

**BEFORE THE HEARING PANEL: WHAKATĀNE DISTRICT
COUNCIL AND BAY OF PLENTY REGIONAL COUNCIL**

In the matter of: Plan Change 17 and Plan Change 1; plan
changes concerning the Matatā Debris Flow and Awatarariki
Fanhead

Statement of Evidence of Rick Whalley, Rachel Whalley and
Pamela Whalley on Behalf of the Awatarariki Residents Society
Inc

DATED 5 MARCH 2020





INTRODUCTION

1. My parents Pam and Bill Whalley, have been living at 10 Clem Elliott Drive since the early 90s. A lifetime of working in the mills in Kawerau enabled them to build their dream home on a beach side section at Matatā. It is a special place for all the family, with grandchildren and great grandchildren spending a lot of time here over the years. Pam and Bill watched the Matatā Debris Flow from the second storey of our house. Our house was undamaged in the debris flow event.
2. I (Rick) came home from Australia to help build the home, landscape the gardens, and with my wife Rachel have been living here since 2012, returning home to care for my parents. My father Bill, who was an active member of the Matatā community, passed away at home in 2016. We now live with our mother Pamela Whalley.
3. Our home has intergenerational significance for our whanau. The proposition that we can be forced from our home, with or without compensation, is devastating.

4. Since moving here in 2012 we have had to engage with the issue of the debris flow. It is unavoidable if you live in the Awatarariki Fanhead. However it is not the threat of a debris flow which is stressful but the relationship with Council and the way in which Council has managed this process.
5. Rick is the Chairperson of Awatarariki Residents Incorporated (**ARI**) and Rachel is a member. The current members of ARI are attached as **Appendix A**. We are authorised to give this evidence on behalf of ARI.

Overview

6. We object to these proposed plan changes that may result in the loss of our property rights; significant financial disadvantage; and potentially eviction from our homes. The Whakatane District Council (**WDC**) has had an approach to remove all residents from the proposed Awatarariki high risk area (Voluntary Managed Retreat programme (**VMRP**)) prior to the RMA process being completed. They have focused on potential consequence avoidance and a precautionary approach, rather than appropriate internationally and nationally accepted risk approaches that include fatality risk and specific strategies such as quantitative risk assessment, early warning systems and combinations of mitigation measures.
7. A parallel process with VMRP progressed ahead of plan changes has undermined the RMA process with residents selling their homes in the fear they will otherwise lose everything under the plan changes. This is because the plan changes do not provide for compensation. So ARI members are fully "at risk". If the Plan Changes are approved, then we have limited remedies. We can "agree" to offers made under the VRMP, or we have to rely on s85 RMA.
8. This process jumps the gun. It is still not proven that the risk to all properties on the Awatarariki Fanhead is intolerable until we have had the opportunity to independently test the claimed risk via the RMA process. Unfortunately, ARI has no funding to engage independent experts for this

Council hearing. Council refused to provide any funding. ARI members who have withdrawn their submissions have done so as they have sold their properties to WDC and as part of the settlement have had to agree they can no longer be members of ARI.¹

9. New evidence was provided in the s42A report Appendix 5 (GHD review and peer review (**GHD review**) (31 October 2019)) on 20 December 2019 stating that some properties may not be high risk and that the evidence can't be considered quantitative risk assessment (**QRA**) until further investigation is completed. These include a boulder field and reviewing the layout and characteristics of individual properties.² ARI believe this review has not been satisfactorily considered by the Council experts.
10. ARI requested the GHD review, first from Bay of Plenty Regional Council directly, which was declined in December 2018. We then applied to the Ombudsman to seek a copy directly from the Bay of Plenty Regional Council (**BOPRC**). The GHD review is written by international debris flow experts who specialised and have co-written the risk assessment methodology "The Australian Geomechanics Society- Landslide Risk Management 2007" (**AGS guidelines**) relied on in these proceedings.
11. The final GHD review was written on 31 October 2019, however only released on 20 December 2019. An earlier report was provided to the BOPRC from GHD on 22 August 2018. ARI has requested this and it has still not been provided.
12. ARI has consistently asked the Council to investigate early warning systems (EWS). A report provided showed EWS could reduce the risk.³ A further report by the same author showed that it would not.⁴ More recent reports by other experts show they can reduce the risk however they haven't worked with the community at risk (best practice) and the experts

¹ This was required by WDC as part of settlement.

² <https://www.boprc.govt.nz/media/796858/appendix-5-technical-assessment-debris-flow-risk-management-ghd-31-october-2019-and-planning-policy-assessment.pdf> at pp.5-7.

³ <https://atlas.boprc.govt.nz/api/v1/edms/document/A2899013/content> at para. [VI].

⁴ <https://atlas.boprc.govt.nz/api/v1/edms/document/A2899017/content>

don't want an EWS as they rely on a so-called precautionary approach.^{5 6}
Of course, the problem with this precautionary approach, is that it means we cannot stay in our homes. ARI members are willing to fully cooperate with implementation of the EWS system. We are highly incentivised to do so.

13. We have on numerous occasions tried to work with WDC to achieve better outcomes for our people including an MOU which would have enabled us to work with experts on exploring solutions, but this was withdrawn by Council after the BOPRC accepted the plan change request.

14. There have been opportunities for the WDC experts to work with us however they haven't. Examples include:

(i) The social impact specialist (Amelia Linzey) who wrote about our community, however never communicated directly with ARI members;⁷

(ii) The risk experts, Tim Davies, Maurice McSavaney, and Kevin Hind have never talked to ARI members or been on our properties;

(iii) In October 2019 the GHD review acknowledged that individual property access would be required for this process to be considered as a QRA, but no-one has approached us;

(iv) and early warning systems specialists (GNS experts Massey, Strawbridge, Potter, Rosser and Leonard) who state it is critical for the success of EWS to work directly with the community at risk; then acknowledge they didn't work with us because of the plan hearing process; state that it can reduce risk and include next steps (which includes working with us); and then say residents should leave because of the precautionary approach.⁸

15. ARI have serious concerns relating to:

⁵ <https://atlas.boprc.govt.nz/api/v1/edms/document/A3463614/content>

⁶ <https://atlas.boprc.govt.nz/api/v1/edms/document/A3487684/content>

⁷ <https://atlas.boprc.govt.nz/api/v1/edms/document/A3463613/content>

⁸ <https://atlas.boprc.govt.nz/api/v1/edms/document/A3487684/content>

- (i) Voluntary managed retreat and valuation process;
- (ii) Risk and quantitative risk assessment (QRA);
- (iii) Early warning systems;
- (iv) Meteorology and climate change;
- (iv) Combinations of mitigation strategies including catchment management;
- (v) and the planning approach to the high risk area.

Voluntary Managed Retreat and valuation process

16. Implementing a programme of voluntary retreat was agreed on by WDC Councillors in 2015 with the condition that they needed 90% agreement of property owners to proceed with funding requests to other parties (BOPRC & Central Government). A retreat programme could only proceed with the funding assistance of other parties. Only 61% of property owners agreed to consider exploring this option.

17. Despite our opposition, work continued on the retreat programme. In December 2017, a resolution was made by Councillors to amend the resolution to remove the 90% threshold. In Mr Farrell's report to Councillors, he said that of the people who had returned their forms of agreement (63% of affected property owners), it did reach the threshold of 91% agreement. The math doesn't work from ARI's perspective. 32% of residents had not engaged with the Council on this matter, and for ourselves and our neighbours this was an expression of our unwillingness to participate. ⁹

18. Our family did not want to sign anything with the Council without independent legal and valuation advice, concerned it would be taken as an agreement to accept retreat. In the same report to Council (discussed at paragraph [10] above) Mr Farrell says only 2 people expressed concern, failing to mention the 2 people were representatives of ARI of which 25 people living in Awatatarariki were members, and that "feedback from the majority of property owners is support for the Council's endeavours to secure funding for a managed retreat process." This is not correct.

⁹ <https://drive.google.com/file/d/1d0pCEgbgXUcfbnrsL66ZX8nmR36HiLwb/view>

19. We feel there has not been fair weighting given to the concerns of the most affected parties, that is, those families who own homes on the fanhead and have made Awatarariki their home (16 of the 32 affected properties). What is the weighting of these most affected residents in the process so far? It should have been highlighted and given significance. When Mr Farrell talks about the “majority” of property owners, who is he talking about? This is an important point, that has been missed throughout the whole process.
20. As stated previously, progressing retreat ahead of the RMA process means that residents are being forced to make decisions on whether to leave; without being fully informed; and without the risk to life and mitigation options being conclusively proven through a contested RMA process, including ARI having resources to engage its own independent experts.
21. In 2016, ANZ Bank declined to provide an ARI member a loan against their property because a property search showed natural disaster identified against the title. Our properties have effectively been sterilised since 2016. We are unable to sell our properties or raise loans against them.
22. The Managed Retreat process and Plan Change process has been intimidating for members of ARI and has included:
- (i) Council valuers from Telfar Young approaching residents before they had consented to opt into the valuation process. When we repeatedly raised these issues in writing with WDC, and they were finally acknowledged, WDC blamed Telfar Young, who in turn blamed their office staff. The WDC should not have shared our information until we had consented to engage in the process. This was a breach of our privacy.
 - (ii) The S32 was published with full names and addresses of people who had engaged in the consultation process. This was without our knowledge that this information would be disclosed. We received an apology from the Council regarding this. The S32 was amended to remove our personal information.

(iii) It is a huge cost (emotionally and financially) for the affected residents to engage with the process that has been forced on us prior to the RMA hearing. The support WDC provides is not independent nor is it adequately resourced. When we requested the support that we sought, and had been promised as part of the Managed Retreat process, i.e. legal advice, we were referred to Citizens Advice Bureau or RAS (Residential Advice Services) who are from Christchurch with experience in assisting residents with their insurance payouts. They had little knowledge or experience of our situation and could not advise us on the benefit and costs of engaging in the opt in voluntary managed retreat versus taking part in RMA proceedings.

(iv) The BOPRC chairperson in a community meeting that Rick attended (16 July 2019) encouraged residents to take up the offer of voluntary retreat saying the proposed plan changes are a foregone conclusion; you could be in court for years to come; and if you remained you would be 'squatters in your own homes'.

(v) Power companies sent final notices to affected residents at Awatarariki (7 February 2020). On investigation we found this has been instigated by WDC through their provider Genesis, requesting a switch on accounts on 30 January 2020. ARI residents expressed to me they were upset and that WDC staff have spoken with them previously threatening on more than one occasion that services will be disconnected if we don't take up managed retreat. The 30th January was an earlier deadline for residents to have accepted the Council retreat offer. When asked, WDC responded saying this was an administrative error, and blamed Genesis for not understanding their requests.

23. The valuation process is part of the voluntary managed retreat. ARI has serious concerns about this process and have outlined these in a letter of complaint to WDC (19 February 2020 **attached** marked Appendix B). Concerns include fairness, transparency and financial support for

independent legal and valuation advice. For example, WDC outlined what would be an acceptable range for valuation advice. WDC then reversed its position.

24. The BoPRC agreed in principle to co-fund a management retreat at Awatarariki. This was to be included in their 2021 annual plan and conditional upon the outcome of the RMA process. This would have meant that the Voluntary Managed retreat process would have applied after the outcome of the RMA proceedings. However, in December 2019 Regional Council overturned this resolution and delegated funding to the CE for Whakatane District Council. We opposed this change in process see attached letter (Appendix C).

25. There are 4 briefs of evidence on the valuation process (Alastair Pratt, Greg Ball, John Reid, and Shayne Donovan-Grammer). These briefs describe a process that they state has worked in favour of the landowners.
¹⁰ ¹¹ ¹² ¹³ This is not the case for members of ARI, as outlined in the letter of complaint (Appendix B).

26. ARI instructed legal counsel to engage with WDC directly to ensure that the property valuation process was fair and transparent. Once the terms of the property valuation process were agreed, ARI encouraged its members to sign up to and participate in the process in order that all of its members were informed of the options available to them. ARI has sought to support those who needed to move on with their lives. In a number of cases, our members have indicated they would have stayed if it hadn't been for the pressure from Council to settle ahead of the RMA hearings process. We think it is only fair that we get to test the Council case through the RMA's independent decision-making process, before agreeing to "retreat". Following advice from our Counsel as to s85 RMA, ARI prepared declaration proceedings and a supporting affidavit. The proceedings were settled by undertakings, without being filed. These are attached (Appendix D).

¹⁰ <https://atlas.boprc.govt.nz/api/v1/edms/document/A3463612/content>

¹¹ <https://atlas.boprc.govt.nz/api/v1/edms/document/A3463620/content>

¹² <https://atlas.boprc.govt.nz/api/v1/edms/document/A3463621/content>

¹³ <https://atlas.boprc.govt.nz/api/v1/edms/document/A3463624/content>

Risk

27. WDC had resolved that the high risk area would be determined by quantitative risk assessment. The proposed plan change 1 references the risk assessment methodology The Australian Geomechanics Society-Landslide Risk Management 2007.¹⁴
28. ARI agrees that the issue is about risk and that risk is determined by frequency x consequence. ARI believes there are a combination of mitigation measures of early warning system (**EWS**) and catchment management that can also be applied to reduce the risk. This has been raised however has not occurred.
29. The GHD peer review was written by leading experts in the field of debris flow and authors of the risk assessment methodology guiding the plan change. They clearly acknowledge that quantitative risk assessment is appropriate, and that to accomplish this there should be an individual property approach and vulnerability of occupants). They also raise the boulder field and narrowness of Kaokaoroa Street as potential mitigation measures. Conclusions on risk relied on by WDC have not addressed these and instead taken a general and conservative approach to risk.
30. Evidence provided by WDC's expert Tim Davies has focused on potential consequence avoidance and precautionary approach rather than risk. He has acknowledged there are "potential substantial errors" and concludes that a precautionary approach is essential and it is "realistic and affordable" to move these people from their homes. ¹⁵ ¹⁶ He doesn't address the GHD review and neither does Maurice McSavaney's brief of evidence.

Early Warning Systems (EWS)

¹⁴ <https://cdn.boprc.govt.nz/media/741561/2018-02-13-australian-geomechanics-society-2007-landslide-risk-management-australian-geomechanics-vol-42-no-1-march-2007-complete-version-for-notification-web.pdf>

¹⁵ <https://atlas.boprc.govt.nz/api/v1/edms/document/A3463625/content> at paragraph [1.7].

¹⁶ <https://atlas.boprc.govt.nz/api/v1/edms/document/A3463625/content> at paragraph [9.6].

31. Several reports support an early warning system, including an earlier report by Tim Davies and Maurice McSavaney.¹⁷ For a permanent resident who chooses to remain under the “existing use” provisions, Davies and McSavaney state “we recommend that Council consider the viability of providing a debris-flow warning system that can alert people to an imminent danger of a debris flow in Awatarariki Stream, and may allow them to seek shelter or evacuate if they are able to do this safely and quickly.”
32. An early warning system was then discounted by Council following a later report by Tim Davies.¹⁸
33. New evidence was provided on 15 January 2020 and 24 February 2020 relating to the Awatarariki catchment debris flow early warning system framework.^{19 20} This recent evidence demonstrates that an early warning system will work at Awatarariki in reducing risk however the authors did not work with the community at risk (as stated in their report as best practice and critical to success) and support a precautionary rather than a risk-based approach. They have never talked to us.
34. If this same approach to EWS was taken in the many other places throughout New Zealand where there are EWS this would mean many communities (and thousands of people) would need to move permanently from their homes.

Meteorology and climate change

35. ARI have concerns about the approach to meteorology and climate change taken by Peter Blackwood.²¹ The focus has been on the rainfall amount. There is no explanation provided in relation to this being described as an “extremely rare event” and the likelihood and frequency of this type of rainfall event occurring again.²²

¹⁷ <https://atlas.boprc.govt.nz/api/v1/edms/document/A2899013/content> at para. [VI].

¹⁸ <https://atlas.boprc.govt.nz/api/v1/edms/document/A2899017/content>

¹⁹ <https://atlas.boprc.govt.nz/api/v1/edms/document/A3463614/content>

²⁰ <https://atlas.boprc.govt.nz/api/v1/edms/document/A3487684/content>

²¹ <https://atlas.boprc.govt.nz/api/v1/edms/document/A3463623/content> at paragraph 11.1 (g).

²² <https://atlas.boprc.govt.nz/api/v1/edms/document/A3463623/content> at digital p.15.

36. Blackwood makes a generalised statement about the impact of global warming that includes both increases in sea levels and rainfall intensities and compares the rainfall amount with the national IPCC 5th Assessment Report Snapshot of potential effects of climate change.²³
37. Blackwood has not addressed the regional differences in projected climate change effects. He has not included discussion of the detailed mean precipitation rate compared with the 4 climate change scenarios for Bay of Plenty documented in the full IPCC 5th Assessment Report which shows a decrease in rainfall in spring and no significant increase in the other seasons.²⁴
38. The Ministry for the Environment website states “There is large natural variability in extreme rainfall frequency in the Bay of Plenty from year to year and decade to decade. According to the most recent projections, the Bay of Plenty is not expected to experience a significant change in the frequency of extreme rainy days as a result of climate change.”²⁵
39. Within region differences are documented where coastal areas of Bay of Plenty by 2090, coastal and south-eastern areas may receive 10 percent less rain than they do now.²⁶
40. In the last extreme weather event relating to Cyclone Cook and Debbie, in April 2017, many communities in this region including Awatarariki were successfully evacuated ahead of the storms, including our families.

Mitigation strategies to reduce risk

41. There are combinations of options that could be implemented to reduce the risk to residents:

²³ <https://atlas.boprc.govt.nz/api/v1/edms/document/A3463623/content> at paragraph [9] and [11.1] (g).

²⁴ <https://www.mfe.govt.nz/sites/default/files/media/Climate%20Change/Climate-change-projections-2nd-edition-final.pdf> at 3.6.1 from p.76.

²⁵ <https://www.mfe.govt.nz/climate-change/likely-impacts-of-climate-change/how-could-climate-change-affect-my-region/bay-of>

²⁶ <https://cdn.boprc.govt.nz/media/276278/climate-change-factsheet.pdf>

- (i) Implement an early warning system with the community at risk (Awatarariki) as identified as feasible by Dr Massey.
- (ii) Address the risk issues raised by the GHD review and peer review relating to the individual properties and the identified boulder field however ARI feel this would no longer be required if an early warning system was developed with the community.
- (iii) Implement biannual catchment management work schedules and checks.

Factual errors; inconsistencies and withholding information

- 42. Throughout Council reports such as the Indicative Business Case, S32 & S42A and the like we find inconsistencies, errors and unproven statements. This is a concern not just because they are untrue but because they become the foundation that is used as facts in further documents and reports. They may seem few and seemingly inconsequential but they all contribute to the wider picture.
- 43. Statements such as: "Residents who experienced the event remain traumatised years later" is not true for the members of ARI. Many ARI residents are under extreme stress because of the way the Council is managing the process, not because of the experience of the debris flow event. Many of the ARI families who are leaving the area now are not doing so in fear of their lives with the possibility of another event, but because of the stress Council has been putting us under. Others who are accepting Council offers for their homes have been needing to sell for some time however the Council has sterilised our properties and is now the only buyer.
- 44. A statement by Mr Farrell was made that residents are unable to insure their homes, or insurance is costly. This is not true. We are all covered by insurance at an affordable cost. This formed the basis for a Deep South Challenge Compensation & Insurance Case Study.²⁷ When we questioned the researcher she said they relied on published documents

²⁷ https://www.deepsouthchallenge.co.nz/sites/default/files/2020-01/Case%20Studies%20on%20Insurance%20and%20Compensation%20Iorns%20Final%202019_0.pdf

(Council information) as the base of their story. As to future insurance cover, our insurers have not indicated that insurance will be withdrawn.

45. In 2015 WDC convened a Consensus Development Group (CDG), in which two residents who are also ARI members were members of the CDG, with the aim of achieving a long term solution for Awatarariki. WDC staff had previously raised with residents the possibility that BOPRC could enact a plan change that would result in us losing our existing land use rights. This provided some urgency in reaching a long term solution.

(i) The CDG discussed a range of possible options for the community at Matatā. It is stated in the WDC Indicative Business Case (p.4), and in numerous Council documents, that the CDG 'agreed that managed voluntary retreat was the most feasible solution.' This is not true, they discussed a range of options, only one of which was retreat.

(ii) The CDG also suggested that: " A solution could be for Council and landowners to collectively commission this research and to put the final results before the Environment Court or other judicial forum. This would ensure a robust process is followed and provide any interested party an opportunity to rigorously test any retreat proposals for specific properties. The final result coming from a court of law would be decisive".

(iii) I am not sure why this suggested approach wasn't followed. It would have enabled a collaborative approach with the affected residents, and a fair and transparent process. Instead the WDC went on to create and progress an agenda for retreat; residents were not actively engaged in any process from that time on; and 'consultation' was not genuine.

(iv) As previously raised, it was not the case that the Consensus Group agreed to managed retreat as the best way forward and a minority of the residents opposed this. However this error appears constantly in Council documents.

46. Findings from the Consensus Development Group report included²⁸:

(i) "Landowners in Awatarariki were mixed in their position about what should happen a majority wanted to remain, an equal majority would reluctantly consider retreat. There was no Consensus and this group did not speak for all the residents at Awatarariki."

.....

(ii) "The group has therefore discussed proposals to commission the Crown Research Institute - GNS Science to review and refine previous work by Tonkin and Taylor on the area of high risk. A solution could be for Council and landowners to collectively commission this research and to put the final results before the Environment Court or other judicial forum. This would ensure a robust process is followed and provide any interested party an opportunity to rigorously test any retreat proposals for specific properties. The final result coming from a court of law would be decisive."

Emphasis added

47. In briefings to the government in July 2018 other factual errors note that:

(i) *In 2012 WDC decided to abandon plans for risk mitigation.* This is not true, as they only decided they would abandon engineering options and not build the dam. They had not investigated evacuation routes and early warning systems.

(ii) *The return period of 200 - 500 years is described as 50 - 150 years.* This inflates the perceptions of risk when at this time, risk analysis still found a 200-500 year period

²⁸ Report back to Awatarariki Stakeholders from David Stimpson on work completed by the Consensus Development Group at meeting up to 5 May 2015 retrieved from <https://drive.google.com/file/d/1Mpl9NdZqCDtk7FoGTSvnYANc1eaOxKq/view?usp=sharing>

(iii) *Most affected members of the community support retreat.* This is incorrect. Some residents have needed to leave and move on as discussed above. All residents sought a solution to the ongoing saga but that should not be viewed as support for retreat.

48. Another debris flow referred to in the Indicative Business Case reported in 2013 is not true. Residents rang WDC Council to say the gabions on the side of the stream were not placed properly and washing out with the flow of the stream and causing a blockage. We have a signed statement from the residents (Appendix E).

49. There were no boulders beside our house as shown in quantitative risk assessment maps. The big boulders that are evident on our property now, were moved there for landscaping. The boulder field described by the GHD review is an area where there were some boulders from flow and where extra debris was moved by diggers / machinery after the flow. There is no evidence of previous debris flows for our property or neighbouring properties. Soil excavations on our property demonstrate a sandy soil, not rocky, as would be expected in an area of a previous debris flow. Our properties are built on sand and described in maps as being part of a Fixed Dune system.

50. It is often quoted the destruction wrought on the whole of Matatā in reports regarding Awatarariki. e.g. 27 homes were destroyed and 87 properties were damaged in Matata. This inflates the perception of disaster, when it should be noted that in our small area (the Awatarariki Fanhead) there were substantially less homes destroyed or damaged.

Catchment Management

51. Members of ARI met with Mr John Douglas (a soil conservator) in 2017. At this time we became aware of a number of documents produced by Mr Douglas pre and post the 2005 Debris Flow event for the Bay of Plenty Regional Council.

- a. Mr Douglas undertook a catchment study in 1993 which involved walking up the catchments and viewing them by helicopter. Mr Douglas' 1993 catchment reported log-dams 6-8m high during his walks up the catchment in 1993 which were all washed out with the 2005 Debris Flow.
- b. Post 2005 work was done to manage and reduce the build up of log dams in the catchment. This involved clearing rock and debris, inspection and cutting of any tree material.
- c. Mr Douglas was then commissioned to do a further report by BOPRC, this report was however never published and was only obtained by ARI through an official information request. In this work (Douglas 2017) (attached as **Appendix F**) Mr Douglas stated that while the stream was clear of any major blockages - "it does show signs that blockages are starting to occur"... "There is sufficient eroded loose material in the upper catchment to supply numerous blockages through the 5km catchment tributaries. ...However the energy or rainfall event required to mobilise these blockages needs to be of the same magnitude as the May 18, 2005 event." Mr Douglas concluded by suggesting that catchment management of the lower and middle sections should continue. "Cutting of trees to prevent blockages and subsequent build up of large debris dams will not reduce the amount of material ejected from the catchment but may reduce the velocity of the material as it travels through the stream system, which may lead to reduced downstream effect".. "However this is a theory and much more work would need to be done to validate the effectiveness of the claim."

52. Further work on the effectiveness of catchment management has however never been done, and effective catchment management, post the first five years has not been undertaken.

53. The combined effect of taking into account risk reduction through catchment management and any risk reduction from boulders and housing layout as suggested by GHD is unknown.

54. Mr Douglas states that removal of log dams would have the effect of slowing down the velocity of the flow of a debris flow. This point was however not carried through and considered by Mr Davies when concluding on the effectiveness of an EWS. Flow rates considered by Davies are flow rates for the 2005 debris flow event.

55. Since 2005, there has been considerable change in the lower catchment which has not been taken into account. There is now a railway bridge over the stream rather than an embankment with culverts and a variety of other strategies including widening and deepening the stream and providing for other flow directions. When the debris flow occurred, my mother Pam Whalley describes that she watched the railway embankment (not a bridge as reported) burst. Before it burst, she said she saw logs jumping in the air behind it but no water coming over it. Then it rushed through.

Conclusion

56. ARI wishes it noted that requests by ARI residents to work with the Council to explore mitigation approaches and develop a risk reduction and resilience approach have been refused.

57. Risk and early warning system experts continue to be unwilling to consider what is an accepted norm in risk reduction- that mitigation measures can reduce the overall risk.

58. ARI members have always sought that a fair and transparent approach to risk be applied to the Awatarariki Fanhead. An approach should be similar to risk approaches in other parts of the country. ARI members do not wish to live with intolerable risk or risk to life. However, ARI is unable to place confidence on risk analysis where there are major inadequacies in the data input into the analysis.

59. ARI ask the following:

- (i) the QRA is completed on individual properties in a manner that allows the risk to be quantified appropriately and includes an assessment of the boulder field and Kaokaoroa Street.

(ii) the early warning systems are reviewed directly with the community at risk on the Awatarariki Fanhead and are reported.

(iii) catchment management is reviewed, including upper and lower management and its ability to mitigate risk both at zone scale and individual property scale; and

(iv) in the event that the Commissioners grant the plan changes; then adequate compensation needs to be available to residents under s 85 RMA. Council has indicated that the voluntary managed retreat process will be completed and no longer available to residents prior to any findings from these proceedings, therefore a s 85 RMA compensation process is necessary. There should be no taking of our homes, without fair compensation.

60. Common sense mitigation is often smart and functional mitigation. EWS already operates in Matatā (and the wider area) effectively and are part of the policy of the Civil Defence in the area. In the fifteen years since the original debris flow event, residents have taken it upon themselves to monitor and ensure that there have not been build-ups of sediment and logs in the catchment. Council has gone from one expensive solution to complete retreat and failed to consider community advocated approaches that land somewhere in the middle.

Appendices

Appendix A	Schedule of residents and Map showing location of houses
Appendix B	Letter of ARI to WDC, dated 19 February 2020
Appendix C	Letter of ARI to Regional Council, dated 11 December 2019
Appendix D	Draft Declaration Affidavit of Rick Whalley Affidavit of Richard Allen
Appendix E	Affidavit of Residents
Appendix F	John Douglas Report

