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Dear Emma

Ecological Review - McPherson Quarry Ecological Impact Assessment (EclA) and Ecological Management Plan (EMP)

1.0 Introduction

A review of ecological documentation submitted by McPherson Quarry 'the applicant' to Waikato Regional Council (WRC) was completed in November 2018. This documentation included:

- Ecology New Zealand (2018) Ecological Impact Assessment (EclA) - McPherson Quarry
- WSP-Opus (2018) McPherson Quarry Vegetation Assessment Report.

The review identified the need for further information and the following documentation illustrates the exchange of information;

- AECOM (2019) McPherson Quarry - Ecological Review.
- Ecology New Zealand (2019) Additional information provided in response to the Section 92 request.
- AECOM (2019) Response to additional information provided in response to the Section 92 request.

To address the information gaps the applicant has submitted the following documentation for review;

- Ecology New Zealand (2019) Ecological Impact Assessment – McPherson Quarry V4.
- Ecology New Zealand (2019) Ecological Management Plan (EMP).

2.0 Review of Ecological Impact Assessment

The EclA identified that the quarry expansion would have the following ecological impacts and consequently ecological effects, without mitigation;

- The loss of 2.45 ha of kanuka dominated forest which is designated as a Significant Natural Area (SNA) – **Low effect.**
- The loss of 311 m of permanent stream (Tributary 1) – **Low effect.**
- The loss of three ponds (Pond 1, 2 and 3 - 0.99 ha) – **Low effect.**
- The loss of habitat suitable for at risk bird species recorded on site – New Zealand Dabchick ('At Risk – recovering) and Black / little black shag ('At Risk – Naturally uncommon') – **Not assessed** in Section 4 – Section 5 states effects on terrestrial fauna will be low.
- The loss of habitat suitable for long-tailed bats (Threatened -Nationally Critical) recorded on site – **Not assessed** in Section 4 – Section 5 states effects on terrestrial fauna will be low.
- The potential loss of indigenous lizard habitat (long grassland and the kanuka dominated forest). However, it is noted that after a detailed survey that indigenous lizards were not recorded on the site – **Not assessed** in Section 4 – Section 5 states effects on terrestrial fauna will be low.
- There is the potential for indirect impacts on Waipunga Stream (Stream 1) through sediment discharge, which discharges into the Mangatowhiri River and then the Waikato River – **Very high effect.**

- The loss of habitat supporting longfin eel ('At Risk – Declining') and the potential for indirect impacts on inanga ('At Risk – Declining') was recorded in Waipunga Stream (Stream 1) – **Not assessed**.

The EclA recommends the following mitigation;

- Nesting birds – avoidance through timing of vegetation clearance works or nesting bird checks prior to clearance.
- Lizards – resurvey prior to clearance of the kanuka dominated forest.
- Bat – resurvey prior to vegetation clearance and if bats are found to be present undertake appropriate preclearance checks of trees.
- Terrestrial habitat – plant an ecological corridor between the two SNAs to the north of the quarry. Deliver pest control in this habitat.
- Freshwater habitat – creation of wetlands to compensate for the loss of open water (ponds) (1:0.5 ratio).
- Fish – salvage of fish from the ponds and Tributary 1 prior to and during dewatering.

3.0 Review of the Ecological Management Plan

The EMP presents the proposals for terrestrial and freshwater habitat restoration in detail. It is considered that this document would provide sufficient guidance to the contractors to deliver the proposed restoration and for WRC to check compliance.

4.0 Recommendations

The EclA indicates that the applicant has sought to reduce the impacts that the quarry expansion would have on the SNA, albeit, that the loss of SNA habitat will still occur. It is considered that the magnitude of effect on terrestrial habitats and associated fauna (bats, birds) is greater than the EclA indicates – low ecological effect. However, it is considered that the habitat linkage that will be provided by the northern corridor could provide ecological benefits that are not currently present on site (connectivity), if delivered appropriately.

- It is recommended that the conditions on the resource consent are prescriptive in relation to when the northern corridor is delivered. It is recommended that the conditions stipulate that the applicant starts planting the northern corridor a year prior to vegetation removal taking place. The condition should also stipulate that the planting of the corridor (4.16 ha) cannot take more than three consecutive planting seasons.
- The conditions should stipulate that the applicant would need to make contact with QEII at the start of the planting and that the northern corridor must be placed under a covenant prior to planting being completed. The responsibility for the maintenance of the planting will remain with the applicant until 75% canopy closure and 90% survival rate has been achieved. The responsibility for pest control will remain with the applicant for the lifespan of the quarry as stipulated in the EMP.
- It is recommended that it is stipulated that the applicant must use plant guards to protect the plantings (northern corridor and riparian restoration) as it is not considered appropriate that indigenous bird species (pukeko) should be killed when there is an alternative management approach.
- It is recommended that the planting mix for the terrestrial habitat is developed further than that presented in the EMP in Table 8. It is understood that the mix is focused on those species that will ensure rapid canopy closure and there is available seed source in the local area. However, the mix should include a greater diversity of tree species. The mix is focused on low growing species that are generally not long living species. The conditions should state that the planting mix will require prior approval from WRC.
- The EMP indicated that the northern corridor should be fenced. The conditions should stipulate that the planting must (will) be fenced in accordance with the guidelines stipulated in the EMP prior to any plantings commencing on site.

- The EMP indicates two areas of SEA which have been avoided by Project. During the walkover completed by AECOM it was observed that these habitats have been degraded as they are unfenced and stock have been grazing through these areas. It is recommended that the conditions require that these areas are fenced and restored. The approach to restoration in these areas should require approval from WRC prior to works commencing. The restoration of these habitats should start one year prior to vegetation removal within the SEA and should take no longer than three years to complete.

The stream offsetting proposed is to mitigate for the loss of stream length caused when 311 m of permanent stream will be reclaimed and to manage the risks of indirect impacts to Waipunga Stream.

Although stream loss should be avoided wherever practical, it is considered that if the stream restoration of Waipunga Stream was implemented appropriately, suitable Erosion and Sediment Control was in place and the discharge of water from the site was managed appropriately e.g. volumes, that overall the ecological outcome could be positive as Waipunga Stream.

The EclA proposes that 7.5 m either side of Waipunga Stream is replanted with native riparian species for 930 m.

- It is recommended that the conditions stipulate that the riparian planting is to be a minimum of 10m either side of the stream (total width 20 m)¹. This is the minimum width required to ensure that stream function is restored. This is particularly relevant to the eastern bank of the stream, where it is proposed that material / overburden will be stored.
- It is recommended that the planting mix for the riparian margins is developed further than that presented in the EMP in Table 10. It is understood that the mix is focused on those species that will ensure rapid canopy closure. However, the objective of the planting is to provide instream shade in the long term, therefore, the species mix at the top of the embankment needs to be developed to include more tall tree species. The conditions should state that the planting mix will require prior approval from WRC.
- The EMP indicates that there is a section of stream where bank collapse means that plants will be set back from the stream. It is recommended that the conditions state that in areas of erosion or bank collapse the bank should be reprofiled to ensure that the streams natural function is restored on completion of the planting

It is considered that the proposed wetlands could provide greater ecological value to the ponds currently on site if delivered as specified.

- However, it is recommended that the conditions stipulate that there will be additional buffer planting around these features, compared to that specified in the EMP. The buffer (>5m) should include taller tree species and be placed between the wetland and the working area. The objective of the plantings would be to increase the potential for species such as New Zealand dabchick to visit them. It is considered that without this screening it is unlikely that these species would be visit.

It is recommended that the conditions also specify the inclusion of the following habitat enhancement measures for bats and lizards.

- The installation of 25 Kent style bat boxes with predator exclusion bands. To be installed at least 5 m above the ground and on trees located at the forest edge or on a linear feature. If bats are found to be present, then the Bat Management Plan (BMP) will need to be updated to ensure that suitable mitigation is provided.
- Installation of lizard log piles within the northern corridor (minimum of 5).

The following management plans will be produced by the applicant and approved by WRC;

- Bat Management Plan
- Fish Management Plan

¹ Becker, K., Blackford, C., Bowden, D., Jamieson, A., Lovegrove, T., Maxted, J., Viljevac, Z. (2001). Riparian zone management – Strategy guideline, planting guide. Auckland Regional Council Technical Publication TP148.

- Lizard Management Plan
- Erosion and Sediment Control Plan

The Ecological Management Plan should be updated to include the recommendations detailed above.

5.0 Conclusion

It is considered that the implementation of the mitigation measures proposed could deliver ecological benefits that exceed those currently on site. However, this is reliant on the mitigation being delivered well and adopting the additional recommendations detailed above.

If you have any questions in relation to my comments please do not hesitate to contact me.

Yours faithfully



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