

BEFORE TAUPŌ DISTRICT COUNCIL

IN THE MATTER OF the Resource Management Act 1991 ('the Act')

AND

IN THE MATTER OF of an application for a Proposed Plan Change 37 Nukuhau

**SUMMARY STATEMENT FOR HEARING BY GEOFFREY BURNETT FARQUHAR
ON BEHALF OF TAUPŌ DISTRICT COUNCIL**

Date: 9 November 2021

QUALIFICATIONS AND EXPERIENCE

1 My qualifications and experience are set out in my Evidence-in-Chief.

CODE OF CONDUCT

2 I have read the Code of Conduct for Expert Witnesses outlined in the Environment Court's Consolidated Practice Note and have complied with it in preparing this evidence. I also agree to follow the Code when presenting evidence. I confirm that the issues addressed in this brief of evidence are within my area of expertise and that I have not omitted to consider material facts known to me that might alter or detract from my opinions.

BACKGROUND

3 I have prepared or contributed to the following document:

- Geotechnical Peer Review, GHD letter to Taupō District Council, 9 April 2020

4 In my Evidence-in-Chief I provided comments on:

- a) Sufficiency of investigations undertaken to characterise the geomorphology and geotechnical characteristics of the land.
- b) Sufficiency of work undertaken to identify and assess geotechnical constraints and the range of natural hazards that may affect the land and constrain residential development.

5 In my evidence I also provided comment on the submissions of:

- a) Thomas Hendricks
- b) Tukairangi Trust - Peter Marshall
- c) Waikato Regional Council
- d) Lakes & Waterways Action Group Trust - Jane Penton

6 I noted in my evidence that I would undertake a site visit prior to the Hearing. I have been unable to do that due to travel restrictions across the Auckland Covid-19 Alert Level 3 boundary.

7 This summary statement is based on the above documents (although it does not replace them), along with consideration of the following:

- Evidence-in-Chief of Ian Keith Hugh Gray (Geotechnical)

COMMENTS ON IAN GRAY'S EVIDENCE

- 8 I concur with Mr Gray's conclusions that:
- a) All sites within the PC37 area would be generally suitable for residential development from a geotechnical perspective.
 - b) Observed areas of immediate concern have been highlighted and will need to be addressed during the civil design stage at the time of subdivision.
 - c) Further unsuitable areas and or soils may be encountered during subdivision development and consideration should be given to this during the civil design stage.

OTHER COMMENTS

- 9 I wish to comment further, from a natural hazard risk perspective, on stormwater management with respect to the gullies on site, i.e. with respect to erosion of pumice soils and the potential for tomo formation.
- 10 In commenting I have referred to stormwater management in gullies where the topic is addressed in the following:
- a) Submission 43, Hannah Craven on behalf of Waikato Regional Council
 - b) Evidence of Cheryl Louise Cleary (Planning), dated 20 October 2021
 - c) Evidence of Warren Stanley Bird (Stormwater), dated 20 October 2021
 - d) Planning Evidence of Hannah Craven for the Waikato Regional Council, dated 27 October 2021
 - e) Evidence of Jon Palmer for the Waikato Regional Council, dated 27 October 2021
 - f) Summary Statement and Reply Evidence of Cheryl Louise Cleary (Planning), dated 5 November 2021
 - g) Reply Statement of Evidence of Warren Stanley Bird (Three Waters), dated 5 November 2021

- 11 I note Waikato Regional Council's (WRC) opposition to realignment and modification of the natural gully systems, and WRC's strong support for careful management of stormwater (WRC's submission¹ and the evidence of both Hannah Craven² and Jon Palmer³).
- 12 Warren Bird for the applicant supported a Gully Management Plan⁴ as a suitable mechanism for establishing which Nukuhau gullies warrant protection and for those that do, which activities are permissible, and which activities are inadvisable.
- 13 Jon Palmer for WRC supported the use of the natural gullies for the purposes of stormwater reserve if robust erosion and sediment control practices are used and Taupō District Council adopts a formalised Gully Management Plan⁵. Mr Palmer makes recommendations for the actions in a Gully Management Plan⁶.
- 14 I agree with Mr Palmer's assessment of the formation of the Nukuhau gullies, the erosion processes that exist, and the risks for erosion and potential for tomo formation once land development occurs and stormwater patterns change.
- 15 Cheryl Cleary, for the applicant, proposed amendments to address WRC's concerns and to manage the risk of erosion and flooding in the gully system⁷. Ms Cleary agrees to but modifies later amendments proposed by WRC through Ms Craven⁸.
- 16 Warren Bird does not refer to the Gully Management Plan in his reply statement of evidence⁹ but addresses the Structure Plan Area rule changes proposed by WRC through Hannah Craven.
- 17 I support the proposal for a Gully Management Plan.
- 18 The Gully Management Plan could be left to subdivision consent stage or included in the PC37 provisions. I prefer the latter approach as I consider there to be significant benefit to managing natural hazard risks by having an overall master plan for stormwater management of the gullies. Not having a plan will increase natural hazard risk in the gullies and possibly in adjacent land.

¹ Submission 43, Hannah Craven on behalf of Waikato Regional Council

² Planning Evidence of Hannah Craven for the Waikato Regional Council, dated 27 October 2021, paragraphs 7 & 8

³ Evidence of Jon Palmer for the Waikato Regional Council, dated 27 October 2021, paragraphs 13 to 16

⁴ Evidence of Warren Stanley Bird (Stormwater), dated 20 October 2021, paragraph 56

⁵ Evidence of Jon Palmer for the Waikato Regional Council, dated 27 October 2021, paragraph 14

⁶ Evidence of Jon Palmer for the Waikato Regional Council, dated 27 October 2021, paragraphs 36 to 39

⁷ Evidence of Cheryl Cleary (Planning), dated 20 October 2021, paragraph 35

⁸ Summary Statement and Reply Evidence of Cheryl Louise Cleary (Planning), dated 5 November 2021, paragraphs 33 to 39.

⁹ Reply Statement of Evidence of Warren Stanley Bird (Three Waters), dated 5 November 2021

- 19 A Gully Management Plan would apply before any works are commenced on the land. It would provide an effective and cohesive template for stormwater management where subdivision development of the land occurs in stages. It would allow stormwater management on individual stages to fit into a master plan so that by the time the last portion of land is developed there are no constraints imposed by practice or development on an earlier stage.
- 20 Overall stormwater flow patterns relate to what happens both upstream and downstream. When stormwater doesn't work well the effects are usually exacerbated at the downstream end where flows are at their maximum as illustrated in Jon Palmer's evidence. Effects on adjacent downstream and discharge points need to be managed.
- 21 The criteria for a Gully Management Plan are outside my area of expertise. I am not aware of a similar Gully Management Plan that has been developed elsewhere that could be followed in developing a plan. The form of the plan can be agreed between WRC and the applicant.

CONCLUSIONS

- 22 I consider the geotechnical information provided to support the Private Plan Change satisfactorily demonstrates that the land is suitable for residential / urban development.
- 23 I consider that sufficient investigations and assessment have been performed to adequately identify the geotechnical hazards and constraints in developing the land.
- 24 I consider that those constraints can be addressed through further geotechnical investigation and assessment, and engineering controls and land engineering works at subdivision stage, as per industry practice and as set out in the Outline Development Plan submitted with the Plan Change.
- 25 Earthworks anticipated with development are not anticipated to be inappropriate in terms of typical urbanisation of greenfield areas.
- 26 I support the implementation of a Gully Management Plan in the PC37 provisions to mitigate the risk of erosion and to develop stormwater management in the gullies. The criteria and form of a Gully Management Plan can be agreed between WRC and the applicant.



Geoffrey Burnett Farquhar
9 November 2021