



**To Tauranga City Council**

Name of submitter: Jo Horrocks

Company: Toka Tū Ake EQC

This is a submission on the following proposed change to the Tauranga District Plan:  
**Plan Change 33 – Enabling Housing Supply**

I could not gain an advantage in trade competition through this submission.

I am not directly affected by an effect of the subject matter of the submission that

(a) adversely affects the environment; and

(b) does not relate to trade competition or the effects of trade competition.

**The specific provisions of the proposal that my submission relates to are:**

Section 14H – P2 Medium Density residential Standards

Section 14H – O1 and Planning Map Overlays

Section 8 Natural Hazards and Natural Hazard Overlays

**Our submission is:**

Section 14H – P2 Medium Density Residential Standards – **Amend Qualifying Matters.**

Section 14H – O1 and Planning Map Overlays - **Amend Location of High-Density Residential Zones to avoid natural hazards, including landslides, coastal erosion and coastal inundation, and tsunamis.**

Section 8 and Natural Hazard Overlays – **Amend Natural Hazard rules and overlays to include landslide and tsunami hazards.**

To ensure the resilience and longevity of New Zealand’s urban centres, Toka Tū Ake EQC encourages intensification that is planned appropriately and avoids areas at high risk from natural hazards. As such, we encourage the inclusion of natural hazards as a qualifying matter to limit intensification in areas which are at high risk from natural hazards. These should include flooding, coastal erosion and inundation, and earthquake hazards including liquefaction, ground shaking, land instability, and tsunamis. Climate change will increase the risk of several of these hazards, and these future impacts should be considered to increase the resilience and longevity of developments.

Landslides

Tauranga is at risk of both earthquake and rain-induced landslides, due to the high rainfall, earthquake risk, and steep coastal slopes and cliffs. Tauranga City has a history of landslides, with the intense rainfall event in 2005 being particularly destructive, with a state of emergency declared in Tauranga, 400 people evacuated and multiple houses destroyed by landslides and flooding<sup>1</sup>. As demonstrated by the numerous recent storm-induced landslides in the Wellington and Nelson regions, climate change is likely to increase the frequency and intensity of rainfall events likely to trigger landslides. The Proposed District Plan only considers slope instability in rules for earthworks, based on previous landslides and slope angle shown in the 'slopes and relic slips' overlay. As this overlay does not show landslide hazard susceptibility, it is recommended that landslide susceptibility is mapped with associated risk-based rules. Currently there are no rules for restricting intensification and development within high-hazard areas. Including such rules will preclude inconsistent application of earthworks rules and prevent subdivision and development on slopes prone to failure.

### Coastal Erosion and Inundation

Tauranga is at risk from coastal erosion, coastal inundation, and harbour inundation, which is likely to increase with climate change and sea level rise.

The Proposed Plan Change includes the Flood Hazard Plan Area, which is land lower than 2.3-2.7 m above the NZVD16 datum, and which is at risk of inundation from 50- and 100-year return period storm surges.

The Flood Hazard Plan Area overlaps with an area zoned for high-density residential development in Mount Maunganui, and an undeveloped area zoned for medium-density residential development south of the airport (Figure 1).

While the Proposed Plan specifies that land or finished floor levels of buildings in the Flood Hazard Plan Area must be raised to 2.3 – 2.7 m above the NZVD16, it is preferable to avoid development in areas at risk from inundation. Adding to the inundation risk, these areas have high groundwater (Figure 2), which is affected by tidal movements and can increase the intensity of flooding as floodwater can take longer to drain away.

Flooding and coastal inundation events can have severe negative impacts on residents even when buildings are not structurally damaged. There may be damage to outdoor areas, contaminated flood sediment around and under homes that needs to be removed for health and safety, damaged foundations, raised ground levels from sedimentation that will need to be removed to ensure future resilience, and residences may become inaccessible, with negative consequences for wellbeing. If the risks cannot be reduced to a medium level (as per the RPS), any further development should be avoided, particularly given the coastal location and susceptibility to sea level rise and other coastal hazards.

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<sup>1</sup> [https://hwe.niwa.co.nz/event/May\\_2005\\_Bay\\_of\\_Plenty\\_and\\_Waikato\\_Flooding](https://hwe.niwa.co.nz/event/May_2005_Bay_of_Plenty_and_Waikato_Flooding)

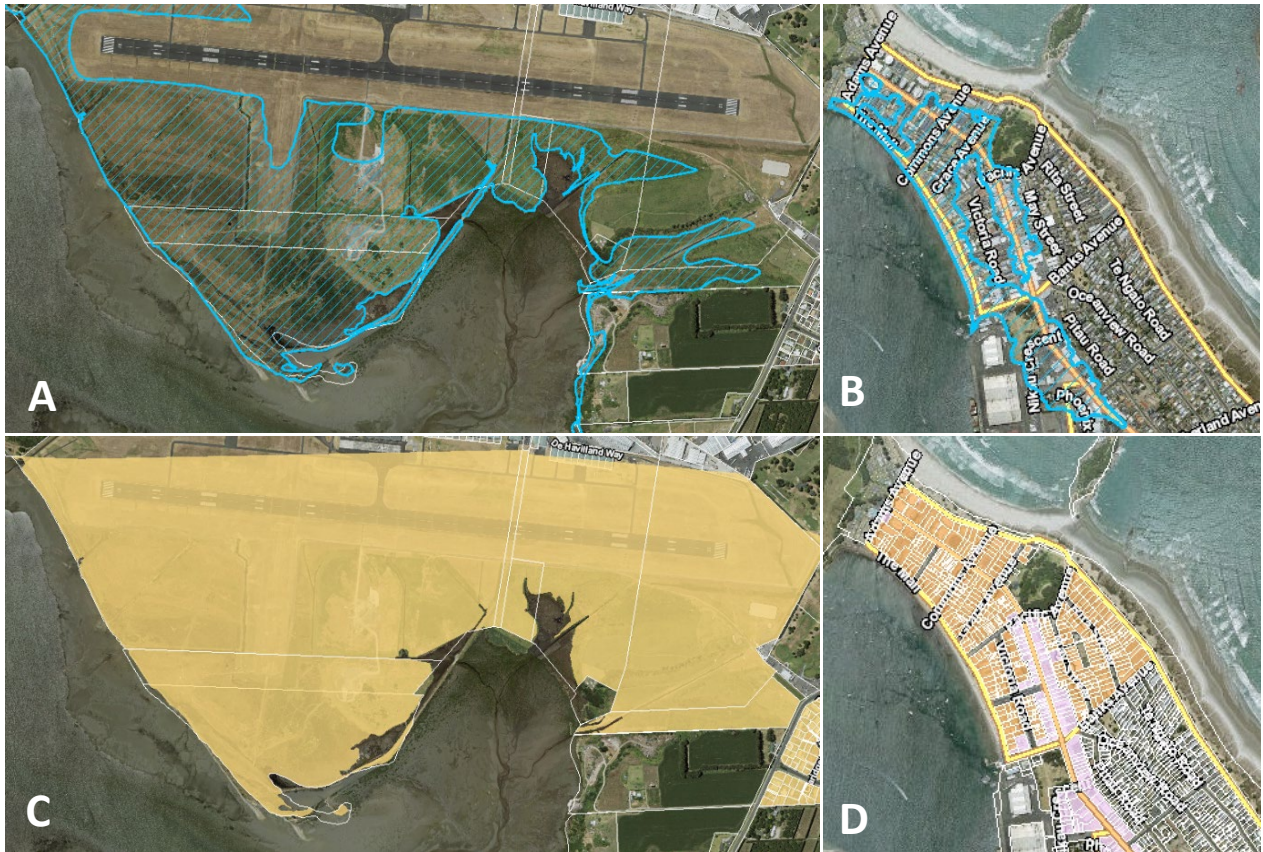


Figure 1: Parts of the Flood Hazard Plan Area (A and B) which overlap with greenfield sites zoned for medium-density residential (C) and High Density residential (D) development.

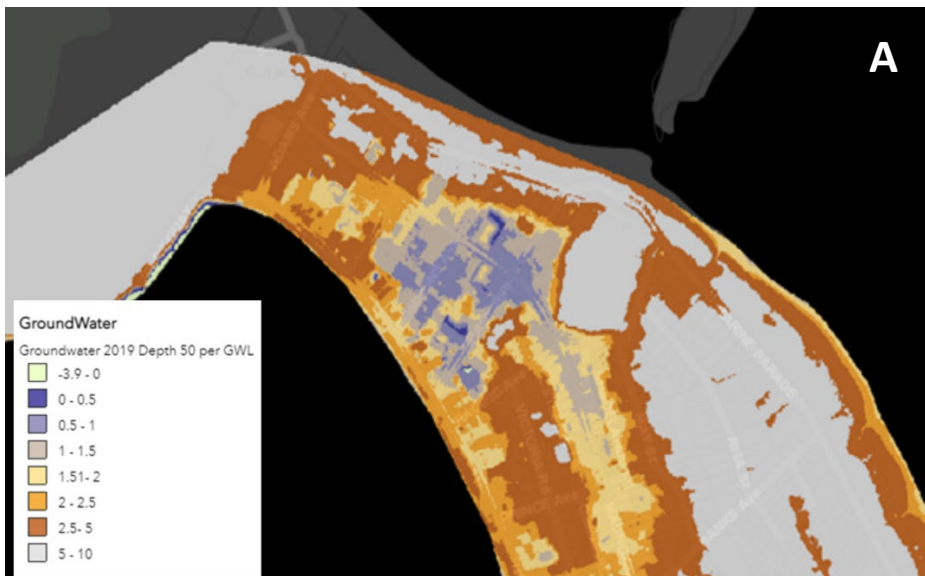
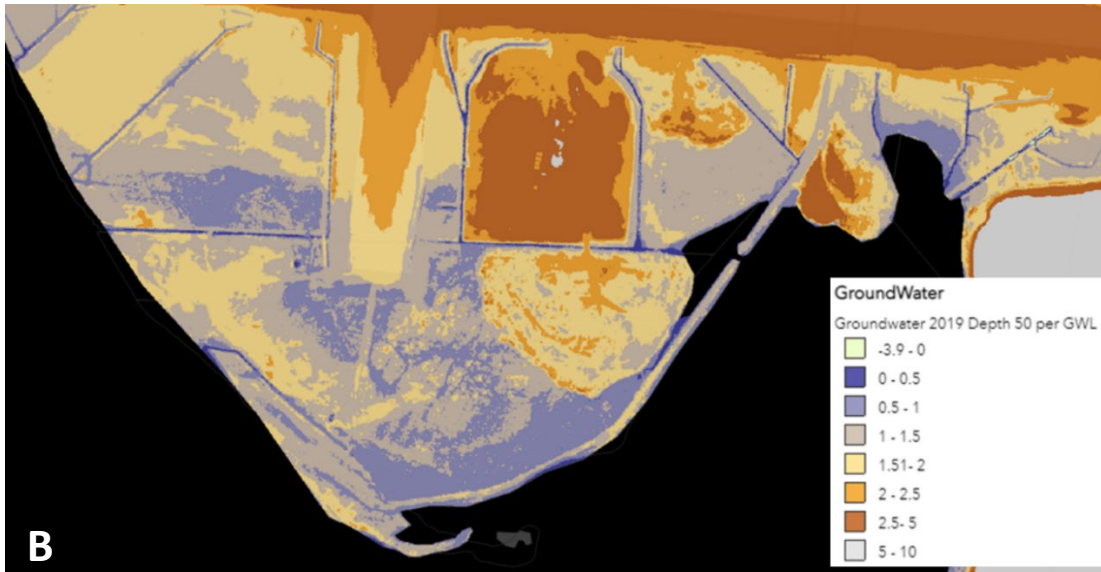


Figure: Depth to groundwater at A) Mount Maunganui, which is zoned for high-density development, and B (next page) the area south of Tauranga airport zoned for medium-density development.



Additionally, the planned High-Density Residential Zone next to Mount Maunganui is threatened by coastal erosion (Figure 3). The current Coastal Hazard Erosion Plan Area (CHEPA) is close to Marine Parade, with the 50- and 100-year Erosion Risk Zones crossing Marine Parade and impacting some residential lots. Even if properties are not directly at risk from coastal erosion in this area, damage to the main road will negatively affect people adjacent to that road. Coastal erosion will also put more properties at risk from inundation from storm surges, which are likely to become more frequent and severe with the impact of climate change. Along with the risk of inundation from the harbour side of this peninsular (Figure 1), the intensification of residential development near Mount Maunganui puts more people in an area at high risk of coastal hazards.



Figure 3: Mount Maunganui suburb which is zoned for high-density residential development, showing Coastal Hazard Erosion Risk Areas crossing Marine Parade. Current risk = red, 50-year risk = yellow, 100-year risk = blue. From Tauranga City Council maps.

High density residential development should be avoided in areas within the Flood Hazard Plan Area or the CHEPA, as it exposes more people to potential coastal inundation. Medium density development of greenfield sites should also only be planned for sites where the risks from hazards can be reduced to a medium of risk (as per the RPS)

### Tsunami

While the risks from flooding, coastal storm surges and liquefaction are largely to property and wellbeing, tsunamis are a low probability, high impact hazard which relies on efficient evacuation of likely inundation areas to save lives. Planned High-Density Residential zones in Mt Maunganui, Arataki, and Papamoa are partially contained within the Bay of Plenty Regional Council's orange tsunami evacuation overlay, so evacuation of most residents will be necessary in the event of a tsunami. Modelling by Knook et al (2015) of tsunami evacuation indicates that residents these suburbs may take from 40 to 60 minutes to reach a safe zone<sup>2</sup>. A local source tsunami caused by an offshore earthquake or volcanic activity (similar to the 2022 Hunga-Tonga Hunga-Ha'apai volcanic tsunami) may take less than 5 minutes to reach shore. In addition, research into evacuation rates in Aotearoa New Zealand found that in 2015 around one third of people did not intend to evacuate or evacuate fast enough, and a similar response occurred in Kaikoura in 2016. Increasing residential density in these vulnerable suburbs will increase the number of people at risk from tsunami in the event of an evacuation.


### **I seek the following decision from the local authority:**

1. That landslide susceptibility is mapped with associated risk-based rules
2. Specify natural hazards, including flooding, coastal inundation, liquefaction, coastal erosion and slope stability as qualifying matters used to limit application of the NPS-UD.
3. Avoid intensification and high-density residential development in areas at high risk of liquefaction, landslides, tsunamis, and coastal inundation.
4. Add liquefaction and landslide natural hazard overlays to the planning maps.
5. Implement rules and policies which limit development and intensification within areas at risk from liquefaction and landslides

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<sup>2</sup> Knook, Patrick, Reuben Hansen, Tom Shand, Nick Russ, Richard Reinen-Hamill, Paul Baunton, Richard Conning, and Calum Nicholson. "Tsunami evacuation modelling and mitigation measures for Tauranga City, New Zealand." In Australasian Coasts & Ports Conference 2015 15-18 September 2015, Auckland, New Zealand. 2015.

**I do not wish to be heard in support of my submission.**

Signature of submitter: 

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Thank you for the opportunity to submit on this plan change.