

Appendix 4 – Evidence of Cyprien Bosserelle on Coastal Hazards

BEFORE THE

TIMARU DISTRICT COUNCIL HEARING COMMITTEE

IN THE MATTER

of the Resource Management Act 1991

AND

IN THE MATTER

of the Proposed Timaru District Plan – Coastal
Environment Chapter – Coastal Hazards

STATEMENT OF EVIDENCE BY CYPRIEN BOSSERELLE

Introduction

- 1 My name is Cyprien Bosserelle. I hold qualifications of environmental hazard scientist including a MSc in Geological Hazard for the University of Montpellier (France) and a PhD in coastal oceanography from the University of Western Australia (Australia).
- 2 I am currently the hydrodynamics scientist at the National Institute for Water and Atmospheric research (NIWA). I have held this position for 7.5 years. I have 18 years' experience in assessing coastal hazards, erosion and inundation in Aotearoa New Zealand and overseas.
- 3 I have been asked by the Timaru District Council to provide evidence on submissions on the Coastal Environment Chapter of the Proposed Timaru District Plan in relation to coastal natural hazards.
- 4 I confirm I have read the Code of Conduct for expert witnesses contained in the Environment Court New Zealand Practice Note 2023 and that I have complied with it when preparing my evidence. Other than when I state I am relying on the advice of another person, this evidence is within my area of expertise. I have not omitted to consider material facts known to me that might alter or detract from the opinions that I express.

Response to Submission

Summary

Sea water inundation overlay is the area inundated by a 1% Annual Exceedance Probability (AEP) equivalent to a 100-year Average Return Interval (ARI) ocean storm with 1.2m Sea-Level Rise (SLR) corresponding to the Representative Concentration Pathway/ shared socio-economic pathway 8.5 climate change scenario for the 2120 outlook. This combination of AEP and SLR was selected in accordance with the New Zealand Coastal Policy Statement (2010) to avoid increasing risk and to plan for 100-years in the coastal area. The methodology used to calculate the inundation area for such events is described in NIWA (2020), available in the plan supporting documents, was completed using the best available information and modelling technique.

It is worth noting that in most locations along the coast the sea water inundation overlay is within the notified Flood Assessment Overlay.

Results showing inundation extent are also presented in the NIWA report and show the relative SLR required to reach certain area. For example, Waipopo Huts is not in the inundation extent for the 1%AEP storm at present sea level. But their exposure to sea water inundation with future sea-level rise indicate that the areas are highly likely to be exposed for 1% AEP storm with 0.6 m SLR and higher. It is therefore important that appropriate provisions are in place in order to avoid increasing risk in future.

However, some infrastructure and activities can only occur near the ocean (e.g. the Port) or near facilities that cannot be easily relocated. In this case, special allowance may be considered.

Submitter	Sub No.	Section / Appendix	Sub-section	Provision	Submission Point Summary	Relief/ Decision Sought Summary	Response
Fenlea Farms Limited	171.25	CE - Coastal Environment	Rules	CE-R11 Subdivision	Oppose CE-R11 within the Sea Water Inundation Overlay, Matters of Discretion 3. as this restriction is likely to impact the erection of habitable dwellings in connection with existing urban or non-urban purposes within this overlay which should be permitted on the basis that built form standards are met. It should also refer to existing rural activities.	<p>1. Delete CE-R11.1.MOD3 Subdivision in Sea Water Inundation Overlay [NB from TDC - there is a numbering error in this Plan rule]</p> <p>Any alternative relief that would address the submitters concerns.</p>	Subdivision in the Sea water inundation overlay could increase the risk of coastal flooding to the properties. Therefore, restriction need to be in place to avoid the increase in risk. I therefore do not recommend the proposed amendment.
Silver Fern Farms	172.92	CE - Coastal	Rules	CE-R12 Natural hazard	The Submitter considers a non-complying consent	Amend CE-R12 as follows: <i>CE-R12 Natural hazard mitigation works, including</i>	Mitigation measures are difficult to achieve especially at a property

		Environment		mitigation works, including Earthworks - New	<p>pathway for private natural hazard mitigation is inappropriate given the investment in the site and seeks a discretionary activity. This would be consistent with the activity status for activities in the Coastal Environment Overlay (CE-R9) and natural hazard mitigation works undertaken by the Crown or a Council (CE- R12, RDIS-1) to allow the Submitter to protect their assets.</p>	<p>earthworks - New This rule does not apply to natural hazard mitigation works only involving the planting of vegetation</p> <p>Coastal High Natural Character Area Overlay</p> <p>Coastal Erosion Overlay</p> <p>Sea Water Inundation Overlay</p> <p>[...]</p> <p>Activity status when compliance not achieved:</p> <p><u>Non-complying</u></p> <p><u>Discretionary</u></p>	<p>level. For coastal erosion, mitigation measures should be restricted to Port and council/regional agency. For sea water inundation, small protection measures may be effective on the edge of the overlay where the inundation depth is small (less than 0.50 m) and given that the mitigation measure do not increase the inundation or erosion hazard in neighbouring properties, and that the mitigation measures are fit for purpose.</p> <p>I somewhat agree for the suggested amendment that the status for when compliance is not achieved may be changed to discretionary but with a note that it should be non-complying within coastal erosion overlay.</p>
Simo Enterpris	148.3	CE - Coastal	Rules	CE-R4 Buildings and	Opposes the rules of the Sea Water Inundation Overlay	Amend CE-R4 Buildings and structures and extensions [...] sub clause 4 Sea Water	Sea water inundation extends in a significant area inland. I cannot recommend any of the

<p>es Limited</p>		<p>Environ ment</p>		<p>structure s and extension s (excludin g Regionall y Significan t Infrastru cture and fences)</p>	<p>that restrict new buildings or extensions to a maximum ground floor area per site of 25m² over a 10-year period. Non-compliance with this would need to prove a functional or operational need, which is arbitrary at best, and unnecessarily restrictive, therefore the Submitter seeks an amendment.</p>	<p>Inundation Overlay within urban areas with following changes:</p> <ol style="list-style-type: none"> 1. Remove 25m² limit on new buildings or extensions (PER-1). 2. Enable development within Industrial Land if flood modelling can be provided and buildings can be demonstrated to be safe. 3. If residential dwellings are provided this could be above ground floor area within appropriate zones. 4. Remove 10-year period parameter criteria. Remove matter of discretion point 3. 	<p>suggested changes. However, CE-R4 and in most area, sea water inundation overlay and the flood assessment area overlay are overlapping and the restrictions are relatively consistent. In my opinion increasing the area limit to 30m² for both the sea water and flood assessment may help making the rules more uniform and simplify the application of the rules. In addition, the flood assessment area overlay allows new buildings outside of urban area under a restricted discretionary but not for the sea water assessment. This distinction seems inconsistent and, since the sea water inundation overlay includes allowance for Sea Level Rise, it may unnecessarily prevent farming development where these involve buildings and structures in area of productive land. Restricted Discretionary</p>
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							would allow buildings with suitable restrictions (adequate flood level etc...) but could additionally prevent building in areas currently exposed to sea water inundation at present sea level. This could allow some restricted development that could be put in place to prevent development in unnecessarily hazardous areas.
Fenlea Farms Limited	171.23	CE - Coastal Environment	Rules	CE-R4 Buildings and structures and extensions (excluding Regionally Significant Infrastructure and fences)	<p>Oppose CE-R4.3 with any standards as to the height of buildings and structures, site coverage and building and structure external materials.</p> <p>Oppose CE-R4.4 and CE-R4.5 including any definitions that relate to the</p>	<p>Amend CE-R4.3 Buildings and structures and extensions (excluding Regionally Significant Infrastructure and fences) to achieve the following:</p> <p>1. Under CE-R4.3 Coastal High Natural Character Overlay:</p> <p>1. Remove the maximum ground floor areas for new buildings or extensions within and outside urban areas on the basis there are</p>	<p>Sea water inundation extends in a significant area inland. I disagree with the propositions to remove the maximum ground floor in, the sea water inundation overlay except that new buildings outside of urban areas are non-complying. This restriction seems inconsistent and may unnecessarily prevent ongoing farming activities involving buildings and structures and related development in areas of</p>

				<p>application of these rules as it relates to 158 Prattley Road.</p> <p>In particular:</p> <ol style="list-style-type: none"> 1. Opposes CE-R4.3.1 within the Coastal High Natural Character Overlay as it unnecessarily limits maximum ground floor areas and where unable to meet the permitted activity rule, the activity will be a non-complying activity. The submitter considers it is more 	<p>sufficient alternative protections in place;</p> <ol style="list-style-type: none"> 2. Include built form standards for buildings within the overlay; 3. Amend so that failure to meet the permitted activity rule results in a controlled activity; <p>2. Under CE-R4.4. Sea Water Inundation Overlay within urban areas:</p> <ol style="list-style-type: none"> 1. Remove maximum ground floor areas for new buildings or extensions (PER-1) on the basis there are sufficient alternative protections in place; 2. Remove the 10-year period out in PER-1; 3. significantly reduce the 10-year period set out in PER-1; 4. Amend the CE-R4.4 to permit buildings with one or more habitable rooms. 	<p>currently productive land and likely remain productive for the next 100 years. Restricted Discretionary would allow building with suitable restriction (adequate floor level etc...) but could additionally prevent buildings in areas currently exposed to sea water inundation at present sea level. This could allow some restricted development that could be put in place to prevent development hazard prone area.</p>
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					<p>appropriate for buildings/extensions to meet ground floor levels, obtain Flood Risk Certificates, or meet other specific built form standards, and this should be sufficient protection. The status of non-complying is unnecessary.</p> <p>2. Opposes CE-R4.4 and CE.R4.5 relating to Sea Water Inundation Overlay within urban</p>	<p>3. Under <i>CE-R4.5 Sea Water Inundation Overlay outside of urban areas:</i></p> <ol style="list-style-type: none"> 1. Remove maximum ground floor areas for new buildings or extensions (PER-1) on the basis there are sufficient alternative protections in place; 2. Remove the 10-year period out in PER-1; 3. Significantly reduce the 10-year period set out in PER-1; 4. Amend CE-R4.5 impose a restricted discretionary activity status if unable to meet the permitted activity rule on the basis that the same matters of discretion contained in CE- R4.4 can be applied to areas outside urban areas; 	
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					<p>areas and outside of urban areas respectively. Objective CE-O6 seeks to ensure ongoing activities in the Coastal environment and this rule stands in the way of this. Owners of rural properties look to develop and improve efficiency in farming operations and a maximum ground floor limit of 25m² for 10 years does not</p>	<p>5. Amend CE-R4.5 to permit buildings with one or more habitable rooms.</p> <p>4. Any alternative relief that would address the submitters concerns. [Note no specific relief sought on related definitions.]</p>	
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					<p>recognise the nature of business or farming operations. PER-2 does not allow extensions or new buildings that accommodate a natural hazard sensitive activity, which prevents the construction of any habitable dwellings.</p> <p>[Refer to original submission for full reason]</p>		
Fenlea Farms Limited	171.15	CE - Coastal Environment	General	General	<p>Opposes the objective, policies, rules, standards and schedules in</p>	<p>1. Delete the Sea Water Inundation Overlay from 158 Prattley Road, as per attached map.</p>	<p>Sea water inundation overlay has been built based on simulation of the flooding caused by a</p>

relation to the **Sea Water Overlay** in relation to 158 Prattley Road. The approach is opposed as there are no objectives and limited policies that set out the purpose of this overlay. There is no definition or criteria for what land should be included within the Overlay, and accordingly why 158 Prattley Road has been included within it. There are limitations on building size and subdivision, maximum ground level.[Refer to original submission for full reason].

2. Amend the Planning Maps to reduce the extent of the Overlay on 158 Prattley Road, as per attached map.
3. amendment of objectives and policies to refer to this overlay
4. Any alternative relief that would address the submitters concerns.



Figure 1: 158 Prattley Road, Timaru


1%AEP (100-year ARI) event with 1.2m SLR as recommended by the MFE guidelines (2017,2024). The property in question was previously partially inundated in 2001 and the area over the south and east part of the property are estimated to be inundated in a 1%AEP storm at present day and in almost its entirety in a 1% AEP storm with a 0.4m SLR. In light of such significant hazard I do not recommend that the 158 Prattley Road property be removed from the sea water inundation overlay.

Fenlea Farms Limited	171.25	CE - Coastal Environment	Rules	CE-R11 Subdivision	Oppose CE-R11 within the Sea Water Inundation Overlay, Matters of Discretion 3. as this restriction is likely to impact the erection of habitable dwellings in connection with existing urban or non-urban purposes within this overlay which should be permitted on the basis that built form standards are met. It should also refer to existing rural activities.	<p>1. Delete CE-R11.1.MOD3 Subdivision in Sea Water Inundation Overlay [NB from TDC - there is a numbering error in this Plan rule]</p> <p>Any alternative relief that would address the submitters concerns.</p>	Matter of Discretion 3 is about assessing whether a future building or structure has a functional need or operational need for its location. Having this matter deleted would remove the need to mount an argument to get a building approved. However, in my opinion sometimes buildings and structures need to be located in seawater inundation areas for operational and functional reasons and the subdivision facilitates this , e.g. subdivision for utilities.. Therefore MOD 3 is justified.
Lineage Logistics NZ Limited	107.9	CE - Coastal Environment	Rules	CE-R4 Buildings and structures and extensions	Oppose CE-R4.4 as all of the submitter's buildings are within the Water Inundation overlay within	<p>1. Delete CE-P12.2 in its entirety; or</p> <p>2. Include an appropriately worded exemption CE-R12 for development within the Port Zone.</p>	Some development in the sea water inundation overlay in the Port Zone should be allowed to ensure the economic viability of the region. However, a restricted

				<p>(excluding Regionally Significant Infrastructure and fences)</p> <p>the Urban area and are controlled under this rule which is too restrictive.</p> <p>The restricted discretionary activity status combined with CE-P12, which seeks to avoid development which results in an increase in risk, means resource consent are likely to be declined. [Refer original submission or full reason]</p>	<p>3. Replace CE-R12 with a rule which enables appropriate development of properties within the Port Zone; or Such other alternative or additional relief as may be appropriate to give effect to the intent of this submission.</p> <ol style="list-style-type: none"> 1. Delete CE-R4(4) in its entirety; or 2. Include an appropriately worded exemption CE-R4 for development within the Port Zone. 3. Replace CE-R4 with a rule which enables appropriate development of properties within the Port Zone; or 4. Such other alternative or additional relief as may be appropriate to give effect to the intent of this submission. 	<p>discretionary activity status is required to avoid development that increases the risk to people in the medium to long term. Consent assessments would need to consider the present risk and how it can be mitigated.</p> <p>Hence developing in the sea water inundation overlay needs to be restricted. The matters of discretion are related to avoiding increasing the risk, hence I cannot recommend any of the proposed amendments. I would however support specific provisions for the Port that allow adaptive management and development of the port.</p>
Port Bryson Property Limited	104.2	Planning Maps	Sea Water Inundation Overlay	<p>Oppose the inclusion of 16A, 16D, 16E Hilton Highway within the sea water inundation areas. The</p>	<p>4. Amend the extent of the Sea Water Inundation Overlay to exclude 16A, 16D, 16E Hilton Highway.</p>	<p>The Sea Water Inundation Overlay has been built based on simulation of the flooding caused by a 1%AEP (100-year ARI) event with 1.2m SLR Details on the methodology is available in</p>

					<p>proposed plan does not provide evidence as to how the risk of sea water inundation has been calculated. The most recent modelling indicates that sea levels will have less than minor change over the next 50 and 100 year time frames.</p>		<p>the background and Assessment reports. These properties are shown to be affected by sea water inundation in the future, therefore I cannot recommend they are removed from the Sea Water Inundation Overlay.</p>
Silver Fern Farms	172.158	Planning Maps	Sea Water Inundation Overlay		<p>Considers there is no meaningful recognition in the s.32 evaluation of the implications of restricting the significant industrial development within the coastal environment at the submitters</p>	<p>Either:</p> <ol style="list-style-type: none"> 1. Delete from the Planning Maps, the Sea Water Inundation Overlay off the 111 The Avenue, Pareora; <p>OR</p> <ol style="list-style-type: none"> 5. Amend the provision of the Overlay to provide for activities at 111 The Avenue, Pareora in a similar fashion to the provision made for industry in defined "urban areas". 	<p>Sea water inundation overlay has been built based on simulation of the flooding caused by a 1%AEP (100-year ARI) event with 1.2m SLR Details on the methodology is available in the background and Assessment reports. The property in question is within the sea water overlay and I cannot recommend that it is removed from the overlay.</p>

					<p>site at 111 The Avenue, Pareora (and other sites in and out of "urban areas"). Neither has there been consideration of providing for established industry outside of Timaru in a similar fashion to the approach taken towards existing activities within defined "urban areas" (note related submission on Rule CE-R4).</p>		<p>However, the property sits on the edge of the sea water inundation overlay and could meet requirements stated in CE-R4.4.</p>
Hilton Development Trust	205.2	Planning Maps	Sea Water Inundation Overlay		<p>Submitter opposes the Sea Inundation overlay on 18 Hilton Highway, Oceanview and requests that it is removed from the</p>	<p>Remove the Sea Water Inundation overlay from 18 Hilton Highway, Oceanview Timaru.</p>	<p>The property is affected by coastal inundation for a 1% AEP with 1.2m SLR. While it is only partially affected I do not recommend that the property is removed from the SWIO.</p>

					<p>planning maps as it relates to the site.</p> <p>The proposed District Plan does not offer any evidence as to how the sea water inundation risk has been calculated. The most recent modelling includes that sea levels will have less than minor change in the next 50 and 100 year time frames.</p>		
Silver Fern Farms	172.88	CE - Coastal Environment	Policies	CE-P14 Hard engineering natural hazard mitigation within the	<p>Considers that when read in conjunction with the policy requirement to '<i>Only allow...</i>', it appears that CE-P14.4 will operate as a de-facto</p>	<p>Amend CE-P14 to:</p> <ol style="list-style-type: none"> 1. Ensure it does not inappropriately foreclose on the ability to use engineering measures to mitigate coastal hazards; <p>AND</p>	<p>I agree with the interpretation that hard engineering structures for coastal hazard mitigation will have a de-facto prohibition and, aside from Port area and already heavily populated area, this is a good and</p>

				<p>Coastal Environment</p> <p>prohibition of any hard engineering works located seaward of a foreshore, dune system, estuary etc. The submitter considers this undesirable as in some instances, it may be necessary for hard engineering mitigation to replace natural defences. This policy would weigh against that outcome being realised.</p> <p>References in sub-clause (4) to natural "systems" appear superfluous, given the focus of the policy is on the interplay between engineering and</p>	<p>remove duplication between (4) and (5).</p>	<p>sustainable view. I agree that it may be impractical that hard engineering structure is only allowed if they avoid modification of natural defences. Natural defences and nature base solution to hazard mitigation should be protected in their role as primary defence against coastal hazard and especially coastal inundation. However, existing natural defence may be insufficient (especially considering they may not be appropriate with SLR consideration). Such restriction as implied by CE-P14(4) could also prevent the use of more hybrid-hard engineering that modify the natural defence to blend /enhance natural defences (e.g. flood walls integrated in the core of a dune ridge). It is also not clear how this could be limiting or preventing the use of underground engineer</p>
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					<p>natural “defences” against coastal erosion.</p> <p>Sub-clause (5) appears to unnecessarily repeat the preceding sub-clause. It is unclear what additional policy guidance of value is provided by (5) compared to (4).</p>		<p>structures that may be used to combat/prevent groundwater salinization. Hence I would be supportive of amendment that “soften” the wording on CE-P14 clause 2 and 4. With a “softer” wording on clause 4 would negate the suggestion to remove clause 5.</p>
Alliance Group Limited	173.88	CE - Coastal Environment	Policies	CE-P14 Hard engineering natural hazard mitigation within the Coastal Environment	<p>Considers a minor amendment to clause 2 is warranted to recognise that changes to the coastal environment natural hazard profile may be acceptable in some cases - for example where some degree of new or increased</p>	<p>Amend CE-P14 as follows: <i>CE-P14 Hard engineering natural hazard mitigation within the Coastal Environment</i> <i>Only allow hard engineering natural hazard mitigation within the coastal environment that reduces the risk of natural hazards when:</i> [...] 2. <i>the construction of hard engineering measures will not</i></p>	<p>I disagree with the proposed changes because if the risk can be avoided or mitigated, therefore it would not increase the risk to people and property.</p>

					<p>coastal environment natural hazard risk is outweighed by the benefits of the natural hazard mitigation project.</p>	<p><i>increase the risk from coastal hazards on adjacent properties that are not protected by the hard engineering measures <u>unless the potential increased natural hazard risks can be appropriately avoided or mitigated;</u></i></p>	
ECAN	183.133	CE - Coastal Environment	Mapping		<p>ECan considers that the Coastal Erosion Overlay is based on the Jacobs' future shoreline modelling, but because Caroline Bay and South Beach are both accreting, the erosion overlay doesn't exist (South Beach) or is well beyond the current shoreline (Caroline Bay). Therefore, ECan considers that the potential storm erosion/short term erosion which is</p>	<p>ECan seeks to amend the overlay by moving the overlay landward at Caroline Bay to include short term storm demand and including a coastal erosion overlay at South Beach to include short term storm demand. ECan notes that it can assist in determining appropriate positions for the requested mapping change.</p>	<p>I agree that the Coastal Erosion overlay should not be at minimum no further seaward than the present shoreline as proposed in the amended Coastal Erosion Overlay from ECAN. In Caroline Bay taking the landward extend of the dune vegetation is reasonable as the sediment seaward of that line is only been recently deposited and may be subject to short-term erosion from intense storm.</p>

					still a hazard on these beaches is not represented.		
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Port area consideration

Timaru Port is an important infrastructure with a regionally and nationally significant economical role. The port cannot be relocated and could be significantly constrained in its development and viability with restriction on floor level and hazard exposure. Its operation also depends on the ability to adapt its hazard mitigation as sea-level rises.

Sea water inundation modelling completed by NIWA shows the Port area progressively becoming increasingly exposed to sea water inundation as sea level rise. In my opinion, modelling by NIWA is likely conservative in the port area as it underestimates the damping role of existing rock revetment on inundation as well as specific stormwater management in the port area. Nevertheless, results from the simulation are realistic when compared to historical high wave events.

The sea water inundation overlay shows the inundation simulated for a 1% AEP storm event with 1.2m SLR. And the Port area highly exposed to inundation. Ideally, a port area should upgrade its coastal defences as sea level is rising to prevent or limit the increase in inundation exposure/damages. This may be achieved with a mix of solutions such as increasing hard engineering defences or relocating most vulnerable buildings/activities.

In my opinion, planning rules for the port need to allow flexibility to adapt to increasing hazard from SLR so that they do not unnecessarily constrain its development and compromise its viability. However, any mitigation for the port should not increase the risk for other area.

In my opinion, some industrial development could be allowed where the effect of the flood for 1% AEP can be somewhat mitigated and infrastructures to be maintain and upgraded as sea-level rises. As long as the effect of flooding (not limited to resilience to sea water flooding but also to account for impact of floating debris and their potential generation) can be mitigated either through flood/stormwater structures and that the mitigation can be upgraded as sea-level rises to maintain a similar level of protection. In addition, specific measure would need to be in place to guarantee the safety of life in the area during storm events.

Submitter	Sub No.	Section/ Appendix	Sub-section	Provision	Submission Point Summary	Relief/ Decision Sought Summary	Response
BP Oil, Mobil Oil New Zealand Limited, Z Energy	196.50	NH - Natural Hazards	Policies	NH-P4 Subdivision, use and development in Flood Assessment Areas, excluding high hazard areas and overland flow paths	Considers it is unclear what 'inundated' means when the Policy relates to areas that are already subject to inundation by a 0.5% flood event. The overall policy is about risk which appropriately comes through via all other clauses, such that specific reference to MHF is unnecessary.	<p>Amend NH-P4 as follows:</p> <p><i>Enable subdivision, use and development (excluding Regionally Significant Infrastructure) in areas subject to inundation by a 0.5% AEP flood event provided that:</i></p> <p><i>[...]</i></p> <p><i>4. a minimum floor level above the 0.5% AEP design flood level can be achieved; and</i></p> <p><i>5. major hazard facilities</i></p>	<p>In the sea water inundation zone, building floor height or water tightness has not been considered. In addition, how the stormwater system may be able to mitigate the sea water inundation is unclear and considered negligible for such extreme events. Hence a building or a facility may be located in an area marked as inundated by seawater but that doesn't automatically mean the building will be severely affected because, for example, its floor</p>

						<p>will not be inundated; and</p> <p>6. 5.significant adverse effects on people and property are avoided; and</p> <p>6. increased risk on other sites is avoided as a priority and where this is not practicable, will be appropriately mitigated.</p>	<p>height is above the flood level. Regarding the sea water inundation overlay, areas of the port are inundated with flow depth between 0.1 to 1.0 m with most of the area affected with flow depth less than 0.4m. I disagree the proposed deletion of Clause 5 as it plays an important role in preventing the increase in the flood risk.</p>
Lineage Logistics NZ Limited	107.9	CE - Coastal Environment	Rules	CE-R4 Buildings and structures and extensions (excluding Regionally Significant Infrastructure and fences)	Oppose CE-R4.4 as all of the submitter's buildings are within the Water Inundation overlay within the Urban area and are controlled under this rule	<ol style="list-style-type: none"> 1. Delete CE-P12.2 in its entirety; or 2. Include an appropriately worded exemption CE-R12 for development within the Port Zone. 	<p>Some development in the sea water inundation overlay directly related to the Port activities should be allowed to ensure the economic viability of the region. Restricted discretionary activity is required to avoid development that increase the risk to</p>

					<p>which is too restrictive.</p> <p>The restricted discretionary activity status combined with CE- P12, which seeks to avoid development which results in an increase in risk, means resource consent are likely to be declined. [Refer original submission or full reason]</p>	<p>3. Replace CE-R12 with a rule which enables appropriate development of properties within the Port Zone; or Such other alternative or additional relief as may be appropriate to give effect to the intent of this submission.</p>	<p>people in the medium to long term. . I would support changes such as replacing CE-R12 with rules that are more appropriate to allow adaptive management of the port.</p>
PrimePort Limited	175.54	CE - Coastal Environment	Rules	CE-R9 Natural hazard mitigation works, including earthworks - maintenance, replacement and upgrading	<p>Submitter undertakes natural hazard mitigation works within/adjoining the Port Zone. Considers Rule CE-R9 needs to make similar provision for</p>	<p>Amend CE- R9 as follows: <i>CE- R9 Natural hazard mitigation works, including earthworks - maintenance, replacement and upgrading</i></p>	<p>I agree that the port has a special status in recognising the importance of the infrastructure and requirement for constant maintenance of Natural hazard mitigation especially for repair following severe storm</p>

					<p>Port maintenance of existing works.</p>	<p><i>This rule does not apply to natural hazard mitigation works only involving the planting of vegetation.</i></p> <p>[...]</p> <p><u>PER-4</u></p> <p>4. <u>The activity is undertaken by PrimePort and is within or adjacent to the Port Zone and is required to protect the ongoing operation of the Port.</u></p>	<p>events. I agree with the proposed changes but also recognises that the Port should hold a special status in the Natural Hazard part of the district plan that allow for this type of activities.</p>
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Earthworks considerations

Sea water inundation during storms propagates far inland across the low-lying coastal floodplains. It is important that in those floodplains that earthworks do not significantly increase the inundation hazard by unintentionally facilitating the flow of inundation water landward or unintentionally creating dams that could catastrophically fail and increase the hazard. Therefore, setting a limit on the volume of earthworks that is allowed without consent is appropriate.

However, that limit should not create unreasonable constrained on industries, especially in the rural zone. The limit to 2,000 m² in area in any calendar year in a rural zone seems appropriate as it should prevent any significant changes to flow pathways in the case of a coastal storm. It is outside my expertise whether this limit is sufficient for ancillary rural activities, but these activities could be excluded from the limit. For example, this may not be sufficient for orchard planting and management of it may be too restrictive for field/track maintenance. 250 m² may seem appropriate for urban properties but larger industries may be unreasonably constrained by this limit. For example, this limit appears too low for the management of sludge in a treatment pound or industries managing soil. Alternatively to limiting the area of earthwork, I would support an approach that simply seeks to not worsen flooding on another property through the diversion or displacement of flood water.

Submitter	Sub No.	Section/ Appendix	Sub-section	Provision	Submission Point Summary	Relief/ Decision Sought Summary	Response
Silver Fern Farms	172.29	NH - Natural Hazards	Rules	NH-R1 Earthworks, excluding land disturbance and for natural hazard mitigation works	Supports provision for buildings to be constructed in a Flood Assessment Area on a permitted basis if the specified criteria are met. However, PER-1 is opposed on the basis that standard NH-S2 limits earthworks to 250 m ² per calendar year. On a large industrial site, this small allowance is	<p>Either:</p> <ol style="list-style-type: none"> 1. Delete of NH-R1 PER-1; <p>OR</p> <p>Retain NH-R1 as notified, subject to the grant of the relief sought by the submitter in respect of NH-S2, being an increased allowance for earthworks in the GIZ.</p>	While I believe that 250 m ² is appropriate for urban properties it is not clear how larger industries may be constrained by this limit. I disagree with the proposed deletion of NH-R1 (1). Amendment may be appropriate for allowing for larger earthwork for industrial area up to 2000 m ² area.

					an undue constraint on typical operations.		
Silver Fern Farms	172.34	NH - Natural Hazards	Standards	NH-S2 Volume of earthworks	Considers the earthworks allowance of 250m ² is insufficient and will generate inefficient resource consent requirements. A 2,000 m ² permitted earthworks limit - as provided for the Rural zones - is considered more appropriate.	Amend NH-S2 as follows: <i>NH-S2 Volume of earthworks</i> <i>1.Flood Assessment Areas Overlay</i> <i>The earthworks do not exceed:</i> <ul style="list-style-type: none"> <i>2,000 m² in area in any calendar year in a Rural zone <u>or</u> <u>General Industrial Zone</u>; and</i> <i>250 m² in area in any calendar year in any other zone</i>	I agree that 250m ² is very limiting for GIZ and for most of the GIZ, I do not believe the proposed changes would cause dramatic changes in the sea water inundation flow pathways.

Alliance Group Limited	173.31	NH - Natural Hazards	Standards	NH-S2 Volume of earthworks	Considers the earthworks allowance of 250m ² is insufficient and will generate inefficient resource consent requirements. A 2,000 m ² permitted earthworks limit - as provided for the Rural zones - is considered more appropriate.	Amend NH-S2 Volume of earthworks as follows: <i>NH-S2 Volume of earthworks</i> <i>The earthworks do not exceed:</i> <i>·2,000m² in area in any calendar year in a Rural <u>or</u> <u>General Industrial</u> zone; and 250m² in area in any calendar year in any other zone.</i>	I do not believe the proposed changes would cause dramatic changes in the sea water inundation flow pathways.
Milward Finlay Lobb	60.14	NH - Natural Hazards	Standards	NH-S2 Volume of earthworks	Concerned that 250m ² would be triggered very easily, as it would not take a lot of soft ground to be dug before this would be	Amend NH-S2 Volume of Earthworks as follows: <i>1 Flood Assessment Areas Overlay</i>	I believe that allowing for larger area of earthwork in urban setting where flow pathways are more restricted could lead to dramatic

					<p>triggered. The intention would always be to replace the fill taken out.</p>	<p><i>The earthworks do not exceed:</i></p> <ul style="list-style-type: none"> • <i>2,000m² in area in any calendar year in a Rural zone; and</i> <p><i>250 500m² in area in any calendar year in any other zone.</i></p>	<p>changes to pathway and I do not recommend the proposed changes.</p>
Dairy Holdings Limited	89.8	NH - Natural Hazards	Standards	NH-S2 Volume of earthworks	<p>Considers that ancillary rural earthworks should be excluded from this standard. The 2,000m² per year limit proposed in NH-S2 will severely limit DHL's ability to maintain and improve its Tata and</p>	<p>Amend NH-S2 Volume of earthworks as follows:</p> <p><i>The eEarthworks, excluding ancillary rural earthworks, do not exceed:</i></p> <ul style="list-style-type: none"> • <i>2,000m² in area in any calendar year in a Rural Zone; and</i> 	<p>I can understand that the 2000m² restrictions would be restrictive for some rural earthwork. Ancillary Rural Earthwork describes a broad range of activities and excluding ARE from the area restriction</p>

					Orton properties. Under the proposed limit, it would take at least 11.4 years to maintain these 2.8 hectares of lanes if the work was to be undertaken without requiring resource consent. Considers excluding ancillary rural earthworks undertaken in a flood assessment area from this rule.	<i>250m² in any calendar year in any other zone.</i>	may be allowing for significant disruption of sea water inundation flow pathways with consequence of locally increasing the inundation hazard. I would rather support an approach that instead of increasing the area restriction. It simply seeks to not worsen flooding on another property.
K J Rooney Limited	197.10	NH - Natural Hazards	Standards	NH-S2 Volume of earthworks	The Flood Assessment Area Overlay covers the submitter's	Amend NH-S2 to increase the permitted earthworks	The limit in rural area is set to 2000 m ² to allow for earthwork

					<p>properties which are both used for primary production purposes. Farming activities, and natural hazard mitigation activities (such as maintenance of stopbanks) can involve significantly more than 2,000m² in earthworks.</p>	<p>volumes in the Rural Zones within the Flood Assessment Areas overlay per year under NH-S2.2. from 2,000m² to 2,500m² or more.</p>	<p>that is unlikely to unintentionally significantly disrupt flow pathways. Hence I do not recommend proceeding with these proposed changes.</p>

Waipopo huts and High Hazard Area

Waipopo Huts are generally not exposed to coastal inundation hazard from a 1% AEP storm event with present day sea level but are exposed for a 1%AEP storm event with 0.6m SLR and above. Because it is likely that SLR will make flooding more likely in Waipopo Huts, it is my opinion that conditions or restrictions are required for developing, intensifying or upgrading and/or replacing dwellings in these areas to avoid unnecessary increase in the risk. The hazard varies at different location within the Waipopo Huts location and different flood mitigation measures may be more or less appropriate depending on the dwelling location. The High Hazard Area Overlay only applies to Milford Hut, Waipopo Huts and Rangitata Huts and hence covers a much smaller area than the sea water inundation overlay. I believe that NH-R4 and NH-R8 are appropriate for permitting some new building while restricting new building in hazard prone area.

Submitter	Sub No.	Section/ Appendix	Sub-section	Provision	Submission Point Summary	Relief/ Decision Sought Summary	Response
Waipopo Huts Trust	189.6	Planning Maps	Sea Water Inundation Overlay		Opposes the Sea Water Inundation Overlay on the submitter's properties. This overlay, along with other overlays mean new or replacement dwellings, buildings and structures will be non-complying activities on the submitter's properties. A more permissive planning regime is	Delete the Sea Water Inundation overlay across the submitter's 36 properties at Waipopo Huts and/or amend related rules affecting the use and development of the land.	I disagree with the proposed deletion of Waipopo huts from the Sea Water Inundation overlay. Waipopo Huts are generally not exposed to coastal inundation hazard from a 1% AEP storm event with present day sea-level but are exposed for a 1%AEP storm event with 0.6m SLR and above.

					appropriate to honour the historical commitment the Crown made to enabling Māori to carry out their needs and wants; to reflect the fact Waipopo is now mostly in permanent residential use, not holiday huts; and that the flood risk has been overstated.		Hence, to be in accordance with the New Zealand Coastal Policy Statement (2010), the huts cannot be deleted from the sea water inundation overlay.
Waipopo Huts Trust	189.25	NH - Natural Hazards	Rules	NH-R8 Subdivision	Opposes NH-R8.1.2.4. The submitters 36 properties at Waipopo Huts contain multiple existing residential	Amend NH-R8.1, .2, and .4 Subdivision to recognise the particular case of the submitter's 36 properties at Waipopo	I disagree with the proposed amendment. Allowing for subdivision is much more than allowing for replacement

					<p>buildings that were constructed in the 1930's. Many houses are in a poor state of repair. These buildings need upgrading to modern standards and / or replacement. The natural hazards provisions do not recognise the existence of the dwellings. Nor do they provide for their replacement.</p>	<p>Huts and provide for the upgrade and replacement of existing dwellings of the same or similar size as a controlled activity.</p>	<p>and will increase risk in hazard prone area.</p>
Waipopo Huts Trust	189.16	NH - Natural Hazards	Objectives	NH-O1 Areas Subject to natural hazards	<p>Opposes the NH-O1. The submitters 36</p>	<p>Amend NH-O1 Areas Subject to natural hazards to recognise the</p>	<p>I disagree with the proposed amendment, the exposure to natural</p>

					<p>properties at Waipopo Huts contain multiple residential buildings that were constructed in the 1930's. Many houses are in a poor state of repair. These buildings need upgrading to modern standards and / or replacement. The natural hazards provisions do not recognise the upgrade of the dwellings. Nor do they provide for their replacement.</p>	<p>particular case of the submitter's 36 properties at Waipopo Huts and provide for the replacement of existing dwellings of the same or similar size as a permitted activity.</p>	<p>hazard present or future exists regardless of the asset already existing.</p>
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Silver Fern Farms	172.32	NH - Natural Hazards	Rules	NH-R8 Subdivision	<p>The submitter is concerned about the ambiguity about whether land in the Sea Water Inundation Overlay is part of the High Hazard Area Overlay. If this is the case, then a non-complying activity status under NH-R8.4 would be inappropriate as it would conflict with and override the restricted discretionary pathway</p>	<p>Amend rule NH-R8 Subdivision and other provisions as necessary to clarify that the subdivision of land in the Sea Water Inundation Overlay is not subject to a non-complying consenting pathway under the 'High Hazard Area Overlay'.</p>	<p>I agree that NH-R8 Subdivision is not clear what would apply with the Sea water inundation overlay where it is not overlaying the Flood Assessment overlay. While I note that the area where this occur are very small it would need to be consistent.</p>
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					under rule CE-R11.1.		
Silver Fern Farms	172.33	NH - Natural Hazards	Standards	NH-S1 Flood Risk Certificate	The submitter is concerned about the ambiguity about whether land in the Sea Water Inundation Overlay is part of the High Hazard Area Overlay. If this is the case, then the submitter opposes the note for NH-S1 that indicates that a finished floor level will not be provided, given the Sea Water	Clarify whether the High Hazard Area Overlay includes land in the Sea Water Inundation Overlay.	The distinction between HHA and SWIO seem clear enough to me. Especially in the mapping of hazard zones. Pareora site is in part covered by the sea water inundation overlay but not in the high Hazard Area

					Inundation Overlay covers a large portion of the Pareora site, including most of the area within the GIZ.		

A handwritten signature in black ink, appearing to read 'Cyprien Bosserelle', written in a cursive style.

Cyprien Bosserelle

28/02/2025