Before Gisborne District Council

Under **t**he Resource Management Act 1991 (the **RMA**)

I**n the matter** of applications by Gisborne District Council for resource consents to modify a stopbank at Te Karaka

Statement of rebuttal evidence of Mark Hooker on behalf of Gisborne District Council

Flooding effects

25 September 2026

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Statement of rebuttal evidence of Mark Hooker on behalf of Gisborne District Council

1 Response to submitter evidence

1.1 My qualifications and experience are set out in my statement of evidence in chief (EiC) dated 14 September 2026. I confirm that I have read and will comply with the Code of Conduct for Expert Witnesses in the Environment Court Practice Note 2023. This rebuttal responds to the submitter evidence filed on 21 and 22 September 2026. Paragraph references to my EiC use its numbering. Where I do not respond to a point, that does not mean that I accept it.

Mr Strong (river engineering) on behalf of the JRD and PA Coates Family Trust

1.2 In paragraph 53 of his evidence, Mr Strong notes that the overall optioneering and MCA approach appears sound. In response to his comment that he would have expected to see more information supporting the basis for determining the evaluation criteria, I am able to provide the following information: the assessment criteria were selected to be consistent with those being used concurrently for optioneering on several other flood resilience projects as part of the East Coast Flood Resilience programme of work. These criteria were (and are), in my experience, broadly aligned with criteria that are typically considered in flood risk management optioneering in New Zealand.

1.3 In the same paragraph, Mr Strong considers that additional considerations should have been taken into account when determining optimal alignment, namely:

(a) network vulnerability (potential for riverbank erosion to undermine the stopbank, vulnerability to surficial scour to the riverside face of the stopbank) and

(b) safe operation under over / super design conditions.

1.4 My response to this is that the purpose of the shortlist to preferred option phase of the optioneering is often not to determine the “optimum alignment”. In the case of this project, it was to select from four (in some places markedly) different alignments. Further optimisation of the preferred option alignment then takes place, as indeed it is currently during detailed design; for example, a section of stopbank considered at risk of riverbank erosion has been retreated further from the river for exactly that reason.

1.5 In paragraph 59 of his evidence, Mr Strong expresses concern at the use of flood hazard curves derived in Australia. I reiterate that these curves are adopted in the Water NZ Stormwater Modelling Guide and in my experience are in use by many Councils (and their consultants) around New Zealand, including in recent work on the Esk River in Hawkes Bay. As with many aspects of flood risk management in New Zealand, there are no standardised or universally adopted practices regarding the categorisation of flood hazard.

1.6 Mr Strong states in paragraph 60 of his evidence that maps showing velocity difference and depth difference across the Coates property would be useful. I

have included these below as Figure 1 and Figure 2, respectively. Most of the velocity difference map is blank because the change is less than 0.1 m/s and sits within the “no change” category on the legend.

Figure 1. Design event - change in velocity

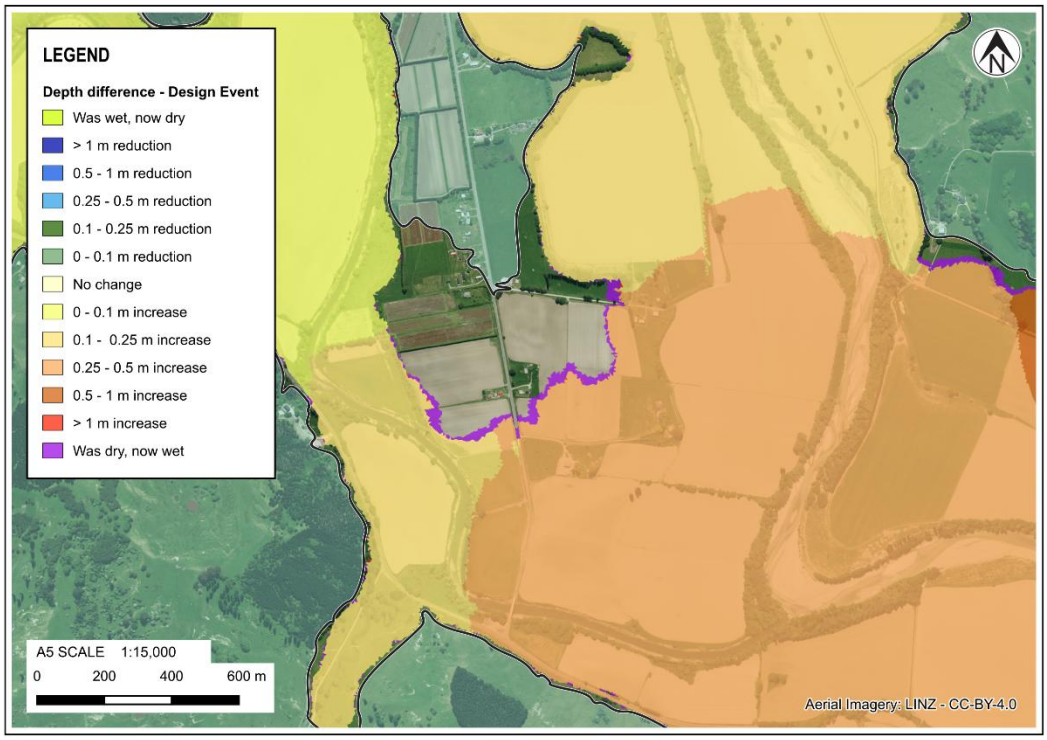

Figure 2. Design event - change in depth

1.7 Landslide dam risk is raised by Mr Strong in paragraph 62 of his evidence. In my experience, landslide dam risk is sometimes considered in flood modelling studies, when there are specific concerns that these have occurred in the past or could occur in the future. I note Mr Strong’s suggestion that this catchment is low risk. I do not address details of the hydraulic modelling in my evidence

(whether landslide dam risk was considered as a sensitivity scenario, or should have been) but I would note that landslide dam breaks are not particularly relevant to the matters at hand here, which are focussed on stopbank optioneering, design and impacts. A large landslide dam break would certainly be considered in the category of overdesign events and in my view does not need to be considered additionally to the 0.2% AEP overdesign event that has already been tested.

Ms T Wilson (103 Kanakanaia Road)

1.8 Ms Wilson has questioned why the stopbank can't be upgraded in place. This is addressed in my EiC, in which I describe the optioneering process that led to a preferred option of a largely retreated stopbank alignment. In summary, the retreated alignment was considered to be better than upgrading in place for reasons that included:

(a) Smaller increase in flood levels for upstream landowners and those on the opposite side of the river;

(b) The retreated stopbanks would require a lower crest height above ground level, thereby reducing the potential consequences associated with stopbank failure;

(c) Less risk to the stopbank from river bank erosion, or less need to invest resources in protecting from this erosion in the future;

(d) Less risk to the bridges; and

(e) A greater floodplain area on which sedimentation can occur in moderate floods, potentially prolonging the useful life of the stopbank.

1.9 I have also been asked by Mr Exeter to comment on potential mitigation options at 103 Kanakanaia Road, for the flooding effect which has been assessed by Mr Exeter as significant.

1.10 I have not visited the property specifically, nor have I developed specific concepts for mitigation at this location. I am, however, able to make the following comments.

1.11 Mitigation options for worsened flooding at this location are limited. They are probably limited to:

(a) Ring banking (a small stopbank around the house),

(b) Flood proofing, and

(c) House raising.

1.12 If technically feasible (the house construction must be suitable) then house raising would be by far the most preferable of these. I understand from GDC officers that the house is considered likely to be suitable for raising.

1.13 Flood "proofing" is not widely used in New Zealand and includes measures that reduce damage or make cleanup/repair easier, but are unlikely to represent a solution to the depths of flooding that may occur at this location. Ring banking is

subject to the “bathtub effect”, whereby the enclosed area fills up rapidly when the ring bank is overtopped, posing a potentially much higher risk to life.

1.14 House raising would need to be combined with suitable flood warning and flood emergency planning to address the risk posed by a large flood to the safety of the house occupants.

Mark Christopher Hooker

25 September 2026