

Waikato District Council
Private Bag 544
Ngaruawahia

Attention: Will Gauntlett, Clive Morgan

Dear Will/Clive

Proposed Waikato District Plan - Stage 2
Chapter 15 Land Stability and Liquefaction
Specialist Input Review

1 Introduction and Purpose of Report

Waikato District Council publicly notified Stage 2 (Natural Hazards) of the Proposed Waikato District Plan on the 30 November 2020, and further submissions closed on 14 December 2020.

Waikato District Council have engaged Tonkin & Taylor Limited (T+T) to undertake a technical review of the submissions received as per the contract dated the 20th of January 2021 (reference PSP000185).

This letter report supports the s42A report prepared by Grant Eccles of T+T, and it is prepared by Eric Bird, Senior Engineering Geologist of T+T.

Mr Bird has reviewed the submissions and identified the submissions that require expert input in Appendix A: Land Stability Submissions and Appendix B: Liquefaction. This letter report responds to the submissions in those appendices.

In preparing this report, Mr Bird has not undertaken an assessment of the hazards of land stability, subsidence and liquefaction in the District.

Qualifications and Experience

I have an MSc in Engineering Geology and have experience in natural hazards and natural disaster recovery. I am currently employed as a Senior Engineering Geologist with Tonkin and Taylor. Prior to this I was employed as the Technical Director of the \$4Bn Southern Response earthquake recovery project in Christchurch, a role I held from 2010 until 2019. In that role I was responsible for managing all engineering and regulatory aspects of the project, which involved the rebuild and repair of thousands of houses throughout Canterbury.

I have direct experience in implementing regulatory changes to zoning, consenting and construction on hazard prone land; having worked closely with MBIE, the Selwyn, Waimakariri and Christchurch City Councils, contractors, planning consultants and consulting engineers, and MBIE's Engineering Advisory Group throughout many zoning and regulatory changes in Canterbury. I have also been involved in review and changes to legislation as a result of the Canterbury earthquakes including the

New Zealand Building Code, the Canterbury Property Boundaries Act, the EQC Act, as well as review and feedback into many of MBIE's guidance documents.

2 Land Stability Submissions and Further Submissions Addressed

2.1 Stormwater Management in Areas Subject to Risk of Land Instability or Subsidence

The following three submissions were received requesting amendments to the land stability provisions to address coastal hazard risk:

- 2102 (2102.47) – Miffy Foley – Waikato Regional Council
- 2128 (2128.5) – Chris & Sue Harris
- 2133 (2133.4) – Adam Marsh – Raglan Collective – Adam Marsh & Carol McColl

These submissions request amendments to the policy to address stormwater management in areas subject to the risk of land instability or subsidence (Policy 15.2.1.21).

Refer to Appendix A for the submission summaries. The submissions all focus on the discharge of stormwater to ground as a contributor to inundation, particularly in coastal areas.

Policy 15.2.1.21 ensures that stormwater discharge directly to ground is avoided in areas at risk of land instability or subsidence. This is because discharging stormwater directly to ground can result in groundwater fluctuations in these areas, and therefore may cause or exacerbate subsidence or instability.

It is noted by Waikato Regional Council (WRC) in their submission that in many cases it is coastal areas that are prone to instability, and that these are often areas also subject to other hazards. The other two submitters indicate a similar concern; that stormwater discharge may exacerbate flooding. They submit that Policy 15.2.1.21 should be broadened to also require consideration of the effects of stormwater discharge on flooding.

I agree that the effects of stormwater discharge to ground should be considered in terms of how it may affect other hazards such as flooding, and that the plan provisions should adequately address this concern. However, I leave any commentary how this might appropriately be achieved within the planning provisions themselves to the s42A author.

3 Liquefaction Submissions and Further Submissions Addressed

3.1 Approach and Methodology to Managing Liquefaction Risk

The following submissions were received requesting amendments to the liquefaction provisions:

- 2105.2 Aaron Collier for Collier Consultants Ltd on behalf of Perry Group Ltd
- FS3031.115 Miffy Foley on behalf of Waikato Regional Council (WRC)
- 2147.2, 3 Pokeno Village Holdings Limited
- 2094.15, 16, 50, 51, 52, 53, 89 Kainga Ora Homes and Communities
- 2101.10, 22, 23, 24 Transpower New Zealand Ltd
- 2102.43, 44, 45 Miffy Foley on behalf of Waikato Regional Council
- 2146.8 Will Gauntlett for Waikato District Council on behalf of Gavin Ion
- FS3033.4 Transpower New Zealand Ltd
- FS3033.5 Kainga Ora Homes and Communities

- FS3027.38, 49, 54 Horticulture New Zealand
- FS3003.7 Transpower New Zealand Ltd

These submissions raise the following issues:

- A district wide liquefaction map for screening purposes, vs every applicant assessing the potential for liquefaction
- Activities covered by the proposed rules
- Other issues such as:
 - Clarifying the intent of liquefaction assessment,
 - How permitted activities such as retaining structures are managed,
 - Timing of liquefaction assessment

I have summarised the key points from each submission below. Refer to Appendix B for detailed submission summaries.

Transpower: Transpower's submission requests clarity in 15.12.1 to specify activity types for which liquefaction assessment is required. They submit that it should apply to subdivision, multi-unit and comprehensive development activities, rather than all resource consents.

They observe that the liquefaction hazard within the district is not mapped and oppose the approach of requiring applicants to assess liquefaction on the basis that it is overly onerous as it imposes all costs on the applicant.

Waikato Regional Council: WRC question how WDC can consider that land can be identified as potentially having liquefaction hazard by plan users without the need for expert assessment.

They question "... how risks are to be managed where an activity may be otherwise permitted, particularly in relation to retaining structures." [#7.9 of their submission dated 22 Sept 2020].

They suggest some wording changes for consistency (liquefaction "susceptible" rather than "prone", among other things).

Waikato District Council: WDC submits that the proposed plan wording makes clearer that the purpose of liquefaction assessment is to confirm that the land is suitable for development.

Pokeno Village Holdings: Notes that only parts of the Waikato District are likely to have a liquefaction hazard and observes that requiring liquefaction assessment in all areas is onerous on any applicant seeking resource consent. They submit that WDC should carry out a high-level study to identify areas of liquefaction hazard, and that within these areas of liquefaction hazard, detailed investigations should then be required from the applicant for proposed development.

They submit that liquefaction hazard areas are shown within a non-statutory overlay map, as it allows WDC to make regular updates to hazard maps as new information is made available.

Kainga Ora: Kainga Ora broadly supports controlling subdivision use and development on land susceptible to liquefaction. (agrees with 15.2.1.23)

Kainga Ora opposes the applicant having to carry out the assessment in all cases on the basis that it places the full onus for undertaking the work to identify areas of liquefaction hazard on the applicant. They submit that the council should be funding a district-wide assessment of land susceptible to liquefaction. They submit that this would enable 'liquefaction management areas' to be mapped, which would then only require geotechnical assessments in locations known to be likely to subject to liquefaction. They observe that their proposed approach is consistent with the approach taken for other natural hazards in the proposed plan change. (p11 of 34, p24)

They submit that 'liquefaction management areas' are produced as non-statutory maps.

They submit that WDC delete the current proposed rules and review the approach to liquefaction hazard.

Perry Group: Perry Group submit to remove the wording "new zonings" from 15.1 (14) on the basis "... that liquefaction assessment should be considered at the time of subdivision development through detailed geotechnical and ground engineering analysis. The nature of the development and impacts of liquefaction on different types of development and layouts may not necessarily be known or able to be assessed at the time of rezoning." [paragraph 9 of their submission]

4 Discussion

4.1 District-wide liquefaction assessment

The key issue identified in a number of submissions (Transpower, Pokeno Village Holdings, Kainga Ora) is that currently district-wide liquefaction mapping has not been undertaken, and in the view of these submitters, should be undertaken by WDC. They submit that high-level mapping should be carried out so that the areas potentially subject to liquefaction are identified, and the areas not subject to liquefaction can be removed from the requirement to assess liquefaction. Further work can then be carried out by applicants in areas which are identified as being subject to liquefaction.

The process identified by these submitters represents the best practice industry approach for dealing with liquefaction for planning purposes. In general, a district or regional council carries out a high-level regional liquefaction assessment, identifying areas where liquefaction is unlikely, and where it is possible. In some areas, insufficient information may be available so the assessment results in a classification of liquefaction hazard that is 'undetermined'. For areas where liquefaction is unlikely (such as areas of elevated topography or certain geology where liquefaction cannot occur), no further liquefaction assessment requirements apply. For areas where liquefaction is possible (or 'undetermined'), further investigations are required at a more detailed level for any proposed activities in these areas.

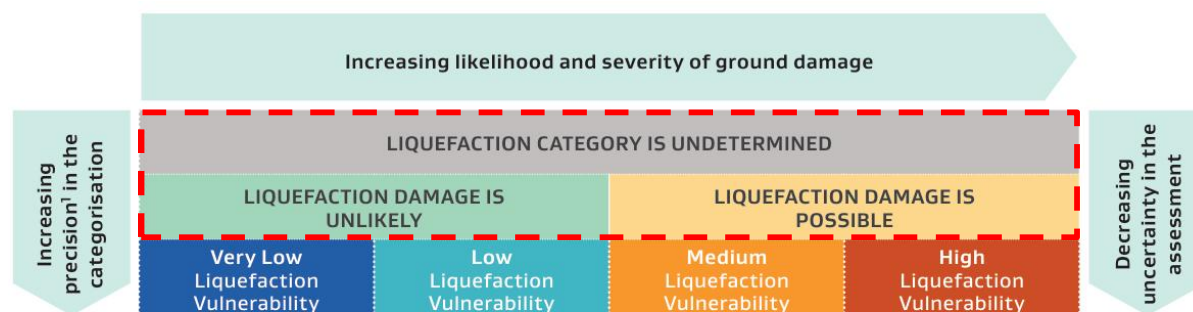
This approach is covered in some detail in the guidance document *Planning and engineering guidance for potentially liquefaction-prone land – Resource Management Act and Building Act aspects*, issued by MBIE and MfE in September 2017 (referred to as MBIE/MfE (2017)). This document was developed to provide guidance on a risk-based process to address liquefaction in land use planning and development, primarily to satisfy Resource Management Act requirements. It also includes some brief guidance on Building Act requirements.

It is intended to provide a framework that allows for liquefaction assessment studies to be sufficient (but not excessive) for their intended purpose and allow for liquefaction categorisation to be progressively refined over time as more information becomes available, and as more detailed studies are conducted.

It specifies differing levels of detail in the investigation and assessment of liquefaction, depending on the information required for a specific purpose (such as developing a regional or district plan, or carrying out a site-specific assessment for Building Consent). These levels of detail are briefly outlined below:

- Level A: Basic Desktop Assessment
- Level B: Calibrated Desktop Assessment
- Level C: Detailed Area-wide Assessment
- Level D: Site-Specific Assessment

The results of these assessments determine the liquefaction vulnerability category (Figure i), with increasing levels of precision available as more detailed assessment work is carried out.



Note:

- 1 In this context the 'precision' of the categorisation means how explicitly the level of liquefaction vulnerability is described. The precision is different to the accuracy (ie trueness) of the categorisation.

Figure i: Liquefaction vulnerability categories for use in planning and consenting processes (adapted from Table 4.1, MBIE/MfE (2017))

For regional and district plan change purposes it is envisaged that a basic level of assessment is carried out, at a Level A or B¹. This level of assessment would generally identify where liquefaction is likely, unlikely, or undetermined (shown by the red dotted box in Figure i). A higher level of detail would then be required for subdivision or land use change, and a higher level again for Building Consent application.

Approaching the hazard of liquefaction in this manner is consistent with the approach adopted by numerous councils throughout New Zealand. It is also consistent with the manner in which other hazards are approached by WDC, by mapping certain areas subject to specific hazards and requiring further assessment by applicants within these areas.

The requirement for high-level liquefaction mapping also exists for a Building Consent Authority: Recent changes to B1/AS1 of the New Zealand Building Code² require specific consideration of liquefaction during the Building Consent process, and so will require a Building Consent Authority to have some means of identifying land subject to liquefaction. Generally, this requires Level A or B mapping being carried out by the territorial authority.

Two parties (Pokeno Village Holdings and Kainga Ora) submit that the high-level liquefaction map should be produced as a non-statutory overlay map, as it allows WDC to make regular updates to the liquefaction hazard map as new information is made available. This is a sensible approach, particularly as it allows for refinement of liquefaction hazard areas as more detailed assessments are carried out by applicants, and it avoids the need to go through the formal plan change process to make changes to the map.

4.2 Other issues

4.2.1 Extent of consideration of Liquefaction

Transpower submitted that the requirement to assess and address liquefaction (15.12.1) should apply to specific activity types: they submit that it should apply to subdivision, multi-unit and

¹ MBIE/MfE guidance (2017), Table 3.5

² <https://www.building.govt.nz/building-code-compliance/annual-building-code-updates/november-2019-building-code-update/>

comprehensive development activities, rather than all resource consents. Horticulture NZ support this submission, echoing a concern that the requirement for liquefaction assessment may in some cases apply to minor activities such as constructing farm buildings.

Fundamentally, it is important to ensure that in areas susceptible to liquefaction, all structures including infrastructure are appropriately designed to accommodate the effects of liquefaction. I leave the assessment of whether the Proposed Waikato District Plan provisions achieve this appropriately or not to the s42A author.

4.2.2 Liquefaction consideration in Zoning decisions

The proposed plan, in the introduction 15.1 (14) states *“While liquefaction areas have not been identified on the planning maps, provisions in the district plan require this seismically-induced natural hazard to be assessed before new zonings or subdivision and development are undertaken.”* Perry Group Limited submitted that the wording “new zonings” be removed on the basis that the impacts of liquefaction on different types of development and layouts may not necessarily be known or able to be assessed at the time of rezoning.

This is correct; there will be cases where at the time of land rezoning, the implications of liquefaction on the final land development will not necessarily be fully known. However, it is important that liquefaction is considered when land use decisions are being made. Under the proposed plan, WDC has discretion to consider whether liquefaction assessment is relevant for a proposed activity (15.12.1). Additionally, as discussed in 4.1 of this letter, the MBIE/MfE (2017) guidance document provides a framework that allows for differing levels of detail in the investigation and assessment of liquefaction, depending on the information required for a specific purpose.

4.2.3 Liquefaction and Permitted Activities

Waikato Regional Council asked, for liquefaction hazard areas *“... how risks are to be managed where an activity may be otherwise permitted, particularly in relation to retaining structures.”*

The proposed rules for liquefaction apply to restricted discretionary activities. Where activities are permitted and are building work (such as the construction of retaining structures), the work is subject to the Building Act and is required to comply with the Building Code. As such, the Building Consent Authority should consider liquefaction when processing Building Consents in areas subject to a liquefaction hazard to ensure that the building work takes appropriate account of liquefaction.

5 Conclusions and Recommendations

For stormwater management in areas subject to the risk of land instability or subsidence:

- the effects of stormwater discharge to ground should be considered in terms of how it may affect other hazards such as flooding. WDC should ensure that the provisions of the plan adequately address this concern.

For liquefaction:

- the WDC should adopt the current industry best practice approach for managing liquefaction hazards and carry out a high-level assessment of the Waikato district, to identify areas where liquefaction is possible. In areas where liquefaction is possible (or where liquefaction hazard is undetermined), appropriate rules should be developed, requiring applicants to carry out further liquefaction assessment as relevant for the proposed activity. In other areas where liquefaction is unlikely no further requirements should apply.
- this map should be produced as non-statutory map to enable the WDC with the flexibility to alter it as necessary.

6 Applicability

This report has been prepared for the exclusive use of our client Waikato District Council, with respect to the particular brief given to us and it may not be relied upon in other contexts or for any other purpose, or by any person other than our client, without our prior written agreement.

We understand and agree that this report will be used by Waikato District Council in undertaking its regulatory functions in connection with the Proposed Waikato District Plan.

Tonkin & Taylor Ltd

Environmental and Engineering Consultants

Report prepared by:



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Authorised for Tonkin & Taylor Ltd by:



Glen Nicholson
Project Director

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Appendix A: Land Stability Submissions

No.	Submitter_Name	Organisation	On Behalf Of	OS Point No.	FS Point No.	Submission number	SupportOppose	Decision Sought	Reason	Primary Hearing topic	Secondary Hearing topic (if applicable)	Plan Provision	Plan Section
2102	Miffy Foley on behalf of Waikato Regional Council		Waikato Regional Council	OS 2102.47		OS 2102.47	Support	Amend Policy 15.2.1.21 - Stormwater management in areas subject to risk of land instability or subsidence - to include areas subject to coastal flooding.	The submitter supports the consideration of the effects of on site (or reticulated) servicing on where there is identified land instability, noting this is also applicable in many instances to coastal areas which are prone to instability. The amendments to the policy and inclusion of a new rule ensures the activity is not undertaken in areas subject to high-risk natural hazards without assessment of the impact of the activity. This policy is given effect to by the rules controlling utilities in the high-risk coastal hazard areas.	Land Stability	0	15.2.1.21	15
2128	Chris & Sue Harris			OS 2128.5		OS 2128.5	Oppose	Amend policy 15.2.1.21 - Storm management in areas of land instability or subsidence to include impacts of stormwater magnifying risk of flooding in coastal.	Storm water often magnifies the major risk of flooding in some coastal areas.	Land Stability	0	15.2.1.21	15
2133	Adam Marsh for Raglan Collective on behalf of Adam Marsh & Carol McColl	Raglan Collective	Adam Marsh & Carol McColl	OS 2133.4		OS 2133.4	Oppose	Amend Policy 15.2.1.21 - Stormwater management in areas subject to risk of land instability or subsidence - to include areas subject to coastal flooding.	Stormwater often magnifies major risk of flooding in some coastal areas.	Land Stability	0	15.2.1.21	15
2107	Carolyn McAlley on behalf of Heritage New Zealand Pouhere Taonga		Heritage New Zealand Pouhere Taonga	OS 2107.13		OS 2107.13	Support	Amend Policy 15.2.1.19 - Development on land subject to instability or subsidence.	Amendments ensure that when subdivision, use and development occurs, the risk to historic heritage and sites and areas of significance to Maaori are minimised. Amendment recognises that historic heritage and sites and areas of significance to Maaori can be located on unstable land and on land immediately adjacent to unstable land. There is potential for subdivision, use and development to adversely impact historic heritage and sites and areas of significance to Maaori when avoiding the risk of instability. The proposed amendment will help to give effect to RMA s6(e) and (f).	Land Stability	0		

Appendix B: Liquefaction Vulnerability Submissions

No.	Submitter Name	Organisation	On Behalf Of	OS Point No.	FS Point No.	Submission point number	Support / Oppose	Decision Sought	Reason	Primary Hearing topic	Secondary Hearing topic (if applicable)	Plan Provision	Plan Section
2105	Aaron Collier for Collier Consultants Ltd on behalf of Perry Group Limited	Collier Consultants Ltd	Perry Group Limited	OS 2105.2		OS 2105.2	Support	Amend Section 15.1 (14) - Introduction as follows: (14) While liquefaction areas have not been identified on the planning maps, provision in the District Plan require this seismically induced natural hazard to be assessed before new zonings or subdivision and development are undertaken.	<ul style="list-style-type: none"> Liquefaction assessment should be considered at the time of subdivision development through detailed geotechnical and ground engineering analysis. The nature of development and the impacts of liquefaction on different types of development and layouts may not necessarily be known or be able to be assessed at the time of rezoning. 	Liquefaction	0	15.1	15
3031	Miffy Foley on behalf of Waikato Regional Council		Waikato Regional Council	OS 2105.2	FS3031.115	FS3031.115	Oppose	Oppose OS 2105.2	RPS implementation method 6.1.8(e) requires that district plan zoning for new urban development supported by information which identifies potential natural hazards and how the related risks will be managed.	Liquefaction	0	15.1	15
2147	Pokeno Village Holdings Limited			OS 2147.3		OS 2147.3	Support	Amend Chapter 15.12 Liquefaction approach to assessing effects of liquefaction to (a) Provide a high-level study to identify areas of likely liquefaction risk and that these are shown within a non-statutory overlay; and (b) Required detailed investigations into liquefaction risks for any proposed development within these identified areas.	Based on advice from submitters geotechnical engineer, it is understood that there are very few places within the Waikato District that would have the potential for liquefaction. Requiring a liquefaction risk assessment despite low risk of geotechnical instability resulting from liquefaction will be onerous for any applicant seeking resource consent.	Liquefaction	0	15.12	15
2094	Kainga Ora Homes and Communities			OS 2094.50		OS 2094.50	Oppose	Delete Section 15.12.1 Overview of method regarding liquefaction.	<ul style="list-style-type: none"> Broadly supports the approach to manage liquefaction risk but opposes the requirement for a geotechnical assessment in all cases where a restricted discretionary consent is required. A Council-funded district-wide assessment of broad areas that are potentially prone to liquefaction should be undertaken to save costs of geotechnical assessment in every case. The explanation within section 15.12.1 refers to Geotechnical Assessments required "where the site and proposed development is considered vulnerable to liquefaction based on site-specific characteristics". This appears to assume a form of initial assessment yet without an explicit framework as the basis. The best practice is that the council should introduce a mapped 'Liquefaction Management Area' or similar alongside a suite of provisions relevant to subdivision and development, constituting the most efficient and effective means of managing liquefaction risk. 	Liquefaction	0	15.12.1	15

No.	Submitter Name	Organisation	On Behalf Of	OS Point No.	FS Point No.	Submission point number	Support / Oppose	Decision Sought	Reason	Primary Hearing topic	Secondary Hearing topic (if applicable)	Plan Provision	Plan Section
2101	Transpower New Zealand Ltd			OS 2101.22		OS 2101.22	Neutral	Amend Section 15.12.1 - Liquefaction – Overview of methods to clarify that the requirement to assess and address liquefaction risk does not apply to all resource consents only to specifically identified subdivision, multi-unit, and comprehensive development activities.	· For clarity and certainty, the proposed approach should be clarified in the introductory 'overview of the method' statement provided in 15.12.1, to ensure that liquefaction risk does not apply to all resource consents only specifically identified activities. · If the approach has a wider application (i.e., applies to a wider range of resource consent activities) then the submitter would oppose the approach on the basis it is overly onerous.	Liquefaction	0	15.12.1	15
2094	Kainga Ora Homes and Communities			OS 2094.51		OS 2094.51	Support	Retain Rule 15.12.2, provided Council identifies areas susceptible to liquefaction.	<ul style="list-style-type: none"> •Broadly supports the approach to manage liquefaction risk but opposes the requirement for a geotechnical assessment in all cases where a restricted discretionary consent is required. •A Council-funded district-wide assessment of broad areas that are potentially prone to liquefaction should be undertaken to save costs of geotechnical assessment in every case. •The explanation within section 15.12.1 refers to Geotechnical Assessments required "where the site and proposed development is considered vulnerable to liquefaction based on site-specific characteristics". This appears to assume a form of initial assessment yet without an explicit framework as the basis. •The best practice is that the council should introduce a mapped 'Liquefaction Management Area' or similar alongside a suite of provisions relevant to subdivision and development, constituting the most efficient and effective means of managing liquefaction risk. 	Liquefaction	0	15.12.2	15
2101	Transpower New Zealand Ltd			OS 2101.23		OS 2101.23	Neutral	Amend rule 15.12.2 by adding matters of restricted discretion to clarify that the requirement to assess and address liquefaction risk does not apply to all resource consents only to specifically identified subdivision, multi-unit, and comprehensive development activities.	· See reasons above for amendments to 15.12.1, submission point # 2101.22.	Liquefaction	0	15.12.2	15
3033	Craig Sharman for Beca Limited on behalf of Kainga Ora - Homes and Communities	Beca Limited	Kainga Ora - Homes and Communities	OS 2101.23	FS3033.4	FS3033.4	Oppose	Oppose OS 2101.23	Kainga Ora opposes this submission. [Please refer to the rationale provided in response to submission 2102.22 above].	Liquefaction	0	15.12.2	15

No.	Submitter Name	Organisation	On Behalf Of	OS Point No.	FS Point No.	Submission point number	Support / Oppose	Decision Sought	Reason	Primary Hearing topic	Secondary Hearing topic (if applicable)	Plan Provision	Plan Section
2094	Kainga Ora Homes and Communities			OS 2094.52		OS 2094.52	Oppose	Delete Rule 15.12.3.	<ul style="list-style-type: none"> •Broadly supports the approach to manage liquefaction risk but opposes the requirement for a geotechnical assessment in all cases where a restricted discretionary consent is required. •A Council-funded district-wide assessment of broad areas that are potentially prone to liquefaction should be undertaken to save coasts of geotechnical assessment in every case. •The explanation within section 15.12.1 refers to Geotechnical Assessments required "where the site and proposed development is considered vulnerable to liquefaction based on site-specific characteristics". This appears to assume a form of initial assessment yet without an explicit framework as the basis. •The best practice is that the council should introduce a mapped 'Liquefaction Management Area' or similar alongside a suite of provisions relevant to subdivision and development, constituting the most efficient and effective means of managing liquefaction risk. 	Liquefaction	0	15.12.3	15
2101	Transpower New Zealand Ltd			OS 2101.24		OS 2101.24	Neutral	Amend rule 15.12.3 by adding matters of restricted discretion to clarify that the requirement to assess and address liquefaction risk does not apply to all resource consents only to specifically identified subdivision, multi-unit, and comprehensive development activities.	<ul style="list-style-type: none"> · See reasons above for amendments to 15.12.1, submission point # 2101.22. 	Liquefaction	0	15.12.3	15
3033	Craig Sharman for Beca Limited on behalf of Kainga Ora - Homes and Communities	Beca Limited	Kainga Ora - Homes and Communities	OS 2101.24	FS3033.5	FS3033.5	Oppose	Oppose OS 2101.24	<p><i>Kainga Ora opposes this submission. [Please refer to the rationale provided in response to submission 2102.22 above].</i></p>	Liquefaction	0	15.12.3	15
3027	Lucy Deverall on behalf of Horticulture New Zealand		Horticulture New Zealand	OS 2101.24	FS3027.49	FS3027.49	Support	Support OS 2101.24	<p><i>Support clarification that this should not apply to equally to all applications.</i></p>	Liquefaction	0	15.12.3	15
2094	Kainga Ora Homes and Communities			OS 2094.53		OS 2094.53	Oppose	Delete Section 15.13.2 Liquefaction potential.	<ul style="list-style-type: none"> •The proposed approach to liquefaction places the onus of identifying areas subject to liquefaction risk onto the applicants. •It is considered more appropriate for Council to initially undertake the identification of areas subject to Liquefaction risk. •Delete the current liquefaction rules and review the approach. 	Liquefaction	0	15.13.2	15

No.	Submitter Name	Organisation	On Behalf Of	OS Point No.	FS Point No.	Submission point number	Support / Oppose	Decision Sought	Reason	Primary Hearing topic	Secondary Hearing topic (if applicable)	Plan Provision	Plan Section
3027	Lucy Deverall on behalf of Horticulture New Zealand		Horticulture New Zealand	OS 2094.53	FS3027.54	FS3027.54	Support	Support OS 2094.53	HortNZ shares the concerns that the requirements place a large onus on applicants (for what may in some cases be minor activities - particularly if HortNZ's submission points regarding farm buildings are not accepted).	Liquefaction	0	15.13.4	15
2102	Miffy Foley on behalf of Waikato Regional Council		Waikato Regional Council	OS 2102.43		OS 2102.43	Support	Amend Chapter 15.14 - Definitions to confirm how liquefaction risk may be identified by plan users without the need for expert assessment. OR Amend Section 15.1 (6) - Introduction to confirm how liquefaction risk may be identified by plan users without the need for expert assessment.	· The submitter supports the need to consider land instability and liquefaction risk and accepts that these areas are challenging to define. · The plan needs to confirm how land can be identified as prone or susceptible to liquefaction by plan users, without the need for expert assessment, and what process is proposed to be followed in practice by applicants and the council. · The submitter notes the development of the New Zealand Geotechnical Society (NZGS) and Ministry of Business Innovation & Employment (MBIE) Earthquake Geotechnical Engineering Practice in New Zealand guidelines and considers that the 2019 update may be relevant to consider in further defining the approach to liquefaction risk in the plan.	Liquefaction	0	15.14.15.1	15
3027	Lucy Deverall on behalf of Horticulture New Zealand		Horticulture New Zealand	OS 2102.43	FS3027.38	FS3027.38	Support	Support OS 2102.43	Support the intent of submission, to make it clearer how a plan user would identify liquification without expert assessment.	Liquefaction	0	15.14.15.1	15
2094	Kainga Ora Homes and Communities			OS 2094.15		OS 2094.15	Oppose	Delete Policy 15.2.1.22 - Liquefaction-Prone Risk Assessment	· The proposed approach places the onus of identifying areas subject to liquefaction risk onto applicants. · Submitter opposes applicants having to prepare a supporting geotechnical assessment prior to new subdivision use or development taking place, given the uncertainty and risk associated for this party. · The council should fund a district-wide assessment of land susceptible to liquefaction-induced ground damage. · Policy 15.2.1.23 is the appropriate policy.	Liquefaction	0	15.2.1.22	15
2101	Transpower New Zealand Ltd			OS 2101.10		OS 2101.10	Support	Amend Policy 15.2.1.22(a) as follows: (a) On land <u>identified as</u> potentially prone to liquefaction, ensure that: (i) ... OR Amend Policy 15.2.1.22(a) as follows: (a) On land <u>assessed as</u> potentially prone to liquefaction...	· Supports the mapping of areas potentially prone to liquefaction as the identification of these areas would assist plan users and provide significant increased clarity as to the application of the related policies and rules. · To increase the clarity of the scope and application, wording should include reference to land that has been identified as potentially prone to liquefaction.	Liquefaction	0	15.2.1.22	15

No.	Submitter Name	Organisation	On Behalf Of	OS Point No.	FS Point No.	Submission point number	Support / Oppose	Decision Sought	Reason	Primary Hearing topic	Secondary Hearing topic (if applicable)	Plan Provision	Plan Section
2102	Miffy Foley on behalf of Waikato Regional Council		Waikato Regional Council	OS 2102.44		OS 2102.44	Support	Amend Policy 15.2.1.22 - Liquefaction-prone land risk assessment as follows: Policy 15.2.1.22 - Liquefaction-prone susceptible land risk assessment (a) On land potentially prone-susceptible to liquefaction, ensure that: (i) an assessment by a geotechnical specialist occurs before new subdivision, use or development takes place is provided for ; and [...]	· The submitter supports the inclusion of policy direction and matters of discretion where resource consent is required but questions how risks are to be managed where an activity may otherwise be permitted, particularly in relation to retaining structures. · Amendments are proposed to ensure consistency of terminology. · The submitter supports the additional matters identified in 15.12 for liquefaction and land instability where subdivision, use and developments, including multi-unit developments are proposed.	Liquefaction	0	15.2.1.22	15
2146	Will Gauntlett for Waikato District Council on behalf of Gavin Ion	Waikato District Council	Gavin Ion	OS 2146.8		OS 2146.8	Support	Add to Policy 15.2.1.22(a) - Liquefaction-prone land risk assessment a sub- section to read as follows: <u>(iii) the assessment confirms that the land is suitable for the proposed development,</u> AND Amend Policy 15.2.1.22(a)(i) and (ii) - Liquefaction-prone land risk assessment to read: (i) an assessment by a geotechnical specialist occurs before new subdivision, use or development takes places; and (ii) the level of assessment reflects the type and scale of the subdivision, use or development and the overall vulnerability of the activity to the effects of liquefactions. <u>and</u> AND Any consequential amendments as required, AND Any other change necessary to give effect to the intent of this relief sought and to achieve the purpose of the Resource Management Act 1991.	Sub-section (iii) makes it clear that the ultimate purpose of the assessment is to confirm that the land is suitable for the proposed development.	Liquefaction	0	15.2.1.22	15
2094	Kainga Ora Homes and Communities			OS 2094.16		OS 2094.16	Support	Amend Policy 15.2.1.23 as follows: Control subdivision, use and development on land assessed-identified as being susceptible to liquefaction-induced ground damage...	Supports the intent of the Policy. Seeks to amend wording to better control subdivision land use and development on land susceptible to liquefaction-induced ground damage. (Refer to submission on Policy 15.2.1.22.)	Liquefaction	0	15.2.1.23	15

No.	Submitter Name	Organisation	On Behalf Of	OS Point No.	FS Point No.	Submission point number	Support / Oppose	Decision Sought	Reason	Primary Hearing topic	Secondary Hearing topic (if applicable)	Plan Provision	Plan Section
3003	Transpower New Zealand Ltd			OS 2094.16	FS3003.7	FS3003.7	Support	Support OS 2094.16	In its submission Transpower supported Policy 15.2.1.23 on the basis the policy has a management directive as opposed to avoidance. Transpower supports the submission point seeking amendment of the policy to replace the word 'assessed' with 'identified' as the replacement wording would provide greater clarity to the policy. The amendment would also reflect the relief sought in Transpower submission point on Policy 15.2.1.23.	Liquefaction	0	15.2.1.23	15
2102	Miffy Foley on behalf of Waikato Regional Council		Waikato Regional Council	OS 2102.45		OS 2102.45	Support	Amend Policy 15.2.1.23 – Control activities on land susceptible to damage from liquefaction as follows: Policy 15.2.1.23 – Control activities on land susceptible to damage from liquefaction (a) Control subdivision, use and development on land assessed as being susceptible to liquefaction-induced ground damage, to ensure that where appropriate <u>avoidance, remediation or mitigation</u> is provided so that the level of risk to people, property, infrastructure and the environment is acceptable.	· The submitter supports the inclusion of policy direction and matters of discretion where resource consent is required but questions how risks are to be managed where an activity may otherwise be permitted, particularly in relation to retaining structures. · Amendments are proposed to ensure consistency of terminology. · The submitter supports the additional matters identified in 15.12 for liquefaction and land instability where subdivision, use and developments, including multi-unit developments are proposed.	Liquefaction	0	15.2.1.23	15
2094	Kainga Ora Homes and Communities			OS 2094.89		OS 2094.89	Support	Amend the approach to liquefaction by Council identifying areas subject to liquefaction risk and providing a framework to appropriately manage the risk to people's safety, wellbeing and property.	The proposed approach to liquefaction, as drafted, places the onus of identifying areas subject to liquefaction risk onto the applicants.	Liquefaction	0	Multiple provisions	15
2147	Pokeno Village Holdings Limited			OS 2147.2		OS 2147.2	Support	Amend all rules within the zone chapters that state ... "including liquefaction risk (refer to Chapter 15)", as follows: ... including liquefaction risk (refer Rule 15.12 Liquefaction to Chapter 15)	Throughout the PWDP, "geotechnical suitability including liquefaction risk (refer to Chapter 15)" is referenced as a matter of discretion for restricted discretionary activities. Rule 15.12 of the PWDP outlines the matters to be addressed as part of a liquefaction risk assessment. The provision refers to Chapter 15 in its entirety. Chapter 15 is not solely related to liquefaction risk. Specific reference to Rule 15.12 is required for the purposes of avoiding doubt and providing greater clarity to future resource consent applicants.	Liquefaction	0	Multiple provisions	V2