IN THE MATTER OF	**THE RESOURCE MANAGEMENT ACT 1991**
AND IN THE MATTER OF	**AN APPLICATION FOR SUBDIVISION AND LAND USE CONSENT FOR THE AMBERFIELD DEVELOPMENT**
BETWEEN	**WESTON LEA LIMITED** Applicant
AND	**HAMILTON CITY COUNCIL** Consent Authority

STATEMENT OF EVIDENCE OF ANDREA ELIZABETH GRAVES

Dated: 14th May 2019

Submitter introduction

I am Andrea Elizabeth Graves. I come from Tauranga and I have lived in Riverlea for almost 14 years. I live two streets back from Hammond Park, away from its steepness and huge trees. I've seen bats in Hammond Park but never near my house.

I am not an expert witness but I address you from the following angles. I was president of the Riverlea Environment Society for five years and I oversee Pest-Free Riverlea.

I have a BSc and MSc from the University of Waikato and a PhD in zoology from the University of Oxford. My MSc and doctoral research focussed on aspects of animal behaviour. I now work as a freelance science writer and editor.

I studied, essentially, evolutionary biology for nine years, in the sense that most of biology is framed in an evolutionary context. Animal behaviour certainly is.

I think that evolutionary biology is the best way possible of looking at the big picture. And I'm going to talk about big picture of nature in NZ, particularly regarding bats.

The long-tailed bat has been here for a million years.[1] The Peacocke area has been designated for urban development for thirty. Just thirty years. The blink of an eye.

They evolved in a place without any mammalian predators; bats were our only land mammals. They came about in a country of vast forests with huge trees, many of them very old, and there were numerous pristine waterways. These bats are constrained by their biology to eat nothing but flying insects, which they hunt and catch on the wing. There were no insecticides back then, and no asphalt, concrete or pollution, and insects would have multiplied in their billions. New Zealand had already existed like this for millions of years.

Early European settlers wrote of seeing long-tailed bats in their hundreds and thousands in the sky. Then they died off so quickly that they are now on a knife edge of survival. There is no next level of extinction risk compared to theirs. The next level is extinct. Forever.

All we have in Hamilton is a tiny relict population hanging on. We are lucky to have any at all. They are not thriving. They are barely here anymore. They are almost gone.

The reason long-tailed bats are at critical risk of extinction is largely because humans have repeatedly done the same thing the Applicant wants to do at Peacocke. Make money from their land. We have paved paradise and put up parking lots, roads and houses. We have raped our forests to grow meat and milk. Since humans arrived, 53 bird species alone have been lost to us and to the rest of the world forever. We have lost the massive Haast's eagle, a metre-high duck, the 80 cm tall adzebill, flightless wrens, the huia. The laughing owl left us by 1940. New Zealand's third species of bat, the greater short-tailed bat, has not been seen since 1965.

This is an ecological crisis of epic proportions. We are frogs in water that is close to boiling. If we were thrown in that pot of water just now, we'd be making drastic changes to get the heck out of the water. As it is, the water heated slowly over our lifespans, so we aren't taking nearly enough notice of it. However, over an evolutionary timespan, that water has heated very fast.

[1] O'Donnell, C. F. J. 2005. New Zealand long-tailed bat. In: *The Handbook of New Zealand Mammals* (Ed. by King, C. M.), pp. 98-109. Melbourne: Oxford University Press).

So bats, like other species, are dying off because of three things:

1. Mammalian predators eating them to death.

2. Habitat loss

3. Habitat fragmentation – the links between what habitat does remain being cut off.

They are so, so vulnerable. If a species is at a nationally critical risk of extinction, it is not an adaptable or resilient species. It is not coping with what we are doing to the land.

Many of us humans are so comfortable and sheltered from the environment that we've started being fascinated by dystopian post-apocalyptic novels and movies. Well, the bats are living out their own dystopian post-apocalyptic movie, and it's for real. Us humans are the selfish totalitarian rulers who hold the power.

I've worked on this Weston Lea case for more than a hundred hours without a cent of recompense. It's cost me a lot: I've abandoned clients, not invoiced clients and kept clients waiting – and that is not how I'd ever usually behave. I am doing it purely for love of this land and the native species that cling on to it, and for those that could return to it in future. These are species that had been living here for hundreds of thousands or, in some cases, millions of years before my ancestors had even become *Homo sapiens*.

How dare we do what we've done to our natural environment? How dare we be so arrogant and greedy? We have behaved appallingly.

And so, to urbanisation. Here's a fact that almost nobody's arguing against: bats avoid urbanisation. Even the Davidson-Watts Ecology report from last week showed that urbanised areas are our bats' least preferred environment.[2]

Here's another fact: the key features of Amberfield that we know bats are using will be protected in the consent proposal because those features are being retained and enhanced. (The riparian margin, the shelterbelt, the gully – noting that they are crossing pasture, possibly while moving from one feeding site to the next, but the pasture is not being retained. We don't know if they are using the shelterbelt Moira Pryde mentioned yesterday.)

So how do these two facts marry together? If we retain those key features, and enhance them – but we can only enhance them slowly, over years as the trees slowly taller – will the bats keep using those features even though those features will be hemmed in with roads and houses? With not just street lights, but lights shining from house windows and the powerful headlights of cars? In other

[2] **From Davidson-Watts Report 2019**

3.3.4 … A ranking matrix (Table 6) ordered the habitat types in sequence from most to least used as follows:

Native and exotic trees > river and open water >>> lifestyle > parkland > agricultural >>> industrial > urban.

4.3.5 … Dekrout (2009) found long-tailed bats avoided urban areas, amongst other habitats, which is in line with the results of the present study which consistently found low use of urban habitats by the tagged bats, despite the relatively availability of this habitat within bat homes ranges.

5.1.2 … Although peri urban areas were used by bats for roosting, for the long-tailed bats to the south of Hamilton, in particular the maternity population, urban habitats were the least used when in flight and generally these bats were recorded in forest habitats in rural agricultural settings.

words, the proposal is to surround what we know to be preferred habitat with what we know to be the least-preferred environment – in fact, one that the bats actively avoid?

Yes, bats do use areas of Hamilton that are hemmed in by urbanisation, but these areas are shaded gullies that are incised into the landscape and have big, old trees.

If we could fast forward the maturity of the buffering vegetation by twenty years, we'd have a chance of surety that those features would still be used by bats, because we'd be providing the sheltered dark refuges that bats can persist in. But we don't have access to that fast forward button. Even exotic trees take many years to get really big.

Nobody knows the answer to this for sure. There is great uncertainty. In my opinion, it is untruthful not to acknowledge that uncertainty. I do not understand why several experts are not acknowledging that uncertainty.

In fact, in the Environment Court Practice Note 2014 (and I realise this is not the Environment Court), section 7.3C states that if an expert witness believes that her or his opinions are not firm or concluded because of insufficient research or data, or for any other reason, that must be stated in the evidence.

You heard our kuia Tania Macdonald speak last week. Her husband died earlier this year, and she's a shy person, and speaking here was hard for her. She told me that she was doing it anyway because after she's gone, she didn't want her mokopuna asking why Nanny didn't do anything to stop the pekapeka going extinct. She is not going to live to see a forest grow. But she has done what she can to care for the land and all it is capable of supporting.

Well, me too. We are not going to lose the last relict we have, not on my watch. I will not stand by to watch our bats being pushed any harder into the Hunger Games.

But we have people who need houses and a legal landowner who wants to sell his land. The best way forward that I can see is for experts from the interested parties to collaboratively come up with a design for the land would house people and yet still produce a decent chance at preserving and enhancing the precious treasures it hosts.