

OFFICER'S REPORT FOR:

Hearing Commissioners:

SUBJECT:

**Proposed Waimakariri District Plan: Matepā
māhorahora - Natural Hazards Chapter**

PREPARED BY:

Andrew Willis (Consultant Planner)

REPORT DATED:

22 June 2023

DATE OF HEARING:

Hearing Stream 4 (17-21 July 2023)



WAIMAKARIRI
DISTRICT COUNCIL

Executive Summary

1. This report considers submissions received by the District Council in relation to the relevant objectives, policies, rules, definitions, appendices and maps / overlays of the Proposed Plan as they apply to the Natural Hazards ('NH') chapter. The report outlines recommendations in response to the issues that have emerged from these submissions.
2. There were 34 submissions with 488 submission points on the NH chapter and a further three submissions on the planning maps. The submissions received were diverse and sought a range of outcomes. The following are considered to be the key issues in contention in the chapter:
 - The use of overlays;
 - The extent of the non-urban flood assessment overlay;
 - The definition of high coastal flood hazard;
 - Which AEP return periods to use for determining minimum floor levels;
 - Appropriateness of provisions for managing critical infrastructure;
 - Rules for managing flow path disruption.
3. This report addresses each of these matters, as well as other issues raised by submissions.
4. I have recommended some changes to the Proposed Plan provisions to address matters raised in submissions as set out in Appendix A. Given the extent of changes I will not summarise these here.
5. Having considered all the submissions and reviewed all relevant statutory and non-statutory documents, I recommend that the Proposed Plan should be amended as set out in section Appendix A of this report.
6. For the reasons set out in the Section 32AA evaluation and included throughout this report, I consider that the proposed objectives and provisions, with the recommended amendments, will be the most appropriate means to:
 - achieve the purpose of the RMA where it is necessary to revert to Part 2 and otherwise give effect to higher order planning documents, in respect to the proposed objectives, and
 - achieve the relevant objectives of the Proposed Plan, in respect to the proposed provisions.

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Interpretation

7. Parts A and B of the Officer's report utilise a number of abbreviations for brevity as set out in Table 1 below:

Table 1: Abbreviations

Abbreviation	Means
AEP	Annual Exceedance Probability
Council	Waimakariri District Council / territorial authority
CRPS	Operative Canterbury Regional Policy Statement
ECan	Environment Canterbury/Canterbury Regional Council
Kaiapoi FMFFL	Kaiapoi Fixed Minimum Finished Floor Level
RMA	Resource Management Act 1991
NESETA	National Environmental Standards for Electricity Transmission Activities 2009
NESPF	National Environmental Standards for Plantation Forestry 2017
NESTF	National Environmental Standards for Telecommunication Facilities 2016
NPS	National Policy Statement
NPSET	National Policy Statement on Electricity Transmission 2008
NPSREG	National Policy Statement for Renewable Electricity Generation 2011
NZCPS	New Zealand Coastal Policy Statement 2010
ODP	Operative Waimakariri District Plan
PDP	Proposed Waimakariri District Plan

Table 2: Abbreviations of Submitters' Names

Abbreviation	Means
DoC	Department of Conservation Te Papa Atawhai
ECan	Environment Canterbury / Canterbury Regional Council
Federated Farmers	Federated Farmers of New Zealand Inc.
FENZ	Fire and Emergency New Zealand
Hort NZ	Horticulture NZ
Kainga Ora	Kainga Ora - Homes and Communities
KiwiRail	KiwiRail Holdings Limited
MainPower	MainPower New Zealand Ltd
MoE	Minister / Ministry of Education
NZDF	New Zealand Defence Force
Spark	Spark New Zealand Trading Ltd
Transpower	Transpower New Zealand Ltd
Vodafone	Vodafone New Zealand Ltd / One.NZ
Waka Kotahi	Waka Kotahi NZ Transport Agency

In addition, references to submissions includes further submissions, unless otherwise stated.

1 Introduction

1.1 Purpose

8. The purpose of this report is to provide the Hearing Panel with a summary and analysis of the submissions received on the Natural Hazards ('NH') Chapter and to recommend possible amendments to the Proposed Plan in response to those submissions.
9. This report is prepared under section 42A of the RMA. It considers submissions received by the District Council in relation to the relevant objectives, objectives, policies, rules, definitions, appendices and maps as they apply to the Natural Hazards Chapter in the Proposed Plan. The report outlines recommendations in response to the key issues that have emerged from these submissions.
10. This report discusses general issues or topics arising, the original and further submissions received following notification of the Proposed Plan, makes recommendations as to whether or not those submissions should be accepted or rejected, and concludes with a recommendation for changes to the Proposed Plan provisions or maps based on the preceding discussion in the report.
11. The recommendations are informed by both the technical evidence provided by Mr Chris Bacon (Council staff member) and Mr Damian Debski (Consultant at Jacobs New Zealand Limited), which is all available on the Council's hearings web page, and the evaluation undertaken by the author. In preparing this report the author has had regard to recommendations made in other related s42A reports.
12. This report is provided to assist the Hearings Panel in their role as Independent Commissioners. The Hearings Panel may choose to accept or reject the conclusions and recommendations of this report and may come to different conclusions and make different recommendations, based on the information and evidence provided to them by submitters.
13. This report is intended to be read in conjunction with Officers' Report: Part A – Overview which contains factual background information, statutory context and administrative matters pertaining to the district plan review and Proposed Plan.

1.2 Author

14. My name is Andrew Willis. My qualifications and experience are set out in Appendix G of this report.
15. My role in preparing this report is that of an expert planner.
16. I was involved in the preparation of the Proposed Plan and co-authored both the Natural Hazards chapter and the Section 32 Evaluation Report for the chapter.
17. Although this is a District Council Hearing, I have read the Code of Conduct for Expert Witnesses contained in the 2023 Practice Note issued by the Environment Court. I have complied with that Code when preparing my written statement of evidence and I agree to comply with it when I give any oral evidence.

18. The scope of my evidence relates to the Natural Hazards Chapter. I confirm that the issues addressed in this statement of evidence are within my area of expertise as an expert policy planner.
19. Any data, information, facts, and assumptions I have considered in forming my opinions are set out in the part of the evidence in which I express my opinions. Where I have set out opinions in my evidence, I have given reasons for those opinions.
20. I have not omitted to consider material facts known to me that might alter or detract from the opinions expressed.

1.3 Supporting Evidence

21. The expert evidence, literature, legal cases or other material which I have used or relied upon in support of the opinions expressed in this report includes the following:
 - The evidence of Mr Chris Bacon (from the Council) (Appendix E)
 - The evidence of Mr Damien Debski (from Jacobs New Zealand Limited) (Appendix F); and
 - The Joint Witness Statement (Mr Chris Bacon and Mr Nick Griffiths from ECan) on the Non-urban Flood Assessment Overlay (Appendix D).

1.4 Key Issues in Contention

22. The submissions received on the Natural Hazards Chapter were diverse and sought a range of outcomes, ranging from detailed changes to objectives, policies and rules, to applying different approaches for determining minimum finished floor levels.
23. I consider the following to be the key issues in contention in the chapter:
 - The use of overlays;
 - The extent of the non-urban flood assessment overlay;
 - The definition of high coastal flood hazard;
 - Which AEP return periods to use for determining minimum floor levels;
 - Appropriateness of provisions for managing critical infrastructure;
 - Rules for managing flow path disruption.
24. These issues are addressed in this report, as well as other issues raised by submissions.

1.5 Procedural Matters

25. At the time of writing this report there have been pre-hearing meetings with ECan officers to clarify aspects of their submission, as well as unmediated expert witness conferencing between the Council and ECan officers to prepare a Joint Witness Statement.
 - When preparing this report I have taken into account the Joint Witness Statement attached at Appendix D – Flood Assessment Overlays.
26. This matter was considered significant to the application of the natural hazards chapter and therefore would benefit from resolution if possible prior to the hearing. I note that other hazards

experts may be engaged by other submitters to provide comments on this matter. However, at the time of preparing this s42A report this was unknown, especially as there were only general submission on the use of overlays (as opposed to specific submissions on the extent of the overlay). I considered there was value in at least getting agreement between the Council and ECan on this matter given the requirement to give effect to the CRPS and noting that ECan will be presenting expert evidence at the hearing.

27. I note that the Waimakariri Irrigation Limited [210.6] submission was incorrectly summarised in the summary of submissions as "Neutral on NH-P12." The submitter actually supported the intent of NH-P12 to provide for new and upgraded infrastructure in high flood hazard areas where there is a functional or operational need for that location, however, they considered it inappropriate that the policy requires that there are no practical alternatives, particularly in the case of existing below ground infrastructure. They sought to amend NH-P12(3) to delete the requirement that there be no practical alternatives.

2 Statutory Considerations

2.1 Resource Management Act 1991

28. The Proposed Plan has been prepared in accordance with the RMA and in particular, the requirements of:

- section 74 Matters to be considered by territorial authority, and
- section 75 Contents of district plans,

29. There are a number of higher order planning documents and strategic plans that provide direction and guidance for the preparation and content of the Proposed Plan. These documents are discussed in detail within the Section 32 Evaluation Report for the Natural Hazards Chapter.

2.2 Section 32AA

30. I have undertaken an evaluation of the recommended amendments to provisions since the initial section 32 evaluation was undertaken in accordance with s32AA . Section 32AA states:

32AA Requirements for undertaking and publishing further evaluations

(1) A further evaluation required under this Act—

(a) is required only for any changes that have been made to, or are proposed for, the proposal since the evaluation report for the proposal was completed (the changes); and

(b) must be undertaken in accordance with section 32(1) to (4); and

(c) must, despite paragraph (b) and section 32(1)(c), be undertaken at a level of detail that corresponds to the scale and significance of the changes; and

(d) must—

(i) be published in an evaluation report that is made available for public inspection at the same time as the approved proposal (in the case of a national policy statement or a New Zealand coastal policy statement or a national planning standard), or the decision on the proposal, is notified; or

(ii) be referred to in the decision-making record in sufficient detail to demonstrate that the further evaluation was undertaken in accordance with this section.

(2) To avoid doubt, an evaluation report does not have to be prepared if a further evaluation is undertaken in accordance with subsection (1)(d)(ii).

31. The required section 32AA evaluation for changes proposed as a result of consideration of submissions with respect to the Natural Hazards Chapter is appended to this report as Appendix C.

2.3 Trade Competition

32. Trade competition is not considered relevant to the Natural Hazards provisions of the Proposed Plan.

33. There are no known trade competition issues raised within the submissions.

3 Consideration of Submissions and Further Submissions

3.1 Overview

34. There were 34 submissions with 488 submission points on the natural hazards chapter and a further three submissions on the planning maps.

3.1.1 Report Structure

35. The submissions on the Natural Hazards Chapter raised some general issues, but were principally applied to particular provisions. I have therefore structured this report principally on a provision-by-provision basis (as opposed to a topic basis), following the layout of the Natural Hazards Chapter, noting where an issue has already been assessed. This structure has resulted in some repetition.

36. I have not addressed any further submissions directly in the body of this report as my recommendations in relation to further submissions reflect the recommendations on the relevant primary submission. Further submissions are however covered in Appendix B.

37. The following evaluation should be read in conjunction with the summaries of submissions and the submissions themselves. Where I agree with the relief sought and the rationale for that relief, I have noted my agreement, and my recommendation is provided in the summary of submission table in Appendix B. Where I have undertaken further evaluation of the relief sought in a submission(s), the evaluation and recommendations are set out in the body of this report. I have provided a marked-up version of the Chapter with recommended amendments in response to submissions as Appendix A.

38. This report only addresses definitions that are specific to natural hazards. Definitions that relate to more than one topic have been addressed in Hearing Stream 1.

3.1.2 Format for Consideration of Submissions

39. For each identified topic, I have considered the submissions that are seeking changes to the Proposed Plan in the following format:

- Matters raised by submitters;
- Assessment; and
- Summary of recommendations

40. The recommended amendments to the relevant chapters are set out for each provision and repeated in Appendix A of this report where all text changes are shown in a consolidated manner.

41. In addition to further submissions on specific point, there were also general submissions by further submitters in opposition or support of the whole submission by original submitters. The further submissions have not been assessed against specific submission points because of the generic nature of the submission. The further submissions are listed in the Table 3 below:

Table 3: General Further Submissions

Further submitter	FS number	Provision	Submission number	Original submitter	Support / oppose	Outcome sought
I.W and L.M. Bisman	38	Whole submission	160	Rolleston Industrial Developments	Oppose	Oppose
Waimakariri District Council	48	Whole submission	160	Rolleston Industrial Developments Ltd	Oppose	Disallow
Martin Hewitt	60	Whole submission	160	Rolleston Industrial Developments	Oppose	Whole disallowed
Steven Holland	72	Whole submission	160	Rolleston Industrial Developments	Oppose	Whole disallowed
Michelle Holland	73	Whole submission	160	Rolleston Industrial Developments	Oppose	Whole disallowed
Val & Ray Robb	74	Whole submission	160	Rolleston Industrial Developments	Oppose	Whole disallowed
Edward & Justing Hamilton	75	Whole submission	160	Rolleston Industrial Developments	Oppose	Whole disallowed
David & Elaine Brady	130	Whole submission	160	Rolleston Industrial Developments	Oppose	Disallow
Jan Hadfield	132	Whole submission	160	Rolleston Industrial Developments	Oppose	Disallow
Emma Wood	136	Whole submission	160	Rolleston Industrial Developments	Oppose	Disallow
Ohoka Residents Association	137	Whole submission	160	Rolleston Industrial Developments	Oppose	Disallow
MainPower NZ Ltd	58	Whole submission	325	Kainga Ora	Oppose	
Richard & Geoff Spark	37	Whole submission	325	Kainga Ora		Disallow
Miranda Hales	46	Whole submission	325	Kainga Ora	Oppose	Disallow
Bellgrove Rangiora Ltd	85	Whole submission	325	Kainga Ora	Oppose	Disallow
R J Paterson Family Trust	91	Whole submission	325	Kainga Ora		Allow in part
Richard & Geoff Spark	37	Whole submission	360	Christchurch City Council		

Miranda Hales	46	Whole submission	360	Christchurch City Council	Oppose	Reject
CIAL	80	Whole submission	360	Christchurch City Council	Support	Accept
Richard & Geoff Spark	37	Whole submission	408	Bellgrove Rangiora Ltd		
Kainga Ora	88	Whole submission	207.1 - 207.49	Summerset Retirement Villages (Rangiora) Ltd	Oppose	Disallow
Kainga Ora	88	Whole submission	254.01 - 254.155	Christchurch International Airport Ltd	Oppose	Disallow
DEXIN Investment Ltd	101	Whole submission	416.1 - 416.15	Sports & Education Corporation	Support	Allow
Forest & Bird	78	Whole submission	419.1 - 419.155	Department of Conservation	Support	
Richard & Geoff Spark	37	Whole submission	295	Horticulture NZ	Oppose	Disallow
CIAL	80	Whole submission	295	Horticulture NZ	Support	Accept
CIAL	80	Whole submission	316	Canterbury Regional Council	Support	Accept
Rachel Hobson & Bernard Whimp	90	Whole submission	316	Canterbury Regional Council		Disallow in part

42. My recommendations in relation to further submissions reflect the recommendations on the relevant primary submission.

3.2 General Submissions

3.2.1 Matters raised by submitters

43. There were twelve submission points characterised as 'general' on the Natural Hazards Chapter, including one in support of the natural hazards provisions from the Rangiora-Ashley Community Board [148.4]. The matters raised included the following:

- Seeking a statutory process for flood assessment certificates and ensuring these are robust, peer reviewed and open to challenge;
- Removing the urban and non-urban flood assessment overlays and making these non-statutory and available on the Council's GIS website;
- Reducing the liquefaction overlay to only cover the district and areas where liquefaction damage is possible;

- Removing the 'Kaiapoi Fixed Minimum Finished Floor Level ('Kaiapoi FMFFL') in Kaiapoi and applying the Flood Assessment Certificate approach there instead;
 - Applying the Kaiapoi FMFFL to Southbrook;
 - Extending the flood assessment overlays over all areas of the District that are susceptible to flooding;
 - Ensuring a consistent approach across the chapter to manage offsite flood effects;
 - Including hyperlinks from the EI chapter to the relevant natural hazards provisions applicable to infrastructure.
44. Federated Farmers [414.98] seek a statutory process for the consideration and issuing of flood assessment certificates to ensure clarity and consistency, as a standard operating procedure or similar as an appendix as these certificates are functioning in a statutory fashion similar to resource consents. Their relief seeks an amendment to the advisory notes to provide for a statutory process for processing the flood certificates.
45. Kainga Ora [325.101] oppose differentiating between urban and non-urban flood assessment overlays and seek that these and the mapped fixed floor level overlay are deleted from the PDP and included as non-statutory map layers in the Waimakariri District Natural Hazards Interactive Viewer. They consider flood hazards are dynamic and subject to change and inclusion on the natural hazards viewer allows the maps to be improved and updated.
46. ECan [316.49] seek to align the chapter's policies and rules to manage offsite flood effects, including the conveyance of floodwaters or reduction in flood storage capacity. They consider that Policies NH-P2, NH-P3 and NH-P4 all refer to the risk from flooding to surrounding properties and the conveyance of flood waters in an inconsistent fashion, while NH-P7 does not refer to the conveyance of floodwater which is inconsistent. They consider that EW-R5 only manages earthworks within an overland flow path as opposed to managing all earthworks that could reduce storage capacity and increase risk to neighbouring properties. I note that ECan made similar submissions on each of the referenced policies.
47. ECan [316.51] seek to extend the Urban Flood Assessment Overlay and Non-Urban Flood Assessment Overlay to capture all of the areas that have been identified as susceptible to flooding. ECan considers that if the flood assessment overlays covered the entire plains areas or the entire district this would resolve the current limitations of the proposed overlays. This approach would also create opportunities for a simplified and more robust rule framework.
48. ECan [316.52] seek the removal of the Kaiapoi FMFFL approach so the whole district utilises the standard Flood Assessment Certificate. ECan notes the benefits associated with the floor level certification approach outside the Kaiapoi Fixed Minimum Finished Floor Level Overlay, such as the incorporation of most recent and up to date flood modelling without the need for an RMA Schedule 1 process for a plan change. ECan considers that including a fixed floor level map for Kaiapoi is a different approach and may lead to inflexibility should modelling change. They consider that having a consistent approach and keeping the fixed floor level map outside the plan, may be a better approach.
49. ECan [316.53] seek to reduce the Liquefaction Hazard Overlay so that it only captures the gold coloured 'liquefaction damage possible' area and is limited to areas within the Waimakariri district.

50. Andrea and William 'Rob' Thomson [260.3] seek to ensure that flood assessment certificates are as accurate as practically possible. They have concerns around accuracy, questioning whether the flood assessment is based on LiDAR or ground surveys. They also query the ability to challenge the certificate findings and if the certificate findings are peer reviewed. They seek any such further or other relief as may be necessary to address the issues or concerns around accuracy.
51. MainPower [249.162] seek to ensure that relevant natural hazards provisions applicable to infrastructure are hyperlinked from the EI Chapter back to the Natural Hazards Chapter, to ensure plan users can navigate to the relevant parts of the Natural Hazards Chapter with ease. MainPower (249.176) also seek to insert a new rule to cover above ground linear critical infrastructure and support structures. This subpoint is addressed later in this report under Rule NH-R6.
52. McAlpines [226.8] seek to amend the Natural Hazards Chapter (objectives, policies and rules) so that the Southbrook industrial and commercial area is subject to fixed minimum finished floor level provisions similar to those provisions that apply at Kaiapoi. They consider that the method to manage flood hazard risk within the Urban Flood Assessment Overlay is flawed and inappropriate as:
- “the outcome of any Flood Assessment Certificate is uncertain and may change as more and better information becomes available;*
- a Flood Assessment Certificate will not manage increased risk to neighbouring or ‘upstream’ properties arising from new buildings or additions within the Southbrook industrial and commercial area; and*
- flood hazard risk is already compromising development of Southbrook and the method proposed does not provide certainty or confidence to landowners and developers.*
53. In the same submission, McAlpines also oppose the method of calculating minimum floor levels within the Urban Flood Assessment Overlay (see NH-S1(1)(e)) and within the Kaiapoi Fixed Minimum Finished Floor Level Overlay because they consider the method of calculation is conservative, especially for commercial and industrial areas, noting that other local authorities adopt a 1% AEP (1 in 100-year) method of calculating minimum floor levels, and consider the calculation creates a financial burden that cannot be justified when a 1% AEP is adequate.
54. The Kaiapoi-Tuahiwi Community Board [147.5] support the proposed Flood Assessment Certificate approach to confirm minimum floor levels outside a resource consent process, however they are concerned for existing dwellings and what provisions could be considered to protect these in the future. The Board is also concerned that the floor levels have not been extended to include other brownfield areas such as Southbrook.

3.2.2 Assessment

55. Regarding the Federated Farmers submission, I agree that consistency and clarity in the development of flood assessment certificates is beneficial. I understand that both the Council and ECan already provide guidance on required minimum floor levels and that for the Council this is based on an internal practice note to ensure consistency. As such, the provision of minimum floor level guidance is not new and there is already a level of formality applying. Utilising a Flood Assessment Certificate approach increases the level of formality as there is a prescribed form and

fee. I note that the Christchurch District Plan also utilises a minimum floor level certificate (Rule 5.4.1.2), as does the Proposed Change 3 to the Kaikoura District Plan. I am not aware of any issues identified in the application of minimum floor level certificates. I note that in his evidence Mr Bacon is recommending a minimum finished floor level map for Kaiapoi is published on the Council's website to provide guidance to the public (paragraph 31). For these reasons I therefore recommend the submission is rejected.

56. Regarding the Kainga Ora submission, I agree that flood hazards are dynamic and subject to change and that the modelling is also consequently changing. I agree that including natural hazards maps in the PDP would restrict their ability to be updated. The approach taken in the PDP is to identify an area that is susceptible to flooding based on current modelling (the flood hazard overlays) and to rely on a Flood Assessment Certificate to provide the most up-to-date flood modelling advice. Updates in understanding of flood risk and flood management requirements are introduced through the Flood Assessment Certificate, rather than changing District Plan flood maps themselves via a plan change process. I accept that the overlays themselves may prove to be inaccurate (in extent) overtime as modelled risk evolves, however, reduced flood risk for areas within the overlays can be considered as part of the Flood Assessment Certificate, while areas that are omitted from the overlays are already captured by the Building Act that requires floor levels to meet the 2% AEP level. I consider that the proposed approach provides the best balance of certainty and flexibility. In his evidence Mr Bacon (paragraph 35 in response to Kainga Ora) also considers the issue and overall supports the proposed approach. For these reasons I recommend the submission is rejected.

57. Regarding the submission by ECan [316.49], I agree that risk to surrounding properties is not covered consistently across Policies NH-P2, NH-P3, NH-P4 and NH-P7. The references to flood risk and conveyance of flood waters across the policies are as follows:

NH-P2: Activities in high hazard areas for flooding within urban areas

(2) the risk to surrounding properties is not significantly increased and the net flood storage capacity is not reduced;

(3) the conveyance of flood waters is not impeded.

NH-P3: Activities in high hazard areas for flooding outside urban areas

(2) the risk from flooding to surrounding properties is not significantly increased;

(3) the conveyance of flood waters is not impeded.

NH-P4: Activities outside of high hazard areas for flooding

(3) the risk from flooding to surrounding properties is not significantly increased and the net flood storage capacity is not reduced;

(4) the ability for the conveyancing of flood waters is not impeded.

58. The term 'significantly' was included as there will likely always be some changes in flood risk to adjacent properties, such as through minor increases in flood water displacement or minor changes in flow paths. I agree with the submitter that risk changes up to but below significant may be unacceptable at the upper end of the spectrum. I therefore recommend that changes are made to NH-P2(2), NH-P3(2) and NH-P4(3) to refer to 'no more than minor' risk. These changes are set out in Appendix A and in my recommended changes to the District Plan.

59. Regarding the inconsistent reference to flood storage capacity, this is principally an issue where urban density is proposed as there is significantly more displacement and less opportunity to manage it, as opposed to low density development in rural areas. For this reason this reference is included in NH-P2 and NH-P4 (which apply to urban areas), and not to NH-P3 which applies outside of urban areas. I therefore consider that this difference is warranted and should remain.
60. Regarding the slightly inconsistent wording for the conveyance of floodwaters in NH-P4, I do not consider this is material. However, I am also comfortable if the wording is amended to be consistent with NH-P2 and NH-P3. I therefore recommend that NH-P4 is reworded as set out in Appendix A to delete the words “ability for the”.
61. Regarding the submission by ECan [316.51] in relation to extending the flood assessment overlays to all the areas of the district that are susceptible to flooding, in his evidence Mr Bacon states that the purpose behind the flood assessment overlay is to restrict detailed flood assessments to only those areas that are at significant risk (paragraph 48). He considers all land is inherently at some residual risk of flooding, however extending the flood assessment overlay to the full district could result in unnecessary time and expense investigating and considering areas that have little to no risk of flooding.
62. However, Mr Bacon also acknowledges that the flood modelling results that define the proposed overlays will by their nature have some localised errors due to errors in the LIDAR data that could be better identified and managed through a Flood Assessment Certificate process. He considers that the likelihood of modelling errors is generally higher in the rural zone in areas of flat topography where the model resolution is lower and there is less certainly associated with ground levels due to land use activities (as opposed to urban areas where the modelling resolution is much higher and the stormwater systems are more formalised). He therefore agrees that in rural areas of the district with a ‘flat’ topography the flood overlays could be expanded further to cover all affected land. This position is covered in the Joint Witness Statement between Mr Bacon (the Council) and Mr Griffiths (ECan) contained in Appendix D. I accept Mr Bacon’s advice and recommend that this submission is accepted.
63. Regarding the submission by ECan [316.52] on deleting the Kaiapoi FMFFL, in his report Mr Bacon agrees that there are benefits associated with the flood maps including the Kaiapoi FMFFL overlay being maintained outside of the plan to provide flexibility to make updates as new information becomes available (paragraph 49). However, he notes that this approach may provide less certainty for new applicants and there are planning considerations associated with not having the plans within the district plan document. Overall he recommends that the Kaiapoi FMFFL map is taken out of the PDP in favour of a Floor Level Certificate approach (paragraph 49). I accept Mr Bacon’s advice on this matter and therefore recommend this submission point is accepted. I note that in addition to changing the overlays, all references to the Kaiapoi FMFFL will need to be removed from the NH Chapter as consequential amendments.
64. Regarding ECan’s submission [316.53] which seeks to reduce the Liquefaction Hazard Overlay so that it only captures the gold coloured ‘liquefaction damage is possible’ area (i.e. it excludes the green coloured ‘liquefaction damage is unlikely’ area) and is limited to areas within the Waimakariri district. The liquefaction overlays are not referenced in the Natural Hazards Chapter, but they are in the Subdivision Chapter (SUB-R3). SUB-R3 is intended to only apply to the ‘liquefaction damage possible’ area as this is where liquefaction damage is more likely to occur. I consider that it would be unnecessarily onerous for the District Plan subdivision provisions to also cover areas where liquefaction is unlikely, especially as the Building Act covers geotechnical

matters in relation to buildings. I note that the PDP can only apply to the Waimakariri District and as such, inclusion of parts of the Christchurch and Hurunui District is unhelpful. For these reasons I agree that the overlay should be limited to the Waimakariri District and that it should only include the 'liquefaction damage is possible' area. I therefore recommend the submission is accepted and the overlay is changed. Related to this submission, I note that I have addressed another submission [408.10] on the liquefaction overlay later in this report in the planning maps / overlay section 3.12.

65. Regarding the submission by Andrea and William 'Rob' Thomson, in his report Mr Bacon states that where the Flood Hazard Assessment Certificates refer to a reduced level this is always based on surveyed ground points using modelled flood depths (paragraph 47). The modelled flood depths are based off a hydraulic model that has been fully peer reviewed and is based off LiDAR ground levels. There is an opportunity within the floor level certificate process for applicants to undertake their own flood assessment including modelling if they disagree with the Council's model results and associated flood hazard assessment. I accept Mr Bacon's advice and therefore recommend that this submission is rejected.
66. Regarding the submission by MainPower, I do not agree that hyperlinks are required. I also note that the introduction section of the EI Chapter states that the natural hazards chapter contains provisions that may be relevant to managing the risk to energy and infrastructure from natural hazards. I consider that this is already clear and therefore recommend that this submission is rejected.
67. Regarding the submission by McAlpines, in his report Mr Bacon states that the Kaiapoi FMFFL approach is only appropriate for those areas subject coastal inundation or ponding with no significant overland flowpaths (paragraph 46). For the Waimakariri District this includes the urban areas of Kaiapoi, Pines Beach/Kairaki, Woodend Beach and Waikuku Beach. In other areas of the district the sloping nature of the land and the presence of overland flowpaths means it is not possible to define an area wide maximum flood level and instead site-specific considerations are needed. However, I note that in response to ECan's submission [316.52] covered earlier in this section I am proposing to replace the FMFFL approach in Kaiapoi with the Flood Assessment Certificate approach.
68. I note that one of the criticisms by McAlpines of the Flood Assessment Certificate is that it will not manage increased risk to neighbouring or 'upstream' properties. Firstly, this is not correct as the Flood Assessment Certificate explicitly assesses whether a site is within an overland flow path (NH-S1(1)(c), the consequence of not doing this could significantly change the flood risk to neighbouring properties as well as those upstream and downstream. Secondly, based on Mr Bacon's advice it appears that a fixed minimum floor level approach would be less likely to consider such matters than the certificate approach, which allows for consideration of the site-specific context (paragraph 46). With regard to certainty, the trade-off between providing certainty and flexibility was carefully considered as part of the drafting of the chapter. As ECan notes in their submission (316.52) the floor level certification approach enables the incorporation of the most recent and up to date flood modelling without the need for a Resource Management Act 1991 Schedule 1 process for a plan change. While there is less certainty in advance of a certificate being obtained, there is greater certainty that the minimum floor level required is accurate and only the minimum required and no more.
69. Regarding the method of calculating minimum floor levels being conservative, especially for commercial and industrial areas, due to a 0.5% AEP (1 in 200-year) being used as opposed to a 1%

AEP (1 in 100-year) that other local authorities use, Policy 11.3.2 of the CRPS specifies that buildings are to have a floor level above the 0.5% AEP design flood level. Whether this is conservative or not, it is contained within a higher order document that the District Plan must give effect to. Regarding its conservatism, I understand from Mr Bacon that in most parts of the district the difference between the 100 year and 200-year flood levels is less than 100mm, while in Southbrook the average difference is 170mm.

70. Regarding the Kaiapoi-Tuahiwi Community Board submission [147.5], the natural hazards provisions only apply to changes to existing dwellings as they are not retrospective. As such, they do not protect existing dwellings from flooding, except where they manage flood risk transference from new developments. Regarding extending floor levels to include other brownfield areas such as Southbrook, it is assumed that the Board is referring to extending the Kaiapoi FMFFL overlay outside of Kaiapoi. As indicated earlier in my response to the submission from McAlpines [226.8], it is not appropriate to apply the Kaiapoi FMFFL approach to other brownfield areas and I am recommending (in response to an ECan submission) later in this report that the Kaiapoi FMFFL approach is replaced by the Flood Assessment Certificate approach.

3.2.3 Summary of recommendations

71. I recommend that the submissions from Environment Canterbury [316.49], [316.51], [316.52], [316.53] and from the Rangiora-Ashley Community Board [148.4] be **accepted**.
72. I recommend that the submissions from Federated Farmers [414.98], Kainga Ora [325.101], MainPower [249.162], Andrea and William 'Rob' Thomson [260.3], McAlpines [226.8]; and the Kaiapoi-Tuahiwi Community Board [147.5], are **rejected**.
73. Given the changes I am recommending, I recommend that the submission from the Rangiora-Ashley Community Board [148.4] in support of the provisions is **accepted in part**.

3.2.4 Recommended changes to the District Plan

74. Amend NH-P2(2) activities in high hazard areas for flooding within urban areas as follows:

...

2. the risk ~~from flooding to~~ on surrounding properties is ~~not significantly increased~~ no more than minor and the net flood storage capacity is not reduced;

...

75. Amend NH-P3(2) Activities in high hazard areas for flooding outside of urban areas as follows

...

2. the risk from flooding ~~to~~ on surrounding properties is ~~not significantly increased~~ no more than minor;

...

76. Amend NH-P4(3) Activities outside of high hazard areas for flooding as follows:

...

3. the risk from flooding ~~to~~ on surrounding properties is ~~not significantly increased~~ no more than minor and the net flood storage capacity is not reduced;

...

77. Amend the Liquefaction Hazard Overlay so that it only captures the gold coloured 'liquefaction damage is possible' area (i.e. it excludes the green coloured 'liquefaction damage is unlikely' area) and is limited to areas within the Waimakariri district.
78. Delete the Kaiapoi Fixed Minimum Floor Level Overlay and replace it with the Urban Flood Assessment Overlay.
79. My S32AA evaluation is contained in Appendix C Table C2.

3.3 Definitions

3.3.1 Definition of 'community scale natural hazard mitigation works'

3.3.1.1 Matters raised by submitters

80. There was one submission by ECan [316.56] on the definition of community scale natural hazard mitigation works. ECan seeks to amend the definition of 'community scale natural hazard mitigation works' to clarify that these works are maintained at a scheme level. They seek the definition to be amended as follows:

"means the scheme of natural hazard mitigation works that serve multiple properties and are constructed and administered by the District Council, the Crown, the Regional Council or their nominated contractor or agent."

3.3.1.2 Assessment

81. I consider that the request by ECan helps to clarify that the definition is intended to apply at a larger scale than one-off structures serving individual properties. Rather than adopting the wording proposed by ECan I recommend that the definition is amended as set out in Appendix A and below under recommended changes to the District Plan. I consider my wording is clearer.
82. This change will require minor consequential changes to the policies and rules that refer to this definition as set out in Appendix A. These changes do not affect the application of the policies or rules.

3.3.1.3 Summary of recommendations

83. I recommend that the submissions of ECan [316.56] is **accepted in part**.

3.3.1.4 Recommended changes to the District Plan

84. Amend the definition of 'community scale natural hazard mitigation works' as follows:

Community scale natural hazard mitigation works

means a natural hazard mitigation scheme ~~works~~ that serves multiple properties and are ~~is~~ constructed and administered by the District Council, the Crown, the Regional Council or their nominated contractor or agent.

85. I consider this amendment is minor and does not change the intent or meaning of the definition. I have however covered definition changes in my s32AA evaluation in Appendix C, Table C12.

3.3.2 Definition of 'hard engineering natural hazard mitigation'

3.3.2.1 Matters raised by submitters

86. There was one submission by DoC [419.12] on this definition. DoC state that the definition of 'hard engineering natural hazard mitigation' is not consistent with the definition of hard protection structure in the New Zealand Coastal Policy Statement 2010. They seek that the definition is amended as follows:

"means the construction of, usually artificial, physical structures or resistant barriers, 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 to avoid flood damage or slow down or prevent erosion or inundation of the coastline. Such structures include stop banks, seawalls, gabions, breakwaters, rock revetments and groynes, or comparable structures."

3.3.2.2 Assessment

87. In my opinion, the changes proposed by DoC to include reference to seabed and foreshore are not relevant to a district plan that has its jurisdiction landward of the coastal marine area. I also note that the changes are coastal specific, whereas the PDP definition also applies to inland rivers. I therefore do not think that the proposed amendments are appropriate and recommend that the submission is rejected. I also note the definition is only used for the coastal hazards section of the chapter (NH-P17 and NH-R19) so has limited use.

3.3.2.3 Summary of recommendations

88. I recommend that the submissions of DoC [419.12] is **rejected**.

3.3.3 Definition of 'high coastal flood hazard area'

3.3.3.1 Matters raised by submitters

89. There was one submission on this proposed definition by ECan [316.54]. ECan states that the definition is inconsistent with the definition of 'high hazard' in the Canterbury Regional Policy Statement 2021 and seeks it to be amended to be consistent with it.

3.3.3.2 Assessment

90. In my opinion the CRPS Natural Hazards Chapter sets up an avoidance first approach based on increasing risk, differentiating between high hazard and non-high hazard areas. It specifies circumstances where development may be appropriate in both high hazard areas (despite applying an avoidance hierarchy) and other floodable areas based on risk and consequence.

91. The CRPS definition of 'high hazard area' contains a statement on flooding depth / velocity for freshwater flooding (clause 1) which corresponds with the PDP's 'high flood hazard area' definition, and a statement of sea water inundation (clause 4). Clauses 1 and 4 of the CRPS 'high hazard areas' definition are set out as follows:

"High hazard areas" are:

1. flood hazard areas subject to inundation events where the water depth (metres) x velocity (metres per second) is greater than or equal to 1, or where depths are greater than 1 metre, in a 0.2% AEP flood event;

...

4. land subject to sea water inundation (excluding tsunami) over the next 100 years. This includes (but is not limited to) the land located within the sea water inundation zone boundary shown on Maps in Appendix 5 of this Regional Policy Statement

92. While clause 1 considers both 'likelihood' and 'consequence', it appears that for sea water inundation (clause 4), the definition does not consider 'consequence' as even 1 cm of inundation once in 100 years is classified as high hazard, however this level of inundation is very unlikely to be a risk to subdivision, use and development. In my opinion this miscategorises sea water inundation risk and undermines the overall CRPS risk-based approach. In his evidence (paragraphs 34 and 35) Mr Debski states:

"Clause 4 of the CRPS definition of 'high hazard areas' also includes 'land subject to sea water inundation', regardless of the actual hazard (depth or velocity) posed by the inundation. I consider that defining all land which is susceptible to any inundation from the sea as a high hazard area regardless of the depth (or velocity) of inundation is not consistent with the risk-based intent of the CRPS, or with clause 1 of the CRPS definition of high flood hazard for other sources of flooding such as intense rainfall or high river flow, or with other accepted methods for classifying flood hazard.

In coastal areas, flooding often arises from the combined effects of extreme sea level, intense rainfall, high river flow and high groundwater level – i.e., from both 'sea water' and 'other water' – and the hazard to people does not usually depend on the particular source or sources of the flood water. In my opinion, a consistent approach to the definition of flood hazard to people, independent of the source of flooding, is more appropriate."

93. For the reasons provided above I consider that the CRPS definition for coastal hazards is overly blunt and includes an inherent conflict between fresh water and sea water for how high flood hazard is defined. I also note that there is an overlap between clause 1 and 4 for when land is subject to combined freshwater flooding and sea water inundation as is the case for the Waimakariri District.
94. Given the above findings, the CRPS 'high hazard area' definition was separated out into two definitions in the notified PDP. This allowed the PDP freshwater definition ('high flood hazard area') to be consistent with the CRPS clause 1 while a separate more applicable definition for 'high coastal flood hazard' was created. Based on their submission ECan is comfortable with the fresh water 'high flood hazard area' definition but not the new 'high coastal flood hazard' definition.
95. I have met with ECan staff to consider their submission and develop a reworded definition that meets their requirements. The definition proposed below is based on their advice and I therefore consider it is likely to be acceptable to ECan, in terms of both being appropriate to define high hazard areas and to give effect to the CRPS. Unfortunately, ECan was unwilling to cover this matter as part of a Joint Witness Statement, preferring to respond to this matter

through evidence. In the absence of formal advice from ECan, I consider the proposed amended definition both gives effect to the CRPS approach to high hazard areas and is workable for the Waimakariri District. This may become clearer once ECan files its evidence on this matter.

96. In his evidence Mr Debski supports the amended definition proposed below (paragraph 42). Mr Bacon also supports the definition (paragraph 21). Given the advice from Mr Debski and Mr Bacon, I recommend that the PDP definition of high coastal flood hazard should be amended to include a return period and align the fresh water and sea water flooding clauses. The separate PDP definitions of 'High Coastal Flood Hazard' and 'High Flood Hazard' would be deleted and replaced by a single definition of 'High Hazard Area' as set out in Appendix B and below under recommended amendments to the district plan.
97. Given the identified shortcomings in the CRPS high hazard area definition for sea water inundation, in my opinion this amended definition is a more useful definition to apply to the mixed sea water and freshwater flooding predicted to occur in coastal areas of the Waimakariri District. I also consider it would give effect to CRPS.
98. The recommended definition change would require minor consequential changes throughout the chapter as set out in Appendix A. These include changes to: the Introduction, NH-O2; NH-P2; NH-P3; NH-P4; NH-P11; NH-P12; NH-P13; NH-R2; NH-R6; NH-S1; and NH-S2.

3.3.3.3 Summary of recommendations

99. I recommend that the submissions of ECan [316.54] is **accepted**.

3.3.3.4 Recommended changes to the District Plan

100. Delete the definition of 'high coastal flood hazard area' and 'high flood hazard area' and replace with the following definition:

High Hazard Area means:

- a. land likely to be subject to coastal erosion; and
- b. land where there is inundation by floodwater and where the water depth (metres) x velocity (metres per second) is greater than or equal to 1, or where depths are greater than 1 metre, in a 0.2% Annual Exceedance Probability flood event.

When determining a. and b. above, the cumulative effects of climate change over the next 100 years (based on latest national guidance) and all sources of flooding (including fluvial, pluvial, and coastal) must be accounted for.

101. I have covered definition changes in my s32AA evaluation in Appendix C, Table C12.

3.3.4 Definition of 'High Flood Hazard Area'

3.3.4.1 Matters raised by submitters

102. There were two submissions received on this definition. MainPower [249.12] supports the definition of 'High Flood Hazard Area', while Summerset [207.3] is concerned that not showing High Flood Hazard Areas on the Planning Maps makes it hard for landowners to know when

these rules may apply to their property. They seek the planning maps be amended to show all high flood hazard areas.

3.3.4.2 Assessment

103. Regarding the Summerset submission, I acknowledge that identifying all high flood hazard areas on the planning map would help landowners to know when the relevant rules apply. However, mapping these areas may well result in over and under capture when the modelling and LIDAR information changes (which it will on a regular basis). The proposed use of overlays and a Flood Assessment Certificate is considered a pragmatic approach to identify where flooding may occur but also enable an up-to-date site-specific assessment of flood risk, including whether the site is high hazard. Indicative high flood hazard areas are identified in the natural hazards interactive viewer which has a link off the natural hazards chapter introduction and the Flood Assessment Certificates. This will provide landowners with an indication as to the hazard status of their land.
104. In his evidence Mr Bacon disagrees that the High Hazard Flood areas need to be shown on the planning maps (paragraph 22). He considers that because the high hazard areas are defined by flood modelling it is possible these will need to be updated due to changes in ground formation and future modelling outputs. Furthermore, when land development occurs this will often lead to changes in the flood hazard category especially when land is raised to mitigate the flood hazard. Due to the non-static nature of the flood hazard Mr Bacon considers it is better to manage these layers outside of a district plan map. He states that the proposed approach to use a flood hazard overlay on the planning maps together with published flood hazard results outside of the maps provide a greater degree of flexibility and allows the Council to respond better when flood information changes. I accept Mr Bacon's advice on this matter.
105. Regarding the MainPower submission, I consider that the changes proposed earlier under 'High Coastal Flood Hazard' do not change the intent and meaning of the high flood hazard area definition. I therefore recommend that the submission by MainPower is accepted in part.

3.3.4.3 Summary of recommendations

106. I recommend that the submissions of MainPower [249.12] is **accepted in part**.
107. I recommend that the submissions of Summerset [207.3] is **rejected**.
108. I recommend that no change be made to the PDP.

3.3.5 Definition of 'Natural Feature'

3.3.5.1 Matters raised by submitters

109. John Stevenson [162.168], Chloe Chai and Mark McKitterick [256.168], CA and GJ McKeever [111.168] and Keith Goodwin [418.169] seek to insert a definition for 'natural feature' to ensure NH-P15 is applied as intended. Their proposed definition reads as follows:

"Natural feature

Means: natural ponding areas, wetlands, water body margins and riparian margins,

dunes, and beaches. It excludes man-made water races and drainage infrastructure

such as swales and Stormwater Management Areas."

3.3.5.2 Assessment

110. I agree with this inclusion as I consider that this provides clarity for interpreting the provisions that refer to natural features. However, I recommend changing 'man-made' to 'artificial' so it is gender neutral.

3.3.5.3 Summary of recommendations

111. I recommend that the submissions of John Stevenson [162.168], Chloe Chai and Mark McKitterick [256.168], CA and GJ McKeever [111.168], and Keith Goodwin [418.169] are **accepted in part**.

3.3.5.4 Recommended changes to the District Plan

112. Add the following definition of 'natural features to the District Plan:

For the purposes of the Natural Hazards Chapter, Natural feature

Means: natural ponding areas, wetlands, water body margins and riparian margins, dunes, and beaches. It excludes artificial water races and drainage infrastructure such as swales and Stormwater Management Areas.

113. I have covered this new definition in my s32AA evaluation in Appendix C, Table C12.

3.3.6 Definition of 'natural hazard'

3.3.6.1 Matters raised by submitters

114. There was one submission by FENZ [303.6] in support of this definition, which refers to the National Planning Standards definition.

3.3.6.2 Assessment

115. No assessment is required.

3.3.6.3 Summary of recommendations

116. I recommend the submission by FENZ [303.6] is **accepted**.

3.3.7 Definition of 'natural hazard sensitive activity'

3.3.7.1 Matters raised by submitters

117. There was one submission on the definition of natural hazard sensitive activity by ECan [316.55].
118. ECan [316.55] states that the definition does not capture all buildings that should be afforded an adequate level of mitigation, e.g. commercial or farm buildings that could be critical for business continuity. They consider that the use of a full-time employee (FTE) count is not easily established and building use could change over the life of the building. ECan considers that it

would be more appropriate to define the characteristics of the building itself. They seek the definition of 'natural hazard sensitive activity' is amended to ensure that all high value buildings are captured.

3.3.7.2 Assessment

119. Regarding the use of full-time employee counts, the district plan already uses FTEs in relation to home occupations so this approach is already utilised in the PDP's planning provisions. However, I do agree that building use can change over time and I don't disagree that the definition could be improved by defining the characteristics of the building itself and I therefore recommend that this submission is accepted.

120. The notified PDP proposes to define natural hazard sensitive activities as buildings which:

- a. *contain one or more habitable rooms; and/or*
- b. *contain one or more employees (of at least one full time equivalent); and/or*
- c. *is a place of assembly;*
except that this shall not apply to:
 - i. *regionally significant infrastructure;*
 - ii. *any attached garage or detached garage to a residential unit or minor residential unit that is not a habitable room;*
 - iii. *any building with a footprint of less than 25m²; or*
 - iv. *any building addition in any continuous 10-year period that has a footprint of less than 25m².*

121. I have reviewed the Proposed Selwyn District Plan natural hazards rules for comparison and these refer to residential and principal buildings. Principal buildings are defined as "any building or buildings which is/are used as part of the primary activity or activities on the site. Principal buildings include residential units but do not include accessory buildings or minor residential units." The Kaikoura district plan has a more comprehensive definition for a 'Hazard Sensitive Building' as set out below.

means any building which:

- 1. *is used as part of the primary activities on the site; or*
- 2. *contains habitable rooms; or*
- 3. *is serviced with a sewage system and connected to a potable water supply,*

For the purposes of clause 1, the following buildings are not included.

- i. *farm sheds used solely for storage; or*
- ii. *animal shelters which comply with v below: or*
- iii. *carports; or*
- iv. *garden sheds; or*

v. any buildings with a dirt/gravel or similarly unconstructed floor; or

vi. critical and non-critical infrastructure.

122. The KDP, SDP and PDP all seek to focus their natural hazards rules on specific types of buildings but have different approaches for achieving this. In my opinion the PDP definition can be improved by amending it to correctly refer to 'infrastructure' and 'critical infrastructure' (which are the terms used in the natural hazards chapter to cover these separate activities)¹ and include components from the KDP as set out in Appendix A and below under recommended changes to the District Plan.

3.3.7.3 Summary of recommendations

123. I recommend that the submissions of ECan [316.55] is **accepted**.

3.3.7.4 Recommended changes to the District Plan

124. Amend the following definition of 'natural hazard sensitive activity; as follows:

means buildings which:

- a. contain one or more habitable rooms; ~~and/or~~
- b. ~~contain one or more employees (of at least one full-time equivalent)~~ are serviced with a sewage system and connected to a potable water supply; and/or
- c. is a place of assembly;

except that this shall not apply to:

- i. ~~regionally significant infrastructure or critical~~ infrastructure;
- ii. any attached garage or detached garage to a residential unit or minor residential unit that is not a habitable room;
- iii. any building with a footprint of less than 25m²; ~~or~~
- iv. any building addition in any continuous 10-year period that has a footprint of less than 25m²; or
- v. any building with a dirt/gravel or similarly unconstructed floor.

118. I have covered this amended definition in my s32AA evaluation in Appendix C, Table C12.

3.3.8 Definition of 'overland flow path'

3.3.8.1 Matters raised by submitters

125. There was one submission on the definition of 'overland flow path' by Federated Farmers [414.13]. Federated Farmers consider that the definition of 'overland flow path' is poorly written, as a 'flow path' implies the movement of water, and the movement of water almost always suggests a first order stream, which is river – whether it is intermittent in flow or not.

¹ Change recommended under RMA clause 16(2)

They consider it may also be duplicating or inconsistent with the Canterbury Regional Plan, which is the better place to handle water regulation. They seek the deletion of the definition of 'overland flow path'.

3.3.8.2 Assessment

126. The definition is intended to apply to areas of land where water moves only in periods of flooding, as opposed to a permanent or intermittent river or stream which are already mapped and excluded in the definition. The definition is intended to support the policies and rules in the Natural Hazards Chapter and is not relevant for the Canterbury Regional Plan. I therefore recommend that this submission is rejected.

3.3.8.3 Summary of recommendations

127. I recommend that the submissions of Federated Farmers [414.13] is **rejected**.

3.3.9 Definition of 'soft engineering natural hazard mitigation'

3.3.9.1 Matters raised by submitters

128. There was one submission on this definition. 199 Johns Road Ltd, Carolina Homes Ltd, Carolina Rental Homes Ltd, Allan Downs Ltd - Claire McKeever [266.177], request clarification about whether an earth engineered 'bund' would meet the definition of 'soft engineering natural hazard mitigation'.

3.3.9.2 Assessment

129. This submission is assessed later in this report under NH-R10 where the definition applies and was also made under submission number [266.16].

3.3.10 Definition of 'upgrading'

3.3.10.1 Matters raised by submitters

130. There was one submission on the definition of 'upgrading' by Federated Farmers [414.21]. Federated Farmers consider that this definition is inconsistent with many of the rules that apply to it, and it could be applied on an endless incremental basis, with negative effects on landholders. They state it is not clear that a definition of upgrading with numerics is actually needed in the context of the rest of the plan. They seek the deletion of the definition.

3.3.10.2 Assessment

131. This definition is limited to the Natural Hazards Chapter as stated in the definition. There are four rules in the natural hazards chapter that refer to upgrading (NH-R9, NH-R11, NH-R13 and NH-R20) in relation to community scale natural hazards mitigation works and infrastructure (including critical infrastructure). Unfortunately, no examples of inconsistency were provided in the submission. It is also not clear what the negative effects on landholders are from these activities, so I am unable to comment on this component of the submission. In my opinion it is useful to distinguish between maintenance, upgrading and new mitigation works and infrastructure in different hazard overlays and sensitive environments to help target the rules to the activity. The general approach is that maintenance and upgrading is more benign than

new activities. I agree that upgrading could be applied on an endless incremental basis, however I note that the definition includes reference to a 5-year period for each upgrading, thereby limiting its application to 5-year periods. I therefore recommend that this submission is rejected.

3.3.10.3 Summary of recommendations

132. I recommend that the submissions of Federated Farmers [414.21] is **rejected**.

3.4 Introduction

3.4.1 Matters raised by submitters

133. There were two submissions received on the introduction.

134. ECan [316.50] considers that the Natural Hazards Chapter does not fully implement the CRPS, as it generally requires development in high hazard areas to be either 'avoided or mitigated', which they consider is an inappropriate oversimplification of the CRPS policies. They seek that the 10th paragraph in the introduction is amended to read:

"The RPS recognises that development of land for most residential, industrial or commercial purposes is not sustainable in high hazard areas. Therefore, further development within areas of high hazard shall be limited to low-intensity land uses that will not result in loss of life or serious injuries or significant damage. The RPS recognises that for existing urban areas the community has already accepted some natural hazards risk in order to support the ongoing development of the District's existing towns. The RPS accordingly requires development in high hazard areas in these locations to be either avoided or mitigated...."

135. Kainga Ora [325.102] oppose flood hazard information and overlays being incorporated in the plan as these hazards are dynamic and subject to constant change. They seek the deletion of the flood assessment overlays and any references to these in the introduction and inclusion of the flood assessment overlays as non-statutory map layers in the Waimakariri District Natural Hazards Interactive Viewer only. They also seek that the chapter recognise that large areas of the urban environment are in 'High Hazard Areas' but as residential and commercial activities are anticipated, sensitive activities should be discretionary rather than non-complying.

3.4.2 Assessment

136. Regarding the submission from ECan, I accept that the CRPS approach includes an avoidance approach for high hazard areas. However, CRPS Objective 11.2.1 and Policies 11.3.1(5) and 11.3.1(6) explicitly recognise that development within existing identified urban areas can be mitigated or avoided where it increases the risk from natural hazards in high hazard areas. This recognises the significant existing development in these locations and that the community has already accepted some natural hazard risk there. The proposed Natural Hazards Chapter seeks to achieve this approach by delineating urban and non-urban areas and applying a more stringent avoidance approach in non-urban areas, and a mitigation approach within existing urban areas.

137. In my opinion, ECan's proposed second sentence seeks to severely limit further development in all high hazard areas, however the third sentence, which recognises the acceptance of natural hazard risk for existing community's remains unchanged. I consider that by adding the second sentence and deleting the fourth sentence referring to avoidance or mitigation, the introduction as amended by ECan provides unclear advice about the approach to natural hazards in existing urban areas. It is also not consistent with the CRPS Objective 11.2.1 and Policies 11.3.1(5) and 11.3.1(6). I consider that the proposed amendments to the introduction risk introducing 'policy' into the chapter introduction, which is better left to the policy section. I recommend that this submission is accepted in part and that the introduction is amended to remove the CRPS policy components entirely as set out in Appendix A and below under recommended changes to the District Plan.
138. Regarding the submission from Kainga Ora, seeking the deletion of the flood assessment overlays, etc, the flood assessment overlays have been included in the district plan as a way to geographically identify areas susceptible to flooding and therefore where the flooding rules apply. I consider this to be a more efficient approach than making the entire district apply for a Flood Assessment Certificate (even noting the changes to the overlay that I am recommending elsewhere in this report). Having no overlay or map to geographically identify areas susceptible to flooding will likely result in either under or over capture of properties in a flood assessment or consent pathway. I therefore recommend that this this aspect of the submission is rejected.
139. Regarding seeking that the chapter recognise that large areas of the urban environment are in high hazard areas and applying a discretionary activity status to hazard sensitive activities in these areas, I note that the chapter provides for many hazard sensitive activities in existing urban areas to be permitted, subject to meeting the floor level requirements and that non-compliance defaults to an RDIS activity status, and not non-complying as the submitter suggests (e.g. see NH-R1 and NH-R3)). A non-complying status generally only applies to non-urban areas, i.e. areas zoned general rural and rural lifestyle (e.g. NH-R2). I consider that a permitted activity pathway with an RDIS status where the standards are not met is appropriate for existing urban areas, rather than a fully discretionary status that Kainga Ora seems to be seeking. I therefore recommend that this aspect of the submission is rejected.

3.4.3 Summary of recommendations

140. I recommend that the submission from Environment Canterbury [316.50] is **accepted in part**.
141. I recommend that the submission from Kainga Ora [325.102] is **rejected**.

3.4.4 Recommended changes to the District Plan

142. Amend the Introduction as follows:

"...A risk-based approach is taken which factors in the need to allow people and communities to use their property and undertake activities, while also ensuring that life or significant assets are not harmed or lost as a result of a natural hazard event. ~~The RPS recognises that for existing urban areas the community has already accepted some natural hazards risk in order to support the ongoing development of the District's existing towns. The RPS accordingly requires development in high hazard areas in these locations to be either avoided or mitigated. The District Plan maps do not...~~"

143. I consider this amendment is minor and does not change the intent or meaning of the introduction and therefore I have not covered this change in my s32AA evaluation in Appendix C.

3.5 Objectives

144. A number of submissions were received on the objectives. Each of the four objectives is addressed in turn below.

3.5.1 Objective NH-01 – Risk from Natural Hazards

3.5.1.1 Matters raised by submitters

145. Thirteen submissions were received on NH-01. Six were in support, four were neutral, while three sought amendments. All the neutral submission related specifically to San Dona and how this area was treated under the provisions. Regarding the requested amendments, the following matters were raised:

- The need for greater clarity of drafting;
- Greater alignment with the CRPS; and
- Querying how 'land use' is defined.

146. Summerset Retirement Village [207.10] supported the intent of NH-01 however considered the wording is ambiguous and unclear and that hazard risk management should be targeted to high hazard areas being avoided and activities in other areas mitigating risk. They sought the following amendments to NH-01:

"New subdivision, land use and development, other than new critical infrastructure:

1. ~~manages natural hazard risk, including coastal hazards, in the existing urban environment to ensure that any increased risk to people and property is low is avoided in areas where the risks from natural hazards to people, property and infrastructure are assessed as being unacceptable; and in all other areas, is undertaken in a manner that ensures that the risks of natural hazards to people, property and infrastructure are appropriately mitigated;~~...

147. ECan [316.57] states that Objective 11.2.1 of the Canterbury Regional Policy Statement (CRPS) seeks to avoid subdivision, use and development of land which increases the risk of natural hazards or mitigates to minimise such risk. It considers that NH-01 should be re-worded to better give effect to Objective 11.2.1 and Policy 11.3.1 of the CRPS. It also considers that it is not clear what would determine whether a risk is 'low' or not in NH-01(1) and that NH-01(3) does not give effect to Policy 11.3.1 of the CRPS where the coastal hazard is a high hazard. The relief sought specifies that it could be improved by setting direction for: high hazard areas outside of the urban area (avoid); high hazards areas inside the urban area (avoid or mitigate); then other hazards.

148. Federated Farmers [414.92] consider it is not clear how "land use" is defined, as clause 2 in the Ashley Fault overlay could be read as avoiding any new land use, including other rural uses. They seek to amend NH-01 to:

"New subdivision, ~~land~~ use and development".

3.5.1.2 Assessment

149. Regarding the proposed amendment by Summerset Retirement Village, the introduction of 'other than new critical infrastructure' to the chapeau of the objective is supported in part as infrastructure is captured in Objective NH-O2. However, for accuracy the words should be "other than infrastructure".
150. Regarding the proposed amendments to clause 1 of NH-O1, this clause as written is intended to apply a 'manage' approach in the existing urban environment, as opposed to a stronger 'avoid' approach outside of the existing urban environment. This distinction is consistent with CRPS Policy 11.3.1 and recognises that the community has already accepted some risk in existing towns in the District, but that it would be less acceptable to introduce new risk to areas that are currently rural. The rationale provided in the submission of avoiding high hazard areas is not consistent with this approach for parts of the district such as Kaiapoi that are subject to high flood hazard. The proposed amendment removes the explicit reference to existing urban environments and therefore results in an overlap with existing NH-O1 clause 3 which covers non-urban areas. It also removes the reference to 'low risk' which provides guidance on the level of risk considered acceptable. Overall, I consider that the proposed amendments to clause 1 are unnecessary, and without the corresponding changes to NH-O3 would create confusion. However, I am proposing changes in response to ECan's [316.17] submission below and these changes respond in part to Summerset Retirement Village's submission. I therefore recommend accepting this submission in part.
151. Regarding the submission by ECan, it is considered that NH-O1(3) does give effect to Policy 11.3.1 where the coastal hazard risk is high. Policy 11.3.1 only covers area subject to high hazards. Policy NH-O1(3) provides for the avoidance or mitigation of coastal hazard risk. The avoidance can apply to areas of high hazard, whereas the mitigation can apply to areas that are not high hazard. Objective NH-O1(3) is given effect to by Policy NH-P3 which expressly seeks the avoidance of subdivision, use and development for natural hazard sensitive activities outside urban environments in high flood hazard and high coastal flood hazard urban environments unless they meet specified conditions.
152. Regarding the word 'low', during the course of drafting the use of the terms 'low' and 'unacceptable' were considered. One of the criticisms of using 'low' was that it was not clear how or who would determine this. The same criticism could also be applied to 'unacceptable'. In both cases, it is the policies, rules and matters of discretion that collectively provide the guidance on who and how both terms are to be interpreted and applied. However, I accept that 'unacceptable' may be more commonly used in objectives and better allows this assessment to occur.
153. Irrespective of the specific comments above, I accept that Objective NH-O1 could be restructured along the lines ECan is suggesting to better align with CRPS Policy 11.3.1 and that this could provide greater clarity. I therefore recommend the amendments proposed in Appendix A and below under recommended changes to the District Plan are made to NH-O1. Accordingly, I recommend the submission by ECan is accepted in part.
154. Regarding the submission by Federated Farmers seeking the deletion of the word 'land' in the chapeau of the objective, in my opinion the deletion of 'land' would not affect Objective NH-O1's interpretation as the word 'use' is proposed to remain. I note that there is no rule in the

chapter that covers general rural activities, as the chapter is focussed on life and building risk rather than activities per se. I therefore recommend that this submission is rejected.

3.5.1.3 Summary of recommendations

155. I recommend that the submission from Summerset Retirement Village [207.10] is **accepted in part**.
156. I recommend that the submission from Environment Canterbury [316.57] is **accepted in part**.
157. I recommend that the submission by Federated Farmers [414.92] is **rejected**.
158. Given the changes I am recommending, I recommend that the submissions in support of NH-O1 as set out in Appendix B are **accepted in part**.
159. My recommendations in relation to further submissions reflect the recommendations on the relevant primary submission.

3.5.1.4 Recommended changes to the District Plan

160. Amend Objective NH-O1 as follows:

NH-O1 - Risk from natural hazards

New subdivision, land use and development other than infrastructure:

- ~~1. manages natural hazard risk, including coastal hazards, in the existing urban environment to ensure that any increased risk to people and property is low;~~
- ~~2.1. is avoided in the Ashley Fault Avoidance Overlay and high hazard areas for flooding outside of the urban environment where the risk to life and property are unacceptable;~~
and
2. avoids or mitigates natural hazard risk in the existing urban environment to ensure that any increased risk to people and property is acceptable; and
- ~~3. outside of the urban environment, in all other instances,~~ is undertaken to ensure natural hazard risk, ~~including coastal hazard risk,~~ to people and property is avoided or mitigated and the ability of communities to recover from natural hazard events is not reduced.

161. My s32AA assessment is contained in Appendix C, Table C1.

3.5.2 Objective NH-02 – Infrastructure in natural hazard overlays

3.5.2.1 Matters raised by submitters

162. Fifteen submissions were received on NH-O2. Ten submissions were received in support of NH-O2, four submissions were neutral, while one submission from Federated Farmers [414.93] sought amendments, stating that clause (3) of NH-O2 could be inconsistent with (1). They sought the following wording:

NH-O2(1):

"Existing infrastructure, including critical infrastructure can be upgraded, maintained, or replaced;"

NH-O2(3):

"Avoid new critical infrastructure in high flood hazard areas and high coastal flood hazard areas, unless there is a functional or operational need for the location or route"

3.5.2.2 Assessment

163. Regarding the submission by Federated Farmers, Policy NH-O2(1) is intended to apply to critical infrastructure, which is included within the broader definition of 'infrastructure'. However, the proposed addition to NH-O2(1) helps to clarify this and I therefore recommend this is accepted.
164. The proposed re-wording on NH-O3(3) is slightly clearer wording as it begins with the word 'avoid'. However, constructing the clause in this way would make it inconsistent with the drafting of the preceding two clauses which begin with a statement of what is to be managed and I therefore recommend this proposed change is rejected.

3.5.2.3 Summary of recommendations

165. That the submission by Federated Farmers [414.93] is **accepted in part**.
166. Given the changes I am recommending, I recommend that the submissions in support of NH-O2 as set out in Appendix B are **accepted in part**.

3.5.2.4 Recommended changes to the District Plan

167. Amend Objective NH-O2 as follows:

Infrastructure in natural hazard overlays

For infrastructure within natural hazard overlays:

1. existing infrastructure, including critical infrastructure, can be upgraded, maintained and replaced;

...

168. My s32AA assessment is contained in Appendix C, Table C1.

3.5.3 Objective NH-O3 – Natural hazard mitigation

3.5.3.1 Matters raised by submitters

169. Ten submissions were received on NH-O3, six were in support while four were neutral.

3.5.3.2 Assessment

170. There are no submissions seeking changes that require assessment.

3.5.3.3 Summary of recommendations

171. I recommend that the submissions in support of NH-O3 as set out in Appendix B are **accepted**.
172. I recommend that there be no change to the NH chapter.

3.5.4 Objective NH-O4 – Natural defences

3.5.4.1 Matters raised by submitters

173. Ten submissions were received on NH-O4. Five submissions were in support, four were neutral, while ECan [316.60] sought amendments to clarify what are natural defences, as referred to in Objective NH-O4.

3.5.4.2 Assessment

174. ECan requested that the PDP clarify what is meant by natural defences, which is referred to in NH-O4. Natural defences are specified in NZCPS Policy 26(2) to include beaches, estuaries, wetlands, intertidal areas, coastal vegetation, dunes and barrier islands. CRPS Policy 11.3.6 refers to natural topographic (or geographic) and vegetation features. I note however that Policy NH-P15 refers to 'natural features' rather than 'natural defences', describing them as including natural ponding areas, wetlands, water body margins and riparian margins, dunes, berms and beaches. To improve alignment between the objectives and policies it is recommended that NH-O4 refers to 'natural features' instead of 'natural defences'. This amendment will resolve ECan's concerns as Policy NH-P15 identifies what natural features are. I therefore recommend that ECan's submission is accepted in part.
175. I note that I have also proposed amending Policy NH-P15 in response to submissions on that policy concerning natural features (see the Policy section later in this report). I have also proposed adding a definition of 'natural features' in response to proposed definition submissions (see the definition section earlier in this report). Finally, I note that a consequential change is required to NH-P17(4) to also refer to natural features. I consider that the changes proposed here are consistent with those other recommendations. Based on my recommendation to amend NH-P15 I recommend that the submission received in support are accepted in part.

3.5.4.3 Summary of recommendations

176. I recommend that the submissions of ECan [316.60] is **accepted in part**.
177. Given the changes I am recommending, I recommend that the submissions in support of NH-O4 as set out in Appendix B are **accepted in part**.

3.5.4.4 Recommended changes to the District Plan

178. Amend Objective NH-O4 as follows:

Natural ~~defences~~ features

Natural ~~defences~~ features and systems are maintained to reduce the susceptibility of people, communities and property and infrastructure from natural hazard events.

179. Amend NH-P17(4) as follows:

4. it avoids the modification or alteration of natural ~~defences~~ features and systems in a way that would compromise their function as natural defences; and...

180. My s32AA assessment is contained in Appendix C, Table C1 and C5.

3.5.5 New Objective NH-OX – Climate change

3.5.5.1 Matters raised by submitters

181. ECan [316.61] requests an additional objective or amendments to existing objectives are required to recognise and provide for the effects of climate change and to give better effect to Chapter 11 of the CRPS (Objective 11.2.3).

3.5.5.2 Assessment

182. I note that the natural hazards chapter includes consideration of the effects of climate change as evidenced by the flood modelling which includes allowances for changes in rainfall intensity, and in NH-S1 and NH-S2, which calculate minimum finished floor levels with reference to sea level rise. However, I note that climate change is not explicitly referred to at the objective level and consider that this would be appropriate. I therefore recommend accepting ECan's [316.61] submission and including a new objective as set out in Appendix A and below under recommended changes to the District Plan. I did consider amending NH-O1 as an alternative to inserting a new objective, however I note NH-O2 covers infrastructure and climate change considerations also apply to infrastructure. Having a separate climate change objective enables it to also apply to infrastructure.

3.5.5.3 Summary of recommendations

183. I recommend that the submission of ECan [316.61] is **accepted**.

3.5.5.4 Recommended changes to the District Plan

184. Add a new objective as follows:

"NH-O5 - Climate change

The effects of climate change, and its influence on sea levels and the frequency and severity of natural hazards, are recognised and provided for."

185. My s32AA assessment is contained in Appendix C, Table C1.

3.6 Policies

3.6.1 Policy NH-P1 – Identification of natural hazards and a risk-based approach

3.6.1.1 Matters raised by submitters

186. Thirteen submissions were received on NH-P1. Twelve submissions were in support, while one submission by Summerset [207.11] sought amendments. Summerset supports the intent to ensure that life and property is protected from natural hazard risks but is concerned that the policy (and associated rule approach) provides no certainty over the level of management that will be applied to any development. They consider Policy NH-P1 refers to 'the sensitivity of the building occupation' but does not clearly outline what types of activities this is aimed at and how consistency of approach will be ensured through arbitrary consideration of different activities. No suggested wording is provided. The submission also states that the policy implies that all natural hazards will be identified and shown as overlays, but the high hazard areas are not shown on any overlays. The submitter considers that these are needed to provide certainty for landowners.

3.6.1.2 Assessment

187. Policy NH-P1 essentially applies a risk-based approach to the management of natural hazards. Risk is a product of consequence x likelihood. Consequence is defined as the most probable result of the potential incident (NH-P1(1)) while likelihood is the probability that something might happen (NH-P1(2)). I note that 'hazard sensitive activities' is defined, thereby identifying

the types of activities the provisions are aimed at. I consider that consistency can be achieved through the application of the specified standards and activity standards. It is my understanding that the provision of flood assessment certificates involves a standardised assessment of published flood modelling. I therefore consider that there is sufficient clarity across the provisions as a whole to interpret and apply a risk-based approach and consider it is not necessary to do this solely within NH-P1.

188. With regard to identifying all natural hazards, the overlays clearly do not do this and indeed would not be able to as natural hazards such as wind, ice, fire and earthquakes have not been mapped and indeed would apply across the whole district in any case. I consider the Policy does not state all natural hazards are mapped but that mapping is a tool that will be used. Regarding identifying high hazard areas on the overlays, it is accepted that these do not show areas of high hazard. They do however show areas susceptible to flooding. The reason why the flood assessment overlays do not identify high flood hazard areas has been discussed earlier under the 'high flood hazard' definition in response to a submission from Summerset [207.3] and will not be repeated here.
189. For the reasons identified above, I recommend that this submission is rejected.

3.6.1.3 Summary of recommendations

190. That the submission by Summerset [207.11] is **rejected**.
191. I recommend that the submissions in support of NH-P1 as set out in Appendix B are **accepted**.

3.6.2 Policy NH-P2 – Activities in high hazard areas for flooding within urban areas

3.6.2.1 Matters raised by submitters

192. Ten submissions were received on NH-P2. Eight submissions were received in support while two submissions sought amendments, raising the following matters:
- Alignment with the CRPS;
 - Consistency between NH-P2(1) and NH-P4(2) with respect to avoidance and mitigation.
193. The submission by ECan [316.63] states that this policy requires management of activities within high flood hazard areas, but that development that increases risk should be avoided in the first instance in order to align with the hierarchy established in the Canterbury Regional Policy Statement. They seek the amendment of NH-P2 to require avoidance of risk in the first instance.
194. Summerset [207.12] support NH-P2's approach to apply minimum floor heights to manage flooding risk. However, they consider that there are some inconsistencies with NH-P4 that set a more stringent expectation on areas outside high hazard areas than those within high hazard areas. For example NH-P2 (1) requires risk is mitigated while the NH-P4 (2) states to avoid. They seek to retain the intent of NH-P2 but amend to ensure that higher tests are applied to the high hazard areas. They suggest swapping 'mitigate' with 'avoid'.

3.6.2.2 Assessment

195. The submission by ECan seeking 'avoidance' in the first instance is consistent with their comments on NH-O1. I acknowledge that CRPS Policy 11.3.1 applies an 'avoid development

unless' approach, with the 'unless' instances specified in clauses 1 to 7. However, as indicated earlier, CRPS policy 11.3.1(5) and 11.3.1(6) explicitly recognise that development within existing identified urban areas can be mitigated or avoided in high hazard areas, leaving it up to the Councils to apply as appropriate in their districts. NH-P2 is purposefully narrowly focussed to the situation described in CRPS policy 11.3.1(5) and 11.3.1(6), as opposed to the other subclauses or chapeau - it only covers high hazard flooding in urban areas. I consider that the 'manage' approach to urban areas in PDP Policy NH-P2 is consistent with CRPS policy 11.3.1(5) and 11.3.1(6) where avoidance is not mandated. While I consider NH-P2 does give effect to CRPS Policy 11.3.1, I also accept that in some instances it may be better to avoid development in high hazard areas. I therefore recommend that NH-P2 should be reworded to also enable an 'avoidance' approach if the circumstances warrant it. I therefore recommend that the submission from ECan [316.63] is accepted and Policy NH-P2 is reworded as set out in Appendix A and below under recommended changes to the District Plan.

196. With regard to the Summerset submission, it is accepted that there appears to be a difference in approach between NH-P2(1) and NH-P4(2), with the latter seeking to avoid risk to life and potential for building damage from flooding in non-urban areas through the application of minimum floor levels. In my opinion it is more accurate to say that in this situation the hazard has been mitigated, rather than avoided, as there may still be some residual risk, despite the floor level being above the flood height. I consider that amending NH-P4(2) to refer to 'mitigate' would resolve the inconsistency identified in the submission. I do not think it is appropriate to apply an avoid approach in Policy NH-P2(1) for the reasons provided in response to ECan's submission on Policy NH-P2.

3.6.2.3 Summary of recommendations

197. I recommend that the submission by ECan [316.63] **is accepted in part**.
198. I recommend that the submission from Summerset [207.12] is **accepted in part**.

3.6.2.4 Recommended changes to the District Plan

199. Amend NH-P2 as follows:

NH-P2 Activities in high hazard areas for flooding within urban areas

Avoid or mitigate adverse effects arising from ~~Manage~~-subdivision, use and development for natural hazard sensitive activities within high flood hazard and high coastal flood hazard urban environments to ensure that:

....

200. Amend NH-P4(2) as follows:

...

2. minimum floor levels are incorporated into the design of development to ensure building floor levels are located above the flood level so that the risk to life and potential for building damage from flooding is mitigated ~~avoided~~; and

...

165. My s32AA assessment is contained in Appendix C, Table C2.

3.6.3 Policy NH-P3 – Activities in high hazard areas for flooding outside of urban areas

3.6.3.1 Matters raised by submitters

201. Ten submissions were received on NH-P3. Nine submissions were received in support, while ECan [316.64] sought the removal of the reference to 'significant' flood displacement effects. ECan considers that it is inappropriate to anticipate that flood displacement up to a 'significant' level may be acceptable (NH-P3(2)). They consider that 'less than minor' or 'insignificant' may be more appropriate, noting that NH-O4 and Policy NH-P15 suggests that 'significant' is too much. They seek the retention of NH-P3 except for reference to 'significant' flood displacement effects. I note that ECan also made a general submission [316.49] seeking to align the chapters policies and rules to manage offsite flood effects, including the conveyance of floodwaters or reduction in flood storage capacity and specifically referred to NH-P2, NH-P3, NH-P4 and NH-P7.

3.6.3.2 Assessment

202. The term 'significant' was included as there will likely always be some changes in flood risk to adjacent properties, such as through minor increases in flood water displacement or minor changes in flow paths. I agree with the submitter that risk changes up to but below significant may be unacceptable at the upper end of the spectrum. Consistent with my recommendations in relation to the general submission from ECan [316.49] I agree that the NH-P3(2) should be reworded as set out in Appendix A to replace the reference to 'significant' with a reference to 'no more than minor'. These changes are included in section 3.2 in response to ECan submission [316.49].

3.6.3.3 Summary of recommendations

203. That the submission from ECan [316.64] is **accepted**.

204. Given the changes I am recommending to NH-P3, I recommend that the submissions in support of NH-P3 as set out in Appendix B **are accepted in part**.

3.6.4 Policy NH-P4 Activities outside of high hazard areas for flooding

3.6.4.1 Matters raised by submitters

205. Ten submissions were received on NH-P4. Eight submissions were received in support, while two submissions sought amendments, raising the following:

- Consistency in approach for the conveyance of flood waters;
- Consistency between NH-P2 and NH-P4 in relation to high hazard areas.

206. ECan [316.65] state that Policies NH-P2, P3 and P4 all refer to the risk from flooding to surrounding properties and the conveyance of flood waters in an inconsistent fashion. This is consistent with their general submission [316.49] and their submission on NH-P3 [316.64]. They state that NH-P7 does not refer to the conveyance of floodwater which appears to be another inconsistency. They consider EW-R5 only manages earthworks within an overland flow path as opposed to managing all earthworks that could reduce storage capacity and increase risk to neighbouring properties. They seek to align consistency between NH-P4 and the earthworks rules.

207. Summerset [207.43] support NH-P4 approach to apply minimum floor heights to manage flooding risk. However, they consider there are some inconsistencies with NH-P2 in that NH-P4 sets a more stringent expectation on areas outside high hazard areas than those within high hazard areas. For example NH-P2 (1) requires risk is mitigated while the NH-P4 (2) states to avoid. Summerset requests retention of the intent of NH-P4 but that it is amended to ensure that the higher tests are applied to the high hazard areas. They suggest swapping 'mitigate' with 'avoid'.

3.6.4.2 Assessment

208. Regarding the ECan submission, consistent with my recommendations in relation to the general submission from ECan [316.49], I agree that the NH-P4(2) should be reworded as set out in Appendix A to replace the reference to 'significant' with a reference to 'no more than minor'. This will help improve consistency across the identified policies. These changes are included in section 3.2 in response to ECan submission [316.49].

209. Regarding the Summerset submission, this was addressed under NH-P2 where it was recommended that the Summerset submission [207.12] is accepted in part by amending NH-P4(2) to refer to 'mitigate'.

3.6.4.3 Summary of recommendations

210. I recommend that the submission from ECan [316.65] is **accepted in part**.

211. I recommend that the submission from Summerset [207.43] is **accepted**.

212. Given the changes I am recommending to NH-P4, I recommend that the submissions in support of NH-P4 as set out in Appendix B are **accepted in part**.

213. My s32AA assessment is contained in Appendix C, Table C2.

3.6.5 Policy NH-P5 Activities within the Fault Awareness Overlay and Ashley Fault Avoidance Overlay

3.6.5.1 Matters raised by submitters

214. Eight submissions were received on NH-P5. Four submissions were received in support, while four were neutral, seeking no changes.

3.6.5.2 Assessment

215. No assessment is required as there were no submissions seeking changes.

3.6.5.3 Summary of recommendations

216. I recommend that the submissions in support of NH-P5 as set out in Appendix B are **accepted**.

217. I recommend that no change be made to the Proposed Plan.

3.6.6 Policy NH-P6 Subdivision within the Liquefaction Hazard Overlay**3.6.6.1 Matters raised by submitters**

218. Nine submissions were received in support of NH-P6.

3.6.6.2 Assessment

219. No assessment is required as there were no submissions seeking changes.

3.6.6.3 Summary of recommendations

220. I recommend that the submissions in support of NH-P6 as set out in Appendix B **are accepted**.

221. I recommend that no change be made to the Proposed Plan.

3.6.7 Policy NH-P7 - Additions to existing natural hazard sensitive activities**3.6.7.1 Matters raised by submitters**

222. Ten submissions were received on NH-P7. Nine submissions were received in support, while one submission from ECan [316.68] was received concerning reference to 'significant' risk increases. ECan state that the third part of the NH-P7 requires demonstration that additions to buildings do not significantly increase the risk from the natural hazard to adjacent properties, activities and people. For better alignment with Objective 11.3.5 of the CRPS, ECan considers a lower threshold of less than minor changes in risk to other land etc may be more appropriate to ensure the risk from the natural hazard is acceptable in regard to other land, activities, people. ECan therefore requests a change in the language of NH-P7(3) such that where assessing any increase in the risks of a natural hazard to adjacent properties activities and people, the threshold is less than minor rather than not significantly increased.

3.6.7.2 Assessment

223. This submission is consistent with the general submission from ECan [316.49], and the specific submissions in relation to NH-P3 and NH-P4. For the reasons provided in response to those submissions I consider that a reference to 'no more than minor' would be more appropriate and therefore recommend that this submission is accepted in part. I therefore recommend that NH-P7(3) is reworded as set out in Appendix A and in the recommended changes to the District Plan section below.

3.6.7.3 Summary of recommendations

224. I recommend that the submission from ECan [316.68] is **accepted in part**.

225. Given the changes I am recommending to NH-P7, I recommend that the submissions in support of NH-P7 as set out in Appendix B are **accepted in part**.

3.6.7.4 Recommended changes to the District Plan

226. Amend NH-P7(3) as follows:

...

the risk from the natural hazard to on surrounding properties and people is not significantly increased no more than minor.

227. My s32AA assessment is contained in Appendix C, Table C2.

3.6.8 Policy NH-P8 Subdivision, use and development other than for any natural hazard sensitive activities

3.6.8.1 Matters raised by submitters

228. Eight submissions were received on NH-P8. Four submissions were received in support and four were neutral.

3.6.8.2 Assessment

229. No assessment is required as there were no submissions seeking changes.

3.6.8.3 Summary of recommendations

230. I recommend that the submissions in support of NH-P8 as set out in Appendix B are **accepted**.

231. I recommend that no change be made to the Proposed Plan.

3.6.9 Policy NH-P9 Community scale natural hazard mitigation works

3.6.9.1 Matters raised by submitters

232. Ten submissions were received on NH-P9. Three submissions were received in support, four were neutral, and three sought amendments to:

- Include references to SNAs;
- Enable non-community scale / private hazard mitigation works.

233. DoC [419.58] supports NH-P9 but considers that Significant Natural Areas should be included in the list of mapped areas that need to be protected. They request that 'SNA' is added to NH-P9 as follows:

"1. undertaken by the Crown, the Regional Council or the District Council are enabled where community scale natural hazard mitigation works are necessary to protect existing communities from natural hazard risk which cannot reasonably be avoided, and any adverse effects on the values of any identified SNA, ONL, ONF, SAL, scheduled natural character areas, the coastal environment, and Sites and Areas of Significance to Māori are mitigated;
or

2. not undertaken by the Crown, the Regional Council or the District Council, will only be acceptable where:

a. the natural hazard risk cannot reasonably be avoided;

b. any adverse effects of those works on the values of any areas identified as SNA, ONL, ONF, SAL, scheduled natural character areas and the coastal environment, and on sites and areas of significance to Māori are avoided, remedied or mitigated in accordance with the provisions in those chapters;

..."

234. MoE [277.28] considers it is unclear if works undertaken by the Crown (including MoE) are encapsulated by this Policy and this should be clarified. They consider that the intent appears to be directed at community scale natural hazard mitigation works however the actual wording of the policy is directed at all natural hazard mitigation works. If the provision does relate to natural hazard mitigation works in general, prohibiting the construction of private flood mitigation measures such as stopbanks, or floodwalls to protect new hazard sensitive activities seems excessive. They consider that private flood mitigation measures should be restricted but not prohibited as they may be required for educational activities which may be located in growth areas in townships such as Rangiora, Ravenswood/Woodend and Ohoka which have multiple waterways and low lying areas of land. They seek to clarify the intent of the policy and if it is directed at all natural hazard mitigation works, then private flood mitigation measures such as stopbanks, or floodwalls to protect new hazard sensitive activities should be restricted and not avoided.
235. 199 Johns Road Ltd, Carolina Homes Ltd, Carolina Rental Homes Ltd, Allan Downs Ltd [266.15] oppose NH-P9(2)(d) as a stop bank (bund) is required to enable residential development at 163, 191, 199 and 203 Johns Road, Rangiora for flood mitigation along its western boundary, in conjunction with raising section levels, to protect it from the Ashley River breakout. The submitters state the existing Townsend Fields development relies on flood mitigation works to enable residential/sensitive activities and has a bund that was expected to be temporary until it could be moved west and enable protection of the site. They consider that the entire West Rangiora Development Area will require flood protection via a Lehmans Road community-scale bund. However, as Council cannot currently fund this, private, developer-led mitigation measures will be needed in the interim, which are also required under the certification process. They consider that due to the site's bund's temporary nature it would need to be located on private land, rather than vested as utility reserve. However, NH-P9(2)(d) would preclude such mitigation works. They seek NH-P9 is amended otherwise development cannot occur in the West Rangiora Development Area until Council finds funding by other means to construct the West Rangiora Lehmans Road flood protection within the corridor provided on the West Rangiora Outline Development Plan.

3.6.9.2 Assessment

236. Regarding the submission by DoC, I agree that SNAs should be included within the clauses 1 and 2 as a matter to address. There are relatively few SNAs within the District and it is reasonable to require consideration of adverse effects on these matters of national importance when natural hazard mitigation works are proposed and the policy is triggered. I therefore recommend that NH-P9 is amended as set out in Appendix A and in the recommended changes to the District Plan section below.
237. Regarding the MoE submission, the policy is intended to cover both community scale (clause 1) and non-community scale (clause 2) hazard mitigation works. Works undertaken by MoE would be considered as community scale and covered by NH-R8, NH-R9 and NH-R10, none of which prohibit this activity (RDIS is the highest activity status). I note that the title of NH-P9 is incorrect as it refers to community scale natural hazard works, however the policy also covers works that are not community scale (clause 2). I therefore recommend that the title is amended as set out in Appendix A and below under recommended changes to the District Plan. I therefore recommend that this submission is accepted in part in relation to clarity and intent.

238. The remainder of MoE's submission states that prohibiting the construction of private flood mitigation measures such as stopbanks, or floodwalls to protect new hazard sensitive activities seems excessive and that private flood mitigation measures should be restricted but not prohibited. This is also the thrust of the submission by 199 Johns Road Ltd, Carolina Homes Ltd, Carolina Rental Homes Ltd, Allan Downs Ltd (266.15), although they do not specify whether these activities should be permitted or discretionary.
239. I note that ECan supported NH-P9 as they considered it was consistent with the CRPS. CRPS Policy 11.3.1(3) seeks the avoidance of development in high hazard areas unless, among other matters, the development is not likely to require new or upgraded hazard mitigation works to mitigate or avoid the natural hazard. This policy is restricted to high hazard areas rather than areas subject to lower levels of flooding. CRPS Policy 11.3.2 which covers other flooding does not specify restrictions on hazard mitigation works. The principal reasons and explanation to Policy 11.3.2 refers to the use of stopbanks stating that:
- "It is intended that the policy, including clauses (1) to (3) will apply to all development irrespective of the existence of stop-banks. Although stop-banks can offer some protection from flood events, they do not eliminate the risk of inundation in the event of a flood. A stop-bank is likely to be overtopped or breached by a flood event exceeding the level that it is designed to mitigate, but it can also be breached in smaller flood events, resulting in the inundation of areas behind the stop-bank."*
240. As such, it would appear that Policy NH-P9 is more consistent with CRPS Policy 11.3.1(3) for high hazard areas, however this is less so for other areas that flood under CRPS Policy 11.3.2. Certainly under both policies the use of stopbanks appears to be discouraged because it does not fully mitigate the flood risk. I note that NH-R13 makes the upgrading or construction of new non-community scale natural hazard mitigation works a discretionary activity as opposed to non-complying, while NH-R20 makes this non-complying in the coastal flood assessment overlay. Given the higher order policy framework, PDP rules and the requirement to still meet the minimum finished floor levels, I recommend that policy NH-P9 is amended so that private schemes are only acceptable where these don't result in significant risk to life or property if they fail. These changes are set out in Appendix A and the recommended amendments to the District Plan below.

3.6.9.3 Summary of recommendations

241. I recommend that the submission from DoC [419.58] is **accepted**.
242. I recommend that the submission from MoE [277.28] is **accepted in part**.
243. I recommend that the submission from 199 Johns Road Ltd, Carolina Homes Ltd, Carolina Rental Homes Ltd, Allan Downs Ltd [266.15] is **accepted in part**.
244. Given the changes I am recommending to NH-P9, I recommend that the submissions in support of NH-P9 as set out in Appendix B are **accepted in part**.
245. My recommendations in relation to further submissions reflect the recommendations on the relevant primary submission.

3.6.9.4 Recommended changes to the District Plan

246. Amend NH-P9(d) as follows:

- d. ~~the mitigation works do not involve the construction of private flood mitigation measures such as stopbanks, or floodwalls to protect new hazard sensitive activities as these works could result in significant residual risk to life or property if they fail.~~

247. My s32AA assessment is contained in Appendix C, Table C3.

3.6.10 Policy NH-P10 Maintenance and upgrading of existing infrastructure

3.6.10.1 Matters raised by submitters

248. Twelve submissions were received on NH-P10. Eleven submissions were received in support, while one submission from Transpower [195.57] sought the replacement of 'allow' with 'enable'. Transpower generally supports NH-P10 but considers the term 'allow' may imply something less than 'enable' and thus NH-P10 would not give effect to the National Policy Statement on Electricity Transmission Policies 2 and 5. They request the replacement of 'allow' with 'enable' as follows:

Amend NH-P10:

"~~Enable~~ Allow for the operation, maintenance, replacement, minor upgrading, repair and removal of all existing infrastructure in identified natural hazard overlays."

3.6.10.2 Assessment

249. I accept that NPSET Policy 5 does use the term 'enable' with respect to "...the reasonable operational, maintenance and minor upgrade requirements of established electricity transmission assets". The intention behind the word 'allow' was to both 'enable' and 'recognise and provide for' the specified activities in Policy NH-P10. As such, I am comfortable replacing the word 'allow' with 'enable' to resolve the submitters concerns and therefore recommend that their submission is accepted.

3.6.10.3 Summary of recommendations

250. I recommend that the submission from Transpower [195.57] is **accepted**.

251. Given the changes I am recommending to NH-P10, I recommend that the submissions in support of NH-P10 as set out in Appendix B are **accepted in part**.

3.6.10.4 Recommended changes to the District Plan

252. Amend NH-P10 as follows:

Maintenance and operation of existing infrastructure

~~Allow for~~ Enable the operation, maintenance, replacement, minor upgrading, repair and removal of all existing infrastructure in identified natural hazard overlays.

253. I consider this amendment is minor and does not change the intent or meaning of the policy and as such no s32AA assessment is required.

3.6.11 Policy NH-P11 New below ground infrastructure and upgrading of infrastructure outside of high hazard areas**3.6.11.1 Matters raised by submitters**

254. Ten submissions were received in support of NH-P11. No other submissions were received.

3.6.11.2 Assessment

255. No assessment is required as there were no submissions seeking changes.

3.6.11.3 Summary of recommendations

256. I recommend that the submissions in support of NH-P11 as set out in Appendix B are **accepted**.

257. I recommend that no change be made to the Proposed Plan.

3.6.12 Policy NH-P12 New below ground infrastructure and upgrading of infrastructure within high flood hazard areas**3.6.12.1 Matters raised by submitters**

258. Ten submissions were received on NH-P12. Five submissions were received in support of NH-P12 and four were neutral. One submission, from Waimakariri Irrigation Limited [210.6], sought amendments. Waimakariri Irrigation Limited support the intent of NH-P12 to provide for new and upgraded infrastructure in high flood hazard areas where there is a functional or operational need for that location. However, they consider it inappropriate that the policy requires that there are no practical alternatives, particularly in the case of existing below ground infrastructure and consider it would be inappropriate to have to prove that there are no practical alternatives to upgrades whenever undertaking those works. They seek to amend NH-P12(3) to delete the requirement that there be no practical alternatives:

"...

3. there is a functional need or operational need for the infrastructure to be located in a high flood hazard or high coastal flood hazard area ~~and there are no practical alternatives~~; and

..."

259. I note this submission from Waimakariri Irrigation Limited was incorrectly summarised in the submissions summary as "Neutral on NH-P12."

3.6.12.2 Assessment

260. The principal outcomes being sought by NH-P12 are:

- a. not affecting overland flow paths or transferring hazard risk to other properties (clauses 1 and 2); and
- b. addressing impacts on the infrastructure itself (clauses 3 and 4).

261. CRPS Policy 11.3.4 states that new critical infrastructure will be located outside high hazard areas unless there is no reasonable alternative, and in relation to all areas, critical infrastructure must be designed to maintain, as far as practicable, its integrity and function during natural hazard events. The reference to 'no practical alternatives' in Policy NH-P12 is similar to the

CRPS requirement to demonstrate the absence of 'reasonable alternatives'. I note however, that unlike CRPS 11.3.4, NH-P12 is not limited to critical infrastructure. It is however limited to below ground infrastructure which is less likely to be adversely affected in a flood hazard event. Noting these matters, in my opinion, removal of the requirement to demonstrate that there are no practical alternatives is acceptable for this policy. I therefore recommend this submission is accepted.

3.6.12.3 Summary of recommendations

262. I recommend that the submission from Waimakariri Irrigation Limited [210.6] **is accepted**.
263. Given the changes I am recommending to NH-P12, I recommend that the submissions in support of NH-P12 as set out in Appendix B are **accepted in part**.
264. My recommendations in relation to further submissions reflect the recommendations on the relevant primary submission.

3.6.12.4 Recommended changes to the District Plan

265. Amend NH-P12(3) as follows:

there is a functional need or operational need for the infrastructure to be located in a high flood hazard or high coastal flood hazard area ~~and there are no practical alternatives~~; and

266. My s32AA evaluation is contained in Appendix C, Table C4.

3.6.13 Policy NH-P13 New above ground critical infrastructure and upgrading of critical infrastructure within high flood hazard areas

3.6.13.1 Matters raised by submitters

267. Fourteen submissions were received on NH-P13. Eight submissions were received in support, four submissions were neutral and two submissions sought amendments. For the two submissions seeking amendments, these sought:

- Removal of the requirement to demonstrate there is no practical alternative;
- Clarification that linear infrastructure can have a functional or operational need to establish.

268. Transpower [195.58] supports NH-P13, however they do not support the requirement that upgraded or new critical infrastructure may only locate in high flood hazard areas where there is no practical alternative. Transpower consider 'no practical alternative' is broad and subjective. They consider it is likely that there is always an alternative but this might not be preferred for any number of reasons, and this test is not necessary when the risk is adequately addressed by the considerations required by (2) and (3). They seek to amend NH-P13 as follows:

"Only allow for the new and upgrading of existing above ground critical infrastructure in high flood hazard or high coastal flood hazard areas where:

1. there is a functional need or operational need for that location ~~and there are no practical alternatives~~;

..."

269. Waka Kotahi [275.22] supports NH-P13 but seeks an amendment to recognise that due to the linear nature of some infrastructure, such as roading, it may not be practicable, or sometimes not possible, to avoid crossing flood affected areas. They seek that NH-P13 is amended as follows:

"Only allow for the new and upgrading of existing above ground critical infrastructure in high flood hazard or high coastal flood hazard areas where:

1. there is a functional need or operational need for that location, including as a result of the linear nature of some infrastructure, and there are no practical alternatives;

..."

3.6.13.2 Assessment

270. Regarding Transpower's submission, as per the assessment under NH-P12, CRPS Policy 11.3.4 states that new critical infrastructure will be located outside high hazard areas unless there is no reasonable alternative, and in relation to all areas, critical infrastructure must be designed to maintain, as far as practicable, its integrity and function during natural hazard events. The reference to 'no practical alternatives' in Policy NH-P12 is similar to the CRPS requirement to demonstrate the absence of 'reasonable alternatives'. I note Transpower's argument that this 'no practical alternatives' test is not necessary when the risk is adequately addressed by the considerations required by clause 2 (which seeks that the location and design of the infrastructure addresses relevant natural hazard risk and appropriate measures have been incorporated into the design to provide for the continued operation) and clause 3 (which seeks that the risk is not exacerbated or transferred). I note that clause 2 is similar to the second half of CRPS Policy 11.3.4, while clause 3 has no explicit corresponding clause in CRPS Policy 11.3.4.
271. The principal reasons and explanations to CRPS Policy 11.3.4 explain why critical infrastructure needs to demonstrate there are no reasonable alternatives and also requires demonstration that the infrastructure can continue to function during a natural hazard event. It states:

The policy seeks to ensure that critical infrastructure is not placed as a matter of course in areas subject to significant natural hazard exposure. If the infrastructure is critical, it should not be exposed to such hazard events. However, the policy also recognises that there may be extenuating factors, such as availability of land, engineering problems, cost factors, or structure type (i.e. bridges are usually placed in areas subject to flooding), that mean there is no option but to locate the critical infrastructure within a high hazard area. Where such locations are the only option, the infrastructure must be designed to ensure the network maintains its ability to function during a natural hazard event. By its very nature, critical infrastructure provides a service which must be able to be immediately reinstated in the event of a failure.

272. In my opinion it is appropriate to require critical infrastructure to demonstrate that there are no reasonable alternatives in NH-P13 and I consider this is consistent with CRPS Policy 11.3.4. For consistency with the CRPS and with NH-P14 I recommend that 'no practical alternatives' is replaced with the phrase 'no reasonable alternatives' which I consider is a lessor test. I therefore recommend that this submission is accepted in part.
273. With regard to the Waka Kotahi submission, in my opinion the linear nature of some infrastructure is a good example of a functional or operational need to locate in a high hazard

area. I do not think the additional words are required, however they do add clarity and therefore I recommend this submission is accepted.

3.6.13.3 Summary of recommendations

274. I recommend that the submission from Transpower [195.58] is **accepted in part**.
275. I recommend that the submission from Waka Kotahi [275.22] is **accepted**.
276. Given the changes I am recommending to NH-P13, I recommend that the submissions in support of NH-P13 as set out in Appendix B are **accepted in part**.
277. My recommendations in relation to further submissions reflect the recommendations on the relevant primary submission.

3.6.13.4 Recommended changes to the District Plan

278. Amend NH-P13(1) as follows:

3. there is a functional need or operational need for that location, including as a result of the linear nature of some infrastructure, and there are no ~~practical~~ reasonable alternatives;

279. I consider this amendment is minor and does not change the intent or meaning of the policy and as such no s32AA assessment is required.

3.6.14 Policy NH-P14 New infrastructure and upgrading of infrastructure within fault overlays

3.6.14.1 Matters raised by submitters

280. Twelve submissions were received on NH-P14. Four submissions were received in support, four were neutral and four sought amendments to enable consideration of operational and functional requirements, remove the reference to 'no reasonable alternative', remove the distinction between small scale and other infrastructure and fix a spelling mistake.
281. ECan [316.72] considers that there is a spelling mistake in NH-P14(1). They seek the amendment of NH-P14 as follows:

"1. provide for new and upgrading of existing ~~not~~ non-critical infrastructure.

... "

282. Transpower [195.59] oppose NH-P14, in particular clause (2), because it imposes an uncertain test of "no reasonable alternative", noting that alternatives may exist but may not be preferred for other reasons. The requirement to 'avoid' upgrading within the Ashley Fault Avoidance Zone could compromise critical infrastructure by resulting in strengthening and preparedness works not being undertaken. They seek NH-P14 be amended as follows:

"Within the fault overlays:

...2. only allow ~~avoid~~ new and upgrading of existing critical infrastructure below and above ground in the Ashley Fault Avoidance Overlay where ~~unless there is no reasonable alternative, in which case the infrastructure is~~ must be designed to:

a. maintain, as far as practicable, its integrity and ongoing operation during and after natural hazard events; or

b. be able to be reinstated in a timely manner;

..."

283. Waimakariri Irrigation Ltd [210.7] state that a number of races cross mapped fault overlays, and will require upgrading within the life of the plan and it is important that the direction in NH-P14 is both clear and sensible in its application. The submitter considers that the distinctions between types of infrastructure in this policy is confusing and unnecessary and seeks the following amendment to NH-P14(3):

"...

3. enable ~~small scale critical infrastructure and other infrastructure~~ in the Fault Awareness Overlay, while ensuring that larger critical infrastructure does not increase the risk to life or property from natural hazard events unless:

..."

284. MainPower [249.172] support NH-P14 in principle but seek amendments to specifically recognise the operational need and functional need of critical infrastructure to locate in identified fault avoidance areas. They seek the following amendments:

Amend NH-P14:

"Within the fault overlays:

1. provide for new and upgrading of existing non critical infrastructure below and above ground in the Ashley Fault Avoidance Overlay where:

a. it does not increase the risk to life or property from a natural hazard event; and

b. it does not result in a reduction in the ability of people and communities to recover from a natural hazard event;

2. avoid new and upgrading of existing critical infrastructure below and above ground in the Ashley Fault Avoidance Overlay unless there is no reasonable alternative or there is an operational need or functional need, in which case the infrastructure must be designed to:

a. maintain, as far as practicable, its integrity and ongoing operation during and after natural hazard events; or

b. be able to be reinstated in a timely manner;

3. enable small scale critical infrastructure and other infrastructure in the Fault Awareness Overlay, while ensuring that larger critical infrastructure does not increase the risk to life or property from natural hazard events unless:

a. there is no reasonable alternative or there is an operational or functional need, in which case the infrastructure must be designed to maintain, as far as practicable, its integrity and ongoing operation during and after natural hazard events; or

b. be able to be reinstated in a timely manner."

3.6.14.2 Assessment

285. Regarding ECan's submission, the amended wording is preferable and does not change the meaning. I therefore recommend NH-P14 is amended as requested, as set out in Appendix A and in my recommended changes to the District Plan, however I note that the online version already reads as 'non critical', so either the submitter is incorrect or this has already been changed through an RMA Clause 16(2) amendment.
286. Regarding Transpower's submission, as set out earlier under the assessment for NH-P13, CRPS Policy 11.3.4 states that new critical infrastructure will be located outside high hazard areas unless there is no reasonable alternative, and in relation to all areas, critical infrastructure must be designed to maintain, as far as practicable, its integrity and function during natural hazard events. The reference to 'no reasonable alternatives' in Policy NH-P14 therefore gives effect to the CRPS requirement to demonstrate the absence of 'reasonable alternatives'. In my opinion it is therefore appropriate to require critical infrastructure to demonstrate that there are 'no reasonable alternatives' in NH-P14. I consider that linear infrastructure should be able to demonstrate the lack of reasonable alternatives. I therefore recommend that this submission is rejected.
287. Regarding the submission by Waimakariri Irrigation Ltd, NH-P14 seeks to enable small scale critical infrastructure in fault awareness overlays as these types of infrastructure are less likely to suffer significant damage in the event of a fault rupture and also in recognition of linear infrastructure such as transmission lines that have only small structures. As such, I consider this distinction is useful and I note is consistent with Rule NH-R6 which provides as a permitted activity new or extensions to existing critical infrastructure if the footprint is less than 100m². Critical Infrastructure larger than this defaults to an RDIS category. Whilst I note that there is no definition of 'small scale' or 'larger scale', I do not agree with the submitter that the distinctions between types of infrastructure in this policy is confusing to the point that the proposed amendments are required. I consider it is understandable. As such I recommend that this submission is rejected.
288. Regarding MainPower's submission, as set out above, CRPS Policy 11.3.4 states that new critical infrastructure will be located outside high hazard areas unless there is no reasonable alternative and also requires demonstration that the infrastructure can continue to function during a natural hazard event. I accept that there are often operational and functional reasons as to why critical infrastructure needs to locate within certain areas and indeed this is recognised within other natural hazards policies such as NH-P13(1). I consider it appropriate to add this consideration to NH-P14. However, given the express wording in the CRPS for high hazard areas, I do not recommend adding consideration of operational and functional need as an alternative to 'practical alternatives' in clause NH-P14(2), but rather adding it as an addition by including the word 'and'. However, I am comfortable adding it as an alternative for infrastructure in a fault awareness (as opposed to avoidance) overlay in clause NH-P14(3)(a). I therefore recommend accepting the submission in part, with my recommended wording contained in Appendix A and below under recommended changes to the District Plan.

3.6.14.3 Summary of recommendations

289. I recommend that the submission from ECan [316.72] is **accepted**.

290. I recommend that the submission from Transpower [195.59] is **rejected**.
291. I recommend that the submission from Waimakariri Irrigation Ltd [210.7] is **rejected**.
292. I recommend that the submission from MainPower [249.172] is **accepted in part**.
293. Given the changes I am recommending to NH-P14, I recommend that the submissions in support of NH-P14 as set out in Appendix B are **accepted in part**.
294. My recommendations in relation to further submissions reflect the recommendations on the relevant primary submission.

3.6.14.4 Recommended changes to the District Plan

295. Amend NH-P14 as follows:

"Within the fault overlays:

1. provide for new and upgrading of existing not ~~new~~ critical infrastructure below and above ground in the Ashley Fault Avoidance Overlay where:

- a. it does not increase the risk to life or property from a natural hazard event; and*
- b. it does not result in a reduction in the ability of people and communities to recover from a natural hazard event;*

2. avoid new and upgrading of existing critical infrastructure below and above ground in the Ashley Fault Avoidance Overlay unless there is an operational need or functional need and no reasonable alternative, in which case the infrastructure must be designed to:

- a. maintain, as far as practicable, its integrity and ongoing operation during and after natural hazard events; or*
- b. be able to be reinstated in a timely manner;*

3. enable small scale critical infrastructure and other infrastructure in the Fault Awareness Overlay, while ensuring that larger critical infrastructure does not increase the risk to life or property from natural hazard events unless:

- a. there is an operational or functional need or there is no reasonable alternative, in which case the infrastructure must be designed to maintain, as far as practicable, its integrity and ongoing operation during and after natural hazard events; or*
- b. be able to be reinstated in a timely manner."*

296. My s32AA evaluation is contained in Appendix C, Table C4.

3.6.15 Policy NH-P15 Natural features providing natural hazard resilience

3.6.15.1 Matters raised by submitters

297. Nine submissions were received on NH-P15. Four submissions were received in support of NH-P15 and five submissions sought amendments to:

- remove the examples of natural features from NH-P15 and instead include a new definition of natural features that exclude man made features;
 - to add a clause that rural production activities are usually highly resilient to natural hazards.
298. CA & GJ McKeever [111.72], John Stevenson [162.75] Chloe Chai and Mark McKitterick [256.72] and Keith Godwin [418.79] seek to amend NH-P15 to ensure it is applied as intended, with a new definition created for 'natural feature'. They consider that identified properties and San Dona naturally provide for an overland flowpath, however berms, and water bodies consisting of manmade water races and drainage swales are not 'natural features'. They consider development can mitigate natural hazard effects and provide engineering design that accounts for overland flow, however this may not mean the general landform is protected, restored, maintained or enhanced. The submitter seeks an amendment to NH-P15 as follows:
- "Protect natural features which assist in avoiding or reducing the impacts from natural hazards, ~~such as natural ponding areas, wetlands, water body margins and riparian margins, dunes, berms and beaches~~ from inappropriate subdivision, use and development and restore, maintain or enhance the functioning of these features.*
- Where:
- 'Natural Feature' is defined as:*
- natural ponding areas, wetlands, water body margins and riparian margins, dunes, and beaches.*
Excludes man-made water races and drainage infrastructure such as swales and Stormwater Management Areas."
299. Federated Farmers [414.95] states that NH-P15 appears to focus mostly on flooding hazards, rather than general hazard resilience. They state that existing pastoral land provides substantial resilience in having large areas of non-built ground in the event of earthquakes, as well as also providing a buffer between built areas and waterways. They seek to amend NH-P15 to add:
- "Rural production activities are usually highly resilient to natural hazards"*.
300. While ECan [316.73] supported NH-P15 they also sought to add 'terraces' to the description of natural features.

3.6.15.2 Assessment

301. Regarding the submissions by CA & GJ McKeever, John Stevenson, Chloe Chai and Mark McKitterick and Keith Godwin seeking a reference to a definition rather than a description of natural features, I consider this proposed amendment helps to add clarity. I note I have already accepted in part the submitters' proposed definition for 'natural features' in Section 3 (definitions) of this report. I therefore recommend that these submissions are accepted and Policy NH-P15 is amended as set out in Appendix A and below under recommended amendments to the District Plan.
302. Regarding the Federated Farmers submission, I accept that rural areas in uses such as pastoral farming can provide resilience by enabling alternative or relocated activities to occur, while the land itself can reduce flood hazards by enabling water flows outside of river channels and urban areas in flood events. However, I am not clear on the value of pastoral land in providing earthquake resilience. The requested addition is not consistent with Policy NH-P15 as it refers to activities, rather than geographic features. In addition, it is written as a statement rather

than a policy. Finally, I note that there are no rules that would give effect to this statement and Federated Farmers has not sought any. For these reasons I recommend that this submission is rejected.

303. Regarding the submission by ECan, the addition of 'terraces' is supported. I consider this is an example of a natural feature. For this reason I recommend this submission is accepted. I note that given my earlier recommendation (in response to CA & GJ McKeever [111.72], John Stevenson [162.75] Chloe Chai and Mark McKitterick [256.72] and Keith Godwin [418.79]) to create a definition of 'natural features' the addition of 'terraces' will be made to that definition instead of NH-P15.

3.6.15.3 Summary of recommendations

304. I recommend that the submissions from CA & GJ McKeever [111.72], John Stevenson [162.75] Chloe Chai and Mark McKitterick [256.72] and Keith Godwin [418.79] are **accepted**.
305. I recommend that the submission from Federated Farmers [414.95] is **rejected**.
306. I recommend that the submission from ECan [316.73] is **accepted in part**.
307. Given the changes I am recommending to NH-P15, I recommend that the submissions in support of NH-P15 as set out in Appendix B are **accepted in part**.

3.6.15.4 Recommended changes to the District Plan

308. Amend NH-P15 as follows:

Protect natural features which assist in avoiding or reducing the impacts from natural hazards, ~~such as natural ponding areas, wetlands, water body margins and riparian margins, dunes, berms and beaches~~ from inappropriate subdivision, use and development and restore, maintain or enhance the functioning of these features.

309. Amend the definition of "Natural Feature" (from the proposed definition set out in paragraph 3.3.5 as follows:

"Natural feature

Means: natural ponding areas, wetlands, water body margins and riparian margins, terraces, dunes, and beaches. It excludes man-made water races and drainage infrastructure such as swales and Stormwater Management Areas."

310. I consider these amendments are minor and do not change the intent or meaning of the policy or definition and as such no s32AA assessment is required.

3.6.16 Policy NH-P16 Redevelopment and relocation in coastal hazard and natural hazard overlays

3.6.16.1 Matters raised by submitters

311. Eight submissions were received on NH-P16. Three submissions were received in support of NH-P16, while five submissions sought amendments to:

- Include a reference to mitigation;
 - Provide limits on 'redevelopment'.
312. CA and; GJ McKeever [111.73], John Stevenson [162.76], Chloe Chai and Mark McKitterick [256.73] and Keith Godwin [418.80] state that the NH-P16 reference to managed retreat and relocation suggests this best applies in Coastal Hazard and High Flood Hazard situations, however it refers to all defined 'natural hazards'. They state that much of the District is located within the flood and liquefaction hazard overlays, and other policies appropriately address subdivision and development activities in these overlays. They consider that the use of the word 'encourage' does not seem to contradict these other policies, however it would be concerning if NH-P16 was interpreted as unsupportive for effects to be 'mitigated' rather than 'reduced'. They seek NH-P16 is amended as follows:

"Encourage redevelopment, or changes in land use, where that would reduce or mitigate the risk of adverse effects from natural hazards, including managed retreat and designing for relocation or recoverability from natural hazard events."

313. ECan [316.74] states that "redevelopment" is a broad term, which may not be sufficiently directive, especially in coastal hazard areas. ECan requests that NH-P16 is retained but the limits on 'redevelopment' are clarified.

3.6.16.2 Assessment

314. Regarding the submissions by CA and; GJ McKeever, John Stevenson, Chloe Chai and Mark McKitterick and Keith Godwin, I agree with the submitters that NH-P16 is principally intended to apply to areas affected by significant hazard risk, hence the examples given regarding retreat, and designing for relocation. I agree that 'encourage' would not contradict the other natural hazard policies that provide more targeted direction and that NH-P16 is not intended to conflict with the Natural Hazard Chapter's provisions in relation to mitigation. However, I consider that the proposed addition of 'or mitigate' is not required as mitigation is a method of reducing the risk of adverse effects from natural hazards. Including these words would create a tautology. As such, I recommend that these submissions are rejected.
315. Regarding the submission by ECan, unfortunately there is no explanation of how a more directive policy would be worded, nor examples provided of what redevelopment limits would entail. I note that this policy is drawn from NZCPS Policy 25(c), which also uses the word 'redevelopment'. It is accepted that 'redevelopment' is a broad term, however this term is further qualified by the need to reduce the risk of adverse effects from natural hazards. I understand ECan is concerned this policy may undermine avoidance policies such as NH-P3 where development is to be avoided in high hazard areas and that using the term 'redevelopment' could imply that it is acceptable to reinstate a damaged building. Given the comments raised by the submitter I recommend that the word 'redevelopment' is deleted from NH-P16 as set out in Appendix A and below under recommendations for amendments to the District Plan.

3.6.16.3 Summary of recommendations

316. I recommend that the submission from by CA and; GJ McKeever [111.73], John Stevenson [162.76], Chloe Chai and Mark McKitterick [256.73] and Keith Godwin [418.80] are **rejected**.
317. I recommend that the submission from ECan [316.74] is **accepted**.

318. Given the changes I am recommending to NH-P16, I recommend that the submissions in support of NH-P16 as set out in Appendix B are **accepted in part**.

3.6.16.4 Recommended changes to the District Plan

319. Amend NH-P16 as follows:

Encourage redevelopment, or changes in land use where that would reduce the risk of adverse effects from natural hazards, including managed retreat and designing for relocation or recoverability from natural hazard events.

320. I consider that the proposed changes to the policy do not change the intent or meaning and therefore no s32AA assessment is required.

3.6.17 Policy NH-P17 Hard engineering natural hazard mitigation within the coastal environment

3.6.17.1 Matters raised by submitters

321. Eight submissions were received on NH-P17. Three submissions were received in support, four were neutral and one submission by ECan [316.75] sought amendments to:

- broaden the consideration of high-level policy direction;
- clarify how clauses 4 and 5 work together; and
- delete NH-P17(3).

322. ECan considers that the list of considerations in NH-P17 are too narrow, and imply that these are the only considerations, when higher-level policy direction for hard engineering structures in a coastal environment are broader. ECan considers it is also unclear how sub-clauses 4 and 5 work together, querying what is a significant adverse effect on a natural defence or system if it doesn't modify or alter its function? ECan supports restricting the use of hard engineering as a last resort, however where clause 3 refers to managed retreat and immediate risk, this is something that should be addressed holistically through an adaptation planning framework. ECan notes that there are many different adaptation options as opposed to just managed retreat or hard engineering in the face of natural hazard risk. ECan seeks to clarify that other considerations, such as on natural character of coastal environments and NZCPS and CRPS policy direction are critically important. They seek that the interaction between NH-P17(4) and NH-P17(5) is clarified and the deletion of NH-P17(3).

3.6.17.2 Assessment

323. I agree that there is a relationship between clauses 4 and 5. Clause 4 is about mitigation that affects natural defence capabilities, whereas clause 5 is about their other values, e.g. character, amenity and biophysical. I also accept that CRPS policy direction for hard engineering structures in a coastal environment considers additional matters such as impacts on natural character. However, NH-P17 reflects NZCPS Policy 27(1) and especially (c) which only relates to areas of significant existing development (i.e. areas where it is highly unlikely there will be 'natural character' matters to consider).

324. In order to resolve the relationship between clauses 4 and 5 and to recognise the higher policy direction under the CRPS and NZCPS, I recommend that clause 5 is deleted as set out in Appendix A and below under recommended amendments to the District Plan. I note that development within the coastal environment, or in areas with outstanding natural features or landscapes will be covered by the provisions in those chapters as NH-MD2(2) which covers natural hazard mitigation works refers to matters of discretion in the listed natural environment chapters.
325. Regarding the deletion of clause 3, I agree that managed retreat and immediate risk are matters that should be addressed holistically through an adaptation planning framework. However, there is currently no adaptation framework applying to the Waimakariri District. In the absence of such a framework I consider there is value in providing guidance on hard engineering in the coastal environment and I therefore recommend that clause 3 remains as notified.

3.6.17.3 Summary of recommendations

326. I recommend that the submission from ECan [316.75] is **accepted in part**.
327. Given the changes I am recommending to NH-P17, I recommend that the submissions in support of NH-P17 as set out in Appendix B are **accepted in part**.

3.6.17.4 Recommended changes to the District Plan

328. Amend NH-P17 as follows:

...

~~5. significant adverse effects on natural defences and systems from those measures are avoided, and any other adverse effects are avoided, remedied or mitigated.~~

329. My s32AA assessment is contained in Appendix C, Table C5.

3.6.18 Policy NH-P18 Fire and ice risks

3.6.18.1 Matters raised by submitters

330. Nine submissions were received on NH-P18. Four submissions were received in support of NH-P18, four were neutral and one submission from Federated Farmers [414.96] sought the deletion of NH-P18. Federated Farmers stated that it is unfair to blame wildfire and vehicle crash risk from ice hazards solely on woodlots and shelterbelts, while ignoring plantation forestry and carbon forestry. They consider that there are usually inherent setbacks within road corridors and on the sites themselves that guard against this risk. They seek the deletion of NH-P18.

3.6.18.2 Assessment

331. I agree that wildfire and vehicle crash risk is not solely attributable to woodlots and shelterbelts and that forestry can also contribute to these. Plantation forestry was not included in the policy or the rules given its coverage in the NESPF. The NESPF already contains setback rules for property boundaries (10m) and roads (trees must not shade a public road between 10am and 2pm on the shortest day of the year). Arguably the NESPF provisions are stricter than NH-R7 as, for a typical 30m pine tree I understand that this could result in a setback of approximately

100m from the road edge. I do not think excluding a reference to the NESPF and carbon forestry is a reason to delete the policy, rather it is an argument to broaden its scope. This is not possible however given the NESPF coverage and the scope of the submission. As such, I recommend that this submission is rejected.

3.6.18.3 Summary of recommendations

332. I recommend that the submission from Federated Farmers [414.96] is **rejected**.
333. I recommend that the submissions in support of NH-P19 as set out in Appendix 2 are **accepted**.
334. I recommend that no change be made to the Proposed Plan.

3.6.19 NH-P19 Other natural hazards

3.6.19.1 Matters raised by submitters

335. Nine submissions were received on NH-P19. Four submissions were received in support of NH-P19 and five submissions sought it to be:

- Deleted or amended to specify the natural hazards covered;
- Amended to be better aligned with the CRPS.

336. CA and; GJ McKeever [111.75], John Stevenson [162.78], Chloe Chai and Mark McKitterick [256.76] and Keith Goodwin [418.83] consider NH-P19 seems superfluous and unnecessary given other proposed comprehensive and detailed policies, and that it simply 'encourages consideration of other' hazards. They state that the District Plan and Resource Management Act 1991 (RMA) define 'natural hazards' and the RMA requires consideration of them, as do NH-O1 to NH-O4. They request the deletion of NH-P19, or amendment to specify what 'other' hazards are to be considered as follows:

"Encourage the consideration of ~~other~~ earthquake, tsunami, erosion, volcanic and geothermal activity, landslip, subsidence, sedimentation, wind, drought, fire natural hazards as part of subdivision, use and development."

337. ECan [316.76] sought the amendment of NH-P19 to be consistent with the CRPS 11.3.5 as it directs that a risk-based approach should be taken to avoiding unacceptable risk and managing development to an acceptable level.

3.6.19.2 Assessment

338. Regarding the submissions by CA and; GJ McKeever, John Stevenson, Chloe Chai and Mark McKitterick and Keith Goodwin, the District Plan and the RMA define natural hazards as follows:

"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."

339. The list of examples provided in brackets is not exhaustive as it is prefaced by the word 'includes'. The remainder of the definition is very broad, covering any atmospheric or earth or water related occurrence, the action of which adversely affects or may affect human life property or other aspects of the environment. On this basis natural hazards could also include other hazards such as lightning strikes, hail, snow, dust and heat stroke. Of all natural hazards

I understand that heat stroke is the most fatal natural hazard worldwide. Regarding the submitters' proposed wording, the intent of this policy was to recognise that there are other natural hazards that are not expressly covered in the other NH chapter policies and to provide guidance on how these are to be addressed. Limiting the application of the policy to the submitters' listed natural hazards is narrower than the RMA definition and therefore narrower than the Council's responsibilities under the Act. Given this, I recommend that the submissions are rejected.

340. Regarding the submission by ECan, unfortunately ECan did not provide any suggested wording. CRPS Policy 11.3.5 is set out below. It applies a risk-based approach through consideration of likelihood and consequence.

"For natural hazards and/or areas not addressed by policies 11.3.1, 11.3.2, and 11.3.3, subdivision, use or development of land shall be avoided if the risk from natural hazards is unacceptable. When determining whether risk is unacceptable, the following matters will be considered:

- 1. the likelihood of the natural hazard event; and*
- 2. the potential consequence of the natural hazard event for: people and communities, property and infrastructure and the environment, and the emergency response organisations.*

Where there is uncertainty in the likelihood or consequences of a natural hazard event, the local authority shall adopt a precautionary approach.

Formal risk management techniques should be used, such as the Risk Management Standard (AS/NZS ISO 31000:2009) or the Structural Design Action Standard (AS/NZS 1170.0:2002)."

341. I agree with ECan that NH-P19 would benefit from amendments to be more closely aligned with CRPS Policy 11.3.5 and recommend it is amended as set out in Appendix A and below under recommended changes to the District Plan. My recommended amendments include reference to a risk-based approach, acceptable level of risk and a precautionary approach. I do not recommend referring to risk avoidance as there are no rules proposed to implement this policy (hence the use of the word 'encourage' at the start of NH-P19).

3.6.19.3 Summary of recommendations

342. I recommend that the submissions from CA and; GJ McKeever [111.75], John Stevenson [162.78], Chloe Chai and Mark McKitterick [256.76] and Keith Goodwin [418.83] are **rejected**.
343. I recommend that the submission from ECan [316.76] is **accepted**.
344. Given the changes I am recommending to NH-P19, I recommend that the submissions in support of NH-P19 as set out in Appendix 2 are **accepted in part**.

3.6.19.4 Recommended changes to the District Plan

345. Amend NH-P19 as follows:

Encourage the consideration of a risk-based approach for other natural hazards as part of subdivision, use and development to achieve an acceptable level of risk, and where there is uncertainty in the likelihood or consequences of a natural hazard event, adopt a precautionary approach.

346. My s32AA assessment is contained in Appendix C, Table C6.

3.6.20 New Policy – Natural hazards resilience

3.6.20.1 Matters raised by submitters

347. Fulton Hogan [41.22] requests the insertion of a new policy that encourages new communities to have systems and facilities in place to enable recovery as part of building resilience to natural hazards and climate change risk where avoidance is not always practicable. This includes having access to materials for rebuild and recovery. Their suggested wording is as follows:

"NH-PX

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

3.6.20.2 Assessment

348. Policy NH-P16 already addresses redevelopment and relocation in coastal hazard and natural hazard overlays where these reduce the risk of adverse effects from natural hazards, including managed retreat and designing for relocation or recoverability from natural hazard events. In my opinion this existing policy already adequately covers the matters addressed in proposed policy NH-PX. For this reason I recommend that this submission is rejected.

3.6.20.3 Summary of recommendations

349. I recommend that the submission from Fulton Hogan [41.22] is **rejected**.

350. My recommendations in relation to further submissions reflect the recommendations on the relevant primary submission.

3.7 Rules

3.7.1 Non-Notification clauses

351. Clampett Investments Ltd [284.159, 284.160, 284.161, 282.162, 281.263, 281.164, 281.165, 282.173] and RIDL [326.167, 326.167, 326.168, 326.169, 326.170, 326.171, 326.172, 326.173, 326.174, 326.175, 326.176, 326.177, 326.178, 326.179, 326.180, 326.181, 326.182, 326.183, 326.184, 326.185] consider there is insufficient use of non-notification clauses within the natural hazards rules, where the corresponding issues and effects are matters that can be adequately determined by Council without any benefit from limited notification. They seek the Natural Hazards Chapter rules be provided with 'non-notification clauses' directing that applications under specific rules shall not be limited notified, on the basis of effects associated specifically with that rule. They seek the amendment of specified rules to include the following wording, or words to like effect:

"An application for a restricted discretionary activity under this rule is precluded from being limited notified or publicly notified, ~~but may be limited notified.~~"

3.7.1.1 Assessment

352. Regarding these submissions, buildings covered by these rules can impede flow paths and cause flood waters displacement, or compromise access, all of which can have an impact on adjacent or 'downstream' properties. I therefore consider it appropriate that these rules are able to be limited notified and that these submissions are rejected.

3.7.1.2 Summary of recommendations

353. I recommend that the submissions from Clampett Investments Ltd [284.159, 284.160, 284.161, 282.162, 281.263, 281.164, 281.165, 282.173] and RIDL [326.167, 326.167, 326.168, 326.169, 326.170, 326.171, 326.172, 326.173, 326.174, 326.175, 326.176, 326.177, 326.178, 326.179, 326.180, 326.181, 326.182, 326.183, 326.184, 326.185] are **rejected**.

354. I recommend that no change be made to the Proposed Plan

3.7.2 Rule NH-R1 Natural hazard sensitive activities

3.7.2.1 Matters raised by submitters

355. Eleven submissions were received on NH-R1. Seven submissions were received in support of NH-R1, while four submissions sought amendments including the following:

- Add a preclusion of limited notification clause;
- Delete NH-R1(1);
- Delete references to the Urban Flood Assessment Overlay and Non-Urban Flood Assessment Overlay, and mapped fixed floor level overlays.

356. Clampett Investments Ltd [284.159] and RIDL [326.167] are addressed earlier under non-notification clauses in s3.7.1. However, I note that Clampett Investments [284.179] and RIDL [326.187] also submitted in support of NH-R1.

357. ECan [316.77] consider that Standard 1 of NH-R1 could enable inadequate standards of flood mitigation if floor levels have been based on lower magnitude flood events, or on information that is now outdated. They consider that the Kaiapoi Fixed Minimum Floor Level Overlay is inflexible should modelling change and should be kept outside of the plan. They seek the removal of standard 1 and that the rules for new hazard sensitive activities should also include conversions to hazard sensitive activities.

358. Kainga Ora [325.119] support NH-R1 with amendments to delete reference to the flood assessment overlays. They seek to amend NH-R1 to align with the relief sought in their submission point on the Planning Maps and general submission point for the Natural Hazards Chapter, which seeks to:

"Delete Urban Flood Assessment Overlay and Non-Urban Flood Assessment Overlay, and mapped fixed floor level overlays. Include these as non-statutory map layers in the Waimakariri District Natural Hazards Interactive Viewer. Amend relevant provisions to delete reference to these overlays, instead refer to the specific hazard type that will be identified through a flood assessment. Recognise that large areas of the urban environment are in High Hazard Areas but as residential and commercial activities are anticipated, sensitive activities should be discretionary rather than non-complying."

3.7.2.2 Assessment

359. Regarding the ECan submission, Standard 1 permits buildings when these are erected to the level specified in an existing consent notice that is less than five years old. In his evidence Mr Bacon, disagrees that rule NH-R1(1) could enable inadequate standards of flood mitigation if information becomes outdated and considers it is necessary to give consent holders some certainty surrounding their consent conditions in the short to medium term (paragraph 30). He considers that 5 years is an appropriate amount of time to honour conditions imposed using the best information available at the time. Mr Bacon notes that any resource consent condition imposed over the last five years will not have referenced a flood level less than the 200-year ARI event and in all cases a conservative freeboard of at least 400mm will have been applied. Mr Bacon notes that the modelling and the associated results are only likely to be updated following a new LIDAR survey and that traditionally these have been undertaken approximately every 6 to 9 years. He further notes that the modelling results from any future modelling exercise are unlikely to change significantly. I note however that the wording in Standard 1 refers to a 'consent notice' and that could technically be up to 13 years from the date of flood assessment (although this is unlikely). This was not the intention of the provisions, which was to allow development to a floor height that is up to five years old via referencing a 'consent decision'. I therefore recommend that this part of the submission is accepted in part, with the wording as shown in Appendix A and below under recommended changes to the District Plan.
360. I note this change will also apply to other similar provisions that ECan has submitted on individually, specifically, NH-R2, NH-R15 and NH-R16. For clarity, I have covered these matters within each of the provisions. However, ECan did not submit on NH-R3 which contains a similar provision. I consider similarly changing NH-R3 is a consequential change within the scope of ECan's submission and I therefore recommend the same change is made to NH-R3(2)(b). Given the reference is now to a consent decision, I have recommended deleting the clauses which separately refer to subdivision consents and subdivision consent plans as these are already captured under 'consent decision'.
361. Regarding ECan's comment on the Kaiapoi FMFFL, in response to a separate ECan submission point [316.52] covered in the general submission section earlier in this report, I have recommended that the Kaiapoi FMFFL is replaced with the Flood Assessment Certificate approach. Regarding ECan's request for NH-R1 to also apply to conversions, I agree that that is the intent of the natural hazards provisions and consider this is captured already in NH-R1. However, for clarity I recommend amending the definition of natural hazard sensitive activity to include reference to conversions of existing buildings. I therefore recommend that ECan's [316.77] submission is accepted in part, with the changes shown in Appendix A and below under recommended changes to the District Plan.
362. Regarding the Kainga Ora's submission, if the flood assessment and fixed floor level overlays are deleted from the planning map then there would be no way for NH-R1 to be geographically limited to those parts of the district that flood. Flood assessment certificates would be required even for areas that the Council does not think flood. I consider that this would make the provisions less efficient (noting the changes I am recommending to the non-urban flood assessment overlay in the General section of this report in response to ECan's submission [316.51]). I note in his evidence that Mr Bacon also disagrees with deleting the overlays (paragraph 35).

363. Regarding Kainga Ora's request that sensitive activities should be discretionary rather than non-complying in High Hazard Areas in the urban environment. I note that under NH-R1, sensitive activities that meet the minimum finished floor level are permitted, and where these activities do not meet the minimum finished floor level are restricted discretionary activities. It therefore seems that Kainga Ora have misinterpreted the application of NH-R1 or there is some confusion around the application of NH-S1. I think that the rule as notified is consistent with their statement that large areas of the urban environment are in High Hazard Areas but residential and commercial activities are anticipated in these areas. I therefore recommend that this submission is rejected, noting that Kainga Ora may clarify their relief sought through evidence at the hearing.

3.7.2.3 Summary of recommendations

364. I recommend that the submission from ECan [316.77] is **accepted in part**.

365. I recommend that the submission by Kainga Ora [325.119] is **rejected**.

3.7.2.4 Recommended changes to the District Plan

366. Amend the definition of 'natural hazard sensitive activity' as follows:

Natural hazard sensitive activity

Means: buildings and conversions of existing buildings which:

...

367. Amend NH-R1(1) as follows:

Where:

1. the building is erected to the level specified in an existing consent ~~notice~~ decision that is less than five years old;

368. Amend NH-R3(2)(b) as follows:

Where:

b. is erected to the level specified in an existing ~~subdivision consent notice~~ decision ~~or on an approved subdivision consent plan~~ that is less than five years old; or

369. My s32AA assessment for the definition change is contained in Appendix C, Table C12. I do not consider a s32AA assessment is required for the recommended change of 'consent notice' to 'consent decision' and the deletion of references to subdivision consent plan as the changes are consistent with the intent of the provision.

3.7.3 Rule NH-R2 Natural hazard sensitive activities

3.7.3.1 Matters raised by submitters

370. Thirteen submissions were received on NH-R2. Eight submissions were received in support of NH-R2 and five sought amendments including the following:

- Add a preclusion of limited notification clause;

- Delete NH-R2(1) and (3);
 - Delete the reference to the flood assessment overlays;
 - Retain the 'Non-Urban Flood Overlay' provisions when a site is rezoned from rural to residential via the certification process for new development areas;
 - Include provision in NH-S1 for a default freeboard of 400mm within areas of very low to low flood hazard.
371. The Clampett Investments Ltd [284.160] and RIDL [326.167] submissions seek to delete the limited notification option. I have assessed these submissions earlier in the non-notification section of this report in s3.7.1. However, I note that both Clampett Investments [284.180] and RIDL [326.188] also submitted in support of NH-R2 and sought it to be retained as notified.
372. ECan [316.78], consistent with their submission on NH-R1, state that NH-R2(1) could enable inadequate standards of flood mitigation if floor levels have been based on lower magnitude flood events, or on information that is now outdated. Despite the option to obtain a Flood Assessment Certificate and build to a level that is potentially lower than 400mm, ECan anticipates that many people will unnecessarily build to 400mm above natural ground level at a higher cost, rather than obtaining a flood assessment and building to the required level. In some areas building to 400mm above natural ground level outside of the proposed overlay will not provide adequate mitigation against flooding, despite being permitted under the proposed rule. The seek NH-R2 to be amended to delete standards 1 and 3 and expand the flood assessment overlay to include all areas that have the potential for flooding.
373. Kainga Ora [325.120] seek to delete the reference to flood assessment overlays and amend NH-R2 to align with the relief sought for the Natural Hazard Chapter outlined in other submission points. This matter was assessed earlier in the General section of this report and under NH-R1 and won't be assessed here.
374. Bellgrove Rangiora Limited [408.12] states that when Bellgrove is rezoned from rural to residential via the certification process for new development areas, it is important to ensure that the sites current 'Non-Urban Flood Overlay' provisions still apply to the site, which would typically be within the 'Urban Flood Assessment Overlay' and subject to NH-R1. Essentially, they seek to ensure flood overlays and relevant provisions are appropriately carried over following certification process for new development areas. They also state that NH-S1 requires a minimum 500mm freeboard above flooding predicted to occur for each of the three flooding scenarios identified in (c). However, in areas of very low to low flood hazard they consider a default freeboard of 400mm is more appropriate and that this is consistent with the approach taken for Bellgrove Stage 1 where the finished floor level (FFL) required for residential lots is 400mm freeboard above the 200 year flood level, except for areas of higher risk (proposed lots adjacent to open flow channels, stormwater treatment facilities and those where ponding could eventuate following blocked sump inlets) where 500mm freeboard above the 200 year flood level is required.

3.7.3.2 Assessment

375. Regarding the ECan submission on NH-R2(1), as covered for Rule NH-R1, I recommend that a NH-R2(1) is reworded to refer to a 'consent decision' as opposed to a 'consent notice'. Regarding the request to delete NH-R2(3) and instead extend the flood assessment overlay to

cover all areas that have the potential for flooding, in his evidence Mr Bacon disagrees that rule NH-R2(3) would result in many applicants building to a higher level than required or conversely not achieving adequate mitigation against flooding. He states the 400mm rule under NH-R2(3) proposed in the rural area where modelled flood levels are less than 100mm is based on the principal that 100mm of flooding could still occur due to unforeseen events and with the associated 300mm freeboard this is considered an appropriate level of protection for rural properties with little or no associated formal stormwater infrastructure. He considers this approach is generally conservative given the relatively flat nature of the Canterbury Plains and it means the numerous uncertainties associated with forecasting flood levels in the rural area are still accounted for and the overall process is kept simple. However, Mr Bacon considers that since it is now proposed to extend the non-urban overlay into all areas of 'flat' rural land he agrees that Rule NH-R2(3) can be deleted. I note that the reference to 'rural zones' in the left column can be deleted, as well as text differentiating between the overlay and rural zone. As a consequential amendment this can be made to NH-R3.

376. I note that the extension of the non-urban flood assessment overlay is the subject of the Joint Witness Statement attached at Appendix D. Extending this overlay as recommended will remove the need for clause 3 and I therefore recommend this clause is deleted as requested and ECan's submission is accepted in part. Given this recommendation, I recommend that the corresponding clause in NH-R3(2)(e) is also deleted as a consequential amendment.
377. Regarding the Bellgrove Rangiora Limited submission seeking the 'Non-Urban Flood Overlay' provisions continue to apply to a newly created urban site post certification, I consider this is not appropriate within an urban environment because of the newly built-up nature of the development. I also note that the subdivision / resource consent conditions will still apply. Regarding the request to include a default 400mm freeboard height in NH-S1 for sites of very low to low flood hazard, I note that NH-S1 states that the freeboard is up to 500mm. This enables the Council's engineers to require a lower freeboard, for example 400mm, in areas where the flood risk warrants it. As such, although it is not a default requirement, a 400mm freeboard could be the prescribed freeboard in a Flood Assessment Certificate. In his evidence Mr Bacon states that he agrees that a lower freeboard of 400mm is appropriate in areas of very low to low flood hazard and that this approach is also generally consistent with the Council's current approach (paragraph 37). He considers that a 500mm freeboard is appropriate in areas of medium to high hazard which reflects the overall higher level of risk associated with these areas. He therefore recommends that standard NH-S1 is modified to require 400mm freeboard for low hazard and 500mm freeboard for medium to high hazard. I accept Mr Bacon's advice and therefore recommend that this submission is accepted in part.

3.7.3.3 Summary of recommendations

378. I recommend that the submission from ECan [316.78] is **accepted**.
379. I recommend that the submission from Bellgrove Rangiora Limited [408.12] is **accepted in part**.
380. Given the changes I am recommending, I recommend that the submissions in support of NH-R2 as set out in Appendix B are accepted in part.

3.7.3.4 Recommended changes to the District Plan

381. Amend the non-urban flood assessment overlay to the extent shown in the Joint Witness Statement attached at Appendix D.

382. Amend NH-R2(1) and NHR2(2) as follows:

Where:

1. the building is erected to the level specified in an existing consent ~~notice~~ decision that is less than five years old;

2. ~~if located within the Non-Urban Flood Assessment Overlay, the building:~~

383. Delete the reference to 'Rural Zones' in NH-R2 and NH-R3.

384. Delete NH-R2(3) as follows:

~~3. if the activity is a residential unit or a minor residential unit and is located outside of the Non-Urban Flood Assessment Overlay and located within Rural Zones, it has a finished floor level that is either:~~

~~i. 400mm above the natural ground level; or~~

~~ii. is equal to or higher than the minimum finished floor level as stated in a Flood Assessment Certificate issued in accordance with NH-S1.~~

385. Delete NH-R3(2)(e) as follows:

~~e. if the activity is a residential unit or a minor residential unit and is located outside of the Non-Urban Flood Assessment Overlay and located within Rural Zones, it has a finished floor level that is either:~~

~~i. 400mm above the natural ground level; or~~

~~ii. is equal to or higher than the minimum finished floor level as stated in a Flood Assessment Certificate issued in accordance with NH-S1.~~

386. Amend NH-S1 as follows:

...

iii. flooding predicted to occur in a 1% AEP (1 in 100-year) Storm Surge Event concurrent with a 5% AEP (1 in 20-year) River Flow Event with sea level rise based on an RCP8.5 climate change scenario, plus up to 500mm freeboard.

2. Freeboard will be applied as follows:

a. Low Hazard - 400mm freeboard

b. Medium to High Hazard - 500mm freeboard

387. My s32AA assessment for the NH-R2 and NH-R3 changes is contained in Appendix C, Table C7 (changes to the natural hazard overlays). I do not consider a s32AA assessment is required for the recommended changes to NH-S1 as this simply clarifies how the existing provisions are to be applied. I do not consider a s32AA assessment is required for the recommended change of 'consent notice' to 'consent decision' as the change is consistent with the intent of the provision and the change is only required to cover the timing outliers - in most instances development will have proceeded within the 5-year period.

3.7.4 Rule NH-R3 Natural hazard sensitive addition to existing natural hazard sensitive activities

3.7.4.1 Matters raised by submitters

388. Eleven submissions were received on NH-R3. Six submissions were received in support of NH-R3 and five submissions were received seeking amendments to:

- Amend to exclude limited notification;
- Delete NH-R3 (2)(d)(i) entirely;
- Delete reference to flood assessment overlays.

389. As for other provisions, Clampett Investments Ltd [284.161] and RIDL [326.169] seek to delete the limited notification clause. These submissions are addressed earlier under non-notification in s3.7.1. However, I note that Clampett Investments [284.181] and RIDL [326.189] also submitted in support of NH-R3 and sought it is retained as notified.

390. Summerset [207.13] support need for rules to ensure activity in flood hazard areas is carried out appropriately, and the use of minimum floor levels. However, they consider there is a discrepancy between NH-R1 which permits new buildings in Urban Flood Assessment Overlay areas where minimum flood level is achieved, and NH-R3 which does not permit additions in high hazard areas. They note the Council can utilise Building Act processes to note the risk on a certificate of title by way of notice where building work has been authorised in such areas. They seek the deletion of NH-R3(2)(d)(i).

391. Kainga Ora [325.121] seek to amend NH-R3 to delete reference to flood assessment overlays to align with the relief sought for the Natural Hazard Chapter outlined in other submission points. This matter was assessed earlier in the General section of this report and NH-R1 and won't be repeated here. In a separate submission point [325.125] they also generally support NH-R3, however they seek amendments to make clearer what is permitted and amend the rule for readability. Unfortunately no amended text is provided.

3.7.4.2 Assessment

392. Regarding the Summerset submission, I agree with Summerset that there is a discrepancy between NH-R1 and NH-R3 for buildings and additions in high hazard areas, but only in relation to those proposed to be located within urban environments. In the non-urban flood assessment overlay new buildings (under NH-R2) and additions (under NH-R3) both have provisions relating to high hazard areas. I therefore recommend that this submission is accepted in part and NH-R3(2)(d) is amended to add a reference to the Non-urban Flood Assessment Overlay.

393. Regarding the Kainga Ora submission on improving the clarity of NH-R3 [325.125], I accept that the rule is complex. This is both a result of the structure of the rules tables, the approach of combining a number of natural hazards overlays into one rule and the references to flood assessment certificates for different flood hazards covered (e.g. overland flow paths and high hazard areas). I note that I am recommending removing the reference to the Kaiapoi FMFFL overlay (clause NH-R3(2)(c)) and the default rural zone requirements for outside of the overlays (clause MH-R3(2e)). I consider that these changes will simplify the rule and I therefore recommend accepting submission [325.125].

3.7.4.3 Summary of recommendations

394. I recommend that the submission from Summerset [207.13] is **accepted in part**.
395. I recommend that the [325.121] submission from Kainga Ora is **rejected** and the [325.125] submission is **accepted**.
396. Given the changes I am recommending, I recommend that the submissions in support of NH-R3 as set out in Appendix B are **accepted in part**.

3.7.4.4 Recommended changes to the District Plan

397. Add a new clause d to NH-R3(2) and delete renumbered clause e(i) as follows:

d. if located within the Non-urban Flood Assessment Overlay, the addition is located on a site outside of a high flood hazard area as stated in a Flood Assessment Certificate issued in accordance with NH-S1;

~~e. if located within any Flood Assessment Overlay, the building footprint² addition is:
i. located on a site outside of a high flood hazard area as stated in a Flood Assessment Certificate issued in accordance with NH-S1; and~~

398. I do not consider a s32AA assessment is required for the recommended changes to NH-R3 as this seeks to apply the provisions as intended, consistent with the policy approach to additions.

3.7.5 Rule NH-R4 Below ground infrastructure and critical infrastructure

3.7.5.1 Matters raised by submitters

399. Fifteen submissions were received on NH-R4. Eleven submissions were received in support of NH-R4 and four submissions sought amendments to:
- Remove the ability to limited notify applications;
 - Remove the ability to fill up to 0.25m in overland flowpaths; and
 - Delete the reference to flood assessment overlays.
400. As for other provisions, Clampett Investments [284.162] and RIDL [326.170] seek to delete the limited notification clause. These submissions are addressed earlier under non-notification clauses in s3.7.1. However, I note that Clampett Investments [284.182] and RIDL [326.190] also submitted in support of NH-R4 and sought it is retained as notified.
401. ECan [316.79] states that filling of up to 0.25m is not considered appropriate in overland flow paths. ECan considers that restricted discretionary status where permitted standards are not met in the overlays subject to this rule is appropriate for below ground infrastructure and critical infrastructure that may be required in hazard areas for functional and operational reasons. They seek the insertion of a provision in NH-R4 that any filling above ground level is not in an

² Recommended RMA clause 16 amendment – NH-R3 applies to natural hazard sensitive additions to natural hazard sensitive activities and not building footprint additions, which has its own definition.

overland flow path. I understand from their wider submission that ECan seeks a rule such as the one proposed in the Kaikoura natural hazards plan change to resolve these issues. For example:

Above ground earthworks, buildings and new structures that:

a. will not worsen flooding on another property through the diversion or displacement of floodwaters; or

b. meet the definition of land disturbance.

402. Kainga Ora [325.122] sought to delete the reference to flood assessment overlays and to amend NH-R4 to align with the relief sought for the Natural Hazard Chapter outlined in other submission points. This matter was assessed earlier in the General section of this report and under NH-R1 and won't be repeated here.

3.7.5.2 Assessment

403. Regarding the ECan submission [316.79], as the flow paths are not mapped it would only be possible to include a rule consistent with ECan's request if a Flood Assessment Certificate was applied for. This would have the effect of requiring any filling to require a Flood Assessment Certificate. In his evidence Mr Bacon agrees that any filling within overland flowpaths should not be a permitted activity and given the high level of risk associated with filling in of overland flowpaths he agrees that it should be covered in the NH Chapter (paragraph 33).
404. I accept that up to 0.25m of earthworks in an overland flow path could cause adverse effects. The challenge is to create a framework that is not unnecessarily restrictive of development but that still captures an activity that is likely to cause adverse effects. The proposed rules covering 0.25m of fill in the chapter are considered a pragmatic response to this issue and an approach that is able to be measured. The Kaikoura District Plan rule referred to by ECan is less blunt and would result in the capture of filling that caused flow path disruption, however it could be ultra vires as it is uncertain whether an activity will 'not worsen flooding on another property'. I have also reviewed NH-REQ4 (as amended in the Right of Reply Report) in the proposed Selwyn District Plan which requires that earthworks do not "exacerbate flooding on any other property by displacing or diverting floodwater on surrounding land". I consider this rule could also be uncertain.
405. I understand that neither the Kaikoura nor Selwyn approaches have been challenged expressly on the basis of vires. Because of this, and on balance, I favour applying the Kaikoura and Selwyn District Plan approaches as while these are uncertain, they are also less blunt. I note that this will avoid both over and under capture of earthworks that might cause adverse effects on neighbouring properties. I also note that where a Flood Assessment Certificate is applied for under NH-S1, the certificate identifies whether there is an overland flow path across a site. In order to add some robustness to the provision, I recommend including reference to a 0.5% AEP event to identify the scenario to be considered by the rule. Whilst not completely in accordance with the relief sought by ECan, I consider that this amended rule will achieve a similar outcome, which is managing adverse flooding effects from earthworks occurring within a flow path. Mr Bacon agrees with my conclusion (paragraph 33). As such I recommend accepting this submission in part. The recommended amendments are set out in Appendix A and below under recommended changes to the District Plan.

406. Given the structure of the chapter, similar changes are required in rules NH-R5, NH-R6, NH-R17 and NH-R18 and I note ECan has made similar submissions against these provisions. For the reasons provided under this submission I recommend the same change is made to these identified rules as set out in Appendix A.

3.7.5.3 Summary of recommendations

407. I recommend that the submission from ECan [316.79] is **accepted in part**.

408. Given the changes I am recommending, I recommend that the submissions in support of NH-R4 as set out in Appendix B are **accepted in part**.

3.7.5.4 Recommended changes to the District Plan

409. Amend NH-R4 as follows:

NH-R4 Below ground infrastructure and critical infrastructure

Activity Status: PER

Where:

1. ~~the profile, contour or height of the land is not permanently raised by more than 0.25m when compared to natural ground level~~ the activity does not exacerbate flooding on any other property by displacing or diverting floodwater on surrounding land in a 0.5% AEP event.

410. My s32AA assessment is contained in Appendix C, Table C8 (changes to the earthworks approach).

3.7.6 Rule NH-R5 Above ground infrastructure that is not critical infrastructure

3.7.6.1 Matters raised by submitters

411. Thirteen submissions were received on NH-R5. Eight submissions were received in support of NH-R5 and five submissions sought amendments including:

- Exclusion of infrastructure associated with temporary military training activities;
- Removal of the ability to limited notify applications;
- Inserting a provision in NH-R5 that any filling above ground level is not in an overland flow path; and
- Deletion of the reference to flood assessment overlays.

412. NZDF [166.31] seek to amend NH-R5 to exclude infrastructure for Temporary Military Training Activities (TMTA). NZDF consider that TMTA may require temporary infrastructure such as generators, fuel tanks and pumps, and any adverse effects can be avoided or mitigated or are minor. They consider that as NH-R5 applies in addition to EI-R1 to EI-R56, this would potentially mean TMTA would not be permitted in these flood hazard areas, for example water purification equipment training which requires temporary location of pumps and portable water tanks near a water body. They seek to amend NH-R5 as follows:

"...

2. *new infrastructure or an extension to existing infrastructure:*

...

c. is limited to a customer connection; or

d. is for a temporary military training activity."

413. Clampett [284.163] and RIDL [326.171] seek to delete the limited notification clause. These submissions are addressed earlier under non-notification clauses in s3.7.1. However, I note that Clampett Investments [284.183] and RIDL [326.191] also submitted in support of NH-R5 and sought it is retained as notified.
414. ECan [316.80] state that filling of up to 0.25m may be inappropriate in overland flow paths, in order to avoid increasing risks. ECan seeks to insert a provision in NH-R5 that any filling above ground level is not in an overland flow path.
415. Kainga Ora [325.123] seek to amend NH-R5 to delete reference to flood assessment overlays and to amend it to align with the relief sought for the Natural Hazard Chapter outlined in other submission points. This was assessed earlier in this report and won't be assessed here.

3.7.6.2 Assessment

416. Regarding the NZDF submission, I consider that temporary infrastructure associated with TMTA is unlikely to have a significant adverse impact on flooding as these training activities are temporary and the infrastructure examples provided are relatively small. I note that Mr Bacon supports this approach (paragraph 25). In any case, it is unlikely that NZDF would place temporary infrastructure in an area that is currently in flood, and would remove it in a flooding event. I therefore recommend that this submission is accepted and NH-R5 is amended as requested, as shown in Appendix A and below under recommended changes to the District Plan.
417. Regarding the ECan [316.80] submission, clause NH-R5(1) covers earthworks associated with the above ground infrastructure. Clause NH-R5(2) requires that the infrastructure itself is not located within an overland flowpath as stated in a Flood Assessment Certificate. As such, any earthworks associated with above ground infrastructure in a flow path is likely to be caught by clause NH-R5(2), with clause NH-R5(1) being more relevant to flood waters displacement than flow path disruption. However, I note that I am recommending amending clause 1 in response to submissions [316.79] for NH-R4 and that this change will likely favourably respond to ECan's request as filling in a flow path will now be captured. It is therefore recommended that this submission is accepted in part.

3.7.6.3 Summary of recommendations

418. I recommend that the submission by NZDF (166.31) is **accepted**.
419. I recommend that the submission from ECan (316.80) is **accepted in part**.
420. Given the changes I am recommending, I recommend that the submissions in support of NH-R5 as set out in Appendix B are **accepted in part**.

3.7.7 Recommended changes to the District Plan

421. Amend NH-R5 as follows:

...

2. new infrastructure or an extension to existing infrastructure:

...

c. is limited to a customer connection; or

d. is for a temporary military training activity.

422. I do not consider a s32AA assessment is required for the recommended changes to NH-R5 as this change only applies to a temporary activity that is unlikely to suffer material damage in a natural hazard event or would not be used in a natural hazard event, consistent with the existing risk-based approach.

3.7.8 Rule NH-R6 Above ground critical infrastructure**3.7.8.1 Matters raised by submitters**

423. Eighteen submissions were received on NH-R6. Eleven submissions were received in support of NH-R6 while seven submission sought amendments as follows:

- Extend the Kaiapoi Fixed Minimum Finished Floor Level to the Rangiora to Woodend Medium Residential Zone;
- Provide for linear infrastructure;
- Remove the ability to limited notify applications;
- Delete the reference to flood assessment overlays;
- Amend, or clarify the basis for the 0.25m threshold;
- Reconsider the requirement for a Flood Assessment Certificate to be obtained for any type of critical infrastructure.

424. Martin Pinkham [193.52] supports NH-R6 as the Kaiapoi FMFFL Overlay is a sensible way of dealing with the risk of flooding in the Kaiapoi Urban Area, however he states this should be extended to include the proposed Rangiora to Woodend Medium Density Residential Zone.

425. Transpower [195.61] generally supports NH-R6 but is concerned that the Rule does not anticipate linear infrastructure, and particularly infrastructure that is made up of a number of structures, such as a transmission line. Transpower seeks limited amendments to clarify that the standard apply singly to each structure. They seek to amend NH-R6 as follows:

Amend NH-R6:

"Where:

1. if located with the Fault Awareness Overlay, new critical infrastructure or an

extension to existing infrastructure has a footprint of less than 100m² per structure;

and

2. if located within a Flood Assessment Overlay or the Kaiapoi Fixed Minimum

Finished Floor Level Overlay:

...

c. new infrastructure or an extension to existing infrastructure:

i. has a footprint of less than 10m² per structure; or

..."

426. MainPower [249.175] supports NH-R6 but is concerned there will be a consenting burden in relation to above ground linear infrastructure. MainPower states it should be a permitted activity for both new overhead electricity distribution lines and support structures and a new rule is proposed (MainPower [249.176]) to separate out above ground linear critical infrastructure and to ensure the permitted footprint area in clause 2(c)(i) reflects the size of typical cabinets and kiosks. MainPower is also concerned that a Finished Floor Level Certificate may be required for all infrastructure when this is not necessary for poles or towers etc. MainPower seeks the amendment of NH-R6 as follows:

"Above ground critical infrastructure (not covered by new rule Rule NH-RX)

Activity status: PER

Where:

1. if located within the Fault Awareness Overlay, new critical infrastructure or an extension to existing infrastructure has a footprint of less than 100m²; and

2. if located within a Flood Assessment Overlay or the Kaiapoi Fixed Minimum Finished Floor Level Overlay:

a. the profile, contour or height of the land is not permanently raised by more than 0.25m when compared to natural ground level; and

b. the infrastructure is located on a site outside of high flood hazard area as stated in a Flood Assessment Certificate issued in accordance with NH-S1; or

c. new infrastructure or an extension to existing infrastructure:

i. has a footprint of less than ~~10~~ 13m²; or ..."

427. Rather than covering MainPower's proposed new rule in a separate section, for clarity I have covered it here under NH-R6. MainPower [249.176] seeks the insertion of a new rule to cover above ground linear critical infrastructure and support structures in natural hazard areas. The rule is as follows:

"NH-R4 Above ground linear critical infrastructure and support structures

Fault Awareness Overlay

Urban Flood Assessment Overlay

Kaiapoi Fixed Minimum Finished Floor Level Overlay

Non-Urban Flood Assessment Overlay

Activity status: PER"

428. Clampett [284.164] and RIDL [326.172] seek to delete the limited notification clause. These submissions are addressed earlier under non-notification clauses in s3.7.1. However, I note that Clampett [284.184] and RIDL [326.192] also support NH-R6 and seek it to be retained as notified.
429. Waka Kotahi [275.23] state that the section 32 evaluation does not identify the basis for the 0.25m threshold, and the need to obtain a Flood Assessment Certificate for any type of critical infrastructure is considered inefficient. They seek the amendment of NH-R6 or clarification of the basis for the 0.25m threshold and that the Council reconsider the requirement for a Flood Assessment Certificate to be obtained for any type of critical infrastructure.
430. Kainga Ora [325.124] seek to amend NH-R6 to delete reference to flood assessment overlays and to amend it to align with the relief sought for the NH Chapter outlined in other submission points. This matter was assessed earlier in this report and will not be assessed here.

3.7.8.2 Assessment

431. Regarding the submission by Martin Pinkham, in his evidence Mr Bacon disagrees that a fixed floor level approach should be adopted across the Rangiora and Woodend Medium Density Residential Zones (paragraph 23). He considers such an approach is only appropriate for those areas subject to coastal inundation or ponding with no significant overland flowpaths. For the Waimakariri District this includes the urban areas of Kaiapoi, Pines Kairaki, Woodend Beach and Waikuku Beach. In other areas of the district the sloping nature of the land and the presence of overland flowpaths means it is not possible to define an area wide maximum flood level and instead site specific considerations are needed. I accept Mr Bacon's advice and also note that I have recommended removing the Kaiapoi FMFFL overlay and approach from the District Plan in response to ECan's submission [316.52] (see the General section of this report).
432. Regarding the submissions by Transpower and MainPower, these submissions seek to amend the rules to better enable electricity transmission and distribution. Under both submissions it is likely that the installation of above ground critical linear infrastructure operated by Transpower and MainPower will be permitted in fault awareness and flooding overlays, including in high flood hazard areas. In my opinion a fully permitted status (as enabled by MainPower's proposed new NH-R4) is inconsistent with CRPS Policy 11.3.4 which states that new critical infrastructure will be located outside high hazard areas unless there is no reasonable alternative. The principal explanation and reasons for CRPS Policy 11.3.4 states that the policy seeks to ensure that critical infrastructure is not placed as a matter of course in areas subject to significant natural hazard exposure and in relation to all areas, critical infrastructure must be designed to maintain, as far as practicable, its integrity and function during natural hazard events. I note that excluding all electricity transmission and distribution from consideration would also be inconsistent with NH-P13 and NH-P14 even as amended in response to submissions by MainPower and Transpower. Furthermore, I note that the management of significant risks from natural hazards is a matter of national importance (RMA S6(h)).
433. I therefore think it is appropriate to manage their infrastructure in fault awareness areas and manage those components that are subject to flood damage, and indeed consider this is required by the CRPS. However, I consider that the consenting burden could be reduced by excluding overhead electricity transmission and distribution lines from being required to get a Flood Assessment Certificate as these are clearly not subject to flood damage. I note Mr Bacon supports this approach (paragraph 27). I also accept that the area thresholds can apply on a

'per structure' basis as it would be impractical to apply this as a total area across an entire flood assessment overlay. Mr Bacon also supports this change (paragraph 24). I further consider that small buildings or extensions up to 25m² are acceptable, consistent with the exclusion of small buildings in the definition of natural hazard sensitive activities. I therefore recommend the submission by Transpower is accepted and the submission by MainPower is accepted in part and NH-R6 is amended as set out in Appendix A and below under recommended changes to the District Plan.

434. Regarding the submission by Waka Kotahi, this rule seeks to both manage risk to critical infrastructure from natural hazards and manage displacing the risk to other properties. The basis for the 0.25m threshold is not set out in the s32. In his evidence Mr Bacon, disagrees to some extent that the need to obtain a Flood Assessment Certificate for any type of critical infrastructure that increases the existing ground level by 0.25m is inefficient (paragraph 29). He considers that any works undertaken that directly affect an overland flowpath or that might cause an increase in flood level on a neighbouring property should go through the process to obtain a Flood Assessment Certificate. However, Mr Bacon agrees that the figure of 0.25m is somewhat arbitrary and even a 0.25mm increase in ground level across an overland flowpath could cause a significant effect. He notes that the purpose of specifying 0.25m under NH-R6 was to provide a pragmatic figure large enough to capture any major works with any minor works not being affected. In order to remove the ambiguity, he recommends that rule NH-R6 is amended to remove the reference to 0.25m and a new rule is drafted to focus simply on the adverse effects of Above Ground Critical Infrastructure.
435. I note that NH-R6 does not require critical infrastructure to obtain a Flood Assessment Certificate if it has a footprint of less than 10m² but does require a Flood Assessment Certificate in most instances where the infrastructure is to be located in an area that is known to flood. In my opinion, new roads or changes to roads can result in new sources of stormwater and obstructions to flow paths and these should be managed accordingly. As flow paths are not mapped in the district this needs to be via a Flood Assessment Certificate. However, I note that one certificate could be obtained for a new road, rather than multiple certificates.
436. In response to ECan's submission [316.87] and as supported by Mr Bacon (paragraph 36), I have recommended replacing the 0.25m fill threshold with a new rule focussing on adverse effects, as set out in Appendix A and in my recommended changes to the District Plan. With this rule applying to roads, I consider it acceptable to exclude roads from the remainder of NH-R6 as these will not suffer damage in flooding events to the same extent as other critical infrastructure, or are often unable to be designed to withstand it (e.g. fault rupture). I note Mr Bacon shares this view. I therefore recommend accepting Waka Kotahi's submission in part. I recommend making the same amendment to exclude roads in NH-R17 which covers above ground infrastructure in the Coastal Flood Assessment Overlay and I have shown that in this section.

3.7.8.3 Summary of recommendations

437. I recommend that the submission by Martin Pinkham [193.52] is **rejected**.
438. I recommend that the submission from Transpower [195.61] is **accepted**.
439. I recommend that the submission from MainPower [249.176] is **accepted in part**.
440. I recommend that the submission from Waka Kotahi [275.23] is **accepted in part**.

441. Given the changes I am recommending, I recommend that the submissions in support of NH-R6 as set out in Appendix B are **accepted in part**.

442. My recommendations in relation to further submissions reflect the recommendations on the relevant primary submission.

3.7.8.4 Recommended Changes to the District Plan

443. Amend NH-R6 as follows:

NH-R6 Above ground critical infrastructure

Activity Status: PER

Where:

1. the infrastructure is a road and does not exacerbate flooding on any other property by displacing or diverting floodwater on surrounding land in a 0.5% AEP event;

~~1. 2.~~ if located with the Fault Awareness Overlay, new critical infrastructure or an extension to existing infrastructure has a footprint of less than 100m² per structure; and

~~2. 3.~~ if located within a Flood Assessment Overlay or the Kaiapoi Fixed Minimum Finished Floor Level Overlay:

- a. the profile, contour or height of the land is not permanently raised by more than 0.25m when compared to natural ground level; and
- b. the infrastructure is located on a site outside of a high flood hazard area as stated in a Flood Assessment Certificate issued in accordance with NH-S1; or
- c. new infrastructure or an extension to existing infrastructure:
 - i. has a footprint of less than ~~10~~ 13m² per structure attached to the ground; or
 - ii. ~~is located above~~ is located 3m or more above ground level, ~~excluding any support base, towers or poles, at an elevation higher than the minimum finished floor level as stated in a Flood Assessment Certificate issued in accordance with NH-S1;~~ or
 - iii. has a finished floor level equal to or higher than the minimum finished floor level as stated in a Flood Assessment Certificate issued in accordance with NH-S1; and
- d. new buildings, or extensions to existing buildings that increase the footprint of the existing infrastructure by more than 25m², are not located within an overland flow path as stated in a Flood Assessment Certificate issued in accordance with NH-S1.

444. Amend NH-R17 as follows:

NH-R17 Above ground critical infrastructure

Activity Status: PER

Where:

1. the infrastructure is a road and does not exacerbate flooding on any other property by displacing or diverting floodwater on surrounding land in a 0.5% AEP event; ...

445. My s32AA assessment for the NH-R6 and NH-R17 changes is contained in Appendix C, Table C4 and C8.

3.7.9 Rule NH-R7 Woodlots and shelterbelts

3.7.9.1 Matters raised by submitters

446. Eleven submissions were received on NH-R7. Three submissions were received in support of NH-R7, four were neutral and four sought amendments to or deletion of NH-R7:

- Remove the ability to limited notify applications;
- Delete NH-R7.

447. Clampett [284.165] and RIDL [326.173] seek to delete the limited notification clause. These submissions are addressed earlier under non-notification clauses in s3.7.1. However, I note that Clampett [284.185] and RIDL [326.193] also support NH-R7 and seek it to be retained as notified.

448. Hort NZ [295.90] and Federated Farmers [414.97] oppose NH-R7 as they consider shelterbelts are needed for rural production preventing wind erosion of soils, providing stock shelter and shade, and orchard wind and weather breaks. They also reduce reverse sensitivity potential by being a barrier between properties – particularly for spray drift management. They state that shelterbelts are managed as they are a valuable and necessary tool for primary production, and should have permitted activity status. They consider that large setbacks limit use of highly productive land if you cannot plant up to the boundary. They consider that fire risk is managed by setback rules for residential units and buildings which should be sufficient to protect life and property. Hort NZ seeks that the plan recognise shelterbelts by including them as part of rural production and the deletion of NH-R7, while Federated Farmers request the deletion of NH-P18 and NH-R7, or the replacement of NH-R7 with an activity status of permitted with no limitations.

3.7.9.2 Assessment

449. Regarding the submissions by Hort NZ and Federated Farmers, I agree that shelterbelts are an important component of rural production and their location can have an impact on productive potential. However, I also note that wildfire risk within Canterbury is expected to increase with climate change. I understand that research into firebreak setback distance found that between 20 to 30m was the optimal to provide the best protection for houses against wildfires. This is reflected in the 10-30m safety zone promoted by Fire and Emergency NZ. Submissions by Hort NZ [295.90] and Federated Farmers [414.97] imply that the proposed rule NH-R7 prohibits the use of shelterbelts within the rural environment. However, Rule NH-R7 permits shelterbelts and woodlots where there is a setback from neighbouring boundaries to reduce the risk of wildfires spreading from one property to another. I note that land located between the shelter belt and the adjoining property is still available for production and I note the setbacks will still provide for soil erosion, stock shelter and shade, and wind and weather breaks.

450. The approach taken by the Council is similar to that taken by the Christchurch District Plan which has a 30m setback for new dwellings or new plantations from each other, and 50m for the Hurunui District Plan. I note that the NESPF requires a setback of 10m from any roadside boundary and 40m from any dwelling. The 10m road setback proposed in NH-R7 is the same as the NESPF. The NESPF requires a 40m setback for plantation forestry. The 30m boundary setback proposed for shelterbelts recognises the smaller area in trees (shelterbelts vs plantation forestry).
451. I also note that the NESPF also contains provisions for managing ice. Specifically, afforestation must not occur where a plantation forest tree, when fully grown, could shade a paved public road between 10 am and 2 pm on the shortest day of the year, except where the topography already causes shading. I understand that this requirement is more stringent than those proposed in NH-R7 for ice for woodlots and shelterbelts.
452. I note that Rule GRUZ-R2 also covers boundary setbacks (but not in relation to ice). Specifically, it permits primary production for forestry that is smaller than 1ha, carbon forestry and woodlots subject to being setback:
- 10m from any road boundary;
 - 40m from any residential units on a site under different ownership; and
 - 10m from a boundary under different ownership.
453. As such, it appears that there is some overlap between GRUZ-R2, RLZ-R2 and NH-R7. To reduce this overlap I recommend that 'woodlots' is removed from NH-R7 in clause 1, with scope for this change provided by Hort NZ [295.90] and Federated Farmers [414.97]. This change is set out in Appendix A and below under recommended changes to the District Plan.

3.7.9.3 Summary of recommendations

454. I recommend that the submission by Hort NZ [295.90] and Federated Farmers [414.97] are **accepted in part**.
455. Given the changes I am recommending, I recommend that the submissions in support of NH-R7 as set out in Appendix B are **accepted in part**.
456. My recommendations in relation to further submissions reflect the recommendations on the relevant primary submission.

3.7.9.4 Recommended changes to the District Plan

457. Amend NH-R7 as follows:

Activity status: PER

Where:

1. any ~~woodlot~~ or shelterbelt shall comply with the following fire hazard setback distances, measured from the outside extent of the canopy at the time of planting:
 - a. ...

458. I do not consider a s32AA assessment is required for the recommended changes as this simply removes and overlap across planning provisions.

3.7.10 Rule NH-R8 Maintenance of existing community scale natural hazard mitigation works

3.7.10.1 Matters raised by submitters

459. Eight submissions were received on NH-R8. Six submissions were received in support of NH-R8, while two submissions sought amendments as follows:

- Remove the ability to limited notify applications;
- Insert a provision to permit the maintenance works of local authority river and drainage schemes and exclude the earthworks requirements of any other chapter.

460. RIDL [326.174] seeks to delete the limited notification clause. This submission is addressed earlier under non-notification clauses in s3.7.1. However, I note that RIDL [326.195] also supported NH-R8 and seeks it to be retained as notified.

461. ECan [316.81] supports NH-R8 in part, however ECan notes that whilst NH-R8 is supported in terms of enabling community scale natural hazard mitigation works, these activities may require resource consent under other chapters of the proposed plan. ECan seeks the inclusion of provisions to maintain the effective operation of established river and drainage schemes that are administered by local authorities within all zones. They also seek an exclusion from the earthworks requirements in any other chapter.

3.7.10.2 Assessment

462. Regarding the submission by ECan, if the specific activity is expressly covered in a district wide chapter then it will not be captured by the 'catch all' zone chapter rules. For the other district wide chapters, apart from the Earthworks Chapter, these chapters do not have 'catch-all' rules so the activity would have to be expressly identified in district wide chapters to be covered. I have reviewed the NFL, NATC, CE, ECO, and SASM chapters and note the following:

- NFL-R5 expressly states that the structures and building rule does not apply to natural hazard mitigation structures for flooding;
- NATC-R8 and NATC-R9 state in the "Advisory Note" at the end of each rule, that the provision of flood mitigation works is managed through the Natural Hazards Chapter where located within the freshwater body setback area;
- CE-R3 appears to make ECan's natural hazard mitigation structures RDIS;
- ECO-R1(1)(a) applies to maintenance, repair or replacements works involving indigenous vegetation clearance within mapped and unmapped SNAs and therefore would apply to ECan's natural hazard mitigation activities;
- ECO-R2(3)(f) and 8(c) expressly permit indigenous vegetation clearance outside of mapped and unmapped SNAs for the maintenance, repair or replacement of existing flood protection works administered by ECan; and
- SASM-R4(1)(f) permits earthworks and land disturbance in specified overlays for stopbanks within land previously disturbed by previous earthworks to a depth already disturbed.

463. Given the above, it appears that the maintenance of ECan's flood mitigation structures would be permitted in all the district wide provisions with the exception of potentially the Coastal Environment Chapter (CE-R3) and under ECO-R1.
464. With regard to ECO-R1, I have spoken to the ECO Chapter author and she is comfortable permitting the indigenous vegetation clearance for the maintenance of flood mitigation structures, as vegetation clearance is already provided in ECO-R1(1)(iv) for the maintenance, repair or replacement of infrastructure within 2m of that infrastructure and the effects would be the same or similar for existing flood mitigation structures. However, we think it is unlikely that a mapped or unmapped SNA would be collocated with an existing flood mitigation structure. I therefore (in the absence of ECan evidence) do not consider this change is required.
465. With regard to CE-R3, I have spoken to the Coastal Environment s42A author and he is comfortable excluding the maintenance, repair or replacement of existing flood protection works administered by ECan from this rule. I therefore recommend making this change to CE-R3 as set out in Appendix A and below under recommended changes to the District Plan.
466. Regarding ECan's requested exclusion from the earthworks requirements, I note that earthworks are permitted in EW-R4 for community scale natural hazards mitigation works subject to meeting the specified standards. I also note that ECan has submitted on EW-R4, stating that:
- a. the earthworks required for community scale natural hazards mitigation works should be provided through the natural hazards chapter; and*
 - b. that the limits provided in EW-S1 to EW-S7 are so restrictive this rule does not enable community scale natural hazards mitigation works.*
- I generally agree with ECan's comments on EW-R4. I have spoken to the s42A author of the Earthworks Chapter and we consider that it is acceptable for EW-R4 to be deleted, relying on NH-R8 (and NH-R9) instead. In coming to this conclusion, I note that NH-R8 is limited to maintenance, while NH-R9 is limited to upgrading, and that 'upgrading' is a defined term which includes various limitations on scale, including earthworks as a consequence. As such, I recommend that this part of ECan's submission is accepted.

3.7.10.3 Summary of recommendations

467. I recommend that the submission by ECan (316.175) is **accepted in part**.

3.7.11 Recommended changes to the District Plan

468. Amend CE-R3 as follows:

CE-R3 Any building or structure

This rule does not apply to buildings or structures located in existing Residential Zones that are within 20m of identified coastal natural character areas, or the maintenance, repair or replacement of existing flood protection works administered by or on behalf of the Regional Council.

469. Delete EW-R4 entirely as follows:

~~EW-R4~~

~~Earthworks for community scale natural hazards mitigation works~~

~~Activity status: PER~~

~~Where:~~

~~EW-S1 to EW-S7 are met.~~

~~Activity status where compliance not achieved: DIS~~

470. I do not consider a s32AA assessment is required for the recommended changes as they avoid an unintended existing overlap across chapters.

3.7.12 Rule NH-R9 Upgrading existing community scale natural hazard mitigation works

3.7.12.1 Matters raised by submitters

471. Eight submissions were received on NH-R9. Six submissions were received in support of NH-R9 and two sought amendments, covering the following:
- Removal of the ability to limited notify applications;
 - Inserting a provision to permit the maintenance works of local authority river and drainage schemes and exclude the earthworks requirements of any other chapter.
472. RIDL [326.175] seeks to delete the limited notification clause. This submission is addressed earlier under non-notification clauses in s3.7.1. However, I note that RIDL [326.195] also supported NH-R9 and seeks it to be retained as notified.
473. ECan [316.82] supports NH-R9 in part. ECan notes that whilst NH-R9 is supported in terms of enabling community scale natural hazard mitigation works (as for NH-R8), these activities may require resource consent under other chapters of the proposed plan. ECan seeks the inclusion of provisions to maintain the effective operation of established river and drainage schemes that are administered by local authorities within all zones. They also seek an exclusion from the earthworks requirements in any other chapter.

3.7.12.2 Assessment

474. Regarding ECan's submission re coverage in other chapters and how these maintain the effective operation of existing river and drainage schemes, I note the NH-R9 covers upgrading rather than maintenance. I consider that the maintenance component of the submission is already generally provided for as set out under NH-P8. I note upgrading would also be permitted under NFL-R5, NATC-R8 and NATC-R9 and potentially under ECO-R2 and SASM-R4, but would likely be required under CE-R3, ECO-R1.
475. I note that ECan runs schemes, as opposed to individual hazard mitigation structures. This was identified by ECan in its submission on 'community scale natural hazard mitigation works' covered in the definitions section of this report (s3.3.1). I consider there is also value in recognising this scheme approach within the definition of 'upgrading'. I therefore recommend amending the definition of 'upgrading' to include a footprint increase of up to 10% of the

original scheme across any continuous 5-year period for ECan's flood infrastructure. This definition change will further support ECan to maintain the effective operation of existing river and drainage schemes consistent with their submission on NH-R9. Given the extent of works able to be undertaken under this amended definition of upgrading I consider that it is appropriate that resource consent is required under some district wide provisions. I therefore recommend that this submission is accepted in part, noting it is already provided for in some district wide rules and noting the changes I am recommending to NH-R8.

476. Regarding ECan's requested exclusion from the earthworks requirements, the same commentary for NH-R8 above also applies to NH-R9. I consider it acceptable for EW-R4 to be deleted, relying on NH-R9 instead. In coming to this conclusion, I note that NH-R9 is limited to upgrading, and that 'upgrading' is a defined term which includes various limitations on scale, including earthworks as a consequence. As such, I recommend that this part of ECan's submission is accepted.

3.7.12.3 Summary of recommendations

477. I recommend that the submission by ECan 316.82) is **accepted in part**.

3.7.12.4 Recommended changes to the District Plan

478. Amend the definition of 'upgrading' as follows:

Upgrading

In relation to the natural hazards chapter, means the replacement, renewal, improvement or realignment of a network utility structure or building, or natural hazards mitigation works that:

- a. is within 5m of the alignment or location of the original structure or building; and
- b. does not increase the footprint of the original structure or building by greater than 10 percent across any continuous 5-year period; or
- c for flood schemes, it does not increase the footprint of the scheme by greater than 10 percent across any continuous 5-year period;
- ~~d.~~

Note: upgrading does not include works limited to maintenance.

479. My s32AA assessment is contained in Appendix C, Table C 12.

3.7.13 Rule NH-R10 Construction of new community scale natural hazard mitigation works

3.7.13.1 Matters raised by submitters

480. Nine submissions were received on NH-R10. Six submission were received in support of NH-R10, while three submissions sought amendments as follows:

- Removal of the ability to limited notify applications;

- Reconsideration of this rule and a definition is required to clarify the applicability of NH-R10 in relation to an earth engineered bund;
 - Insertion of a provision to permit the maintenance works of local authority river and drainage schemes and exclude the earthworks requirements of any other chapter.
481. RIDL [326.176] seeks to delete the limited notification clause. This submission is addressed earlier under non-notification clauses in s3.7.1. However, I note that RIDL [326.196] also supported NH-R9 and seeks it to be retained as notified.
482. The submission by 199 Johns Road Ltd, Carolina Homes Ltd, Carolina Rental Homes Ltd, Allan Downs Ltd [266.16] states that if West Rangiora Development Area is relying on Council undertaking natural hazard mitigation works under NH-P9(1), then NH-R10 applies. It is unclear that an earth engineered 'bund' would meet the definition of 'soft engineering natural hazard mitigation' thus reconsideration of this rule and definition are required. They seek NH-R10 is amended to clarify the applicability of NH-R10 in relation to an earth engineered bund.
483. ECan [316.83] supports NH-R10 in part. ECan notes that whilst NH-R10 is supported in terms of enabling community scale natural hazard mitigation works (as for NH-R8 and NH-R9), these activities may require resource consent under other chapters of the proposed plan. ECan seeks the inclusion of provisions to maintain the effective operation of established river and drainage schemes that are administered by local authorities within all zones. They also seek an exclusion from the earthworks requirements in any other chapter.

3.7.13.2 Assessment

484. Regarding 199 Johns Road Ltd, Carolina Homes Ltd, Carolina Rental Homes Ltd, Allan Downs Ltd, I agree that it is not fully clear whether an earth engineered bund would meet the definition of 'soft engineering natural hazard mitigation'. The PDP definitions of both soft and hard natural hazard engineering are as follows:

SOFT ENGINEERING NATURAL HAZARD MITIGATION

"means the use of natural materials, features and processes, including vegetation to stabilise waterway banks, and absorb wave energy and reduce coastal erosion and inundation. Soft engineering techniques include planting, beach re-nourishment, beach and bank re-profiling and the restoration of natural features such as dunes, coastal wetlands/saltmarsh and floodplains."

HARD ENGINEERING NATURAL HAZARD MITIGATION

"means the construction of, usually artificial, physical structures or resistant barriers, to avoid flood damage or slow down or prevent erosion or inundation of the coastline. Such structures include stop banks, seawalls, gabions, breakwaters and groynes."

485. I consider that an artificially constructed earthen bund would most likely be classified as hard engineering natural hazard mitigation as they fall within the term 'stop bank'. In his evidence Mr Bacon comes to the same conclusion (paragraph 28). Given this, such an activity would be RDIS under NH-R10 (if the structure was not undertaken by the Council, i.e. it did not meet the definition of community scale natural hazard mitigation works, then it would be a discretionary activity under NH-R13). I consider it appropriate that such a structure is required to go through

a resource consent process as it would need to be carefully constructed to appropriately respond to different hazard events and to avoid exacerbating hazard risk onto other properties and be properly maintained. In his evidence Mr Bacon agrees with this consent pathway requirement. To add clarity to NH-R10 I recommend that permitted activity standard NH-R10(1) is amended as set out in Appendix A and below under recommended changes to the District Plan.

486. Regarding the submission by ECan re coverage in other chapters, NH-R10 is about the construction of new mitigation schemes, whereas ECan's submission refers to the effective operation of established river and drainage schemes. As such, it is not clear if this submission applies to NH-R10. Based on my assessment under NH-R8, it is likely that new mitigation schemes would not be covered by NFL-R5, NATC-R8 and NATC-R9, however consent would likely be required under CE-R3, ECO-R1, ECO-R2 and SASM-R4. Given the adverse effects that can occur from the construction of new hazard mitigation schemes I consider it appropriate that a resource consent is required for these. Regarding excluding earthworks, the same commentary and recommendations for NH-R8 and NH-R9 above also applies to NH-R10. I consider it acceptable for EW-R4 to be deleted, relying on NH-R10 instead and therefore consider that this submission is accepted in part.

3.7.13.3 Summary of recommendations

487. I recommend that the submission by 199 Johns Road Ltd, Carolina Homes Ltd, Carolina Rental Homes Ltd, Allan Downs Ltd [266.16] is **accepted**.
488. I recommend that the submission by ECan [316.83] is **accepted in part**.
489. Given the changes I am recommending, I recommend that the submissions in support of NH-R10 as set out in Appendix B are **accepted in part**.

3.7.13.4 Recommended changes to the District Plan

490. Amend NH-R10(1) as follows:
1. the works are limited to soft engineering natural hazard mitigation and do not include earth engineered bunds; and
491. I do not consider a s32AA assessment is required as this change simply provides clarification.

3.7.14 Rule NH-R11 New and upgrading of above and below ground existing infrastructure that is not critical infrastructure

3.7.14.1 Matters raised by submitters

492. Seven submissions were received on NH-R11. Six submissions were received in support of NH-R11, while one submission sought the removal the ability to limited notify applications.
493. RIDL [326.177] seeks to delete the limited notification clause. This submission is addressed earlier under non-notification clauses in s3.7.1. However, I note that RIDL [326.197] also supported NH-R9 and seeks it to be retained as notified.

3.7.14.2 Assessment

494. There are no submissions to be assessed for NH-R11.

3.7.14.3 *Summary of recommendations*

495. There are no recommendations for NH-R11.

3.7.15 Rule NH-R12 Natural hazard sensitive activities

3.7.15.1 Matters raised by submitters

496. Seven submissions were received on NH-R12. Six submissions were received in support of NH-R12, while one submission sought the removal the ability to limited notify applications.

497. RIDL [326.178] seeks to delete the limited notification clause. This submission is addressed earlier under non-notification clauses in s3.7.1. However, I note that RIDL [326.198] also supported NH-R12 and seeks it to be retained as notified.

3.7.15.2 Assessment

498. There are no submissions to be assessed for NH-R12.

3.7.15.3 *Summary of recommendations*

499. There are no recommendations for NH-R12.

500. My recommendations in relation to further submissions reflect the recommendations on the relevant primary submission.

3.7.16 Rule NH-R13 Upgrading of existing or construction of new non-community scale natural hazard mitigation works for flood mitigation

3.7.16.1 Matters raised by submitters

501. Eight submissions were received on NH-R13. Six submissions were received in support of NH-R13, while two submissions sought amendments as follows:

- Clarify the application of NH-R13 as to whether it applies to works undertaken by the Crown;
- Remove the ability to limited notify applications.

502. MoE [277.29] states that, like NH-P9, it is unclear if works undertaken by the Crown (including MoE) are encapsulated by NH-R13 and should be clarified. The consider that it appears this rule is directed at non community scale natural hazard mitigation works, meaning all other mitigation works not at a community scale. The Ministry seeks the clarification of the intent of the policy and how it interacts with NH-P9.

503. RIDL [326.179] seeks to delete the limited notification clause. This submission is addressed earlier under non-notification clauses in s3.7.1. However, I note that RIDL [326.199] also supported NH-R12 and seeks it to be retained as notified.

3.7.16.2 Assessment

504. Regarding the MoE submission, NH-R13 does not apply to community scale natural hazard mitigation works. Rather NH-R10 would apply to works undertaken by or on behalf of MoE.

Earlier recommendations in relation to NH-P9 help clarify the relationship between NH-R13 and NH-P9. As such, I recommend that this submission is accepted in part.

3.7.16.3 Summary of recommendations

505. I recommend that the submission by MoE [277.29] is **accepted in part**.

3.7.17 Rule NH-R14 New and upgrading of above and below ground critical infrastructure (in the Ashley Fault Avoidance overlay)

3.7.17.1 Matters raised by submitters

506. Nine submissions were received on NH-R14. Six submissions were received in support of NH-R14 while three submissions sought amendments as follows:

- Amend the status of critical infrastructure in the Ashley Fault Avoidance Overlay;
- Disapply NH-R14 from the electricity distribution network;
- Remove the ability to limited notify applications.

507. Transpower [195.62] generally supports NH-R14 to the extent that the rule provides a consenting pathway for critical infrastructure. However, Transpower does not support discretionary activity status for new critical infrastructure in the Ashley Fault Avoidance Overlay and considers that the most stringent activity status that should apply is restricted discretionary. This is because any potential effects in respect of the fault hazard can be adequately assessed via Matters of Discretion NH-MD3. Transpower does not accept the rationale in the Section 32 Report for the stringency of the provisions for critical infrastructure on the basis that it is important that the infrastructure remains operational during a hazard event and considers that a discretionary activity status is a blunt and indirect tool to achieve the Section 32 Report outcome.

508. The submission by MainPower [249.177] supports NH-R14 but they consider it is overly restrictive where it applies to linear above and below ground infrastructure and associated support structures. The seek to disapply the NH-R14 to the electricity distribution network by removing reference to electricity distribution.

Amend NH-R14 (1)(a):

"...

Where:

1. the critical infrastructure involves any of the following:

a. electricity substations, ~~networks~~, and transmission and distribution installations, including the National Grid ~~and the electricity distribution network~~;

..."

509. RIDL [326.180] seeks to delete the limited notification clause. This submission is addressed earlier under non-notification clauses in s3.7.1. However, I note that RIDL [326.200] also supported NH-R12 and seeks it to be retained as notified.

3.7.17.2 Assessment

510. Regarding the submission by Transpower, I agree that a Restricted Discretionary activity status for new critical infrastructure in the Ashley Fault Avoidance Overlay is acceptable as the matters of discretion are able to be identified. I therefore recommend that NH-R14 is made a restricted discretionary activity with reference to NH-MD3 – Natural Hazards and Infrastructure. These amendments are set out in Appendix A and below under recommended changes to the District Plan.
511. Regarding the submission by MainPower, I consider that MainPower's assets should be treated consistently with Transpower's as they are all critical infrastructure being proposed in an area subject to natural hazards, and that electricity is a lifeline utility. I note that I am proposing the activity status for NH-R14 to be Restricted Discretionary, rather than Discretionary, which reduces the consenting burden for MainPower. I therefore recommend that MainPower's (249.177) submission is rejected.

3.7.17.3 Summary of recommendations

512. I recommend that the submission by Transpower [195.62] is **accepted**.
513. I recommend that the submission by MainPower [249.177] is **rejected**.
514. Given the changes I am recommending, I recommend that the submissions in support of NH-R14 as set out in Appendix B are **accepted in part**.
515. My recommendations in relation to further submissions reflect the recommendations on the relevant primary submission.

3.7.17.4 Recommended Changes to the District Plan

516. Amend NH-R14 as follows:

New and upgrading of above and below ground critical infrastructure

Activity status: ~~DIS~~ RDIS

Where:

1. the critical infrastructure involves any of the following:
 - a. electricity substations, networks, and transmission and distribution installations, including the National Grid and the electricity distribution network;
 - b. supply and treatment of water for public supply;
 - c. stormwater and sewage treatment and disposal systems;
 - d. radiocommunication and telecommunication installations and networks;
 - e. strategic road and rail networks;
 - f. petroleum storage and supply facilities.

Matters of discretion are restricted to:

NH-MD3 - Natural hazards and infrastructure

517. My s32AA assessment is contained in Appendix C, Table C 9.

3.7.18 Rule NH-R15 Natural hazard sensitive activities within the urban environment

3.7.18.1 Matters raised by submitters

518. There were twelve submissions on NH-R15. Four submissions were received in support of NH-R15, five were neutral and three sought amendments as follows:

- Removal of the ability to limited notify applications;
- Deletion of NH-R15(1).

519. Clampett [284.173] and RIDL [326.181] seek to delete the limited notification clause. This submission is addressed earlier under non-notification clauses in s3.7.1. However, I note that Clampett [284.193] and RIDL [326.201] also supported NH-R15 and seek it to be retained as notified.

520. ECan [316.84] considers that NH-R15(1) could enable inadequate standards of flood mitigation if floor levels have been based on lower magnitude flood events, or on information that is now outdated. They seek the deletion of NH-R15(1).

3.7.18.2 Assessment

521. Regarding ECan's request to delete NH-R15(1), as stated in response to other ECan submissions (e.g. ECan [316.77] on NH-R1), Mr Bacon considers that it is appropriate to enable buildings to be built to the level specified in a consent notice (paragraph 30). I note that the 1 January 2021 date was included as this date is when the coastal flood modelling was provided by Jacobs and therefore is the latest data available. In addition, in his evidence Mr Debski stated that the Council holds recent, detailed flood hazard information for much of the district – in particular, the data accessible through the Waimakariri District Natural Hazards Interactive Viewer, which were available to Council prior to 1 January 2021 (paragraph 16). He further states (in paragraph 19):

"I therefore consider that floor levels specified by District Council for subdivisions subject to resource consent since January 2021, which have been based on current flood modelling of extreme events including a freeboard allowance, provide an adequate standard of flood mitigation."

522. As such, the floor levels identified in consent notices approved after January 1 2021 are based on the most up to date flood modelling and consider acceptable magnitude flood events. The 5-year time limit is appropriate given the semi frequent rate at which the flood modelling data is updated. Based on my recommendations for NH-R1 and NH-R3, I recommend that NH-R15 is amended to refer to a 'consent decision' and the references to subdivision and a 'subdivision consent plan' are deleted.

3.7.18.3 Summary of recommendations

523. I recommend that the submission by ECan [316.84] is **accepted in part**.

3.7.18.4 Recommended changes to the District Plan

524. Amend NH-R15(1) as follows:

Where:

1. the building is erected to the level specified in an existing ~~subdivision consent notice~~ decision ~~or on an approved subdivision consent plan~~ that was approved after 1 January 2021, and is less than five years old; or

525. I do not consider a s32AA assessment is required for the recommended change of 'consent notice' to 'consent decision' and the deletion of references to subdivision consents and consent plans as the change is consistent with the intent of the provision.

3.7.19 Rule NH-R16 Natural Hazard Sensitive Activities Outside the Urban Environment

3.7.19.1 Matters raised by submitters

526. There were nine submissions on NH-R16. Three submissions were received in support of NH-R16, four were neutral and two submissions sought amendments as follows:

- deletion of the permitted pathway under NH-R16;
- Removal of the ability to limited notify applications.

527. In their submission ECan [316.85] states that the proposed provisions do not give effect to Chapter 11 Natural Hazards of the CRPS, particularly in relation to high hazard areas in the coastal environment. This especially relates to the permitted and restricted discretionary activity status for development in areas subject to coastal hazards, which they consider is not consistent with the policy direction for a high hazard area under the CRPS. ECan considers that NH-R16 does not give effect to Objective 11.2.1 and Policy 11.3.1 of the CRPS. ECan states that the CRPS requires that risk from flooding and inundation in high hazard areas is avoided. They state that outside of existing urban areas, CRPS Policy 11.3.1 does not provide for the mitigation of effects like it does for existing urban areas. They seek the deletion of the permitted pathway in NH-R16 for new natural hazard sensitive activities in the coastal flood assessment overlay.

528. RIDL [326.182] seek to delete the limited notification clause. This submission is addressed earlier under non-notification clauses in s3.7.1. However, I note that RIDL [326.202] also supported NH-R16 and seek it to be retained as notified.

3.7.19.2 Assessment

529. Based on the flood modelling undertaken by Jacobs to support the District Plan Review (available online from the DPR home page), I understand that coastal flooding in the District is predicted to occur through overtopping of river stopbanks. Were this to occur, I understand that the flood waters will be very slow moving, with the risk occurring from the depth, rather than the velocity. In his evidence Mr Debski states (paragraph 33) that"

"Recent hydrodynamic modelling of coastal inundation for the Waimakariri District ('Phase 2 Coastal Inundation Modelling, Final Study Report', Jacobs, 12 March 2020) shows that maximum velocities in the coastal flood hazard area are relatively low (less than 0.5 m/s) over almost all the inundation area such that for practical purposes it is appropriate to categorise flood hazard by the water depths".

I understand that the flood waters will be a mixture of sea and fresh water as stated in Mr Debski's evidence (paragraph 36).

530. Rule NH-R16 essentially:

- permits natural hazard sensitive activities subject to coastal flooding of 0.29m or less if they have an appropriate finished floor level;
- requires a RDIS consent for natural hazard sensitive activities erected on land subject to 0.3 and 0.99m of coastal flooding where the activity has an appropriate finished floor level (including via raised land);
- requires a NC consent for natural hazard sensitive activities undertaken on land subject to 1m, or more of coastal flooding.

531. Regarding the ECan submission, CRPS Objective 11.2.1 and Policy 11.3.1, together with excerpts from their principal reasons and explanation is as follows:

Objective 11.2.1

"New subdivision, use and development of land which increases the risk of natural hazards to people, property and infrastructure is avoided or, where avoidance is not possible, mitigation measures minimise such risks."

Principal reasons and explanation

"...The objective seeks that risks from natural hazards are avoided in the first instance and otherwise mitigated. Avoiding these impacts involves ensuring that development does not occur in high hazard risk areas. In lower risk areas and where development may be otherwise appropriate in high hazard risk areas (where avoidance is not possible), mitigation measures may provide an alternate means of achieving the overall objective..."

Policy 11.3.1

"To avoid new subdivision, use and development (except as provided for in Policy 11.3.4 [relates to critical infrastructure only]) of land in high hazard areas, unless the subdivision, use or development:

- 1. is not likely to result in loss of life or serious injuries in the event of a natural hazard occurrence; and*
- 2. is not likely to suffer significant damage or loss in the event of a natural hazard occurrence; and*
- 3. is not likely to require new or upgraded hazard mitigation works to mitigate or avoid the natural hazard; and*
- 4. is not likely to exacerbate the effects of the natural hazard; or*
- 5. Outside of greater Christchurch, is proposed to be located in an area zoned or identified in a district plan for urban residential, industrial or commercial use, at the date of notification of the CRPS, in which case the effects of the natural hazard must be mitigated; or*
- 6. Within greater Christchurch, is proposed to be located in an area zoned in a district plan for urban residential, industrial or commercial use, or identified as a "Greenfield Priority Area" on Map A of Chapter 6, both at the date the Land Use Recovery Plan was notified in the Gazette, in which the effect of the natural hazard must be avoided or appropriately mitigated; or*

7. Within greater Christchurch, relates to the maintenance and/or upgrading of existing critical or significance infrastructure."

532. I note that the objective focuses on avoiding increasing risk in the first instance and mitigating this increased risk where avoidance is not possible while the policy seeks avoidance in high hazard areas unless the use can meet the specified tests, differentiating between existing urban areas and rural areas and locations within and outside of Greater Christchurch.
533. CRPS Policy 11.3.2 covers flooding in a 0.5% AEP event outside of high hazard areas, seeking avoidance unless there is no increased risk to life, and the subdivision, use or development can meet the specified tests, including having a floor level built to the 0.5% AEP event. This policy responds to the mitigation component of CRPS Objective 11.2.1.
534. The principal reasons and explanation states:
- "...Although inappropriate subdivision, use and development of land is to be avoided in high hazard areas (Policy 11.3.1), this policy acknowledges that new subdivision, development and use of land can still occur in inundation areas where the specified criteria are met. Like Policy 11.3.1, Policy 11.3.2 also acknowledges that new land uses that are unlikely to suffer material damage to land or property (for example rural activities and recreational parks), and which do not result in increased risk to life, will probably be acceptable in areas subject to flooding in a 0.5% AEP flood event. In addition, ancillary buildings, including small additions to existing buildings, and development incidental to an existing use are acceptable where there is no increased risk to life. For clarity, any new development or change in use that may result in an increased risk to life falls within this policy. Where the new use or development is of a type that may suffer material damage in a natural hazard event and is not ancillary or incidental to the main building(s) or use, then it may still be acceptable if the floor levels are elevated above the likely flood water level of a 0.5% AEP flood event...."*
535. The CRPS definition of 'high hazard area' is important for consideration of the above CRPS provisions and NH-R16. As covered earlier in this report under the definition of 'high coastal flood hazard area' (s3.3.3), while the CRPS definition provides a statement on flooding depth / velocity for freshwater flooding (clause 1), there is no corresponding depth guidance for areas subject to sea water inundation (clause 4). It therefore appears that any sea water inundation, for example 1 centimetre once in 100 years (including taking into account the effect of climate change), would make an area a 'high hazard area.' In addition, there are no metrics for how to consider the contributory effects of river flows. This makes the CRPS definition for high hazard sea water inundation areas very blunt, not risk based and arguably of little practical use for implementation in the Waimakariri District Plan.
536. In his evidence Mr Debski considered what risk is acceptable in areas subject to sea water inundation, categorising both low / medium and high-risk situations. Mr Debski states (in paragraph 23) that for the proposed 0.3 m depth limit in NH-R16(2), *"flood water of depth less than 0.3 m is not generally considered a high hazard. For example, in the Safety Design Criteria of the Australian Rainfall and Runoff Guidelines, flooding to a depth of less than 0.3 m corresponds to the lowest defined flood hazard class (H1: 'generally safe for people, vehicles, and buildings') for slow moving water (velocity less than 1 m/s)."*
537. Based on his advice and my earlier recommendation to amend the definition of 'high coastal flood hazard' the permitted pathway under NH-R16 is consistent with CRPS Policy 11.3.1, despite the CRPS characterising 1cm of sea water inundation in 100 years as high hazard, as

CRPS policy 11.3.1 does not seek total avoidance but rather avoidance unless the specified criteria are met. Based on Mr Debski's advice (paragraphs 29 and 30), I understand the development provided for via NH-R16 will meet the following CRPS Policy 11.3.1 criteria:

1. is not likely to result in loss of life or serious injuries in the event of a natural hazard occurrence; and
2. is not likely to suffer significant damage or loss in the event of a natural hazard occurrence; and
3. is not likely to require new or upgraded hazard mitigation works to mitigate or avoid the natural hazard; and
4. is not likely to exacerbate the effects of the natural hazard.

538. In my opinion, development subject to coastal flooding of 0.29m and of 0.29m-0.99m aligns with the CRPS approach to flooding that is not high hazard. I also consider that the non-complying status for activities on land subject to 1m or more depth of coastal flooding does align with the CRPS approach for high hazard areas for fresh water flood hazard. As such I recommend the submission from ECan is rejected.

539. Consistent with my recommendation on NH-R1, NH-R2, NH-R3 and NH-R15 in response to a submission from ECan [316.77], I recommend that NH-R16(1) is amended to refer to a 'consent decision' and the references to subdivision and a 'subdivision consent plan' are deleted. I have showed the change here as it is NH-R16 being amended.

3.7.19.3 Summary of recommendations

540. I recommend that the submission by ECan [316.85] is **rejected**.

3.7.19.4 Recommended changes to the District Plan

541. Amend NH-R16(1) as follows:

Where:

1. the building is erected to the level specified in an existing ~~subdivision consent notice decision~~ decision ~~or on an approved subdivision consent plan~~ that was approved after 1 January 2021, and is less than five years old; or

542. I do not consider a s32AA assessment is required for the recommended change of 'consent notice' to 'consent decision' and the deletion of references to subdivision consents and consent plans as the change is consistent with the intent of the provision.

3.7.20 Rule NH-R17 Above Ground Critical Infrastructure

3.7.20.1 Matters raised by submitters

543. There were twelve submissions on NH-R17. Four submissions were received in support of NH-R17, four were neutral, while four sought amendments as follows:

- Better provide for linear infrastructure;
- Provide for electricity distribution cabinets;

- Remove the permitted pathway for new infrastructure;
 - Remove of the ability to limited notify applications.
544. Transpower [195.63] generally support NH-R17 but is concerned that it does not anticipate linear infrastructure, and particularly infrastructure that is made up of a number of structures, such as a transmission line. It seeks a limited amendment to clarify that the standard applies singly to each structure. Transpower considers that the 'default' rules are overly complex and onerous and is of the view that the most stringent activity status that should apply is restricted discretionary and therefore proposes deleting standard 2 that applies within the Coastal Flood Assessment Overlay. They consider that any potential effects in respect of coastal flood hazards can be adequately assessed via Matters of Discretion NH-MD3 and NH-M4.
545. MainPower [249.178] support NH-R17 but in clause 1(a) seek the footprint be increased to 13m² so that the typical cabinet and kiosk used can be accommodated without the burden of requiring a resource consent. In their relief sought they also seek to add a reference to EI-MD3.
546. Similar to NH-R16, ECan [316.86] considers that the proposed provisions do not give effect to Chapter 11 Natural Hazards of the CRPS, particularly in relation to high hazard areas in the coastal environment. This especially relates to the permitted and restricted discretionary activity status for development in areas subject to coastal hazards, which is not consistent with the policy direction for a high hazard area under the CRPS. Does not give effect to CRPS Policy 11.3.4 which requires that new critical infrastructure will be located outside high hazard areas unless there is no reasonable alternative. They seek the deletion of the permitted pathway in NH-R17 for new infrastructure in the coastal flood assessment overlay.
547. RIDL [326.183] seek to delete the limited notification clause. This submission is addressed earlier under non-notification clauses in s3.7.1. However, I note that RIDL (326.203) also support NH-R17 and seek it to be retained as notified.

3.7.20.2 Assessment

548. Regarding the submission from Transpower and MainPower, their comments on linear infrastructure are similar to their submissions on NH-R6 [195.61] and [249.175] which applies outside of the Coastal Flood Assessment Overlay. These submissions seek to amend the rules to better enable linear infrastructure such as electricity transmission and distribution. Consistent with my recommendation for NH-R6, I accept that the area thresholds can apply on a 'per structure' basis as it would be impractical to apply this as a total area across an entire flood assessment overlay. I also agree that the area threshold can be increased so as to provide for a typical MainPower cabinet and kiosk. I therefore recommend these submission points from Transpower and MainPower are accepted, with the changes set out in Appendix A and below under recommended changes to the District Plan. In response to Transpower's comment that the rules are overly complex, I also recommend that NH-R17(1)(a) is amended to refer to 'upgrading', rather than 'an extension to existing infrastructure' as upgrading is a defined term and will provide more clarity as to the rule's application. I consider related consequential changes should be made to NH-R5 and NH-R6 which also cover infrastructure and refer to extensions to existing infrastructure.
549. Regarding Transpower's request to delete Activity status standard 2 ('NH-R17(2)'), standard 2 is connected to standard 1 in a cascade. Non-compliance with Standard 1 defaults to either an RDIS activity under Standard 2 or if Standard 2 is not met, a non-complying activity. Standard

2 only applies to buildings that are proposed in areas subject to between 0.3 and 0.99m of flooding. It does not apply to structures.

550. As set out earlier in the definitions section of my report under 'high coastal flood hazard area' (see s3.3.3), flooding of more than 1m is likely to be high hazard under the CRPS. As set out in my assessment under NH-R6, CRPS Policy 11.3.4 states that new critical infrastructure will be located outside of high hazard areas unless there is no reasonable alternative. The principal explanation and reasons for CRPS Policy 11.3.4 states that the policy seeks to ensure that critical infrastructure is not placed as a matter of course in areas subject to significant natural hazard exposure and in relation to all areas, critical infrastructure must be designed to maintain, as far as practicable, its integrity and function during natural hazard events. I therefore consider that it is appropriate that buildings associated with critical infrastructure proposed to be located in areas subject to more than 1m of flooding in the prescribed hazard event are non-complying. I therefore recommend that this submission component is rejected. Overall, I am accepting Transpower's submission in part given my earlier agreement on thresholds.
551. Regarding MainPower's request to add a reference to EI-MD3, I note this matter of discretion refers to operational requirements. NH-MD3 already refers to functional and operational need and therefore I consider this additional matter of discretion is not required. I therefore recommend this component of MainPower's submission is rejected.
552. Regarding ECan's submission, consistent with my conclusions on NH-R16, I consider that development subject to coastal flooding of 0.29m and 0.29m-0.99m aligns with the CRPS approach to flooding that is not high hazard. I also consider that the non-complying status for activities on land subject to 1m or more depth of coastal flooding does align with the CRPS approach for high hazard areas for fresh water flood hazard, thereby giving effect to CRPS Policy 11.3.4. I note Mr Bacon also disagrees with ECan's proposed deletion of the permitted pathway (paragraph 34).

3.7.20.3 Summary of recommendations

553. I recommend that the submission by Transpower [195.63] is **accepted in part**.
554. I recommend that the submission by MainPower (249.178) is **accepted in part**.
555. I recommend that the submission by ECan (316.86) is **rejected**.
372. Given the changes I am recommending, I recommend that the submissions in support of NH-R17 as set out in Appendix B are **accepted in part**.
408. My recommendations in relation to further submissions reflect the recommendations on the relevant primary submission.

3.7.20.4 Recommended changes to the District Plan

556. Amend NH-R17(1) as follows:
- a. new or upgraded infrastructure ~~or an extension to existing infrastructure~~ has a footprint of less than 103m² per structure; or
557. Amend NH-R5(2) as follows:

2. new or upgraded infrastructure ~~or an extension to existing~~ infrastructure:

558. Amend NH-R6(1) as follows:

1. if located with the Fault Awareness Overlay, new ~~critical infrastructure or an extension to existing~~ upgraded infrastructure has a footprint of...

559. I do not consider a s32AA assessment is required for the recommended changes as they simply clarify the intent of the provision and apply a defined term as opposed to an undefined term.

3.7.21 Rule NH-R18 Below Ground Infrastructure and Critical Infrastructure

3.7.21.1 Matters raised by submitters

560. There were eleven submissions on NH-R18. Five submissions were in support of NH-R18, four were neutral and two sought amendments as follows:

- Amend NH-R18 to capture all off-site effects;
- Remove the ability to limited notify applications.

561. ECan's submission [316.87] on NH-R18 is unclear. The decision requested states "refer to relief sought in relation to EW-R5 and general comments on NH-P2 – P4." I have reviewed the relief sought in relation to EW-R5 and the general comments on NH-P2 to NH-P4 and understand that ECan are concerned that this rule is not effects based as it currently permits earthworks that could still cause offsite effects, i.e., fill of 0.25m or a building platform for a non-hazard sensitive building (the restrictions on buildings within overland flow paths in the Natural Hazards Chapter only relate to hazard sensitive buildings). I understand ECan considers it also requires resource consent for earthworks above 0.25m that may not cause offsite flood effects. I understand that ECan seeks a rule such as the one proposed in the Kaikoura natural hazards plan change to resolve these issues. For example:

Above ground earthworks, buildings and new structures that:

a. will not worsen flooding on another property through the diversion or displacement of floodwaters; or

b. meet the definition of land disturbance.

562. RIDL [326.184] seek to delete the limited notification clause. This submission is addressed earlier under non-notification clauses in s3.7.1. However, I note that RIDL [326.204] also support NH-R18 and seek it to be retained as notified.

3.7.21.2 Assessment

563. Regarding the ECan submission, I assessed a similar request under [316.79]. There I accepted that 0.25m of earthworks in an overland flow path could cause adverse effects, and also that consent might be required for earthworks that do not cause adverse effects due to the blunt and arbitrary nature of the rule. I recommended accepting [316.79] in part. Accordingly, I recommend that [316.87] is accepted in part, noting it is not entirely clear what ECan is seeking in this submission point. NH-R18 would therefore be reworded as set out in Appendix A and below under recommended changes to the District Plan (and also under [316.79]).

564. I note that I recommended the same wording in response to ECan's submission [316.79] on NH-R4, and also for NH-R5, NH-R6, and NH-R17 where 0.25m of earthworks was included in the provisions. The scope for the changes to NH-R5, NH-R6, and NH-R17 is provided through [316.79] and [316.87]

3.7.21.3 Summary of recommendations

565. I recommend that the submission by ECan [316.83] is accepted in part.

566. Given the changes I am recommending, I recommend that the submissions in support of NH-R18 as set out in Appendix B are **accepted in part**.

3.7.21.4 Recommended changes to the District Plan

567. Amend NH-R18 as follows:

NH-R18 Below ground infrastructure and critical infrastructure

Activity Status: PER

Where:

1. ~~the profile, contour or height of the land is not permanently raised by more than 0.25m when compared to natural ground level. the activity does exacerbate flooding on any other property by displacing or diverting floodwater on surrounding land in a 0.5% AEP event.~~

568. My s32AA assessment for the NH-R18 change is contained in Appendix C, Table C8.

3.7.22 Rule NH-R19 Construction of new community scale natural hazard mitigation works involving hard engineering natural hazard mitigation

3.7.22.1 Matters raised by submitters

569. There were eight submissions on NH-R19. Three submissions were received in support of NH-R19, four submissions were neutral and one submission sought amendments to remove the ability to limited notify applications.

570. RIDL [326.185] seek to delete the limited notification clause. This submission is addressed earlier under non-notification clauses at 3.7.1. However, I note that RIDL [326.205] also support NH-R19 and seek it to be retained as notified.

3.7.22.2 Assessment

571. There are no submissions to be assessed for NH-R19.

3.7.22.3 Summary of recommendations

572. There are no recommendations for NH-R19.

3.7.23 Rule NH-R20 Upgrading of existing or construction of new non-community scale natural hazard mitigation works for coastal flood hazard mitigation

3.7.23.1 Matters raised by submitters

573. There were eight submissions on NH-R20. Three submissions were received in support of NH-R20, four submissions were neutral, while one submitter sought amendments.

574. RIDL [326.186] seek to delete the limited notification clause. This submission is addressed earlier under non-notification clauses at 3.7.1. However, I note that RIDL [326.206] also support NH-R20 and seek it to be retained as notified.

3.7.23.2 Assessment

575. There are no submissions to be assessed for NH-R20.

3.7.23.3 Summary of recommendations

576. There are no recommendations for NH-R20.

3.8 Standards

3.8.1 Standard NH-S1 Flood Assessment Certificate

3.8.1.1 Matters raised by submitters

577. Ten submissions were received on NH-S1. Five submissions were received in support, one submission was neutral and four submissions sought amendments as follows:

- apply the Kaiapoi Fixed Minimum floor level approach to Southbrook;
- apply a 1% AEP (1 in 100-year) method of calculating minimum floor levels instead of the 0.5% (1 in 200-year) approach;
- include the criteria for setting appropriate freeboard levels;
- refer to a 0.5% AEP for storm surge events;
- delete reference to overlays and instead refer to the specific hazard type that will be identified through a flood assessment; and
- include a default freeboard of 400mm within areas of very low to low flood hazard.

578. McAlpines [226.9] consider that the method to manage flood hazard risk within the Urban Flood Assessment Overlay is flawed and inappropriate as:

- the outcome of any Flood Assessment Certificate is uncertain and may change as more and better information becomes available;
- a Flood Assessment Certificate will not manage increased risk to neighbouring or 'upstream' properties arising from new buildings or additions within the Southbrook industrial and commercial area; and
- flood hazard risk is already compromising development of Southbrook and the method proposed does not provide certainty or confidence to landowners and developers.

They seek that the Kaiapoi FMFFL Overlay method is adopted and applied to Southbrook industrial and commercial area. McAlpines oppose the method of calculating minimum floor levels within the Urban Flood Assessment Overlay (see NH-S1(1)(e)) and within the Kaiapoi FMFFL Overlay because the method of calculation is conservative, especially for commercial and industrial areas; other local authorities adopt a 1% AEP (1 in 100- year) method of calculating minimum floor levels, and calculation creates financial burden that cannot be justified when a 1% AEP is adequate. They seek to delete the method of calculating minimum floor levels within the Urban Flood Assessment Overlay in NH-S1(1)(e) and within the Kaiapoi FMFFL Overlay and replace it based on a 1% AEP (1 in 100-year).

579. ECan [316.88] states that it would provide greater clarity for plan users if the criteria for setting appropriate freeboard levels was specified in NH-S1. They note that NH-S1(1)(b) could become superfluous if their submission points related to EW-R5 are accepted. They state the AEP event needs to refer to a 0.5% AEP in order to give effect to the CRPS Policy 11.3.2. They seek the Council clarify how the freeboard height will be determined and amend NH-S1 (1)(e)(iii) as follows:

"...

iii. flooding predicted to occur in a \pm 0.5% AEP (1 in \pm 200--year) Storm Surge Event concurrent with a 5% AEP (1 in 20-year) River Flow Event with sea level rise based on an RCP8.5 climate change scenario, plus up to 500mm freeboard."

580. Kainga Ora [325.127] seek to amend NH-S1 to align with the relief sought in their submission point on the Planning Maps and general submission point for the Natural Hazards Chapter, which is to delete the Urban Flood Assessment Overlay and Non-Urban Flood Assessment Overlay, and mapped fixed floor level overlays and include these as non-statutory map layers in the Waimakariri District Natural Hazards Interactive Viewer. They seek the amendment of NH-S1 to delete reference to these overlays, and instead refer to the specific hazard type that will be identified through a flood assessment.

581. Bellgrove Rangiora Limited [408.99] seek provision for a default freeboard of 400mm within areas of very low to low flood hazard. They state this is consistent with the approach for Bellgrove Stage 1 where the finished floor levels are 400mm freeboard above the 200 year flood level, or 500mm freeboard above the 200 year flood level for areas of higher risk. They seek to amend NH-S1 as follows:

"...

f. For the purposes of determining the required freeboard in (e), any site considered to be medium risk (adjacent to a stormwater treatment facility (i.e. basin or similar) or overland flow channel) shall require a freeboard of 500mm. All other sites are considered low risk and can have a reduced freeboard of 400mm."

3.8.1.2 Assessment

582. Regarding the submission by McAlpines, as set out in Mr Bacon's evidence the fixed floor level approach for Kaiapoi would not be appropriate for Southbrook or Rangiora (paragraph 46). I note that contrary to the assertion that the flood assessment approach would not manage increased risk to neighbouring or upstream properties, the Flood Assessment Certificate identifies if properties are within an overland flow path, and if they are, NH-R1 and NH-R2 require a resource consent to be obtained, which includes assessment matters enabling

consideration of effects on other properties. I note that their relief sought (applying the Kaiapoi FMFFL Overlay) does not enable the consideration of overland flow paths and if applied outside of Kaiapoi has the potential to actually create the very upstream and adjacent effects the submitter is seeking to avoid. I therefore recommend rejecting this submission point. I also note that I have recommended replacing the Kaiapoi FMFFL approach with the Flood Assessment Certificate approach in response to a submission from ECan [316.52] assessed in section 3.2.

583. Regarding McAlpines request to utilise a 1% AEP (1 in 100-year) method of calculating minimum floor levels for the Kaiapoi FMFFL and flood assessment certificates, the CRPS requires a 0.5% AEP (1 in 200 year) level to be applied. The District Plan must give effect to the CRPS and as such it is not possible to apply a 1% AEP through the District Plan. Mr Bacon also notes this (paragraph 39). As specified in response to an earlier McAlpines submission [226.8] addressed in the general comments section of this report, the average difference in minimum finished floor levels in Southbrook between the 0.5% and 1% AEP levels is understood to be 170mm. However, I think there is value in more clearly considering the nature of the activity occurring and the extent to which a building might suffer material damage in an inundation event. I therefore recommend that NH-MD1(2) is amended as set out in Appendix A and below under recommended changes to the District Plan to more clearly enable consideration of this extent. I therefore recommend accepting this submission in part.
584. Regarding Bellgrove Rangiora Limited's submission, in his evidence Mr Bacon states that he agrees that a lower freeboard of 400mm is appropriate in areas of very low to low flood hazard and that this approach is also generally consistent with the Council's current approach (paragraph 37). He also considers a 500mm freeboard is still appropriate in areas of medium to high hazard which reflects the overall higher level of risk associated with these areas. Mr Bacon disagrees with the exact wording proposed by the submitter (new clause (f)) as the terminology should refer to 'hazard' rather than 'risk' and the areas of medium hazard should not be in any way limited to areas next to basins or overland flow channels, rather any mapped areas of medium hazard. Additionally, Mr Bacon considers that the 500mm freeboard requirement should also apply to high hazard areas (where appropriate) and that this clarification should also apply to NH-S2. He therefore recommends that the following wording is added to both NH-S1 and NH-S2 to provide clarity for setting freeboard levels:
- Low Hazard - 400mm freeboard
 - Medium to High Hazard - 500mm freeboard
585. I accept Mr Bacon's advice but note that freeboard is only covered in NH-S1. I therefore recommend that the above text is added to NH-S1 as set out in Appendix A, and in my recommended amendments to the District Plan. I recommend this same text is also included in NH-S2 as an advisory note. I therefore recommend this submission is accepted in part. I note that Bellgrove Rangiora Limited [408.12] sought a similar outcome in their submission on NH-R2 and I recommended accepting that. As I set out the changes for NH-S1 (but not NH-S2) under that submission I won't repeat those here.
586. ECan sought a similar outcome to Bellgrove Rangiora Limited in their submission and I consider that the change I am recommending for Bellgrove Rangiora Limited should suffice for ECan.
587. Regarding ECan's request to amend NH-S1(1)(e)(iii) to refer to a 0.5% storm surge AEP event rather than a 1% AEP event, in his evidence Mr Debski considers the 0.5% AEP is appropriate

for defining the extent of coastal flooding and therefore it is appropriate to amend NH-S1(1)(e)(iii) to refer to the 0.5% AEP flood level in terms of defining minimum finished floor levels in the Coastal Flood Assessment Overlay (paragraph 53).

588. A 1% AEP was notified in the PDP as it was considered this would correspond to the NZCPS's requirement to consider hazard risks over at least 100 years, (NZCPS Policy 24(1)). I accept Mr Debski's advice on this matter and therefore recommend that ECan's submission is accepted. The changes are shown in Appendix A and below under recommended changes to the District Plan.
589. Regarding Kainga Ora's submission to amend NH-S1 to delete reference to the flood assessment overlays, this matter was assessed earlier in this report where I recommended their submission is rejected.

3.8.1.3 Summary of recommendations

590. The submission by McAlpines [226.9] is **accepted in part**.
591. The submission by ECan [316.88] is **accepted**.
592. The submission by Kainga Ora [325.127] is **rejected**.
593. The submission by Bellgrove Rangiora Limited [408.99] is **accepted in part**.
594. Noting my recommended changes to NH-S1, I recommend that the submissions in support of NH-S1 as set out in Appendix B are **accepted in part**.

3.8.1.4 Recommended changes to the District Plan

595. Amend NH-S1 as follows:

"...

iii. flooding predicted to occur in a $\pm 0.5\%$ AEP (1 in ± 200 -year) Storm Surge Event concurrent with a 5% AEP (1 in 20-year) River Flow Event with sea level rise based on an RCP8.5 climate change scenario, plus up to 500mm freeboard."

596. Amend NH-S2 as follows:

Advisory Notes

-
- Freeboard will be applied as follows:
 - a. Low Hazard - 400mm freeboard
 - b. Medium to High Hazard - 500mm freeboard

597. Amend NH-MD1 Natural hazards general matters as follows:

"...

2. The frequency at which any proposed building or addition is predicted to be damaged and the extent of damage likely to occur in such an event, including taking into account:
 - a. the building material and design proposed;
 - b. the anticipated life of the building;

- c. the proposed use of the building, including whether it is a retail, commercial or industrial activity or has a low staff occupancy rate, that would lessen the adverse effects of it being damaged in a natural hazard event;
- d. whether the building is relocatable;
- e. and for redevelopments, the extent to which overall risk will change as a result of the proposal.

..."

598. My s32AA assessment for the proposed change to NH-S1 and NH-MD1 are included in Appendix C, Table C 10 and Table C 11 respectively. I consider that the proposed changes to NH-S2 simply clarify the existing intended application of freeboard and do not require a s32AA assessment.

3.8.2 Standard NH-S2 Coastal Flood Assessment Certificate

3.8.2.1 Matters raised by submitters

599. Seven submissions were received on NH-S2. No submissions were received in support, four submissions were neutral and three submissions sought amendments raising the following matters:

- The 500mm of freeboard is excessive;
- Raising land will discharge stormwater and flood waters onto adjacent properties and require extensive retaining walls;
- Some land / flood levels are questionable;
- Ensure a Coastal Flood Assessment Certificate will not be required for infrastructure such as poles and towers; and
- Delete the permitted pathway for new natural hazard sensitive activities in the coastal flood assessment overlay.

600. Tim Stephenson [186.15] considers the use of 500mm of freeboard on top of the calculated flood level seems excessive, especially in the coastal flooding scenario where 1m is the predicted sea level rise for 100 years on a progressive scale so 500mm is a full 50% on top of that in 100 years' time and more than 100% more in the 50-year life of an average building. He notes that NH-S2 requires that the land must be built up to the 100-year flood level and within 300mm of the floor level, when some of the levels talked about on the interactive map are around 2m. Mr Stephenson opposes NH-S2 for the following reasons:

- If the land is built up to that required level it will discharge surface stormwater across the boundary to an adjacent existing level property;
- The land would require expensive retaining and with that some engineering problems to support the building if within the standard setback. Imagine a 2m retaining wall on a boundary;
- The extra load of the locally built-up land will cause pressure on the thin crust and liquefaction problems for the neighbouring property;

- When the stopbank was much lower, most overtopping events in the past only occurred for a short time at high tide and never reached a full level. Any build-up of the land displaces that water and raises the depth of the flooding on other properties;
 - For a new subdivision having the land built up is potentially a good idea, but amongst other properties it is not. While a different solution might be achievable through a restricted discretionary pathway this land height rule should not be in the overall standard;
 - The levels on the coastal interactive map are questionable as across the submitter's flat lawn there is nearly 700mm difference.
601. Mr Stephenson seeks the Council review the 500mm freeboard in the calculation for the Coastal Flood Assessment Certificate and delete the land height requirement for anything but a new subdivision. He also seeks continued review of the accuracy of the map data.
602. MainPower [249.181] support NH-S2 however they seek to ensure a Coastal Flood Assessment Certificate will not be required for infrastructure such as poles and towers. They seek to retain NH-S2 as notified subject to further clarification sought.
603. ECan [316.89] state that NH-S2 does not give effect to Chapter 11 Natural Hazards of the CRPS, particularly in relation to high hazard areas in the coastal environment. They consider this especially relates to the permitted and restricted discretionary activity status for development in areas subject to coastal hazards, which is not consistent with the policy direction for a high hazard area under the CRPS. They seek to amend NH-S2 to delete permitted pathway for new natural hazard sensitive activities in the coastal flood assessment overlay.

3.8.2.2 Assessment

604. Regarding Mr Stephenson's submission, in his Report Mr Debski states (in paragraph 60) that the freeboard value is specified in NH-S1 rather than NH-S2 (but NH-S1 is referenced by NH-S2) and notes that "Verification Method E1/VM1 for New Zealand Building Code Clause E1 Surface Water specifies a freeboard of 500 mm to secondary flow of surface water of depth greater than 100 mm and susceptible to wave action from vehicles". I note that Mr Bacon considers 500mm of freeboard is a sensible pragmatic level of protection (paragraph 38). As such, I do not consider freeboard of up to 500mm is excessive. Mr Debski also notes that areas where the water depth is greater than 1 m (such as the '2 m depth' referred to in the submission) are specified as 'high hazard areas' in the PDP and have a non-complying status in non-urban areas so that NH-S2 will not necessarily apply in such areas and a freeboard allowance will not be relevant (paragraph 61).
605. Regarding Mr Stephenson's submission point on seeking the deletion of the land height requirement for anything other than a new subdivision, Mr Debski considers this requirement could be retained and notes that the land height requirement under NH-S2 only applies to activities within the non-urban flood area (paragraph 63). As such, it will apply to greenfield subdivisions, rather than subdivisions in existing urban areas. He notes that the pathway for activities where water depths are between 0.3 m and 1 m requires a resource consent, which will enable consideration of the effects of the land raising (NH-MD4). Finally, Mr Debski notes that the map data referred to (the Waimakariri District Natural Hazards Interactive Viewer) does not form part of the PDP and that the PDP already states, as an advisory to NH-S1 and NH-S2, that the AEP flood event risk level, minimum floor levels and overland flow path locations are

to be determined by reference to the most up to date models, maps and data held by the District Council and the Regional Council. He considers this confirms the intention to make use of new and improved data in applying the standards as and when they become available (paragraph 63). I concur with the above assessments by Mr Debski and recommend that the submission is rejected.

606. Regarding the MainPower submission, NH-S2 is triggered by NH-R16 and NH-R17. NH-R17 covers above ground critical infrastructure, which would include MainPower's assets associated with the electricity distribution network (clause (d) of the critical infrastructure definition). MainPower supports NH-R17, but in clause 1(a) seeks the footprint be increased to 13m² so that the typical cabinets and kiosks used can be accommodated without the burden of requiring a resource consent (similar to their submission on NH-R6). I have recommended accepting this submission so these assets would be excluded from the application of NH-S2. I note that a building would be captured under clause (b) while remaining infrastructure is covered under clause (c). Clause (c) expressly excludes any support base, towers or poles needing to meet the minimum floor level stated in a Coastal Flood Assessment Certificate. As such, it is my opinion that a Coastal Flood Assessment Certificate will not be required for infrastructure such as poles and towers, consistent with MainPower's submission. As such, I recommend that MainPower's submission in support of NH-S2 is accepted.
607. Regarding ECan's submission that the permitted and restricted discretionary activity status for development in areas subject to coastal hazards is not consistent with the policy direction for a high hazard area under the CRPS, as set out earlier in the 'definitions' section 3.3.3 of my report, based on discussions with ECan a revised definition of 'high hazard area' has been proposed. This definition clarifies that high coastal hazard is in areas subject to inundation by floodwater and where the water depth (metres) is greater than 1m in a 0.2% Annual Exceedance Probability flood event, taking into account the cumulative effects of climate change over the next 100 years (based on latest national guidance) and all sources of flooding (including fluvial, pluvial, and coastal).
608. Given this revised definition, and the fact that sea water inundation flooding will be slow moving, areas subject to less than 1m of coastal flooding would not be considered to be a high hazard area. I note that Mr Debski (in response to ECan's submission [316.85] considers flood depths of less than 0.3m are low hazard and that, with the proposed floor level mitigation, a permitted pathway in these circumstance is appropriate (paragraphs 23 and 57).
609. Given the proposed definition change covered in Section 3 of this report and Mr Debski's advice, I recommend that this submission is rejected.

3.8.2.3 Summary of recommendations

610. I recommend that the submission by Mr Stephenson [186.15] is **rejected**.
611. I recommend that the submission by ECan [316.89] is **rejected**.
612. I recommend that the submission by MainPower [249.181] is **accepted**.

3.9 Matters of discretion

3.9.1 NH-MD1 Natural hazards general matters

3.9.1.1 Matters raised by submitters

613. Four submissions were received on NH-MD1. One submission was received in support of NH-MD1, while three sought amendments as follows:

- Delete NH-MD1(7);
- Exclude the maintenance of existing buildings.

614. Summerset [207.14] generally supports the intent of these matters of discretion but considers that some of them could be clearer and more direct in their intent. They consider clause 1 should refer to the extent which the minimum floor level does not comply with that determined by the Council and the effects of that, as the setting of the floor level etc itself is set under a Certificate Process and not through the rule. They consider clause 2 refers to the "frequency at which any proposed building or addition is predicted to be damaged" but this is not an assessment as frequency will relate to the AEP used to calculate flood risk. This matter needs to relate to the effects of the damage. They consider clause 7 refers to positive effects and implies that the risk to life or property from natural hazards may be acceptable if it has a positive effect on neighbours or the streetscape. I consider that this does not appear to align well with the objective and policy approach. Wording changes are suggested by Summerset to resolve these identified issues as follows:

Natural hazards general matters

1. ~~The extent to which the~~ ~~The setting of~~ minimum floor levels are not achieved by the proposal and the effect of the lower levels, and the effects of minimum land levels and the predicted sea water and other inundation that will occur on the site.

2. ~~The frequency at which any proposed building or addition is predicted to be damaged and the extent of damage likely to occur in such an event, including taking into account the building material and design proposed; the anticipated life of the building, whether the building is relocatable, and for redevelopments, the extent to which overall risk will change as a result of the proposal.~~

...

~~7. The extent to which there are any positive effects from a reduction in floor levels in relation to neighbouring buildings or the streetscape.~~

615. ECan [316.90] states that it is not appropriate to reduce this risk (in relation to NH-MD1(7)) as a part of a non-notified RDIS process. They seek the deletion of NH-MD1(7).

616. Federated Farmers [414.37] states that it needs to be clearly stated that NH-MD1 does not apply to the maintenance of existing buildings. They seek the amendment of NH-MD1 to include:

"New buildings and structures, additions to buildings and additions to access tracks (excluding maintenance)"

3.9.1.2 Assessment

617. Regarding the proposed changes to NH-MD1(1) and NH-MD1(2) by Summerset, I agree that the amended wording is an improvement and recommend the changes are made. Regarding the proposed deletion of NH-1(7), I have addressed this below under the ECan [316.90] submission. For the reasons provided under that submission I recommend clause 7 is not deleted.
618. Regarding the submission by ECan, NH-MD1(7) enables decision makers to consider the extent to which there are any positive effects from a reduction in floor levels in relation to neighbouring buildings or the streetscape where a resource consent is required for not meeting a minimum floor level. While I accept that natural hazard risk reduction is more important than positive effects, there are valid reasons for being able to consider positive effects. For example, a building or part of a building may be proposed to be only 100mm below the required minimum floor level (thereby triggering a resource consent) for reasons such as:
- to reduce obtrusive impacts on neighbouring properties;
 - to enable an extension to more closely match the existing building height;
 - to allow alignment of a replacement building with an existing accessway or other buildings on the site; or
 - to avoid removing a listed tree (e.g. where the proposed building stretches into the tree canopy).
619. These reasons are valid considerations when assessing the likely risk from a building being built 100mm below the required minimum floor level, which could be very minor given the conservatism built into the modelling and the use of freeboard. The proposal may also include other mitigation to offset the risk, such as a concrete floor and concrete walls and power sockets placed 1m above the predicted flood height. Certainly, if a proposal was to build at say 500mm below the minimum floor level, then the matters of discretion covering risk would likely be considered more significant and the application declined. Without NH-MD1(7) the positive benefits of the proposal are unlikely to be considered, although I note and accept Mr Bacon's advice to reframe it so that the starting position is to still build to the required level (paragraph 42). I therefore recommend that this submission is accepted in part.
620. Regarding the Federated Farmers submission, it is unclear how the relief sought responds to the issue raised. In any case, maintenance to existing natural hazard sensitive buildings would not be captured by the provisions as they apply to new activities and I note even additions to natural hazard sensitive activities up to 25m² would not be captured by virtue of the definition of 'natural hazard sensitive activities'. I therefore recommend that this submission is rejected.

3.9.1.3 Summary of recommendations

621. That the submission by Summerset [207.14] is **accepted in part**.
622. That the submission by ECan (316.90) is **accepted in part**.
623. That the submission by Federated Farmers (414.37) is **rejected**.
624. Noting my suggested changes, that the submission in support of NH-MD1 is **accepted in part**.

3.9.1.4 Recommended Changes to the District Plan

625. Amend NH-MD1(1) as follows:

1. ~~The extent to which the~~ ~~The setting of minimum floor levels are not achieved by the proposal and the effect of the lower levels, and the effects of~~ minimum land levels and the predicted sea water and other inundation that will occur on the site.

2. ~~The frequency at which any proposed building or addition is predicted to be damaged and the extent of damage likely to occur in such an event, including taking into account the building material and design proposed; the anticipated life of the building, whether the building is relocatable, and for redevelopments, the extent to which overall risk will change as a result of the proposal.~~

...

7 ~~The extent to which there are any positive~~ negative effects from ~~a reduction~~ an increase in floor levels in relation to neighbouring buildings or the streetscape.

626. I do not consider a s32AA assessment is required for the recommended changes as these simply provide greater clarity of the matters being considered.

3.9.2 NH-MD2 Natural hazard mitigation works

3.9.2.1 Matters raised by submitters

627. One submission was received in support of NH-MD2.

3.9.2.2 Assessment

628. There are no submission to assess for NH-MD2. It is recommended that NH-MD2 is retained as notified.

3.9.2.3 Summary of recommendations

629. There are no submission to assess for NH-MD2.

3.10 Matters of discretion

3.10.1 NH-MD3 Natural hazards and infrastructure

3.10.1.1 Matters raised by submitters

630. Three submissions were received on NH-MD13. One submission was received in support of NH-MD1, while two sought amendments as follows:

- Delete NH-MD(4) and references to practical alternatives, and other changes to remove duplication and improve expression;
- Limit the application of NH-MD3 to critical infrastructure only.

631. Transpower [195.65] generally supports NH-MD3 but seeks limited amendments to improve expression, remove duplication and to delete reference to cultural effects on the basis that it is

not clear how the location of critical infrastructure in a natural hazard overlay would have a cultural impact. They seek the following amendments:

- “1. Any increase in the risk to life or property from natural hazard events.*
- 2. ~~Any negative e~~Effects on the ability of people and communities to recover from a natural hazard event.*
- 3. The extent to which the infrastructure will suffer damage in a hazard event and whether the infrastructure is designed to maintain reasonable and safe operation during and after a natural hazard event.*
- 4. The time taken to reinstate critical infrastructure following a natural hazard event.*
- 45. The extent to which the infrastructure exacerbates the natural hazard risk or transfers the risk to another site.*
- 56. The ability for flood water conveyance to be maintained.*
- 67. The extent to which there is a functional need and operational need for that location ~~and there are no practical alternatives.~~*
- 78. The extent to which any mitigation measures are proposed, ~~their effectiveness and environmental effects,~~ and any benefits to the wider area associated with hazard management.*
- 89. The positive benefits derived from the installation of the infrastructure.*
- 10. Any effects on cultural values.”*

632. Federated Farmers [414.38] states that it is unclear if NH-MD3 applies to all infrastructure or just critical infrastructure. They want to avoid a scenario where farm infrastructure in a natural hazard area is automatically assumed to be a hazard and assessed as such. They seek that NH-MD3 is reworded to apply to critical infrastructure only.

3.10.1.2 Assessment

633. Regarding the Transpower submission, I agree with the proposed changes to NH-MD3(2) and NH-MD-3(9). In my opinion these simplify but do not result in changes to the intent or meaning of the matters of discretion. Regarding the proposed deletion of NH-MD(4), unfortunately no reason was provided for this requested change in the submission. I note that CRPS Policy 11.3.4 states that:

“new critical infrastructure will be located outside high hazard areas unless there is no reasonable alternative. In relation to all areas, critical infrastructure must be designed to maintain, as far as practicable, its integrity and function during natural hazard events.”

634. In considering whether a proposal maintains its integrity and function, I consider a relevant matter to consider in a consent application is the time taken to reinstate the critical infrastructure. In some cases it may be appropriate for the critical infrastructure to fail if it can be reinstated quickly. I note that the time taken to reinstate critical infrastructure following a natural hazard event is identified in the CRPS Principal explanation and reasons to Policy 11.3.4 where it states that *“by its very nature, critical infrastructure provides a service which must be able to be immediately reinstated in the event of a failure.”* I therefore consider that the time taken for reinstatement is a relevant matter for consideration and should be retained.
635. Regarding Transpower's proposed deletion in NH-MD(7) of the reference to practical alternatives, unfortunately no clear reason was provided for this requested change in the submission. I note that CRPS 11.3.4 referred to above expressly refers to whether there is a practical alternative. As such, there is higher order policy support for referring to practical

alternatives. In the absence of any rationale for the proposed change I recommend that this proposed amendment is rejected.

636. Regarding Transpower's proposed amendments to NH-MD3(8) to remove the reference to mitigation effectiveness and environmental effects, again I note that no clear reason was provided for this requested change in the submission. I consider it is appropriate to enable a decision maker to consider the environmental effects of proposed mitigation which could be very minor or could include significant works. I note that the rules for infrastructure do not distinguish between infrastructure occurring within or outside of sensitive environments such as outstanding natural features and that in sensitive environments mitigation works could create significant adverse effects. Regarding removing a reference to the effectiveness of mitigation measures proposed, arguably there is some duplication as in assessing the 'extent to which any mitigation measures are proposed' includes the ability to consider its effectiveness, however I am comfortable including these words to ensure this is clear. I therefore recommend these proposed changes are rejected.
637. Finally, Transpower also sought to delete NH-MD3(10) which enabled a decision maker to consider effects on cultural values. Whilst I note that new infrastructure could have an impact on cultural values (e.g when installing underground pipes in an area with archaeological values) there is a separate Sites and Areas of Significance to Māori Chapter that covers these matters. As such, I agree that this clause can be deleted. Overall I recommend that Transpower's (195.65) submission is accepted in part.
638. Regarding the Federated Farmers submission, NH-MD3 is intended to apply to all infrastructure as some rules (e.g. NH-R4 and NH-R18) cover all infrastructure. The rules are intended to target infrastructure that could cause flood water displacement or flow path disruption and include standards to permit minor structures. As such, farm infrastructure is not automatically assumed to be a hazard. I therefore recommend that this submission is rejected.

3.10.1.3 Summary of recommendations

639. The submission by Transpower (195.65) is **accepted in part**.
640. The submission by Federated Farmers (414.38) is **rejected**.
641. Given the changes I am recommending to NH-MD3, I recommend that the submissions in support of NH-MD3 as set out in Appendix B are **accepted in part**.
642. My recommendations in relation to further submissions reflect the recommendations on the relevant primary submission.

3.10.1.4 Recommended changes to the District Plan

643. Amend NH-MD3 clauses 2 and 9 and 10 as follows:

...

2. ~~Any negative effects~~ Effects on the ability of people and communities to recover from a natural hazard event.

...

9. The ~~positive benefits derived from the installation of~~ the infrastructure.

~~10. Any effects on cultural values.~~

644. I do not consider a s32AA assessment is required for the recommended changes as they provide simpler and clearer wording (changes to clauses 2 and 9) and remove the requirement to consider cultural values as these matters are already covered in the SASM chapter.

3.11 Matters of discretion

3.11.1 NH-MD4 Natural hazards coastal matters

3.11.1.1 Matters raised by submitters

645. Two submissions were received on NH-MD4. Both sought amendments as follows:

- Delete NH-MD4(6) and NH-MD4(7);
- Only apply NH-MD4 to new buildings.

646. ECan [316.91] states that it is not appropriate to reduce this risk (in regards to NH-MD4 (6) and (7)) as a part of a non-notified RDIS process. They seek the deletion of NH-MD4(6) and NH-MD4(7).

647. Federated Farmers [414.39] states that it needs to be clearly stated that NH-MD4 applies to new buildings and sites only. They seek the amendment of NH-MD4 to apply only to new buildings.

3.11.1.2 Assessment

648. Regarding the submission by ECan, as for NH-MD1, these clauses enable decision makers to consider the extent to which there are any positive effects from a reduction in floor levels in relation to neighbouring buildings or the streetscape or for existing urban areas where a resource consent is required for not meeting a minimum floor level. While I accept that natural hazard risk reduction is more important than these other effects, there are valid reasons for being able to consider these additional matters. For example, a building or part of a building may be proposed to be only 100mm below the required minimum floor level (thereby triggering a resource consent) for reasons such as:

- to reduce obtrusive impacts on neighbouring properties;
- to enable an extension to more closely match the existing building height;
- to allow alignment of a replacement building with an existing accessway or other buildings on the site or to avoid removing a listed tree; or
- to enable the continued use of an existing building where the risk profile has not significantly changed.

649. These reasons are valid considerations when assessing the likely risk from a building being built 100mm below the required minimum floor level, which could be very minor given the conservatism built into the modelling and the use of freeboard. The proposal may also include other mitigation to offset the risk, such as a concrete floor and concrete walls and power sockets placed 1m above the predicted flood height. I do however accept that a reference to financial viability is less relevant to considerations of risk and the other matters identified in NH-MD4

and I note Mr Bacon's advice to reframe it (paragraph 44). I therefore recommend that this submission is accepted in part.

650. Regarding the Federated Farmers submission, I note that maintenance to existing natural hazard sensitive buildings would not be captured by the provisions as they apply to new activities and I note upgrades involving additions to natural hazard sensitive activities up to 25m² would not be captured by virtue of the definition of 'natural hazard sensitive activities'. As such, I consider that the request by Federated Farmers is already achieved and I therefore recommend that this submission is rejected.

3.11.1.3 Summary of recommendations

651. I recommend that the submission by ECan (316.91) is **accepted in part**.

652. I recommend that the submission by Federated Farmers (414.39) is **rejected**.

3.11.1.4 Recommended changes to the District Plan

653. Amend NH-MD4(6) as follows:

6. Whether there are any ~~positive~~ negative effects from ~~a reduction~~ an increase in floor or land levels in relation to accessibility, the height of the existing building, neighbouring buildings or the streetscape ~~or the financial viability of the development~~.

654. My s32AA assessment is contained in Appendix C, Table c 12.

3.12 Other Methods – Planning Maps - Natural Hazard Overlays

3.12.1 Matters raised by submitters

655. Four submissions were received on the planning maps seeking to:

- Apply a fixed minimum floor level in Southbrook;
- Delete the Urban Flood Assessment Overlay and Non-Urban Flood Assessment Overlay, and mapped fixed floor level overlays and include these instead as non-statutory map layers in the Waimakariri District Natural Hazards Interactive Viewer;
- Replace the urban flood hazard assessment overlay in the planning maps which corresponds to the 500-year flood overlay with a 200-year overlay;
- Modify the Liquefaction Overlays to separate out 'Liquefaction damage unlikely' and 'Liquefaction damage is possible' areas.

656. McAlpines [226.7] stated that the method to manage flood hazard risk within the Urban Flood Assessment Overlay is flawed and inappropriate as the outcome of any Flood Assessment Certificate is uncertain and may change as more and better information becomes available. They request that the Kaiapoi Fixed Minimum Finished Floor Level Overlay method is adopted and applied to Southbrook industrial and commercial area.

657. Kainga Ora [325.100] oppose the urban and non-urban flood assessment overlays as flood hazards are dynamic and subject to change. They seek to delete the Urban Flood Assessment Overlay and Non-Urban Flood Assessment Overlay, and mapped fixed floor level overlays and

instead include these as non-statutory map layers in the Waimakariri District Natural Hazards Interactive Viewer.

658. The Council [367.42] sought to amend the urban flood hazard assessment overlay to correct a technical GIS error that used incorrect data. The relief sought is to replace the urban flood hazard assessment overlay in the planning maps which corresponds to the 500-year flood overlay with an updated overlay that more accurately matches the 200-year flood hazard layer as shown on the public hazards portal.
659. Bellgrove Rangiora Limited [408.10] seek greater clarity for the overlay maps to show that when a site is classified as 'Liquefaction Damage is Unlikely' it is still within the liquefaction overlay and that the associated rules in the plan apply. They seek to modify the Liquefaction Overlays to be:

Liquefaction Overlay 1: Liquefaction damage unlikely;

Liquefaction Overlay 2: Liquefaction damage is possible.

3.12.2 Assessment

660. Regarding the McAlpines submission, this matter was addressed under general submissions (McAlpines (226.8)) where I noted Mr Bacon's advice that the minimum fixed finished floor level approach is only appropriate for those areas subject to coastal inundation or ponding with no significant overland flowpaths and that for the Waimakariri District this includes the urban areas of Kaiapoi, Pines Kairaki, Woodend Beach and Waikuku Beach (paragraph 46). He states in other areas of the district the sloping nature of the land and the presence of overland flowpaths means it is not possible to define an area wide maximum flood level and instead site-specific considerations are needed. For this reason I recommend this submission is rejected.
661. Regarding the Kainga Ora submission, this same matter was assessed under general submissions (submission number [325.102]) and under NH-R1. As I stated in that section, the flood assessment overlays have been included in the district plan as a way to geographically identify areas susceptible to flooding and therefore where the flooding rules apply. This is considered to be a more efficient approach than making the entire district apply for a Flood Assessment Certificate. Having no overlay or map to geographically identify areas susceptible to flooding will likely result in either under or over capture of properties in a flood assessment or consent pathway. I therefore recommend that this submission is rejected.
662. Regarding the Council's submission, the Urban Flood Assessment Overlay was intended to be based on the 200-year return period (0.5% AEP) in accordance with Policy 11.3.2 of the CRPS and consistent with Christchurch and Selwyn District plans. I recommend that his submission is accepted.
663. Regarding the Bellgrove Rangiora Limited submission, I note that ECan also submitted on the liquefaction overlay as a general submission (submission number 316.53). That submission sought to reduce the Liquefaction Hazard Overlay so that it only captures the gold coloured 'liquefaction damage is possible' area and excludes the green coloured 'liquefaction damage is unlikely' area. As set out in my assessment of that submission (earlier in the general section), the liquefaction overlays are not referenced in the Natural Hazards Chapter, but they are in the Subdivision Chapter (SUB-R3). SUB-R3 is intended to only apply to the 'liquefaction damage

possible' area as this is where liquefaction damage is more likely to occur. I recommended that the overlay is amended so it only includes the 'liquefaction damage is possible' area, noting that the Building Act covers geotechnical matters for individual buildings. I therefore recommend the submission from Bellgrove Rangiora is rejected.

3.12.3 Summary of recommendations

664. I recommend that the submission by McAlpines [226.7] is **rejected**.
665. I recommend that the submission by Kainga Ora [325.100] is **rejected**.
666. I recommend that the submission by the Council [367.42] is **accepted**.
667. I recommend that the submission by Bellgrove Rangiora Limited [408.10] is **rejected**.

3.12.4 Recommended changes to the District Plan

668. Amend the Urban Flood Assessment Overlay so it is based on the 200-year return period (0.5% AEP).

3.13 Minor Errors

669. In the course of discussions on coastal hazards it has become apparent that the flooding figures used in NH-R16 need to be amended as flood depths could occur between the figures used. For example, NH-R16(2) refers to sites subject to 0.29m or less of coastal flooding, while the associated rule NH-R16(3) refers to flooding between 0.3m and 0.99m. It is not clear how say 0.295m of flooding would be dealt with under this rule. This can easily be solved by amending the figures as set out in Appendix A and below under recommended changes to the District Plan. These amendments could have been made after Proposed Plan was notified through the RMA process to correct minor errors³, but I recommend the amendment is made as part of the Hearing Panel's recommendations for completeness and clarity.
670. NH-02 clause 3 is intended to apply to 'new' critical infrastructure, as opposed to existing critical infrastructure captured in clause 1. The addition of the word 'new' at the start of clause 3 will clarify this.

3.13.1 Recommended changes to the District Plan

671. Amend NH-R16 as follows:

Natural hazard sensitive activities outside the urban environment

Activity status: PER

Where:

1. ...
2. the building is identified as being subject to ~~0.29m~~ 0.3m or less of coastal flooding as stated in a Coastal Flood Assessment Certificate and has finished floor level equal to or

³ Clause 16 of RMA Schedule 1

higher than the minimum finished floor level as stated in a Coastal Flood Assessment Certificate issued in accordance with NH-S2.

Activity status: RDIS

Where:

3. the building is identified as being subject to ~~between 0.3m and 0.99m~~ more than 0.3m and less than 1m of coastal flooding as stated in a Coastal Flood Assessment Certificate and is to be erected on raised land or utilises a combination of raised land and a raised floor level equal to or higher than the minimum requirements stated in a Coastal Flood Assessment Certificate issued in accordance with NH-S2.

...

672. Amend NH-R17 consistently with NH-R16.

673. Amend NH-02 as follows:

3. new critical infrastructure is avoided in high flood hazard areas and high coastal flood hazard areas, unless there is a functional need or operational need for the location or route.

674. Given these are minor changes responding to errors, I do not consider a s32AA assessment is required.

4 Conclusions


675. Submissions have been received both in support of and in opposition to the Natural Hazards Chapter of the Proposed Plan. While most of these submissions relate to the Natural Hazards Chapter as notified, some submissions seek amendments to other related chapters such as Earthworks and Coastal Environment.
676. Having considered all the submissions and reviewed all relevant statutory and non-statutory documents, I recommend that the PDP should be amended as set out in Appendix A of this report.
677. For the reasons set out in the Section 32AA evaluation attached at Appendix C, I consider that the proposed objectives and provisions, with the recommended amendments, will be the most appropriate means to:
- a. achieve the purpose of the Resource Management Act 1991 (RMA) where it is necessary to revert to Part 2 and otherwise give effect to higher order planning documents, in respect to the proposed objectives, and
 - b. achieve the relevant objectives of the Proposed Plan, in respect to the proposed provisions.

Recommendations:

I recommend that:

678. The Hearing Commissioners accept, accept in part, or reject submissions (and associated further submissions) as outlined in Appendix B of this report; and
679. The Proposed Plan is amended in accordance with the changes recommended in Appendix A of this report.

Signed:

Name and Title		Signature
Andrew Willis Consultant Planner		

Appendix A. Recommended Amendments

Where I recommend changes in response to submissions, these are shown as follows:

- Text recommended to be added to the Proposed Plan is underlined.
- Text recommended to be deleted from the Proposed Plan is ~~struck through~~.

NH - Matepā māhorahora - Natural Hazards

Introduction

The District is susceptible to a wide range of natural hazards, including flooding, fault rupture, liquefaction, tsunami, slope instability, and sea water inundation from storm surges.

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

The District Plan focuses on the following natural hazards as they are the hazards that present the greatest risk to life, property and infrastructure, and whose future effects can be addressed through appropriate measures:

- Flooding, including from sea water storm surges coupled with sea level rise;
- Fault rupture; and
- Liquefaction.

Where ~~freshwater~~ flooding may occur, a certification process enables a site specific assessment based on up-to-date modelling. ~~The approach to freshwater flood management in Kaiapoi involves the use of identified fixed minimum floor levels. The minimum fixed floor levels are shown on the planning map and have been determined from delineating areas or basins within Kaiapoi, with reference to different flood hazards and risks associated with pump failure.~~

The main coastal hazard affecting the District is sea water inundation, which occurs through the Waimakariri River and Ashley River/Rakahuri channels. The sea water inundation extends beyond the mapped Coastal Environment inland. Because of this, and the fact that the sea water inundation extent in the District is affected by concurrent freshwater flows present in the rivers, coastal hazards are located within the Natural Hazards Chapter, rather than as a separate coastal hazard contained in the Coastal Environment Chapter. Areas potentially subject to sea water inundation are identified by the Coastal Flood Assessment Overlay.

Flooding and sea level rise are influenced by climate change. It is predicted that rainfall events will become more intense, storm events will become more common and the sea level will rise. The development of the flood assessment and coastal flood assessment overlays incorporate current

climate change predictions. For the Waimakariri District, the modelling has been based on the climate change scenario of RCP 8.5, with 1m of sea level rise over the next 100 years.

Modelling indicates that the District is not susceptible to coastal erosion over the next 100 years, even when accounting for climate change, and as such the District Plan does not contain provisions for this hazard.

Slope stability is addressed through the earthworks provisions. These require appropriate measures and are incorporated into earthworks design to maintain stability of sloping sites.

The District is also susceptible to natural hazards such as tsunami, severe winds, and ground shaking from earthquakes. These hazards are primarily managed by other statutory instruments or processes including the Building Act 2004, Civil Defence Emergency Management Act 2002 and the Local Government Act 1974.

A risk-based approach is taken which factors in the need to allow people and communities to use their property and undertake activities, while also ensuring that life or significant assets are not harmed or lost as a result of a natural hazard event. ~~The RPS recognises that for existing urban areas the community has already accepted some natural hazards risk in order to support the ongoing development of the District's existing towns. The RPS accordingly requires development in high hazard areas in these locations to be either avoided or mitigated.~~ The District Plan maps do not identify high flood hazard areas ~~or high coastal flood hazard areas~~, rather these are identified through the Flood Assessment Certificate process. This enables the most up-to-date technical information to be used. However, as a guide, areas that are potentially high hazard can be identified through the Waimakariri District Natural Hazards Interactive Viewer. This interactive viewer does not form part of the District Plan.

The provisions in this chapter are consistent with the matters in Part 2 - District Wide Matters - Strategic Directions and give effect to matters in Part 2 - District Wide Matters - Urban Form and Development.

Other potentially relevant District Plan provisions

As well as the provisions in this chapter, other District Plan chapters that contain provisions that may also be relevant to natural hazards include:

- Earthworks: this chapter contains provisions for earthworks occurring within a natural hazard overlay.
- Subdivision: this chapter contains provisions for subdivision being undertaken within a natural hazard overlay.
- Special Purpose Zone (Kāinga Nohoanga): how the natural hazards provisions apply in the Special Purpose Zone (Kāinga Nohoanga) is set out in Appendices SPZ(KN)-APP1 to SPZ(KN)-APP5 of that chapter.
- Any other District wide matter that may affect or relate to the site.
- Zones: the zone chapters contain provisions about what activities are anticipated to occur in the zones.

Objectives	
NH-O1	Risk from natural hazards New subdivision, land use and development <u>other than infrastructure</u> :

	<p>1 manages natural hazard risk, including coastal hazards, in the existing urban environment to ensure that any increased risk to people and property is low; 2.1. is avoided in the Ashley Fault Avoidance Overlay and high hazard areas for flooding outside of the urban environment where the risk to life and property are unacceptable; and</p> <p>2. <u>avoids or mitigates natural hazard risk in the existing urban environment to ensure that any increased risk to people and property is acceptable; and</u></p> <p>3. <u>outside of the urban environment, in all other instances, is undertaken to ensure natural hazard risk, including coastal hazard risk, to people and property is avoided or mitigated and the ability of communities to recover from natural hazard events is not reduced.</u></p>
NH-02	<p>Infrastructure in natural hazard overlays For infrastructure within natural hazard overlays:</p> <ol style="list-style-type: none"> 1. existing infrastructure, <u>including critical infrastructure</u>, can be upgraded, maintained and replaced; 2. new non-critical infrastructure does not increase the risk to life or property from natural hazard, including coastal hazard, events and is designed to maintain its integrity and ongoing function during and after natural hazard events, or is easily replaced; 3. <u>new</u>⁴ critical infrastructure is avoided in high flood hazard areas and high coastal flood hazard areas, unless there is a functional need or operational need for the location or route.
NH-03	<p>Natural hazard mitigation Adverse effects on people, property, infrastructure and the environment resulting from methods used to manage natural hazards are avoided or, where avoidance is not possible, mitigated.</p>
NH-04	<p>Natural defences features Natural defences features and systems are maintained to reduce the susceptibility of people, communities and property and infrastructure from natural hazard events.</p>
NH-05	<p>Climate change <u>The effects of climate change, and its influence on sea levels and the frequency and severity of natural hazards, are recognised and provided for.</u></p>
Policies	
NH-P1	<p>Identification of natural hazards and a risk-based approach Identify natural hazards, including coastal hazards, through the use of overlays and assess the risk for the management of subdivision, use and development within the overlays based on:</p> <ol style="list-style-type: none"> 1. the sensitivity of the building occupation to loss of life, damage to property from a natural hazard and the ability for communities to recover after a natural hazard event; and

⁴ RMA Clause 16 change – clause 1 covers existing infrastructure – clause 3 is intended to cover new infrastructure.

	<p>2. the level of hazard presented to people and property from a natural hazard, recognising that climate change will alter the frequency and severity of some natural hazard events.</p>
NH-P2	<p>Activities in high hazard areas for flooding within urban areas Manage <u>Avoid or mitigate adverse effects arising from</u> subdivision, use and development for natural hazard sensitive activities within high flood hazard and high coastal flood hazard urban environments to ensure that:</p> <ol style="list-style-type: none"> 1. minimum floor levels are incorporated into the design of development to ensure the risk to life and potential for building damage from flooding is mitigated; and 2. the risk <u>from flooding to on</u> surrounding properties is not significantly increased <u>no more than minor</u> and the net flood storage capacity is not reduced; and 3. the conveyance of flood waters is not impeded; or 4. the nature of the activity means the risk to life and potential for building damage from flooding is low.
NH-P3	<p>Activities in high hazard areas for flooding outside of urban areas Avoid subdivision, use and development for natural hazard sensitive activities outside urban environments in high flood hazard and high coastal flood hazard urban environments unless:</p> <ol style="list-style-type: none"> 1. the activity incorporates mitigation measures so that the risk to life, and building damage is low; 2. the risk from flooding <u>to on</u> surrounding properties is not significantly increased <u>no more than minor</u>; 3. the conveyance of flood waters is not impeded; and 4. the activity does not require new or upgraded community scale natural hazard mitigation works.
NH-P4	<p>Activities outside of high hazard areas for flooding Provide for subdivision, use and development associated with natural hazard sensitive activities outside of high flood hazard and high coastal flood hazard urban environments where it can be demonstrated that:</p> <ol style="list-style-type: none"> 1. the nature of the activity means the risk to life and potential for building damage from flooding is low; or 2. minimum floor levels are incorporated into the design of development to ensure building floor levels are located above the flood level so that the risk to life and potential for building damage from flooding is <u>mitigated</u> avoided; and 3. the risk from flooding <u>to on</u> surrounding properties is not significantly increased <u>no more than minor</u> and the net flood storage capacity is not reduced; and 4. the ability for conveyancing of flood waters is not impeded.
NH-P5	<p>Activities within the Fault Awareness Overlay and Ashley Fault Avoidance Overlay For activities within fault overlays:</p> <ol style="list-style-type: none"> 1. only allow subdivision, use and development for natural hazard sensitive activities in the Ashley Fault Avoidance Overlay where the risk to life or property is low; and 2. manage subdivision in the Fault Awareness Overlay so that the risk to life and property is low.
NH-P6	<p>Subdivision within the Liquefaction Hazard Overlay Manage subdivision within the Liquefaction Hazard Overlay to ensure that the risk to life and property is low.</p>

NH-P7	<p>Additions to existing natural hazard sensitive activities Provide for additions to buildings for existing natural hazard sensitive activities where it can be demonstrated that:</p> <ol style="list-style-type: none"> 1. the additions provide for the continued use of the existing building; and 2. the change in on site risk from the building additions to life and property is low; and 3. the risk from the natural hazard to on surrounding properties and people is not significantly increased <u>no more than minor</u>.
NH-P8	<p>Subdivision, use and development other than for any natural hazard sensitive activities Allow for subdivision, use and development associated with activities that are not natural hazard sensitive activities within all natural hazard overlays as there is a low risk to life and property.</p>
NH-P9	<p>Community scale Natural hazard mitigation works Natural hazard mitigation works:</p> <ol style="list-style-type: none"> 1. undertaken by the Crown, the Regional Council or the District Council are enabled where community scale natural hazard mitigation works are necessary to protect existing communities from natural hazard risk which cannot reasonably be avoided, and any adverse effects on the values of any identified <u>SNA</u>, ONL, ONF, SAL, scheduled natural character areas, the coastal environment, and Sites and Areas of Significance to Māori are mitigated; or 2. not undertaken by the Crown, the Regional Council or the District Council, will only be acceptable where: <ol style="list-style-type: none"> a. the natural hazard risk cannot reasonably be avoided; b. any adverse effects of those works on the values of any areas identified as <u>SNA</u>, ONL, ONF, SAL, scheduled natural character areas and the coastal environment, and on sites and areas of significance to Māori are avoided, remedied or mitigated in accordance with the provisions in those chapters; c. the mitigation works do not transfer or create unacceptable hazard risk to other people, property, infrastructure or the natural environment; and d. the mitigation works do not involve the construction of private flood mitigation measures such as stopbanks, or floodwalls to protect new hazard sensitive activities as these works could result in significant residual risk to life or property if they fail.
NH-P10	<p>Maintenance and operation of existing infrastructure Allow for <u>Enable</u> the operation, maintenance, replacement, minor upgrading, repair and removal of all existing infrastructure in identified natural hazard overlays.</p>
NH-P11	<p>New below ground infrastructure and upgrading of infrastructure outside of high hazard areas Provide for new and upgrading of existing below ground infrastructure outside of high flood hazard and high coastal flood hazard areas, where:</p> <ol style="list-style-type: none"> 1. if located within a flood assessment or coastal flood assessment overlay, the original ground level is reinstated at completion of the works; 2. it does not increase the risk to life or property from natural hazard events; 3. it does not result in a reduction in the ability of people and communities to recover from a natural hazard event; and 4. it is designed to maintain reasonable and safe operation during and after a natural hazard event.

NH-P12	<p>New below ground infrastructure and upgrading of infrastructure within high flood hazard areas</p> <p>Provide for the installation of new and upgrading of existing below ground infrastructure in high flood hazard or high coastal flood hazard areas where:</p> <ol style="list-style-type: none"> 1. the infrastructure does not exacerbate the natural hazard risk or transfer the risk to another site; 2. the conveyance of flood waters is not impeded; 3. there is a functional need or operational need for the infrastructure to be located in a high flood hazard or high coastal flood hazard area and there are no practical alternatives; and 4. the location and design of the infrastructure address relevant natural hazard risk and appropriate measures have been incorporated into the design to provide for the continued operation.
NH-P13	<p>New above ground critical infrastructure and upgrading of critical infrastructure within high flood hazard areas</p> <p>Only allow for the new and upgrading of existing above ground critical infrastructure in high flood hazard or high coastal flood hazard areas where:</p> <ol style="list-style-type: none"> 1. there is a functional need or operational need for that location, <u>including as a result of the linear nature of some infrastructure</u>, and there are no practical reasonable alternatives; 2. the location and design of the infrastructure address relevant natural hazard risk and appropriate measures have been incorporated into the design to provide for the continued operation; and 3. the infrastructure does not exacerbate the natural hazard risk or transfer the risk to another site.
NH-P14	<p>New infrastructure and upgrading of infrastructure within fault overlays</p> <p>Within the fault overlays:</p> <ol style="list-style-type: none"> 1. provide for new and upgrading of existing not critical infrastructure below and above ground in the Ashley Fault Avoidance Overlay where: <ol style="list-style-type: none"> a. it does not increase the risk to life or property from a natural hazard event; and b. it does not result in a reduction in the ability of people and communities to recover from a natural hazard event; 2. avoid new and upgrading of existing critical infrastructure below and above ground in the Ashley Fault Avoidance Overlay unless there is <u>an operational need or functional need</u> and no reasonable alternative, in which case the infrastructure must be designed to: <ol style="list-style-type: none"> a. maintain, as far as practicable, its integrity and ongoing operation during and after natural hazard events; or b. be able to be reinstated in a timely manner; 3. enable small scale critical infrastructure and other infrastructure in the Fault Awareness Overlay, while ensuring that larger critical infrastructure does not increase the risk to life or property from natural hazard events unless: <ol style="list-style-type: none"> a. <u>there is an operational or functional need</u> or there is no reasonable alternative, in which case the infrastructure must be designed to maintain, as far as practicable, its integrity and ongoing operation during and after natural hazard events; or b. be able to be reinstated in a timely manner.
NH-P15	<p>Natural features providing natural hazard resilience</p>

	Protect natural features which assist in avoiding or reducing the impacts from natural hazards, such as natural ponding areas, wetlands, water body margins and riparian margins, dunes, berms and beaches from inappropriate subdivision, use and development and restore, maintain or enhance the functioning of these features.
NH-P16	Redevelopment and relocation in coastal hazard and natural hazard overlays Encourage redevelopment, or changes in land use where that would reduce the risk of adverse effects from natural hazards, including managed retreat and designing for relocation or recoverability from natural hazard events.
NH-P17	Hard engineering natural hazard mitigation within the coastal environment Only allow hard engineering natural hazard mitigation within the coastal environment that reduces the risk of natural hazards when: <ol style="list-style-type: none"> 1. soft engineering measures would not provide an appropriate level of protection and it can be demonstrated that there are no other reasonable alternatives; 2. the construction of hard engineering measures will not increase the risk from coastal hazards on adjacent properties that are not protected by the hard engineering measures; 3. where managed retreat has not been adopted and there is an immediate risk to life or property from the natural hazard; 4. it avoids the modification or alteration of natural defences features and systems in a way that would compromise their function as natural defences; and 5. significant adverse effects on natural defences and systems from those measures are avoided, and any other adverse effects are avoided, remedied or mitigated.
NH-P18	Fire and ice risks Manage wildfire and vehicle crash risk on roads affected by ice hazard through restrictions on the planting of woodlots and shelterbelts.
NH-P19	Other natural hazards Encourage the consideration of <u>a risk-based approach for other natural hazards as part of subdivision, use and development to achieve an acceptable level of risk, and where there is uncertainty in the likelihood or consequences of a natural hazard event, adopt a precautionary approach.</u>

Activity Rules

How to interpret and apply the rules

1. Some sites may have more than one overlay applying. The rules of all the applicable overlays apply.
2. ~~For rules that refer to the Kaiapoi Fixed Minimum Finished Floor Level Overlay, the minimum floor level is specified in the planning map.~~
3. Rules that refer to a Flood Assessment Certificate or Coastal Flood Assessment Certificate require a certificate to be obtained from the District Council to determine compliance with the rule. The alternative is to apply for resource consent as set out in the rule.
4. The District Council will issue a certificate, upon application, in accordance with the published Council guidance on the matter.
5. Certificates are valid for three years from the date of issue. If a land use consent is required, the five year period provided under the RMA to give effect to the resource consent overrides the three year certificate lifespan.

6. The Flood Assessment Certificate and Coastal Flood Assessment Certificate specify circumstances when required minimum building floor levels or land levels will not be provided.
7. The AEP flood event risk level, minimum floor levels and overland flow path locations are to be determined by reference to:
 - a. the most up to date models, maps and data held by the District Council and the Regional Council; and
 - b. any information held by, or provided to, the District Council or the Regional Council that relates to flood risk for the specific land.

Non-Coastal Hazards

NH-R1	Natural hazard sensitive activities	
Urban Flood Assessment Overlay Kaiapoi Fixed Minimum Finished Floor Level Overlay	<p>Activity status: PER</p> <p>Where:</p> <ol style="list-style-type: none"> 1. the building is erected to the level specified in an existing consent notice decision that is less than five years old; or 2. the building: <ol style="list-style-type: none"> a. does not exceed the permitted building coverage for the zone; and <ol style="list-style-type: none"> i. if located within the Kaiapoi Fixed Minimum Finished Floor Level Overlay, the building has a finished floor level equal to or higher than the minimum finished floor level shown on the planning map; or ii. i. if not located within the Kaiapoi Fixed Minimum Finished Floor Level Overlay, the building has a finished floor level equal to or higher than the minimum finished floor level as stated in a Flood Assessment Certificate issued in accordance with NH-S1; and b. is not located within an overland flow path as stated in a Flood Assessment Certificate issued in accordance with NH-S1. 	<p>Activity status where compliance is not achieved: RDIS</p> <p>Matters of discretion are restricted to: NH-MD1 - Natural hazards general matters</p> <p>Notification</p> <p>An application for a restricted discretionary activity under this rule is precluded from being publicly notified, but may be limited notified.</p>
NH-R2	Natural hazard sensitive activities	

Non-Urban Flood Assessment Overlay Rural Zones	<p>Activity status: PER Where:</p> <ol style="list-style-type: none"> 1. the building is erected to the level specified in an existing consent notice <u>decision</u> that is less than five years old; or 2. if located within the Non-Urban Flood Assessment Overlay, the building: <ol style="list-style-type: none"> a. is not located on a site within a high flood hazard area as stated in a Flood Assessment Certificate issued in accordance with NH-S1; and b. has a finished floor level equal to or higher than the minimum finished floor level as stated in a Flood Assessment Certificate issued in accordance with NH-S1; and c. is not located within an overland flow path as stated in a Flood Assessment Certificate issued in accordance with NH-S1; or 3. if the activity is a residential unit or a minor residential unit and is located outside of the Non-Urban Flood Assessment Overlay and located within Rural Zones, it has a finished floor level that is either: <ol style="list-style-type: none"> i. 400mm above the natural ground level; or ii. is equal to or higher than the minimum finished floor level as stated in a Flood Assessment Certificate issued in accordance with NH-S1. 	<p>Activity status where compliance with NH-R2 (1), NH-R2 (2)(b), NH-R2 (2)(c) and NH-R2 (3) is not achieved: RDIS Matters of discretion are restricted to: NH-MD1 - Natural hazards general matters</p> <p>Activity status where compliance with NH-R2 (2)(a) is not achieved: NC Notification An application for a restricted discretionary activity under this rule is precluded from being publicly notified, but may be limited notified.</p>
NH-R3	Natural hazard sensitive addition to existing natural hazard sensitive activities	
Urban Flood Assessment Overlay Kaiapoi Fixed Minimum Finished Floor Level Overlay	<p>Activity status: PER Where:</p> <ol style="list-style-type: none"> 1. the addition to a building does not result in a new or additional natural hazard sensitive activity establishing on the site; and 2. the addition: <ol style="list-style-type: none"> a. is not located within the Ashley Fault Avoidance Overlay; or 	<p>Activity status where compliance is not achieved: RDIS Matters of discretion are restricted to: NH-MD1 - Natural hazards general matters</p> <p>Notification An application for a restricted discretionary activity under this rule is precluded from being publicly notified, but may be limited notified.</p>

<p>Non-Urban Flood Assessment Overlay Ashley Fault Avoidance Overlay Rural Zones</p>	<p>b. is erected to the level specified in an existing subdivision consent notice decision or on an approved subdivision consent plan that is less than five years old; or</p> <p>c. if located in the Kaiapoi Fixed Minimum Finished Floor Level Overlay, any building footprint addition has a finished floor level equal to or higher than the minimum finished floor level shown on the planning map; or</p> <p>d. if located within the <u>Non-urban Flood Assessment Overlay</u>, the addition is <u>located on a site outside of a high hazard area as stated in a Flood Assessment Certificate issued in accordance with NH-S1;</u></p> <p>e. if located within any Flood Assessment Overlay, the building footprint addition is:</p> <ul style="list-style-type: none"> i. located on a site outside of a high flood hazard area as stated in a Flood Assessment Certificate issued in accordance with NH-S1; and ii. is not located within an overland flow path as stated in a Flood Assessment Certificate issued in accordance with NH-S1; and iii. has a finished floor level equal to or higher than the minimum finished floor level as stated in a Flood Assessment Certificate issued in accordance with NH-S1; <p>or</p> <p>f. if the activity is a residential unit or a minor residential unit and is located outside of the Non-Urban Flood Assessment Overlay and located within</p>	
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	Rural Zones, it has a finished floor level that is either: <ol style="list-style-type: none"> i. 400mm above the natural ground level; or ii. is equal to or higher than the minimum finished floor level as stated in a Flood Assessment Certificate issued in accordance with NH-S1. 	
NH-R4	Below ground infrastructure and critical infrastructure	
Urban Flood Assessment Overlay Kaiapoi Fixed Minimum Finished Floor Level Overlay Non-Urban Flood Assessment Overlay	Activity status: PER Where: <ol style="list-style-type: none"> 1. the profile, contour or height of the land is not permanently raised by more than 0.25m when compared to natural ground level <u>the activity does not exacerbate flooding on any other property by displacing or diverting floodwater on surrounding land in a 0.5% AEP event.</u> 	Activity status where compliance is not achieved: RDIS Matters of discretion are restricted to: NH-MD3 - Natural hazards and infrastructure Notification An application for a restricted discretionary activity under this rule is precluded from being publicly notified, but may be limited notified.
	Advisory Note <ul style="list-style-type: none"> • This rule applies in addition to EI-R1 to EI-R56. 	
NH-R5	Above ground infrastructure that is not critical infrastructure	
Urban Flood Assessment Overlay Kaiapoi Fixed Minimum Finished Floor Level Overlay Non-Urban Flood Assessment Overlay	Activity status: PER Where: <ol style="list-style-type: none"> 1. the profile, contour or height of the land is not permanently raised by more than 0.25m when compared to natural ground level <u>the activity does not exacerbate flooding on any other property by displacing or diverting floodwater on surrounding land in a 0.5% AEP event; and</u> 2. new infrastructure or upgraded an extension to existing infrastructure: <ol style="list-style-type: none"> a. has a footprint of less than 10m²; or 	Activity status where compliance is not achieved: RDIS Matters of discretion are restricted to: NH-MD3 - Natural hazards and infrastructure Notification An application for a restricted discretionary activity under this rule is precluded from being publicly notified, but may be limited notified.

	<p>b. is not located within an overland flow path as stated in a Flood Assessment Certificate issued in accordance with NH-S1; or</p> <p>c. is limited to a customer connection; <u>or</u></p> <p>d. <u>is for a temporary military training activity.</u></p>	
<p>Advisory Note</p> <ul style="list-style-type: none"> This rule applies in addition to EI-R1 to EI-R56. 		
<p>NH-R6 Above ground critical infrastructure</p>		
<p>Fault Awareness Overlay Urban Flood Assessment Overlay Kaiapoi Fixed Minimum Finished Floor Level Overlay Non-Urban Flood Assessment Overlay</p>	<p>Activity status: PER Where:</p> <p><u>1. the infrastructure is a road and does not exacerbate flooding on any other property by displacing or diverting floodwater on surrounding land in a 0.5% AEP event;</u></p> <p>1- 2. if located with the Fault Awareness Overlay, new critical infrastructure or an extension to existing <u>upgraded</u> infrastructure has a footprint of less than 100m² <u>per structure</u>; and</p> <p>2- 3. if located within a Flood Assessment Overlay or the Kaiapoi Fixed Minimum Finished Floor Level Overlay:</p> <p>a. the profile, contour or height of the land is not permanently raised by more than 0.25m when compared to natural ground level; <u>the activity does not exacerbate flooding on any other property by displacing or</u></p>	<p>Activity status where compliance is not achieved: RDIS</p> <p>Matters of discretion are restricted to: NH-MD3 - Natural hazards and infrastructure</p> <p>Notification An application for a restricted discretionary activity under this rule is precluded from being publicly notified, but may be limited notified.</p>

	<p><u>diverting floodwater on surrounding land in a 0.5% AEP event;</u> and</p> <p>b. the infrastructure is located on a site outside of high flood hazard area as stated in a Flood Assessment Certificate issued in accordance with NH-S1; or</p> <p>c. new <u>infrastructure</u> or an <u>extension to existing upgraded infrastructure</u>:</p> <p>i. has a footprint of less than <u>103m² per structure attached to the ground</u>; or</p> <p>ii. <u>is located 3m or more above ground level, excluding any support base, towers or poles, at an elevation higher than the minimum finished floor level as stated in a Flood Assessment Certificate issued in accordance with NH S1</u>; or</p> <p>iii. has a finished floor level equal to or higher than the minimum finished floor level as stated in a Flood Assessment Certificate</p>	
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	<p>issued in accordance with NH-S1; and</p> <p>d. new buildings, or extensions to existing buildings that increase the footprint of the existing infrastructure <u>by more than 25m²</u>, are not located within an overland flow path as stated in a Flood Assessment Certificate issued in accordance with NH-S1.</p>	
	<p>Advisory Note</p> <ul style="list-style-type: none"> This rule applies in addition to EI-R1 to EI-R56. 	
NH-R7	Woodlots and shelterbelts	
Rural Zones	<p>Activity status: PER</p> <p>Where:</p> <ol style="list-style-type: none"> any woodlot or shelterbelt shall comply with the following fire hazard setback distances, measured from the outside extent of the canopy at the time of planting: <ol style="list-style-type: none"> 30m from any boundary of any adjoining site; and 10m from any road. any woodlot or shelterbelt established on the north side of South Eyre Road, Tram Road, Oxford Road, or Birch Hill Road shall comply with the following ice hazard height and setback distances: <ol style="list-style-type: none"> trees adjoining the road boundary shall be maintained at a height of no greater than 3m; trees capable of growing up to 6m in height shall be setback 5m from the road boundary; and trees capable of growing 8m in height or higher shall be 	<p>Activity status where compliance is not achieved: RDIS</p> <p>Matters of discretion are restricted to:</p> <p>NH-MD1 - Natural hazards general matters</p> <p>Notification</p> <p>An application for a restricted discretionary activity under this rule is precluded from being publicly notified, but may be limited notified.</p>

	setback 15m from the road boundary.	
NH-R8	Maintenance of existing community scale natural hazard mitigation works	
All Zones	Activity status: PER	Activity status where compliance is not achieved: N/A
NH-R9	Upgrading existing community scale natural hazard mitigation works	
	<i>The rule does not apply to the planting of vegetation as part of natural hazard mitigation works.</i>	
All Zones	Activity status: PER	Activity status where compliance is not achieved: N/A
Ashley River / Rakahuri Saltwater Creek Estuary ONF Waimakariri River ONF Ashley River / Rakahuri SAL	Activity status: RDIS Matters of discretion are restricted to: NH-MD2 - Natural hazard mitigation works	Activity status where compliance is not achieved: N/A
NH-R10	Construction of new community scale natural hazard mitigation works	
	<i>The rule does not apply to the planting of vegetation as part of natural hazard mitigation works.</i>	
All Zones	Activity status: PER Where: 1. the works are limited to soft engineering natural hazard mitigation <u>and do not include earth engineered bunds</u> ; and 2. the works are not located within a site and area of significance to Māori (refer also to Rule SASM-R5).	Activity status where compliance is not achieved: RDIS Matters of discretion are restricted to: NH-MD2 - Natural hazard mitigation works
Ashley River / Rakahuri Saltwater Creek Estuary ONF Waimakariri River ONF Ashley River / Rakahuri SAL	Activity status: RDIS Matters of discretion are restricted to: NH-MD2 - Natural hazard mitigation works	Activity status where compliance is not achieved: N/A

NH-R11	New and upgrading of above and below ground existing infrastructure that is not critical infrastructure	
	<i>This rule shall not apply to customer connections.</i>	
Ashley Fault Avoidance Overlay	Activity status: RDIS Matters of discretion are restricted to: NH-MD3 - Natural hazards and infrastructure	Activity status where compliance is not achieved: N/A
NH-R12	Natural hazard sensitive activities	
Ashley Fault Avoidance Overlay	Activity status: DIS	Activity status where compliance is not achieved: N/A
NH-R13	Upgrading of existing or construction of new non-community scale natural hazard mitigation works for flood mitigation	
	<i>The rule does not apply to the planting of vegetation as part of natural hazard mitigation works.</i>	
Urban Flood Assessment Overlay Kaiapoi Fixed Minimum Finished Floor Level Overlay Non-Urban Flood Assessment Overlay	Activity status: DIS	Activity status where compliance is not achieved: N/A
NH-R14	New and upgrading of above and below ground critical infrastructure	
Ashley Fault Avoidance Overlay	Activity status: DIS RDIS Where: 2. the critical infrastructure involves any of the following: a. electricity substations, networks, and transmission and distribution installations, including the National Grid and the electricity distribution network; b. supply and treatment of water for public supply;	Activity status where compliance is not achieved: NC

<p>c. stormwater and sewage treatment and disposal systems;</p> <p>d. radiocommunication and telecommunication installations and networks;</p> <p>e. strategic road and rail networks;</p> <p>f. petroleum storage and supply facilities.</p> <p><u>Matters of discretion are restricted to:</u> <u>NH-MD3 - Natural hazards and infrastructure</u></p>	
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Coastal Hazards

NH-R15		Natural hazard sensitive activities within the urban environment	
Coastal Flood Assessment Overlay	<p>Activity status: PER</p> <p>Where:</p> <ol style="list-style-type: none"> 1. the building is erected to the level specified in an existing subdivision consent notice <u>decision</u> or on an approved subdivision consent plan that was approved after 1 January 2021, and is less than five years old; or 2. the building: <ol style="list-style-type: none"> a. does not exceed the permitted building coverage for the zone; and b. has a finished floor level equal to or higher than the minimum finished floor level as stated in a Flood Assessment Certificate issued in accordance with NH-S1. 	Activity status where compliance is not achieved: RDIS	<p>Matters of discretion are restricted to: NH-MD4 - Natural hazards coastal matters</p>
	<p>Advisory Note</p> <ul style="list-style-type: none"> • Further information on hazards including technical reports and hazard maps identifying areas potentially subject to freshwater flooding, sea water inundation flooding and areas that are potentially high hazard flooding areas 		

	can be found on the Waimakariri District Natural Hazards Interactive Viewer. This further information does not form part of the District Plan.	
NH-R16	Natural hazard sensitive activities outside the urban environment	
Coastal Flood Assessment Overlay	<p>Activity status: PER Where:</p> <ol style="list-style-type: none"> 1. the building is erected to the level specified in an existing subdivision consent notice <u>decision</u> or on an approved subdivision consent plan that was approved after 1 January 2021, and is less than five years old; or 2. the building is identified as being subject to 0.29m <u>0.3m⁵</u> or less of coastal flooding as stated in a Coastal Flood Assessment Certificate and has finished floor level equal to or higher than the minimum finished floor level as stated in a Coastal Flood Assessment Certificate issued in accordance with NH-S2. 	<p>Activity status where compliance is not achieved: RDIS (see NH-R16 (3))</p>
Coastal Flood Assessment Overlay	<p>Activity status: RDIS Where:</p> <ol style="list-style-type: none"> 3. the building is identified as being subject to between 0.3m and 0.99m <u>more than 0.3m and less than 1m⁶</u> of coastal flooding as stated in a Coastal Flood Assessment Certificate and is to be erected on raised land or utilises a combination of raised land and a raised floor level equal to or higher than the minimum requirements stated in a Coastal Flood Assessment 	<p>Activity status where compliance is not achieved: NC</p>

⁵ RMA Schedule 1 Clause 16(2) amendment⁶ RMA Schedule 1 Clause 16(2) amendment

	<p>Certificate issued in accordance with NH-S2.</p> <p>Matters of discretion are restricted to:</p> <p>NH-MD4 - Natural hazards coastal matters</p>	
	<p>Advisory Note</p> <ul style="list-style-type: none"> Further information on hazards including technical reports and hazard maps identifying areas potentially subject to fresh water flooding, sea water inundation flooding and areas that are potentially high hazard flooding areas can be found on the Waimakariri District Natural Hazards Interactive Viewer. This further information does not form part of the District Plan. 	
NH-R17	Above ground critical infrastructure	
Coastal Flood Assessment Overlay	<p>Activity status: PER</p> <p>Where:</p> <p><u>1. the infrastructure is a road and does not exacerbate flooding on any other property by displacing or diverting floodwater on surrounding land in a 0.5% AEP event;</u></p> <p>the profile, contour or height of the land is not permanently raised by more than 0.25m when compared to natural ground level</p> <p><u>1- 2. the activity does not exacerbate flooding on any other property by displacing or diverting floodwater on surrounding land in a 0.5% AEP event; and</u></p> <p>a. new infrastructure or an extension to existing upgraded infrastructure has a footprint of less than 103m² per structure; or</p> <p>b. any new building that is identified as being subject to 0.29m 0.3m or less of coastal flooding as stated in a Coastal Flood Assessment Certificate and has</p>	<p>Activity status where compliance is not achieved: for NH-R17 (1), NH-R17 (1)(a) and NH-R17 (1)(c) NH-R17 (2), NH-R17 (2)(a) and NH-R17 (2)(c): RDIS</p> <p>Matters of discretion are restricted to:</p> <p>NH-MD3 - Natural hazards and infrastructure</p> <p>Activity status where compliance is not achieved for NH-R17 (1)(b): RDIS (see NH-R17 (2 3))</p>

	<p>finished floor level equal to or higher than the minimum finished floor level as stated in a Coastal Flood Assessment Certificate issued in accordance with NH-S2; or</p> <p>c. if not a building, new infrastructure, excluding any support base, towers or poles, is located above ground level at an elevation higher than the minimum floor level as stated in a Coastal Flood Assessment Certificate issued in accordance with NH-S2.</p>	
Coastal Flood Assessment Overlay	<p>Activity status: RDIS Where: 2. <u>3.</u> any building that is identified as being subject to between 0.3m and 0.99m <u>more than 0.3m and less than 1m</u> of coastal flooding, as stated in a Coastal Flood Assessment Certificate, is erected on raised land or utilises a combination of raised land and a raised floor level equal to or higher than the minimum requirements stated in a Coastal Flood Assessment Certificate issued in accordance with NH-S2.</p> <p>Matters of discretion are restricted to: NH-MD4 - Natural hazards coastal matters</p>	Activity status where compliance is not achieved: NC
NH-R18	Below ground infrastructure and critical infrastructure	

Coastal Flood Assessment Overlay	Activity status: PER Where: 1. the profile, contour or height of the land is not permanently raised by more than 0.25m when compared to natural ground level <u>the activity does not exacerbate flooding on any other property by displacing or diverting floodwater on surrounding land in a 0.5% AEP event.</u>	Activity status where compliance is not achieved: RDIS Matters of discretion are restricted to: NH-MD4 - Natural hazards coastal matters
NH-R19	Construction of new community scale natural hazard mitigation works involving hard engineering natural hazard mitigation	
<i>The rule does not apply to the planting of vegetation as part of natural hazard mitigation works.</i>		
Coastal Flood Assessment Overlay	Activity status: DIS	Activity status where compliance is not achieved: N/A
NH-R20	Upgrading of existing or construction of new non-community scale natural hazard mitigation works for coastal flood hazard mitigation	
<i>The rule does not apply to the planting of vegetation as part of natural hazard mitigation works.</i>		
Coastal Flood Assessment Overlay	Activity Status: NC	Activity status where compliance is not achieved: N/A

Natural Hazard Standards

NH-S1 Flood Assessment Certificate	
1. The District Council will issue a Flood Assessment Certificate (which will be valid for three years from the date of issue) that specifies: <ol style="list-style-type: none"> whether the activity is located on a site that is within a high flood hazard area; and whether the activity is located within an overland flow path; and where the activity is located on land that is within the Urban Flood Assessment Overlay, the minimum 	Activity status where compliance is not achieved: N/A

<p>finished floor level in accordance with (e); or</p> <p>d. where the activity is located on land that is within the Non-Urban Flood Assessment Overlay and is located on land that is outside of a high flood hazard area, the minimum finished floor level in accordance with (e); and</p> <p>e. the minimum finished floor level shall be calculated as the highest of the following:</p> <p>i. flooding predicted to occur in a 0.5% AEP (1 in 200-year) Localised Rainfall Event plus up to 500mm freeboard; or</p> <p>ii. flooding predicted to occur in a 0.5% AEP (1 in 200-year) Ashley River/Rakahuri Breakout Event concurrent with a 5% AEP (1 in 20-year) Localised Rainfall Event plus up to 500mm freeboard; or</p> <p>iii. flooding predicted to occur in a 10.5% AEP (1 in 1200-year) Storm Surge Event concurrent with a 5% AEP (1 in 20-year) River Flow Event with sea level rise based on an RCP8.5 climate change scenario, plus up to 500mm freeboard.</p> <p>2. <u>Freeboard will be applied as follows:</u></p> <p>c. <u>Low Hazard - 400mm freeboard</u></p> <p>d. <u>Medium to High Hazard - 500mm freeboard</u></p>	
<p>Advisory Notes</p> <ul style="list-style-type: none"> • An application form and guidance on how to obtain a Flood Assessment Certificate are available on the District Council's website. • Certificates are valid for three years from the date of issue. If a land use consent is required, the five year period provided under the RMA to give effect to the resource consent overrides the three year Certificate lifespan. • Under NH-S1 the District Council will not provide a required minimum floor level for high flood hazard areas within the Non-Urban Environment Flood Assessment Area. A resource consent will be required in this situation. • Further information on hazards including technical reports and hazard maps identifying areas potentially subject to freshwater flooding, sea water inundation flooding and areas 	

that are potentially a high hazard area can be found at the Waimakariri District Natural Hazards Interactive Viewer. This further information does not form part of the District Plan.

- The AEP flood event risk level, minimum floor levels and overland flow path locations are to be determined by reference to:
 - The most up to date models, maps and data held by the District Council and the Regional Council; and
 - Any information held by, or provided to, the District Council or the Regional Council that relates to flood risk for the specific land.

NH-S2 Coastal Flood Assessment Certificate

<p>1. The District Council will issue a Coastal Flood Assessment Certificate (which will be valid for three years from the date of issue) for a site within the Coastal Flood Assessment Overlay that specifies:</p> <ul style="list-style-type: none"> a. whether the activity is located on a site that is likely to be affected by sea water storm surge flooding; and b. whether the activity is located on a site that is within a high coastal flood hazard area; and c. where the activity is located on a site that is within the Non-Urban Flood Assessment Overlay and is outside of a high coastal flood hazard area and (a) is met, the minimum land level in accordance with (d), or the minimum land and finished floor level combination in accordance with (e); d. the minimum land level shall equal: <ul style="list-style-type: none"> i. the flooding level predicted to occur in a 1% AEP (1 in 100-year) Storm Surge Event concurrent with a 5% AEP (1 in 20-year) River Flow Event with sea level rise of 1m based on an RCP8.5 climate change scenario; e. the minimum land and floor level combination shall equal: <ul style="list-style-type: none"> i. land filled to be within 300mm of the required land level under (d); and ii. a floor level that meets the minimum level specified in NH-S1. 	<p>Activity status where compliance is not achieved: N/A</p>
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Advisory Notes

- An application form and guidance on how to obtain a Flood Assessment Certificate are available on the District Council's website.

- Certificates are valid for three years from the date of issue. If a land use consent is required, the five year period provided under the RMA to give effect to the resource consent overrides the three year Certificate lifespan.
 - Under NH-S2 the District Council will not provide a required minimum floor/land level for high coastal flood hazard areas within the Non-Urban Flood Assessment Area. A resource consent will be required in this situation.
 - Further information on hazards including technical reports and hazard maps identifying areas potentially subject to freshwater flooding, sea water inundation flooding and areas that are potentially high hazard flooding areas can be found on the Waimakariri District Natural Hazards Interactive Viewer. This further information does not form part of the District Plan.
 - The AEP flood event risk level, minimum floor levels and overland flow path locations are to be determined by reference to:
 - The most up to date models, maps and data held by the District Council and the Regional Council; and
 - Any information held by, or provided to, the District Council or Regional Council that relates to flood risk for the specific land.
2. Freeboard will be applied as follows:
- c. Low Hazard - 400mm freeboard
 - d. Medium to High Hazard - 500mm freeboard

Matters of Discretion

NH-MD1	<p>Natural hazards general matters</p> <ol style="list-style-type: none"> 1. <u>The extent to which the The setting of minimum floor levels are not achieved by the proposal and the effect of the lower levels, and the effects of minimum land levels and the predicted sea water and other inundation that will occur on the site.</u> 2. The frequency at which any proposed building or addition is predicted to be damaged and the extent of damage likely to occur in such an event, including taking into account the building material and design proposed; the anticipated life of the building, whether the building is relocatable, and for redevelopments, the extent to which overall risk will change as a result of the proposal. 2. <u>The frequency at which any proposed building or addition is predicted to be damaged and the extent of damage likely to occur in such an event, including taking into account:</u> <ol style="list-style-type: none"> a. <u>the building material and design proposed;</u> b. <u>the anticipated life of the building;</u> c. <u>the proposed use of the building, including whether it is a retail, commercial or industrial activity or has a low staff occupancy rate, that would lessen the adverse effects of it being damaged in a natural hazard event;</u> d. <u>whether the building is relocatable; and</u> e. <u>for redevelopments, the extent to which overall risk will change as a result of the proposal.</u> 3. The extent to which site access will be compromised in a natural hazard event and any alternative access provided. 4. The extent to which the proposal causes flood water displacement or flow path disruption onto other sites.
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	<ol style="list-style-type: none"> 5. The extent to which any flood mitigation measures are proposed, their effectiveness and environmental effects, and any benefits to the wider area associated with flood management. 6. The extent to which the proposal relies on Council infrastructure and the risks to that infrastructure from natural hazards, including taking into account maintenance and repair costs that might fall on the wider community. 7. The extent to which there are any positive <u>negative</u> effects from a reduction <u>an increase</u> in floor levels in relation to neighbouring buildings or the streetscape. 8. In relation to wildfire and ice, the degree of risk posed to life and property due to the non-compliance. 9. In relation to tsunami risk, the nature of the proposed activity and the ease of evacuation.
NH-MD2	<p>Natural hazard mitigation works</p> <ol style="list-style-type: none"> 1. The extent to which the natural hazard risk cannot be avoided. 2. Any adverse effects of those works on the natural and built environment and on the cultural and spiritual values of Ngāi Tūāhuriri, including any matters specified in CE-MD1, ECO-MD1, NATC-MD3, NATC-MD4, NATC-MD5, NATC-MD6 and CE-MD1, SASM-MD1, SASM-MD2 and SASM-MD3. 3. Any adverse effects on the values of any identified ONL, ONF or SAL including any matters specified in NFL-MD1. 4. The extent to which the mitigation works transfer, or create, unacceptable hazard risk to other people, property, infrastructure, or the natural environment.
NH-MD3	<p>Natural hazards and infrastructure</p> <ol style="list-style-type: none"> 1. Any increase in the risk to life or property from natural hazard events. 2. Any negative e Effects on the ability of people and communities to recover from a natural hazard event. 3. The extent to which the infrastructure will suffer damage in a hazard event and whether the infrastructure is designed to maintain reasonable and safe operation during and after a natural hazard event. 4. The time taken to reinstate critical infrastructure following a natural hazard event. 5. The extent to which the infrastructure exacerbates the natural hazard risk or transfers the risk to another site. 6. The ability for flood water conveyance to be maintained. 7. The extent to which there is a functional need and operational need for that location and there are no practical alternatives. 8. The extent to which any mitigation measures are proposed, their effectiveness and environmental effects, and any benefits to the wider area associated with hazard management. 9. The positive benefits derived from the installation of <u>the</u> infrastructure. 10. Any effects on cultural values.
NH-MD4	<p>Natural hazards coastal matters</p> <ol style="list-style-type: none"> 1. The frequency at which any proposed building or addition is predicted to be damaged and the extent of damage likely to occur in such an event, taking into account: <ol style="list-style-type: none"> a. proposed land and floor levels; b. the building material and design proposed; c. the certainty of the modelling; and

	<p>d. the time frame over which sea level rise inundation is predicted to occur.</p> <ol style="list-style-type: none"> 2. The extent to which the building is readily relocatable and when inundation is predicted to occur as a result of sea level rise, including the use of 'trigger' decision-points that take into account actual sea level rise and how such triggers will provide advance warning of the need to relocate the building, and proposals to manage residual risk. 3. The extent to which site access will be compromised in a coastal hazards event and any alternative access provided. 4. The extent to which any coastal flooding mitigation measures are proposed, their effectiveness and environmental effects, including displacement onto surrounding sites and disruption of flow paths and any benefits to the wider area associated with flood management. 5. The extent to which the proposal relies on Council infrastructure and the risks to that infrastructure from coastal hazards, including taking into account maintenance and repair costs that might fall on the wider community. 6. Whether there are any positive <u>negative</u> effects from a reduction <u>an increase</u> in floor or land levels in relation to accessibility, the height of the existing building, neighbouring buildings or the streetscape or the financial viability of the development. 7. Whether the site is located within an existing urban area and raised land or floor levels would create an unreasonable burden on the ability to continue to use an existing building and support the local community.
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Overlay Amendments

Liquefaction Hazard Overlay

Amend the Liquefaction Hazard Overlay so that it only captures the gold coloured 'liquefaction damage is possible' area (i.e. it excludes the green coloured 'liquefaction damage is unlikely' area) and is limited to areas within the Waimakariri district.

Urban and Non-urban Flood Assessment Overlays

Replace the Urban and Non-Urban Flood Assessment Overlays with the overlays as agreed in the Joint Witness Statement included as Appendix D (this includes an overlay based on the 200-year return period (0.5% AEP)).

Kaiapoi Fixed Minimum Floor Level Overlay

Delete the Kaiapoi Fixed Minimum Floor Level Overlay and replace it with the Urban Flood Assessment Overlay.

Definitions

Community scale natural hazard mitigation works

Community scale natural hazard mitigation works means:

a natural hazard mitigation ~~scheme~~ works that serves multiple properties and ~~is~~ are constructed and administered by the District Council, the Crown, the Regional Council or their nominated contractor or agent.

Coastal hazard mitigation works means:

Any means work and or structure designed to prevent or mitigate coastal hazards, such as coastal erosion and seawater inundation. It includes soft engineering natural hazard mitigation beach re-nourishment, dune replacement, and sand fences, seawalls, groynes, gabions and revetments and hard engineering natural hazard mitigation.

'High coastal flood hazard area'
means:-

- a. ~~land likely to be subject to coastal erosion, including the cumulative effects of sea level rise, over the next 100 years; and~~
- b. ~~land subject to water depth of 1 metre or greater in a 1% AEP (1 in 100-year) storm surge event (excluding tsunamis), concurrent with 5% AEP (1 in 20-year) river flow event with a median sea level rise projection over the next 100 years based on an RCP8.5 high emissions scenario.~~

'High flood hazard area'
means:

- a. ~~land where there is inundation by floodwater, and where the water depth (metres) x velocity (metres per second) is greater than or equal to 1, or where depths are greater than 1 metre, in a 0.2% Annual Exceedance Probability flood event.~~

High Hazard Area means:

- a. land likely to be subject to coastal erosion; and
- b. land where there is inundation by floodwater and where the water depth (metres) x velocity (metres per second) is greater than or equal to 1, or where depths are greater than 1 metre, in a 0.2% Annual Exceedance Probability flood event.

When determining a. and b. above, the cumulative effects of climate change over the next 100 years (based on latest national guidance) and all sources of flooding (including fluvial, pluvial, and coastal) must be accounted for.

Natural feature, in relation to the Natural Hazards Chapter, means:

natural ponding areas, wetlands, water body margins and riparian margins, terraces, dunes, and beaches. It excludes artificial water races and drainage infrastructure such as swales and Stormwater Management Areas.

Natural hazard sensitive activity means:

buildings and conversions of existing buildings which:

- a. contain one or more habitable rooms; ~~and/or~~
- b. ~~contain one or more employees (of at least one full time equivalent)~~ are serviced with a sewage system and connected to a potable water supply; and/or
- c. is a place of assembly;

except that this shall not apply to:

- i. ~~regionally significant~~ infrastructure or critical infrastructure;
- ii. any attached garage or detached garage to a residential unit or minor residential unit that is not a habitable room;
- iii. any building with a footprint of less than 25m²; ~~or~~
- iv. any building addition in any continuous 10-year period that has a footprint of less than 25m²; or
- v. any building with a dirt/gravel or similarly unconstructed floor.

Upgrading

In relation to the natural hazards chapter, means the replacement, renewal, improvement or realignment of a network utility structure or building, or natural hazards mitigation works that:

- a. is within 5m of the alignment or location of the original structure or building; and
- b. does not increase the footprint of the original structure or building by greater than 10 percent across any continuous 5-year period; or
- ~~c. does not include works limited to maintenance for flood schemes, it does not increase the footprint of the original scheme by greater than 10 percent across any continuous 5-year period.~~

Note: upgrading does not include works limited to maintenance.

Coastal Environment

CE-R3 Any building or structure

This rule does not apply to buildings or structures located in existing Residential Zones that are within 20m of identified coastal natural character areas, or the maintenance, repair or replacement of existing flood protection works administered by ECan.

Earthworks

~~EW-R4—~~

~~Earthworks for community scale natural hazards mitigation works~~

~~Activity status: PER~~

~~Where:~~

~~EW-S1 to EW-S7 are met.~~

~~Activity status where compliance not achieved: DIS~~

Appendix B. Recommended Responses to Submissions and Further Submissions

Appendix C. Section 32AA Evaluation

C1. Overview and purpose

This evaluation is undertaken in accordance with section 32AA of the RMA. It examines the appropriateness of the recommended amendments to the objectives, policies, rules and definitions for the Natural Hazards Chapter following the consideration of submissions received on the Proposed Plan.

This further evaluation should be read in conjunction with Part A – Overview and Part B Natural Hazards Chapter of the Section 32 Report prepared for the development of the Proposed Plan.

C2. Recommended amendments

The recommended amendments include:

- Closer alignment of the objectives and policies with the CRPS;
- Extension of the non-urban flood assessment overlay;
- Removal of the Kaiapoi Finished Floor Level Overlay;
- Changes to how earthworks are managed;
- Minor amendments to better enable critical infrastructure; and
- Amendments to a number of definitions, including the high hazard area definition.

Together, these amendments more accurately apply the provisions to the level of risk being managed and more closely align the provisions with the CRPS.

C3. Statutory Tests

The District Council must ensure that prior to adopting an objective, policy, rule or other method in a district plan, the proposed provisions meet the requirements of the RMA through an evaluation of matters outlined in Section 32.

In achieving the purpose of the RMA, the District Council must carry out a further evaluation under section 32AA if changes are made to a proposal as a result of the submissions and hearings process. This evaluation must cover all the matters in sections 32(1)-(4).

Objectives

The objectives are to be examined in relation to the extent to which they are the most appropriate way to achieve the purpose of the RMA.⁷ For the purposes of evaluation under section 32AA the following criteria form the basis for assessing the appropriateness of the proposed objectives:

- Relevance;

⁷ RMA s32(1)(a)

- Usefulness;
- Reasonableness; and
- Achievability.

Provisions

Each provision is to be examined as to whether it is the most appropriate method for achieving the objectives. For a proposed plan, the provisions are defined as the policies, rules, or other methods that implement, or give effect to, the objectives of the proposed plan.⁸

The examination must include assessing the efficiency and effectiveness (including costs and benefits of the environmental, economic, social, and cultural effects, quantified if practicable, and the risk of acting or not acting) and a summary of the reasons for deciding the provisions.

C4. Evaluation of Recommended Amendments to Objectives

Objective NH-O1 is recommended to be amended as set out in Appendix A. A new Objective NH-O5 is also proposed. There are only minor changes proposed to Objectives NH-O2 and NH-O4 which do not change the meaning or intent of these provisions so they are not considered in this assessment.

The following tables provide an evaluation of the recommended amendments.

Table C 1: Recommended Amendments to Objectives

Relevance	Addresses a relevant resource management issue
	The proposed amendments to Objective 1 seek to better align the objective with the CRPS. This helps achieve consistency in natural hazards management in the region.
	The addition of a new objective for climate change better recognises this resource management issue and provides greater alignment with the CRPS and greater consistency with other Canterbury Councils. It also better recognises the significant issue that is climate change.
Relevance	Assists the District Council to undertake its functions under s31
	The proposed amendments are consistent with the Council's functions for natural hazard management under s31.
Relevance	Gives effect to higher level documents
	The proposed amendments provide greater alignment with the CRPS and RMA s6(h).
Usefulness	Guides decision-making
	The proposed amendments provide greater clarity on the outcomes sought and therefore provide more guidance for decision making. Specifically, the amendments proposed to NH-O1 provide a clearer approach to the risk

⁸ RMS s32(6)(a)

	management hierarchy, while the proposed new climate change objective provides direction on this matter.
	Meets best practice for objectives The proposed amendments provide greater clarity and direction and therefore better meet best practice requirements.
Reasonableness	Will not impose unjustifiably high costs on the community / parts of the community The proposed changes will not result in unjustifiably high costs relative to the notified objectives.
	Acceptable level of uncertainty and risk There is no change in the uncertainty and risk with the proposed amendments.
Achievability	Consistent with identified tangata whenua and community outcomes There is no change for this criterion between the notified and proposed amended objectives.
	Realistically able to be achieved within the District Council's powers, skills and resources There is no change for this criterion between the notified and proposed amended objectives.
Conclusion	The recommended amended objectives are the most appropriate way to achieve the purpose of the RMA.

Overall, the recommended amendments proposed to the objectives provide greater consistency with the higher order framework. For the purposes of sections 32 and 32AA, I consider that the revised objectives are the most appropriate way of achieving the purpose of the RMA.

C5. Evaluation of Policies and Rules

Below I have assessed how the recommended changes to the policies, rules and other methods are the most appropriate to implement the objectives. In undertaking this assessment, I have evaluated the recommended amendments against the provisions as notified.

There are a number of changes I have proposed that I do not consider require a s32AA evaluation as they do not change the meaning or intent of the provision.

Efficiency and Effectiveness of the Provisions

I have assessed the efficiency and effectiveness of the recommended amended provisions in achieving the objectives, including identification and assessment of the costs and benefits anticipated from the implementation of the provisions in Table C 2 to C 12 below.

Table C 2: Assessment of efficiency and effectiveness – NH-P2, NH-P3, NH-P4, NH-P7

Recommended Amendments to Provisions:	
The replacement of clauses in each policy that referred to 'not significantly increasing risk from flooding to surrounding properties' to 'the risk being no more than minor'.	
Costs	Benefits

May require additional on-site flood mitigation to avoid transferring risk to other properties.	Introduces a lower threshold for when to consider adverse effects, thereby better managing transference of risk off site.
Efficiency	No appreciable change identified between the notified and amended provisions.
Effectiveness	The amended provisions better manage off-site adverse effects from natural hazard transference and therefore better achieve the PDP objectives, the CRPS and the RMA.
Summary	
The proposed changes improve the management of off-site natural hazard effects and are therefore more effective and better achieve the PDP objectives, the CRPS and the RMA.	

Table C 3: Assessment of efficiency and effectiveness – NH-P9

Recommended Amendments to Provisions:	
Amendments to clause (d) to align the policy with the rules covering private flood mitigation structures and the addition of the requirement to consider impacts on SNAs.	
Costs	Benefits
No identified changes as the rules remain unaltered. SNAs were already considered in the matters of discretion.	Potentially more enabling of private mitigation schemes through a resource consent pathway. However, the consent triggering rules remain unaltered. Potentially provides more protection for SNAs if considered through a consent pathway.
Efficiency	The policy change may better support private natural hazard mitigation schemes through a consent pathway. This may improve efficiency of development.
Effectiveness	The policy change clarifies that it is the residual risk to life and property that needs to be managed and better gives effect to RMA s6c (the protection of areas of significant indigenous vegetation and significant habitats of indigenous fauna). This is more consistent with the PDP objectives.
Summary	
There are no major changes to the costs, but there are potentially some benefits to facilitate private development. The changes improve efficiency and effectiveness.	

Table C 4: Assessment of efficiency and effectiveness – NH-P12, NH-P14, NH-R6, NH-R17

Recommended Amendments to Provisions:	
Changes to: remove the requirement to demonstrate there is no practical alternative for critical infrastructure location; introduce the ability to consider operational and functional need; change the thresholds for when structures are captured by the rules; and exclude overhead transmission and distribution lines and roads from requiring a Flood Assessment Certificate.	
Costs	Benefits
May result in reduced services during and after a natural hazard event.	Enables greater flexibility for critical infrastructure to be located within natural hazard areas as part of linear infrastructure or to service existing communities within natural hazard areas.

Efficiency	More efficient for the establishment and operation of critical infrastructure, especially linear infrastructure.
Effectiveness	Greater effectiveness for servicing existing communities and contributing to a well-functioning urban environment.
Summary	
Some increased costs and increased benefits from the approach, but overall a more efficient approach for critical infrastructure which is often required to be located within areas subject to natural hazards.	

Table C 5: Assessment of efficiency and effectiveness – NH-P17

Recommended Amendments to Provisions:	
Deletion of clause 5 which sought the significant adverse effects from hard engineering mitigation on natural defences and systems are avoided and other adverse effects are avoided remedied or mitigated.	
Costs	Benefits
There are no cost implications as the ability to consider the impacts of hard engineering on coastal and natural environment matters remains enabled through NH-MD2(2) and the coastal and natural environment chapters.	The policy is easier to interpret.
Efficiency	No identified changes
Effectiveness	No identified changes
Summary	
Although it appears to be significant, the proposed deletion of clause 5 does not result in any meaningful change in outcomes.	

Table C 6: Assessment of efficiency and effectiveness – NH-P19

Recommended Amendments to Provisions:	
Addition of a reference to a risk-based approach, the desired outcome of acceptable risk and adoption of a precautionary approach.	
Costs	Benefits
No identified changes resulting from the proposed amendments to this 'encourage' policy.	No identified changes resulting from the proposed amendments to this 'encourage' policy.
Efficiency	No identified changes
Effectiveness	The policy better gives effect to the CRPS's risk-based approach to the management of natural hazards.
Summary	
The policy better gives effect to the CRPS's risk-based approach to the management of natural hazards.	

Table C 7: Assessment of efficiency and effectiveness – Changes to natural hazard overlays

Recommended Amendments to Provisions:
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Expansion of the non-urban flood assessment overlay and replacement of the Kaiapoi Fixed Minimum Finished Floor Level overlay with the urban flood assessment overlay. Note: the liquefaction hazard overlay is also proposed to be changed but this does not result in actual changes to how the provisions are applied, rather it fixes a mapping error that included an additional liquefaction layer by mistake.	
Costs	Benefits
<p>The removal of the Kaiapoi FFFL will reduce initial certainty of required floor heights in Kaiapoi and now require Kaiapoi developers to get a Flood Assessment Certificate. However, it is understood floor heights will be published for Kaiapoi outside of the district plan as a guide.</p> <p>The extended non-urban flood assessment overlay will result in more developments in the District requiring a Flood Assessment Certificate.</p> <p>However, a Flood Assessment Certificate is proposed to cost between \$100 and \$200 so the financial burden is small.</p>	<p>The replacement of the Kaiapoi Fixed Minimum Finished Floor Level Overlay will enable greater accuracy to be provided and enable the floor heights to be determined based on the most up-to-date flood modelling without requiring a plan change.</p> <p>The expansion of the non-urban flood assessment overlay enables a more accurate flood assessment to be undertaken across a larger area of the district, lessening the chance of errors occurring from a default approach and reducing the level of flood damage should a flood event occur.</p>
Efficiency	<p>Given that floor height guidance for Kaiapoi will be published outside of the plan, this change results in only a minor reduction in efficiency (it now requires a Flood Assessment Certificate to be applied for). However, the required floor height to build to will be more accurate, depending on when the LIDAR and modelling is updated. This will increase efficiency.</p> <p>The proposed expansion of the non-urban flood assessment overlay may reduce efficiency as significantly more areas of the district will require a Flood Assessment Certificate. However, the accuracy of the floor heights to build to should increase, meaning if there is a flood event the level of flood damage should be reduced. In addition, the non-urban overlay applies to rural areas where density of development is lower.</p>
Effectiveness	The accuracy of the required minimum floor heights will increase as a result of the proposed changes. This means the provisions will be more effective in achieving the management of flood hazards as required by the PDP objectives, the CRPS and the RMA.
Summary	
The expansion of the non-urban flood assessment overlay and replacement of the Kaiapoi Fixed Minimum Finished Floor Level overlay with the urban flood assessment overlay will result in some reduction in efficiency of process for individual developments but increased effectiveness.	

Table C 8: Assessment of efficiency and effectiveness – Changes to the earthworks approach

Recommended Amendments to Provisions:
Replacement of an arbitrary 0.25m filling threshold to manage flow path disruption and flood water displacement with a requirement to not exacerbate flooding on other properties in a 0.5% AEP event.

Costs		Benefits
Costs should reduce as the proposed provision will not result in over capture of activities that have no adverse effects.		Benefits should increase as the proposed provision will capture filling of less than 0.25m if it has an adverse effect.
Efficiency	The proposed provision is more accurate than using an arbitrary threshold and so is more efficient.	
Effectiveness	The provision is more targeted to the adverse effects and therefore should be more effective. However, it does require an element of judgement in its application which may undermine its effectiveness.	
Summary		
The proposed alternative approach to filling is more accurate and targeted and therefore more efficient and effective.		

Table C 9: Assessment of efficiency and effectiveness – Change in activity status for specified infrastructure in the Ashley Fault Avoidance Overlay

Recommended Amendments to Provisions:		
New and upgrading of above and below ground critical infrastructure in the Ashley Fault Avoidance Overlay is changed from fully discretionary to restricted discretionary.		
Costs		Benefits
There are no identified costs associated with this change.		The matters of discretion are able to be identified and assessed and therefore an RDIS status is more efficient for infrastructure providers.
Efficiency	An RDIS status is more efficient for infrastructure providers as it targets consideration of assessments to only those matters required to be assessed.	
Effectiveness	An RDIS status is more effective as the matters for discretion are clearly identified. This clarity should help achieve acceptable management of natural hazard risk in accordance with the CRPS and RMA s6(h).	
Summary		
The proposed change is more efficient and effective.		

Table C 10: Assessment of efficiency and effectiveness – Change in return period for storm surge events (NH-S1)

Recommended Amendments to Provisions:		
NH-S1(1)(e)(iii) is proposed to be amended to refer to a 0.5% AEP (1 in 200-year) storm surge event as opposed to a 1% AEP (1 in 100-year) event.		
Costs		Benefits
The proposal will likely require a slightly higher minimum finished floor level in new developments which will add to construction costs.		The higher minimum finished floor height will provide additional flood protection.
Efficiency	The extra development costs are offset by the benefits accrued when a hazard event occurs. The change in efficiency is therefore likely to be small.	
Effectiveness	The amendment better gives effect to the CRPS.	

Summary
There are potentially increased development costs, but correspondingly greater benefits in a hazard event. The amendment is more effective as it better gives effect to the CRPS.

Table C 11: Assessment of efficiency and effectiveness – Amendments to NH-MD1 and NH-MD4(6)

Recommended Amendments to Provisions:	
Amending NH-MD1(2) to more clearly enable consideration of the proposed use of a building and NH-MD4(6) to remove the ability to consider the financial viability of a development.	
Costs	Benefits
May reduce compliance costs through a reduced floor level via a resource consent process for some types of activities, e.g. industrial. May result in some developments not being viable as the ability to consider financial viability has been removed.	Potentially enables a lower floor level through a resource consent pathway for some activities, such as industrial, that are less likely to suffer initial and ongoing consequences from a flood hazard event. Removal of the consideration of financial viability lessens the opportunities to build to lower standards and therefore reduces natural hazard risk.
Efficiency	More clearly enables the consideration of the proposed building activity, which enables a more efficient targeted response to the proposal and the natural hazard. Both changes are arguably more risk-based.
Effectiveness	Still requires a resource consent so the provision still enables the effective management of natural hazards. More clearly applies a risk-based approach, consistent with the CRPS.
Summary	
More clearly enables the consideration of risk and enables a more efficient and effective approach.	

Table C 12: Assessment of efficiency and effectiveness – Definitions

Recommended Amendments to Provisions:	
Changes are proposed to the following definitions: <ul style="list-style-type: none"> • Community scale natural hazard mitigation works • Coastal hazard mitigation works • High Coastal Flood Hazard Area • High Flood Hazard Area • High Hazard Area • Natural hazard sensitive activity • Upgrading <p>A new definition of natural features is proposed.</p>	
Costs	Benefits
No changes in costs have been identified.	Clarifies the extent of the activities to be managed by the provisions.
Efficiency	Clearer definitions help to improve efficiency by reducing uncertainty and over provision application.

Effectiveness	The high hazard area definition is more closely aligned to the CRPS high hazard area definition. Clearer definitions help to improve effectiveness by reducing uncertainty and over and under capture.
Summary	
The proposed definition changes help target the rules to the activities needing to be managed. This will improve efficiency and effectiveness.	

Appendix D. Joint Witness Statement – Flood Assessment Overlays

Appendix E. Expert Evidence from Mr Bacon

Appendix F. Expert Evidence from Mr Debski

Appendix G. Report Author's Qualifications and Experience

I hold the following qualifications: Bachelor of Science in Ecology and a Masters of Science in Resource Management. I am a full member of the New Zealand Planning Institute (NZPI) and a former Deputy Chair of the NZPI Board. I received a Distinguished Service Award from the NZPI in 2017 for contributions to planning and the planning profession. I have approximately 27 years' experience working as a planner for local and central government (in New Zealand and the UK), as well as planning consultancies. My relevant work experience includes, amongst other matters:

- Drafting the natural hazards provisions of the Proposed Waimakariri District Plan and the Proposed Timaru District Plan, and co-drafting the natural hazards plan change to the Kaikoura District Plan;
- Drafting the Natural Hazards chapter of the CRPS;
- Co-drafting the Land Use Recovery Plan and Chapter 6 of the CRPS;
- Preparing recovery / regeneration plans for the Christchurch Central City, Waimakariri Residential Red Zone and the Avon / Otakaro River Corridor;
- Drafting the commercial and industrial chapters for the Proposed Waimakariri District Plan; and
- Hearing submissions (as an independent hearings commissioner) on various chapters of the proposed Selwyn District Plan (but not the natural hazards provisions) and proposed plan changes to the Mackenzie District Plan.

I have been the sole director of Planning Matters Limited (a town planning consultancy) since its inception in 2012. I have been engaged by the Waimakariri District Council on the district plan review since 2017 as a consultant planner within the Development Planning Unit Team.