



Department of
Conservation
Te Papa Atawhai

Significance Assessment Report for Public Notification under 61c(2) of the CMA 1991

Applicant/Permit Holder: Kokiri Lime Company Limited

Minerals Permit Number: Pending MP 60543

Permissions Record Number: 87595-AA

To: Judi Brennan, Permissions Manager

From: Lucy Croft, Permissions Advisor

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1.0 Purpose and Relevant Considerations

Kokiri Lime Company Limited (the applicant), has applied to access 15 hectares (ha) of public conservation land (PCL) within Fox River to Haast - Conservation Area at Karangarua in the South Westland District, in order to undertake quarrying of rock. The purpose of this report is to provide the relevant information necessary for the decision maker (in this case the Minister of Conservation) to decide whether the application is to be considered significant pursuant to section 61 C (2) of the Crown Minerals Act 1991 (The Act). The decision on significance will determine whether or not the application will be publicly notified pursuant to section 61 C of the Act and in accordance with section 49 of the Conservation Act 1987.

The applicant has applied for a mining permit (MP 60543) from the Minister of Energy and Resources, which if granted would be a Tier 2 permit, as per section 2B and Schedule 5 of the Act. At the time of writing this report, the MP has yet to be granted.

The relevant matters to be considered in making the decision on significance are set out in section 61 C (2) of the Act:

The Minister of Conservation must determine whether or not the proposed activities are significant mining activities and, in doing so, must have regard to –

- (a) The effects of the activities are likely to have on conservation values for the land concerned; and*
- (b) The effects the activities are likely to have on other activities on the land; and*
- (c) The activities' net impact on the land, either while the activities are taking place or after their completion; and*
- (d) Any other matters that the appropriate Minister considers relevant to achieving the purpose of this Act.*

Section 61 C (2)(d) refers to the purpose of the Act, that being the purpose of the Act set out in section 1 A:

- (1) The purpose of this Act is to promote prospecting for, exploration for, and mining of Crown owned minerals for the benefit of New Zealand.*
- (2) To this end, this Act provides for –*

- (a) The efficient allocation of rights to prospect for, explore for, and mine Crown owned minerals; and*
- (b) The effective management and regulation of the exercise of those rights; and*
- (c) The carrying out, in accordance with good industry practice, of activities in respect of those rights; and*
- (d) A fair financial return to the Crown for its minerals*

This report considers the proposed activities within the 15 ha access area (AA) applied for, the key conservation values of the public conservation land (PCL) concerned, the potential impacts of the proposed activities on those values and assesses them with regard to the above matters. It also outlines any other matters that the Department considers may be considered relevant, by the Minister's delegate, to achieving the purpose of the Act in relation to this application.

2.0 Context and background of the Access Arrangement Application

The application was initially for access to 181 ha of PCL, to align with the same area applied for as the mining permit area. After the Department's site visit concluded that the 181ha applied for would be considered to be significant in terms of direct impact and potential effects on the 181 ha site ecology, the applicant reduced the application for access from 181 ha to 15 ha. This significance assessment report relates only to the amended application to access 15 ha.

The application area is on the toe slope of a glacial morainic deposit. There are three land environments within the 15 ha footprint:

- 75% is classified O1.4 land environment
- 22% is O2.1 land environment
- 3% is M1.1 land environment

Approximately 1 ha of the 15 ha application area is made up of the historic "Sugarloaf Quarry". Existing infrastructure is still in place from when the quarry was in use, including access roading off State Highway 6, a quarry face, floor and stockpiling area. The quarry was established in 1982, prior to World Heritage Area status in 1999. Access to the quarry is via gravel road (managed and maintained by the Westland District Council), 2km from State Highway 6.

The applicant has applied for a 40 year term for access to coincide with mining permit operational timeframes.

The report has been informed by the application, and amendment/variation lodged on 11 August 2020, the District site visit, and the terrestrial ecologist's notes of the site visit.

3.0 Location and land status

The application is for access to 15 ha of public conservation land.

The proposal is situated within Fox River to Haast - Conservation Area at Karangarua in the South Westland District and is within Te Waipounamu World Heritage Area (WHA). The quarry site is located 18km south of Fox Glacier and 18km north of Bruce Bay, towards a small settlement area known as Karangarua. Part of the application area includes an existing quarry face located on conservation land at the base of the Sugarloaf ridge (Figure 2).

The land (15ha) is held as Stewardship Area under Part 5 of the Conservation Act 1987. The legislation determines "Every Stewardship area shall so be managed that its natural and historic resources are protected."

Te Wāipounamu World Heritage Area

Te Waipounamu is one of the world's 1120 or so special natural and cultural sites, as recognised by UNESCO. It consists of 2.6 million hectares, covering almost 10% of New Zealand's total land area. 70% of the area is encompassed by four national parks, within the West Coast *Te Tai o Poutini*, Canterbury, Otago and Southland Regions.

World heritage areas are designated under the World Heritage Convention because of their outstanding universal value. While each WHA remains part of the legal territory of the state wherein the site is located, UNESCO considers it in the interest of the international community to preserve each site. World heritage status does not affect the underlying protective status for which the land is held under New Zealand law; rather it places an obligation on the host nation to "*take appropriate legal, scientific, technical, administrative and financial measures necessary for the identification, protection, conservation, presentation and rehabilitation of this heritage*" (World Heritage Convention, 1972)".

Te Wāipounamu is a world heritage area because it contains rocks, plants, animals and landforms which take us back 80 million years to a time when New Zealand was part of the ancient super continent Gondwana.

Two thirds of the WHA is covered with southern beech and podocarp rainforest. The UNESCO site notes “...the rainforest contains the best examples in the Southern Hemisphere of one of the most ancient groups of gymnosperms, the *Podocarpaceae*, which range from the densely-packed 50m-high rimus of the South Westland terraces to the world’s smallest conifer, the prostrate pygmy pine.....Only traces of human influence are evident and then mainly in peripheral areas”.

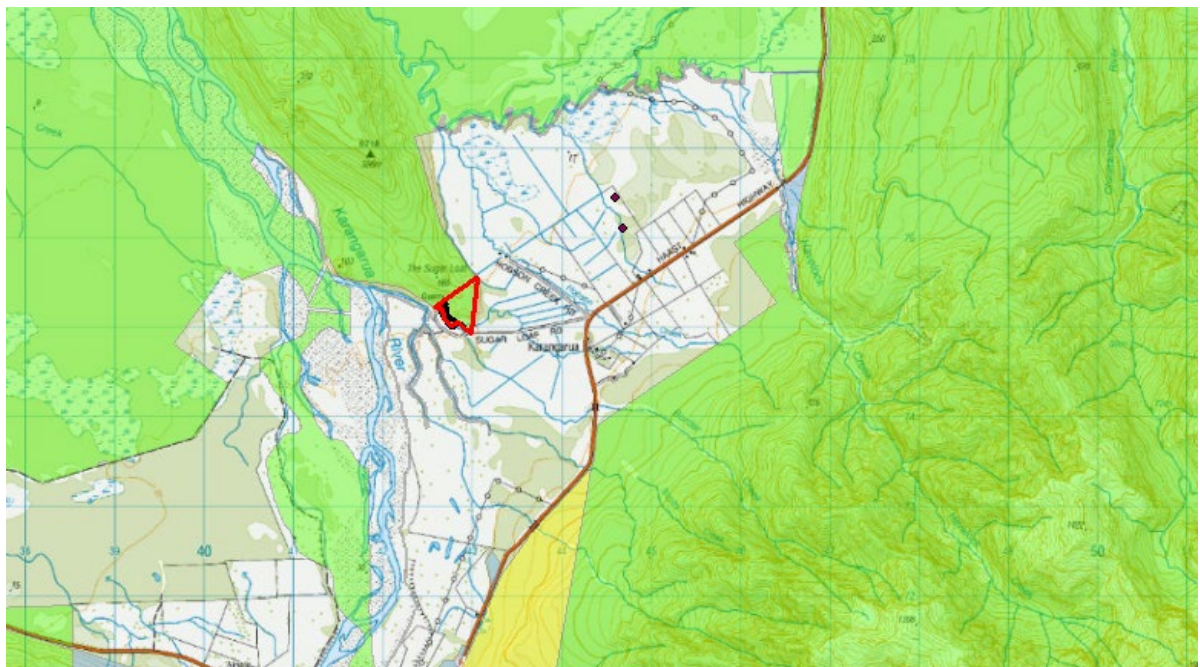


Figure 1: Application area (red outline) public conservation land (green and yellow)

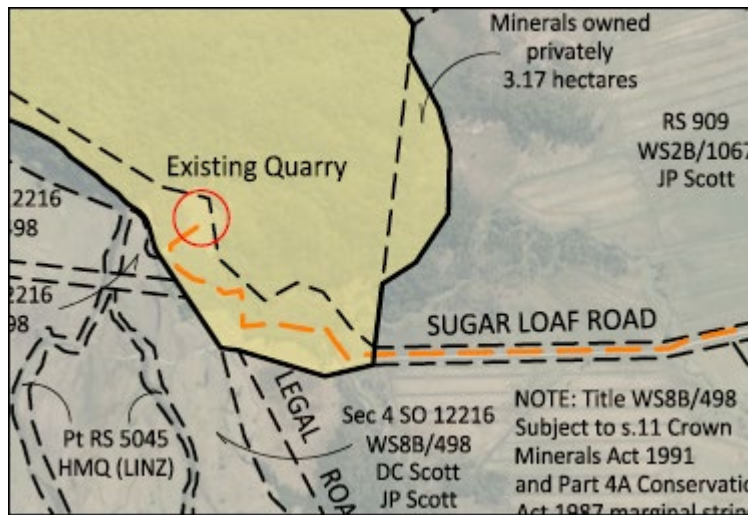


Figure 2: Map outlining privately owned minerals adjacent to proposed AA area.

4.0 Conservation Values

Flora

The 15 ha applied for, forms the end of an intact sequence of vegetation within the Karangarua Ecological District. An extract from the Terrestrial Ecologist site visit memo states:

“Within the 15 ha the vegetation is a good quality representative example of a forest type typical of moraine and hillside vegetation in South Westland. The structure of the forest is relatively intact with good ground cover, shrub, subcanopy and canopy layers, and emergent individuals, primarily rimu, but including kahikatea, totara, southern rata and miro. The most common species of forest trees on the hillslopes are rimu, kahikatea, kamahi, miro and pigeon wood. The M1.1 ecological area (south east area below 20m contour line) supported kahikatea, totara and matai on the more fertile surfaces with numerous small trees and shrubs including Raukawa anomalous, Coprosma rotundifolia, C propinqua, C robusta and Penantia croymbosa. The footprint supports a mix of young, seral vegetation which reflects the disturbance history of the site, amongst areas of intact forest with functioning tiers and emergent podocarps; the canopy is not continuous over the site and reflects a pattern of past natural disturbance. The emergent trees are likely over 500 yrs old, and there are many of these very old individuals on site (Fig. 4)

The location of the application area, at the edge of the PCL (public conservation land) is arguably the least significant site within the overall proposed MP area in terms of connectedness, as it is surrounded by a modified landscape of human habitation

including developed agricultural land, roads and houses. The flora and vegetation values of the 15 ha site are of low to moderate conservation value as it is highly unlikely there any threatened or at risk species plant species and the vegetation association is a common mix of podocarps and broadleaved species found throughout the Ecological District and Region. The habitat the area supports, for native fauna, is well represented in PCL in the Ecological District and the moraine itself is not a nationally important geopreservation site (as the moraine to the north is)".

Fauna

Fauna values includes habitat for a variety of native birds, including piwakawaka, bell birds, brown creeper, grey warbler, tui, kea, paradise shelduck, common chaffinch, morepork, rifleman. At Risk birds that may be utilizing the habitat may include pipit (Declining), and fernbird (Declining) and threatened species may include the falcon (Nationally Vulnerable), kea (Nationally Endangered), and kākā (Nationally Vulnerable). Other potential native wildlife that could inhabit the area includes gecko and skink species and bats. Long tailed bats are extremely rare and the site visit identified several potential bat roost trees ((trees greater than 15cm diameter at breast height (DBH) with hollows, flaking bark, epiphytes). Deer and other introduced game are also present in the area.

Landscape and visual

Quarrying involves earthworks and vegetation clearance that would result in changes to the landforms/topography. The area lies approximately 2 km off the SH6 and as the quarry develops it would become visible at a distance to State Highway 6 from South to North approaching traffic for approximately one minute, if the motorists were looking in that direction. The application notes significant vegetation on the outskirts of the AA would be left intact to shield/buffer the quarry from view from passing motorists.

Aquatic

Scotts Creek runs through the south east border of the AA area, before joining Border Creek. Border Creek is on Westland District Council land and joins the Karangarua River further downstream. The applicant notes long fin eel, torrent fish, upland common and redfin bullies are typical of such a creek system.

Historic

There are no known historic sites within the area.

Cultural

No sites/values relating to Maori culture, traditions, ancestral lands, water, waahi tapu or taonga have been identified within the AA area by the applicant or by local Department staff. The application recognises a number of cultural redress sites nearby at Karangarua, although the quarry operation would have no direct impact on these sites.

Biodiversity Values

The Departments Terrestrial Ecologist assessed the current biodiversity values of the area using standard assessment criteria used by DOC that enables a consistent and objective method for assessing ecological values. Her assessment follows:

Representativeness

The area immediately around the old quarry site (1ha) is not representative of the original forest values, as it has been modified by past use. Most of the 15ha of the application site is a good example of a representative forest type.

Comment

The area is therefore considered to have a mixture of low to high representative values.

Naturalness

Most of the 15 ha is a relatively natural site with few exotic plant species but with a range of pest animal species present including deer. The area immediately around the old quarry site (1ha) is likely to be of lesser value as the vegetation likely contains a greater abundance of exotic plant species and younger, seral native vegetation.

Comment

The area is therefore considered to be ranked medium for natural values.

Diversity and Pattern

The vegetation of the moraine, and the vegetation of the lower, flat topography to the west of "Sugarloaf" are different, with the vegetation association on the flat terrain likely supporting large podocarps including matai, whilst vegetation on the slopes of

“Sugarloaf” are a more mixed podocarp broadleaf association, found commonly on hillsides in the Ecological Region.

Comment

The diversity and pattern of the area is relatively common, and therefore considered low in diversity and pattern values.

Rarity and Special features

The lateral moraines are special features of the Ecological District. The moraine under application has not been listed as a geopreservation site of national importance. No Threatened or At-Risk species of plants were identified on the field trip or recorded in Bio web.

Comment

The 15 ha makes up part of a larger moraine, which is considered of moderate value for rarity and special features.

Ecological Context

The value of the connection with other conservation land is highest in north west of the old quarry site, and of least value immediately around the old quarry itself. This south eastern tip of the morainic feature is surrounded by developed land and human infrastructure.

The smaller area of up to approximately 10 -15ha (applied for AA area), at the very tip of the lateral moraine could be described as lower value because of its:

- proximity to roading infrastructure
- presence of old quarry site
- presence of modified vegetation (seral native and exotic).
- proximity to modified agricultural land

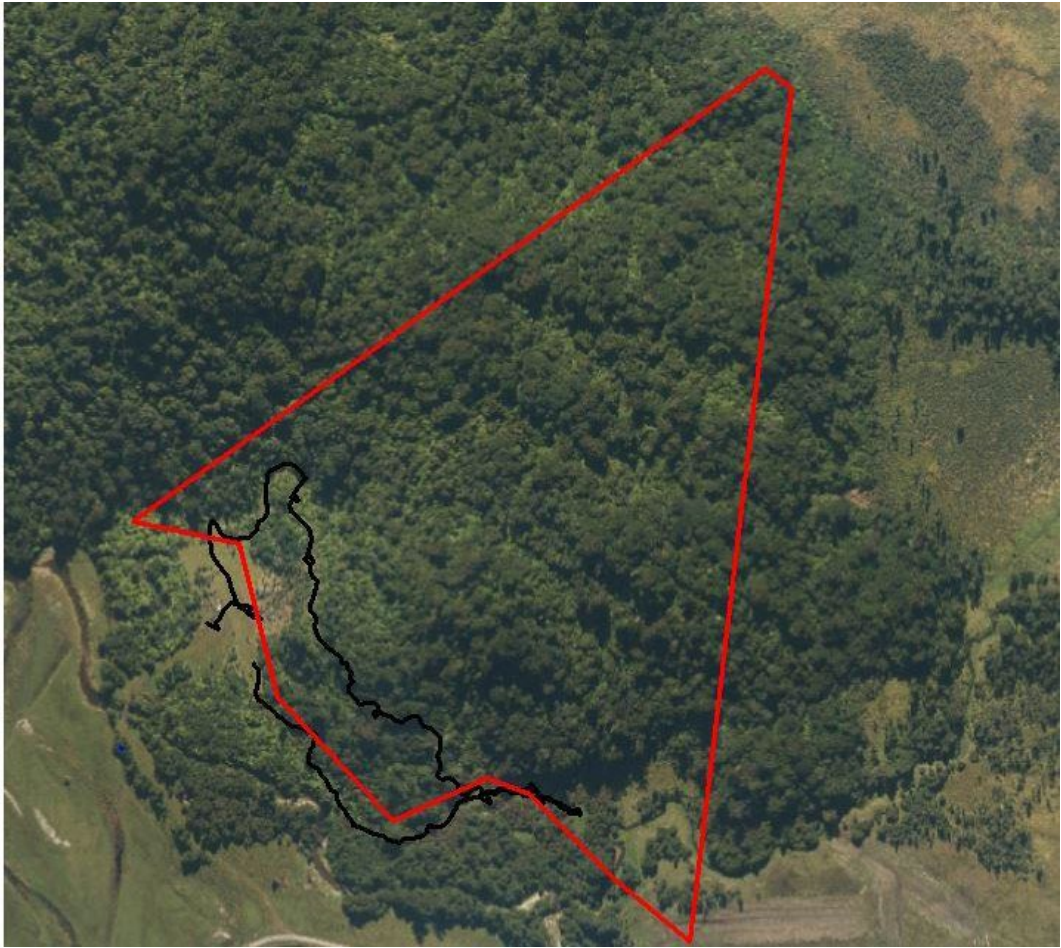


Figure 3: Access Arrangement area (red outline)



Figure 4: Old quarry site (partially on PCL, partially on road reserve)

5.0 Summary of proposed mining activities

The application is for access to 15 ha of public conservation land. Progressive earthworks and clearance of indigenous vegetation (approx. 14 ha) would be required.

The proposed activities would include:

Vegetation, topsoil and overburden stripping

The application notes vegetation would be direct transferred, side casted or stockpiled within the parameters of the AA.

Drilling and blasting

Once the vegetation is cleared, the basalt and granite rock would require drilling and blasting. The end user product would determine the exact sizing. Secondary blasting using a rock jackhammer with 3-6ft steels may be required.

Rock breaking and vibrating ripper

In some cases where rock becomes jointed, rock breaking and vibrating and stationary rippers would be used to produce rock. This is a less intrusive method than drilling and blasting.

Excavation and cartage

Rock would be excavated using a hydraulic excavator and carted to the stockpiling and processing site where it would be graded and processed.

Rehabilitation of vegetation including direct transfer methods

Progressive rehabilitation would be undertaken by Vegetation Direct Transfer (VDT).

Plant equipment and facilities would include:

- Excavators 20-60 tonne
- Drill rig
- Compressor
- Generator
- Articulated dump trucks
- Crushing and screening equipment
- 20 tonne loader

- 40ft container
- 20ft portacom (office)
- Diesel fuel tanker

6.0 Potential Effects & Mitigation Measures

Flora

The most adverse effect on flora values would result from the necessary vegetation removal of approximately 14 hectares of unmodified native forest including several dozen 500+ year old rimu trees. The activity would result in short and medium term modification and loss of flora values.

The Terrestrial Ecologist site visit memo concludes: “Mining in this reduced, modified area is unlikely to significantly reduce the value of the wider area for nature conservation. This loss of biodiversity value over the site can be mitigated, though not replaced, with best practice and planned mining operation, fauna mitigation techniques and restoration techniques”.

VDT (vegetation direct transfer) is a process whereby whole trees and their roots bases are uplifted intact and replaced onto disturbed ground where they re-establish and continue growing. There are limitations to the use of VDT. It is only possible once an initial area has been cleared and mining has progressed to provide disturbed areas upon which to directly transfer onto. VDT is also limited to vegetation below about 6-8 metres in height. Taller trees are unmanageably large to pick up and shift. In the case of trees too large to VDT whole they would be felled at about ‘breast height’ prior to transfer. Branches and leafy material would be stockpiled while root bases and the soil would be directly transferred in the same manner as the VDT of an intact smaller tree.

Planting indigenous stems is another proposed mitigation measure. 2000 to 5000 stems would be planted per hectare, though this is also only possible once an initial area has been cleared and quarry activities have progressed to provide disturbed areas upon which to plant on to. It is unclear how many years it would take for areas to be replanted.

Although the application notes veteran trees (over 300 DBH) would be avoided where possible, it is unclear how realistic this would be in practice.

Further information would be required from the applicant in regards to appropriate rehabilitation plans and agreed maximum disturbed areas.

It is therefore considered with successful conditions regarding rehabilitation the effects on flora would not be significant in the long term (100+ years), however would be significant in the medium term.

Fauna

A number of native wildlife has been identified to inhabit the area. Birds are mobile and are able to avoid disturbance with the exception of the breeding season. Regarding the effects the activities are likely to have on fauna values, The Departments Terrestrial Ecologist states:

“Given that the habitat to be affected is modified and the proportion of habitat proposed to be cleared is on the edge of a larger continuous forested area, it is unlikely the works will have a substantial effect on the population viability of any fauna species. It is acknowledged that it will take a large amount of time to replace the habitat lost and in the case for bat roosts, potentially centuries. The greatest risk to fauna from this proposal is through direct harm associated with individuals or groups of species being entangled in the vegetation clearance. This can be mitigated through construction management plans and bat tree removal protocols”.

The potential adverse effects of the activity on fauna values are considered low, as the risks could be mitigated through construction management plans and bat tree removal protocols. The forest adjacent to the AA area would provide new habitat for any affected wildlife.

Landscape and Visual

The activity of rock quarrying removes the natural landform, which in turn would permanently alter the landscape formation.

The area lies approximately 2 km off the SH6 and as the quarry develops it would become visible at a distance to State Highway 6 from South to North approaching traffic for approximately 1 minute, if the motorists were looking in that direction.

The application notes significant vegetation on the outskirts of the AA would be left intact to mitigate visual impacts by providing a shield/buffer around the quarry from view from passing motorists.

The application states the effects to landforms and visual appearance will be minimised by rehabilitation as the quarry advances. It is unclear how many years it would be before the areas would be ready for rehabilitation, considering the quarry would operate on a “as and when required” basis.

It is likely the quarry would have a low level residual adverse effect on landscape and visual values, lasting into the long term (100 + years).

Aquatic/Water Management

Effects on aquatic values are expected to be low. Surface water run off would be minimised by slope dewatering. Where vegetation is cut back, drains would be required to be installed around the quarry floor, with water directed to sediment ponds. There is one surface water body just within the AA area (Scotts Creek), and two surface water bodies outside of the proposed Access Arrangement (AA) area but within a 1km radius of the quarry; Border Creek, and the Karangarua River. Access arrangement conditions would ensure sediment retention and erosion controls adequately mitigate any adverse effects of surface water run off /storm water discharge. Buffer set backs from Scotts Creek would ensure any adverse effects on waterways are adequately mitigated.

Effects on other users

The area receives low recreational use. Deer and other game are present in the general area however there would be minimal impact on the recreation users as there is a large native forest adjacent to the proposed AA area, which could be used for hunting. The applicant has provided letters of support from all nearby residents. Effects on the occasional users of the land would be low.

Dust & air quality

Dust from drilling and crushing would have an effect on air quality within the AA area. The application states “X- Ray Fluorescence analysis (XRF) has indicated that there is 44.67% of SiO₂ (Silicon dioxide) within the basalt rock. Silica dust can cause Silicosis, which is a progressive and deadly disease that causes fibrosis of the lungs from inhalation”.

This would be managed by:

- exclusion zones and signage
- PPE equipment
- Dust separators (for drilling rigs)
- Filtered air supply in cabins

Dust from the access road would be mitigated by imposing speed limits. The surrounding vegetation could be affected by high concentrations of dust, however its noted the areas high annual rainfall would help to minimise this effect.

Noise/vibration

Higher levels of noise frequency will come from rock drilling, rock breaking, vibrating ripper, rock crushing and face blasting. The noise generated from these activities would be intermittent, depending on the demand of rock and aggregate products. In an operational day drilling would equate for 3-4 hours, crushing and screening for 8 hours.

Mitigation measures include:

- Restricting hours of high frequency sources of noise (drilling, crushing / screening and blasting)
- Not using exhaust brakes (Jacobs brakes) on the access road
- Bunding
- Vegetation buffer zones (Riparian margins)
- Dense blast stemming procedures

7.0 Treaty of Waitangi considerations

All persons exercising functions and powers under the Crown Minerals Act, including under s 61C, are required to have regard to the principles of the Treaty of Waitangi. Any sites/values relating to Maori culture, traditions, ancestral lands, water, waahi tapu or taonga should therefore be acknowledged accordingly. No sites/values relating to Maori culture, traditions, ancestral lands, water, waahi tapu or taonga have been identified in the application or by local Department staff.

The Department has provided Te Rūnanga o Makaawhio with copies of the application. No response has yet been received however Iwi will have the opportunity

to comment further as the application process progresses. The applicant has also been in contact with iwi representatives.

8.0 Relevant matters under section 61C(2)

Relevant matters to have regard to when considering if an application is significant for the purposes of s 61 C (2) are in determining if an application is considered significant for the purpose of public notification are:

- “(a) the effects the activities are likely to have on conservation values for the land concerned; and*
- (b) the effects the activities are likely to have on other activities on the land; and*
- (c) the activities' net impact on the land, either while the activities are taking place or after their completion; and*
- (d) any other matters that the Minister considers relevant to achieving the purpose of this Act.”*

These considerations are discussed below. When reading sections (a) to (d) below please refer to the full Access Arrangement Application and site visit ecologist notes for more detail on the proposed activities, safeguards and potential effects as required.

(a) The effects the activities are likely to have on conservation values for the land concerned

The effects the activities are likely to have on conservation values have essentially been discussed in detail under 6.0 Potential Effects and Mitigation Measures. In summary, the effects of the proposed activities on conservation values are:

- Clearance of approximately 14 ha native virgin forest within the AA area
- Excavation and disturbance of a majority of soils within the AA area
- Permanent loss of natural landform
- Loss of habitat for fauna species lasting to the long term (100 + years)

(b) The effects the activities are likely to have on other activities on the land

The area receives low recreational use. Deer and other game are present in the general area however there would be minimal impact on the recreation users as there is a large native forest adjacent to the proposed AA area, which could be used for hunting. The applicant has provided letters of support from all nearby residents. Effects on the occasional users of the land would be low.

(c) The activities' net impact on the land, either while the activities are taking place or after their completion

The net impact of the proposed activities on the land after all proposed mitigation has been undertaken are likely to be:

- Loss of approximately 14 ha of unmodified native vegetation including 500 + year old trees. It is expected it would take decades for smaller growth to be replaced and several hundred years for the older trees to be replaced.
- The natural landform would be permanently lost.

(d) Any other matters that the Minister considers relevant to achieving the purpose of this Act

Section 61C(2)(d) refers to the purpose of the Crowns Minerals Act, that being the purpose of the Act set out in s1A and shown below:

(1) The purpose of this Act is to promote prospecting for, exploration for, and mining of Crown owned minerals for the benefit of New Zealand.

(2) To this end, this Act provides for—

(a) the efficient allocation of rights to prospect for, explore for, and mine Crown owned minerals; and

(b) the effective management and regulation of the exercise of those rights; and

(c) the carrying out, in accordance with good industry practice, of activities in respect of those rights; and

(d) a fair financial return to the Crown for its minerals.

While “any other matters” is a relatively broad term it is important that any matters taken into consideration are relevant to the purpose of the Act. Matters not relevant to the purpose of the Act should not be considered. In this case there are two matters

related to the purpose of the Act that are considered to be an appropriate “other matters”; demand and viability and economic and social benefits.

Demand & viability

The rock obtained from the quarry would be used for roading infrastructure on the West Coast, including allowing for protection of roading, culverts and bridging infrastructure, and decreased emergency response times. A letter of support from Director of Operations, West Coast Regional Council, to the applicant, notes a ‘desperate need for viable Aggregate AGPR sources throughout the West Coast. There is no competing alternative source within the vicinity of your proposed site’.

The West Coast is prone to bad weather events, and the demand for viable aggregate is considered an ongoing issue.

Economic and social benefits

The quarry would provide employment and positive economic benefits to the West Coast, for the duration of the quarry. The application describes the quarry as a ‘a covid-19 shovel ready project’ and notes it would be operational for generations to come. The current cartage distances could be considered uneconomical for rate payers.

Positive effects on environmental values

There are currently three operational quarries between Whataroa and Haast, making for environmentally unsound cartage distances. The applicant considers the stretch of SH6 near the quarry to be the high activity and response zone, prone to flooding, slips, coastal and river erosion. A rock source mid-way between Whataroa and Paringa would reduce cartage distances, resulting in less vehicle emissions.

9.0 Conclusion

Given the above considerations, it is considered that the effects the proposed activities are likely to have on the land concerned are high on flora values during the short and medium term, low on flora values for the longer term, low on fauna values, low on landscape and visual values, low on disturbance to other users values, and low in relation to other activities on the land. Although the application to operate a rock quarry within the proposed 15 ha is unlikely to significantly reduce the conservation

values of the wider area, the application requires clearance of approximately 14 ha of unmodified native forest, including several dozen 500 + year old native trees and would permanently alter landform within Te Waipounamu World Heritage Area.

The proposal would have notable economic benefits for the Westland Region and would reduce current cartage distances, resulting in less vehicle emissions.

10.0 Decision

The application is considered significant under the relevant matters set out in section 61 C (2) of the CMA 1991 and will be subject to public notification subject to section 49 of the Conservation Act:

Yes/No



Judi Brennan

Permissions and Land Manager
Planning, Permissions and Land
Department of Conservation

Decision maker comments: Whilst the ecologist has assessed the biodiversity values as generally well represented in the wider Karangarua Ecological District, the proposal is to quarry 14ha of previously undisturbed land that contains virgin native forest and permanently alter a landform on public conservation land.

Appendix 1

Kokiri Lime Company Access Arrangement Application 87595-AA DOC-6418763

Appendix 2

Ecologist memo for initial 181 ha - DOC-6389887

Appendix 3

Ecologist site visit memo for newly applied 15 ha - DOC-6471839

