Before the Independent Hearing Panel

UNDER The Resource Management Act 1991 ("Act")

IN THE MATTER of Variation 3 to the Proposed Waikato District Plan

Rebuttal statement of evidence of Matthew Darryl Davis (stormwater) on behalf of Anna Noakes and MSBCA Fruhling Trustee's Company Limited

Dated: 19 July 2023

BERESFORD LAW

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Introduction

1 My full name is Matthew Darryl Davis.

2 My experience and qualifications are set out in paragraphs 1-5 and Annexure One of evidence in chief dated 7 July 2023, prepared on behalf of Anna Noakes and MSBCA Fruhling Trustee's Company Limited in relation to stormwater matters relevant to Variation 3 to the Proposed Waikato District Plan (**PDP**)

3 As set out in paragraph 6 of my evidence in chief, I confirm that although these proceedings are not before the Environment Court, I have read the Environment Court's Code of Conduct for Expert Witnesses and I agree to comply with this code.

4 This statement of evidence is prepared in rebuttal of matters raised in the primary evidence of the following stormwater witnesses and planning witnesses (where they have addressed technical stormwater matters):

(a) Mr Ryan Pithkethley (Engineering and Stormwater) for Havelock Village Limited (**HVL**).

(b) Mr Mark Tolemache (Planning) for HVL.

(c) Mr Phillip Jaggard (Infrastructure) for Kāinga Ora.

(d) Mr Jingesh Patel (Three Waters) for Pokeno West / CSL / Top End (**Pokeno Developers**).

(e) Mr James Oakley (Planning) for Pokeno Developers.

5 I also make reference to the Ms Huls (Planning for Waikato District Council (**WDC**)) and Mr Bordero (Stormwater for WDC) evidence that they prepared to support Variation 3. Further, I reference Waikato Regional Council (WRC) and Waikato Tainui submissions.

6 I confirm that I attended all three sessions of the stormwater expert conferencing held on 11 – 13 July 2023 and that I have taken the matters discussed into account when preparing this rebuttal statement.

7 I address three themes in my rebuttal, all concerning addressing the breadth of stormwater runoff effects on downstream farms and other land uses, and need for explicit planning provisions:

(a) Theme one – Greenfield stormwater matters insufficiently addressed at consent stage (and the need for specific planning provisions regarding downstream farms and other land uses).

(b) Theme three – site size and space for stormwater control measures.

(c) Theme two – flooding versus broader stormwater runoff effects.

Theme one – Greenfield stormwater matters insufficiently addressed at consent stage (and need for specific planning provisions regarding downstream farms and other land uses)

8 Mr Pithkethley (paragraphs 1.7 - 1.10) and Mr Tollemache (paragraphs 1.9-1.11) opine that stormwater should not be a concern because the Havelock Precinct is a greenfield and not brownfield area and thus stormwater management can be designed for, with any new or infrastructure upgrades identified and provided for at the consent stage. Therefore, it is not necessary to apply Qualifying Matters (**QM**) to water, wastewater and stormwater discharges in greenfields areas.

9 Furthermore, in Mr Jaggard's evidence (paragraph 1.6 and 1.7) states that stormwater is appropriately managed under the Regional Infrastructure and Technical Specification (**RITS**) and Stormwater Bylaw.

10 As explained in my evidence (particularly paragraphs 48-58), I consider that the Noakes Property (immediately downstream farm from greenfield development) has incurred adverse effects of an unacceptable level from stormwater runoff already from partial development of the Dines Stage 5. Consents were processed on a non-notified basis and in my view, stormwater effects on farm activity, drainage and infrastructure were not adequately considered in these instances under the existing WDC Plan, Regional Plan, RITS, regional stormwater guidelines and bylaws for a greenfield development. In my opinion the developers and WDC consent officers incorrectly assessed stormwater runoff effects, and consents/consent conditions were incorrectly granted.

11 I disagree with Mr Pithkethley, Mr Tolemache, and Mr Jaggard given the experiences on the Noakes Property where stormwater runoff has been inadequately managed from greenfields upstream of the Noakes Property. I am also aware from my experience in other matters that the adverse effects of urban stormwater arising from greenfield development is a concern for owners of downstream properties (both urban and rural).

12 Accordingly, I consider that a Stormwater Constraints QM remains appropriate and that explicit planning provisions are necessary to address the shortfalls to avoid, remedy or mitigate adverse stormwater runoff to downstream farms and other land uses, as set out in Annexure 5 of my evidence.

13 I also recommend that WDC and commissioners consider inclusion of best practice planning provisions regarding cumulative effects, which I have not addressed in the proposed planning amendments in Annexure 5.

Theme two – site size and space for stormwater control measures

14 At paragraph 1.6 of Mr Jaggard's evidence, he states that impervious surface is the governing factor in stormwater runoff rather than lot size (i.e., one lot versus two to three with the same imperviousness).

15 I generally concur with Mr Jaggard with respect to his statement regarding impervious surface versus lot size. However, as presented in my evidence describing the change from pasture to urban land use (paragraphs 34-39), stormwater runoff is a product of impervious surface, elimination of small surface storage due to earthworks and reworking of the land, draining of subsurface storage to provide stability to urban roads/houses/infrastructure, compaction of the surface layer, and alteration of vegetation/evapotranspiration.

16 Thus, actual runoff can be greater than solely measured by impervious surface. In large storm events (e.g., 100-year average return interval (ARI = 1% annual exceedance probability (AEP), these other factors would not likely amount to much runoff. However, in low ARI events (i.e., much less than 10-year ARI and more pronounced for more common rainfall events), these factors may contribute a measurable amount to runoff that can potentially affect downstream farms and other land uses (e.g., the entire development consists of impervious surface and compacted/limited pervious surface.).

17 Mr Jaggard states (paragraph 1.6) that two to three lots could be implemented (with similar stormwater effects given the impervious surface as the limiting factor).

18 Similarly, Mr Tollemache states (paragraph 1.14) that the 450 m^2 minimum lot size precludes the diversity of housing to accommodate and enable additional and affordable housing. Mr Tollemache would support a 450m^2 lot size in the recently developed residential areas in Pookeno if there was a network constraint with the sizing of reticulated infrastructure and detention devices (paragraph 11.9).

19 I understand these positions regarding the desire to increase the number of lots/houses generally to support meeting multiple objectives, including higher density and affordable housing.

20 From a stormwater perspective, however, I disagree with Mr Jaggard and Mr Tollemache as, in the particular case of Variation 3, space is needed for stormwater control measures. In that regard, I agree with Mr Boldero (paragraph 10).

21 In my opinion, having adequate space available for potential on-site and communal/neighbourhood stormwater control measures to reduce runoff volume, reduce the pace at which stormwater runoff occurs, treat stormwater quality, and to allow for runoff storage and overland flowpaths is critical to achieving good stormwater management in urban areas.

22 I remain concerned about the lack of direct linkage between urban land use and adverse stormwater effects on downstream farms and other land uses, particularly on the urban-rural interface, which can be overlooked in the technical work and by urban stormwater and planning experts. To my knowledge, the technical work to clearly demonstrate that stormwater objectives for quantity (including, for example, volume reduction and rainfall events less than 10% AEP) and quality within the urban and downstream rural and other land uses have not been presented fully as part of Variation 3 by WDC.

23 Thus, in my opinion it is premature to deviate from the 450 m^2 minimum lot size; I support WDC's minimum lot size of 450 m^2 in the former urban fringe area at this point in time.

24 Practically speaking, if the 450 m^2 minimum lot size is retained, WDC is still likely to receive resource consent applications for smaller lot sizes. In my view, the amendments that I proposed in Annexure 5 to my evidence in chief would provide an appropriate framework to ensure that the stormwater effects on downstream farms and other land uses of such applications are adequately assessed and avoided, remedied or mitigated.

Theme three – Flooding versus broader stormwater runoff effects

<u>Flooding</u>

25 WDC evidence (Ms Huls and Mr Boldero plus the Te Miro draft stormwater report) focus a large portion of work and evidence on flooding and the 100-year average recurrence interval (ARI = 1% annual exceedance probability (AEP)) floodplain, with limitations within the high-risk floodplain (high-risk as defined in the PDP and WRC Regional Policy Statement). Less stringent planning provisions exist outside of the high-risk classification yet within other floodplain classifications, including allowance for infilling the floodplain or presumably modifying overfland flowpaths.

26 I support WDC's effort to improve mapping of the floodplain. However, as per my evidence (paragraphs 19 and 106), the high-risk classification requires review/update (e.g., Australian use of depth x velocity for considers 0.5 m depth is high–risk for children, whereas WDC uses 1.0 m as the delineation of high-risk), which was noted by Boldero (paragraph 50). The implication is that the high-risk areas are potentially underestimated and coupled with more permissive planning provisions outside of high-risk areas, potentially puts more people and property in harm's way, including aggravating stormwater runoff issues on downstream farm and other land uses, in my opinion. As a general principle, I do not support infilling floodplains.

27 I further agree in principle with Mr Jaggard's concern (paragraph 1.7) about a need for a consistent approach and mapping of flooding across WDC, which may be outside the scope of Variation 3.

28 I have not presented specific plan amendments with respect to flood management in my evidence. However, I raised the technical matters that the high-risk and other classifications require review and that the flood modelling may require re-doing or re-finement to reflect updating of the high-risk classification (e.g., my evidence paragraphs 19 and 106). Mr Jaggard calls for uniform and consistent flood hazard mapping to be undertaking across the district, which I would support. In my opinion. piecemeal or timing issues regarding use of the PDP (river based) floodplain mapping versus the Te Miro floodplain update (certain areas) versus uniform/consistent district wide floodplain mapping can lead to adverse outcomes and put more people and buildings in harm's way simply due to process rather than risk mitigation, including downstream farmland.

Technical feasibility of addressing stormwater effects

29 Mr Patel (Paragraphs 8.1-8.5) disagrees with Ms Noakes concerns regarding stormwater runoff, although he focuses on flooding and makes a broad statement that alteration of stormwater runoff cannot be met.

30 I disagree with Mr Patel's dismissal of Ms Noakes matters and consider that he may have misinterpreted Ms Noakes' concerns.

31 Little to no technical work and planning provision documentation were presented as part of Variation 3 by WDC to explicitly assess the potential for stormwater runoff effects downstream of the urban area (with possibly the exception of the draft 100-year floodplain mapping assessment by Te Miro). Downstream farms can be adversely affected by the alteration of the runoff volume, the frequency of the runoff, and the duration of runoff. A portion of the farm that is wet more often can affect farm access and economic viability. Similarly, stormwater runoff can affect erosion of drainage channels and farm infrastructure established under pasture rainfall-runoff patterns, creating maintenance issues and incurring additional cost that would not have occurred save for the upstream urban development (see my evidence paragraphs 13-16, for example).

32 In my opinion, no technical documentation nor changes to planning provisions were presented by WDC regarding management of urban stormwater quality and stream erosion, either regarding discharge to downstream farms and other land uses or to demonstrate that Variation 3 complies with *Te Ture Whaimana*. Boldero states that in his view the current permitted activity stormwater rule provides WDC with limited ability to check compliance with its stormwater discharge consent requirements (paragraph 12). I concur with WRC and Waikato Tainui evidence in support of ensuring that Variation 3 supports the objectives and strategies of *Te Ture Whaimana.*

33 The issue is not simply the alteration of stormwater runoff from urban development, which is acknowledged to occur with urban development. Rather, the concern is with respect to adverse effects produced by the urban development and associated alteration to stormwater runoff that requires to be avoided, remedied or mitigated. The adverse effects of stormwater runoff appear to have been missed in consenting to date, and I recommend explicit plan amendments such that downstream stormwater effects are avoided, remedied or mitigated (see my evidence paragraphs 13-16, for example). In my view, it is technically feasible for developments to avoid, remedy or mitigate adverse stormwater effects on

downstream farms and other land uses; it is unlikely to be properly and consistently assessed in practice unless plan provisions explicitly trigger an assessment of the stormwater effects of a development proposal on downstream farm activity, drainage and infrastructure, and with an understanding of the range of stormwater runoff volume, frequency, and duration that can produce adverse effects.

34 Mr Oakley (paragraphs 10.4-10.6) makes a broad statement that the concerns expressed by Ms Noakes will be improved by development at Pookeno and relies on Mr Patel's statement that Ms Noakes concerns regarding stormwater runoff are not viable. Mr Patel's evidence is refuted above in paragraphs 29 to 33.

35 I disagree with Mr Oakley's statements given the experience of Ms Noakes and documented in the entirety of my evidence. It is correct that in some instances, there is opportunity to make improvements to degraded streams when development occurs and there is concerted effort and investment to make improvements to the degraded stream. Degraded streams, however, are not referred to by Mr Oakley. In any event, improvements to degraded streams within an urban development tend to involve setting aside land on stream margins for improvements and riparian planting, but taking downstream productive rural land for this purpose, as an example, because an urban development failed to internalise its adverse stormwater effects is, in my view, problematic.

36 In addition, Mr Oakley's broad statement about 'improvements' is contrary to the field of stormwater management that understands that the alteration of stormwater runoff and ensuing urban activity creates adverse runoff quantity and quality issues that are required to be avoided, remedied or mitigated.

37 The plan amendments in my Annexure 5 of my evidence in chief attempt to address the shortfalls experienced to date and trigger that developers and consent officers explicitly examine potential adverse stormwater effects on downstream farms and other land uses.

38 I have not presented specific plan amendments regarding stormwater quality, while raising that the technical work has not been fully completed and/or presented in documented form as part of Variation 3. I would be supportive of additional technical work and amendments suggested by WDC's stormwater (Boldero) and Planning (Huls) experts.

Final comments

39 As a general comment, I note that in many cases, urban planners and stormwater experts tend operate in the 'urban space', while many river and rural experts operate in the 'river and rural space'. The matters that Ms Noakes are being confronted with regards the urban-rural interface.

40 Having considered the stormwater evidence in chief on behalf of the submitters and the discussion of the matters raised in my evidence in chief at the expert caucusing, I remain of the view that the plan amendments that I have recommended to ensure that Ms Noakes situation and others in this urban-rural interface are being adequately noted, that plan provisions explicitly trigger an examination of the rural environment (including drainage and infrastructure) downstream of urbanization, and that any adverse effects created by urbanization are avoided, remediated or mitigated are appropriate and necessary, leading to better stormwater management outcomes .

Matthew Darryl Davis

19 July 2023