



SENSE PARTNERS

DATA LOGIC ACTION

Friday 12 May, 2023

From: Kirdan Lees Sense Partners)

To: Emily Thomson (emily.thomson@uhcc.govt.nz)

Responding to natural hazard submissions

Emily,

Thank you for providing Sense Partners with the opportunity to provide some additional context to the submission I understand UHCC have received regarding natural hazard provisions. I note some time has passed since you provided the responses to us. My apologies for not getting back to you sooner.

Where appropriate, we have provided responses to each of the submissions in table 1 that follows. There is some overlap across each response, given there is overlap in some of the submissions.

In general, we note that many of the submissions relate to as inputs to our Cost-Benefit analysis rather than the cost-benefit analysis itself. The inputs with regard to the Mangaroa Peat overlay are clearly a point of difference with submissions. There are differences of view on the reality and feasibility of building on peaty soils and engineering solutions we use as inputs to our CBA.

Our starting point is the provisions. These identify "Mangaroa Peat as being poor ground conditions for new buildings due to settlement of the peat soils". 107 properties are proposed within the Peat overlay.

These form inputs to our cost-benefit analysis. Where these inputs are disputed, engineers are best positioned to provide expert advice on what can reasonably be built on. This relates to the Coffey report that we have used as an input to our analysis.

I also note that some of the arguments are outside the scope of what was intended as a high-level economic assessment.

Please let me know if you would like me to step you through any of the responses, either in a phone call, or a face-to-face meeting at your offices.

Thanks and best regards,

Kirdan

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Table 1: Responding to submissions on natural hazards CBA

Issue raised	Submission	Response
1.	<p>Submissions: [45], [59], [62], [63], [66], [69], [70], [76], [77], [85], [92], [98], [100], [101]</p> <p>The cost benefit analysis needs more work before it can be relied on</p> <p>The cost benefit analysis informing PC47 is unreliable at best and dangerous at worst.</p> <p>It contains material mistakes of fact as regards the peatland (when the peatland was discovered, whether it was ground truthed, and the reality of building on peaty soils and engineering mitigations that can be made).</p> <p>These mistakes of fact lead to assumptions about risk to life and property that make the conclusions unrecognisable from the Mangaroa Peatland community's lived experience.</p> <p>The cost-benefit analysis discounts the impacts of the hazard overlays on the people already living or planning to live in the area in terms of the value to their land, potential future insurability should insurers choose to rely on the hazard overlays in calculating insurance risk, and the risk of exposure to regulatory misfeasance by GWRC.</p> <p>At the same time, the analysis over-estimates the risk of the terrain to the safety of the buildings already built (it implies existing buildings pose a risk to the safety of their occupants, despite those buildings having been consented). The analysis also discounts the feasibility of engineering solutions to mitigate risk for future buildings.</p>	<p>The Cost Benefit Analysis sets out a high-level economic analysis for the overall economic impacts of the proposed provisions. It forms a part of the s32 report rather than the entire s32 report.</p> <p>As such it takes as inputs geotechnical assessments of the reality of the building on peaty soils. We used the geotechnical assessment provided by Coffey 2020. This report has been ground-truthed by site visits.</p> <p>The submission raises the question of how to think about insurance and land value. If risks are present, but not currently priced, then insurance increases options to manage risks. The presence of insurance does not change the underlying risk.</p> <p>We have treated any regulatory misfeasance by GWRC as out-of-scope.</p>
2.	<p>Submissions: [45], [59], [60], [62], [63], [66], [69], [70], [76], [77], [85], [92], [98], [100], [101]</p> <p>The cost benefit analysis needs more work before it can be relied on</p>	<p>Risk analysis requires assessing not just the risk, but the value at risk under any assessment. Components Any risk identified to land or property might be expected to lower land values. We have no insight with regard to why insurance might be mispriced.</p>



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	<p>The cost-benefit analysis discounts the impacts of the hazard overlays on the people already living or planning to live in the area in terms of</p> <ul style="list-style-type: none"> - the value to their land, - potential future insurability should insurers choose to rely on the hazard overlays in calculating insurance risk, and - the risk of future land use restrictions imposed by GWRC - the feasibility of engineering solutions to mitigate risk for future buildings <p>At the same time, the analysis over-estimates the risk of the terrain to the safety of the buildings already built (it implies existing buildings pose a risk to the safety of their occupants, despite those buildings having been consented).</p>	<p>We rely on the assessment of others that Mangaroa Peat provides poor ground conditions for new buildings.</p> <p>It is possible that future engineering solutions might become available. But it is beyond the scope of our high-level analysis to speculate on what these building solutions might be and how they mitigate impacts.</p> <p>Our starting point for the analysis is Our starting point is provisions that identify Mangaroa Peat as having poor ground conditions for new buildings due to settlement of the peat soils. 107 properties are proposed within the Peat overlay.</p>
3.	<p>Submission: [88]</p> <p>The PC47 cost benefit analysis provided by UHCC is misguided, has been based on inadequate assumptions and is not robust or factual.</p> <p>What is presented in the PC47 UHCC cost benefit analysis is inaccurate, unreliable and if exhibited actually dangerous as it discounts the implications of the proposed hazard maps and disregards the accepted, regulated current day engineering practice for mitigating these hazards.</p> <p>The misguidedness and errors discredit the UHCC and lead to poorly qualified assumptions regarding risk to life and property that are contradictory to the ground-truthed history that 5 has been observed by the long-term residents of Katherine Mansfield Drive/Mangaroa Peatland community.</p> <p>The cost-benefit analysis discounts the impacts of the hazard overlays on the people already living (or planning to live in the area) regarding their connection to and guardianship of the land, current and future land value, the potential future insurability should insurers choose to rely on the inaccurate hazard overlays in</p>	<p>Our CBA relies on assessment of others on the ground conditions provided by Mangaroa Peat soils.</p> <p>We take these assessments as inputs for the cost-benefit analysis. The cost-benefit analysis will be conditional on the quality of the inputs.</p> <p>Our cost-benefit analysis assesses potential economic costs for a new set of natural hazard policies included in plan change 47. In particular NH – P5 NH- Hazard Sensitive and Potentially Hazard Sensitive Activities within the Mangaroa Peat Overlay – is relevant.</p> <p>That identifies Mangaroa Peat as having poor ground conditions for new buildings due to settlement of the peat soils. 107 properties are proposed within the Peat overlay. These policies could provide a revised consenting process.</p> <p>We have not included any assessment on the impact of connection to the land. Qualitative methods might be used to make these assessments but they are beyond the scope of our high level analysis.</p>



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	<p>calculating insurance risk, and the significant risk of exposure to regulatory misfeasance by GWRC.</p> <p>The cost benefit analysis further over-estimates the risk of the terrain implying that risk imposed by existing buildings on the safety of their occupants is now greater, despite the buildings going through the rigorous building consenting process. This and that the cost benefit analysis discounts the feasibility of accepted and regulated engineering solutions to mitigate risk for future buildings erodes the engineering fundamentals that were and are incorporated in to foundation and building designs and undermines engineers throughout New Zealand (and overseas).</p>	<p>We have treated any regulatory misfeasance by GWRC as out-of-scope.</p> <p>It is possible that future engineering solutions might become available. But it is beyond the scope of our high-level analysis to speculate on what these building solutions might be and how they mitigate impacts.</p>
4.	<p>Submission: [51]</p> <p>Missing impact analysis from the insurance industry</p> <p>During earlier consultations for the other hazard areas concerns were raised regarding the impacts on property values etc. These same concerns apply to the High Slope hazard. However, it appears UHCC made no effort to consult the insurance industry as to the impact of the plan on insurance premiums or cover.</p> <p>Although touched on in the "Scale and Significance Evaluation", Factor 4, item (71) and "Quantification of Benefits and Costs" where it scored high, the expected economic cost associated with increased insurance premiums or not being able to obtain insurance cover has not been detailed in section 10 as stated or covered in the cost benefit analysis.</p> <p>There also appears to be no plan to mitigate the economic risk which as can be seen in the revised cost benefit shows that the financial impact from this could be considerable.</p> <p>Incomplete Cost Benefit High Slope Hazard</p> <p>The only benefit identified in the cost benefit analysis for the High Slope Hazard is a saving of \$393,087 associated with preventing the destruction of one house out of 30</p>	<p>The submission raises the question of how to think about insurance and land value. If risks are present, but not currently priced, then insurance increases options to manage risks. The presence of insurance does not change the underlying risk.</p> <p>We cannot speak to any efforts on consulting the insurance industry.</p> <p>The cost-benefit analysis seeks to evaluate – at a high level – the costs and benefits from the full suite of natural hazard policies in Plan Change 47 versus the status quo. We do not evaluate separate policies to mitigate economic risk. Nor do we take a stand on who should pay.</p> <p>The submission raises the question of how to think about insurance and land value. If risks are present, but not currently priced, then insurance increases options to manage risks. The presence of insurance does not change the underlying risk.</p>



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	<p>possible new builds over the next 20 years. The only cost identified is increased construction costs of \$150,000 over 20 years for 30 properties or \$5000 per property.</p> <p>Therefore, the projected cost benefit is a saving of \$243,087 over 20 years. Most likely this cost saving has already been spent on producing the report.</p> <p>Despite the absence of a natural hazards policy, no danger to existing properties in the High Slope hazard area has been identified.</p> <p>What is concerning is that the cost to affected properties or Upper Hutt as a whole from potential insurance impact has been completely ignored. A property which is unable to be insured risks a significant drop in property value while properties identified as being in a hazard zone can similarly expect to drop in value.</p> <p>Also not costed is the impact on insurance premiums that are bound to increase for the properties in a hazard zone. Neither has the loss of rates due to reduced rateable values been costed nor the rate increase required to make up for this loss.</p> <p>Amended Cost Benefit Analysis</p> <p>The cost benefit only identifies three key costs: (i) increased costs of construction, (ii) foregone development and (iii) underutilised infrastructure.</p> <p>For this submission, the cost benefit has been updated only for the High Slope hazard to include:</p> <ul style="list-style-type: none"> • Economic value destroyed <ul style="list-style-type: none"> ○ With the various hazard areas implemented, there will certainly be an impact on either insurance premiums or insurance cover. ○ It is estimated that the average drop in property value per affected property is around 25% or an average of \$200,000¹ per property. The estimated drop in value of properties that can no longer obtain insurance is estimated to be 80% or an average of \$640,000 per property. 	



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	<ul style="list-style-type: none"> ○ A drop of 25% for the 3247² properties affected by the High Slope Hazard Overlay will result in a \$649,400,000 economic value destroyed. A drop of 80% for an estimated 10 properties results in \$6,400,000 value destroyed. ○ Total economic value destroyed is \$655,800,000. <ul style="list-style-type: none"> • Increased insurance premiums <ul style="list-style-type: none"> ○ Following the Kaikoura earthquake, the average insurance premium in Upper Hutt increased approximately 25% ³ It is estimated that the average insurance premium for properties affected by the High Slope Hazard Overlay will increase by 25% or \$800 per property. ○ For this hazard alone, the total cost will be \$2,597,600 in increased insurance premium fees. • Rates forgone <ul style="list-style-type: none"> ○ With \$655,800,000 total economic value destroyed because of the High Slope Hazard Overlay, the loss in rates will be \$2,130,843 per year for Upper Hutt and \$761,157 per year for the Greater Wellington Regional Council. ○ For this hazard alone the total rates forgone is \$2,892,000 per year in reduced rates take. ○ Obviously, the loss of rates will be even bigger once the impact from the other two hazards is included. ○ At this stage it is unknown by how much rates will have to be increased to make up for the shortfall. <p>Reference:</p> <ol style="list-style-type: none"> 1. QV values dated October 2022 2. UHCC Planning input 3. AMI insurance premium increase 2017 	



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5.	<p>Submission: [47]</p> <p>Coffey report does not incorporate or examine the peatland.</p> <p>Coffey did not incorporate the Mangaroa Peatlands in their report with the exception of a few isolated patches on the western boundary of the Whitemans Valley block around part of the extent of Katherine Mansfield Drive.</p> <p>Coffey does lay out the soil types and conditions needed for liquefaction to occur and peat soils do not meet those conditions.</p> <p>The Cost Benefit Analysis makes the following inaccurate statement:</p> <p>2.3. Mangaroa peatlands. The geotechnical assessment carried out by Coffey Geotechnical Engineers has identified a “swamp / peat area” in Whitemans Valley. The soil in this area is expected to be soft and organic rich which may result in ground settlement. This hazard may occur even in the absence of an earthquake. This is the first inclusion of peatlands as an identified hazard with implications for land use.</p> <p>It is concerning that a report commissioned by UHCC is incorporated into PC47 with the implication that its content is accurate.</p>	<p>On reflection, our CBA overstates the extent to which we use the Coffey paper.</p> <p>We build up a picture of the risks based on the proposed coverage. That identifies Mangaroa Peat as having poor ground conditions for new buildings due to settlement of the peat soils. 107 properties are proposed within the Peat overlay.</p> <p>This input forms the extent of our input. Then we augment the risks associated with building on poor ground conditions from four main sources: (i) Beaumont 2021; (ii) EQC: https://www.eqc.govt.nz/assets/Publications-Resources/What-are-reinforced-soil-cement-rafts-Factsheet.pdf; (iii) Mahmood et al. 2016; and Pelsma et al. 2020.</p> <p>We then take direction on applying hazard risk from Saunders, W S A, J G Beban, and M Kilvington, 2013, “Risk-based land use planning for natural hazard reduction, GNS Science Miscellaneous Series 67, September.</p>
6.	<p>Submission [47]</p> <p>Cost Benefit analysis is poorly constructed and contains erroneous data, assumptions and conclusions.</p>	<p>We are cognisant of the alternative estimates that are possible for a number of the parameters in the cost-benefit analysis. We choose to highlight these possibilities by directly referencing these uncertainties.</p>



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	<p>This analysis carries the hallmarks of inadequate research, incorrect assumptions and commencing with a conclusion and then looking for the facts to fit.</p> <p>The report says: Benefits exceed costs for the Mangaroa Peatlands • There are a range of uncertainties. Costs include higher construction costs for new builds and the potential for foregone development opportunities. • Benefits include lower settlement risk and reduced risk exposure to properties in the identified hazard area. We find benefits likely outweigh costs.</p> <p><i>There are a range of uncertainties – translation – we have no idea which way is up.</i></p> <p>The report says: Benefits exceed costs for the Mangaroa Peatlands • There are a range of uncertainties. Costs include higher construction costs for new builds and the potential for foregone development opportunities. • Benefits include lower settlement risk and reduced risk exposure to properties in the identified hazard area. We find benefits likely outweigh costs.</p> <p><i>A random claim with no supporting evidence. Makes the assumption that earlier builds have dodgy foundations. What development opportunities are we talking about – when, where, how much???</i></p> <p>The report says: Benefits exceed costs for the Mangaroa Peatlands • There are a range of uncertainties. Costs include higher construction costs for new builds and the potential for foregone development opportunities. • Benefits include lower settlement risk and reduced risk exposure to properties in the identified hazard area. We find benefits likely outweigh costs.</p> <p><i>There are no benefits because no risk was present to begin with.</i></p>	



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	<p>Mangaroa peatlands – A new peatland has been identified which is expected to provide poor ground conditions for development.</p> <p><i>Words fail me – the peatland has been common knowledge for over 170 years. It is not new!!</i></p> <p>The report says: The benefits to hazard management are primarily in the form of reduced risk to life.</p> <p><i>There is currently no risk to life therefore there is no benefit.</i></p> <p>The report says: The impact of the slow settlement of the Mangaroa peatlands does not put lives at risk. Instead, the impact over time on property could prove large.</p> <p><i>This effectively negates the concept of risk to life. The impact on property is equally likely to be zero.</i></p> <p>The report says: 2.3. Mangaroa peatlands The geotechnical assessment carried out by Coffey Geotechnical Engineers has identified a “swamp / peat area” in Whitemans Valley. The soil in this area is expected to be soft and organic rich which may result in ground settlement. This hazard may occur even in the absence of an earthquake. This is the first inclusion of peatlands as an identified hazard with implications for land use.</p> <p><i>Coffey report clearly states that they did not survey the swamp. Their nearest survey point was in Whitemans Valley Road, over the ridge to the east of the swamp.</i></p> <p>The report says: The peatland overlaps the Mangaroa ponding area and overflow path identified as natural hazards in the operative district plan. These reflect the risk</p>	



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	<p>of flood posed by the nearby Mangaroa river. This means that part of the proposed peatland overlay is already subject to resource consent requirements.</p> <p>Considering this, the additional cost to implementing the proposed peatland overlay may be small.</p> <p><i>This overlap area is less than 10% of the total peatland area and cannot be extrapolated to produce any meaningful conclusion. The area considered contains no existing dwellings and is currently zoned farmland with that zoning remaining unchanged in proposed PC50.</i></p> <p>The report says: Mangaroa Peatlands Assessing the extent of development in Mangaroa, in the absence of Natural Hazard policies is one of the critical questions for the cost-benefit analysis. On the one hand, the area represents low-cost land that is in principle near to the city centre.</p> <p><i>Which planet is the report author on?? They subsequently state that the area was not included in the 2019 HBA but clearly failed to ask themselves why??</i></p> <p>The report says: In terms of volume, the Housing and Business Assessment 2019 identified potential capacity for Mangaroa at between 243-274 additional dwellings over the period 2017 to 2047.</p> <p><i>Query where in Mangaroa. Not the peatlands. This comment demonstrates a total lack of local knowledge on the part of the author.</i></p>	