

In the Environment Court
At Auckland

ENV-2021-AKL-000104
ENV-2021-AKL-000105
ENV-2021-AKL-000106

I te Kōti Taiao o Aotearoa
KiTāmaki Makaurau

Between

**TE TAIWHENUA O HERETAUNGA, TE RUNANGANUI O
HERETAUNGA, TE MANAAKI TAIAO O HERETAUNGA AND NGATI
KAHUNGUNU IWI INCORPORATED**

**ROYAL FOREST AND BIRD PROTECTION SOCIETY OF NEW
ZEALAND INCORPORATED and**

THE MĀORI TRUSTEE

Appellants

And

HAWKE'S BAY REGIONAL COUNCIL

Respondent

**REBUTTAL EVIDENCE OF JENS HAYE REKKER ON BEHALF OF HAWKE'S BAY
REGIONAL COUNCIL**

Geology

23 November 2023

**SIMPSON
GRIERSON**

Matt Conway / Gemma Plank

T: +64-4-499 4599

matt.conway@simpsongrierson.com

gemma.plank@simpsongrierson.com

PO Box 2402 Wellington

CONTENTS

	PAGE
1. INTRODUCTION	1
2. CONCERNS ASSOCIATED WITH THE NATURAL CHARACTER SCREENING CRITERIA	2
3. CONCERNS ASSOCIATED WITH THE GEOLOGY SCREENING CRITERIA.....	3
4. REQUEST BY FOREST AND BIRD TO INCLUDE NGARURORO RIVER FOR BRAIDED RIVER NATURAL FORM AND CHARACTER.....	4
5. REQUEST BY TTOH TO RECOGNISE WATER BODIES FOR OUTSTANDING GEOLOGY VALUES	6
6. CONCLUSION	7

ATTACHMENTS:

Appendix A: AERIAL PHOTOGRAPHY OF NGARURORO RIVER

1. INTRODUCTION

1.1 My full name is Jens Haye Rekker and I am Principal Hydrogeologist with Kōmanawa Solutions Ltd working on behalf of the Hawke's Bay Regional Council (**HBRC** or **Council**) to prepare geology evidence in relation to Proposed Change 7 to the Hawke's Bay Regional Resource Management Plan (**PC7**). My expertise is set out in my Statement of Evidence dated 11 August 2023.

1.2 I confirm that I have read the Code of Conduct for Expert Witnesses contained in the Environment Court Practice Note 2023 and that I agree to comply with it. I confirm that I have considered all the material facts that I am aware of that might alter or detract from the opinions that I express, and that this evidence is within my area of expertise, except where I state that I am relying on the evidence of another person.

1.3 This statement of rebuttal evidence responds to the evidence filed by:

- (a) Mr Thomas Kay (geology) for Royal Forest and Bird Society of New Zealand Incorporated (**Forest and Bird**) dated 1 September 2023; and
- (b) Mr Maurice Black (planning and cultural) for Te Taiwhenua o Heretaunga (**TToH**) dated 28 August 2023.

1.4 In addition to the above evidence, I have reviewed the following statements in preparing this geology evidence for the Council:

- (a) Dr Andrew Hicks, evidence in chief (ecology), dated 11 August 2023;
- (b) Dr Greg Ryder, evidence in chief (ecology), dated 11 August 2023;
- (c) Antoine Coffin, evidence in chief (spiritual and cultural values), dated 11 August 2023;
- (d) Rob Greenaway, evidence in chief (recreation), dated 11 August 2023;
- (e) Belinda Harper, evidence in chief (planning), dated 11 August 2023;
- (f) Joint Witness Statement (geology), dated 9 October 2023;
- (g) Joint Witness Statement (ecology), dated 10 October 2023;
- (h) Joint Witness Statement (cultural and spiritual), dated 11 October 2023;

- (i) Joint Witness Statement (planning), dated 16 October 2023;
- (j) Rebuttal statement of Dr Andrew Hicks, dated 23 November 2023;
- (k) Rebuttal statement of Antoine Coffin, dated 23 November 2023; and
- (l) Rebuttal statement of Rob Greenaway, dated 23 November 2023.

1.5 I have reviewed the memorandum of Belinda Harper (Planner for Hawke’s Bay Regional Council) circulated on 26 October 2023 setting out questions to assist with potential amendments to framework, and the responses to that memorandum from Royal Forest and Bird Protection Society of New Zealand Inc., and Genesis Energy.

1.6 In the process of finalising my evidence I have read the rebuttal statement of Mr Black dated 22 November 2023, and from a preliminary reading I have not seen anything that would change my opinion as represented in this statement. I will give this further consideration prior to the hearing.

1.7 My rebuttal evidence addresses the following matters:

- (a) Concerns associated with the natural character screening criteria;
- (b) Concerns associated with the geology screening criteria in the PC7 framework;
- (c) The inclusion of the Ngaruroro River as an outstanding water body for braided river character; and
- (d) The request by TToH for water bodies to be included for outstanding geology values.

2. CONCERNS ASSOCIATED WITH THE NATURAL CHARACTER SCREENING CRITERIA

2.1 In Mr Kay’s view the natural character screening criteria is flawed insofar that all braided rivers in Hawke’s Bay are excluded¹ given they are not located within ‘largely indigenous landscapes’ as required by List A(a) of this value set.

¹ Statement of Evidence of Thomas Kay, at [28].

2.2 In my opinion, the scope of the landscape environs and riparian margins are open to interpretation. Braided rivers are often formed within flights of river terraces, which is very common in the national context, and these could be considered to define the landscape and riparian margins. Thus, a braided river within its own terrace bluffs is an amphitheatre framing the landscape and riparian context. Accordingly, I disagree that the relevant landscape for assessing a braided river under List A will necessarily encapsulate the wider catchment or landscape including plains and foothills.

2.3 I recommend that in re-drafting the screening criteria for the natural character value set (see Concerns Associated with the Geology Screening Criteria and recommended Natural Form and Character criteria), the scope of riparian margins is defined.

3. CONCERNS ASSOCIATED WITH THE GEOLOGY SCREENING CRITERIA

3.1 In Mr Kay's view the geology screening criteria is flawed insofar that all braided rivers in Hawke's Bay are excluded given none are classified as Class A on the New Zealand Geopreservation Inventory².

3.2 I acknowledge the rigidity of the Geological value set Screening Criteria in terms of List A c) relating to the NZ Geopreservation Inventory. I agree with Mr Kay that all braided rivers in Hawke's Bay would fail to pass through the screening criteria on this basis. I also have little background information on how the feature importance ranking within the Inventory is moderated, standardised, or updated. However, instead of deleting the reference to NZ Geopreservation Inventory, I propose that the reference to the inventory is retained as one matter that may indicate outstanding character, rather than a requirement alongside other matters as it is currently framed in the geology screening criteria.

3.3 I recommend that the geological value set be combined with the natural character value set as follows. Combining the two would ensure that only water bodies with the best geological or natural characteristics are recognised.

² Statement of Evidence of Thomas Kay, at [30] and [31].

Natural Form and Character	Natural Form and Character
	<p>For a water body <u>to have</u> has outstanding natural form and/or natural character values where it must</p> <p>Meets:-</p> <ul style="list-style-type: none"> • At least one matter in List A • all matters in List B <p>List A</p> <p>a) The water body is highly natural with little or no human modification, including to the flow, bed and riparian margins, water quality, flora and fauna, within a largely indigenous landscape.</p> <p>b) The water body is a braided river that is highly natural with little or no human modification, including to the flow, bed and riparian margins, water quality, flora and fauna.</p> <p>c) The water body is classified as Class A on the New Zealand Geopreservation Inventory.</p> <p>List B</p> <p>a) The values are dependent on the water body's condition and functioning.</p> <p>b) The natural form and/or character values are conspicuous, eminent and/or remarkable in the context of the Hawke's Bay Region.</p> <p>c) Evidence is provided in support of outstanding natural character values by way of an expert assessment or independent evidence sources.</p>

4. REQUEST BY FOREST AND BIRD TO INCLUDE NGARURORO RIVER FOR BRAIDED RIVER NATURAL FORM AND CHARACTER

4.1 At paragraph 72 of his evidence, Mr Kay states that Ngaruroro River upstream of Fernhill / Omahu is clearly outstanding in the context of the Hawke's Bay region.

4.2 I now agree with this conclusion, and it is my view the Lower Ngaruroro River meets the Natural Form and Character Value set as detailed above. Of all of the Hawke's Bay region braided rivers (Tukituki, Waipawa, and Tūtaekurī), the Ngaruroro River is outstanding for the geomorphological characteristics of gravel braid river. I draw support for this view from Mr Kay's evidence at paragraph 41, Figure 4 relating to 'variation in the active channel width'; paragraph 43, Table 1; and paragraph 70, Figure 11.

4.3 In addition, I hold a view that gravel braided rivers and other wandering river morphologies merit special consideration due to the unique geological / geomorphological characteristics of such riverine environments. Nationally and in the North Island context, the gravel braided reaches of the Ngaruroro River to Maraekakaho is one of the more notable examples of its type.

- 4.4** Where I disagree with Mr Kay is the reaches of the Ngaruroro River downstream of Maraekakaho, where I find that modification related degradation of the braided river function deprives the river of outstanding status. Based on this, it is my view that this section of the Ngaruroro River does not meet List A(b) of the Natural Form and Character Value set as detailed above. I draw support for this view from reference to recent aerial or satellite photography of the Ngaruroro River course and mapping of river management structures in Appendix A of this rebuttal evidence.
- 4.5** I note that Mr Kay qualifies his support for outstanding status of the Ngaruroro River upstream of Fernhill Bridge / Omaha by saying the river is *particularly (outstanding in the) reach between the Whanawhana Cableway and the top of the HBRC Flood Management Scheme* in paragraph 32 of his statement of evidence. The inference is that Mr Kay considered the reaches downstream of the top of the HBRC flood management scheme were to some extent less outstanding than those reaches upstream of that point.
- 4.6** When considering the outstandingness of gravel braided rivers, one needs to focus on the functional dynamics of the river system to create, repair and sustain the landform in the long-term. River reaches for which the braiding function is lost or compromised would quickly change state to a different morphology, for example the braided river could shift from a multiple braid channel active river to a single channel meandering river while still conveying the same catchment flows.
- 4.7** I consider the outstanding reaches of the Ngaruroro River to be those that retain braided river functioning, including the characteristic water flow, sediment supply and the ability of the braid channels to occupy or shift across the full width of the flood plain.
- 4.8** I also refer to three recent aerial or satellite photographs taken between April 2020 and November 2021 attached in **Appendix A**. The photographs are given geographical and river engineering context in Figure 1. These photographs of affected river reaches downstream of Maraekakaho (Figure 3 and Figure 4) show scarring of the braided river beaches by tracks, berms and gravel extraction panels.

Importantly, in Figure 4 the number of river braids is significantly less than upstream, and the river hugs the north bank of the river for 1.3 kilometres.

- 4.9** Gravel braided rivers are highly dynamic environments, so I infer that following the cessation or substantial de-intensification of gravel extraction disturbance that the affected reaches would return to a more natural condition. This would include the affected reaches of the river returning to more complete river braiding function, such as exhibited by the Ngaruroro River in Figure 2.

5. REQUEST BY TTOH TO RECOGNISE WATER BODIES FOR OUTSTANDING GEOLOGY VALUES

- 5.1** Mr Black states at paragraph 6.25 of his statement of evidence that the Heretaunga Plains Aquifer System is acknowledged as “the most significant groundwater resource in the region”, as quoted from the Regional Resource Management Plan (RRMP) at 3.8.2.

- 5.2** The Issue 3.8.2 relates to water quality and states – “Heretaunga Plains: The most significant groundwater resource Hawke’s Bay is the Heretaunga Plains aquifer system.” Significance in this context is clearly in terms of the size of the groundwater resource, and also the range of beneficial water uses dependent on the Heretaunga Aquifer System, as further expanded on in RRMP 3.8.3. The mention as being a significant groundwater resource does not by itself promote the water body to being “conspicuous, eminent and/or remarkable in the Hawke’s Bay context” for the geological (hydrological) value set as an outstanding water body. The mention in the RRMP is primarily background commentary relating to the Heretaunga Aquifer System being significant in the provision of “high groundwater quality” and “domestic water in Napier and Hastings without treatment” (RRMP 3.8.3).

- 5.3** I understand outstanding water bodies under the PC7 context to be more than merely water resources to be husbanded for water use. Outstanding water bodies in the PC7 context are to be reserved for water bodies standing out at a regional context for particular and regionally rare attributes that have been organised into

value sets under the Screening Criteria for the identification of Outstanding Water Bodies. I acknowledge that the Heretaunga Aquifer System is significant in terms of economic water resource sustaining primary production and human support services (drinking and hygiene), and the cultural significance for tangata whenua.

5.4 At paragraph 10.2 of his evidence, Mr Black states that consumptive or abstractive values should not be considered or categorised as values of an outstanding water body. Mr Black's paragraph 10.2 serves to support the point I make in rebutting his paragraph 6.25 in relation to the Heretaunga Aquifer System. My point could be paraphrased to state that being a significant groundwater resource and available for economic abstraction does not by itself promote the water body to being "conspicuous, eminent and/or remarkable in the Hawke's Bay context" for the geological (hydrological) value set as an outstanding water body. The Heretaunga Aquifer System is highly significant in this role as a renewable water resource, but other water management planning instruments would be more appropriate for its sustainable management, rather than recognition as an outstanding water body for geological or natural character values.

5.5 I acknowledge the support for inclusion in Schedule 25 of the Heretaunga Plains aquifer system, Te Karamū River and Waitangi Estuary for cultural and spiritual matters. These are matters outside of my own expertise.

6. CONCLUSION

6.1 I have addressed matters relating to the statements of evidence of others and geology screening criteria, braided river form and natural character, and the outstanding nature, or otherwise, of aquifer systems in the region. In my opinion, modifications to the geology screening criteria and natural character screening criteria are appropriate, and better reflects the regionally outstanding attributes of Hawke's Bay water bodies. Against this revised criteria, the braided river character

of Ngaruroro River is outstanding, aside from the reaches downstream of Maraekakaho which have been impacted by gravel extraction.

Jens Hays Rekker

Date: 23 November 2023

APPENDIX A: AERIAL PHOTOGRAPHY OF NGARURORO RIVER

Reference

Clode, G; and Baya, J. 2018. Gravel Resource Management. Hawkes Bay Regional Council - Technical Report. Prepared by regional engineering and assets sections of Hawke's Bay Regional Council, September 2018, Napier. ISBN 1174 3085.

Images in Figures 2 – 4 from Google Earth (<https://earth.google.com>)

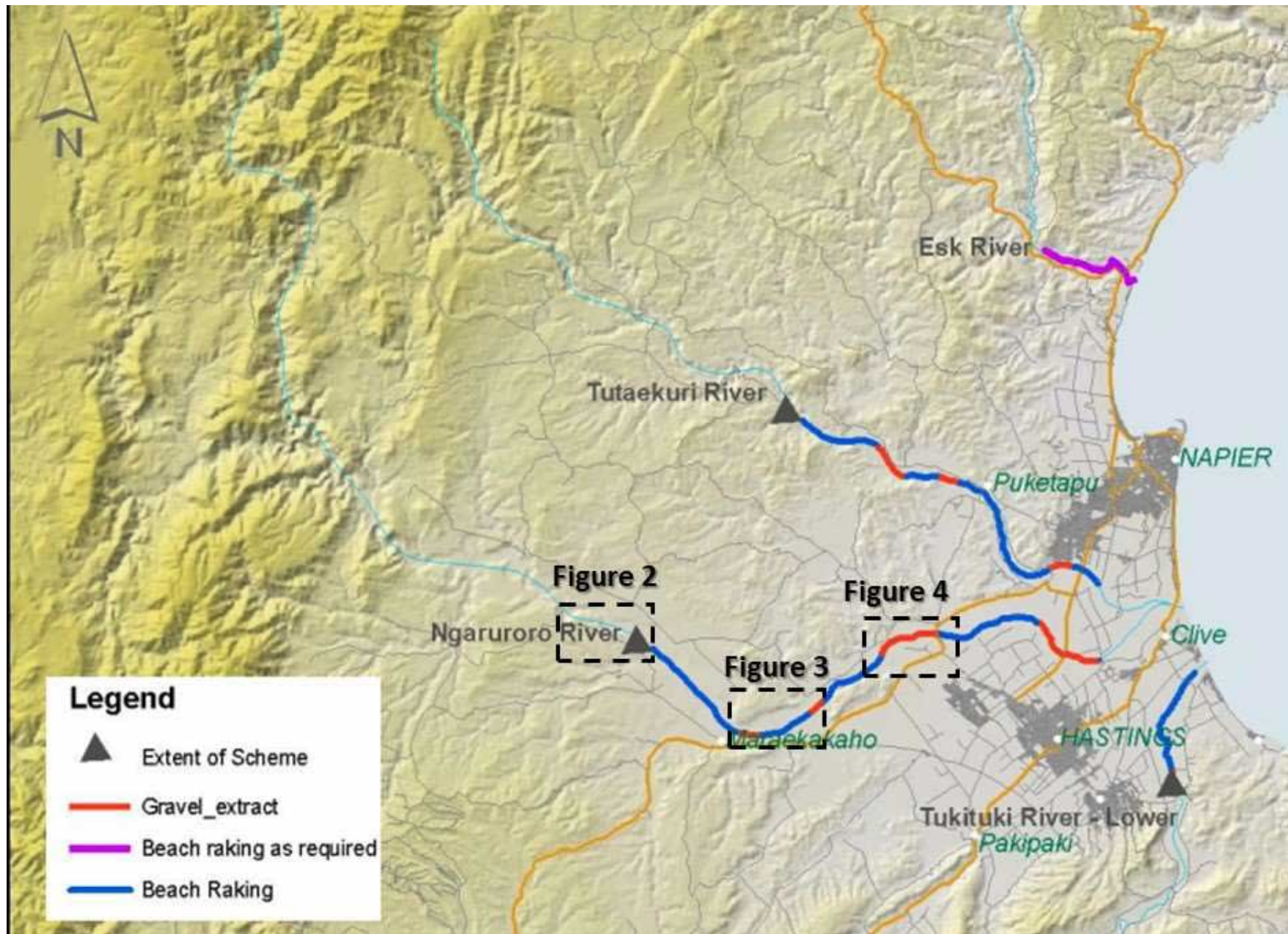


Figure 1 Location of aerial or satellite photographs in subsequent figures. Map also maps reaches of beach raking and gravel extraction along Ngaruroro River (source: Clode & Beya, 2018) 38852075



Figure 2 April 2020 - Example of the Ngaruroro River and floodplain upstream of Maraekakaho, which is not affected by gravel extraction or flood protection works representing ambient state



Figure 3 April 2020 - Upstream reach of Ngaruroro River downstream of Maraekakaho, which are affected by smaller gravel extraction operations



Figure 4 November 2021 - Reach of Ngaruroro River upstream of Omahu / Fernhill, which is affected by larger scale gravel extraction and increasing intensity of flow mitigation works