

IN THE MATTER of the Resource Management Act 1991

AND

IN THE MATTER of Proposed Private Plan Change 2 to
the Hamilton City Operative District
Plan: Te Awa Lakes Private Plan
Change

**STATEMENT OF REPLY EVIDENCE OF PETER GRAHAM RUSSELL FOR THE APPLICANT
(BIOSECURITY)
4 DECEMBER 2019**

1. INTRODUCTION

- 1.1 My full name is Peter Graham Russell.
- 1.2 I have the qualifications and experience as set out in section 2 of my primary statement of evidence dated 29 October 2019.
- 1.3 I reconfirm that I have read the Code of Conduct for Expert Witnesses contained in the Environment Court Practice Note 2014 and to the extent that I am giving expert evidence, have complied with it in preparing this evidence. I confirm that the issues addressed in this evidence are within my area of expertise and I have not omitted to consider material facts known to me that might alter or detract from the opinions expressed in my evidence.

2. SCOPE OF EVIDENCE

- 2.1 I have been asked to provide evidence in response to the statement of evidence of Darion Embling on behalf of Waikato Regional Council (WRC) in relation to alligator weed management.
- 2.2 I respond to his evidence by reference to the particular paragraph numbers which require a response.

3. RESPONSE TO SUBMITTER EVIDENCE

Waikato Regional Council – Darion Embling

- 3.1 In Mr Embling's evidence, I concur with and agree on almost all points in the submission at paragraphs 16 to 48, noting in summary that alligator weed is a very difficult plant to correctly identify and then control effectively.
- 3.2 I would question however Mr Embling's proposition (at paragraph 44) that if unmanaged the site would be a significant source of alligator weed into the Waikato River. The statement ignores the fact that the site is and has been well managed by WRC (through an intensive monitoring and herbicide spray regime) for at least the last 7-8 years (and will continue to be so regardless of the PPC2 outcome) and in my opinion, together with the mitigation measures proposed, it is unlikely to spread into the adjacent Waikato River.

- 3.3 At paragraph 1 of Mr Embling's executive summary of the evidence, support is provided for the Alligator Weed Management document and Weed Hygiene Plan (WHP), and other matters as agreed through caucusing (regarding the TAL construction phases). This backing is appreciated by the Applicant.
- 3.4 In paragraphs 49c, 53, 73 and 74, and paragraph 2 of Mr Embling's executive summary (and notwithstanding point 3.3 above), Mr Embling makes comments regarding managing alligator weed after the development of the site, and a perceived lack of information in what he calls the "Alligator Weed Management Plan" prepared by me. I believe that the submitter has misunderstood the nature of the above Alligator Weed Management document that was prepared (as summarised in my primary statement of evidence) as part of the PPC2 documentation (and in direct response to a request for information from the HCC). Mr Embling infers that it is the same as the Alligator Weed Management Plan required by the rules in PPC2 and considers therefore that it does not meet the information requirements in Rule 1.2.2.28 (refer to paragraphs 49 (c), 73 and 74 of Mr Embling's evidence). Mr Embling seems to think that the document I provided as part of the plan change documentation should have details of post-construction management of alligator weed.
- 3.5 However, the document I prepared with the plan change is not an Alligator Weed Management Plan. It is a summary report. The rules and information requirements in PPC2 require a different (and more detailed) alligator weed management plan (AWMP) document to be produced, based on a design that will have been undertaken as part of the resource consent requirements. The information requirements for that future management plan (Rule 1.2.2.28 u) clearly require it to include methods of control after development and an adaptive approach if eradication is not successful. Mr Embling's concerns will be addressed through that future process.
- 3.6 There are several unknown factors which make it impossible to know at this concept design stage whether eradication is achievable. These matters will not be fully known until development occurs and the initial construction actions laid out in the Alligator Weed Management document (and the WHP and subsequent AWMPs) are implemented.
- 3.7 Regarding paragraph 4 of Mr Embling's evidence, I accept that eradication of the weed is ambitious and there are no absolute guarantees of success. However, the TAL

development provides an opportunity to undertake a management response that has not been attempted on this scale, and one that would not have been available if this venture had not been proposed. I note that there will be many learnings during the construction phase and I am confident that through collaborative planning and flexible approaches shown by all parties involved the majority of issues can be mitigated.

- 3.8 At paragraph 58 (and as summarised in paragraph 5) of Mr Embling's evidence, Mr Embling makes comments with regard to a supposed lack of recognition of the statutory obligations to manage alligator weed in both the Updated Request for Plan Change document for PPC2 and Section 42A report. These matters are outside my brief to respond to (and Mr Olliver will address these concerns in his evidence). I note however that the applicant's legal obligations around alligator weed are clearly described in both the Alligator Weed Management document and the WHP, the former of which was attached as Appendix 23 to the updated plan change documentation filed in August 2019, and therefore its recognition is implicit through these documents.
- 3.9 As summarised at paragraphs 5a and 5b in Mr Embling's evidence (and again at paragraph 82) I disagree with the statement around the Applicant's recognition of the seriousness of the pest plant. I can state that the Applicant is under no illusion as to the significant task ahead of it to control alligator weed at this site. I have witnessed (and been part of) the thought and effort that has gone into planning and developing the risk mitigations to date. Many other mitigations are at the concept stage.
- 3.10 Eradication methods have not been costed but are likely to be considerable under the current proposals. At best, zero density will be achieved. In a worst case scenario alligator weed will continue to be managed at the site. I do not agree with Mr Embling's statement (at paragraph 5b) that PPC2 would contribute to the spread of alligator weed in the region. Every year WRC has reported that more new sites are discovered throughout the northern parts of the region, mostly through opportune discoveries and increased awareness, where people involved do not know what it is or that it is a problem. The current Horotiu Farms / TAL alligator weed infestation has no clear links to or bearing on the current continued spread of alligator weed to new sites in the region.
- 3.11 At paragraph 14, Mr Embling suggests there was an area of disagreement during caucusing, regarding the future management of alligator weed in a residential

environment. This statement is incorrect, as the submitter later (paragraph 56) states that "no agreement was reached on ongoing implications ...". This is different to disagreement on the issue. As stated prior, this matter was necessarily parked and subject to the outcomes of an eradication plan (and would be managed accordingly under a future process).

- 3.12 In relation to water quality issues at paragraphs 61 to 64, Mr Embling surmises that the proposed planting up of the lakes' margins (thereby helping maintain water quality) would be incompatible with a proposal outlined in the Alligator Weed Management document, to install a water permeable woven 'weed mat' (refer to paragraphs 5.5 and 5.34 to 5.37 of that Appendix 23 document). As noted prior (section 3.4 above) the document quoted by the submitter is not the AWMP envisaged under the PPC2 rule and resulting resource consents. The intention in the Alligator Weed Management document was to signal that weed mat type technology would be investigated to determine if cost effective methods could be implemented, essentially for the main lake.
- 3.13 At the time the report which was submitted with the PPC2 plan change documentation was written, it was envisaged that the weed mat concept would essentially line the lake bed (to address the potential deep burial of alligator weed in the soil profile being brought to the surface again) and possibly extend up the sides. It was not envisaged that weed matting would totally cover the lakes adjoining 'dry margins', thereby suppressing or denying vegetation being planted (although the indicative Figure 11 in the Appendix 23 document does show weed matting extending above water level at the Tauranga site). That image was taken in 2011 and technology and practices have moved on¹.
- 3.14 I have conferred with Mr Hamill over this matter and I am comfortable that the weed matting concept (along with a range of other possible solutions) is still a work in progress. I agree with Mr Hamill where he states in his evidence (at his paragraph 1.4 and elsewhere) that a number of further "investigations and monitoring to inform the detailed design, construction and on-going management of the lakes is needed".
- 3.15 In response to Mr Embling's comments around stormwater discharge (paragraphs 65 to 69) and that there would be an overland flow path (for stormwater) from the main lake outlet into an un-named tributary to the Waikato River, I have conferred with the author

¹ Pers. comm. Eddie Hewetson, Cirtexcivil, Tauranga, July 2019.

of the Stormwater Management Plan (Ms Bronwyn Rhynd). We note that this outlet and how it may be controlled has not been fully designed yet and is at a concept stage only. I further noted that any potential alligator weed material generated from the lake (assuming eradication is not immediately achievable) will likely be very small in volume, and not the floating mats of an unmanaged site. The applicant also has stated prior that no new stormwater outlets/connections are required from the main TAL site.

3.16 The current situation is that alligator weed could potentially escape into the above un-named stream. However, it is unlikely given there are already three mitigations in place to greatly reduce this likelihood (as outlined in the current WHP and Stormwater Wetland Plan under development). The mitigations include intensive spraying (up to three times a year) by WRC of infestations in the central lake, which currently drains to this watercourse; maintaining a thick sward of vegetation in the downstream wetland and the (proposed) deployment of a mini weed boom near the central lake outlet to capture any fragments if they did break free.

3.17 The mitigations above would likely remain as controls post development, outside of and downstream of the main lake outlet. I understand that the current central lake will be removed and reconfigured and that all stormwater from this area will be directed to the main lake. Consequently, and in addition to the controls above, the current thinking around management and design for the upstream/above the main lake outlet includes:

- installing signage/information around potential risks of vegetation accumulation (i.e. the need for all parties to be vigilant for alligator weed),
- the proposed Te Awa Lakes Residents Society (or resulting entity) may have a direct on-site management role to maintain the outlet free of weeds and general flotsam,
- the volume of water can be released slowly (for erosion prevention) which will also aid in monitoring of any vegetation, including alligator weed, fragments which may occur or build up at the outlet, and
- multiple mesh barriers are being considered, which although they cannot unduly hinder water hydraulics at the site, they can be designed to retain small fragments and prevent their discharge into the un-named tributary. For example,

the concept is that a 1 cm square sized mesh barrier be constructed first, then another similar sized mesh barrier, that is offset from the previous one and designed to catch any debris missed from the first system, be constructed downstream of or below the first mesh barrier.

- 3.18 Through further consultation on this matter (and in agreement with Ms Rhynd) it is noted that an addendum to the Stormwater Management Plan would be required to provide greater clarity around stormwater leaving this site, and noting that the risk of weed spread from the main lake is to be avoided as far as is practicable.
- 3.19 I have read Ms Rhynd's rebuttal statement and agree with her conclusions in relation to any updates required to the Stormwater Management Plan through the future land development phases to address any residual alligator weed management issues.
- 3.20 With reference to Mr Embling's statements at paragraph 79 and Appendix 3, and as noted in my prior primary statement of evidence, several matters were raised and discussed during caucusing around implications for alligator weed control in a completed residential environment. Mr Embling notes that no agreement was made, however because this matter largely sits outside the PPC2 process, and is dependent on many factors (including the eradication outcome), it is more correct to record that no determination could be made around the long term approaches needed or costs of control. "No agreement" suggests that it was discussed and that the parties could not agree, which is not correct either. The matter was, effectively, 'parked'.
- 3.21 I generally agree with the costs estimated at Appendix 3 around WRC's control costs in like situations based on smaller subdivisions around Hamilton with residual alligator weed issues. However, it is not clear whether the generic charge out rate of \$120 per hour is for one person or two. In previous dialogue with WRC the standard rate was noted as being \$60 per hour. If the assumption is that this rate is for two people to undertake all inspection and control work, then this could have been made clearer in Mr Embling's Appendix 3. If not, then it has been overestimated based on the standard rate above. The (labour) cost of monitoring is the biggest expense of an ongoing management regime, searching for the presence or absence of the weed and then undertaking control, which in private gardens where maintenance control is carried out,

is low-level in scale (e.g. injecting individual alligator weed stems with herbicide or spot-spraying).

- 3.22 However, the approaches and costs noted may be indicative of current best practice as applied now but do not consider alternative approaches and what technology and innovation may be able to produce in the future. For example, the use of trained detector dogs has proven very effective in locating hard to find pest plants² such as velvetleaf in crops. In my opinion, and from what I have read and witnessed regarding the potential for 'sniffer dogs' to assist in biosecurity responses, the situation where widely distributed, low density infestations/plants that may occur across a post TAL development site could be well suited to this method of management. This monitoring method has the potential to greatly reduce labour costs. Initial advice from a Bay of Plenty based contractor suggests a dog (or dogs) could be trained on alligator weed detection in a relatively short period³. There are potentially other innovative techniques for managing alligator weed long-term at the TAL site, should eradication not be achieved, that may be realised through the TAL development.

Response to Questions from Commissioners

- 3.23 On the opening day of the hearing, and during legal submissions from the Applicant regarding alligator weed, Cmr Watson asked why the alligator weed infestation cannot be dealt with before any development takes place (i.e. at this PPC2 stage).
- 3.24 In response, I note that alligator weed eradication / management is inherently tied in with the different stages of earth-works required to develop the land, such as dewatering the lakes, extending the haul roads, topsoil removal and clearing trees along the river edge. These phased progressions are set out in the Alligator Weed Management document (at paragraphs 5.14 through to 5.37).
- 3.25 Eradication is the overall goal, which will include removal, stockpiling known areas of infested soil and treatment (spraying) and deep burial of the weed. Because the site will be developed in stages, and there are varying densities of infestation in different areas (widespread in some places, low distribution in others, and nothing in the rest), the

² <https://www.landcareresearch.co.nz/publications/newsletters/biological-control-of-weeds/issue-80/8-dogs-offer-a-new-approach-to-weed-detection>

³ Pers. comm. Guus Knopers, owner/director of Wildlife Contractors Ltd, also trading as K9 Detection Services, July 2019, approx. 6-8 weeks.

degree to which any Alligator Weed Management Plan will need to address alligator weed issues depends on the particular area sought to be consented.

- 3.26 During the evidence of Mr Ray Mayor on soil contamination it was noted that removal of some soils (from four identified and separate areas) contaminated by petroleum and arsenic products would be required. Cmr Hill asked where any soil removed from the site (which might include alligator weed) would be disposed of.
- 3.27 In response I can confirm that it is likely that most if not all of the four sites identified by Mr Mayor in his Environmental Site Investigation will also contain some alligator weed (as identified from the WRC infestation control map in Figure 2 of my primary evidence).
- 3.28 Aside from any conditions around removing hazardous products, WRC approval is required for any alligator weed infested soil and vegetation removal, as a condition under the Restricted Place Notice. I further note at paragraph 7.3 of the Alligator Weed Management Report, that there are “effective ways of ensuring that trucked transport and disposal of ‘alligator weed contaminated soil’ to an appropriate landfill or approved deep burial site poses no or very low risk of spread, with sealed/leak proof closed side vehicles used and other controls put in place”.
- 3.29 In the case of secured alligator weed disposal, the Hampton Downs landfill in North Waikato is set up to receive alligator weed contaminated soil, where on its own it is separately deep buried. Additional controls may be required for petroleum and arsenic products disposal however my understanding is that this landfill is well set up to receive a wide range of contaminated or hazardous materials. Where material is physically placed once on site is up to the landfill operator to determine through their own processes.
- 3.30 To conclude, wherever contaminated material may be found on the TAL site, and is required to be disposed of off-site, how that process occurs will also address the presence of any possible alligator weed within that material at the same time. I therefore confirm that my conclusions outlined above remain valid and that by following agreed protocols for the disposal of contaminated soil, and with appropriate WRC approval, the risk of any alligator weed spread from this process would be negligible.

4. CONCLUSION

- 4.1 Having read the evidence of Mr Embling for Waikato Regional Council, and conferred with other subject matter experts, I remain of the opinion that alligator weed can be effectively managed through the range of mitigations and actions described for the different stages of the development, and that the approach taken in the plan change provisions to alligator weed management is appropriate to address any potential effects from alligator weed.

Peter Russell

4 December 2019