–P11, including:

²¹¹ 00119.021 Blackthorn Lodge

²¹² 00138.158 QLDC

²¹³ 00206.059 Trojan

²¹⁴ 00138.158 QLDC

²¹⁵ 00236.090 Horticulture NZ

²¹⁶ 00138.158 QLDC

²¹⁷ 00301.047 Port Otago

²¹⁸ 00301.047 Port Otago

- (1) preparing *natural hazard* strategies or other similar documents to assist in the management and reduction of *natural hazard risk* and adaptation to, and mitigation of, the *effects of climate change*,
- (2) developing community relevant responses to the impacts of *natural hazards* and *climate change*, in collaboration with key stakeholders and affected community,
- (3) undertaking research in collaboration with other *local authorities* and other stakeholders as appropriate, into *natural hazards* and *climate change* in Otago, and
- (4) providing information and guidance on:
 - (a) management approaches to the avoidance or mitigation of *natural hazards*,
 - (b) ways to adapt to and mitigate the *effects of climate change*, and
 - (c) the benefits of natural features and systems in mitigating *natural hazards*.

12.4.21.2. Submissions

355. Six submissions were made in relation to HAZ-NH-M5. Four submissions support the method²¹⁹.
356. QLDC supports the intent of the HAZ-NH-M5 but considers that clause (4) should clarify who information and guidance is provided to, in what form, and by whom²²⁰. QLDC also considers that the full range of mechanisms outside the RMA that can be used to reduce risk should be referenced, such as the creation of reserves, property purchase and the Public Works Act.
357. FENZ requests that clause (2) is amended to include FENZ in the key stakeholder list, as a subject matter expert around the impact of fire as a natural hazard²²¹. Furthermore, it is requested that ‘emergency services’ be included as a stakeholder somewhere in the pORPS.

12.4.21.3. Analysis

358. In relation the submission from QLDC, agree in part. I agree that an amendment should be made to chapeau of HAZ-NH-M5 to acknowledge that the list of subclauses is a non-exclusive list and there may be other methods other methods and incentives could be used. I disagree that it needs to be an exhaustive list.
359. In relation to the FENZ submission I consider FENZ would be considered a ‘key stakeholder’ therefore I disagree an amendment is required.

²¹⁹ 00137.139 DOC, 00226.263 Kāi Tahu ki Otago, 00139.209 DCC, 00239.141 Federated Farmers

²²⁰ 00138.159 QLDC

²²¹ 00219.005 FENZ

12.4.21.4. Recommendation

360. I recommend the chapeau of HAZ-NH-M5 is amended as follows:

HAZ-NH-M5 – Other incentives and mechanisms

Local authorities, are encouraged to consider the use of other mechanisms or incentives to assist in achieving Policies HAZ-NH-P1 to HAZ-NH-P11, including but not limited to:²²²

[...]

12.4.22. New method

12.4.22.1. Submissions

361. QLDC seeks the inclusion of a new method regarding the monitoring of risk levels²²³. QLDC considers it necessary to monitor risk to understand how risk levels change over time. The methods do not clearly articulate how risk monitoring will be undertaken or whose responsibility it will be. As such, QLDC considers the inclusion of a method for monitoring risk is necessary to understand if the objectives are being achieved, or not.

12.4.22.2. Analysis

362. I agree with the submitter that a new method should be included within the HAZ-NH section which sets out who is responsible for the monitoring of natural hazard. I consider this additional method is best placed within HAZ-NH-M1 which sets out the statements of responsibilities. Given HAZ-NH-M1(2)(b) already requires that the Regional Council is responsible for:

- the identification of areas in the region subject to natural hazards,
- describing their characteristics,
- mapping the extent of those areas in the relevant regional plan, and
- including those maps on a natural hazard register or database.

I consider the Regional Council is best placed to undertake the monitoring of natural hazard risk to undertaken how the risk may changeover time. I disagree that the method needs to be specific as to how the monitoring will be undertaken, as I consider the monitoring will likely need to be tailored to the specific natural hazard risk being monitored.

12.4.22.3. Recommendation

363. I recommend HAZ-NH-M1(2) is amended as follows

HAZ-NH-M1 – Statement of responsibilities

²²² 00219.005 FENZ

²²³ 00138.160 QLDC

In accordance with section 62(1)(i)(i) of the RMA 1991, the responsibilities for the control of land use to avoid or mitigate natural hazards or any group of hazards are as follows:

[...]

(2) the Regional Council is responsible for:

[...]

(d) continually monitor natural hazard risk to understand how levels of natural hazard risk change overtime, and where required, update the natural hazard mapping areas identified in 2(b) and (c) above.

12.4.23. HAZ-NH-E1 – Explanation

12.4.23.1. Introduction

364. As notified, HAZ-NH-E1 reads:

HAZ-NH-E1 – Explanation

The policies in this chapter are designed to reduce the level of *natural hazard risk* within the region through sound preparation, investigation and planning. These provisions take a risk-based approach, taking into consideration the likelihood of the hazard and the vulnerability of people, communities, and the *environment*. The approach ensures consistent planning by applying the same framework irrespective of the type of *natural hazard* that may exist. It allows for the full range of *risk* mitigation measures (regulatory and non-regulatory) to be taken into account in determining the level of *risk* that exists at a particular locality.

Once the level of *risk* has been established, the provisions direct that *district* and *regional plans* require activities to be undertaken in a manner that results in the *natural hazard risk* to people, the community and property being tolerable or lower. Where a *natural hazard risk* to people, the community and property cannot be reduced to a tolerable level, the activity must be avoided. The provisions require that the same risk-based approach is taken when considering the management of existing development, by ensuring that the *risk* associated with existing development is tolerable or lower.

The provisions also set direction on *natural hazard* management methods such as use of the precautionary approach, protecting natural features and systems that provide hazard mitigation, the use of *hard protection structures*, and the location and design of *lifeline utilities* and facilities for essential or emergency services. These provisions are designed to reduce the level of *natural hazard risk* within the region.

12.4.23.2. Submissions

365. Four submissions were made in relation to HAZ-NH-E1.

366. Ngāi Tahu ki Murihiku points out that there is a need to differentiate between dams and weirs used primarily for purposes other than natural hazard management, and that there may be many such structures that that may be considered as facilities for emergencies in relation to fire management²²⁴. They consider that clarification is required in relation to dams and weirs that are considered hard protection structures, as to whether or not the intention is to encourage them as a natural hazard management tool.

367. Blackthorn Lodge requests that the provision is amended as follows²²⁵:

The policies in this chapter are designed to reduce the level of natural hazard risk within the region through sound preparation, investigation and planning. These provisions take a risk-based approach, taking into consideration the likelihood of the hazard and the vulnerability of people, communities, and the environment. People and communities are resilient and determining the level of risk is dependent on societies tolerability of that risk so affected communities and stakeholders need to be involved in the determination of the different levels of risk. The approach ensures consistent planning by applying the same framework irrespective of the type of natural hazard that may exist. It allows for the full range of risk mitigation measures (regulatory and non-regulatory) to be taken into account in determining the level of risk that exists at a particular locality.

368. OWRUG and Aurora Energy note that consequential amendments may be required to give effect to the relief sought elsewhere, but no specific changes are identified²²⁶.

12.4.23.3. Analysis

369. In relation to the submission from Ngāi Tahu ki Murihiku, as noted in the assessment of HAZ-NH-P7 above, the definition of 'hard protection structures' includes dams and weirs which may have purposes unrelated to natural hazard management. I note that this definition only relates to hard protection structures specifically established for the purpose of flood hazard mitigation. As such, the definition will only capture structures related to natural hazards management. I have included a recommended amendment within the definitions section which helps to clarify this.

370. I agree with the submission from Blackthorn Lodge. I agree that additional text should be added to the explanation that recognises the importance of consulting with communities, stakeholders and partners when determining risk thresholds. As such, I recommend an addition is included within the explanation.

371. Finally, in relation to the submissions from OWRUG and Aurora Energy, I disagree any consequential amendment are required.

²²⁴ 00223.116 Ngāi Tahu ki Murihiku

²²⁵ 00119.023 Blackthorn Lodge

²²⁶ 00235.133 OWRUG, 00315.092 Aurora Energy

12.4.23.4. Recommendation

372. I recommend HAZ-NH-E1 is amended as follows:

12.4.23.5. Explanation

HAZ-NH-E1 – Explanation

The policies in this chapter are designed to reduce the level of *natural hazard risk* within the region through sound preparation, investigation and planning. These provisions take a risk-based approach, taking into consideration the likelihood of the hazard and the vulnerability of people, communities, and the *environment*. The approach ensures consistent planning by applying the same framework irrespective of the type of *natural hazard* that may exist. It allows for the full range of *risk* mitigation measures (regulatory and non-regulatory) to be taken into account in determining the level of *risk* that exists at a particular locality.

Once the level of *risk* has been established, following consultation with communities, stakeholders and partners,²²⁷ the provisions direct that *district* and *regional plans* require activities to be undertaken in a manner that results in the *natural hazard risk* to people, the community and property being tolerable or lower. Where a *natural hazard risk* to people, the community and property cannot be reduced to a tolerable level, the activity must be avoided. The provisions require that the same risk-based approach is taken when considering the management of existing development, by ensuring that the *risk* associated with existing development is tolerable or lower.

The provisions also set direction on *natural hazard* management methods such as use of the precautionary approach, protecting natural features and systems that provide hazard mitigation, the use of *hard protection structures*, and the location and design of *lifeline utilities* and facilities for essential or emergency services. These provisions are designed to reduce the level of *natural hazard risk* within the region.

12.4.24. HAZ-NH-PR1 – Principal reasons

12.4.24.1. Introduction

373. As notified, HAZ-NH-PR1 reads:

HAZ-NH-PR1 – Principal reasons

The Otago region is exposed to a wide variety of *natural hazards* that impact on people, property, *infrastructure* and the wider *environment*. Given the wide variety of landscapes that make up the Otago region, the *natural hazards* threats range from coastal erosion and flooding in the lowland coastal areas of the region to alluvial fan deposition, landslip, fire, earthquakes, rock fall, and *river* breaches in the alpine areas of the region. The *effects* of *natural hazards* vary in terms of both their likelihood and

²²⁷ 00119.023 Blackthorn Lodge

consequence. Some *natural hazards*, such as flooding, may occur relatively frequently and may damage property and disrupt people's lives and economic, social and cultural activities, whereas *natural hazards* such as tsunami occur infrequently, but when they do occur, they pose serious *risk* to life.

The negative *effects* of *natural hazards* are generally best managed by avoiding development in areas that are known to be subject to *natural hazards*. However, the majority of the region is subject to some form of hazards *risk*, to a greater or lesser extent. While avoidance may be the preferred option in many cases, in other situations mitigating the *effects* of *natural hazards* to tolerable levels will be a feasible option to ensure the health, safety and well-being of the community. The changing nature of *natural hazards risk* due to *climate change* means that planning provisions need to be able to adapt to a future *natural hazards environment*.

Communities need consistent guidance on sea level rise, extreme weather events, and all other adverse *effects* of *climate change* if they are to appropriately manage those *effects*. *Climate change* is resulting in rising sea levels and is increasing the frequency and severity of climate related *natural hazards* including flooding, wind events, fires, landslips, erosion and drought. *Stormwater* systems may not be able to cope with heavier rainfall. Other *effects* of *climate change* include changing distributions of plants and animals, and consequential *effects*, such as the *risk* of saltwater intrusion into *groundwater* as a result of sea level rise in combination with increased *groundwater* abstraction, and *groundwater* ponding. There may be other adverse *effects* from *climate change* that are not yet known. A precautionary approach is required where there is scientific uncertainty. The *effects* of *climate change* will result in social, environmental and economic costs. It is prudent that these changes are planned for now, so that the impacts can be reduced.

In addition to the objectives and policies in this chapter, the management of *natural hazards* are also recognised and provided for in the following chapters of this RPS:

- IM – Integrated management
- CE – Coastal environment
- EIT – Energy, infrastructure and transport
- UFD – Urban form and development

12.4.24.2. Submissions

374. Two submissions were made in relation to HAZ-NH-PR1.
375. As noted previously, Ngāi Tahu ki Murihiku requests clarification with regard to dams and weirs that are considered hard protection structures, and whether or not the intention is to encourage them as a tool for management of natural hazards²²⁸.
376. Blackthorn Lodge considers that it is not correct to say 'generally best' within the principal reason, when the majority of the region is already subject to natural hazards. Blackthorn Lodge Glenorchy requests that the provision is amended as follows²²⁹:

²²⁸ 00223.117 Ngāi Tahu ki Murihiku

²²⁹ 00119.024 Blackthorn Lodge

~~...The negative effects of natural hazards are generally best managed by avoiding development in areas that are known to be subject to natural hazards. However, the majority of the region is subject to some form of hazards risk, to a greater or lesser extent. While avoiding natural hazard riskance may be the preferred option in many some cases, but mostly in other situations mitigating the effects of natural hazards to insignificant or tolerable levels of risk will be a feasible option to ensure the health, safety and well – being of the community. The changing nature of natural hazards risk due to climate change means that planning provisions need to be able to adapt to a future natural hazards environment.~~

Consultation with the community is essential to understanding community tolerance. Accordingly, natural hazard risk assessments will be carried out in accordance with a table of risk level thresholds (risk table) to be generated at a district or community scale and prepared in meaningful consultation with affected communities and stakeholders It is also acknowledged that community tolerance is likely to be higher in relation to existing communities with lawfully established land uses and existing enabling zoning compared to new areas of development.

Communities need consistent guidance on sea level rise, extreme weather events, and all other adverse effects of climate change if they are to appropriately prepare for and respond to manage those effects. ...

12.4.24.3. Analysis

377. In relation to the submission from Ngāi Tahu ki Murihiku, as noted in the assessment of HAZ-NH-P7 above, I consider the definition of ‘hard protection structures’ will only capture structures related to natural hazards management. I have included a recommended amendment within the definitions section which helps to clarify this.
378. I agree in part with the submission from Blackthorn Lodge. I agree that additional text should be added to the explanation that recognises the importance of consulting with communities, stakeholders and partners when determining risk thresholds. I also agree that the drafting of the HAZ-NH-PR1 should be amended to better reflect the ‘risk based’ approach to the management of natural hazards within the HAZ-NH section. This ‘risk based’ approach does require the avoidance of development in areas subject to natural hazard risk, instead it requires an assessment of the potential likelihood and consequence of an event occurring to determine the risk level of a particular activity.

12.4.24.4. Recommendation

379. I recommend HAZ-NH-PR is amended as follows:

Principal reasons²³⁰

HAZ-NH-PR1 – Principal reasons

²³⁰ Clause 16(2), Schedule 1, RMA

The Otago region is exposed to a wide variety of *natural hazards* that impact on people, property, *infrastructure* and the wider *environment*. Given the wide variety of landscapes that make up the Otago region, the *natural hazards* threats range from coastal erosion and flooding in the lowland coastal areas of the region to alluvial fan deposition, landslip, fire, earthquakes, rock fall, and *river* breaches in the alpine areas of the region. The *effects* of *natural hazards* vary in terms of both their likelihood and consequence. Some *natural hazards*, such as flooding, may occur relatively frequently and may damage property and disrupt people's lives and economic, social and cultural activities, whereas *natural hazards* such as tsunami occur infrequently, but when they do occur, they pose serious *risk* to life.

~~The negative effects of natural hazards are generally best managed by avoiding development in areas that are known to be subject to natural hazards. However,~~²³¹
The majority of the region is subject to some form of hazards *risk*, to a greater or lesser extent. While avoidance of natural hazard *risk*²³² may be the preferred option in many cases, in other situations mitigating the *effects* of *natural hazards* to tolerable levels will be a feasible option to ensure the health, safety and well-being of the community. The changing nature of *natural hazards risk* due to *climate change* means that planning provisions need to be able to adapt to a future *natural hazards environment*.

Consultation with communities, stakeholders and partners is essential to an understanding of risk tolerance. Preparing natural hazard risk assessments requires consultation with these groups.²³³ Communities need consistent guidance on sea level rise, extreme weather events, and all other adverse *effects* of *climate change* if they are to appropriately manage those *effects*. *Climate change* is resulting in rising sea levels and is increasing the frequency and severity of climate related *natural hazards* including flooding, wind events, fires, landslips, erosion and drought. *Stormwater* systems may not be able to cope with heavier rainfall. Other *effects* of *climate change* include changing distributions of plants and animals, and consequential *effects*, such as the *risk* of saltwater intrusion into *groundwater* as a result of sea level rise in combination with increased *groundwater* abstraction, and *groundwater* ponding. There may be other adverse *effects* from *climate change* that are not yet known. A precautionary approach is required where there is scientific uncertainty. The *effects* of *climate change* will result in social, environmental and economic costs. It is prudent that these changes are planned for now, so that the impacts can be reduced.

In addition to the objectives and policies in this chapter, the management of *natural hazards* are also recognised and provided for in the following chapters of this RPS:

- IM – Integrated management

²³¹ 00119.024 Blackthorn Lodge

²³² 00119.024 Blackthorn Lodge

²³³ 00119.024 Blackthorn Lodge

- CE – Coastal environment
- EIT – Energy, infrastructure and transport
- UFD – Urban form and development

12.4.25. HAZ-NH-AER1 to HAZ-NH-AER5

12.4.25.1. Introduction

380. HAZ-NH-AER1 to HAZ-NH-AER5 set out the anticipated environmental results (AERs) from implementing the provisions in the HAZ-NH – *Natural hazards* section. There were few submissions received therefore the AERs have been evaluated together in this section of the report.

381. As notified, HA-NH-AER1 to HAZ-NH-AER5 read:

HA-NH-AER1

The location and design of new developments and natural resource use reduces community exposure to the adverse *effects* of *natural hazards* events and processes.

HA-NH-AER2

No developments proceed that have a significant level of *risk*.

HA-NH-AER3

The level of *risk* associated with new development does not exceed a tolerable level.

HA-NH-AER4

Where existing development is subject to *risks* from *natural hazards*, the level of *risk* is reduced to a tolerable level.

HA-NH-AER5

The impact on life, property, *lifeline utilities*, and essential services from *natural hazards* and *climate change* is managed.

12.4.25.2. Submissions

382. Otago Water Resource Users Group notes that consequential amendments may be required to HAZ-NH-AER1-AER5, to give effect to the relief sought elsewhere, but no specific changes are identified²³⁴.

383. One submission was made specifically in relation to HAZ-NH-AER1. Blackthorn Lodge requests the following amendments²³⁵:

²³⁴ 00235.135 OWRUG

²³⁵ 00119.025 Blackthorn Lodge

The location and design of new developments and ~~natural resource use of natural resources~~ reduces manages community exposure to the adverse effects of natural hazards events and processes.

384. Three submissions were made in relation to HAZ-NH-AER2.
385. QLDC comments that in addition to developments being at significant risk, specific areas may be identified as having significant risk²³⁶. QLDC considers that both situations should be avoided, rather than just development and seeks the following amendments to HAZ-NH-AER2:

No developments result in proceed that have a significant level of risk

386. Federated Farmers notes that there may be a need for some developments or activities in areas at significant risk from natural hazards if the benefits are considered to significantly outweigh the risk²³⁷. Federated Farmers considers that there should be an opportunity to apply for a resource consent in these circumstances, albeit to a high activity status, and request the following amendment to NH-HAZ-AER2:

~~No Discourage~~ new developments ~~proceed~~ that have a significant level of risk.'

387. Blackthorn Lodge requests that HAZ-NH-AER2 is amended as follows²³⁸:

Levels of natural hazard risk are determined by affected communities and stakeholders ~~No developments proceed that have a significant level of risk.~~

388. No submissions were made specifically in relation to HAZ-NH-AER3.
389. Four submissions were made in relation to HAZ-NH-AER4.
390. QLDC supports HAZ-NH-AER4 but highlights that HAZ-NH-P4 does not specifically set out the risk level to which existing developments should be reduced to²³⁹. QLDC requests that the AER retained as notified.
391. Federated Farmers considers the requirement to reduce the natural hazard risk to existing developments to a tolerable level may not be achievable or realistic²⁴⁰. They note that this has already occurred in relation to earthquake prone buildings where exemptions have been provided for non-habitable farm buildings. Federated Farmers seeks an amendment as follows, or similar to HAZ-NH-AER4:

Where existing development is subject to significant risks from natural hazards, the level of risk is reduced as far as practicable, to a tolerable level.

392. Blackthorn Lodge requests the following amendment to HAZ-NH-AER4²⁴¹:

²³⁶ 00138.161 QLDC

²³⁷ 00239.142 Federated Farmers

²³⁸ 00119.026 Blackthorn Lodge

²³⁹ 00138.162 QLDC

²⁴⁰ 00239.143 Federated Farmers

²⁴¹ 00119.027 Blackthorn Lodge

Where existing development or communities are is subject to risks from natural hazards, the level of risk is reduced to a tolerable level wherever practicable.

393. Four submissions have been made in relation to HAZ-NH-AER5. Waka Kotahi supports the provision and states that it recognises the importance of managing the effects of natural hazards on lifeline utilities like the state highway network²⁴².
394. QLDC seeks that 'community' be referenced in HAZ-NH-AER5 alongside life and property for consistency with other relevant provisions²⁴³. This would also acknowledge the wider range of community characteristics and values necessary for the management of natural hazards. QLDC highlights that the reference to natural hazards and climate change being 'managed' does not provide a measurable outcome and should instead specify a level of risk to be achieved, or for what overall purpose. QLDC considers that HAZ-NH-AER5 should be incorporated within HAZ-NH-AER4, or alternatively, that it is amended to provide a more specific and measurable result that the natural hazard provisions are to achieve.
395. Federated Farmers also seeks the consistent use of terminology, pointing out that 'People and communities' is used throughout the chapter, but is changed to 'life' in HAZ-NH-AER5²⁴⁴. Federated Farmers notes that this could apply to a many things and living organisms, and request that the AER is amended as follows:

The impact on life, people, communities, property, lifeline utilities, and essential services from natural hazards and climate change is managed.

12.4.25.3. Analysis

396. I disagree amendment is required to HAZ-NH-AER1. I am not clear how the suggested amendment from Blackthorne Lodge alters that AER. I recommended that this submission point be rejected.
397. I disagree with the submission from QLDC seeking amendments to HAZ-NH-AER2. I am unclear how the suggested drafting alters the AER.
398. In relation to the submission from Federated Farmers seeking an amendment HAZ-NH-AER2, I note that HAZ-NH-P3 requires that when the natural hazard risk is significant, the activity is avoided. Therefore, I disagree that including 'discourage' within the AER is appropriate as this will not reflect the anticipated environmental result directed by the HAZ-NH section. I recommended that this submission point be rejected.
399. I also disagree with the submission from Blackthorn Lodge, I consider the purpose of HAZ-NH-AER2 is to describe the anticipated environmental result of implementing the actions set out within HAZ-NH-P3. The amendments sought by the submitter only pick up on one aspect of the risk assessment process. I consider the notified version of the AER better describes the anticipated environmental result directed by HAZ-NH-P3 and APP6.

²⁴² 00305.074 Waka Kotahi

²⁴³ 00138.163 QLDC

²⁴⁴ 00239.144 Federated Farmers

400. I recommend rejecting all submission points relating to HAZ-NH-AER2.
401. I disagree with the submissions from Federated Farmers and Blackthorn Lodge that seek to add a qualifier to HAZ-NH-AER4. I note this AER is describing the implementation policy HAZ-NH-P4. This policy does not include qualifiers such as 'wherever practical' therefore, I consider this amendment would result in an inconsistency between the policy direction and the AER.
402. I agree with the submitters that seek an amendment to HAZ-NH-AER5 which ensures that the language is consistent with HAZ-NH-O1.

12.4.25.4. Recommendation

403. I recommend HAZ-NH-AER1 to HAZ-NH-AER4 are retained as notified.
404. I recommend HAZ-NH-AER5 is amended as follows:

HAZ-NH-AER5

The impact on ~~life~~, people, communities and²⁴⁵ property, *lifeline utilities*, and essential services from *natural hazards* and *climate change* is managed to a tolerable or acceptable level.²⁴⁶

12.4.26. APP6 – Methodology for *natural hazard risk* assessment

12.4.26.1. Introduction

405. The methodology within APP6 is used to determine the natural hazard risk. It sets out a four-step process for identifying natural hazard risk. Several submissions seek technical amendments to APP6 to refine or clarify how the methodology is to be used. There is another group of submitters that seek amendments to clarify when this methodology is to be used (plan changes, district plan reviews, or resource consent applications). The submissions seeking clarification as to when this methodology is to be used will be considered first. Following this, the assessment will consider the submissions seeking technical changes. This analysis will consider submissions on each of the four steps in the methodology separately. My recommended amendments to APP6 have been collated in a single section following the analysis of submissions on each of the four steps.
406. As notified, APP6 reads:

APP6 – Methodology for *natural hazard risk* assessment

Undertake the following four step process to determine the *natural hazard risk*.

Step 1 – Determine the likelihood

Using Table 6, assess the likelihood of three *natural hazard* scenarios occurring, representing a high likelihood, median likelihood, and the maximum credible event, using the best available information:

²⁴⁵ 00239.144 Federated Farmers

²⁴⁶ 00138.163 QLDC

TABLE 1: LIKELIHOOD SCALE

Likelihood	Indicative frequency
Almost certain	Up to once every 50 years (2% AEP)
Likely	Once every 51 – 100 years (2 – 1% AEP)
Possible	Once every 101 – 1,000 years (1 – 0.11% AEP)
Unlikely	Once every 1,001 – 2,500 years (0.1 – 0.04% AEP)
Rare	2,501 years plus (<0.04% AEP)

Step 2 – *Natural hazard* consequence

Using Table 7 and the matters listed in (1) to (10) below, assess the consequence (catastrophic, major, moderate, minor, or insignificant) of the *natural hazard* scenarios identified in step 1 considering:

- (1) the nature of activities in the area,
- (2) individual and community vulnerability,
- (3) impacts on individual and community health and safety,
- (4) impacts on social, cultural and economic well-being,
- (5) impacts on *infrastructure* and property, including access and services,
- (6) available and viable *risk* reduction and hazard mitigation measures,
- (7) *lifeline utilities*, essential and emergency services, and their co-dependence,
- (8) implications for civil defence agencies and emergency services,
- (9) the changing *natural hazard* environment,
- (10) cumulative *effects* including *multiple* and *cascading hazards*, where present, and
- (11) factors that may exacerbate a *natural hazard* event including the *effects* of *climate change*.

Table 2: Consequence table

Severity of Impact	Built				Health & Safety
	Social/Cultural	Buildings	Critical Buildings	Lifelines	
Catastrophic (V)	≥25% of <i>buildings</i> of social/cultural significance within hazard zone have functionality compromised	≥50% of affected <i>buildings</i> within hazard zone have functionality compromised	≥25% of critical facilities within hazard zone have functionality compromised	Out of service for > 1 month (affecting ≥20% of the town/city population) OR suburbs out of service for > 6 months (affecting < 20% of the town/city population)	> 101 dead and/or > 1001 injured

Major (IV)	11-24% of <i>buildings</i> of social/cultural significance within hazard zone have functionality compromised	21-49% of <i>buildings</i> within hazard zone have functionality compromised	11-24% of <i>buildings</i> within hazard zone have functionality compromised	Out of service for 1 week – 1 month (affecting $\geq 20\%$ of the town/city population) OR suburbs out of service for 6 weeks to 6 months (affecting $< 20\%$ of the town/city population)	11 – 100 dead and/or 101 – 1000 injured
Moderate (III)	6-10% of <i>buildings</i> of social/cultural significance within hazard zone have functionality compromised	11-20% of <i>buildings</i> within hazard zone have functionality compromised	6-10% of <i>buildings</i> within hazard zone have functionality compromised	Out of service for 1 day to 1 week (affecting $\geq 20\%$ of the town/city population) OR suburbs out of service for 1 week to 6 weeks (affecting $< 20\%$ of the town/city population)	2 – 20 dead and/or 11 – 100 injured
Minor (II)	1-5% of <i>buildings</i> of social/cultural significance within hazard zone have functionality compromised	2-10% of <i>buildings</i> within hazard zone have functionality compromised	1-5% of <i>buildings</i> within hazard zone have functionality compromised	Out of service for 2 hours to 1 day (affecting $\geq 20\%$ of the town/city population) OR suburbs out of service for 1 day to 1 week (affecting $< 20\%$ of the town/city population)	1 dead and/or 1 – 10 injured
Insignificant (I)	No <i>buildings</i> of social/cultural significance within hazard zone have functionality compromised	$< 1\%$ of affected <i>buildings</i> within hazard zone have functionality compromised	No damage within hazard zone, fully functional	Out of service for up to 2 hours (affecting $\geq 20\%$ of the town/city population) OR suburbs out of service for up to 1 day (affecting $< 20\%$ of the town/city population)	No dead No injured

When assessing consequences within this matrix, the final level of impact is assessed on the ‘first past the post’ principle, in that the consequence with the highest severity of impact applies. For example, if a *natural hazard* event resulted in moderate severity of impact across all of the categories, with the exception of critical *buildings* which had a ‘major’ severity of impact, the major impact is what the proposal would be assessed on. If a *natural hazard* event resulted in all of the consequences being at the same level (for example, all of the consequences are rated moderate), then the level of consequence is considered to be moderate.

When this assessment is being undertaken in accordance with HAZ-NH-M3(7)(a) or HAZ-NH-M4(7)(a) the text within Step 2 shall guide the assessment of *natural hazard* consequence.

Step 3 – Assessing activities for *natural hazard* risk

Using the information within steps 1 and 2 above, and Table 8, assess whether the *natural hazard* scenarios will have an acceptable, tolerable, or significant *risk* to people, property and communities, by considering:

- (1) the *natural hazard risk* identified, including *residual risk*,
- (2) any measures to avoid, remedy or mitigate those *risks*, including relocation and recovery methods,
- (3) the long-term viability and affordability of those measures,
- (4) flow on *effects* of the *risk* to other activities, individuals and communities, and
- (5) the availability of, and ability to provide, *lifeline utilities*, and essential and emergency services, during and after a *natural hazard* event.

Table 3: Risk table

Likelihood	Consequences				
	Insignificant	Minor	Moderate	Major	Catastrophic
Almost certain					
Likely					
Possible					
Unlikely					
Rare					
Green, Acceptable Risk: Yellow, Tolerable Risk: Red, Significant Risk					

Notes:

Table 8 above has been included as a region-wide baseline. As set out in HAZ–NH–M2(1) *local authorities* are required to undertake a consultation process with communities, stakeholders and partners regarding *risk* levels thresholds and develop a *risk* table at a district or community scale. This region-wide baseline is to be used in the absence of a district or community scale *risk* table being developed.

When this assessment is being undertaken in accordance with HAZ-NH-M3(7)(a) or HAZ-NH-M4(7)(a) the text within Step 3 shall guide the assessment of *natural hazard risk*.

Step 4 – Undertake a quantitative *risk* assessment

While Steps 1-3 will qualitatively categorise *natural hazard risk* based on a community’s understanding and acceptance level of *risk*, it will not provide quantitative understanding of the *risk* a *natural hazard* presents to the built environment, or health and safety.

If the assessment undertaken in Steps 1-3 determines that one of the three *natural hazard* scenarios generate *risk* that is significant, undertake a quantitative *risk* assessment utilising the following methodology:

- (1) Based on the likelihood of a *natural hazard* event within the hazard zone (see Step 1), and including the potential impacts of *climate change* and sea level rise, select a representative range

- (2) Model the Annual Individual Fatality Risk (AIFR)²⁴⁷ and Annual Property Risk (APR)²⁴⁸ for the range of hazard scenarios across the hazard zone, and create loss exceedance distributions.
- (3) Analyse loss exceedance distributions and determine losses.
- (4) Implementing a first-past-the-post principle for the AIFR and APR:
 - (a) for areas of new development where the greatest AIFR or APR is:
 - (i) less than 1×10^{-6} per year, the *risk* is re-categorised as acceptable,
 - (ii) between 1×10^{-6} and 1×10^{-5} per year, the *risk* is re-categorised as tolerable, or
 - (iii) greater than 1×10^{-5} per year, the *risk* is re-categorised as significant.
 - (b) for areas with existing development, where the greatest AIFR or APR is:
 - (i) less than 1×10^{-5} per year, the *risk* is re-categorised as acceptable;
 - (ii) between 1×10^{-5} and 1×10^{-4} per year, the *risk* is re-categorised as tolerable; or
 - (iii) greater than 1×10^{-4} per year, the *risk* is re-categorised as significant.
- (5) Following the quantitative *risk* assessment, a *risk* level is assigned to the hazard area.

AIFR and APR are the selected *risk* metrics as they represent the likely consequences of a wide range of *natural hazards*. For example, some *natural hazards*, generally, do not have the capacity to cause fatalities, but may result in widespread damage to property, while other *natural hazards* have a high capacity to cause fatalities. A first-past-the-post principle to the re-categorisation of *risk* is applied to ensure that decisions are based on the greatest *risk* present between the two metrics.

If the level of knowledge or uncertainty regarding the likelihood or consequences of a *natural hazard* event precludes the use of Step 4, then a precautionary approach to assessing and managing the *risk* should be applied, as set out in HAZ–NH–P5.

12.4.26.2. Application of APP6

Submissions

407. There are 11 submissions specifically in relation to APP6, with two in support²⁴⁹. Submissions on the other natural hazard provisions also refer to APP6 and these are noted where relevant.

²⁴⁷ Annual probability that an individual most at risk is killed in any one year as a result of the hazards occurring

²⁴⁸ Annual probability of total property loss (relating to permanent structures) as a result of the hazards occurring

²⁴⁹ 00237.071 Beef + Lamb and DINZ, 00306.084 Meridian

408. QLDC makes several comments in relation to APP6 but supports the inclusion of a method for assessing natural hazard risk as it will improve the efficiency and effectiveness of natural hazard management in the region²⁵⁰. QLDC points out that there is currently no national or regional level guidance for the assessment of natural hazards, which creates uncertainty and leads to different approaches. QLDC notes that the incorporation of a method sets clear expectations for plan users as to the actions required when proposing land use or subdivision activities in areas subject to natural hazards, and will assist territorial authorities when reviewing or considering variations to district plans.
409. DCC requests an exemption for local authorities with an existing risk assessment framework from undertaking further community consultation²⁵¹. As a consequence, DCC requests an exemption for resource consent applicants from undertaking the risk assessment in the interim if they comply with the existing provisions of the Dunedin City District Plan. DCC also requests further guidance on how the ‘maximum credible event’ in Appendix 6 is determined²⁵².
410. Federated Farmers considers that APP6 appears to require the management of all natural hazard risks, which goes beyond the requirement of the RMA to manage significant risks from natural hazards²⁵³. Federated Farmers considers the PORPS in general is highly precautionary and therefore a precautionary approach is unnecessary. Federated Farmers notes that use of the precautionary principle has been questioned by the Parliamentary Commissioner for the Environment, as follows:
- “Such appeals [to the precautionary principle] can close down discussions. This is because the principle is sometimes viewed as inviolable, despite there being no consensus on its meaning’ Taonga of an island nation: Saving New Zealand's birds (2017)” p.96.
411. Federated Farmers requests amendments to improve consistency between APP6 and section 6(h) of the RMA, which focuses on significant risk²⁵⁴.
412. Wayfare and Blackthorn Lodge request the deletion of the first sentence as follows²⁵⁵:
- ~~‘Undertake the following four step process to determine the natural hazard risk.’~~

Analysis

413. In relation to the suggestion from Federated Farmers I note that the technical letter from GNS Science has responded to this submission point. It states:

“Section 62(1)(i)(i) of the RMA makes requirements of a RPS that go beyond Section 6(h). In order for the RPS to fulfil these requirements, its purpose (Section 59 of the RMA), and be applicable for territorial authorities, the risk-based approach needs

²⁵⁰ 00138.147 QLDC

²⁵¹ 00139.206 DCC

²⁵² 00139.197 DCC

²⁵³ 00239.189 Federated Farmers

²⁵⁴ 00239.189 Federated Farmers

²⁵⁵ 00411.090 Wayfare, 00119.028 Blackthorn Lodge

to: go beyond significant risk; include tolerable and acceptable risks; and set out expectations for territorial authorities in this regard.

The precautionary approach, raised by the submitter in their discussion of this point, contemplated by Policy 5 does not preclude additional information from being gathered, thereby negating the need for a precautionary approach from being applied. This would therefore not result in a “close down” of discussions. The PCE report cited goes on to state: “Whatever the reasons for the tensions between public and private sector players are, they need to be identified and worked through.”. APP6 and the consultation process directed within would serve to ensure that the different attitudes to risks between public and private sector players (highlighted by the PCE) are equally accounted for within district level risk-based approaches.”

414. I agree with the analysis from GNS Science. As such, I disagree that APP6 should be limited to just managing significant natural hazard risks.

12.4.26.3. Step 1 – Determine the likelihood

415. Step 1 requires an assessment of the likelihood of three natural hazard scenarios occurring, representing a high likelihood, median likelihood, and the maximum credible event.

Submissions

416. In relation to the introductory text of Step 1, included below, DCC requests guidance on how ‘maximum credible event’ is determined²⁵⁶.

Using Table 6, assess the likelihood of three natural hazard scenarios occurring, representing a high likelihood, median likelihood, and the maximum credible event, using the best available information: ...

417. QLDC comments that Table 6 should not ‘force’ the likelihoods to be considered²⁵⁷.

418. Instead QLDC considers that Step 1 should be two steps, as follows:

(1) Assess the range of likelihoods for the hazard under consideration, by determining the likelihood of at least the maximum credible event, an event of medium likelihood, and an event with a high likelihood.

(2) Use Table 6 to assign a likelihood descriptor to the results of the assessment required by (1).

The assessment of likelihood must account of the effects of climate change, considering RPC scenario’

²⁵⁶ 00139.197 DCC

²⁵⁷ 00138.147 QLDC

419. QLDC notes that ‘median’ in this context is incorrect and should be replaced with ‘medium’²⁵⁸.
420. QLDC observes that Step 1 should consider the effects of climate change on the magnitude and frequency of the natural hazard being assessed, and this should be directive in the RCP scenario to be considered²⁵⁹.
421. QLDC does not consider the indicative frequencies in Table 6 are appropriate as low frequency events that have the potential to cause significant consequences and high risk, are excluded²⁶⁰. As an example, QLDC references the *Australian Geomechanics Society 2007 Guidelines for Landslide Risk Management* which assigns the descriptor ‘rare’ to landslides with a recurrence interval of 100,000 years, in contrast to a recurrence interval of 2,500 years in Table 6. QLDC notes that this leads to a less conservative approach to risk management, rather than a more conservative approach as suggested in the GNS review, s32 evaluation, Appendix 19, p.14.
422. QLDC notes that the qualitative assessment in Steps 1-3 is not aligned to the quantitative assessment in Step 4 and suggests that the qualitative methodology is amended to include low frequency events, such as those in the AGS 2007 methodology²⁶¹. In addition, QLDC suggests that Table 6 is amended to provide a distinction between the likelihood of life-threatening natural hazards, such as debris flows, and those that are difficult to mitigate but less likely to result in fatalities, such as liquefaction.
423. Horticulture NZ remarks that use of the terms ‘once every’ or ‘up to once every’ in Table 6 is misleading and should be deleted²⁶². Indicative frequency is the probability of an event occurring every year, and just because an event occurred in one year, does not mean that it will not occur again within the specified timeframe. Horticulture NZ provides the example that a 2% Annual Exceedance Probability (AEP), means there is a 2% chance of the event occurring each year.

Analysis

424. In relation to the suggestion from QLDC I note that the technical letter from GNS Science has responded to this submission points. It states:

“Support the intention of the amendments sought by the submitter, and advise the following changes:

Step 1 – Determine the likelihood

~~Using Table 6, 1. Assess the likelihood of three natural hazard scenarios occurring, representing a high likelihood, median likelihood, and the maximum credible event, using the best available information:~~

²⁵⁸ 00138.147 QLDC

²⁵⁹ 00138.147 QLDC

²⁶⁰ 00138.147 QLDC

²⁶¹ 00138.147 QLDC

²⁶² 00236.110 Horticulture NZ

2. Use Table 6 to assign a likelihood descriptor to the three natural hazard scenarios.

The likelihood assessment shall include consideration of the effect of climate change and Representative Concentration Pathway scenarios.

...

Regarding the amendments sought to Table 6, the AGS, 2007 methodology expresses indicative probabilities ranging from 10⁻¹ to 10⁻⁶, or 1 in 10 to 1 in 1,000,000. The explicit inclusion of likelihoods beyond 10⁻⁴ would not materially affect the result within the risk table, as any event with a likelihood greater than 1001 years results in tolerable risks. The likelihood table enables events with likelihoods greater than 2501 years to be considered should the natural hazard scenario descriptors apply to events of these probabilities.

Alignment between the results expected within the qualitative and quantitative assessments are provided by utilising the same inputs (likelihood and consequence).

The distinction between life-threatening and non-life-threatening hazards is more appropriately provided via the consequence table, and AIFR/APR distinction.”

425. I agree with the amendments advised by GNS Science for the reasons set out above by GNS Science.
426. In relation to the submission from Horticulture NZ, I note that Table 6 includes both the descriptive frequency ‘Up to once every 50 years’ and also the technical ‘2% AEP’ description. As such, I am unclear why using both descriptors is misleading.

12.4.26.4. Step 2 – Natural Hazard Consequence

427. Step 2 sets out the process for determining the consequences of the natural hazard scenarios identified in Step 1.

Submissions

428. Three submitters request that the introductory text is amended to clarify that community involvement is required to determine the risk level thresholds at community or district scale²⁶³, and have requested that the following text is inserted:

Step 2 – Natural hazard consequence

HAZ-NH-M2 requires local authorities to undertake a consultation process with communities, stakeholders and partners regarding risk levels thresholds and develop a risk table / matrix at a district or community scale. Tables 7A and 7B provide a regionwide baseline to be applied in the absence of the district or community scale risk table being completed.

²⁶³ 00411.091 Wayfare, 00206.075 Trojan, 00119.029 Blackthorn Lodge

Using ~~Table 7~~ and the matters listed in (1) to (150) below, and Tables 7A and 7B as a guideline, assess the consequence (catastrophic, major, moderate, minor, or insignificant) of the natural hazard scenarios identified in step 1 considering: ...

429. Wayfare and Trojan consider that in the absence of community involvement in the determination of risk level thresholds, Table 7 should stipulate that any activity anticipated by a district plan will have no worse than moderate effects on buildings, unless those buildings are lifeline or critical buildings and structures²⁶⁴.
430. Three submitters request that Table 7 is re-named and that the column headings are amended by the addition of 'if applicable', as follows²⁶⁵:

Table 7A: Consequence table – to be used in plan changes & activities not anticipated by a zone in a district plan

Table 7A: Consequence table – to be used in plan changes & activities not anticipated by a zone in a district plan

Severity of Impact	Built				Health & Safety
	Social/Cultural	Buildings (if applicable)	Critical Buildings (if applicable)	Lifelines (if applicable)	
Catastrophic (V)	≥25% of buildings of social/cultural	≥50% of affected buildings	≥25% of critical facilities	Out of service for > 1 month (affecting ≥20% of the town/city population)	> 101 dead and/or > 1001 injured

431. The submitters also request the insertion of a new table to be used for individual sites or individual activities anticipated under a district plan²⁶⁶.
432. Three submitters note that the list of matters for consideration should be expanded to include those relevant to tolerability and note those included in the QLDC Proposed District Plan Natural Hazard chapter. They request amendments to the Step 2 matters, as follows²⁶⁷:

- (1) the nature and scale of the activity, and activities in the area, including any existing lawfully established land use or zoning;
- (2) the actual and potential adverse effects of the natural hazard on people and communities;
- (3) the consequence of and response to past natural events;
- ~~(1)~~(4) the effectiveness and implementation of responses, adaptations or mitigation measures
- ~~(2)~~(5) individual and community vulnerability and resilience, ...

433. QLDC considers the matters for consideration in Step 2 should be removed as they are inappropriate²⁶⁸, as follows:

Step 2: Matters for consequence assessment	QLDC comment
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²⁶⁴ 00206.076 Trojan, 00411.092 Wayfare

²⁶⁵ 00206.076 Trojan, 00411.092 Wayfare, 00119.030 Blackthorn Lodge

²⁶⁶ 00411.093 Wayfare, 00206.076 Trojan, 00119.031 Blackthorn Lodge

²⁶⁷ 00206.075 Trojan, 00411.091 Wayfare, 00119.029 Blackthorn Lodge

²⁶⁸ 00138.147 QLDC

(1) the nature of activities in the area, (2) individual and community vulnerability, (3) impacts on individual and community health and safety, (4) impacts on social, cultural and economic well-being, (5) impacts on <i>infrastructure</i> and property, including access and services, (7) <i>lifeline utilities</i> , essential and emergency services, and their co-dependence, (8) implications for civil defence agencies and emergency services	Matters overlap directly with Table 7
(6) available and viable <i>risk</i> reduction and hazard mitigation measures	Risk reduction measures should not be considered in an assessment of consequences, as the risk must be understood in order to design any mitigation structures.
(9) the changing <i>natural hazard</i> environment,	Reference to the changing natural hazard environment is vague and unclear, particularly as climate change is referenced elsewhere.
(10) cumulative <i>effects</i> including <i>multiple</i> and <i>cascading hazards</i> , where present	These consequences are difficult to assess, considering the likelihood of only one hazard is assessed in Step 2.
(11) factors that may exacerbate a <i>natural hazard</i> event including the <i>effects</i> of <i>climate change</i>	This would be more appropriately assessed as part of likelihood, rather than consequences.

434. QLDC notes that if guidance for Table 7 is considered necessary, this should be provided through descriptive text rather than a list.
435. QLDC seeks clarification as to how Table 7 (below) is applied in relation to ‘hazard zone’²⁶⁹. It is queried as to whether this refers to the area affected by each hazard scenario, and if so, are different sizes for each event considered, or is it the area potentially affected by the maximum credible event?
436. In relation to the Health & Safety column in Table 7, QLDC considers any number of fatalities from an event represents a major consequence, rather than a minor event as indicated²⁷⁰. QLDC seeks clarification that any death from a natural hazard event is no less than a major consequence.

²⁶⁹ 00138.147 QLDC

²⁷⁰ 00138.147 QLDC

437. Horticulture NZ also requests an additional matter as follows²⁷¹:

(12) Impacts on food production, food supply and food security.

438. Finally, Port Otago considers that the methodology within APP6 is onerous and difficult to follow²⁷². The risk assessment methodology should be simplified for resource consent applications as opposed to plan changes. Moreover, exemptions to the process should be made for small scale and low risk projects.

Analysis

439. In relation to the submissions from Wayfare, Blackthorn Lodge, and Trojan, seeking amendments to matters listed within Step 2, the technical letter from GNS Science states:

“The amendments to the introductory text sought by the submitter are more appropriately set out at Step 3, which addresses risk levels.

The submitter seeks additions to the matters for consideration in relation to consequences. As advised in relation to an earlier submission, these matters are of particular relevance for resource consent applications as they provide for site specific considerations to be applied.

Amendments to Point 1 could usefully be adopted in part, as set out below; however, it would be inappropriate to elevate “established land use or zoning” in this regard as natural hazard areas are agnostic of the underlying zoning and should be considered as an overlay to the underlying zoning.

A new Point 2 seeks consideration of the actual and potential adverse effects. Within the RMA setting, effects could be likened to consequences under the risk-based approach, which are the primary consideration of Step 2, and therefore already being considered. Therefore, adopting the submitter’s new Point 2 is not considered necessary.

A new Point 3 seeks that the consequences of past natural hazard events are expressly considered. While lessons can be learned from past events, particularly for hazard likelihood and magnitude, in many instances the environment within which those consequences would have occurred has changed, or a proposal to change it may be under consideration, thereby altering the potential consequence(s). This makes consideration of past-consequences inappropriate when assessing current risk.

A new Point 4 seeks consideration of response, adaptation or mitigation measures – these elements are provided for via the proposed Point 6 “available and viable risk reduction and hazard mitigation measures”, which should be considered once the level of risk without reduction and mitigation measures has been determined. Consideration of these elements during the first risk assessment pass could underestimate the risk level.

²⁷¹ 00236.110 Horticulture NZ

²⁷² 00301.055 Port Otago

The inclusion of resilience in relation to community vulnerability at Point 2 is useful in that these elements represent two sides of the same coin, and both should be considered alongside each other.

Step 2 and Table 7 remain fixed regardless of whether a local authority has undertaken a consultation process to determine a community/district version of Table 8.

Regarding amendments sought, the following are recommended:

Step 2 – Natural hazard consequence

...

1. *the nature and scale of activities in the area,*
2. *individual and community vulnerability and resilience,*

...

440. In relation to the submissions from Wayfare, Blackthorn Lodge, and Trojan seeking amendment to Table 7; Consequence table GNS Science has stated:

“Clarification has been advised on Table 7 and the list at Step 2 in relation to the Ports of Otago Ltd submission.

In response to these submission points, it is noted that the purpose of Table 7 is not to provide an assessment at an individual application or site-specific scale, as this would not be commensurate with the purpose of an RPS. In lieu of local authorities giving effect to the RPS, the list at Step 2 may usefully inform considerations for resource consent applications. By way of the process required of local authorities in relation to risk, Otago Regional Council could consider assisting consultation with stakeholders and local authorities to develop consequence tables that could be applied at a resource consent level.

The submitters also seek amendments around activities not anticipated / anticipated in a district plan. Whether an activity is anticipated or not by a district plan should not be a consideration for whether a risk assessment is undertaken as activities are often anticipated in an area based on the zoning (e.g. residential and industrial), and natural hazards and risk are contemplated at a district-wide level, one step above zoning within a plans hierarchy.”

441. In relation to the QLDC submission, GNS Science has stated:

“The purpose of the list being more usefully applicable to resource consent applications in lieu of local authorities preparing their own risk assessment has been clarified in relation to the submission considered above.

The term ‘hazard zone’ is likely a misnomer, as raised by the submitter. ‘Hazard zone’ could be more accurately expressed as ‘hazard impact area’, which is the area that could be impacted by a hazard. A definition to this effect could be usefully included.

Regarding deaths, in lieu of region-wide consultation the existing consequence table is the best available and applicable information. The number of deaths considered to be catastrophic or major across a region or district will vary depending on experience and demographics. More accurately defining this for the Otago region or at a district level requires further consideration and consultation. No amendments are recommended in this regard.

442. I agree with the recommendations provided by GNS Science which suggest replacing ‘hazard zone’ with ‘hazard impact area’. In relation to the Health and Safety column within Table 7: Consequence table, I agree with the submitters that the Health and Safety column in Table 7 appears to be very risk tolerant, I agree that any death from a natural hazard event is no less than a major consequence. When considering recent natural hazard events that have resulted in deaths within New Zealand, such as: the Whakaari eruption which resulted in 22 deaths²⁷³, the 2016 Kaikōura earthquake which resulted in 2 deaths²⁷⁴, the tornado in Auckland in June of 2021 which resulted in one death²⁷⁵, and the flooding within Southland in February 2020 which resulted in 3 deaths²⁷⁶, I consider these would suggest that there needs to be a reduction in the number of deaths that would result in ‘Minor’, ‘Moderate’, ‘Major’, and ‘Catastrophic’ consequences.
443. While acknowledging my limitations as a planning expert and not a natural hazard risk expert, I have tentatively recommended some amendments to the Health and Safety column within Table 7: Consequence table which amend the trigger for ‘Minor’, ‘Moderate’, ‘Major’, and ‘Catastrophic’ events which aligns with the submission from QLDC which seeks that any death from a natural hazard event is no less than a major consequence. However, I welcome evidence from submitters as to whether these suggested amendments align with what they would consider to be a ‘Minor’, ‘Moderate’, ‘Major’, or ‘Catastrophic’ events.
444. In relation to the Horticulture NZ submission, GNS has stated:
- “This matter is more generally captured under the nature of activities, impacts on health, impacts on wellbeing and impacts of infrastructure and property considerations, such that it is not considered necessary to explicitly include.”*
445. I agree with the recommendations provided by GNS.
446. In relation to the submission from Port Otago, GNS Science has stated:
- “HAZ-NH-M3(7) and HAZ-NH-M4(7) require a risk assessment to be undertaken when a resource consent application is received that will increase the risk. Small scale and low risk projects would need to be considered on a case-by-case basis, but an assessment commensurate with the scale and significance of the activity would be appropriate. Simplifying APP6 for resource consent applications would*

²⁷³ <https://www.stuff.co.nz/national/nz-earthquake/127235226/whakaari-eruption-mortality-rate-lower-than-expected-despite-acid-and-microbe-complications>

²⁷⁴ <https://www.stuff.co.nz/national/86417711/cheviot-quake-one-missing-after-homestead-collapses-in-kaikoura>

²⁷⁵ <https://www.stuff.co.nz/auckland/local-news/manukau-courier/300337073/auckland-tornado-worker-died-after-being-picked-up-and-thrown-against-object>

²⁷⁶ <https://www.stuff.co.nz/national/119894816/french-woman-named-as-third-dead-makarora-tramper>

complicate the RPS, particularly for those giving effect to it. The risk assessment for resource consent applications is generally simpler than that for plan changes owing to the scale at which each of these would be undertaken. It should be acknowledged that additional guidance be provided within APP6 for when the risk-based approach is applied to resource consent applications.

The following changes are advised:

Step 2 – Natural hazard consequence

Using Table 7^x and the matters listed in (1) to (11) below^y, assess the consequence (catastrophic, major, moderate, minor, or insignificant) of the natural hazard scenarios identified in step 1 considering:

The following changes to Table 7: Consequence Table are advised:

~~When this assessment is being undertaken in accordance with HAZ-NH-M3(7)(a) or HAZ-NH-M4(7)(a) the text within Step 2 shall guide the assessment of natural hazard consequence.~~

^x Table 7 shall be utilised by territorial authorities determining the level of risk presented by a hazard(s) when undertaking plan change or plan review processes.

^y The matters listed in (1) to (11) provide useful considerations for territorial authorities, and are the primary considerations for resource consent applications triggering a risk assessment requirement in accordance with HAZ-NH-M3(7)(a) or HAZ-NH-M4(7)(a).

447. I agree with the amendments advised by GNS Science. I consider this helps to clarify the two different uses of the step 2.

12.4.26.5. Step 3 – Assessing activities for natural hazard risk

448. Step 3 sets out the process for determining whether the natural hazard scenarios will have an acceptable, tolerable, or significant risk using the information within Steps 1 and 2.

Submissions

449. QLDC considers the list of matters listed above Table 8 – Risk Table is out of place and leads to confusion²⁷⁷. QLDC seeks that the list of matters is deleted, and the introductory text amended as follows:

Using the information within steps 1 and 2 above, ~~and complete Table 8 for each of the hazard scenarios considered, and identify if the risk from each of the scenarios is assess whether the natural hazard scenarios will have an acceptable, tolerable, or significant risk to people, property and communities, by considering:~~

²⁷⁷ 00138.147 QLDC

450. QLDC considers that there should be no ability to modify where on Table 8 (below) an event is placed²⁷⁸.
451. QLDC supports the colour coding used in Table 8 but comments that it may need to be amended to reflect those amendments requested in relation to Table 6, previously noted²⁷⁹. QLDC also comments that the colour coding and risk level definitions do not align with results from a site-specific community tolerance exercise conducted by the Council. Consequently, the note to the table and the intention in HAZ-NH-M2(1) for Table 8 to be a default until community consultation is undertaken, is supported.
452. DCC considers that Table 6 and Table 7 differ slightly to that included in the Dunedin City District Plan, but note that Table 8 is compatible with that in the Plan²⁸⁰. As noted in relation to HAZ-NH-P2, DCC requests an exemption for local authorities with an existing risk assessment framework and a consequential change so that resource consent applicants do not have to undertake a risk assessment in the interim if they comply with the existing provisions of the Plan.
453. ORC points out that lower frequency natural hazard scenarios, with estimated AEP of above 0.1% are categorised as *unlikely* or *rare*, are considered *tolerable*, even if the consequences are categorised as *catastrophic*²⁸¹. Likewise, scenarios categorised as *likely* are considered *tolerable*, even if the consequences are classed as *major*. It is also noted that natural hazard risks in some areas of the region will not be assessed or accounted for appropriately if categorised as *tolerable*. Instead, Table 8 should reflect that in some areas, where scenarios have *major* or *catastrophic* consequences, these should be considered *significant* rather than *tolerable*, to ensure risks are appropriately assessed and accounted for. ORC proposes two options to remedy this:
- *Unlikely* or *rare* and *catastrophic* scenarios; and *likely* but *major* scenarios are re-categorised as *significant*
 - Require a quantitative risk assessment if the natural hazard scenarios generate risk that is significant, or if a consequence is *catastrophic* or *major*. ‘
454. Three submitters consider it nonsensical to use ‘natural hazard risk’ as a criterion for identifying natural hazard risk, and request that Step 3(1) is amended as follows²⁸²:
- (1) the natural hazard risk identified, including residual risk peoples and communities awareness and experiences of the risk, including any investigations, initiatives or natural hazard risk engagement that have been undertaken,

Analysis

455. In relation to the QLDC submission, GNS Science has stated:

²⁷⁸ 00138.147 QLDC

²⁷⁹ 00138.147 QLDC

²⁸⁰ 00139.206 DCC

²⁸¹ 00415.001 ORC

²⁸² 00411.094 Wayfare, 00206.076 Trojan, 00119.032 Blackthorn Lodge

“The submitter usefully comments that Step 3’s purpose is to determine the product of Steps 1 and 2. It is also unclear how the list should materially change the outcome of Step 3.

Best practise risk management sets out that many of the factors contemplated by the list would be more appropriately considered after the risk level has been determined. In this regard:

- ‘Residual risk’ is that risk left over after management measures have been implemented.*
- Risk management measures (including their viability and affordability should be applied after the determination of the risk, unless they are pre-existing, otherwise risk may be under-estimated.*
- Flow on effects, or more appropriately ‘consequences’ should be considered at Step 2.*
- The availability of lifeline utilities, and essential and emergency services is best determined after an event or requires quantitative modelling to determine before an event.*

Advise amending text as follows:

Step 3 – Assessing ~~activities for~~ natural hazard risk

Using the information within steps 1 and 2 above, ~~and apply Table 8 for each of the hazard scenarios considered, and identify if the risk from each of the scenarios is Table 8, assess whether the natural hazard scenarios will have an acceptable, tolerable, or significant risk. To people, property and communities, by considering:~~

- 1. ~~the natural hazard risk identified, including residual risk,~~*
- 2. ~~any measures to avoid, remedy or mitigate those risks, including relocation and recovery methods,~~*
- 3. ~~the long-term viability and affordability of those measures,~~*
- 4. ~~flow on effects of the risk to other activities, individuals and communities, and~~*
- 5. ~~the availability of, and ability to provide, lifeline utilities, and essential and emergency services, during and after a natural hazard event.~~*

...

When this assessment is being undertaken in accordance with HAZ-NH-M3(7)(a) or HAZ-NH-M4(7)(a) the text within Step 3 shall guide the assessment of natural hazard risk.”

456. For the reasons set out above, I agree with the analysis from GNS Science and recommend that amendments are made to Step 3 of APP6.

457. In relation to the submission from ORC, GNS Science has stated:

“Table 8 represents a region-wide baseline, and is based on the sole available study undertaken to define risk in a resource management setting (Kilvington and

Saunders, 2015). While it should be acknowledged that the risk table for the Otago region could differ, until a consultation exercise is undertaken, adopting the submitter's change would be a departure from current resource management practise.

No action is advised in response to this submission."

458. I agree with the analysis from GNS Science. However, I also note that I have tentatively recommended an amendment to 'the Health and Safety column within Table 7: Consequence table which will reduce the threshold for what is considered a 'Minor', 'Moderate', 'Major', and 'Catastrophic' event, which is effectivity achieve what the submitter is seeking. I also note that Table 8 has been included as a region-wide baseline. As set out in HAZ–NH–M2(1) local authorities are required to undertake a consultation process with communities, stakeholders and partners regarding risk levels thresholds and develop a risk table at a district or community scale. This region-wide baseline is to be used in the absence of a district or community scale risk table being developed. Therefore, when implemented across the region there will be an ability to tailor the risk table to particular areas as required through the district or regional plan review process.

459. In relation to the submissions from Wayfare, Blackthorn Lodge, and Trojan, GNS Science has stated:

"In response to the QLDC submission point on APP6 – Step 3, it is advised that the list is deleted."

460. For the reasons set out above I agree with the analysis from GNS Science.

12.4.26.6. Step 4 – Undertake a quantitative risk assessment

461. Step 4 sets out the sets out the process for re-categorising risk as acceptable, tolerable or significant using the information within Step 2.

Submissions

462. The QLDC submission commented on a range of matters related to Step 4 of APP6, these submission points are summaries as follows:

- QLDC supports the higher risk tolerance level for new development over existing development and requests that the definitions of acceptable, tolerable and significant risk, set out in Step 4(4), including the distinction between new and existing development, are retained²⁸³.
- That the quantitative risk assessment should be applied where²⁸⁴:
 - There is a risk to life that needs to be managed
 - A level of risk that is tolerable or above is indicated by qualitative risk assessment (Step 3).

²⁸³ 00138.147 QLDC

²⁸⁴ 00138.147 QLDC

- QLDC observes that some natural hazards have a higher potential to result in deaths without warning, such as debris flows, than others, such as liquefaction²⁸⁵. In these instances, a quantitative assessment should be required regardless of the results of a qualitative assessment. A quantitative risk assessment will reduce the margin of error and provide greater definition of areas where there is potentially significant risk. QLDC also notes that a risk may be assessed as tolerable under qualitative assessment, and significant under quantitative assessment. Therefore, in order to achieve HAZ-NH-O1, a quantitative assessment should be required when qualitative assessment identifies tolerable or significant risk.
- That the five hazard scenarios required to be assessed as part of the quantitative risk assessment in Step 4, are reduced to three²⁸⁶.
- That clauses (2) and (3) be deleted and replace with a requirement to follow the methodology in AGS 2007 to calculate AFIR and APR²⁸⁷. They also consider the use of the term 'loss exceedance probabilities' in (2) and (3) requires clarification as to what this is and how it contributes to the assessment.
- That the 'first past the post' principle within clause (4) is not necessary and unnecessarily restricts the management response, so that either life or property risk take precedence²⁸⁸. Rather, it should simply set out what acceptable, tolerable and intolerable risk mean in terms of AFIR and APR. They request that that reference to 'first past the post' in clause (4), and the explanatory paragraph following clause (5), are deleted.
- That clause (5) is unnecessary as it identifies the risk to be assigned to the area.

463. QLDC seeks to delete clauses (4) and (5) of Step 4 in their entirety, as well as the explanation paragraph below clause (5).

464. Three submitters note that quantitative assessments of natural hazard risk can be expensive and full of uncertainty due to being based on models²⁸⁹. It is considered that this is 'scientific jargon' and prevents application of affected stakeholder tolerability on a case-by-case basis. Moreover, it is more appropriate for quantitative risk assessments to be undertaken by councils or applicants for plan changes and resource consent applications for activities that do not exist or are not anticipated by a district plan. As such, Wayfare and Trojan request that Step 4 is deleted, or amended to clarify '*that it need only be used by xx*'.

465. ORC suggests that the requirement for a quantitative risk assessment can be achieved by amending Step 4, as outlined below. They note that if this approach was not possible, a precautionary approach would apply²⁹⁰.

²⁸⁵ 00138.147 QLDC

²⁸⁶ 00138.147 QLDC

²⁸⁷ 00138.147 QLDC

²⁸⁸ 00138.147 QLDC

²⁸⁹ 00206.076 Trojan, 00411.095 Wayfare, 00119.033 Blackthorn Lodge

²⁹⁰ 00415.002 ORC

If the assessment undertaken in Steps 1-3 determines that one of the three natural hazard scenarios generate risk that is significant, or if a consequence is catastrophic or major, undertake a quantitative risk assessment utilising the following methodology.

Analysis

466. In relation to the QLDC submission, GNS Science has responded to each of the five amendments sought as follows:

“A response to each of the submitter’s points is provided below.

1. *No action is advised or considered necessary.*
2. *Previous advice from GNS Science was for Step 3 tolerable risk to trigger a quantitative risk assessment. However, this must be balanced against the burden of quantitative risk assessments for tolerable risks.*
3. *The pRPS required at least five hazard scenarios to be modelled for a quantitative assessment. This would provide additional data points for a loss estimate curve to be established, however it must be weighed against the burden of acquiring additional hazard information for five scenarios when the qualitative assessment requires three scenarios.*
4. *The methodology proposed is in general accordance with AGS (2007). While a requirement to follow the AGS (2007) methodology would result in a consistent methodology for quantitative risk assessments, it would also restrict the assessments to this methodology, regardless of developments in risk assessment practices. While consistency of assessment should be viewed as a positive, a peer review process can also be utilised to ensure a level of consistency and best practise is applied with each assessment. AGS (2007) was also developed for landslides, and a review of its applicability or the balance of guidance for other natural hazards has not been undertaken. However, reference to AGS (2007) could still be usefully made within APP6, as below:*

Step 4 – Undertake a quantitative risk assessment

...

If the assessment undertaken in Steps 1-3 determines that one of the three natural hazard scenarios generate risk that is significant, undertake a quantitative risk assessment utilising the following methodology:²

²This methodology has been developed in general accordance with the Australian Geomechanics Society, 2007 methodology, which may usefully provide additional guidance.

5. *The first-past-the-post principle sought that higher risk of AIFR or APR is the risk upon which the area is categorised, but does not recognise that a hazard can result in different levels of risk across the hazard area – particularly when a quantitative assessment is undertaken. Removing the first-past-the-post*

principle would open the ability to undertake a more nuanced approach equally considering both AIFR and APR.

Advise removing the first-past-the-post principle within Step 4.

6. Advise incorporating (5) into (4) as below:

(4) ~~Implementing a first past the post principle for the AIFR and APR~~Assign the risk level:

(a) for areas of new development where ~~the greatest~~ AIFR or APR is:

...

(b) for areas with existing development, where ~~the greatest~~ AIFR or APR is:

...

~~(5) Following the quantitative risk assessment, a risk level is assigned to the hazard area."~~

467. In relation to the submission from Wayfare, GNS Science has stated:

"Introductory text to Step 4 clarifies when Step 4 is required.

If the assessment undertaken in Steps 1-3 determines that one of the three natural hazard scenarios generate risk that is significant, undertake a quantitative risk assessment utilising the following methodology:

...

No action is advised in response to this submission point."

468. In relation to the submission from Blackthorn Lodge, GNS Science has stated:

"The quantitative risk assessment methodology has been designed to provide applicants with an opportunity to more robustly assess their activities against the outcomes sought by the RPS. The absence of the quantitative risk assessment would effectively see a direction to avoid activities resulting in significant risk on the basis of a qualitative assessment.

Tolerability is expressly catered for in the qualitative assessment stage and via the consultation undertaken by authorities. Those undertaking a quantitative assessment would have already been through the qualitative assessment and found that this tolerability was exceeded thereby requiring a quantitative assessment.

The submitter's point on the appropriateness of quantitative risk assessments is not disagreed with however, it ignores instances where a quantitative assessment would be appropriate for activities anticipated by a district plan, but located within an area potentially subject to natural hazard risk.

No action is advised in response to this submission point."

469. For the reasons set out above, I agree with the analysis from GNS Science.

470. In relation to the submission from ORC, GNS Science has stated:

"The approach proposed by the submitter would result in a trigger for a quantitative assessment based on consequence alone, thereby not being based on

a risk-based approach. A more robust, risk-based approach would be to make all catastrophic and major consequence events result in significant risk – however, this should only be done in consultation with communities and stakeholders, as set out in Otago Regional Council’s submission on APP6, Step 3, Table 8.”

471. For the reasons set out above, I agree with the analysis from GNS Science.

Recommendation

472. I recommend amending APP6 as follows:

APP6 – Methodology for *natural hazard risk* assessment

Undertake the following four step process to determine the *natural hazard risk*.

Step 1 – Determine the likelihood

- (1) Using ~~Table 6,~~ assess the likelihood of three *natural hazard* scenarios occurring, representing a high likelihood, median likelihood, and the maximum credible event, using the best available information.
- (2) Use Table 6 to assign a likelihood descriptor to the three natural hazard scenarios.
- (3) The likelihood assessment shall include consideration of the effect of climate change and Representative Concentration Pathways (RCP) scenarios.²⁹¹

TABLE 4: LIKELIHOOD SCALE

Likelihood	Indicative frequency
Almost certain	Up to once every 50 years (2% AEP)
Likely	Once every 51 – 100 years (2 – 1% AEP)
Possible	Once every 101 – 1,000 years (1 – 0.11% AEP)
Unlikely	Once every 1,001 – 2,500 years (0.1 – 0.04% AEP)
Rare	2,501 years plus (<0.04% AEP)

Step 2 – *Natural hazard* consequence

Note 1: Table 7 shall be utilised by territorial authorities determining the level of risk presented by a hazard(s) when undertaking plan change or plan review processes.

Note 2: The matters listed in (1) to (11) provide useful considerations for territorial authorities, and are the primary considerations for resource consent applications

²⁹¹ 00138.147 QLDC

triggering a risk assessment requirement in accordance with HAZ-NH-M3(7)(a) or HAZ-NH-M4(7)(a).²⁹²

Using Table 7 and the matters listed in (1) to (10) below, assess the consequence (catastrophic, major, moderate, minor, or insignificant) of the *natural hazard* scenarios identified in step 1 considering:

- (1) the nature and scale²⁹³ of activities in the area,
- (2) individual and community vulnerability and resilience,²⁹⁴
- (3) impacts on individual and community health and safety,
- (4) impacts on social, cultural and economic well-being,
- (5) impacts on *infrastructure* and property, including access and services,
- (6) available and viable *risk* reduction and hazard mitigation measures,
- (7) *lifeline utilities*, essential and emergency services, and their co-dependence,
- (8) implications for civil defence agencies and emergency services,
- (9) the changing *natural hazard* environment,
- (10) cumulative *effects* including *multiple* and *cascading hazards*, where present, and
- (11) factors that may exacerbate a *natural hazard* event including the *effects* of *climate change*.

Table 5: Consequence table

Severity of Impact	Built				Health & Safety
	Social/Cultural	Buildings	Critical Buildings	Lifelines	
Catastrophic (V)	≥25% of <i>buildings</i> of social/cultural significance within hazard zone <u>impact area</u> ²⁹⁵ have functionality compromised	≥50% of affected <i>buildings</i> within hazard zone <u>impact area</u> ²⁹⁶ have functionality compromised	≥25% of critical facilities within hazard zone <u>impact area</u> ²⁹⁷ have functionality compromised	Out of service for > 1 month (affecting ≥20% of the town/city population) OR suburbs out of service for > 6 months (affecting < 20% of the town/city population)	> 101 dead and/or > 1001 injured ²⁹⁸

²⁹² 00301.055 Port Otago

²⁹³ 00411.091 Wayfare

²⁹⁴ 00411.091 Wayfare

²⁹⁵ 00138.147 QLDC

²⁹⁶ 00138.147 QLDC

²⁹⁷ 00138.147 QLDC

²⁹⁸ 00138.147 QLDC

Major (IV)	11-24% of <i>buildings</i> of social/cultural significance within hazard zone <u>impact area</u> ²⁹⁹ have functionality compromised	21-49% of <i>buildings</i> within hazard zone <u>impact area</u> ³⁰⁰ have functionality compromised	11-24% of <i>buildings</i> within hazard zone <u>impact area</u> ³⁰¹ have functionality compromised	Out of service for 1 week – 1 month (affecting ≥20% of the town/city population) OR suburbs out of service for 6 weeks to 6 months (affecting < 20% of the town/city population)	11 – 100 dead and/or 101 – 1000 injured ³⁰²
Moderate (III)	6-10% of <i>buildings</i> of social/cultural significance within hazard zone <u>impact area</u> ³⁰³ have functionality compromised	11-20% of <i>buildings</i> within hazard zone <u>impact area</u> ³⁰⁴ have functionality compromised	6-10% of <i>buildings</i> within hazard zone <u>impact area</u> ³⁰⁵ have functionality compromised	Out of service for 1 day to 1 week (affecting ≥20% of the town/city population) OR suburbs out of service for 1 week to 6 weeks (affecting < 20% of the town/city population)	2 – 20 dead and/or 11 – 100 injured ³⁰⁶
Minor (II)	1-5% of <i>buildings</i> of social/cultural significance within hazard zone <u>impact area</u> ³⁰⁷ have functionality compromised	2-10% of <i>buildings</i> within hazard zone <u>impact area</u> ³⁰⁸ have functionality compromised	1-5% of <i>buildings</i> within hazard zone <u>impact area</u> ³⁰⁹ have functionality compromised	Out of service for 2 hours to 1 day (affecting ≥20% of the town/city population) OR suburbs out of service for 1 day to 1 week (affecting < 20% of the town/city population)	1 dead and/or 1 – 10 injured ³¹⁰
Insignificant (I)	No <i>buildings</i> of social/cultural significance within hazard zone <u>impact area</u> ³¹¹ have functionality compromised	< 1% of affected <i>buildings</i> within hazard zone <u>impact area</u> ³¹² have functionality compromised	No damage within hazard zone <u>impact area</u> ³¹³ , fully functional	Out of service for up to 2 hours (affecting ≥20% of the town/city population) OR suburbs out of service for up to 1 day (affecting < 20% of the town/city population)	No dead No injured

When assessing consequences within this matrix, the final level of impact is assessed on the ‘first past the post’ principle, in that the consequence with the highest severity of impact applies. For example, if a *natural hazard* event resulted in moderate severity of impact across all of the categories, with the exception of critical *buildings* which had a ‘major’ severity of impact, the major impact is what the proposal would be assessed on. If a *natural hazard* event resulted in all of the consequences being at the same level (for example, all of the consequences are rated moderate), then the level of consequence is considered to be moderate.

When this assessment is being undertaken in accordance with HAZ-NH-M3(7)(a) or HAZ-NH-M4(7)(a) the text within Step

²⁹⁹ 00138.147 QLDC

³⁰⁰ 00138.147 QLDC

³⁰¹ 00138.147 QLDC

³⁰² 00138.147 QLDC

³⁰³ 00138.147 QLDC

³⁰⁴ 00138.147 QLDC

³⁰⁵ 00138.147 QLDC

³⁰⁶ 00138.147 QLDC

³⁰⁷ 00138.147 QLDC

³⁰⁸ 00138.147 QLDC

³⁰⁹ 00138.147 QLDC

³¹⁰ 00138.147 QLDC

³¹¹ 00138.147 QLDC

³¹² 00138.147 QLDC

³¹³ 00138.147 QLDC

Step 3 – Assessing ~~activities for~~³¹⁵ *natural hazard* risk

Using the information within steps 1 and 2 above, complete Table 8 for each of the hazard scenarios considered, and identify if the risk from each of the scenarios is and Table 8, assess whether the *natural hazard* scenarios will have an³¹⁶ acceptable, tolerable, or significant *risk* to people, property and communities, by considering:

- (1) ~~the *natural hazard* risk identified, including residual risk,~~
- (2) ~~any measures to avoid, remedy or mitigate those risks, including relocation and recovery methods,~~
- (3) ~~the long term viability and affordability of those measures,~~
- (4) ~~flow on effects of the risk to other activities, individuals and communities, and~~
- (5) ~~the availability of, and ability to provide, *lifeline utilities*, and essential and emergency services, during and after a *natural hazard* event.~~³¹⁷

Table 6: Risk table

Likelihood	Consequences				
	Insignificant	Minor	Moderate	Major	Catastrophic
Almost certain					
Likely					
Possible					
Unlikely					
Rare					
Green, Acceptable Risk: Yellow, Tolerable Risk: Red, Significant Risk					

Notes:

Table 8 above has been included as a region-wide baseline. As set out in HAZ-NH-M2(1) *local authorities* are required to undertake a consultation process with communities, stakeholders and partners regarding *risk* levels thresholds and develop a *risk* table at a district or community scale. This region-wide baseline is to be used in the absence of a district or community scale *risk* table being developed.

³¹⁴ 00301.055 Port Otago

³¹⁵ 00138.147 QLDC

³¹⁶ 00138.147 QLDC

³¹⁷ 00138.147 QLDC

~~When this assessment is being undertaken in accordance with HAZ-NH-M3(7)(a) or HAZ-NH-M4(7)(a) the text within Step 3 shall guide the assessment of *natural hazard risk*.~~³¹⁸

Step 4 – Undertake a quantitative *risk* assessment

While Steps 1-3 will qualitatively categorise *natural hazard risk* based on a community's understanding and acceptance level of *risk*, it will not provide quantitative understanding of the *risk* a *natural hazard* presents to the built environment, or health and safety.

If the assessment undertaken in Steps 1-3 determines that one of the three *natural hazard* scenarios generate *risk* that is significant, undertake a quantitative *risk* assessment utilising the following methodology:³¹⁹

- (1) Based on the likelihood of a *natural hazard* event within the hazard zone (see Step 1), and including the potential impacts of *climate change* and sea level rise, select a representative range of at least ~~five~~ three³²⁰ hazard scenarios with varying likelihoods to model,³²¹ including the maximum credible event.
- (2) Model the Annual Individual Fatality Risk (AIFR)³²² and Annual Property Risk (APR)³²³ for the range of hazard scenarios across the hazard zone, and create loss exceedance distributions.
- (3) Analyse loss exceedance distributions and determine losses.
- (4) Assign the risk level ~~Implementing a first-past-the-post principle for the AIFR and APR:~~³²⁴
 - (a) for areas of new development where the ~~greatest~~³²⁵ AIFR or APR is:
 - (i) less than 1×10^{-6} per year, the *risk* is re-categorised as acceptable,
 - (ii) between 1×10^{-6} and 1×10^{-5} per year, the *risk* is re-categorised as tolerable, or
 - (iii) greater than 1×10^{-5} per year, the *risk* is re-categorised as significant.
 - (b) for areas with existing development, where the ~~greatest~~³²⁶ AIFR or APR is:

³¹⁸ 00138.147 QLDC

³¹⁹ This methodology has been developed in general accordance with the Australian Geomechanics Society, 2007 methodology, which may usefully provide additional guidance. (00138.147 QLDC)

³²⁰ 00138.147 QLDC

³²¹ The model should include an analysis of uncertainty.

³²² Annual probability that an individual most at risk is killed in any one year as a result of the hazards occurring.

³²³ Annual probability of total property loss (relating to permanent structures) as a result of the hazards occurring.

³²⁴ 00138.147 QLDC

³²⁵ 00138.147 QLDC

³²⁶ 00138.147 QLDC

- (i) less than 1×10^{-5} per year, the *risk* is re-categorised as acceptable;
- (ii) between 1×10^{-5} and 1×10^{-4} per year, the *risk* is re-categorised as tolerable; or
- (iii) greater than 1×10^{-4} per year, the *risk* is re-categorised as significant.

~~(5) Following the quantitative risk assessment, a risk level is assigned to the hazard area.³²⁷~~

AIFR and APR are the selected *risk* metrics as they represent the likely consequences of a wide range of *natural hazards*. For example, some *natural hazards*, generally, do not have the capacity to cause fatalities, but may result in widespread damage to property, while other *natural hazards* have a high capacity to cause fatalities. A first-past-the-post principle to the re-categorisation of *risk* is applied to ensure that decisions are based on the greatest *risk* present between the two metrics.

If the level of knowledge or uncertainty regarding the likelihood or consequences of a *natural hazard* event precludes the use of Step 4, then a precautionary approach to assessing and managing the *risk* should be applied, as set out in HAZ-NH-P5.

12.5. HAZ-CL – Contaminated land

12.5.1. Introduction

473. This section of the report assesses the provisions within the pORPS that set the framework for managing contaminated land and waste. As the NESCS sets out a nationally consistent set of planning controls and soil contaminant values, the provisions within the pORPS avoid duplication by managing the adverse effects of contaminants on other receptors, including ecology, water quality or amenity values. Similarly, the management of waste is largely managed by local authorities under the Waste Minimisation Act 2008. Therefore, the focus of the provisions within the pORPS is to provide overarching direction on the waste minimisation hierarchy and the management of waste materials in the context of the RMA.
474. The PORPS 2019 includes provisions managing the use, storage and disposal of hazardous substances. However, the Resource Legislation Amendment Act 2017 removed the explicit function of regional and territorial authorities under section 30 and 31 to control hazardous substances so that RMA controls would not duplicate controls in the HSNO and the HSWA. As such, the pORPS has removed the provisions managing hazardous substances and now relies on the HSNO and the HSWA controls to manage hazardous substances.
475. In total, approximately 60 submission points have been received on this part. Key issues include:

³²⁷ 00138.147 QLDC

- Alignment with the NESCS.
- The management framework associated with existing contaminated land
- Use of the terms 'avoid' and 'minimise', and
- Providing for contaminated land to be remediated and therefore reused.

476. The relevant provisions for this chapter are:

HAZ-CL-P13 – Identifying contaminated land
 HAZ-CL-P14 – Managing contaminated land
 HAZ-CL-P15 – New contaminated land
 HAZ-CL-P16 – Waste minimisation responses
 HAZ-CL-P17 – Disposal of waste materials
 HAZ-CL-P18 – Waste facilities and services
 HAZ-CL-M6 – Regional plans
 HAZ-CL-M7 – District plans
 HAZ-CL-M8 – Waste Management and Minimisation Plans
 HAZ-CL-M9 – Other incentives and mechanisms
 HAZ-CL-E2 – Explanation
 HAZ-CL-PR2 – Principal reasons
 HAZ-CL-AER6
 HAZ-CL-AER7

477. The structure of this section of the report has largely followed the structure of the *HAZ-CL-Contaminated land* section. There were no submissions received seeking amendments to the following provisions, so they are not considered in this evaluation: HAZ-CL-P16, HAZ-CL-P17, HAZ-CL-E2, HAZ-CL-AER6, HAZ-CL-AER7. These provisions are recommended to be retained as notified.

478. There is one general issue that has been raised by submitters which is considered in the general submissions section as it spans multiple provisions.

12.5.2. General submissions

479. Many submitters made general submissions on the *HAZ – Contaminated land* section which are evaluated in this section of the report.

12.5.2.1. Submissions

480. DCC seeks greater direction on the management of different types of hazardous substances in locations adjacent to sensitive activities, sensitive natural environments and areas subject to natural hazards³²⁸. DCC notes that most risks in workplaces and non-workplaces are adequately managed by the HSWHS and HSNO, but some gaps remain. Therefore, where the HSWHS and HSNO are inadequate, the submitter considers additional controls are necessary and district plans have a role in controlling the effects of hazardous substances.

³²⁸ 00139.225 DCC

481. DCC highlights the following areas as requiring control:
- secondary containment of corrosive or ecotoxic substances,
 - preparation of risk assessment where hazardous facilities are located on sites adjacent to or within sensitive land uses zones where there is potential for explosion, toxic gas release or release to the environment beyond the site boundary, and
 - land use controls around identification of existing hazardous facilities and industrial zones to minimise the likelihood of new sensitive activities locating within the vicinity.
482. DCC seeks that the pORPS is amended to add direction on the management of different types of hazardous substances in close proximity to:
- sensitive activities (i.e. activities that accommodate large numbers of people and/or people who are more vulnerable to hazardous substances, e.g. hospitals, childcare centres, retirement homes, hotels and residential activities)
 - sensitive natural environments
 - areas subject to natural hazards.

12.5.2.2. Analysis

483. As noted in the DCC submission, the Resource Legislation Amendment Act 2017 removed the explicit function of regional and territorial authorities under section 30 and 31 to control hazardous substances to ensure RMA controls do not duplicate controls in the HSNO and HSWA. As such, the pORPS has removed the provisions managing hazardous substances and relies on the HSNO and the HSWA controls to manage hazardous substances.

484. I note that the purpose of the HSNO, as set out in Part 2 states:

*The purpose of this Act is to protect the environment, and the health and safety of people and communities, by preventing or managing the adverse effects of hazardous substances and new organisms.*³²⁹

485. This purpose statement appears to broadly cover the matters raised within the DCC submission. Furthermore, while pORPS does not include provisions related to the control hazardous substances explicitly, there are provisions that manage reverse sensitivities³³⁰, protect sensitive environments³³¹, and manage development in areas subject to natural hazards³³². Finally, I note that HAZ-CL-P15 requires that the creation of new contaminated land is avoided and where this is not practicable, the adverse effects on the environment and mana whenua values are to be minimised.

³²⁹ <https://www.legislation.govt.nz/act/public/1996/0030/latest/DLM382991.html>

³³⁰ UFD-P6(3) – Industrial activities and UFD-P7 (6) – Rural Areas

³³¹ Chapters: AIR – Air, CE – Coastal environment, LF – Land and freshwater, ECO – Ecosystems and biodiversity, HCV - Historical and cultural values and NFL – Natural features and landscapes.

³³² HAZ-NH – Natural hazards.

486. Given the assessment above, I am not convinced that additional provisions are required to be included within the pORPS concerning the management of hazardous substances.

487. Finally, although the pORPS does not contain explicit direction on the management of hazardous substances, it does not preclude territorial authorities from introducing provisions within their district plans that manage hazardous substances as they see fit.

12.5.2.3. Recommendation

488. I do not recommend any amendments to the HAZ-CL Chapter in response to these general submissions.

12.5.3. HAZ-CL-O3 – Contaminated land

12.5.3.1. Introduction

489. HAZ-CL-O1 is the only objective within the contaminated land section of the pORPS.

490. As notified, HAZ-CL-O3 reads:

HAZ-CL-O3 – Contaminated land

Contaminated land and waste materials are managed to protect human health, mana whenua values and the environment in Otago.

12.5.3.2. Submissions

491. Six submissions were received on HAZ-CL-O3, with three submissions in support of the objective.³³³

492. Kāi Tahu ki Otago supports the intent of the objective to manage contaminated land and waste materials to protect environmental and Kāi Tahu values, as well as human health, but requests that ‘mana whenua’ is replaced with ‘Kāi Tahu’ for consistency in the way values have been expressed elsewhere in the pORPS.³³⁴

493. Horticulture NZ and Federated Farmers seek to amend the objective so that it is focused on ‘not harming’ human health, mana whenua values and the environment rather than ‘protecting’ these values³³⁵. They seek that the language within Objective 4.6 of the PORPS 2019 is retained and they consider this approach more clearly focuses the response on the outcomes sought.

12.5.3.3. Analysis

494. In relation to the submission from Kāi Tahu ki Otago, I agree with that the submitter that ‘mana whenua’ should be replaced with ‘Kāi Tahu’ to ensure Kāi Tahu values are consistency expressed throughout the pORPS.

³³³ 00139.210 DCC, 00121.089 Ravensdown, 00510.058 The Fuel Companies

³³⁴ 00226.264 Kāi Tahu ki Otago

³³⁵ 00239.145 Federated Farmers, 00236.091 Horticulture NZ

495. In relation to the amendment requested by Horticulture NZ and Federated Farmers, I consider the shift from ‘do not harm’ to ‘protect’, as proposed in the pORPS, is more reflective of the shift in approach within this pORPS to active outcome directed management. In addition, I note that the word ‘protect’ is consistent with the NES for Assessing and Managing Contaminants in Soil to Protect Human Health (emphasis added). As such, I disagree that an amendment is required.

12.5.3.4. Recommendation

496. I recommend HAZ-CL-O3 is amended as follows:

HAZ-CL-O3 – Contaminated land

Contaminated land and waste materials are managed to protect human health, Kāi Tahu ~~mana whenua~~³³⁶ values and the *environment* in Otago.

12.5.4. HAZ-CL-P13 – Identifying contaminated land

12.5.4.1. Introduction

497. As notified, HAZ-CL-P13 reads:

HAZ-CL--P13 – Identifying *contaminated land*

Identify sites of known or potentially *contaminated land* in Otago using the Ministry for the Environment’s *Hazardous Activities and Industries List*.

12.5.4.2. Submissions

498. Three submissions were received on HAZ-CL-P13, with two seeking it be retained as notified.³³⁷

499. The Fuel Companies seek to delete “using the Ministry for the Environment’s Hazardous Activities and Industries List [HAIL]” from the policy.³³⁸ They support the intent of identifying potentially contaminated land but consider that doing so should not be limited solely to the HAIL.

12.5.4.3. Analysis

500. I agree with the Fuel Companies that identifying potentially contaminated land should not be limited solely to the HAIL. I note that hazardous substances were not always used or stored on all sites identified on the HAIL list, albeit that HAIL activities and industries are more likely to use or store hazardous substances and therefore there is a greater probability of site contamination occurring. I also note that RMA includes a definition of ‘contaminated land’ which states:

contaminated land means land that has a hazardous substance in or on it that—

³³⁶ 00226.264 Kāi Tahu ki Otago

³³⁷ 00226.265 Kāi Tahu ki Otago, 00139.211 DCC

³³⁸ 00510.060 The Fuel Companies

- (a) *has significant adverse effects on the environment; or*
- (b) *is reasonably likely to have significant adverse effects on the environment.*

501. Given this definition could apply more broadly than just the HAIL register, I agree with the amendment suggested by the Fuel Companies.

12.5.4.4. Recommendation

502. I recommend HAZ-CL-P13 is amended as follows:

HAZ-CL-P13 – Identifying *contaminated land*

Identify sites of known or potentially *contaminated land* in Otago using the Ministry for the Environment’s ~~*Hazardous Activities and Industries List*~~.³³⁹

12.5.5. HAZ-CL-P14 – Managing contaminated land

503. As notified, HAZ-CL-P14 reads:

HAZ-CL-P14 – Managing *contaminated land*

Actively manage contaminated or potentially *contaminated land* so that it does not pose an unacceptable *risk* to people and the *environment*, by:

- (1) assessing and monitoring *contaminant* levels and environmental *risks*,
- (2) protecting human health in accordance with regulatory requirements,
- (3) avoiding, as the first priority, and only where avoidance is not practicable, mitigating or remediating, adverse *effects* of the *contaminants* on the *environment*, and
- (4) requiring closed *landfills* to be managed in accordance with a closure plan that sets out monitoring requirements and, where necessary, any remedial actions required to address ongoing *risks*.

12.5.5.1. Submissions

504. Sixteen submissions were made in relation to HAZ-CL-P14. Three submissions seek it be retained as notified.³⁴⁰ Several submissions note that contaminated land can be remediated and safely used.³⁴¹ As such, the word avoidance is considered overly restrictive, and submitters request that this is removed to enable development.

505. Ravensdown considers the active management of land, so that it does not pose an unacceptable risk to human health and the environment, is the appropriate resource management response to such circumstances.³⁴² The submitter notes that clause (2), which outlines the need to protect human health, essentially repeats the first part of the

³³⁹ 00510.060 The Fuel Companies

³⁴⁰ 00226.266 Kāi Tahu ki Otago, 00301.053 Port Otago, 00139.212 DCC

³⁴¹ 00121.090 Ravensdown, 00114.061 Mt Cardrona Station, 00118.061 Maryhill Limited, 00210.034 Lane Hocking, 00211.034 LAC, 00209.034 Universal Developments

³⁴² 00121.090 Ravensdown

policy, and considers the intent of clause (2) is to implement the relevant regulatory requirements, such as the NESCS. Ravensdown also observes that the policy relates to land that is contaminated, or potentially contaminated. Therefore clause (3) should refer to the mitigation or remediation of adverse effects, as once land is contaminated it is too late to avoid the adverse effects of contaminants. Ravensdown seeks that the provision is amended to address these issues, as follows³⁴³:

- (2) ~~protecting human health in accordance with~~ implementing regulatory requirements,
- (3) ~~avoiding, as the first priority, and only where avoidance is not practicable,~~ mitigating or remediating, adverse effects of the contaminants on the environment, and ...

506. Five submissions seek that the policy does not set a higher bar for protection than the NESCS.³⁴⁴ The submissions note that where contaminated land can be effectively remediated and converted to an alternative, safe use that this is an efficient use of land resources that outcome should not be prevented or avoided as long as compliance with the relevant national regulations is achieved.

507. Federated Farmers and Horticulture NZ consider that the use of hazardous substances on land should not lead to that land being automatically classed as contaminated.³⁴⁵ They point out that the definition of contaminated land states that the hazardous substance in or on the land has, or is reasonably likely to have, a significant adverse effect on the environment. They suggest an additional clause be added to the policy to determine whether significant adverse effects to people or the environment will result from the hazardous substances in or on land. Federated Farmers requests that the provision is amended to include an additional clause.³⁴⁶

- (x) determining whether significant adverse effects to people or on the environment will result from the hazardous substances in or on the land

508. Ngāi Tahu ki Murihiku observes that clause (4) may implicitly enable a risk assessment and plan for monitoring and any remedial action associated with natural hazard risk, but this is not made explicit within the policy.³⁴⁷ They note that the risk of natural hazards event impacting on contaminated land (such as historic landfills) can be significant. The submitter refers to the example of contents from closed landfills entering waterbodies subject to flooding in Murihiku Southland, adjacent to Waikaka Stream. They seek an amendment to HAZ-CL-P14 to recognise and manage the risks to closed landfills from natural hazard events, as identified in HAZ-CL-P18. In addition, the submitter notes that climate change increases the risks for closed landfills, such as those adjacent to rivers, in

³⁴³ 00121.090 Ravensdown

³⁴⁴ 00211.033 LAC, 00118.061 Maryhill Limited, 00114.061 Mt Cardrona Station, 00209.033 Universal Developments, 00210.033 Lane Hocking

³⁴⁵ 00239.146 Federated Farmers, 00236.092 Horticulture NZ

³⁴⁶ 00239.146 Federated Farmers

³⁴⁷ 00223.119 Ngāi Tahu ki Murihiku

flood plains or the coastal environment and the amendment should recognise and require the management of this risk.

509. The Fuel Companies state that approaches to manage contaminated or potentially contaminated land can include a broad suite of responses depending upon circumstances and risks, and therefore do not consider the scope of the policy should be limited to the ‘active management’. They also state that monitoring should not be required in all circumstances, for instance where residual contamination is stable and contaminant levels are reducing. They seek to delete “actively” from the chapeau, include “if required” in front of “monitoring” in clause (1) and delete clause (3).³⁴⁸

12.5.5.2. Analysis

510. In relation to the opening line of the policy, I agree with the Fuel Companies that scope of the policy should not refer to ‘active management’, as I consider this may lead to uncertainty as to whether some management methods are ‘active’ or not. I consider the removal of ‘active’ ensures that the policy includes a broad suite of management responses depending upon circumstances.
511. In relation to subclause (1) I agree with the Fuel Companies that monitoring contaminant levels, and environmental risks should not be required in all circumstances. As such, I agree with including “if required”.
512. In relation to subclause (2), I in part agree with Ravensdown that there is an element of repetition within the opening line of the policy and in clause (2). However, I consider it is helpful to reiterate that the ‘regulatory requirements’ that are being referred to are the requirements of the NESCS. As such, I do not agree an amendment is required.
513. In relation to subclause (3), and the submissions from both Ravensdown and the Fuel Companies that seek to remove the whole of the subclause or remove the reference to “avoid”, I agree in part with this submission point. I agree that this policy relates to managing contaminated or potentially contaminated land, so at the point this policy is engaged, it is beyond the point of avoiding adverse all adverse effects on the environment. However, I note that it may be practical to avoid further adverse effects on the environment and as such I consider the drafting of clause (4) is appropriate. I also consider that mitigating or remediating adverse effects of the contaminants where it is not practical to avoid is an appropriate policy direction in the context of managing contaminated or potentially contaminated land so that it does not pose an unacceptable risk to people and the environment. I disagree with the Fuel Companies’ suggestion that the whole of the subclause should be removed.
514. Finally, when considering the management of closed landfills set out in clause (4), I agree with Ngāi Tahu ki Murihiku that natural hazard events, exacerbated by the effects of climate change, pose a risk to closed landfill sites. However, I disagree that a specific amendment is needed within the policy to reflect this. I note that subclause (4) requires closed landfills to be managed in accordance with a closure plan that sets out monitoring requirements and, where necessary, any remedial actions required to address

³⁴⁸ 00510.061 The Fuel Companies

ongoing risks. I consider the reference to on-going risk clearly provides scope to require the effects of natural hazards to be considered as part of this plan.

12.5.5.3. Recommendation

515. I recommend HAZ-CL-P14 is amended as follows:

HAZ-CL-P14 – Managing *contaminated land*

~~Actively manage~~ Manage³⁴⁹ contaminated or potentially *contaminated land* so that it does not pose an unacceptable *risk* to people and the *environment*, by:

(1) assessing and, if required,³⁵⁰ monitoring *contaminant* levels and *environmental risks*,

[...]

12.5.6. HAZ-CL-P15 – New contaminated land

12.5.6.1. Introduction

516. As notified, HAZ-CL-P15 reads:

HAZ-CL-P15 – New contaminated land

Avoid the creation of new *contaminated land* or, where this is not practicable, minimise adverse *effects* on the *environment* and *mana whenua* values.

12.5.6.2. Submissions

517. Five submissions were made in relation to HAZ-CL-P15. DCC notes that the use of the term “avoid” is considered to mean “prohibit” and is inconsistent with other provisions of the pORPS.³⁵¹ For example, under LF – FW – P15 there is a preference for discharges of wastewater to land over discharges to water, and CE – M3 prohibits the discharge of treated human sewage directly to water in the coastal environment. The submitter also considers the policy should recognise stormwater discharges from approved landfills that by necessity need to discharge to land. DCC requests that HAZ-CL-P15 is amended so it is consistent with LF – FW – P15, which includes a preference for discharges of wastewater to land over discharges to water. DCC considers that this could be achieved by making an explicit exemption for new discharges of wastewater to land. It also considers an exemption should be made to recognise that stormwater discharges for any proposed landfills, by necessity, need to discharge to land.

518. Kāi Tahu ki Otago seek to amend “mana whenua values” to “Kāi Tahu values” to ensure there consistency in the use of terms.³⁵²

³⁴⁹ 00510.061 The Fuel Companies

³⁵⁰ 00510.061 The Fuel Companies

³⁵¹ 00139.217 DCC

³⁵² 00226.267 Kāi Tahu ki Otago

519. Queenstown Airport considers use of the term “minimise” is problematic as it is not defined within the pORPS.³⁵³ Instead, “remedy or mitigate” is considered more appropriate as these terms are used in the RMA and request that the policy is amended accordingly.

520. Both Oceana Gold and The Fuel Companies request that the provision is deleted.³⁵⁴ Oceana Gold considers there is uncertainty as to what is required by ‘minimisation’ of adverse effects. They also consider that the policy is not necessary when read in conjunction with HAZ-CL-P14, which requires contaminated land to be actively managed so that it does not pose an unacceptable risk, and therefore provides greater certainty. The Fuel Companies note that the only way to avoid new contaminated land is to avoid the use, storage and disposal of hazardous substances and that in itself is not practicable. They seek that the policy be deleted, as there is other legislation managing the storage and use of hazardous substances and HAZ-CL-P14 addresses the management of contaminated land.

12.5.6.3. Analysis

521. In relation to the DCC submission, the use of the term “avoid” in this context is not considered to mean “prohibit” in all circumstances. The use of the term needs to be read in the context of the whole policy, which includes the discretion to consider whether minimising adverse effects is more appropriate. Additionally, I note that “contaminated land” is defined in the RMA (and pORPS) as:

contaminated land means land that has a hazardous substance in or on it that—

(a) *has significant adverse effects on the environment; or*

(b) *is reasonably likely to have significant adverse effects on the environment.*

522. Given the definition set out above, I do not agree that a discharge of wastewater to land would meet the definition of “contaminated land” if appropriately managed. As such, I do not consider an amendment to HAZ-CL-P15 is required.

523. When considering the amendment suggested by Queenstown Airport, to replace “minimise” with “remedy or mitigate”, I agree that the term “minimise” has an element of uncertainty as to how far an activity must go to achieving minimisation. The dictionary definition of minimise means:

To reduce to the smallest possible amount or degree.

524. When seeking to “minimise” (reduce to the possible amount or degree) adverse effects on the environment and mana whenua values this might not always result in the most efficient outcomes as significant expense may be required to reduce the effect to the lowest possible amount or degree. Given this I consider a qualifier to the minimise test is appropriate. I disagree with the drafting sought by Queenstown Airport which requires remedying or mitigating adverse effects, as this only allows for actions (remediation and mitigation) to be undertaken once the effect occurs, rather than seeking to reduce the

³⁵³ 00313.027 Queenstown Airport

³⁵⁴ 00510.062 The Fuel Companies, 00115.028 Oceana Gold

magnitude of the effect. Therefore, I consider a more appropriate qualifier would minimise 'to the lowest extent practical'. I consider this drafting ensures the magnitude of the effect is reduced while providing a suitable limit to that reduction.

525. Finally, I disagree with Oceana Gold and The Fuel Companies that the provision should be deleted. I disagree that the policy is not necessary or that the pORPS can rely on other legislation managing the storage and use of hazardous substances and HAZ-CL-P14 for addressing the management of contaminated land. In order to achieve the direction set within Objective HAZ-CL-O1 to protect human health, mana whenua values and the environment in Otago, I consider it is important there is policy direction that the creation of new contaminated land is avoided where practical.

12.5.6.4. Recommendation

526. I recommend HAZ-CL-P15 is amended as follows:

HAZ-CL-P15 – New *contaminated land*

Avoid the creation of new *contaminated land* or, where this is not practicable, minimise to the smallest extent practicable³⁵⁵ adverse *effects* on the *environment* and *mana whenua* values.

12.5.7. HAZ-CL-P18 – Waste facilities and services

12.5.7.1. Introduction

527. As notified, HAZ-CL-P18 reads:

HAZ-CL-P18 – *Waste facilities and services*

When providing for the development of facilities and services for the storage, recycling, recovery, treatment and disposal of *waste* materials:

- (1) avoid adverse *effects* on the health and safety of people,
- (2) minimise the potential for adverse *effects* on the *environment* to occur,
- (3) minimise *risk* associated with *natural hazard* events, and
- (4) restrict the establishment of activities that may result in reverse sensitivity *effects* near *waste* management facilities and services.

12.5.7.2. Submissions

528. Three submissions were made regarding HAZ-CL-P18, with one seeking it be retained as notified.³⁵⁶

³⁵⁵ 00313.027 Queenstown Airport

³⁵⁶ 00139.220 DCC

529. Kāi Tahu ki Otago supports the general direction of the policy but notes that Kāi Tahu values should also be considered, and in particular the values of wāhi tūpuna, and seek the inclusion of an additional clause between clauses (1) and (2):³⁵⁷

(X) avoid adverse effects of waste treatment and disposal on Kāi Tahu values, and avoid location of new waste treatment and disposal facilities in or near wāhi tūpuna,

530. Forest and Bird considers the policy should follow the effects management hierarchy which prioritises the avoidance of adverse effects and seeks the following amendments:³⁵⁸

(2) ~~minimise the potential for adverse effects on the environment to occur,~~
manage the potential for adverse effects on the environment by:

(a) avoid potential adverse effects as the first priority

(b) where potential adverse effects demonstrably cannot be completely avoided they are minimised,

(c) where adverse effects demonstrably cannot be completely avoided or minimised they are remedied,

(d) where adverse effects demonstrably cannot be completely avoided, minimised or remedied, they are mitigated

12.5.7.3. Analysis

531. In relation to Kāi Tahu ki Otago's suggestion that an additional clause be added, I agree that the effect of the policy should achieve this outcome, but I do not agree that an additional clause within the policy is required to achieve this outcome. I note that the pORPS has been drafted as an intergated document, and this policy needs to be read in conjunction with a range of other policies within the pOPRS that require the protection of many of the matters listed in Sections 6, 8 and 8 of the RMA including outstanding natural landscapes, significant natural areas, and wāhi tupuna. As such, I do not agree that a specific addition is required within this policy. I do agree that there needs to be a clear understanding that the protective policies³⁵⁹ within the of part of the wider pORPS apply when providing for the development of facilities and services for the storage, recycling, recovery, treatment and disposal of waste materials.

532. In relation to Forest and Bird's suggestion that the policy should follow the effects management hierarchy, I agree in part with this suggestion. As noted in the discussion on HAZ-CL-P15 above related to the unqualified use of the term "minimise", I consider this term used on its own creates uncertainty as to the extent minimisation should occur. As such, I support an amendment to HAZ-CL-P15 which would clarify the intent of the policy.

³⁵⁷ 00226.270 Kāi Tahu ki Otago

³⁵⁸ 00230.140 Forest and Bird

³⁵⁹ Policies protecting: biodiversity, landscapes, coastal environments, water quality, historic heritage, cultural values, wahi tupuna, etc.

533. It is my opinion that an amendment to the policy is required to ensure that the environmental protection provided by other policies within the pORPS are considered when applying this policy. I consider this amendment should require that the potential adverse effects of the activity are managed to ensure the values of the receiving environment, whether that be a landscape, biodiversity, or Kāi Tahu value, are not compromised.

12.5.7.4. Recommendation

534. I recommend HAZ-CL-P18 is amended as follows:

HAZ-CL-P18 – Waste facilities and services

When providing for the development of facilities and services for the storage, recycling, recovery, treatment and disposal of *waste* materials:

[...]

(2) minimise to the smallest extent practicable³⁶⁰ the potential for adverse *effects* on the *environment* to occur,

[...]

12.5.8. New policy

12.5.8.1. Submissions

535. The Fuel Companies seek a new policy that requires avoiding duplication of hazardous substance controls provided by other legislation.³⁶¹ They consider that HSNO and HSWA are the primary means of addressing the storage and use of hazardous substances. The Fuel Companies note that a significant number of councils going through district plan reviews have been reluctant to remove existing controls which duplicate HSNO and HSWA requirements. A specific policy is sought to ensure this is not the case in Otago.

12.5.8.2. Analysis

536. While I agree with the Fuel Companies that HSNO and HSWA are the primary means of addressing the storage and use of hazardous substances, I disagree that a specific provision should be included within the pORPS that would limit the ability of the territorial authorities to manage adverse effects of hazardous substances if, after an evaluation pursuant to section 32 RMA, they considered provisions were required to give effect to the purpose of the RMA.

12.5.8.3. Recommendation

537. I do not recommend any new policy amendments.

³⁶⁰ 00226.270 Kāi Tahu ki Otago, 00230.140 Forest and Bird

³⁶¹ 00510.059 The Fuel Companies

12.5.9. HAZ-CL-M6 – Regional plans

12.5.9.1. Introduction

538. As notified, HAZ-CL-M6 reads:

HAZ-CL-M6 – Regional plans

Otago Regional Council must:

- (1) maintain a register or database of sites where hazardous activities and industries are or have been located in Otago,
- (2) prepare or amend and maintain its *regional plans* to:
 - (a) in accordance with HAZ-CL-P14 and HAZ-CL-P15 manage the *effects* of the use of *contaminated land* on:
 - (i) the quality of air, *water* and *land*; and
 - (ii) the coastal marine area, and the beds of rivers, lakes and other water bodies,
 - (b) require *waste* disposal facilities to be designed, constructed and operated in accordance with best industry practice, and
 - (c) require *waste* disposal facilities to monitor, record and report on the quantity and composition of *waste* being deposited to *landfill*.

12.5.9.2. Submissions

539. Five submissions were made on HAZ-CL-M6, with two seeking it be retained as notified.³⁶² DCC request consequential amendments to the provision to give effect to the relief sought elsewhere, but no specific changes are identified.

540. Horticulture NZ and Federated Farmers consider the method should more clearly articulate that contaminated land (as defined in the RMA) is land that has a hazardous substance in or on it which is reasonably likely to have a significant adverse effect on the environment and is not simply sites where hazardous substances are or have previously been used.³⁶³ They have both requested similar amendments:³⁶⁴

- (1) In accordance with HAZ-CL-P13 maintain a register or database of sites where hazardous activities and industries are or have been used in Otago where it is reasonably likely to have significant adverse effects on the environment.

12.5.9.3. Analysis

541. As noted in the analysis of HAZ-CL-P13, I support an amendment to that policy to clarify that identifying potentially contaminated land should not be limited solely to the HAIL.

³⁶² 00226.271 Kāi Tahu ki Otago, 00121.092 Ravensdown

³⁶³ 00236.093 Horticulture NZ, 00239.147 Federated Farmers

³⁶⁴ 00236.093 Horticulture NZ

As such, I support the suggestion that HAZ-CL-M6(1) should apply more broadly than just the HAIL register. I disagree that this amendment needs to include the definition of contaminated land within the RMA. Instead, I consider the methods could be simplified to require that a register or database of sites of known or potentially contaminated land in Otago is maintained, which would provide a more direct link to the direction within HAZ-CL-P13.

12.5.9.4. Recommendation

542. I recommend HAZ-CL-M6 is amended as follows:

HAZ-CL-M6 – Regional plans

Otago Regional Council must:

- (1) in accordance with HAZ-CL-P13, maintain a register or database of sites of known or potentially contaminated land in Otago sites where hazardous activities and industries are or have been located in Otago,³⁶⁵

[...]

12.5.10. HAZ-CL-M7 – District plans

12.5.10.1. Introduction

543. As notified, HAZ-CL-M7 reads:

HAZ-CL-M7 – District plans

Territorial authorities must prepare or amend and maintain their *district plans* to provide for the development of facilities and services for the storage, recycling, recovery, treatment and disposal of *waste* while achieving the outcomes listed in HAZ-CL-P14 to HAZ-CL-P16.

12.5.10.2. Submissions

544. Four submissions were made on HAZ-CL-M7, with one seeking it be retained as notified.³⁶⁶

545. Horticulture NZ considers that the method should more clearly state that territorial authorities have responsibility for implementing the NESCS when undertaking land use change, subdivision or earthworks.³⁶⁷ The submitter seeks that the provision is amended to include the following:

Territorial authorities are responsible for implementing the National Environmental Standard for Assessing and Managing Contaminants in Soil to

³⁶⁵ 00236.093 Horticulture NZ

³⁶⁶ 00226.272 Kāi Tahu ki Otago

³⁶⁷ 00236.094 Horticulture NZ

Protect Human Health (NESCS) when land use change, subdivision or earthworks are undertaken.

546. Jim Hopkins requests clarification on whether HAZ-CL-M7 requires councils to start a new workstream specifically to address waste facilities.³⁶⁸

12.5.10.3. Analysis

547. In relation the submission by Horticulture NZ, I note that responsibility for the implementation of the NESCS is set out in the NES itself. As such, I disagree an additional method is required within the pORPS.

548. In relation to the amendment sought by Jim Hopkins, I note that HAZ-CL-M8 states that local authorities must develop waste management and minimisation plans in accordance with the Waste Minimisation Act 2008. I consider this is the appropriate workstream in which to consider waste facilities.

12.5.10.4. Recommendation

549. I recommend HAZ-CL-M7 is retained as notified.

12.5.11. HAZ-CL-M9 – Other incentives and mechanisms

12.5.11.1. Introduction

550. As notified, HAZ-CL-M9 reads:

HAZ-CL-M9 – Other incentives and mechanisms

Local authorities may:

- (1) encourage the application of the *waste* management hierarchy by:
 - (a) giving preference to reducing waste generated,
 - (b) reusing *waste*,
 - (c) recycling *waste*,
 - (d) recovering resources from *waste*, and
 - (e) only disposing residual *waste* to a disposal facility,
- (2) provide information and guidance on *waste* minimisation and management, and
- (3) advocate for:
 - (a) the implementation of the *waste* hierarchy throughout the region, and
 - (b) the development of *infrastructure* and services to provide for recycling and disposal services across the region.

³⁶⁸ 00420.022 Jim Hopkins

12.5.11.2. Submissions

551. Three submissions were made in relation to HAZ-CL-M9, with one seeking it be retained as notified.³⁶⁹
552. Environmental Justice Ōtepoti requests that the provision is amended to implement a zero waste management hierarchy model of waste management and the promotion of circular systems, including resource recovery and reuse over recycling.³⁷⁰ They note that collaboration with other councils on zero waste management systems will enable circular systems to operate.³⁷¹ They also seek that where viable for recovery, resources should be recovered from landfill sites and that the consent process for large scale composting land is viable and practicable.³⁷² In addition, they consider that the creation of new contaminated land should be avoided.³⁷³ DCC request consequential amendments to the provision to give effect to the relief sought elsewhere, but no specific changes are identified.

12.5.11.3. Analysis

553. I note that HAZ-CL-M8 states that local authorities must develop waste management and minimisation plans in accordance with the Waste Minimisation Act 2008. I consider this is the appropriate workstream to consider how zero waste management systems are to be implemented.

12.5.11.4. Recommendation

554. I recommend HAZ-CL-M9 is retained as notified.

12.5.12. HAZ-CL-PR2 – Principal reasons

12.5.12.1. Introduction

555. As notified, HAZ-CL-PR2 reads:

HAZ-CL-PR2 – Principal reasons

Resources need to be carefully used to minimise the material disposed of as *waste*. Waste materials and hazardous substances need to be carefully managed to avoid creating environmental problems or adversely affecting human health.

In order to protect people and the *environment* from the adverse *effects* of *contaminated land*, the first task is to identify *land* that could be contaminated. The Ministry for the Environment’s Hazardous Activities and Industries List (HAIL) is a list of activities and industries that may have involved the use of hazardous substances. Such use of hazardous substances may have resulted in *land* becoming contaminated.

³⁶⁹ 00226.274 Kāi Tahu ki Otago

³⁷⁰ 00203.001 Environmental Justice Ōtepoti

³⁷¹ 00203.005 Environmental Justice Ōtepoti

³⁷² 00203.002 Environmental Justice Ōtepoti, 00203.003 Environmental Justice Ōtepoti

³⁷³ 00203.004 Environmental Justice Ōtepoti

Once known or potentially *contaminated land* has been identified, assessments can be made to determine the nature or existence of contamination.

The National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health 2012 (NESCS) sets out a nationally consistent set of planning controls and soil *contaminant* values. It applies to assessing and managing the actual or potential adverse *effects* of *contaminants* in soil on human health when undertaking *subdivision, land use change, earthworks*, soil sampling or removing the underground portions of any fuel storage or dispensing systems. The NESCS does not apply to assessing and managing the actual or potential adverse *effects* of *contaminants* on other receptors, including ecology, *water* quality or *amenity values*. Therefore, it is the role of the *regional plans* to manage these adverse *effects*.

The *waste* management hierarchy is an internationally recognised management model for the reduction of residual *waste*. The *waste* management hierarchy can be applied to all *waste* streams. When making decisions about a *land* use or activity, it is possible to include methods that will reduce *waste* over the lifetime of that *land* use or activity.

12.5.12.2. Submissions

556. Andy Barratt considers that HAZ-CL-PR2 is necessary and sensible, but that there is little detail or specific reference to how this will be achieved or enforced, particularly with regard to biological waste on farms and lifestyle blocks, vegetative waste disposal (such as burning and associated atmospheric pollution), animal waste and innovative uses for these products.³⁷⁴ The submitter considers that waste management receives cursory treatment and considers this is a serious deficiency.

12.5.12.3. Analysis

557. I consider the HAZ-CL section needs to be considered the context of the whole pORPS and the wider planning context. I note that the pORPS contains provisions protecting a wide range of ecosystems and values. For example, the *LF – Land and freshwater*³⁷⁵ and the *AIR – Air*³⁷⁶ chapters contain a range of provisions managing discharges to both land and air. In addition, the Water Plan, Waste Plan, Air Plan, and the waste minimisation plans within the region include provisions that manage discharges and consider how waste minimisation and management is to be undertaken. As such, I do not agree that amendment is required within HAZ-CL-PR2.

12.5.12.4. Recommendation

558. I recommend HAZ-CL-PR2 is retained as notified.

³⁷⁴ 00309.006 Andy Barrat

³⁷⁵ LF-FW-P15

³⁷⁶ AIR-P5

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Appendix A : GNS Advice

Letter Report No: CR 2022/19 LR
Project No: 900W5065
Confidential 2022



17 March 2022

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Dear Lisa,

Proposed Otago Regional Policy Statement – Submissions on the Natural Hazard Topic Chapter

1.0 INTRODUCTION

The Proposed Otago Regional Policy Statement 2021 (pRPS) was notified on 26 June 2021. In support of the natural hazards topic chapter, Kelly et al. (2021) provided a review of the policy framework of that chapter. The pRPS was open for submissions from the date of notification to 3 September 2021.

Otago Regional Council have engaged GNS Science to provide review and advice in relation to specific submission points on the pRPS natural hazards topic chapter. This review and advice are provided in the table in Section 2 below.

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2.0 REVIEW AND ADVICE ON SUBMISSION POINTS

Provision	Submitter	Amendment Sought	GNS Science Advice
HAZ-NH-P1	QLDC	<p>Amend as follows:</p> <p><u>“Identify areas where <i>natural hazards</i>, including those in the following list, may adversely affect Otago’s people, communities and property, and describe the characteristics of those hazards in Appendix X:</u></p> <ul style="list-style-type: none"> • <u>Flooding and erosion</u> • <u>Land instability, including subsidence, landslip and rockfall</u> • <u>Faultlines and liquefaction</u> • <u>Avalanche</u> • <u>Tsunami/seiche</u> • <u>Fire</u> <p>by assessing:</p> <ol style="list-style-type: none"> 1. the hazard type and characteristics, 2. multiple and cascading hazards, where present, 3. any cumulative effects, 4. any effects of climate change, 5. likelihood, using the best available information, and 6. any other exacerbating factors.” 	<p>The definitions section of the pRPS defines <i>natural hazard</i> as per the RMA. The inclusion of the list proposed by the submitter would result in unnecessary duplication of this definition and the RMA.</p> <p>As proposed, HAZ-NH-P1 guides the assessment of natural hazards to provide the information required for a risk assessment to be undertaken as per APP6.</p> <p>It is advised that HAZ-NH-P1 is retained as per it’s pRPS drafting.</p> <p>An appendix containing a description of each natural hazard’s characteristics and potential consequences would be useful to assist the policy framework and risk assessment consultation process sought by APP6. Cross-reference to this could be included within the <i>Natural hazards</i> chapter.</p>
HAZ-NH-P2	QLDC	<p>Amend as follows:</p> <p>“Assess the level of natural hazard risk by determining a range of natural hazard event scenarios and their potential consequences in accordance with the criteria set out within APP6.”</p>	<p>The submitter’s rationale sets out that “the level” implies only one level of natural hazard risk exists for each natural hazard, reasoning which is supported. The amendment would also simplify and clarify the policy.</p> <p>It is advised that the submitter’s amendment to HAZ-NH-P2 is adopted.</p> <p>The following consequential change to HAZ-NH-O1 is advised:</p> <p>Levels of Risk to people, communities and property from natural hazards within Otago do es not exceed a tolerable level.</p>

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HAZ-NH-P3	QLDC	<p>That the three level policy direction in HAZ–NH–P3 is retained, subject to the following amendment:</p> <ol style="list-style-type: none"> 2. when the <i>natural hazard risk</i> is tolerable, manage the level of risk so that it does not become significant <u>exceed tolerable</u>, and 	<p>The submitter’s rationale for the amendment sought is that “... <i>it suggests that levels of risk for new activities could lie between tolerable and significant.</i>” The risk table in APP6 and the other limbs of HAZ-NH-P3 make it clear that the RPS contemplates risk at three levels: acceptable, tolerable and significant. Therefore, ‘not becoming significant’ and ‘not exceeding tolerable’ have the same meaning. Objective 1 seeks that risk does not exceed a tolerable level; therefore, for consistency, it may be more appropriate to adopt the submitters drafting.</p>
HAZ-NH-P4	QLDC	<p>Amend to clarify it and make it more directive and specific to address the concerns raised:</p> <ol style="list-style-type: none"> 1. Should specify what level risk is to be reduced to. To be consistent with Objective 1, the policy must set out that risk is to be reduced to a level that is not greater than tolerable. 2. (1) and (2) appear to suggest that risk be reduced or community vulnerability be reduced; not clear why these present an either or option when both are important and should be sought. 3. (3) should also reference property alongside people and communities. 4. Policy to acknowledge that risk can only be reduced when existing characteristics of people, property and communities are changed. Additional amendments should be considered to provide helpful direction as to how risk can be reduced. 5. Should consider timelines for reducing risk and different methods for reduction i.e. in some instances reduction may be necessary now, or it may be necessary over a longer timeframe. 	<p>The amendments sought by the submitter are broadly agreed with. Consistency with Objective 1 is suggested by amending the introductory limb to the policy through the inclusion of tolerable and acceptable levels.</p> <p>Point 2 of this submission identifies that the use of “or” results in an ‘either or’ option, when what is sought is ‘either, or, or both’ in recognition that some activities may not have capacity to address both but should not be omitted owing to this. The addition of “and/or” within each limb would better reflect the intention behind the policy but would convolute the policy and be inconsistent with the drafting of the rest of the RPS. In this instance, “or” should be viewed as being generally inclusive.</p> <p>The inclusion of “property” within Limb (3) is supported, as it reflects Objectives 1 and 2. A consequential change should also be made to include “property” in HAZ-NH-P10.2.</p> <p>Point 4 seeks the inclusion of risk reduction direction. Other RPS’s include an appendix with risk reduction measures, an approach that could usefully be adopted here. Appendix M of the Bay of Plenty Regional Policy Statement (BOPRC 2016) contains an example of this approach.</p>

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		<p>6. Should provide additional context as to what constitutes vulnerable activities. This may include more traditional vulnerable activities (i.e. aged care facilities) as well as other types of activities that accommodate vulnerable populations such as tourists or transient populations.</p> <p>7. It is recommended that the policy outline when existing risk needs to be reduced i.e. when risk exceeds tolerable/is significant.</p> <p>8. The policy could consider non-RMA methods to reduce risk.</p> <ul style="list-style-type: none"> - Amend as follows: “Reduce existing <i>natural hazard risk</i> <u>to a tolerable or lower level</u> by...” - Delete (4)(a) and relocate to be associated with HAZ–NH–P3(3). - (5) and (6) Recommend moving to HAZ–NH–P8. 	<p>Point 5 primarily seeks that timeframes for risk reduction should be considered. It is considered that territorial authorities are best placed to consider timeframes on a case-by-case basis with regard to activities in relation to the limbs of the policy.</p> <p>Point 6 seeks guidance of what constitutes a vulnerable activity. Vulnerability and other related or similar terms occur several times within the pRPS; however, the RPS may not be best placed to define this in the context of natural hazards when district councils manage many of the land-use activities likely to be included. This could be usefully provided as an appendix or definition.</p> <p>Point 7 seeks “that the policy outline when existing risk needs to be reduced”. This could be done by including “<i>significant risk</i>” within the introductory limbs of the policy; however, this would rule out the reduction of risk that is not significant. The policy framework in its entirety makes it clear that the adoption of significant risk should not be contemplated. On balance, leaving the policy open to provide for all risks to be reduced will provide for increased risk reduction across the region.</p> <p>The deletion of Limb 4(a) is supported owing to the submitter’s rationale that it does not support the policy’s intention to reduce risk, instead focusing on recovery. While design that facilitates recovery fits better with Policy 3 in relation to new activities, it does not comfortably sit within that policy’s context. Elevating its consideration to the concept of recovery, this would be best set out within an appendix as part of an explanation of risk reduction, or via cross-reference with the CDEM Groups Plans and national-level documents.</p> <p>Limbs 5 and 6 of the policy address lifeline utilities and other essential services and facilities. It would be simpler for all natural-hazard-related directives for these activities to be located in a single</p>

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			<p>policy, and Policy 8 appears to be the natural fit for this. This requires amendment to Policy 8 to ensure integration without the purpose of Policy 8, as drafted, being lost. Recommendation for Limb 5's relocation are provided below; however, Limb 6 requires more substantial changes to incorporate.</p> <p>It is advised that the policy be amended as follows:</p> <p>HAZ–NH–P4 – Existing activities</p> <p>Reduce existing natural hazard risk <u>to a tolerable or acceptable level</u> by:</p> <ol style="list-style-type: none"> 1. encouraging activities that reduce risk, or reduce community vulnerability; 2. restricting activities that increase risk, or increase community vulnerability; 3. managing existing land uses within areas of significant risk to people, and communities <u>and property</u>; 4. encouraging design that facilitates: <ol style="list-style-type: none"> a. recovery from natural hazard events, or b. relocation to areas of acceptable risk, or c. reduction of risk. 5. relocating lifeline utilities, and facilities for essential and emergency services, away from areas of significant risk, where appropriate and practicable, and 6. enabling development, upgrade, maintenance and operation of lifeline utilities and facilities for essential and emergency services.

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			<p>Amend Policy 8 as follows:</p> <p>HAZ–NH–P8 – Lifeline utilities and facilities for essential or emergency services</p> <p>Locate, relocate and/or design lifeline utilities and facilities for essential or emergency services to:</p> <ol style="list-style-type: none"> 1. to maintain their ability to function to the fullest extent possible during and after natural hazard events, and 2. take into account for their operational co-dependence with other lifeline utilities and essential services to ensure their effective operation, and 3. away from areas of significant risk, where appropriate and practicable.
HAZ–NH–M1 – Statement of responsibilities	QLDC	<p>QLDC consider that this method should go further than the RMA to provide greater clarification of these responsibilities, and there should be an additional method to resolve issues of overlapping responsibility, such as an agreement outside of the RMA relevant to a particular hazard issue. QLDC identify that the regional council has the power to create land use rules in a regional plan to manage the risk from natural hazards. In particular, regional land use rules may reduce risk to existing communities through the management of existing uses and this should be identified in this method.</p> <p>They note that sub-clause (3)(b) creates dual responsibilities with respect to identifying or mapping natural hazards. QLDC consider the regional council is best placed to undertake identification and mapping within the region due to the professional staff available, while territorial authorities maintain hazard registers as new information is made</p>	<p>The submitter makes a valuable point with regard to natural hazard responsibilities between regional councils and territorial authorities, and clear responsibilities would likely result in notable progression. However, these responsibilities should only be clarified with the agreement of both parties, and, in this instance, the one regional council and five territorial authorities.</p> <p>The submitter seeks that Limb 1 of the method is deleted. While repetition of high-order documents or provisions is not best practise for policy development, its inclusion does provide a useful reminder. A simpler approach could be to cross-reference to Section 62(1)(i)(i) of the RMA and provide clear responsibilities beyond the RMA beneath this.</p> <p>The submitter also seeks the more explicit inclusion of the regional council’s ability to reduce risk via the management of existing use rights (Section 20A of the RMA); see also Grace et al. (2019). In this regard, the following are noted:</p>

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		<p>available. QLDC remark that territorial authorities do not have responsibility for managing land use in the areas identified in (2)(a), and that (3) refers to (2)(b) and (c), rather than (2)(a) (i–iii).</p> <p>QLDC request that clause (1) is deleted as it repeats the RMA and does not provide helpful direction, and further amendments as follows:</p> <p><i>‘In accordance with section 62(1)(i)(i) of the RMA 1991, the responsibilities for the control of land use to avoid or mitigate natural hazards or any group of hazards are as follows:</i></p> <p>1. the Regional Council and territorial authorities are both responsible for specifying objectives, policies and methods in regional and district plans for managing land subject to natural hazard risk,</p> <p>2. <i>the Regional Council is responsible for:</i></p> <p style="margin-left: 20px;">a. <i>specifying objectives, policies and methods in regional plans:</i></p> <p style="margin-left: 40px;">i. <i>in the coastal marine area,</i></p> <p style="margin-left: 40px;">ii. <i>in wetlands, lakes and rivers, and</i></p> <p style="margin-left: 40px;">iii. <i>in, on or under the beds of rivers and lakes,</i></p> <p style="margin-left: 40px;">iv. <u><i>on land in relation to risk reduction.</i></u></p> <p style="margin-left: 20px;">b. <i>identifying areas in the region subject to natural hazards and describing their characteristics as required by Policy HAZ–NH–P1, mapping the extent of those areas in the relevant regional plan(s) and including those maps on a natural hazard register or database,</i></p>	<p>HAZ–NH–P4 – Existing activities</p> <p><i>Reduce existing natural hazard risk by:</i></p> <p>...</p> <p>3. managing existing land uses within areas of significant risk to people and communities,</p> <p>...</p> <p>HAZ–NH–M2 – Local authorities</p> <p><i>Local authorities must:</i></p> <p>...</p> <p>3. investigate options for reducing the level of natural hazard risk within areas of existing development to a tolerable or lower level, including by managing existing use rights under Sections 10 and 20A of the RMA,</p> <p>...</p> <p>There is clear direction that Otago Regional Council is ensuring that existing land uses may be managed to manage significant risk. Further direction in this regard could be provided by the inclusion of the submitter’s proposed point (iv), as follows:</p> <p>HAZ–NH–M1 – Statement of responsibilities</p> <p>...</p> <p>1. <i>the Regional Council is responsible for:</i></p> <p style="margin-left: 20px;">a. <i>specifying objectives, policies and methods in regional plans:</i></p> <p style="margin-left: 40px;">...</p> <p style="margin-left: 40px;"><u><i>iv. on land in relation to risk reduction.</i></u></p> <p>The submitter also addresses HAZ-NH-M1(3)(b) and its creation of dual responsibilities for mapping and identifying natural hazards.</p>

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		<p><i>c. in the coastal environment, identifying the coastal hazards as required by CE–P2(3) in accordance with Policy 24 of the NZCPS, mapping the extent of those areas in the relevant regional plan(s) and including those maps on a natural hazard register or database, and</i></p> <p><i>3. territorial authorities are responsible for</i></p> <p><i>a. specifying objectives, policies and methods in district plans for land outside of the areas listed in (2)(a) for purposes other than risk reduction, and</i></p> <p><i>b. mapping or identifying via the natural hazard register or database, areas identified in 2(a), (b) and (c) above subject to natural hazards and describing the characteristics and the extent of those areas in the relevant district plan(s).’</i></p>	<p>This has long been an area of tension, and while both regional council and territorial authorities should be involved in the process, regional councils are generally better placed to take the lead in this, and this should be acknowledged. To state that territorial authorities are responsible for mapping or identifying natural hazards via a register that Otago Regional Council maintains is impractical. Clearer drafting of the method would set out that territorial authorities make reference to the Otago Natural Hazards Database (https://www.orc.govt.nz/managing-our-environment/natural-hazards/otago-natural-hazards-database).</p>
HAZ-NH-M4	QLDC	<p>QLDC observes that HAZ-NH-M4 places responsibility for undertaking risk assessment on territorial authorities. QLDC notes this is in contrast to HAZ-NH-M2(1), which requires local authorities to assess natural hazard risk in accordance with HAZ-NH-P2. QLDC seeks greater clarity on which authority has responsibility, whilst also noting it is more appropriate for the regional council and territorial authorities to undertake natural hazard risk assessments collaboratively.</p> <p>QLDC notes that clause (2) requires district plans to implement risk reduction measures but that this is not legally possible under section 10 of the RMA, as district rules cannot apply to existing activities. While district plans cannot be proactive about risk reduction, they may provide a pathway for change to less vulnerable land use. QLDC requests that the requirement for district plans to implement risk reduction measures is deleted.</p>	<p>The submitter sets out that HAZ-NH-M4 requires district plans to implement risk reduction measures, including in relation to existing activities, but contends that this is not legally possible under Section 10 of the RMA. While this is strictly true, should the regional council make amendments to its regional plan in this regard, the District Plan would be required to reflect this, as was the case on the Awatarariki Fanhead, Matatā, Bay of Plenty. Less onerous drafting for territorial authorities would be:</p> <p>HAZ–NH–M4 – District Plans</p> <p><i>Territorial authorities must prepare or amend and maintain their district plans to: ...</i></p> <p><i>2. require implementation of implement natural hazard risk reduction measures, including to existing activities in accordance with HAZ–NH–P4,</i></p>

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		<p>In relation to clause (7), QLDC points out that if a risk assessment is required, then it cannot be clear at the outset that the risk will increase as a result of a plan change or resource consent. In this regard, the clause should be amended to clarify that risk assessment is required to be undertaken when a plan change or resource consent is within an area that is known to be subject to a natural hazard. An amendment is sought as follows:</p> <p><i>'require a natural hazard risk assessment be undertaken where an activity requires a plan change or resource consent to change the use of land which will increase the risk from natural hazards be located within areas subject to natural hazards, and where the application is lodged prior to the natural hazard risk assessment required by HAZ–NH–M2(1) being completed, the natural hazard risk assessment must include...'</i></p>	<p>The submitter also identifies that clause (7) makes assumptions about risk that will not be clear at the outset. The following amendment is advised.</p> <p>HAZ-NH-P4 – District Plans</p> <p>‘... 7. require a natural hazard risk assessment be undertaken where an activity requires a plan change or resource consent to change the use of land which will increase the risk from natural hazards within areas subject to natural hazards, and where the application is lodged prior to the natural hazard risk assessment required by HAZ–NH–M2(1) being completed, the natural hazard risk assessment must include...’</p>
APP6 General submission points	Federated Farmers	Federated Farmers has suggested amendments to make APP6 consistent with section 6(h) RMA, which focuses on significant risks.	<p>Section 62(1)(i)(i) of the RMA makes requirements of a RPS that go beyond Section 6(h). In order for the RPS to fulfil these requirements, its purpose (Section 59 of the RMA) and to be applicable for territorial authorities, the risk-based approach needs to go beyond significant risk, include tolerable and acceptable risks and set out expectations for territorial authorities in this regard.</p> <p>The precautionary approach, raised by the submitter in their discussion of this point, contemplated by Policy 5 does not preclude additional information from being gathered, thereby negating the need for a precautionary approach from being applied. This would therefore not result in a “close down” of discussions. The PCE report cited goes on to state: <i>“Whatever the reasons for the tensions between public and private sector players are, they need to be identified and worked through.”</i> APP6 and the consultation process directed within would serve to ensure that</p>

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	Port of Otago Ltd	The risk assessment methodology should be simplified for resource consent applications as opposed to plan changes. Moreover, exemptions to the process should be made for small scale and low risk projects.	<p>the different attitudes to risks between public and private sector players (highlighted by the PCE) are equally accounted for within district-level risk-based approaches.</p> <p>HAZ-NH-M3(7) and HAZ-NH-M4(7) require a risk assessment to be undertaken when a resource consent application is received that will increase the risk. Small-scale and low-risk projects would need to be considered on a case-by-case basis, but an assessment commensurate with the scale and significance of the activity would be appropriate. Simplifying APP6 for resource consent applications would complicate the RPS, particularly for those giving effect to it. The risk assessment for resource consent applications is generally simpler than that for plan changes owing to the scale at which each of these would be undertaken. It should be acknowledged that additional guidance be provided within APP6 for when the risk-based approach is applied to resource consent applications.</p> <p>The following changes are advised:</p> <p>Step 2 – Natural hazard consequence</p> <p>Using Table 7X and the matters listed in (1) to (11) belowY, assess the consequence (catastrophic, major, moderate, minor, or insignificant) of the natural hazard scenarios identified in Step 1 considering:</p> <p>...</p> <div data-bbox="1361 1114 1989 1321" style="border: 1px solid black; background-color: #f4a460; padding: 5px;"> <p>...</p> <p>When this assessment is being undertaken in accordance with HAZ-NH-M3(7)(a) or HAZ-NH-M4(7)(a) the text within Step 2 shall guide the assessment of natural hazard consequence.</p> </div>

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			<p><u>X Table 7 shall be utilised by territorial authorities determining the level of risk presented by a hazard(s) when undertaking plan change or plan review processes.</u></p> <p><u>Y The matters listed in (1) to (11) provide useful considerations for territorial authorities and are the primary considerations for resource consent applications triggering a risk assessment requirement in accordance with HAZ-NH-M3(7)(a) or HAZ-NH-M4(7)(a).</u></p>
	Sanford	Amend Policy HAS NH P2, HAZ NH P3 and HAZ NH P4, Method HAZ–NH–M3 – Regional plans, Method HAZ–NH–M4 – District plans, and APP6 – Methodology for natural hazard risk assessment to the extent required so that they do not direct individual developments be avoided where significant natural hazard risk can be suitably mitigated at that site for a particular development.	<p>Explicit implementation of the amendments sought by the submitted would provide for activities that generate significant risk, which would be contrary to Objective 1.</p> <p>Following a risk assessment and determining that a significant risk is present, risk management or mitigation measure should be incorporated into the risk assessment to reduce the risk. Should these measures result in a reduction to a tolerable level, the risk would not need to be avoided.</p>
	DCC	Amend the method [NAH–NH–M2] to provide an exemption for local authorities that have an existing risk assessment framework in their District Plan e.g. the Dunedin City District Plan. This would also require a consequential change so that resource consent applicants would not have to go through the risk assessment in the interim if they comply with the existing provisions of the 2GP.	DCC’s initiative in developing a risk-based approach should be commended and recognised. HAZ-NH-P2 and HAZ-NH-M2 directs that local authorities “ <i>assess the level of natural hazard risk ... in accordance with(in) ... APP6...</i> ”. Should it be able to be demonstrated that DCC’s assessment is in general accordance with that in the RPS, an amendment is not required to either document.
APP6 Step 1	QLDC	Amend Step 1 to replace the text above the table with the following: <u>“(1) Assess the range of likelihoods for the hazard under consideration, by determining the likelihood of at least the maximum credible event, an event of medium likelihood, and an event with a high likelihood.</u>	<p>Support the intention of the amendments sought by the submitter, and advise the following changes:</p> <p>Step 1 – Determine the likelihood</p> <p><u>Using Table 6,</u></p> <p><u>1. a</u>Assess the likelihood of three natural hazard scenarios occurring, representing a high likelihood, median likelihood,</p>

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		<p><u>(2) Use Table 6 to assign a likelihood descriptor to the results of the assessment required by (1).</u></p> <p><u>The assessment of likelihood must account of the effects of climate change, considering RPC scenario”</u></p>	<p>and the maximum credible event, using the best available information.:</p> <p><u>2. Use Table 6 to assign a likelihood descriptor to the three natural hazard scenarios.</u></p> <p><u>The likelihood assessment shall include consideration of the effect of climate change and Representative Concentration Pathway scenarios.</u></p> <p>...</p>
APP6 Step 1 Table 6	QLDC	<p>Amend so that:</p> <ul style="list-style-type: none"> It includes low frequency events, such as the likelihood table included in the AGS (2007) methodology. there is alignment between the results expected through the qualitative assessment methodology and the quantitative assessment methodology. <p>if appropriate, there is a distinction between the likelihood table that applies to life-threatening hazards that are difficult to mitigate (such as debris flows) and hazards that are less likely to kill people (such as liquefaction).</p>	<p>Regarding the amendments sought to Table 6, the AGS (2007) methodology expresses indicative probabilities ranging from 10^{-1} to 10^{-6}, or 1 in 10 to 1 in 1,000,000. The explicit inclusion of likelihoods beyond 10^{-4} would not materially affect the result within the risk table, as any event with a likelihood greater than 1001 years results in tolerable risks. The likelihood table enables events with likelihoods greater than 2501 years to be considered should the natural hazard scenario descriptors apply to events of these probabilities.</p> <p>Alignment between the results expected within the qualitative and quantitative assessments are provided by utilising the same inputs (likelihood and consequence).</p> <p>The distinction between life-threatening and non-life-threatening hazards is more appropriately provided via the consequence table and AIFR/APR distinction.</p>
APP6 Step 2	Wayfare Group Blackthorn Lodge Glenorchy Ltd Trojan Holdings	<p>Step 2 – Natural hazard consequence</p> <p><u>HAZ–NH–M2 requires local authorities to undertake a consultation process with communities, stakeholders and partners regarding risk levels thresholds and develop a risk table / matrix at a district or community scale. Tables 7A and</u></p>	<p>The amendments to the introductory text sought by the submitter are more appropriately set out at Step 3, which addresses risk levels.</p> <p>The submitter seeks additions to the matters for consideration in relation to consequences. As advised in relation to an earlier submission, these matters are of particular relevance for resource</p>

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		<p><u>7B provide a regionwide baseline to be applied in the absence of the district or community scale risk table being completed.</u></p> <p>Using Table 7 and the matters listed in (1) to (15) below, <u>and Tables 7A and 7B as a guideline</u>, assess the consequence (catastrophic, major, moderate, minor, or insignificant) of the <i>natural hazard</i> scenarios identified in step 1 considering:</p> <p><u>(1) the nature and scale of the activity, and activities in the area, including any existing lawfully established land use or zoning;</u></p> <p><u>(2) the actual and potential adverse effects of the natural hazard on people and communities;</u></p> <p><u>(3) the consequence of and response to past natural events;</u></p> <p><u>(4) the effectiveness and implementation of responses, adaption or mitigation measures</u></p> <p>(2) <u>(5) individual and community vulnerability and resilience,</u></p> <p>(3) <u>(6) impacts on individual and community health and safety,</u></p> <p>(4) <u>(7) impacts on social, cultural and economic well-being,</u></p> <p>(5) <u>(8) impacts on infrastructure and property, including access and services,</u></p> <p>(6) <u>(9) available and viable risk reduction and hazard mitigation measures,</u></p> <p>(7) <u>(10) lifeline utilities, essential and emergency services, and their co-dependence,</u></p> <p>(8) <u>(11) implications for civil defence agencies and emergency services,</u></p> <p>(9) <u>(12) the changing natural hazard environment,</u></p>	<p>consent applications as they provide for site-specific considerations to be applied.</p> <p>Amendments to Point 1 could usefully be adopted in part, as set out below; however, it would be inappropriate to elevate “established land use or zoning” in this regard, as natural hazard areas are agnostic of the underlying zoning and should be considered as an overlay to the underlying zoning.</p> <p>A new Point 2 seeks consideration of the actual and potential adverse effects. Within the RMA setting, effects could be likened to consequences under the risk-based approach, which are the primary consideration of Step 2 and therefore already being considered. Therefore, adopting the submitter’s new Point 2 is not considered necessary.</p> <p>A new Point 3 seeks that the consequences of past natural hazard events are expressly considered. While lessons can be learned from past events, particularly for hazard likelihood and magnitude, in many instances the environment within which those consequences would have occurred has changed, or a proposal to change it may be under consideration, thereby altering the potential consequence(s). This makes consideration of past consequences inappropriate when assessing current risk.</p> <p>A new Point 4 seeks consideration of response, adaptation or mitigation measures – these elements are provided for via the proposed Point 6 “<i>available and viable risk reduction and hazard mitigation measures</i>”, which should be considered once the level of risk without reduction and mitigation measures has been determined. Consideration of these elements during the first risk assessment pass could under-estimate the risk level.</p>

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		<p>(40) <u>(13)</u> cumulative <i>effects</i> including <i>multiple</i> and <i>cascading hazards</i>, where present, and</p> <p>(44) <u>(14)</u> factors that may exacerbate a <i>natural hazard</i> event including the <i>effects</i> of <i>climate change</i>.</p>	<p>The inclusion of resilience in relation to community vulnerability at Point 2 is useful in that these elements represent two sides of the same coin, and both should be considered alongside each other.</p> <p>Step 2 and Table 7 remain fixed regardless of whether a local authority has undertaken a consultation process to determine a community/district version of Table 8.</p> <p>Regarding amendments sought, the following are recommended:</p> <p>Step 2 – Natural hazard consequence</p> <p>...</p> <ol style="list-style-type: none"> 1. the nature <u>and scale</u> of activities in the area, 2. individual and community vulnerability <u>and resilience</u>, 3. ...
	Horticulture NZ	<p>Insert additional consideration as follows:</p> <p>...</p> <p><u>(12) Impacts on food production, food supply and food security.</u></p>	<p>This matter is more generally captured under the nature of activities, impacts on health, impacts on wellbeing and impacts of infrastructure and property considerations, such that it is not considered necessary to explicitly include.</p>
	QLDC	<ul style="list-style-type: none"> • Delete the list (1) to (11). If guidance for using Table 7 is considered necessary, this should be provided through descriptive text rather than the list. • Amend to clarify how Table 7 is applied in terms of the meaning of 'hazard zone', • Amend to clarify that any death from a natural hazard event is no less than a major consequence. 	<p>The purpose of the list being more usefully applicable to resource consent applications in lieu of local authorities preparing their own risk assessment has been clarified in relation to the submission considered above.</p> <p>The term 'hazard zone' is likely a misnomer, as raised by the submitter. 'Hazard zone' could be more accurately expressed as 'hazard impact area', which is the area that could be impacted by a hazard. A definition to this effect could be usefully included.</p> <p>Regarding deaths, in lieu of region-wide consultation, the existing consequence table is the best available and applicable information.</p> <p>The number of deaths considered to be catastrophic or major across a region or district will vary depending on experience and</p>

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			<p>demographics. More accurately defining this for the Otago region or at a district level requires further consideration and consultation. No amendments are recommended in this regard.</p>
<p>APP6 Step 2 Table 7</p>	<p>Wayfare Group Blackthorn Lodge Glenorchy Ltd Glenorchy Ltd Trojan Holdings</p>	<p>Rename as: Table 7A: Consequence table – to be used in plan changes & activities not anticipated by a zone in a district plan.</p> <p>Amend headings by inserting (if applicable) after the terms “Buildings”, “Critical Buildings”, and “Lifelines”</p> <p>Insert new Table as below</p> <p><u>Table 7B: Consequence table – to be used for individual sites or individual activities anticipated under a district plan</u></p> <p><u>[proposed table not repeated here]</u></p>	<p>Clarification has been advised on Table 7 and the list at Step 2 in relation to the Ports of Otago Ltd submission.</p> <p>In response to these submission points, it is noted that the purpose of Table 7 is not to provide an assessment at an individual application or site-specific scale, as this would not be commensurate with the purpose of an RPS. In lieu of local authorities giving effect to the RPS, the list at Step 2 may usefully inform considerations for resource consent applications. By way of the process required of local authorities in relation to risk, Otago Regional Council could consider assisting consultation with stakeholders and local authorities to develop consequence tables that could be applied at a resource consent level.</p> <p>The submitters also seek amendments around activities not anticipated / anticipated in a district plan. Whether an activity is anticipated or not by a district plan should not be a consideration for whether a risk assessment is undertaken, as activities are often anticipated in an area based on the zoning (e.g. residential and industrial) and natural hazards and risk are contemplated at a district-wide level, one step above zoning within a plans hierarchy.</p>

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APP Step 3	Wayfare Group Blackthorn Lodge Glenorchy Ltd Trojan Holdings	<p>Using the information within steps 1 and 2 above, and Table 8, assess whether the <i>natural hazard</i> scenarios will have an acceptable, tolerable, or significant <i>risk</i> to people, property and communities, by considering:</p> <p>1. the <i>natural hazard risk</i> identified, including <i>residual risk</i> peoples and communities awareness and experiences of the risk, including any investigations, initiatives or natural hazard risk engagement that have been undertaken,</p> <p>...</p>	<p>In response to the QLDC submission point on APP6 – Step 3, it is advised that the list is deleted.</p>
	QLDC	<ul style="list-style-type: none"> • Delete the list (1) to (5). • That the colour coding and risk level definitions are amended, if required, in response to changes sought to the likelihood table. • Amend introductory text as follows: <p>Using the information within steps 1 and 2 above, and <u>complete Table 8 for each of the hazard scenarios considered, and identify if the risk from each of the scenarios is assess whether the natural hazard scenarios will have an acceptable,</u> tolerable, or significant <i>risk</i> to people, property and communities, by considering:</p>	<p>The submitter usefully comments that Step 3’s purpose is to determine the product of Steps 1 and 2. It is also unclear how the list should materially change the outcome of Step 3.</p> <p>Best-practise risk management sets out that many of the factors contemplated by the list would be more appropriately considered after the risk level has been determined. In this regard:</p> <ul style="list-style-type: none"> • ‘Residual risk’ is that risk left over after management measures have been implemented. • Risk management measures (including their viability and affordability) should be applied after the determination of the risk, unless they are pre-existing, otherwise risk may be under-estimated. • Flow on effects, or, more appropriately, ‘consequences’, should be considered at Step 2. • The availability of lifeline utilities and essential and emergency services is best determined after an event or requires quantitative modelling to determine before an event.

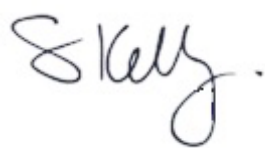
Provision	Submitter	Amendment Sought	GNS Science Advice
			<ul style="list-style-type: none"> Advise amending text as follows: <p>Step 3 – Assessing activities for natural hazard risk</p> <p><i>Using the information within steps 1 and 2 above, and apply Table 8 for each of the hazard scenarios considered and identify if the risk from each of the scenarios is Table 8, assess whether the natural hazard scenarios will have an acceptable, tolerable, or significant risk. To people, property and communities, by considering:</i></p> <ol style="list-style-type: none"> the natural hazard risk identified, including residual risk, any measures to avoid, remedy or mitigate those risks, including relocation and recovery methods, the long-term viability and affordability of those measures, flow on effects of the risk to other activities, individuals and communities, and the availability of, and ability to provide, lifeline utilities, and essential and emergency services, during and after a natural hazard event. <p>...</p> <p><i>When this assessment is being undertaken in accordance with HAZ-NH-M3(7)(a) or HAZ-NH-M4(7)(a) the text within Step 3 shall guide the assessment of natural hazard risk.</i></p>
APP6 Step 3 Table 8	ORC	Change the a. 'unlikely' and 'catastrophic', and b. 'rare' but 'catastrophic' and c. 'likely' but 'major' natural hazard scenarios from 'Tolerable Risk' (yellow category) to 'Significant Risk' (red category)	Table 8 represents a region-wide baseline and is based on the sole available study undertaken to define risk in a resource management setting (Kilvington and Saunders 2015). While it should be acknowledged that the risk table for the Otago region could differ, until a consultation exercise is undertaken, adopting the submitter's change would be a departure from current resource management practise. No action is advised in response to this submission.

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APP6 Step 4	Wayfare Group	Either Delete APP6 Step 4 or clarify that it need only be used by xx. [Sic]	<p>Introductory text to Step 4 clarifies when Step 4 is required.</p> <p><i>If the assessment undertaken in Steps 1–3 determines that one of the three natural hazard scenarios generate risk that is significant, undertake a quantitative risk assessment utilising the following methodology:</i></p> <p>...</p> <p>No action is advised in response to this submission point.</p>
	Blackthorn Lodge Glenorchy Ltd	<p>Amend step 4 to recognise that:</p> <p>(a) quantification of natural hazard risk can be expensive, full of uncertainty (as its only models), introduces scientific jargon, and prevents consideration of affected people's tolerability being applied and tested on a case-by-case basis; and</p> <p>(b) quantitative assessments are appropriate for risk assessment where those assessments are undertaken by Councils or applicants for plan changes and resource consent applications for activities which are not existing or are not anticipated by a district plan</p>	<p>The quantitative risk assessment methodology has been designed to provide applicants with an opportunity to more robustly assess their activities against the outcomes sought by the RPS. The absence of the quantitative risk assessment would effectively see a direction to avoid activities resulting in significant risk on the basis of a qualitative assessment.</p> <p>Tolerability is expressly catered for in the qualitative assessment stage and via the consultation undertaken by authorities. Those undertaking a quantitative assessment would have already been through the qualitative assessment and found that this tolerability was exceeded, thereby requiring a quantitative assessment.</p> <p>The submitter's point on the appropriateness of quantitative risk assessments is not disagreed with; however, it ignores instances where a quantitative assessment would be appropriate for activities anticipated by a district plan but located within an area potentially subject to natural hazard risk.</p> <p>No action is advised in response to this submission point.</p>
	QLDC	<ol style="list-style-type: none"> 1. Retain the definitions of acceptable, tolerable and significant risk as set out in Step 4(4), including the distinction between new and existing development. 2. Amend to require a quantitative assessment where the hazard being considered poses a real risk to life, 	<p>A response to each of the submitter's points is provided below.</p> <ol style="list-style-type: none"> 1. No action is advised or considered necessary. 2. Previous advice from GNS Science was for Step 3 tolerable risk to trigger a quantitative risk assessment. However, this must be

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		<p>and where the qualitative assessment under Step 3 shows a tolerable or significant risk.</p> <ol style="list-style-type: none"> 3. Amend (1) to require at least 3 hazard scenarios. 4. Delete (2) and (3) and replace with a requirement to follow the methodology in AGS (2007) to calculate AFIR and APR. 5. Amend (4) to remove reference to a 'first past the post' principle, so that it simply sets out what acceptable, tolerable and intolerable means in terms of AIFR and APR, and the explanatory paragraph following (5) that discussed the 'first past the post' principle is deleted. 6. Delete (5) as it appears unnecessary when step (5) identifies the risk to be assigned to the area. 	<p>balanced against the burden of quantitative risk assessments for tolerable risks.</p> <ol style="list-style-type: none"> 3. The pRPS required at least five hazard scenarios to be modelled for a quantitative assessment. This would provide additional data points for a loss estimate curve to be established; however, it must be weighed against the burden of acquiring additional hazard information for five scenarios when the qualitative assessment requires three scenarios. 4. The methodology proposed is in general accordance with AGS (2007). While a requirement to follow the AGS (2007) methodology would result in a consistent methodology for quantitative risk assessments, it would also restrict the assessments to this methodology, regardless of developments in risk assessment practices. While consistency of assessment should be viewed as a positive, a peer review process can also be utilised to ensure a level of consistency and best practise is applied with each assessment. AGS (2007) was also developed for landslides, and a review of its applicability or the balance of guidance for other natural hazards has not been undertaken. However, reference to AGS (2007) could still be usefully made within APP6, as below: <p>Step 4 – Undertake a quantitative risk assessment</p> <p><i>If the assessment undertaken in Steps 1–3 determines that one of the three natural hazard scenarios generate risk that is significant, undertake a quantitative risk assessment utilising the following methodology:^z</i></p> <p>^z This methodology has been developed in general accordance with the Australian Geomechanics Society (2007) methodology, which may usefully provide additional guidance.</p>

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			<p>5. The first-past-the-post principle sought that higher risk of AIFR or APR is the risk upon which the area is categorised but does not recognise that a hazard can result in different levels of risk across the hazard area – particularly when a quantitative assessment is undertaken. Removing the first-past-the-post principle would open the ability to undertake a more nuanced approach equally considering both AIFR and APR.</p> <p>Advise removing the first-past-the-post principle within Step 4.</p> <p>6. Advise incorporating (5) into (4) as below:</p> <p>4. Implementing a first-past-the-post principle for the AIFR and APR Assign the risk level:</p> <ul style="list-style-type: none"> a. for areas of new development where the greatest AIFR or APR is: <ul style="list-style-type: none"> i. ... b. for areas with existing development, where the greatest AIFR or APR is: <ul style="list-style-type: none"> i. ... <p>5. Following the quantitative risk assessment, a risk level is assigned to the hazard area.</p>
	ORC	<p>Amend APP6, Step 4, second paragraph as follows:</p> <p>If the assessment undertaken in Steps 1–3 determines that one of the three natural hazard scenarios generate risk that is significant, or if a consequence is catastrophic or major, undertake a quantitative risk assessment utilising the following methodology:</p> <p>...</p>	<p>The approach proposed by the submitter would result in a trigger for a quantitative assessment based on consequence alone, thereby not being based on a risk-based approach. A more robust, risk-based approach would be to make all catastrophic and major consequence events result in significant risk – however, this should only be done in consultation with communities and stakeholders, as set out in Otago Regional Council’s submission on APP6, Step 3, Table 8.</p>

Yours sincerely,



Scott Kelly
Natural Hazards Planner

3.0 REFERENCES

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