

Our Ref: R5208a

12 November 2019

Gleeson Quarries Huntly Ltd
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Dear Bianca

GLEESON QUARRY HUNTLY OFFSET LOCATION ASSESSMENT

INTRODUCTION

Gleeson Quarries Huntly Ltd is seeking resource consent for four new fill areas within Gleeson Quarries Huntly Ltd landholdings (Figure 1). Fill Areas 2-4 will be used for both quarry overburden and imported cleanfill material and Fill Area 5 will be used for quarry overburden. The proposed works at the site will result in the loss of approximately 1,530 m² of wetland habitat. An Ecological Impact Assessment¹ (EIA) of the proposed works recommends creating wetland habitat at a ratio of 1:1 as offset for wetland loss. In addition, the EIA identified potential roosting and foraging habitat for long-tailed bats (*Chalinolobus tuberculatus*) within three of the four proposed fill areas. The proposed works will remove or modify long-tailed bat foraging and/or roosting habitat, therefore mitigation and/or compensation for this habitat loss is required.

There are no suitable locations at the quarry site to undertake management actions to address the adverse ecological effects of wetland and long-tailed bat habitat loss. Two gullies on a nearby property also owned by Gleeson Quarries Huntly Ltd have been proposed as a potential compensation location.

To this end, Paua Planning Ltd, on behalf of Gleeson Quarries Huntly Ltd, commissioned Wildland Consultants Ltd to assess the suitability of the gullies as an offset location.

¹ Gleeson Quarries Huntly Limited - District and Regional Resource consents for new fill sites within quarry landholdings: Ecological Impact Assessment. Boffa Miskell Ltd 30 July 2019.

METHODS

A site visit was undertaken on 17 October 2019 to assess habitats within the proposed fill areas to confirm the accuracy of the descriptions provided in the EIA. The two gullies proposed as compensation locations (Compensation Areas 4 and 5, Figure 1) were then assessed. A second site visit was undertaken on 31 October 2019 to deploy Automatic Bat Monitors (ABMs) within the fill areas and to broadly assess potential bat roosting and foraging habitat. A full roost tree assessment has not been undertaken at this stage.

PROPOSED FILL AREAS

Vegetation

Most of the vegetation types described within the proposed areas are highly modified and are considered to have 'Low' to 'Negligible' ecological values. Fragments of indigenous vegetation described as "secondary podocarp-broadleaf forest" in Fill Areas 2 and 4 are considered to have 'High' ecological value despite the impacts of grazing and the small size of the fragments. These fragments will not be impacted by the proposed works.

The vegetation descriptions provided in the EIA provide an accurate assessment of the ecological values of the habitats within the proposed fill areas.

Long-tailed bat habitat

The EIA identifies three vegetation types (secondary podocarp-broadleaf forest, exotic forest/treeland, and wetlands) as providing 'Very High' value for long-tailed bats in the form of foraging and roosting habitat. Potential roosting habitat were identified in large pines (*Pinus* sp.) in Fill Area 2, in exotic plantings and individual mature indigenous trees in Fill Area 4, and in exotic plantings in Fill Area 5.

A full survey for potential long-tailed bat roosting habitat has not been undertaken; however, potential roost trees were observed in the vegetation types outlined above. Two large pines in Fill Area 2 have already been felled, so any potential long-tailed bat roosts in these trees have been lost. Also, some vegetation on the edge of planted pines in Fill Area 5 was cleared between 17 and 31 October to allow detailed geotechnical investigations (B. Schoeman, Paua Planning Ltd, pers. comm.). Dead and dying pines within Fill Area 5 provide potential roosting habitat for long-tailed bats and some potential roost trees may have been lost during this vegetation clearance.

PROPOSED COMPENSATION LOCATIONS

Two stream gullies at a rural property on Hillside Heights Road (also owned by Gleeson Quarries Huntly Ltd) have been identified as potential compensation locations (Figure 1). The property lies approximately one kilometre to the northwest of the quarry; a series of vegetated gullies between the potential offset and the quarry form stepping stone linkages between the sites. Only one gully is proposed to be used as an offset location; however, a decision has not been made as to which one so descriptions are provided for both. The

numbering of the proposed Compensation Areas is based on a plan provided by Paua Planning Ltd.

Compensation Area 4

Compensation Area 4 encompasses a stream gully and a small tributary that joins the true left bank of the main stream approximately half way down the gully. The stream has been dammed at the downstream (northern) end of the proposed offset area to create an irrigation pond. The dam has altered the hydrology of the stream, which has led to the formation of an induced wetland system extends along most of the gully floor. If the dam was removed the wetland would likely revert to a natural stream channel. The wetland supports a range of indigenous plant species and, with the exception of some grey willow (*Salix cinerea*) immediately upstream of the pond, appears to be relatively free of pest plants.

The main gully and the tributary are well-buffered by indigenous vegetation including kahikatea (*Dacrycarpus dacrydioides*), pukatea (*Laurelia novae-zelandiae*), kānuka (*Kunzea robusta*), and tītoki (*Alectryon excelsus*). Chinese privet (*Ligustrum sinense*) is common, particularly on the edges. A range of indigenous shrubs are present and some regeneration of indigenous species is apparent. The gully vegetation and pond provide good foraging habitat for long-tailed bats. Some trees that provide potential roosting habitat for long-tailed bats are present, including a large pine on the ridge between the main gully and the tributary.

Compensation Area 5

Compensation Area 5 consists of a gully drained by one watercourse. The proposed offset area indicated in Figure 1 encompasses an ecological sequence from a degraded hillside seepage wetland at the head of the gully to a raupō (*Typha orientalis*) swamp at the downstream extent. The stream that flows through the gully is hard-bottomed with a range of hydrological features including runs, riffles, pools, and small waterfalls. The stream banks are vegetated with a diverse range of indigenous tree species including pukatea, kahikatea, kānuka, taraire (*Beilschmiedia tarairi*), and karaka (*Corynocarpus laevigatus*). Epiphytes are common throughout the gully and a wide range of indigenous shrubs and ground cover species are present. Trees providing potential bat roosting habitat in the form of hollows, cavities, broken spurs, epiphytes, and cracked and flaking bark are common. Barberry (*Berberis glaucocarpa*), gorse (*Ulex europaeus*), and Chinese privet are present in low densities with some grey willow present in the raupō swamp.

ASSESSMENT OF SUITABILITY

Restoration of either of the proposed compensation areas will address the loss of wetland and long-tailed bat habitat at the proposed fill locations. The EIA recommends a 1:1 restoration ratio for the loss of 1,530 m² of wetland habitat; however, this ratio is only appropriate where 'like-for-like' restoration is being undertaken, i.e. restoration of a degraded wetland as compensation for the loss of a degraded wetland. Wetlands in both of the proposed compensation areas are in relatively good condition and it would be difficult to increase their ecological values. As such, a larger area for ecological restoration is required in order to compensate for loss of values in the proposed fill areas.

Both of the proposed offset sites provide foraging and roosting habitat for long-tailed bats. The restoration of the gullies could provide compensation for the loss of long-tailed bat roosting and foraging habitat in the proposed fill areas.

SUGGESTED RESTORATION ACTIVITIES

Rather than focussing on restoration ratios, a holistic approach is suggested whereby an entire gully is protected and restored. The existing indigenous vegetation in proposed Compensation Areas 4 and 5 measures 2.0 and 1.7 hectares, respectively (figures provided by Paua Planning Ltd). The proposed restoration areas illustrated in Figure 1 provide a 10 metre buffer around the indigenous vegetation giving total restoration areas of 3.0 and 3.9 hectares with a perimeter of 1,422 and 1,590 metres for proposed Compensation Areas 4 and 5, respectively.

As stated above, restoration of either of the gullies would provide sufficient compensation for habitat loss in the proposed fill areas. However, protection and restoration of Compensation Area 5 will provide the best ecological outcome due to the natural hydrological regime (unlike Compensation Area 4 where the dam has produced a pond and an induced wetland), the higher diversity of indigenous plant species already present, and the amount of potential bat roost habitat that is present.

The gully selected for restoration should be protected with a stock-proof fence. Pest plants such as Chinese privet, gorse, barberry, and grey willow should be controlled throughout the gully. Controlling rats and possums through bait stations and mustelids (*Mustela* spp.) through trapping will have ecological benefits for flora and fauna within the offset area, including long-tailed bats. Existing mature indigenous vegetation in both gullies provides an excellent seed source and open areas are likely to become colonised by indigenous plant species once stock grazing has ceased and seed, flower and fruit predation by possums and rats has been suppressed. The exception to this is the seepage the watercourse between the wetland and the edge of the existing vegetation in Compensation Area 5. Planting of the wetland and a buffer to the wetland and the stream will be required to restore this habitat. Habitat for long-tailed bats can be improved through pest animal control and the installation of artificial bat boxes.

At the time of writing, the bat survey within the proposed fill areas is in progress and a roost tree survey has not been undertaken. Accordingly, the potential adverse impacts of habitat loss at the proposed fill sites have not been quantified and therefore the quantum of compensation required cannot be calculated.

All restoration activities should be guided by an Ecological Management Plan (EMP) and a Bat Management Plan (BMP) prepared by suitably qualified and experienced specialists. The EMP will provide a detailed vegetation map and fencing plan, a map showing the distribution and abundance of pest plant species, recommended control measures for pest plants and pest animals present, and planting plans for the areas that require planting. The BMP will contain a tree removal protocol, guidelines on how to care for injured bats should any be found during vegetation clearance, and measures to compensate for the loss of potential roosting and foraging habitat.

CONCLUSION

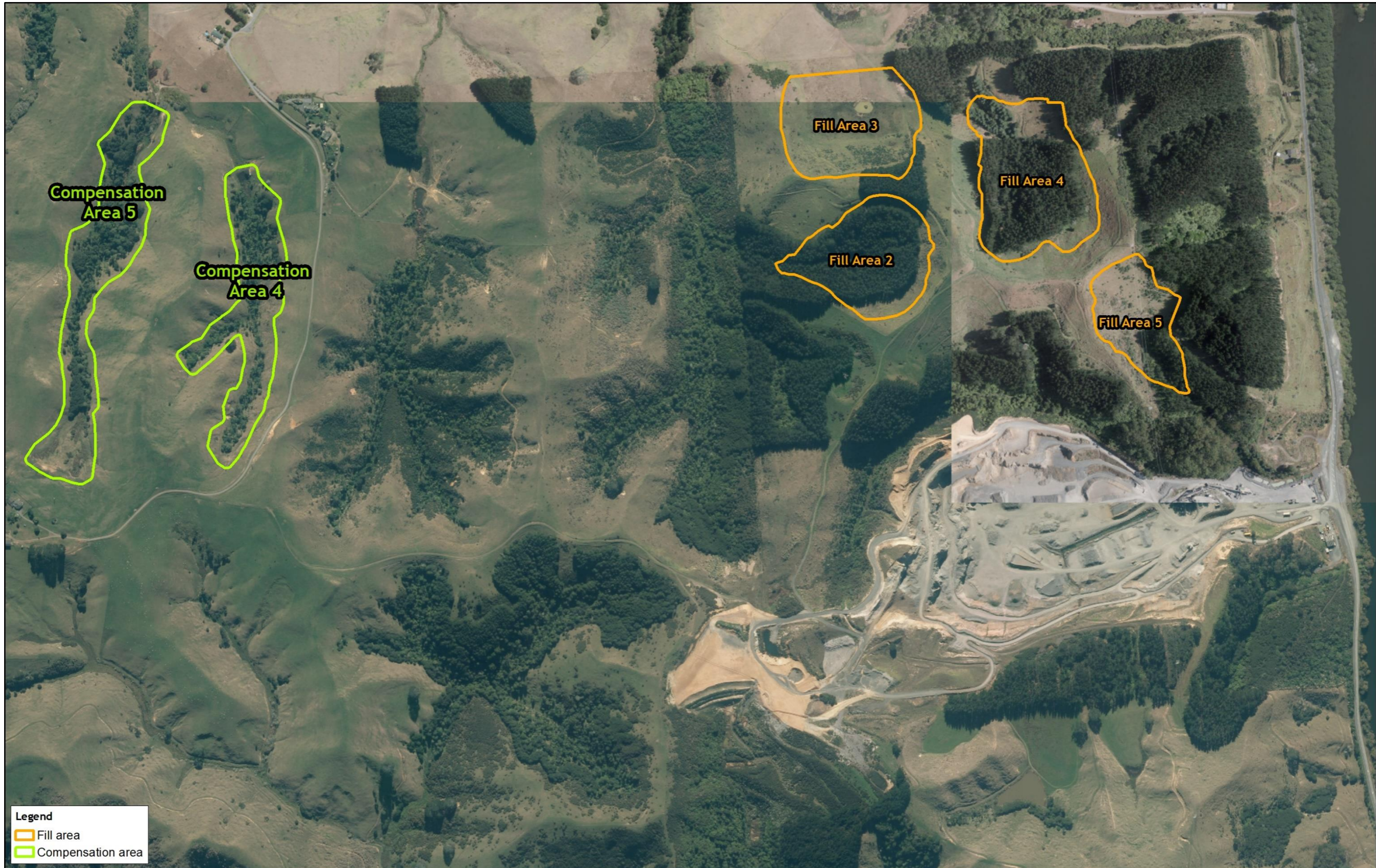
The creation of four new fill sites at a quarry in Huntly will result in the loss of 1,530 m² of wetland habitat and the loss of potential roosting and foraging habitat for long-tailed bats. There is no suitable habitat immediately adjacent to the quarry to compensate for the negative ecological impacts of habitat loss. Two potential compensation locations comprising gullies and streams have been identified on a property also owned by Gleeson Quarries Huntly Ltd approximately one kilometre to the northwest of the quarry. Restoration of either gully has the potential to compensate for the loss of ecological values resulting from habitat loss at the quarry; however, restoration of Compensation Area 5 is recommended as the existing habitat present has higher ecological values than Compensation Area 4.

Suggested restoration activities include fencing, pest plant and animal control, and installation of artificial bat boxes. Restoration activities should be guided by an Ecological Management Plan and a Bat Management Plan prepared by suitably qualified and experienced specialists.

Yours sincerely



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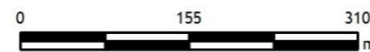


Legend
[Orange outline] Fill area
[Green outline] Compensation area

Data Acknowledgment
Map contains data sourced from LINZ
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Report: 5208
Client:
Ref: 061398
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File: Figure_ProposedFillRestoration.mxd

Figure 1. Proposed fill and compensation areas at Gleeson Quarry, Huntly



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