BEFORE THE AUCKLAND UNITARY PLAN INDEPENDENT HEARINGS PANEL.

IN THE MATTER of the Resource Management Act 1991 and the Local Government (Auckland Transitional Provisions) Act 2010

AND

IN THE MATTER Topic 081b Rezoning and Precincts (Geographical Areas)

REBUTTAL STATEMENT OF

DYLAN VAN WINKEL

ON BEHALF OF THE

OKURA ENVIRONMENTAL GROUP

AND

THE LONG BAY-OKURA GREAT PARK SOCIETY

Ecology
Weiti Precinct

12 March 2016

1 SCOPE

1.1 The purpose of this rebuttal statement is to comment on the ecological evidence in relation to Topic 081 Rezoning and Precincts from Weiti Development LP on behalf of the Okura Environmental Group and Long Bay – Okura Great Park Society. In particular, I will address the evidence presented by Mr. Slaven (Boffa Miskell), and the results and recommendations given in the ecological assessment of effects (Boffa Miskell, 2007) and accompanying management plans (EMP(a) and EMP(b)), (Boffa Miskell, 2014a, b).

2 INTRODUCTION

2.1 My full name is Dylan van Winkel. I am a Senior Ecologist at Bioresearches Group Limited (a subsidiary of Babbage Consultants Ltd); a multi-discipline practice specialising in all aspects of ecology.

2.2 I am qualified with a Bachelor of Science (Zoology and Physiology), a Post-Graduate Diploma in Science (Conservation Biology and Entomology) and a Master of Science (1st Class Honours) in Zoology from the Massey University (2006). I have been in private practice for 8 years.

2.3 I am a member of the New Zealand Lizard Technical Advisory Group (NZ Lizard TAG), a contributing member of the New Zealand Threat Conservation Status - Reptiles panel, and am the Ministry for Primary Industries' (MPI) primary herpetological consultant on invasive species and biosecurity response.

2.4 I am a committee member of Friends of Okura Bush (FoOB), a not-for-profit community group working to protect, restore and enhance the ecological values of Okura Bush Scenic Reserve. I am familiar with the ecology of the area and active in providing advice on biodiversity monitoring and pest control operations.

2.5 My professional contributions include over 75 scientific publications and management reports, on subjects including invasive species threats, wildlife conservation and management, biodiversity surveying and inventory, and ecological assessment of effects. I have provided independent peer reviews for published manuscripts in New Zealand and international scientific journals, as well as scientific reference material and books. I am currently a contributing author to two books on New Zealand herpetofauna.

2.6 I have read the current Code of Conduct for Expert Witnesses as contained in the Environment Court's Consolidated Practice Note (2014), and I agree to comply with it. I can confirm that the issues addressed in this statement are within my area of expertise, except where I state I am relying on the opinion or evidence

of other witnesses, and that in preparing my evidence I have not omitted to consider material facts known to me that might alter or detract from the opinions expressed.

3 ECOLOGY

Assessment of Ecological Effects

3.1 The assessments of ecological effects pertaining to Weiti Development LP's proposed development are based on surveys and an Assessment of Environmental Effects (AEE) prepared nearly 10 years ago (Boffa Miskell, 2007). In my opinion, this work is limited, out dated and was carried out within the framework of a proposal for 150 lots at Karepiro Bay. Consequently, this AEE is not within current best practice or relevant to the current proposal.

Avifauna

3.2 The following views expressed in relation to local avifauna are based on the joint opinions of myself and ecologist Sarah Jane Wells.

3.3 Sarah Jane Wells has a decade of experience in marine and terrestrial ecology and conservation in New Zealand, and has a PhD in Ecology on mating systems of tūi. Sarah is a member of the Friends of Okura Bush (FoOB) committee and is directly involved in the avifaunal monitoring programme established for Okura Bush Scenic Reserve. (A complete background on Sarah Jane Wells is provided in her EIC on this topic)

Shore Birds and Waders

3.4 Mr. Slaven correctly states that the Karepiro Bay foreshore represents a diverse and productive ecosystem, and is an important feeding and roost site for resident and migratory shorebirds and waders; including "At Risk" species. Yet Mr. Slaven considers that a significant increase in pedestrian traffic, associated disturbance and displacement of birds, and potential for the disturbance to nesting endemic and "Nationally Vulnerable" dotterels will be negligible.

3.5 Mr. Slaven's evidence indicates (point 4.2 and 4.5) that the effects on wildlife (e.g. displacement of shore birds) already probable at the level of development enabled by the PAUP are unlikely to be exacerbated by the additional development potential sought by WDLP. This argument suffers from circular reasoning and is confounded by assumptions and an absence of empirical information. It should not be acceptable to degrade an environment and then use that degradation as a reason to degrade the environment more, particularly when that degradation occurs in, or directly affects, a marine reserve protected ecosystem. In our opinion, a conservative and cautionary approach is more appropriate whereby a reduction in disturbance through a

reduction in the number of lots (and therefore pedestrians) would lead to better prospects for resident protected wildlife.

3.6 We agree with Mr. Slaven (point 4.2) that increased pedestrian traffic will disturb and lift roosting shore birds off their current high tide roosts. Affected species include "At Risk" variable oystercatcher, reef heron, banded dotterel, and Caspian terns (Boffa Miskell, 2007). However, we disagree that the disturbance effects to both roosting and feeding shore birds will be negligible. More consistent disturbance as a result of the shore line receiving visitations by more people, more often is likely to have significant effects on both the frequency at which shore birds decide to roost in the area and the fitness of populations of migratory species that rely on the important feeding grounds along this shore line, such as eastern bar-tailed godwits and South Island pied oystercatchers. In our opinion, the increase in pedestrian traffic associated with increased housing will lead to long-term displacement of shore birds from Karepiro Bay.

3.7 New Zealand dotterel currently nest at Karepiro Bay and the Weiti River shell spit. Under the existing pressure from pedestrian traffic, as a result of the Okura Bush walkway, nesting success at Karepiro Bay is limited. However, there is an on-going effort by local residents to increase breeding success at Karepiro Bay involving monitoring, education, and fencing off of the nesting site to prevent disturbance. These efforts are likely to be confounded by any further development in this area. An increase in pedestrian traffic and therefore potential additional disturbance effects will have a significant adverse effect on the breeding success of the Karepiro Bay dotterels, in our opinion.

3.8 Mr. Slaven's assumption that dotterels would simply be displaced as a result of anthropogenic influences associated with further development, and take to breeding on the shell spit is confounded by a statement in the Boffa Miskell EMP(a) (p7), which states that the shell spit is "presently probably at carrying capacity". Under these circumstances, the most likely consequence in our opinion will be the displacement off-site and loss of dotterels from Karepiro Bay beach altogether and a subsequent reduction in effective population size (breeding population size). When population sizes are small, as are those of the New Zealand dotterel

(currently classed as "Nationally Vulnerable"), any reduction in effective population size is likely to have a substantial negative influence on the persistence of the population or species (Frankham, 2002).

3.9 The recommended mitigation for protection of dotterel breeding sites such as "fencing off" with flag tape and the addition of Department of Conservation signage is not considered adequate enough to prevent pedestrians and dogs from disturbing the site in our opinion.

3.10 Contrary to Mr. Slaven's views, it is our opinion that the additive effects of both additional development (i.e. sub-precinct A2) closer to dotterel nesting grounds and the vastly increased number of pedestrians accessing and disturbing the shoreline habitat will not be "negligible" but rather, significant.

3.11 Outside of the earthworks footprint there is no apparent mitigation for the loss of dotterel breeding habitat provided in the EMA (Boffa Miskell, 2014a); that is, the proposal to create additional bird roosting and breeding areas as suggested in the AEE (Boffa Miskell, 2007) has been omitted from the Ecological Management Plans. In our opinion, any loss of habitat should be compensated for at a ratio of at least 1:1.

3.12 There is no provision for pre-works nesting surveys for native birds (all native birds are protected) under the current EMA. The effects of development on native bird nesting are likely to be significantly greater than those expressed in the AEE considering the AEE only described the effects relative to the 150 lot development and not the area over which the current proposal extends.

3.13 Mr. Slaven states (point 3.12) that "All in all the bird communities that utilise the terrestrial habitats of the property are unremarkable and typical". We do not agree with this statement for the following reason. Tomtits, a "Not Threatened" but protected bird species, currently occur in the adjacent Okura Bush Scenic Reserve, (Wells, S. pers. obs. Dec 2015). As tomtits are known to utilize exotic plantation forest (e.g. pine) (Heather & Robertson 2015), our experience suggests that the remnant native bush patches and (remaining) pine plantation on the Weiti property provides an important habitat for this species. Tomtits are reported as "sparse" between Whangarei and Southern Waikato (Heather & Robertson 2015) and very few populations are known from the Auckland Isthmus. Therefore, Weiti/Okura area is considered an important mainland site for tomtit and "unremarkable" and "typical" certainly do not justify the property's bird community for this reason, in our opinion.

3.14 The Weiti property is centrally located within the corridor connecting populations on Little Barrier Island to the east, and Riverhead and the Waitakere ranges to the west. Tomtits are heavily influenced by urban effects

(van Heezik et al. 2008), and the removal of pine and proposed urbanisation will effectively result in a significant loss of suitable habitat for tomtit, and possibly the loss of the species from the area.

3.15 Native birds (including tomtit) displaced into either the small Weiti forest fragments or Okura Bush Scenic Reserve, as a result of development activities and sustained urban influences, are likely to be subjected to the swathe of pest mammals that are expected to follow similar dispersal pathways away from development. While pest control operations are provided for in the AEE and EMPs (Boffa Miskell 2007, 2014a, b), no consideration has been given to the effects on the wider landscape and appropriate mitigation should be provided by WDLP for such landscape affects.

Reptiles

3.16 Seven native and one introduced species of lizard occur in habitats between Long Bay and Orewa (DOC herpetofauna database, accessed Mar 2016). These include moko skink, copper skink, ornate skink, shore skink, pacific gecko, forest gecko, elegant gecko, and introduced plague skink. Of the seven native species, six (86%) are considered "At Risk" of extinction (Hitchmough et al. 2013; Hitchmough et al. in press).

3.17 Four species of native lizards are known to occur in the adjacent Okura Bush Scenic Reserve (G. Reid pers. obs.) and given their unspecialised habitat preferences (e.g. 75% of these species have been reported from within exotic pine plantation forest in the Auckland Region; Bioresearches, 2009; Bioresearches, unpub. data) my experience suggests that all four species, including two native skinks, would be present on the Weiti property; surviving in a range of habitat types and not specifically confined to native forest remnants as suggested by Mr. Slaven.

3.18 In my opinion, the absence of skink records and low number of gecko records from the Weiti block must be considered an artefact of poor survey effort—rather than crypsis as eluded to in Mr Slaven's evidence—whereby the methods, effort, and site selection employed by ecologists were insufficient to achieve adequate detection probabilities of native lizards.

3.19 The two initial surveys for reptiles (Envirologic 2006, Boffa Miskell, 2007) used artificial cover objects (ACO) as the primary tool for detecting skinks. While this method can be effective, success is heavily influenced by a several variables (e.g. ACO material, observer experience, ACO placement, settling time, frequency of inspections, etc.) and results must be interpreted cautiously (i.e. lack of detection does not infer absence).

3.20 Of the three herpetofauna surveys undertaken on the Weiti property (n = 3), the survey by Melzer (2014) may be considered the most comprehensive—due to the use of pitfall traps; an effective method for surveying for

lizards. However, in my opinion, this survey effort was still considered insufficient to determine the presence of low abundance lizard populations[1] for the following reasons:

3.21 Melzer (2014) used 250 ml pitfall trap vessels to survey for terrestrial skinks. A 250 ml vessel (note: this is smaller than a can of Coca-Cola) is not sufficient to retain captures of most local lizard species; many of which equal to or longer in length than a Coca-Cola can and could escape with ease. Both native and introduced species of lizards were capable of escaping from 4-litre paint buckets used as pitfall traps at the nearby Shakespear Regional Park (D. Craddock pers. comm. 8 Mar 2016), indicating that escapes from a 250 ml vessel would be highly likely. Therefore, I consider this method ineffective for surveying for skinks and the probable reason why only one individual *L. delicata* and no native skinks were caught despite the 490 trap days stated in Melzer (2014).

3.22 Similarly, a total of 3.0 person hours of nocturnal spotlight searching undertaken over the entire Karepiro Policy Area by Melzer (2014)—of which only one ecologist was an experienced herpetologist—is considered too low to provide an accurate assessment of the local herpetofauna in my experience. For example, the 2006 reptile survey (Envirologic, 2006) detected two species of geckos both at encounter rates of 0.15 geckos per person hour. Therefore, the encounter rate to detect 1.0 gecko per person hour would have required at least 6.67 hours (1/0.15 = 6.67) of survey effort by Melzer (2014).

3.23 It is my opinion that the low survey effort for geckos within the proposed development site was insufficient to describe the gecko diversity and abundance, and has resulted in an inaccurate assessment of the value of the site for protected "At Risk" native geckos.

3.24 An inaccurate assessment of the diversity and abundance of lizard communities on Weiti property confounds the ability to recommend appropriate mitigation. For example, the proposed salvage and relocation of lizards into "suitable habitats away from the sub-precinct development areas" is not considered an appropriate mitigation solution since these "suitable habitats" (i.e. forest fragments) will already be supporting resident lizard communities. 'Lizard dumping' into existing habitat will result in competitive effects such as displacement by resident lizards and/ or resource competition that may affect survival rates.

3.25 The salvage operation for native skinks proposed within the Lizard Management Plan (Melzer, 2014) relies on the use of ACOs and opportunistic searching of "available natural cover objects and vegetation". These two methods were not effective in detecting any lizards during the previous herpetofauna surveys. Based on my experience, it would be more appropriate to utilize a wider range of capture techniques to salvage protected

[1] I would like to emphasize that a low abundance population does not infer 'low value' or detract from the importance of the area as habitat for protected lizards, given that majority of native lizard populations on the Auckland mainland persist at low abundance (Bioresearches unpub. data; D. van Winkel *pers. obs*.).

lizards from the site prior to construction, including but not limited to pitfall traps (e.g. 10-litre plastic buckets), ACOs, piecemeal habitat degradation, G-minnow funnel traps, habitat searches and machine-assisted vegetation-clearance searches.

3.26 The herpetofauna assessments did not recognise exotic pine plantation or the pine forest-scrubland fringe as habitat for native lizards despite accounts of both native geckos (e.g. *Mokopirirakau granulatus*) and skinks (e.g. *Oligosoma aeneum*) being found in this vegetation (D. van Winkel, pers. obs.). Similarly, rank grass was considered "low value for lizards" by Melzer (2014); however, rank grass actually represents a significant component of the habitat of the "At Risk – Declining" ornate skink in the North Shore and Hibiscus Coast areas; particularly at Shakespear Regional Park (van Winkel, 2009; Bioresearches 2009; D. Craddock pers. comm. 8 Mar 2016).

3.27 The relocation sites for lizards potentially salvaged pre- and during development activities include two forest fragments, both of which are likely to support populations of native geckos and skinks already. The introduction of salvaged lizards into habitat already supporting established populations could jeopardise the success of the relocation due to competitive exclusion and resource saturation effects.

3.28 In my experience, lizard surveys can significantly underestimate lizard abundance, with a true abundance determined during salvage operations. For example, a single ornate skink was recorded during a survey of rank grass at the Silverdale Pak 'n Save site in 2010. However, the salvage operation resulted in the capture of 25 ornate skinks from within the survey area (Bioresearches, 2011). Therefore, if the lizard salvage operation within the Karepiro Policy Area results in unexpectedly high numbers of lizards, the two forest fragments will not be sufficiently adequate to receive these animals (for the reasons described above). The reliance on two forest fragments as relocation sites for the immediate release of salvaged lizards is considered inappropriate in my opinion. Newly established relocation sites, of suitable habitat quantity and quality, should be created to receive salvaged lizards and mitigate for the loss of habitat (compensation ratio of at least 1:1).

3.29 The EMP(b) (Boffa Miskell, 2014b) has not provided for, and the PAUP Weiti precinct provisions do not require, a lizard salvage operation in suitable habitat outside the immediate Weiti Bay development area (Boffa Miskell 2014) (i.e. within the wider Weiti Project Area) despite the current proposal for development of many areas across the property where lizards and their habitat will be effected.

3.30 The EMP(b) (Boffa Miskell, 2014b) states that the "mitigation package for the wider project will improve the quality of habitats for lizards within the WeitiBay development" but fails to acknowledge both the presence of and mitigation for native lizards known to present in other areas of the Weiti Project Area. Mitigation for

the significant loss of lizard habitat should occur over the entire Weiti Project Area to reflect the widespread distribution of lizard communities.

3.31 A Lizard Management Plan can be required by Council through proposed Sub-precinct B subdivision rule 4.3.9, as stated in Mr. Grace's evidence (point 6.18). While I agree with the Sub-precinct B subdivision rule 4.3.9 (Attachment 1 of Mr. Grace's evidence) and its requirements, I do not agree with his conclusion that the ecological effects associated with development of the new and expanded Sub-precinct areas would be appropriately managed through the proposed precinct provisions. This is because, in my opinion, the mitigation scheduled under the consented LMP for Sub-precinct A1 works is unsatisfactory, as mitigation recommendations have been based on a tenuous lizard survey. Therefore, it follows that any future LMPs are also likely to be insufficient and will fail to mitigate for a no net loss outcome.

North-West Wildlink

3.32 Mr. Slaven correctly states that the Weiti forest fragments are an important component of the success of the North-West Corridor (point 3.13). Until recently the Weiti property and Okura Bush Scenic Reserve have together provided a substantial area of native and exotic forest within the North-West Wildlink corridor, providing important feeding and refuge habitat for native species. However, the extent of forest fragmentation on the Weiti property to date, coupled with the proposed interspersion of highly urbanized areas would in my opinion, act to restrict or significantly limit the movement of some native species within this site; ultimately affecting the integrity of the corridor.

3.33 The EMP gives little consideration to how the proposed mitigation will contribute holistically to the overall environment. The effects of forest fragmentation and urbanisation of a rural landscape, particularly with respect to dispersal pathways for native wildlife (e.g. lizards and birds) within the North-West Wildlink corridor, must be addressed more appropriately in my opinion.

Domestic animals

3.34 Currently the prohibition on dogs along the Okura Bush Scenic Reserve walkway and Beach at Karepiro Bay is not respected by members of the public entering the reserve via the Okura or Stillwater access ways; despite the presence of permanent "no dogs" signage at either end of the walkway. Under the WDLP proposal, a vast influx dogs into the area is expected and with the added ease of access to the Karepiro Bay shoreline (as a

result of the walkway creation), more pressure will be exerted on the sensitive environment of Karepiro Bay and adjacent Okura Bush Scenic Reserve.

3.35 As the development will be in close proximity to a range of sensitive vegetation and wildlife habitats, the risk of both exotic pests (e.g. rodents, possums, hedgehogs and mustelids) and domestic pets entering these areas and disturbing and/or killing native wildlife is considered unacceptable. While I support actions to "enforce a total ban on cat ownership and requirement for dog ownership to be only allowed on lots with fully-fenced dog-proof sections, as well as a prohibition on dogs' presence on the common land (including the private road) unless on a leash", this does not provide any assurance for the protection of the "At Risk" local wildlife, given enforcement is likely to be poor (as is currently the case in the area). Much stricter compliance and/ or a complete ban on the ownership of cats and dogs are the only options to mitigate adverse ecological effects in my opinion.

3.36 Mr. Slaven indicates (point 3.17) that "significant ecological benefits" will be associated with the consented Karepiro Bay and Village 1 subdivisions, and the extended subprecinct B and new sub-precinct A2", including pest control in perpetuity. While on-site pest control may offer protection to some wildlife displaced by the proposed development, other wildlife displaced off-site into adjacent habitat fragments will not receive these benefits. In my opinion, a landscape-wide pest control programme (inclusive of the Weiti, Okura, and Stillwater areas) should be implemented and managed long-term to mitigate any adverse ecological effects on resident wildlife communities.

4 CONCLUSION

4.1 No true assessment has been made of the environmental impact of the proposed PAUP or WDLP developments. The AEE only assessed the impact of 150 houses and since then there have been no further comprehensive AEEs. Studies that have been done (such as Envirologic 2006, Boffa Miskell 2007, and Melzer 2014) were flawed in their methodologies and significantly understate the populations of threatened species.

4.2 Mr. Slaven understates the environmental impact of development in a number of significant areas, including the impact on shore, migratory and terrestrial bird species, and lizards. The impacts of the proposed development on many uncommon and "At Risk" species will be significant. At the level of development proposed and with the low level of mitigation recommended there will be a net loss of ecological value.

4.3 In my opinion, the proposed PAUP development of 1200 dwellings and the WDLP proposal of 1750 dwellings will have significant environmental impacts that cannot be mitigated. A reduction in the number of lots permitted for development preferably to 150 lots, in conjunction with a more comprehensive

environmental/landscape management plan, and appropriate mitigation and monitoring, would be required to reduce the significant environmental effects to an acceptable level.

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