PROJECT MEMORANDUM

mansergh graham
LANDSCAPE ARCHITECTS

Project:	**Consent Application LU/0077/23 - RS Sand Limited**	**Memo:** 1/R0	**Page:** 1 of 8
Topic:	Response to a Request for Further Information – Landscape and Visual Effects		
Date:	20 September 2023		
Attention:	Christian Mc Dean – Kinectic Environmental Consulting Ltd		
From:	Dave Mansergh- Landscape Architect for the Applicant		

INTRODUCTION

R S Sand Ltd has sought consent to extract up to 400,000 tonnes of sand per year from a 27-ha site over approximately 25 years, at 77 Newcombe Road within the Waipa District. The application site is located on the upper terrace between the deeply incised Karapiro Stream gully to the north and State Highway 1 to the south. The site is zoned rural and is currently used for agricultural purposes.

Mansergh Graham Landscape Architects Ltd ("MGLA") has been engaged to assess the effects of rezoning the site on the landscape, natural character, and visual amenity values.

On 19th June 2023, Waipa District Council issued a request for further information (Ref: LU/0077/23). This memorandum has been prepared in response to the request for further information requests relating to landscape design and effects. These requests were contained in the *Boffa Miskell Peer Review Response Report* dated *09 June 2023* and are enumerated below with the corresponding response.

Request 1 ***Further Information on proposed lighting***

Further information on the proposed lighting, operational hours for should be provided. Where necessary the landscape and visual effects assessment should be updated to assess the potential effects related to the lighting proposals.

Response 1:

At the time of writing, fixed external lighting types and locations had not been confirmed for the development, however, it will be limited to the plant, office, and workshop areas only. These areas are located within the processing area which, once established, will be contained within a 5m high bunded area (relative to the excavated ground level) planted with vegetation capable of growing up to 2.5m. As a result, much of the area of light throw will be screened from external views.

Notwithstanding compliance with *Mahi Haumaru Aotearoa*, (Worksafe New Zealand) *RS Sands Ltd* confirms external lighting will be located and positioned to comply with permitted light levels contained within the Waipa District Plan. (*Waipa District Plan, Section 04A- Significant Mineral Extraction Zone, 4A.4.2.4 Rule -Light spill and glare*). The lighting will correspond with the hours of operation (Monday to Friday 7:00 am to 5:00 pm and Saturday 7:00 am to 12:00 pm. The quarry is closed on Sundays and Public Holidays.

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Request 2 **A*ssessment of effects at 37 Lovells Road***

Provide an assessment of visual effects for the property at 37 Lovells Road.

Response 2

Statement of view from ***37 Lovells Road***

The residential dwelling at 37 Lovells Road is located on the northern side of the *Karapiro Stream* gully, approximately 1 kilometre east of the quarry, its closest point development being the processing area.

The assessment of effects from this private location has been undertaken remotely, using aerial photography, ground inspection from surrounding public locations and the use of analytical and 3D interactive digital models and simulations.

The following ZTV analysis maps (Figures 1 and 2) show the difference in the visibility of the site between the existing landscape and the completed quarry. The analysis takes into consideration views from ground level and within the first story of the house.

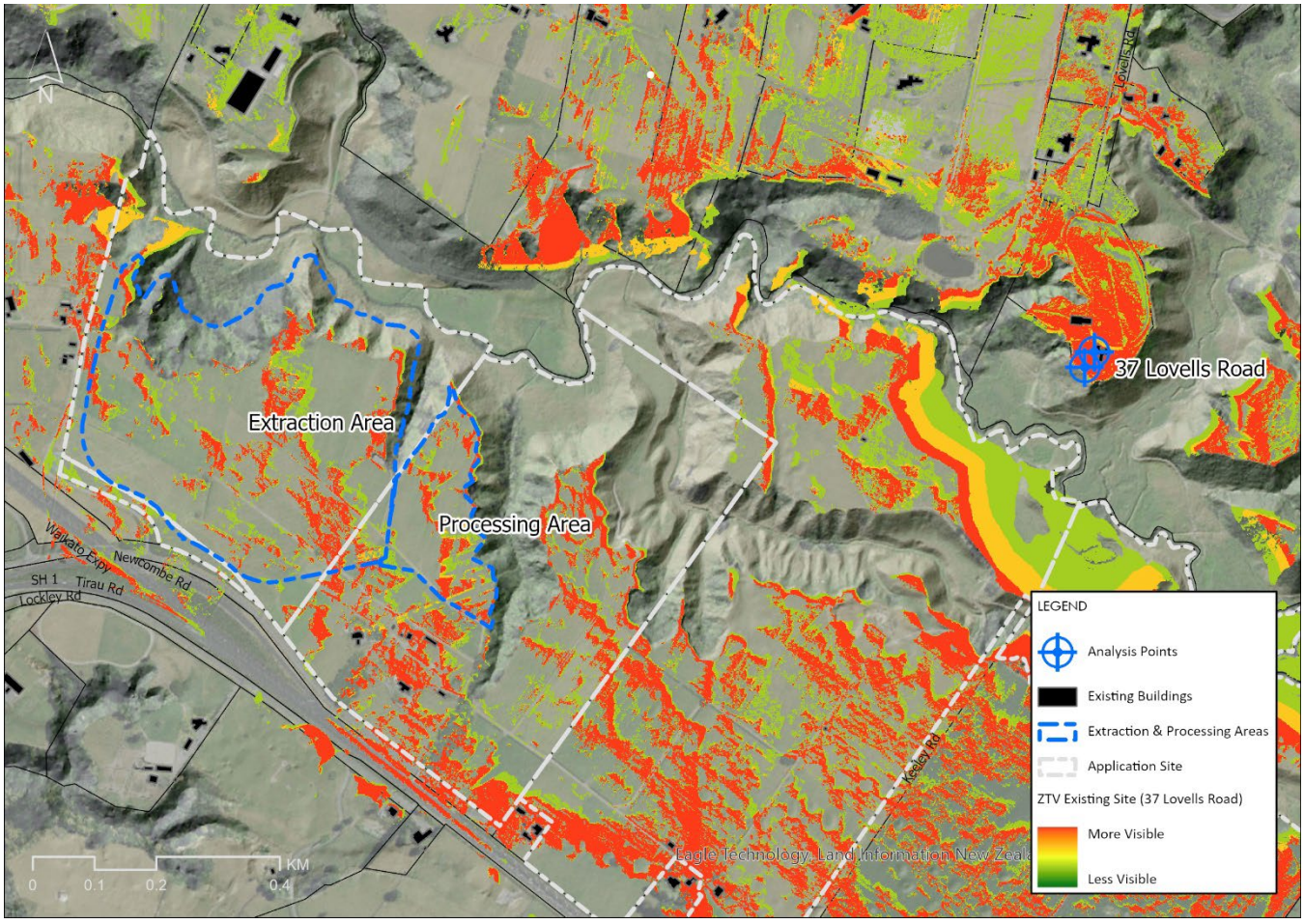

Figure 1: ZTV Existing Site from 37 Lovells Road

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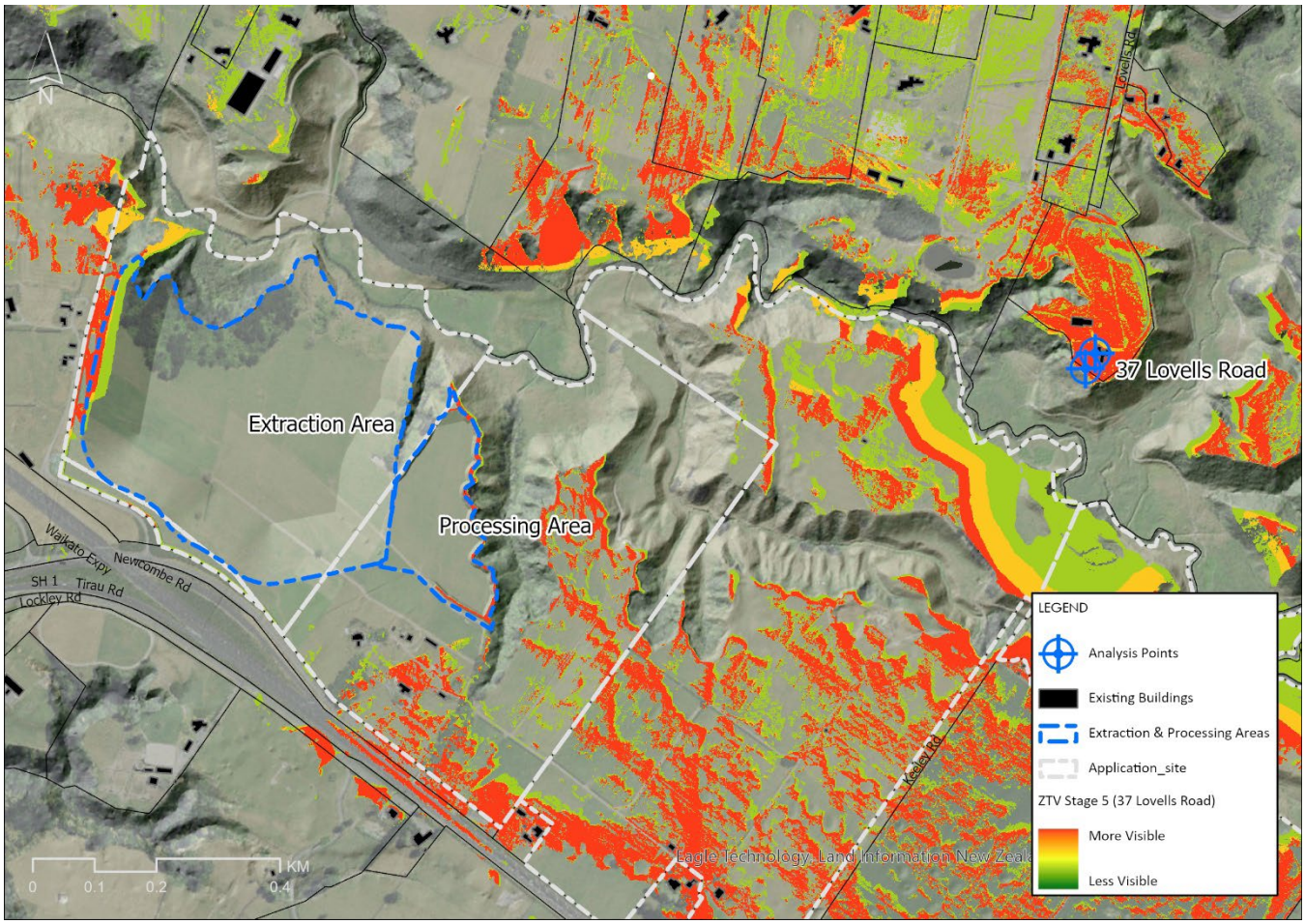

Figure 2: ZTV Newcombe Quarry Stage 5 from 37 Lovells Road

Digital simulations, comparing the existing and rehabilitated site from this location are shown in the images taken from the 3D model below (refer to Figure 3 – Existing View & Figure 4 - Stage 5). Given the distance from the site, potential views of the extraction area will only comprise a small portion of the wider view and are subject to foreground screening by intervening topography and vegetation. While the loss of some specimen trees partially seen in the mid-distance within the view will occur as part of the quarry excavation process, when considered on balance and within the context of the proposed mitigation and rehabilitation works within the stream gully, the adverse effect on landscape character and visual amenity will be *very low*. The most obvious change will be a small change in the distribution of vegetation within the view and a general increase in indigenous planting overall.

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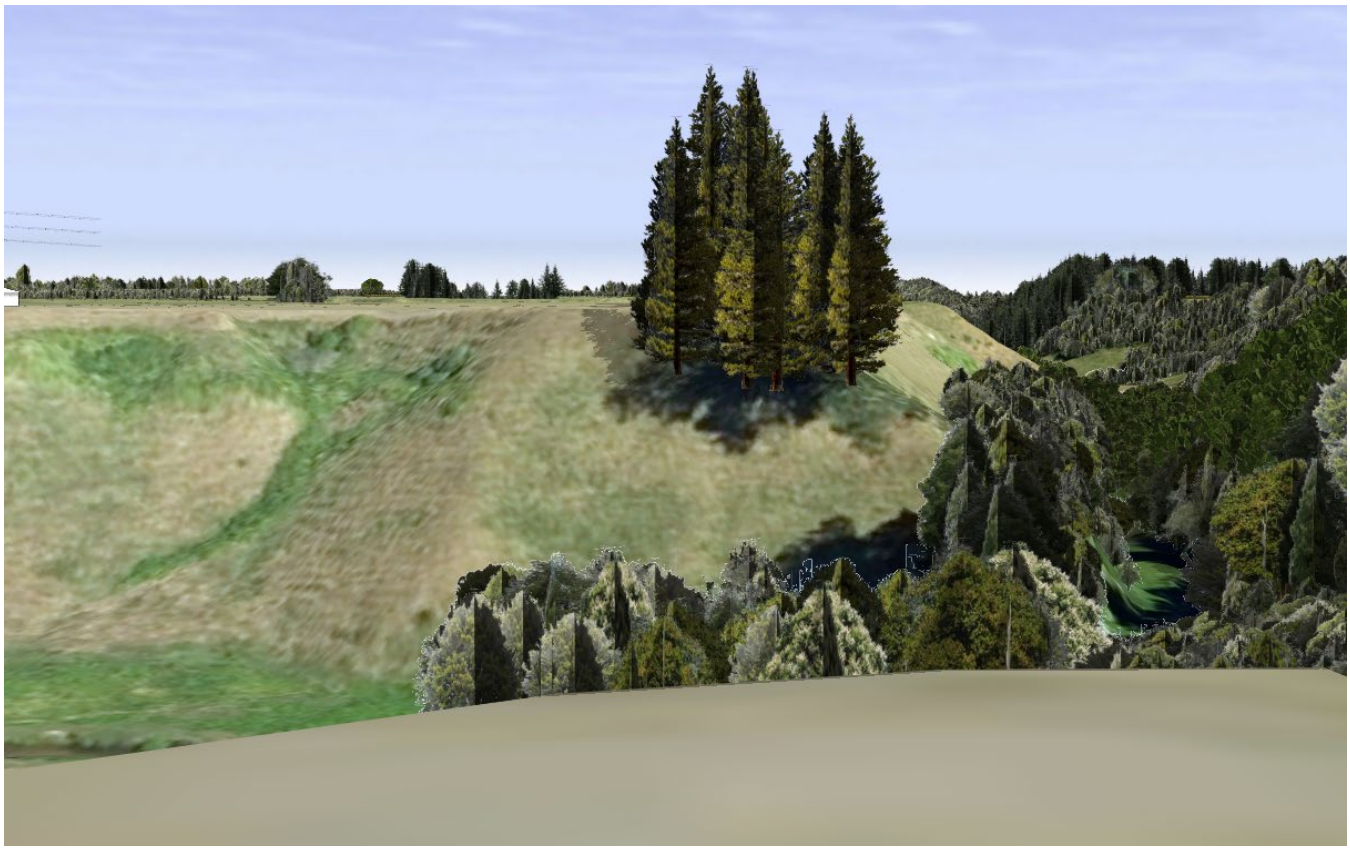

Figure 3: Model Simulation - Existing View from 37 Lovells Road

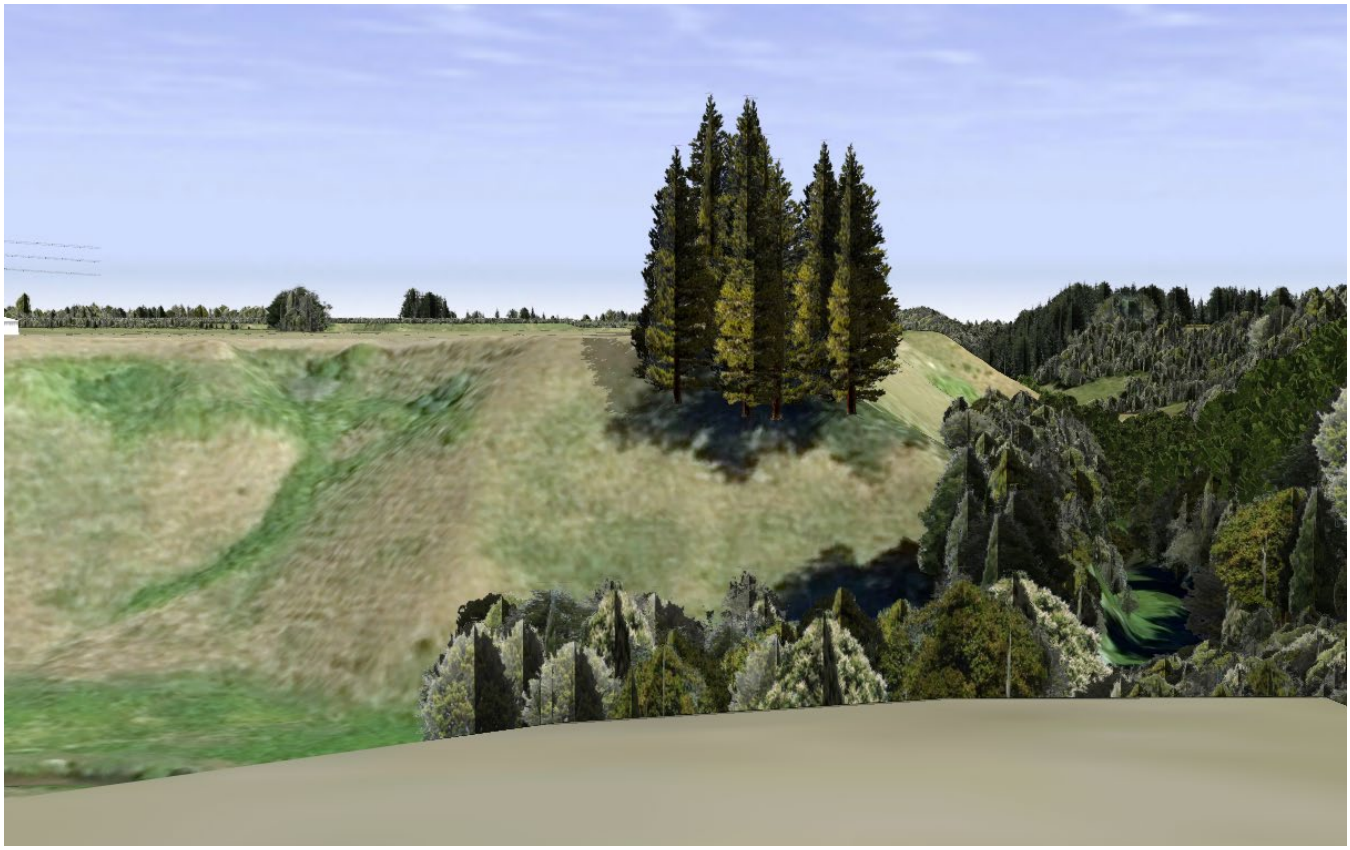

Figure 4: Model Simulation - Stage 5 of the Development from 37 Lovells Road (Ecological restoration planting not shown)

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During the development of the processing area, the construction of the eastern bunding and associated movements of earth-working machinery are anticipated to be discernible in the mid-distance. This work forms part of the initial establishment of the quarry and will be of short duration. Once the bund is formed and planted, the processing area will be screened from view, and most of the activity which occurs beyond will be hidden, with only the tops of the processing plant and sand stockpiles potentially visible.

The working face and the floor of the pit (stages 1 – 5) will not be readily visible from this location, as they are screened by an intervening unexcavated spur of land within the site that forms part of the gully edge. This landform sits between the quarry and the view location, extending to the west before wrapping around to the south forming the adjacent western face of the gully relative to the view location. Once quarrying is complete and the site is shaped to integrate with the surrounding landform and grassed, the rehabilitated landform will not appear out of place within the context of the surrounding river terraces.

The effects of the proposal from this location, where only limited views of the site are available, (bund formation and potentially the top of stockpiles and processing plant), will likely range between ***very low*** - ***low*** (*less than minor*) during the operational stages of the quarry. ***Low*** levels of adverse effects are likely to occur during the early stages of the quarry's development; Stage 1 when the bunds are being formed, and during Stage 5 rehabilitation of the quarry when the bunds are potentially removed and used to assist with minor reshaping internal to the remnant batters. ***Very low*** effects will occur for the balance of the quarrying until rehabilitation of the site occurs. Following the completion of rehabilitation, the restored landform will have a negligible (below *very low*) adverse effect on the landscape and visual amenity values from this view location.

Request 3 ***Potential Natural Character Effects on the Karapiro Stream***

> *A comprehensive assessment of the effects of the proposal on natural character should be included in the report to address the potential natural character effects on the Karapiro Stream.*

Response 3

Natural character is an area's distinctive combination of natural characteristics and qualities, including degree of naturalness. The following assessment is consistent with the concepts and principles of *Te Tangi a te Manu* in relation to the effect the development may have on the natural character of the Karapiro Stream. The natural character assessment is limited to the consideration of the *physical* and *experiential* attributes of the landscape within the context of s6a of the RMA.

This assessment of *natural character* relates to the margins of the *Karapiro Stream* that are contiguous with the northern boundary of the sites of the proposed quarry. Due to the meandering nature of the stream, the cadastral boundary of the sites and the course of the stream vary, with the stream bed at times wholly located within the lot boundaries that will contain the proposed quarry excavation and processing area, while at other times being quite separate.

The *Karapiro Stream* has formed a deeply incised gully within the surrounding broader flat plains of the southern Waikato Basin and upper river terraces associated with the Waikato River. As a consequence, the stream and gully lie below the surrounding topography and are not readily apparent from the wider surrounding area. Such incised streams are typically associated with the steep bush-clad slopes with distinctive riparian plantings largely sheltering the watercourse from above, conveying an intimate but dramatic character.

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The existing natural character of the Karapiro Stream has been significantly degraded by past and present land practices that have occurred, including the removal of the original native vegetation cover, the introduction of pasture, exotic weeds, the occasional specimen tree and stands of pines with an understory of exotic weeds. Grazing of the area has further affected the natural regeneration of the river flats, trampled low-lying wetlands and the riparian edge. The water within the stream appears muddied due to localised bank collapses and other contamination such as pastoral runoff.

The removal of most of the more substantial vegetation has allowed for a relatively unimpeded view of the incised stream gully landform. The meandering stream channel cutting through a broader floodplain contained within the main steep gully slopes, interspersed with smaller gully systems perpendicular to the main gully, conveys a clear expression of the formative processes of the gully. The lack of substantive vegetation, however, has given rise to localised erosion and soil creep on the steeper slopes, and bank erosion along the stream course itself. While farm tracks, fence lines and water troughs and stock evidence the continued grazing of the slopes and flats, and human intervention in the area.

This portion of the Karapiro Stream and its margins that are located adjacent to the application site exhibit substantial modification from the original land cover with little remnant native vegetation remaining, built structures and earthworks reducing the *naturalness* of the area. In combination with these factors and existing land management practices that are likely to exacerbate erosion and further ecological degradation, the overall *natural character* of the stream gully is considered ***very low***.

The proposed development includes a significant ecological mitigation and compensation strategy prepared by *Alliance Ecology Ltd* for the Karapiro Stream and floodplains in response to the quarry development. This is a two-tiered approach which proposes 1.2 ha of native wetland mitigation planting along the northern boundary of the quarry area, which is aimed at reducing potential adverse effects on adjacent wetlands. This planting is proposed to be undertaken in the first winter planting season following consent.

An additional 12.5 ha habitat restoration and enhancement strategy is also proposed within the existing Karapiro Stream floodplain and associated gully slopes. This portion of the strategy provides an ecological corridor between two existing separate areas of greater natural character located above and below the development site within the Stream gully. Commencing in the first winter planting season following consent, this will be staged to occur over the next 5 years. These plantings will be protected from livestock browsing through stock exclusion fencing, including weed and pest control, and infill planting as required. In combination, the mitigation and rehabilitation strategy is considered to greatly enhance the natural character of this section of the Karapiro Stream.

Notwithstanding the improvements to the *natural character* because of the mitigation and rehabilitation strategy, it is noted that the excavation of the quarry will have an adverse effect on the stream gully wall on the southern side of the stream, locally reducing the height of the existing gully wall by approximately 24m and creating an artificial terrace area. It is acknowledged that the reduction in height of this portion of the gully wall will have an adverse effect on the *natural character*, however in this instance, given the *very low* existing natural character values of the area, the ongoing incremental rehabilitation proposed as part of the extraction process, the landform modification to naturalise the area of excavation post extraction, and the extent of mitigation and rehabilitation compensation planting, it is considered that on balance the overall effect on natural character within the stream gully will be enhanced.

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Request 4 ***Provide details of mitigation measures and rehabilitation proposal for the extraction area***

The applicant should provide a detailed mitigation plan, which details mitigation measures and rehabilitation proposals for the extraction area. In particular details should be supplied regarding the:

- *treatment and shaping of the finished slopes and how they will integrate with the retained landform, and*
- *typical planting or conceptual landscape planting or grassing.*

Response 4

Within the *Newcombe Rd Sand Quarry LVA Report* prepared by MGLA, the *Application Overview* section contains a subheading *Rehabilitation and Mitigation Plan* which addresses both the progressive re-grassing of the stages during the development of the quarry, and the final rehabilitation of the quarry area with the removal of all buildings, the bunds either respread to form batter slopes of no greater than 3:1 or left insitu, and the entire area re-grassed before the removal of the erosion and sediment controls. Post rehabilitation the area of the quarry is intended to be returned to its existing function of pastoral grazing.

With respect to landform integration, the steeply incised gully system associated with the *Karapiro Stream* exhibits the steeper range of slope formation (1:1), while more weathered adjacent slopes, no longer at the primary gully edge, repose at more gentle angles (3:1 or greater). Post excavation, the final battering of the slopes and overburden piles are proposed to be battered to a gradient of at least 3:1 or greater, subject to the final quantities of overburden material remaining, with shaping undertaken to emulate a more natural landform. The final form of the quarry will reflect the level river terraces and variable slopes of the more weathered remnant river gully incursions. Due to the adjacent curving roadways, boundaries, adjacent landforms and stream gully interface, the remnant quarry edge will exhibit a degree of natural irregularity at its crest which will assist with its integration into the surrounding landscape.

In addition to the progressive and final quarry rehabilitation, an *ecological mitigation and compensation strategy* has been developed by the ecologist for the *Karapiro Stream* and floodplains in response to the quarry development. This is a two-tiered approach which proposes 1.2 ha native wetland mitigation planting along the northern boundary of the quarry area, which is aimed at reducing potential adverse effects on adjacent wetlands. This planting is proposed to be undertaken in the first winter planting season following consent.

A longer-term 12.5 ha habitat restoration and enhancement strategy staged over 5 years, commencing in the first winter planting season following consent, is also proposed within the existing *Karapiro Stream* floodplain and associated gully slopes. This portion of the strategy provides an ecological corridor between two existing separate areas of greater natural character located above and below the development site within the *Karapiro Stream* and its margins. These plantings will be protected from livestock browsing through stock exclusion fencing, including weed and browsing control, and infill planting as required.

The proposed *Restoration and Habitat Enhancement Map Newcombe Road Sand Quarry* map prepared by *Tonkin + Taylor* is attached to this memo for reference.

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Request 5 ***Analysis of landscape and visual effects related to the removal of the large area of tree and shrub vegetation.***

Further analysis should be provided in the assessment on the landscape and visual effects related to the removal of the large area of tree and shrub vegetation to enable extraction. will be sufficiently mitigated, from a landscape and visual effects perspective.

Response 5

This area of planting is located on the northwestern portion of the site and is comprised of pine with an understorey of exotic weed species. It is located within a section of the gully wall that has eroded out in a broader and shallower manner than the other more incised tributary gullies systems that adjoin the Karapiro Stream. This area is across approximately 40% of the northern boundary of the quarry excavation area (excluding the processing area). Within the landscape context, the planting appears to have been established as part of the stabilisation of the gully wall and is similar to other stands of exotic vegetation planting in other parts of the gully. The colonisation by weed species gives evidence to the challenge of accessing this area.

As part of the quarry excavation, approximately 50% of this planted area will be removed. The lower portion of the gully wall will be retained and, in conjunction with the flood plain area, be rehabilitated with indigenous species as part of the proposed mitigation strategy.

The stand of pines within this area is most visible from adjacent properties across the gully to the NNE, along the southern gully edge and within the gully itself. Based on analysis of aerial photography, site photography and digital model analysis, it is noted that existing farm buildings, hedgerows, shelterbelts, and woodlot plantings in the area limit the more distant view of the vegetation in this area.

With the progressive extraction of material and the associated removal of the affected pines, the excavated pit floor and quarry face will become visible, as will the remaining extent of pasture that currently covers most of the quarry site.

During quarry operations, areas will be gradually restored with grass, leaving only the active work zone and machinery visible. This will blend in with the surrounding pastoral landscape, but the quarry and access roads will still look manmade until final restoration.

Following landform restoration and regressing, the area will appear similar to other natural river terraces utilised for grazing. A large, grassed area compartmentalised with fence lines, transitioning to the elevated surrounding ground level above via shallow gradients, while the steeper remnant gully slopes to the gully floodplain below, remain. The remaining area of pine will have been replaced with indigenous plantings.

Overall, it is considered that, within the context of the development, the removal of the pine trees on the upper slopes of the gully wall will have a ***very low*** adverse effect on landscape and amenity effects. The stand of pines is a pragmatic planting, and the screening effect is incidental. While the upper area of the pine tree provides some low-level screening of the pasture to the south, when viewed from adjacent properties to the north, its removal does not expose any unexpected or incongruous elements within the view but rather allows more distant views of typical components of the rural landscape setting. The proposed mitigation and rehabilitation planting contained in the mitigation strategy is considered an appropriate response to the reduction in the extent of the stand and the species it contains.

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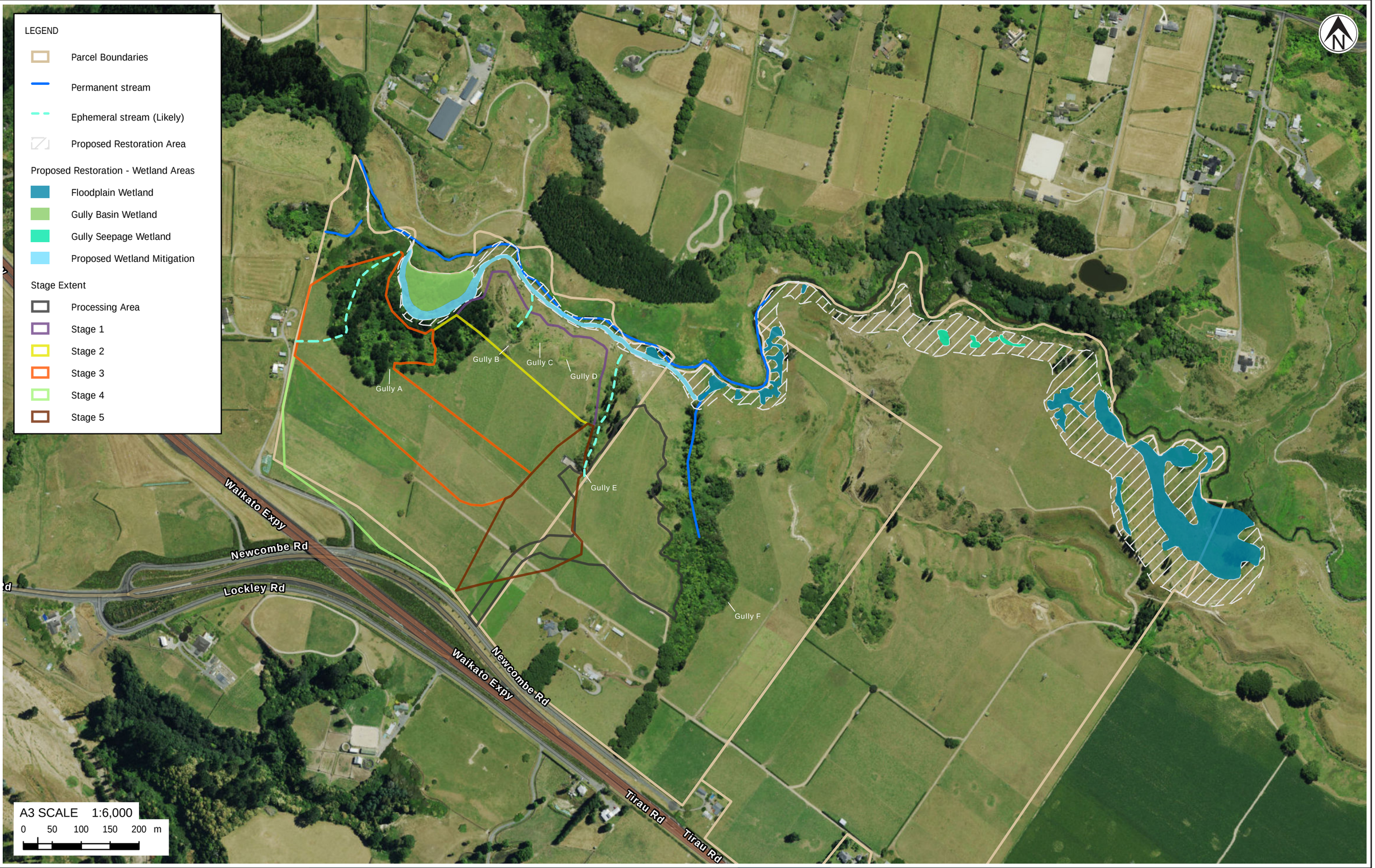

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NOTES:

Basemap Hybrid Reference Layer: Esri Community Maps Contributors, LINZ, Stats NZ, Eagle Technology, Esri, HERE, Garmin, Foursquare, METI/NASA, USGS. OpenStreetMap: Map data © OpenStreetMap contributors, Microsoft, Facebook, Inc. and its affiliates, Esri Community Maps contributors, Map layer by Esri. NZ Imagery: Eagle Technology, Land Information New Zealand, GEBCO, Community maps contributors

REV	DESCRIPTION	GIS	CHK	DATE
0	First version	JORB	CHSA	20/01/20

LOCATION PLAN

			APPROVED	DATE
PROJECT No.	1016543			
DESIGNED	JORB	AUG.22		
DRAWN	JORB	AUG.22		
CHECKED	CHSA	AUG.22		

CLIENT **ALLIANCE ECOLOGY LTD**

PROJECT **RS SANDS QUARRY**

TITLE PROPOSED RESTORATION AND HABITAT ENHANCEMENT MAP NEWCOMBE ROAD SAND QUARRY

SCALE (A3) 1:6,000 FIG No. FIGURE 2. REV 0