
Under the Resource Management Act 1991

In the matter of applications:

- LR-2026-113441-00
- LV-2026-113442-00
- LL-2026-113443-00
- WS-2026-113444-00
- DW-2026-113686-00
- DL-2026-113687-00

And **Gisborne District Council (Rivers and Land Drainage)**

Applicant

And **Gisborne District Council**

Consent Authority

Statement of evidence of Andrew Robert Craig

Date: 08/10/2026

Statement of evidence of Andrew Robert Craig

Introduction

- 1 My full name is Andrew Robert Craig.
- 2 I am currently employed at Stantec New Zealand Limited as Technical Director – Flood and Coastal Resilience.
- 3 I stepped in to provide this evidence to the hearing on 29 September in place of Cristian Hadad Westphal who was unable to attend due to illness. I am familiar with the background of the project having discussed the matters raised in Mr Westphal's evidence during his preparation thereof.
- 4 I have a civil engineering degree and over 30 years of experience in hydrology, flood modelling, hydraulic design and flood risk management including major stopbanks and sediment-laden rivers in New Zealand and globally.
- 5 I am supporting the delivery of major stopbanks for Te Awa Kairangi (Lower Hutt), and have previously supported modelling, hydraulic design and consenting matters across many lower North Island projects including:
 - (a) Esk Valley: Silt management option development and modelling following Cyclone Gabrielle;
 - (b) Central Hawkes Bay District: multiple bridge repairs and replacements following Cyclone Gabrielle;
 - (c) Ōpōtiki Bay of Plenty: modelling of options to manage and reduce urban and rural flood risk from the Waioeka and Otara rivers.
 - (d) Ōtaki to North of Levin new State Highway 1: led hydrology, hydraulic modelling and design for multiple 6 waterway bridges and over 80 transverse drainage culverts of varying sizes, through detailed business case, NoR and resource consenting evidence and Principal Technical Advisor.
- 6 I acknowledge that I have read and am familiar with the Environment Court's Code of Conduct for Expert Witnesses, contained in the Environment Court Practice Note 2023, and agree to comply with it.
- 7 My qualifications as an expert are set out above. Other than where I state that I am relying on the advice on another person, I confirm that the issues addressed in this statement are within my area of expertise. I have not

omitted to consider material facts known to me that might alter or detract from the opinions that I express.

Scope of evidence

- 8 My evidence addresses the following flood risk, hydraulic and river engineering matters:
 - (a) river aggradation and accretion, including debris on bridges, and the implications for long term stopbank performance and freeboard;
 - (b) hydraulic and structural effects at the Rangatira Road and Kanakanaia Road bridges, including scour, debris blockage and matters to be addressed during detailed design;
 - (c) the completeness of the assessment of affected properties and the hydraulic characteristics relevant to productive land; and
 - (d) residual flood risk, including overtopping and breach considerations.
- 9 In forming my opinion, I have reviewed the application material, responses to requests for further information, submissions, the Section 42A report and the subsequent expert evidence. I have also relied on information provided by other technical specialists where matters fall outside my area of expertise. The principal documents relevant to my evidence include:
 - (a) Evidence of Mr Westphal;
 - (b) the Consequential Flood Risk Assessment and associated hydraulic modelling information;
 - (c) the geomorphological assessments addressing river bed aggradation and berm and floodplain accretion;
 - (d) the preliminary bridge hydraulic, scour and structural assessments;
 - (e) the applicant's flooding evidence and associated technical attachments;
 - (f) previous technical reviews undertaken by Mr Westphal with my support, on behalf of Council during the consent and submission review process; and
 - (g) the draft condition set available at the time of the hearing, referenced from the hearing website as "S42A-Addendum-Attachment-D-Proposed-Consent-Conditions-Tracked-22-Sep-2026", noting also

that I have not attended any subsequent hearings or meetings regarding the conditions.

- 10 In the sections that follow, I respond primarily to the applicant's subsequent expert evidence and associated technical attachments. Where I state that I agree or disagree with a matter, this should be read as my response to the relevant opinion or conclusion expressed in that evidence, unless I state otherwise.

Hydrological Effects of Climate Change, River Aggradation, Accretion, Debris and Long Term Design Performance

- 11 The selection of the design event is not well articulated in terms of the potential medium to long term performance under anticipated future climate change conditions.
- 12 I agree as submitted by the Applicant that aggradation and accretion do not necessarily invalidate the assessment of incremental flooding effects, provided baseline and proposed conditions are compared on a common basis.
- 13 However, aggradation, together with debris rafts on bridges and climate change effects, all remain relevant to long term design performance. The geomorphic evidence indicates potential channel accretion of approximately 0.30 m to 1.20 m over the next 50 years, together with potentially greater floodplain accretion.
- 14 The evidence confirms that a +1.0 m riverbed sensitivity scenario was considered during the optioneering stage. However, it does not establish how future aggradation has been accommodated in the final design, or whether the adopted 600 mm freeboard is additional to, or inclusive of, any allowance for aggradation concurrently with debris rafts on bridges.
- 15 Given that sensitivity to aggradation was considered relevant during optioneering, I would have expected this sensitivity to also inform the final design assessment, particularly in relation to design flood levels and residual freeboard. The hydraulic response cannot be inferred directly from the nominal aggradation value, as it will depend on resulting changes in channel and floodplain geometry, conveyance and flow distribution.
- 16 The applicant was previously requested to clarify whether debris blockage at the bridges had been represented in the hydraulic modelling and what effect this could have on flood levels and the adopted 600 mm freeboard. The subsequent bridge assessment confirms that debris loading was not assessed and notes that debris could represent a more critical load case. I

therefore consider this matter remains outstanding. In particular, the combined potential effect of debris blockage on upstream design water levels and residual freeboard has not been demonstrated. Given its direct relevance to stopbank design levels and performance, and potentially to offsite effects, I consider these matters should be addressed directly rather than assumed to be accommodated within the uniform 600 mm freeboard.

- 17 It would be preferable to address these matters at consent stage, since changes to the design crest elevation and dry freeboard can have an influence on offsite effects. I recommend that as a minimum they be addressed through an appropriate consent condition requiring adoption of credible combined sediment and debris blockage scenarios during detailed design, with clearer definition of climate change AEP performance, including implications for design flood levels and freeboard. This concept does not yet appear to be addressed in the draft condition set. Nor is the potential recognised that changes to design crest elevation and dry freeboard can have an influence on offsite effects that need to be understood for consent or mitigation pathway and criteria established to provide confidence to offsite affected parties.

Bridge Scour, Structural Capacity and Detailed Design

- 18 From the earlier s92 review, the Applicant advised that detailed bridge scour and foundation assessments would be undertaken during detailed design.
- 19 The subsequent evidence identifies increased scour and structural demands at both bridges and confirms that further assessment is required to establish overall bridge capacity and any strengthening or remediation requirements.
- 20 I recommend a consent condition requiring the relevant bridge scour, foundation and structural assessments to be completed during detailed design and submitted to Council's regulatory team for review, together with details of any mitigation or strengthening required to address effects attributable to the proposed stopbank upgrade. Whilst potentially implied at draft condition 72, this concept does not yet appear to be adequately addressed in the draft condition set.

Flooding effects on productive land

- 21 The evidence provides additional information on flood depths, velocities and hazard at affected properties, but does not fully address the previously identified uncertainty regarding changes in the frequency and duration of inundation of productive land. In my opinion, these are relevant hydraulic

characteristics because the consequences of flooding to productive land may depend not only on maximum depth or velocity, but also on how often inundation occurs, how long it persists, and the potential delayed smothering effects of deposited silt.

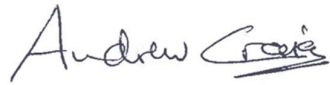
- 22 This issue is reflected in several submissions. Burgess submission describes previous flood damage to a commercial citrus orchard and raises concerns regarding increased velocity, inundation and effects on ongoing orchard viability. The Kenneth and Karen McLanachan submission raises concerns about productive grazing land becoming flood prone and the loss of higher ground currently used to manage stock during flood events. Wi Pere Trust similarly identifies productive land that would become exposed to flooding at lower river levels than under the existing arrangement.
- 23 From a hydrology and hydraulics perspective, I consider that there remains uncertainty regarding the baseline flood regime and the incremental change caused by the proposal, particularly in terms of flood frequency and duration on productive land. This limits the hydraulic information available to characterise the change experienced by affected landowners.
- 24 I am not an expert in agricultural productivity, property valuation or compensation, and therefore do not express an opinion on the resulting effects on farming or horticultural productivity, property value, or any compensation that may be appropriate. Those matters should be considered by appropriately qualified specialists using the available hydraulic information.

Residual Flood Risk, Overtopping and Breach

- 25 The applicant has assessed an overdesign flood event and therefore provides information on residual flooding consequences beyond the design event. However, the specific matters previously raised regarding potential overtopping locations, breach initiation and progression, and the associated flood consequences do not appear to have been assessed in the latest Applicant evidence.
- 26 In my opinion, this leaves uncertainty regarding how the stopbank system may fail and the consequences of such failure. This matter is particularly important giving the relatively low combination of design event and freeboard. I recommend that these matters are addressed through appropriate requirements for detailed design and emergency management, including identification of potential overtopping and breach locations and consideration of the resulting flood pathways and consequences.

- 27 Whilst these matters are partly addressed at draft condition 6, they ought to be assessed prior to construction, as some of the risks may arise or be amplified during various stages construction. There is no reason why the plan cannot be made ready before construction, and implemented in appropriate stages rather than waiting for works to be completed.

Dated 8 October 2026

A handwritten signature in dark ink, appearing to read 'Andrew Craig', with a stylized flourish at the end.

Andrew Robert Craig