

LAND AND RESOURCES TRIBUNAL QUEENSLAND

CITATION: *Re Clark, Bexton, Lane & Ors, Environmental Protection Agency* [2005] QLRT 146

PARTIES: **In the Matter of Mining Lease No. 50200 and in the Matter of Environmental Authority MIM400147503 – Application by Barry Clark and Mark Bexton for mining lease and environmental authority and objections by Murray Lane and others to their grant. Environmental Protection Agency as statutory party in the matter of Environmental Authority MIM400147503**

FILE NO: AML95/03
ENO96/03

PROCEEDING: Hearing of applications and objections

DELIVERED ON: 28 October 2005

DELIVERED AT: Brisbane

HEARING DATES: 13, 14 and 15 September 2005

MEMBER: Kingham DP

ORDER/S: **These proceedings are adjourned to a date to be fixed to allow the parties to prepare agreed conditions for the mining lease and the environmental authority to give effect to these reasons. (at [76])**

CATCHWORDS: MINING – Acceptable level of Development – Impact on Road – ENVIRONMENT – Biodiversity – Impact on Habitat – Rehabilitation – Amenity Impacts

Mineral Resources Act 1989, ss6, 245, 269(4)
Environmental Protection Act 1994, s. 223
Land & Resources Tribunal Act 1999, s. 49

COUNSEL: Mr A. Skoien for the Applicants
Mr C. McGrath for the Respondents

SOLICITOR/S: Tobin King Lateef for the Applicants
Environment and Local Government Legal Services for the Respondents
Mr I. Pepper for the Environmental Protection Agency

Background

- [1] These proceedings involve two applications related to a proposed dimension stone mine at lot 72 on CSH 788, on Paradise Creek Rd in the Gatton Shire. The subject site is located in a rural residential area approximately 17 kilometres northwest of Helidon near Murphys Creek. Surrounding land uses comprise isolated detached residences. The area applied for is 69.17ha over part of Lot 72. The site consists of undulating to steep gully terrain within the Helidon Hills. Fifteen Mile Creek, an ephemeral watercourse runs west to east through the site.
- [2] The two applications before the Tribunal are for the grant of a mining lease under s.245 of the *Mineral Resources Act 1989* (MRA) and for the grant of an environmental authority (mining activities) under chapter 5 of the *Environmental Protection Act 1994* (EP Act). Also before the Tribunal are the objections to both applications and to the conditions proposed by the Environmental Protection Agency (EPA) for the environmental authority.
- [3] All matters were heard together in Brisbane from 13 to 15 September 2005. On 12 September 2005, I undertook an inspection of the subject site in the company of counsel for the parties and a case officer of the Tribunal. I have decided to recommend the mining lease and the environmental authority are both granted subject to conditions that I will finalise after the parties have developed agreed conditions to give effect to these reasons.

Evidence

- [4] As well as the affidavit and other material received as exhibits in these proceedings, oral evidence was given by one of the applicants (Mr Bexton); experts in mining engineering (Mr Gray), environment and ecology (Mr Delaney & Dr Watson), traffic (Mr Brameld), noise and air quality (Mr King) and town planning (Mr Buckley); and a local resident (Mr Birnie). There was only a limited contest of evidence between Mr Delaney and Dr Watson in relation to environment and ecology. None of the Environmental Protection Agency (EPA) officers who provided affidavits were required for cross-examination and their evidence was not contested by any party. None of the objectors gave oral evidence, nor did they file any affidavits or statutory declarations. Their written objections to both the mining lease and the environmental authority were received as exhibits (Mr Graves – exhibit 23; Mr Lane – exhibit 24; and Mr Boyes – exhibit 25). I have taken those objections into account in relation to both applications.
- [5] The Respondents objected to certain passages in the report of Mr Delaney (exhibit 7) on the grounds the passages are irrelevant and involve a question of law and the application of a legal standard. Those passages are identified in exhibit 36. In essence, the objection is that, in those passages, Mr Delaney has expressed an opinion on matters of law that properly fall for the Tribunal to determine. The Applicants' response is that Mr Delaney's opinions relate to factual matters within his area of expertise, that he has identified factual criteria contained in relevant pieces of environmental legislation and he has expressed his expert views as to whether they have been satisfied or not. To the extent that Mr Delaney appears to express a legal conclusion, the Applicants say that it is clear that Mr Delaney did not intend his opinions to be construed in that fashion.

- [6] This Tribunal is not bound by the rules of evidence but may inform itself of anything in the way it considers appropriate (LRT Act 1999 s49(2)(a) & (b)). I consider the identified passages are relevant to the issues in these proceedings. To the extent that Mr Delaney's statements could be construed as the expression of a legal conclusion, I have placed no weight on them. To the extent that they are expressions of opinion on environmental and ecological matters, I have given them full weight. It is worth noting that I have adopted the same approach in relation to each of the expert witnesses, including the Respondent's ecologist, Dr Watson, who also expressed some opinions in a manner likewise capable of being construed as a legal conclusion.
- [7] To the extent that they were relied upon as evidence of the truth of the matters referred to, the Applicants objected to hearsay statements made by Mr Birnie in his written statement and during oral evidence. There was no objection to those statements being accepted as both evidence of Mr Birnie's views and those of others in the locality of the subject site. I understood that to be the basis upon which the Respondents sought to rely on Mr Birnie's evidence and have considered them accordingly.

The proposed activities

- [8] The Applicants are the owners of the site over which the mining lease is sought. They also have an interest in Global Sandstone Industries Pty Ltd, which owns both the adjoining property to the southwest identified as Lot 1308, CA 31399 and the mining lease (ML 50047) which occurs over part of lot 1308 (the Titan mine). Separate development applications have been submitted to the Gatton Shire Council to operate extractive industries at both the Titan mine and the subject site. A quarry on the subject site will allow the Applicant to use waste materials from the dimension stone mining operations in landscaping and construction material applications.
- [9] The Applicants propose to commence sandstone mining in the central portion of the subject site in the vicinity of the areas explored during a drilling program conducted in 2004. The following description of the proposed activities was given by the Applicants' mining engineer, Mr Gray, in his report (exhibit 6). No more than 5ha will be significantly disturbed at any one time, including mine workings, haul roads, overburden and product stockpiles and bund walls. Depending on the quality of the sandstone, the initial workings could extend to 20m below the surface level. Individual working faces will average 2m high but may be as high as 4m. The volume of sandstone the Applicants estimate are contained in the area of initial workings is 800,000 cubic metres or 1.92 million tonnes based on a density of sandstone of 2.4 tonnes per cubic metre. Based on a recovery rate of 80% for saleable mined and quarry materials, this equates to 1.54 million tonnes of recoverable sandstone, which provides for 15 years of production at 100,000 tonnes per year. There are also resources on other parts of the site but plans for mining these areas have not yet been formulated by the Applicants.

Criteria to be considered in deciding whether to recommend the grant of the mining lease and environmental authority

- [10] Mr McGrath, for the Respondents, submitted that, in deciding whether to recommend the grant of the mining lease and the environmental authority, the question for the Tribunal to answer is whether the economic, social and environmental benefits of the

proposed mine outweigh its economic, social and environmental costs. To the extent that this submission means that those costs and benefits are relevant to the enquiry the Tribunal must make, I accept his submission. To the extent that it means that this is a test that must be met before a positive recommendation can be made, I do not accept the submission.

- [11] Neither s269(4) of the MRA nor s. 223 of the EP Act provides a single definitive test for whether the mining lease and environmental authority, respectively, should be granted. They do not set standards or objectives that have to be attained in order to obtain a positive recommendation. Rather, they list matters that the Tribunal is required to consider, in the case of the mining lease, in making a positive recommendation and, in the case of the environmental authority, in making its objections decision. Many of the matters listed in those sections necessarily involve the consideration of one or more of the economic, social and environmental costs and benefits. This can only be done on the basis of the evidence put by the parties to the Tribunal. However, Mr McGrath did not persuade me that there is any basis for implying into either section a test that has to be met before the Tribunal can make a positive recommendation. I reject his proposition that the Applicants bear an onus to prove that the total economic, social and environmental benefits of the mine outweigh the total economic, social and environmental costs.

Consideration of the applications and objections to them

- [12] In making my decision, I have taken into account all the matters I am required to by s. 269(4) of the MRA and s. 223 of the EP Act. Because of the overlap between the objections and the matters relevant to each application and because they were heard together, I have dealt with them together in my reasons.

Mineralisation

- [13] I am satisfied that the area applied for is mineralised. Mr Gray, a mining engineer and extractive industries management consultant, said there is Helidon Sandstone of various quality and colours over the whole site. A report prepared by Mr Semple, a consulting geologist, (exhibit 5) reported the results of a drilling program undertaken in November 2004. 6 boreholes were drilled in the central part of the site to a depth of 15 metres. Drill cuttings indicated sandstone to full depth with the source rock described as argillic, quartzose sandstone all representative of Helidon Sandstone.
- [14] Mr Semple estimated proved resources of 9.975 million cubic metres and inferred resources of 18 million cubic metres (north of bore hole MC 6) and 12.825 million cubic metres (south of bore hole MC 1). Mr Semple reported a total mineral resource of 40 million cubic metres occurring over a vertical height of 57 metres with proven reserves of almost 10 million cubic metres.
- [15] Mr Gray reviewed Mr Semple's report and estimated reserves in the drilling area of some 2 million cubic metres. The primary reason for the discrepancy between the two estimates is the size of the extraction footprint. Mr Semple had assumed an extraction area of 17.5ha. Mr Gray assumed a total footprint for the initial workings of 8ha, taking into account the proposed conditions identified by the Environmental Protection Agency (EPA) that buffers for property boundaries, creeks and drainage lines are retained and that the total disturbed area is limited to 5 ha at any one time

(exhibit 6). He also applied a mine depth of 20 metres rather than the 57 metres adopted by Mr Semple, taking into account commercial and safety constraints which limit mine depth.

- [16] The resources reported include dimension stone (used for building and monumental purposes); retaining wall rock (used for retaining walls, rock borders and pavers); road base (crushed material used in road construction) and aggregates (course aggregates of between 10mm to 40mm used for drainage media behind retaining walls and fine aggregates less than 5mm, such as sand and clay, used for fill materials and as a bedding medium). Dimension stone is the only resource that is a mineral within the definition in s.6 of the MRA. The applicants have applied to the local authority for an extractive industries permit to allow the recovery of retaining wall rock, road base and aggregates from this site.
- [17] There are two attributes necessary for dimension stone: geological and structural. The drilling work undertaken by Mr Semple established the geological attributes of the resource as Helidon Sandstone but provided little information about its structural integrity. The bore holes were percussion drilled and, therefore, the rock was crushed. The tests did, however, establish there are bands of some thickness.
- [18] Mr Gray said that Helidon Sandstones are notorious for being variable. Structural integrity is affected by bedding planes and shears that cannot be identified until mining commences. This results in selective mining within the disturbed footprint to recover the joint free and most suitable stone. Mr Gray considered 10% of the resource would be suitable for use as dimension stone.

Other purposes for which the mining lease is sought

- [19] I am satisfied that the other purposes for which the mining lease is sought (plant, stockpiles and roads) are purposes necessary to effectually carry on the mining and are, therefore, purposes for which a mining lease may be granted.
- [20] The material filed by the Applicants also refers to proposals to mitigate the impacts of quarrying and processing other sandstone resources. That material was tendered to provide the Tribunal with a picture of the combined mining and quarrying operation. The quarrying and processing activities proposed by the Applicants are not mining activities and cannot be dealt with by the mining lease or the environmental authority in relation to that lease (*Re Clark & Ors* [2005] QLRT 118). The development approval the Applicants have applied for under the *Integrated Planning Act 1997* is the proper instrument for regulation of those activities.

The mining proposal

- [21] The sandstone mining operations proposed for the first 5 years of the mine are set out in Mr Gray's report (exhibit 6) and the statement of one of the Applicants, Mr Bexton (exhibit 38). That proposal is based on Mr Gray's assessment of what is a recoverable resource taking into account the environmental, commercial and safety constraints of the mine. Figure 5 of his report defines an initial mining area of some 8 ha with three sites for mine workings. The three sites will allow exploration of the stratigraphy of the resource and selective mining of the stone for quality and colour. Figure 5 records the inferred resource over the site (except buffers proposed by the EPA), as well as the proven reserve encompassed by the initial mining area. Figure 6

is a schematic of how Mr Gray expects the mining operations to progress over a 5 year period.

- [22] It is evident from Mr Gray's evidence that the major determinant of the mining proposal is the restrictions on surface disturbance proposed by the EPA. Figure 5 notes those constraints: 50 meter buffers from creeks & tributaries and adjoining land holdings not owned by the Applicants and a maximum disturbed area at any one time of 5 ha. Mr Gray has estimated that 3 to 4 of those 5 ha could be devoted to active mining, with the balance being taken up with plant and road infrastructure areas.
- [23] Mr McGrath suggested an alternative mining scenario which is reflected in a condition he proposed for the environmental authority if I decided to make a positive recommendation on the application. That condition would have the effect of limiting mining to the initial mining area shown in figure 5 of Mr Gray's report (proposed amendment to EPA's draft condition L1). Mr McGrath relied on the evidence of Dr Watson that a smaller mine footprint was more appropriate for the site. Mr Delaney agreed with Dr Watson that, from an ecological perspective, a smaller footprint was better than a larger footprint. Mr McGrath relied on the Mr Semple's report as evidence that there was sufficient resource within the initial mining area to undertake mining operations well beyond the 25 year term sought by the Applicants.
- [24] Mr Gray did not accept this is a feasible alternative if, as Mr McGrath submitted, the other surface disturbance conditions proposed by the EPA were also imposed. While he accepted Mr McGrath's proposition that there is a resource of some 11 million tonnes in the initial mining area, he described this as a theoretical maximum, all of which could not be recovered applying all necessary constraints. One constraint is the stability of the high wall. A 45° slope as an average provided a stable mine face. If the total surface area that can be disturbed is limited, this would necessarily impose a finite depth on the mine workings. He considered it difficult to work with a partially filled void behind the mine that is subject to progressive rehabilitation. Another constraint Mr Gray identified is the cost associated with the depth of the workings. All engineering solutions are not economically viable. Rehandling material adds large costs as does relocating plant and equipment. At some point the depth of the working (raising against gravity) becomes a constraint. The Respondents did not call any evidence to suggest the alternative scenario was feasible taking into account issues of cost and safety. I accept Mr Gray's uncontested evidence that the scenario is not feasible and reject Mr McGrath's submission that the EPA draft condition L1 should be amended.

The adjoining Titan mine

- [25] The Applicants have an interest in the company that owns the adjoining lot 1308 and holds mining lease 50047 (the Titan mine). There are old workings at the Titan mine, which is currently not operational. Mr Bexton's evidence was that the Applicants' short term plans for this site are to utilise piles of gravel, discarded rock and sandstone in Mr Bexton's business, Paradise Bushrocks, which specialises in building rock retaining walls and boulder walls. This is dependent on obtaining a development approval for that use. He said that the Applicants' longer term plans for the site are to recommence mining operations. Whilst it is likely that operations at the Titan mine would be conducted in a similar way to the proposed operations on the subject site, he stated that Helidon Sandstone is a variable resource, in particular,

in relation to its strength and colour and he expects that each site will raise its own opportunities to win different resource types.

- [26] Mr Gray stated the mineralogy within the Titan site matches that reported for other sandstone mines that are commercially viable, although he referred to anecdotal evidence that the upper layers were too soft for use as dimension stone. He identified the major impediment at the Titan mine as the overburden, because the quality of stone appears better on the lower exposures. He considered the operation would be more economically viable if, as is proposed also for the subject site, the waste rock could be recovered as product under an extractive industries permit.
- [27] During cross-examination, Mr McGrath asked Mr Gray whether it made more sense for the Applicants to operate only the Titan mine than to operate that mine and the proposed mine the subject of these applications. Mr Gray said it might be appropriate to operate both at once. Because of the variability of the resource in terms of strength and colour, different sites might produce stone attractive to different markets. The more workings opened, the more prospects there were. Mr Gray stated that the demand for aesthetically attractive sandstone is high. Mr Bexton said the subject site was attractive to the Applicants because it has different coloured sandstone to that on the Titan site and that the Applicants needed the variety of colours for different customers.
- [28] Marketing channels for dimension stone were specialised and access through them is necessary to access downstream customers. Mr Bexton stated that he had market access through Paradise Bushrocks in to the subdivision market. He said the Applicants have also established future customers in Indonesia, Qatar, Germany and China who are ready to take dimension stone as soon as it is available.

Planning issues and sound land use management

- [29] Mr Buckley said the proposed mine/quarry is consistent with good town planning practice. In arriving at that conclusion he took into account the identification of the site in the transitional and draft planning schemes for the Gatton Shire and the South East Queensland Regional Plan as resource areas. For each of these planning documents he identified provisions which indicated a clear expectation of natural resources being not just located but also exploited at the subject site. He stated that the transitional and draft planning schemes are quite strong in their intent to allow the resources off Paradise Creek Rd (where this site is located) to be won in accordance with good environmental practice and that the regional plan reinforced that intent.
- [30] He did not agree that having two adjoining operations was necessarily bad planning practice. He noted that the planning documents anticipated adjoining sites with quarrying or mining on them and this indicated an expectation of more than one working face. He said that the variability of the resource across the two sites would be a relevant factor in any planning decision. He did not consider common ownership of the two sites had any bearing on the decision from a planning perspective. He considered approving both would be consistent with good planning practice, provided the standards are met, conditions are practical and can be implemented and the community's interests are protected. He stated that the alternative land use of rural residential would not be possible under the regional plan because it is located in a grazing/intensive animal production zone.

Environmental impacts and measures proposed to mitigate them: biodiversity, fauna and rehabilitation

[31] There are a number of environmental issues raised by these applications. The site is located in a heavily vegetated area and the impact of the mine on both regional biodiversity and the biodiversity of the site was raised by objectors. The mining operation will impact on the fauna, in particular the brush-tailed rock-wallaby, and the flora of the site, *Eucalyptus Taurine*, *Caustis Blakeri* subsubsp, *Macarantha*, *Grevillea Quadricauda* and *Papsilidium Grandispiculatum*. The rock-wallaby and the four species of flora area listed as vulnerable under the *Nature Conservaiton Act 1992*. The rock-wallaby and two species of the flora are also listed as vulnerable under the *Environment Protection and Biodiversity Conservation Act 1999*. The EPA proposed buffers to protect the rock-wallaby habitat. It also proposed conditions to limit vegetation clearance and to require progressive rehabilitation. The objectors oppose the mine because of its environmental impacts. Mr McGrath submitted that, if it is approved, further conditions are required to minimise those impacts. There was a contest on the evidence on these issues between Mr Delaney, called by the Applicants and Dr Watson, called by the Respondents. After exchange of reports, Mr Delaney and Dr Watson met, discussed the issues raised in their reports and jointly prepared a conclave agreement which identified the points of agreement and disagreement between them (exhibit 35).

Biodiversity values

[32] Mr Delaney and Dr Watson agreed this site forms part of a much larger area of contiguous land recognised as possessing biodiversity values of local, regional and State significance and that a substantial proportion of that larger area is contained in Forest Reserves, State Forests and National Parks. They also agree that the site has relatively high biodiversity and conservation values. It provides habitat for these species of flora and fauna referred to above and, as such, makes a contribution towards long term viability of those populations. Fifteen Mile Creek and its tributaries which traverse the site and adjacent land, form part of an important habitat corridor for native wildlife species, in particular the rock-wallaby.

[33] Mr Delaney and Dr Watson, however, do not agree whether there is currently sufficient information available concerning the nature and extent of the site's significant biodiversity values. During his oral evidence, Dr Watson noted that Mr Delaney had conducted only one transect through the initial mining area. There is nothing in Dr Watson's written report (exhibit 26) that specifically criticises the methodology adopted by Mr Delaney or the other information upon which Mr Delaney relied in making his assessment.

[34] Further, whilst they agree that mining operations will have an impact on the biodiversity values of the site and surrounding land, they disagree as to the nature and extent of those impacts if the conditions proposed by the EPA are adopted. Dr Watson accepted that the intention of the EPA in proposing its conditions was to minimise the potential impacts of mining operations on those biodiversity values. However he does not consider them appropriate and sufficient to ensure there is not a significant impact on biodiversity values. Mr Delaney considers the conditions provide a reasonable level of protection. Mr Delaney considers that the escarpments and associated waterways on the site are the areas of highest ecological significance.

They provide the habitat for both the fauna and flora species of concern. In his view, retention of that habitat was critical and that this is the effect of the waterway buffer proposed by the EPA. I accept Mr Delaney's evidence that, if the waterway buffer is protected, the biodiversity values of the site will be reasonably protected.

Fauna

[35] Mr Delaney and Dr Watson agreed the site forms part of an important habitat corridor for the brush-tailed rock-wallaby. The rock-wallaby prefers escarpments as they provide shelter and shade and security from predators. Mr Delaney was not aware whether there are escarpments elsewhere in the region. In his report, Dr Watson referred to work by another rock-wallaby researcher who had located rock-wallabies in nearby Ravensborne National Park. Mr Delaney expected that, on other sites where creeks are located, there will be similar geological features to those found on this site. The geological formations on the subject site are similar to others in the Helidon Hills and are, therefore, likely to be replicated elsewhere in the Helidon Hills. Mr Delaney stated there could not be a viable rock-wallaby population if the escarpments on the subject site were the only habitat in the area.

[36] The EPA draft condition proposed to protect the habitat is:

WA1 The mining activity must not be conducted within 50 metres of Fifteen Mile Creek or its tributaries.

[37] During submissions, Mr Pepper, for the EPA, said that condition WA1 should be interpreted to read 50 metres from the centre of the bed of Fifteen Mile Creek or its tributaries. To avoid any confusion, condition WA1 should be amended to make that explicit.

[38] Mr Pepper also suggested an additional condition is imposed as follows:

Every plan of operations must provide for retention or effective rehabilitation of rock-wallaby habitat where that habitat is not within 50 metres of the centre of the bed of Fifteen Mile Creek or its tributaries as provided for by condition WA1.

[39] Mr Skoien, for the Applicants, did not oppose the condition although he argued that the habitat as a whole was not adversely affected, as Dr Watson's evidence was that most areas would be within that buffer. Mr McGrath supported Mr Pepper's submission. The further condition proposed by Mr Pepper should be included in the environmental authority.

[40] There were two other conditions that Mr McGrath submitted should be included in the environmental authority based on Dr Watson's recommendations. They are:

L5(b) Prior to the commencement of mining activity in each area of ML50200 appropriate barriers (such as a two strand wire fence or windrow of cleared vegetation) are to be established around the perimeter of the mining area to restrict entry into any adjacent buffer areas specified under the conditions of this Environmental Authority;

L5(g) A translocation program for fauna for flora species prior to any clearing operations;

- [41] Mr Skoien opposed both of those conditions being imposed. Mr Pepper did not consider either was necessary. Mr Delaney agreed that the first of those conditions suggested appropriate ways of ensuring there was no incursion into the buffer. As to the second of those conditions, he considered that it was not necessary in relation to the rock-wallaby as the habitat was protected. To the extent the proposed condition deals with flora species, I have considered that further below.
- [42] There is no disagreement between the parties that retention of the rock-wallaby habitat is critical and they have proposed conditions designed to achieve that objective. The buffer condition will, however, only be effective if it is observed. Unless the buffer is clearly marked on the ground, accidental incursion into the buffer is possible. Because of its importance to this site's biodiversity values, and to ensure there is no incursion into the buffer, a further condition should be included in the environmental authority to require the buffer area to be clearly identified on the ground. I do not consider it necessary for there to be a physical barrier to the buffer as long as there is clear visual identification of it.

Access

- [43] Internal access for mining operations was raised during the hearing. Mr Brameld confirmed he had given no consideration to internal access roads in his report and had not traversed the site. Mr Delaney considered upgrading the existing crossing of Fifteen Mile Creek was the best option for minimising impact as it is already disturbed. Mr Pepper submitted a further condition be included in the Environmental Authority as follows:

The existing crossing of Fifteen Mile Creek should be used if practicable.

- [44] Whilst Mr Skoien did not consider the condition was necessary, the Applicants did not oppose it being included in the environmental authority. That condition should be included.
- [45] Mr Gray said access to the northern areas of the lease would need to be as close to the eastern boundary as possible and would require reasonably substantial works, especially if the Applicants needed to provide access for body trucks as well as mining equipment. Excavation would be required to create the road and there would need to be erosion and sediment control measures.
- [46] Mr Delaney noted any crossing of the tributary to the north would have to be included in the 5ha limit. He did not consider such a crossing would have a significant impact on rock-wallabies as they are nocturnal and truck movements are likely to be in daylight hours. The Applicants will be required to lodge periodic plans of operations which detail their proposed mining and rehabilitation activities. I consider it appropriate for future access to the northern areas of the mining lease to be defined in a future plan of operations should the Applicants decide to mine in that area.

Rehabilitation

[47] A significant point of departure in the conclave agreement of Dr Watson and Mr Delaney related to the effect of the rehabilitation conditions of the environmental authority. There were two aspects to the conflict: the rehabilitation objective and the effect of the rehabilitation conditions.

[48] With respect to the rehabilitation objective, Dr Watson wanted to ensure the rehabilitation effort was directed to restoring the site to a similar condition to its current status. Mr McGrath proposed the following condition be included in the environmental authority:

L3 (as amended) Rehabilitation must be completed in accordance with the rehabilitation plan and to the satisfaction of the administrating authority to, as close as possible:

(a) stabilise the land form to prevent and minimise erosion; and

(b) return the flora and fauna on ML50200 within 50 years of rehabilitation commencing to as close as possible to the condition of flora and fauna prior to the mining activity occurring.

[49] The 50 year time frame proposed by Mr McGrath was based upon Dr Watson's assessment of the time it would take to restore the site to its existing status. Mr Skoien argued a time limit to achieve the rehabilitation objective was not appropriate. During questioning by Mr McGrath, Dr Watson stated that rehabilitation using existing seed stock would take some 100 years to re-establish a similar structure for the plant community, if indeed it could be achieved at all. He recommended that the rehabilitation program include translocation of reasonably mature or reasonably established plants. If that was done his time frame of 100 years could be halved. However he did say there are a lot of other variables that will affect the length of time it will take to achieve the objective. For example, if there were less favourable conditions, it could still take 100 years. On the evidence before me, I am not persuaded that it is appropriate to include any time frame for achieving the rehabilitation objective.

[50] Mr McGrath suggested the EPA's draft condition L2 is amended to replace "rehabilitation" in the first line with "mining". This was agreed to by the Applicants and the EPA and that change should be made. Mr Skoien also submitted condition L2 is amended to add the following rehabilitation objective:

Designed to rehabilitate the disturbed areas to achieve a stable land form with vegetation representative of undisturbed land.

[51] Mr Pepper supported that objective being included. I consider that wording sets a clear and appropriate rehabilitation objective. Draft condition L2 should be amended to insert that objective.

[52] With respect to the rehabilitation measures, Mr McGrath submitted that Dr Watson's evidence was that successful rehabilitation of an operation such as the one proposed was rarely, if ever, achieved. This submission was based upon a statement made at page 22 of Dr Watson's report. However, Mr McGrath's submission did not take account of Dr Watson's evidence under cross-examination by Mr Skoien. During oral evidence, Dr Watson moved considerably from the statement in his report. Mr Skoien put to Dr Watson a scenario requiring a high rehabilitation effort by the Applicants. Dr Watson agreed that if a high rehabilitation effort was undertaken

there was a reasonably good prospect of successful rehabilitation. In his report, Dr Watson defined a high rehabilitation effort as follows:

Resulting from land form disruption/loss of landscape character and biodiversity values reduced through selective mining and reprofiling, void creation, higher natural succession on to mine areas through placement of soil and surface preparation for trees, lower weed invasion through control measures.

- [53] Dr Watson agreed that there were a number of measures that could be taken, either alone or in combination, to increase the likelihood of successful rehabilitation to the agreed objective. One option is to create a plant nursery over a period of some years and to use the plant stockpile to rehabilitate mined areas. Another option is to translocate existing flora from one area to another. Dr Watson stated a combination of the two methods was likely to give better results than the use of only one method. He stated that he would like to see as many options as possible in a rehabilitation plan.
- [54] He also expected the rehabilitation plan to include measures related to stripping and stockpiling of topsoil, preparation of areas prior to rehabilitation by ripping and ongoing monitoring of the success of progressive rehabilitation. In response to a series of questions that I asked Dr Watson, he said he had experience in Australia in preparing rehabilitation plans for Australian operations. It was his experience that the matters he had raised in relation to a high rehabilitation effort were addressed in plans of operations and rehabilitation plans. He agreed that it would be his expectation that a plan of operations and a rehabilitation plan would deal with the sort of issues he had raised. He also agreed that this expectation was based not just on what he thought should be included in those plans but also based on his experience of what the EPA looked for in those plans.
- [55] Mr McGrath proposed an additional condition L5 which specifies a number of rehabilitation measures that must be included in a rehabilitation plan. This condition was opposed by the Applicants as an unnecessary over management of the operation. Mr Pepper submitted that it was not necessary because the rehabilitation plan must be approved by the EPA. In my view, the inclusion of a clear rehabilitation objective will ensure that there is an outcome against which the EPA can assess proposed measures to rehabilitate the site. It is probable that the EPA's views on what measures are appropriate and effective will change over time as the knowledge and experience with rehabilitation of native woodlands increases. I consider it to be inappropriate to fix the measures that will be required as a minimum in order to achieve that objective.

Amenity Impacts: dust and noise

- [56] There are 5 residences within the vicinity of this site. The owners of two of those residences, whose properties are located along Paradise Creek Rd, are objectors in these proceedings. Neither of those owners provided written statements or gave evidence at the hearing. The residence owned by Mr Graves is located closest to the site, and is diagonally across the road from its south-eastern corner. Mr King gave evidence about potential dust and noise impacts and measures that could be taken to mitigate them.

Dust

- [57] In relation to dust, Mr King noted that the area does have particularly fine dust and was very dry when he inspected the site. He considered it was possible to operate a mine/quarry without adversely affecting residential amenity and suggested a range of measures that could be undertaken. Measures available and in use by other quarries include mechanical dust collectors on rock drills and processing plants; hoods on screen decks and transfer points; water sprays on conveyors, work areas and stockpiles; and water trucks for haul roads and transport routes. He stated a 300 metre vegetation buffer in the south-eastern corner of the site would protect the Graves residence and reduce the need to rely on an engineered solution to control dust. He saw this as a practical option but not necessary if other measures were employed.
- [58] The draft conditions proposed by the EPA include a requirement that the holder does not cause an unreasonable release of dust (condition 4 of Code of Environmental Compliance for Mining Lease Projects (Code)). Mr King assessed the operation by reference to the limits routinely applied by the EPA for activities with dust producing potential. He considered those were achievable taking into account a number of factors: future extraction areas are well buffered from adjacent residences by heavily vegetated landscapes; the activities with the greatest potential for dust generation occur early and infrequently, during land clearing, topsoil stripping and creation of bunds; there is a small area that can be disturbed at any one time; sandstone has a relatively large grainsize and is unlikely to be airborne over long distances; sandstone cutting has low dust generation potential because the rotation speed of the cutters is low and the grainsize of sandstone is high; and there are simple measures that can be adopted to deal with dust from work areas and haul roads.
- [59] He also considered the impact of dust from increased traffic on Paradise Creek Rd. He agreed this had the potential to generate dust but considered it quite unlikely that it would increase to such an extent that the amenity at residences would be adversely affected.

Noise

- [60] Mr King's assessment of noise issues was based on its impact on humans not on fauna. Mr Delaney gave evidence that fauna will note changes in the acoustic environment and, initially, would be likely to be cautious and avoid a perceived threat. He said that, generally, noise will not cause direct physical harm and fauna will adapt unless there is a direct challenge to their wellbeing. He stated the habitat buffers will provide some attenuation of the noise and a sanctuary. Fauna are quite intelligent and will moderate behaviour and movement patterns. He also stated that the nocturnal nature of the wallabies' activities will mean that noise should not disturb their movement patterns significantly.
- [61] Mr King identified a range of potential measures to mitigate noise impacts on humans. Engineering solutions included a receding excavation behind a constructed bund at the lip of the excavation and acoustic silencers. If these were adopted, he considered the operations could occur within 200m of a residence. He favoured a 300m vegetation buffer where there is a line of sight and no topographical shielding between the operations and the residence. The Graves residence has some shielding from the ridge at the entrance to the site. Another residence on a ridge to the

northeast of the site, effectively overlooks the site and he recommended a buffer in the order of 300 to 400 metres unless other engineering solutions were applied. He agreed that operating hours of 7am to 6pm would have less impact than the operating hours of 6am to 6pm proposed in the EPA's draft conditions. However, he noted that the proposed noise conditions were performance based and said that it was possible to achieve the performance levels prior to 7am with appropriate measures.

- [62] Mr King said that reaction to noise is subjective. Matters considered in assessing whether noise is unreasonable are its characteristics; its intrusiveness; when it is made; where it can be heard; and other noises ordinarily present. He predicted noise levels for the proposed operation based on information obtained from quarries using the equipment proposed to be used at this site. On a worst case scenario, with all items of equipment operating at once, and making minimal allowance for topographic screening or acoustic screening by bund walls, he estimated noise levels of less than 35db(A) at all 5 residences in the vicinity.
- [63] This is within the range of ambient levels that already occur in this area and meets the noise criteria proposed for 7am to 6pm by the draft EPA conditions. A lower level of 33dB(A) is proposed for 6am to 7am and this could be achieved by limiting the number of machines in operation or adopting other measures.
- [64] Mr King stated that it is very difficult to distinguish between 34dB(A) (the level estimated for the Graves residence) and 27dB(A). It is unusual to get noise levels below 30dB(A) in an urban area and, in rural areas below 28 to 30 dB(A). He said that it was generally accepted that the noise level sufficient to cause sleep disturbance is an instantaneous level of 45dB(A) inside a room with the windows open. This equates to an external noise level some 5 to 10 dB(A) above that. His assessment of noise from the operations was an assessment of noise external to the residence. Inside a bedroom with the window open the noise would be less than 30dB(A), which is audible but would not cause sleep disturbance. A person on the veranda listening to the radio or television or to someone talking would not detect a noise level of 34dB(A).
- [65] With respect to noise from increased traffic along Paradise Creek Rd, Mr King assessed the impact of an extra 80 truck movements (40 in and 40 out). His conclusion was that the road traffic noise will not exceed Department of Main Roads traffic noise criteria at any residence in proximity to Paradise Creek Rd. Nor would it exceed otherwise prevailing ambient levels by more than 3dB(A).

Performance based conditions

- [66] Mr McGrath submitted additional conditions should be included to deal with dust and noise impacts. Those conditions would: impose a requirement to retain existing vegetation within 300 metres of any dwelling; prohibit more than 3 items of mobile plant to operate at any one time between 6am and 7am; and limit the rate of extraction, when combined with any other extractive industry on the site, to 100,000 tonnes per annum.
- [67] With respect to the first two of those proposed conditions, Mr McGrath has suggested that one of the range of measures identified for dealing with each of the dust and noise impacts should be a mandatory requirement. Mr Pepper submitted that the EPA had a preference for performance based conditions, which set levels the

operator had to meet, rather than measures based conditions, which direct the operator on how to achieve those levels. Mr Birnie gave evidence about actions taken by the EPA to respond to noise complaints he had made about an unrelated quarry operation. In his written statement (exhibit 37), Mr Birnie said he had no confidence that the regulators have the resources or the ability to enforce even basic mandatory requirements, let alone site specific ones. He also said this had been demonstrated on other occasions in this area. However, during cross-examination by Mr Pepper, he conceded that the EPA's investigations of his noise complaint had not been completed because he has not had the opportunity or reason to continue with the arrangement made with him by the EPA to conduct noise monitoring.

[68] I am not persuaded that performance based conditions are inappropriate for this operation, given the number and range of potential measures to minimise amenity impacts that Mr King identified and the measures that Mr Birnie agreed the EPA was willing to take in response to his noise complaint.

[69] With respect to the production limit, this was proposed by Mr McGrath as a means of mitigating potential noise impacts. Mr King's noise assessments were based on the number of pieces of equipment that he considered would be required for the proposed level of production. I accept Mr Pepper's submission that it is not the overall annual production limit but the rate of production at any given time that will govern the noise impacts. An intensive extraction phase, using more equipment, may create greater noise impacts and still fall within the production limit. Mr Bexton said there may well be periods when they might use more items of equipment than Mr King used for his estimate. In that case, the better protection is given by performance based conditions. I consider the imposition of a production limit, in the circumstances of this case, is unnecessary and will not necessarily achieve the objective of minimising noise impacts.

[70] Mr McGrath submitted condition G1 should be amended to make it explicit that the specific conditions in the environmental authority prevailed over any imported code conditions, to the extent of any inconsistency. This proposal was accepted by the other parties. Condition G1 should be amended.

[71] Mr McGrath also submitted the EPA draft condition I3 is amended to provide a vegetation buffer of 50 metres along all boundaries of the mining lease except the western boundary with the Titan mine. This amendment was accepted by the other parties and the condition should be so amended.

Impact on roads and safety or road users

[72] Mr Brameld (exhibit 10) prepared a report regarding traffic issues and proposed a staged upgrade of Paradise Creek Rd to deal with increased traffic generated by the proposed operation. Ultimately that program would result in a paved and sealed bitumen road. He considered both the damage to the road by truck movements and the safety of other road users. The full upgrade recommended would deal with both issues and he considered there were no other traffic grounds to warrant refusal of the applications.

[73] Mr Skoien submitted it was likely that Mr Brameld's recommendation would be proposed as conditions for the development permit for the extractive industry. However, that development permit has not yet issued and I cannot predict what the

outcome of those proceedings will be. Counsel for each of the parties agreed that, if a condition is to be imposed in relation to traffic issues then, in the context of these applications, it is more appropriately imposed on the mining lease. Mr Brameld's recommendations are primarily directed to the impact of increased traffic on the road and on the safety of other road users, although the final stage will also have the benefit of reduced potential for dust impacts as it involves the paving and sealing of the road. The following condition should be included in the mining lease:

The holder of the mining lease is required to implement the following staged upgrade of Paradise Creek Road from the intersection of Murphy's Creek Road to the entrance to the mine:

- (a) widen the formation to 2 lanes without either new pavement or bitumen surfacing at the start of the project;*
- (b) prior to the number of trucks exceeding 10 trucks per day (5 each way), construct the creek crossing to a single lane width;*
- (c) prior to the number of trucks exceeding 20 trucks per day (10 each way), pave and seal the steeper sections;*
- (d) prior to the number of trucks exceeding 40 trucks per day (20 each way) pave and seal the whole road to a minimum 5.8 metre bitumen surface.*

[74] Mr Brameld's calculation of truck movements takes into account trucks from both the mine and the quarry. I will hear submissions from the parties as to an appropriate addition to that condition to make that explicit.

Electrical Works Easement

[75] Powerlink Queensland is the holder of an electrical works easement on the site (M on RP867638). The easement is currently vacant with provision for a future high voltage transmission line. Powerlink Queensland confirmed (exhibit 41) that, in principle, it has no objection to the proposal to grant a mining lease over the site.

Decision

[76] I have decided to recommend the grant of the mining lease and environmental conditions subject to additional or amended conditions, in the case of the mining lease in relation to the upgrade of Paradise Creek Road and, in the case of the environmental authority, in relation to: the code conditions (G1), the vegetation buffers along the mining lease boundary (I3), rehabilitation (L2) and habitat buffer (WA1). I will adjourn the proceedings so the parties can meet to develop agreed conditions for the mining lease and environmental authority to give effect to these reasons. No party has requested an order for costs and none is made.