



Fingerboards Mineral Sands Mine

Supplementary
Statement of evidence -
Response to public
submissions and review
of Centrifuge proposal

**Prepared for East Gippsland Shire
Council**

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1. Findings

The Fingerboards Mineral Sand Mine Environmental Effects Statement was made available for public comment early this year. The content of submissions received relevant to biodiversity and ecology issues are reviewed in this report. Common issues to submissions have been compiled and a response has been provided to them.

Due to time constraints, the focus of this response is on 17 submissions selected by Planology (who retained our services) as most relevant to biodiversity and ecology issues. The remaining submissions were addressed according to the summary table crafted by Kalbar.

Table 1 summarises the main biodiversity concerns across all submissions. Note that the column in Table 1 designated 'Source' refers to the table/section number on the Kalbar review of EES submissions provided on 7th January 2021. Where additional submissions or issues have arisen from my review of submissions, these are marked in red. The responses in the right-hand column are to all issues.

Most submissions reviewed voiced general concerns over potential impacts of the project on ecological and biodiversity values in the affected area. Where submissions addressed particular issues relating to terrestrial and/or freshwater ecology, detailed responses have been provided that also effectively cover the points raised in the more generalised submissions.

I was also asked to examine new information on the use of centrifuges to de-water mine tailings. The technical Note 01 dated 18th January 2021 was reviewed. The proposal will bring forward plans for rehabilitation and will reduce some groundwater impacts (e.g. mounding). Based on the proposed use of centrifuges I have concluded that the likelihood of increased or greatly changed adverse impacts on biodiversity arising from this change in project operations are minimal given the footprint and duration of the mine will not change.

Table 1. Detailed submissions and responses taken from Kalbar’s summary

Topic/Issue	Submission number	Source	Response
Key stakeholders			
Concern whether assurances can be provided that no additional vegetation, beyond what has been assessed, will be removed during the lifespan of the Project.	716 (Council)	1.02 issue number 1	<ul style="list-style-type: none"> Must follow approved biodiversity sub-plan with vegetation management and clearing protocols (EES 9-48) Buffers are to be implemented around areas of retained native vegetation to ensure that edge effects from activity do not adversely impact retained native vegetation. A minimum of five metres separation should be considered between the edge of the vegetation and any vegetation protection fence and works. Impacts on native vegetation should be restricted to areas of impact outlined in the approved development permit
Comment that the risk assessment should consider the loss of aquatic habitat through a loss of containment including but not limited to flocculants that are toxic to aquatic biota and with long retention times on all species and communities.	716	1.02 issue number 2	EES Technical Appendix A005 discusses mitigation measures for reducing the risk of fuel spills (Table 25, line 4, p. 108) but not other chemicals and waste. The Environmental Management Framework (Chapter 1 of the EES) does not specifically address each potential source of chemical and its risk to the environment or provide detail on possible source-specific measures to manage the risk of spillage. More detail is required to inform a decision around this particular risk
Considers the highest value biodiversity areas at risk from the proposed mine are: <ul style="list-style-type: none"> the vegetation communities along the Crown land rail and roadside reserves; the remnant native vegetation in gullies on private land and adjacent to riparian areas; large trees in the paddocks; and water quality and quantity affecting aquatic biodiversity in the Mitchell River and Gippsland Lakes. 	521 (DELWP, Gippsland Forest and Fires Region)	1.02 issue number 3	These attributes of the site are considered to be the highest ecological values and avoidance and minimisation of impacts on biodiversity should prioritise these features.
Concern over the lack of a detailed site assessment for the property at 2705 Dargo-Bairnsdale Road, Glenaladale.	521	1.02 issue number 4	A detailed site assessment of this property is required mapping all ecological values before approval to include it in the project is granted.
Concern over the failure to include appendices associated with the DELWP Native Vegetation Removal Report in Appendix 6 of the Detailed Ecological Investigations report.	521	1.02 issue number 5	An updated DELWP Native Vegetation Removal Report is required and should reflect the most recent development footprint impact area. This is a key application requirement for any approval for native vegetation removal under the <i>Guidelines for the removal destruction and lopping of native vegetation</i> (DELWP 2017).
Concern that opportunities to avoid and minimise impacts on native vegetation have not been fully explored nor substantiated.	521, 488	1.02 issue number 6	Explanation should be provided of why further avoidance and minimisation cannot be achieved and would, in the terms of the <i>Guidelines</i> (DELPW 2017) compromise the objectives of the project.

Topic/Issue	Submission number	Source	Response
Native vegetation losses require offsets for 18 different species (including 2705 Dargo-Bairnsdale Road). Of these species, only 7 have species habitat units available for purchase from the Native Vegetation Offset Register. Comment that Kalbar must provide an offset strategy that demonstrates the offset requirements are available and able to be secured, should clearing be approved.	521	1.02 issue number 7	Construction should not commence until available offsets are acquired and all offset requirements are fulfilled.
Concerns with the location of the railway siding and haulage road given risks to threatened flora and vegetation communities, namely: Gaping Leek-orchid, Purple Diuris, native grassland, native woodland and Saplings Morass Flora and Fauna Reserve.	521	1.02 issue number 8	The location of works in roadside and railway reserves in his area have been carefully chosen to minimise impacts on vegetation, provided adequate construction and operational environmental management controls are in place to contain the impact to the area identified. The section of road that passes Saplings Morass will not be used for haul traffic associated with the mine and will not be subject to any upgrade so impacts on this ecosystem and the threatened species it supports will be avoided.
Considers the current impact assessment of the railway siding option to be inadequate. Requests provision of: <ul style="list-style-type: none"> ▪ details of other options available for a railway siding and joining points that avoid and minimise impact on these values (e.g. locating the siding at the mine site, moving the current joining point further east or to other sites impacting on Lowland Forest areas rather than grassland communities or utilising existing sidings at Bairnsdale and Hillside); ▪ detailed construction plans and on-going vegetation management requirements to the satisfaction of the Department of Transport for these sites and the Fernbank East option; ▪ a full biodiversity assessment of the direct and indirect impacts of each option including impacts on FFG Act and EPBC Act listed threatened flora and vegetation communities; and ▪ mitigation and compensation measures for any of these impacts. 	521	1.02 issue number 9	See above
Requests full details of biodiversity-related mitigation measures to demonstrate what actions will be undertaken by Kalbar and how any success be measured, particularly in relation to aquatic species such as Australian Grayling, Groundwater-dependent ecosystems and riparian values.	521	1.02 issue number 10	See comment above about greater detail being required on chemical handling and contingencies. Hydrological and hydrogeological modelling has been undertaken to assess impacts on aquatic ecosystems and these are limited in extent and nature.
Concern over consistency with Municipal Strategic Statement, Environmental Significance Overlay and Vegetation Protection Overlay due to extent of impact on roadside vegetation.	521	1.02 issue number 11	Steps have been taken to avoid and minimise impacts on roadside vegetation.
Other submissions			
The Project will have adverse impacts on ecology and natural habitat including GDEs, and require the removal of native vegetation including large old hollow bearing trees, which exacerbates the losses from recent bushfires. Specific species about which concerns are raised include: <ul style="list-style-type: none"> ▪ Gaping Leek-orchid; and ▪ Grassy Woodlands and Associated Native Grassland. Biodiversity-related mitigation measures proposed by the proponent lack sufficient detail to demonstrate what actions will be undertaken by Kalbar and how any success be measured. Concern that fauna relocation plans will not work given most wildlife is territorial and will kill interlopers.	3, 4, 5, 7, 12, 14, 19, 27, 28, 29, 30, 50, 51, 52, 58, 66, 67, 68, 70, 71, 72, 73, 74, 77, 78, 90, 91, 97, 104, 109, 110, 115, 120, 142, 156, 157, 158, 159, 160, 162, 163, 178, 181, 186, 188, 189, 201, 201 205, 206, 209, 210, 212, 219, 221, 225, 238, 239, 250, 253, 266, 268, 279, 288, 290, 296, 299, 302, 306, 308, 316, 319, 322, 323, 328, 331, 335, 341, 351, 352, 365, 371, 373, 374, 375, 376, 382, 388, 403, 405, 408, 412, 413, 417, 420, 421, 422, 423, 436, 439, 440, 441, 442, 444, 446, 459, 478,	2.2 Issue number 1	<ul style="list-style-type: none"> ▪ Areas where Gaping Leek-orchid is known to occur and associated habitat, in the form of native Grassy woodlands, are to be avoided, including by any access tracks ▪ The EES states nest boxes will replace each hollow-bearing tree lost (EES 9-50). Replacing the loss of large, hollow-bearing trees with nest-boxes on small- and medium-sized trees is an ineffective compensation approach. The retention of large trees is crucial to

Topic/Issue	Submission number	Source	Response
<p>Concern that not all feasible options have been explored to avoid and minimize impacts on native vegetation. Kalbar needs to demonstrate clear changes to the project have been made to avoid adverse impacts on native vegetation with the highest biodiversity values and reduce the total area of native vegetation proposed for removal. Further efforts should be made to avoid the removal of native vegetation in gullies.</p>	<p>481, 487, 488, 489, 492, 495, 500, 516, 521, 522, 531, 532, 534, 535, 540, 546, 547, 554, 555, 557, 562, 563, 570, 575, 582, 584, 585, 597, 606, 608, 609, 614, 638, 648, 652, 659, 660, 661, 663, 667, 672, 673, 679, 683, 686, 688, 689, 690, 693, 702, 703, 704, 709, 712, 713, 721, 724, 725, 733, 734, 737, 740, 744, 748, 749, 751, 753, 754, 763, 765, 767, 770, 774, 775, 777, 779, 789, 791, 794, 800, 812, 813, 814, 820, 823, 826, 831, 832, 833, 834, 835, 837, 840, 845, 846, 848, 850, 853, 855, 856, 857, 858, 862, 863, 870, 871, 874, 875, 876, 879, 880, 883, 886, 891, 892, 893, 895, 898, 909</p>		<p>conserve hollow-dependent fauna in the surrounding area (Le Roux et al., 2015).</p> <ul style="list-style-type: none"> ▪ Mature eucalypts provide foraging habitat in the form of concentrated higher production of nectar and blossom resources ▪ In general, a register of design decision taken to avoid and minimise impacts on native vegetation would be informative and provide assurance that these principles have been transparently applied throughout the mine site.
<p>Concern about the adequacy and robustness of the ecological surveys, including concerns that:</p> <ul style="list-style-type: none"> ▪ the survey was deliberately framed to minimise likelihood of finding high biodiversity values in project area; <p>only desktop studies were completed to map certain areas;</p> <ul style="list-style-type: none"> ▪ the consultant failed to appropriately consider the effects of the 2014 bushfires ▪ drought and seasonality of species were not appropriately considered; ▪ appendices associated with the DELWP Native Vegetation Removal Report was not included in Appendix 6 of the Detailed Ecological Investigations report; concerns that the EES has underreported the number of species likely to be affected; the ecological study should have utilised the comprehensive and up to date record of birds is the birddata base maintained by Bird Life Australia, which is available on its website; ▪ “inadequate” surveys were undertaken for the Powerful Owl and Masked Owl, given they are a cryptic species. Audio recording at least 4 times across the year would have been more appropriate; and ▪ the survey focused only on ‘significant’ species, not more common species 	<p>12, 76, 90, 163, 167, 178, 201, 221, 239, 253, 268, 288, 352, 365, 388, 401, 408, 417, 429, 431, 441, 484, 488, 502, 516, 520, 521, 535, 541, 546, 557, 575, 648, 673, 680, 686, 712, 734, 763, 774, 812, 813, 814, 828, 830, 870, 909</p>	<p>2.2 Issue number 2</p>	<ul style="list-style-type: none"> ▪ A thorough review was undertaken and determined the methodology outlined in Appendix A005 was adequate in assessing listed flora and fauna values occurring on site with few exceptions (Nature Advisory Report 2021). ▪ The ecological investigation was conducted in a period of severe drought. A recent field visit for this review found discrepancies in the extent and quality of native vegetation throughout the project area. These areas should be investigated further and incorporated into the overall impacts. ▪ Although, one replicate of call playback and spotlight surveys for Powerful Owl and Masked Owl were undertaken, the abundance of survey sites are considered exhaustive. Owl calls can be heard from 1-2km away, and therefore, many of the survey sites overlap in their audio search radius. The approved survey standards state owl surveys can be conducted at any time of the year (DSE 2011). ▪ Common species are not a priority in impact assessments. The ‘avoid and minimise’ principles applied to the removal of native vegetation take account of its significance for all flora and fauna species.
<p>Concern about impacts on aquatic biodiversity, especially in the Mitchell River and Gippsland Lakes. Concerns regard impacts on turtle species, Australian grayling, platypus, Burrnan dolphin, bream breeding and bass hatcheries, and migratory eels.</p>	<p>7, 77, 313, 319, 328, 335, 351, 352, 355, 357, 365, 370, 373, 376, 378, 382, 388, 389, 401, 404, 405, 408, 417, 429, 433, 446, 484, 488, 489, 516, 521, 529, 534, 540, 554, 557, 563, 575, 586, 606, 638, 660, 672, 673, 704, 708, 712, 734, 777, 813, 837, 850, 853, 856, 857, 867, 869, 893, 897, 900</p>	<p>2.2 Issue number 3</p>	<p>See comment above about aquatic ecosystems and chemical handling and contingency protocols.</p>

Topic/Issue	Submission number	Source	Response
<p>Impacts (noise, light, dust, etc) on fauna and the further fragmentation of habitat. Specific wildlife species raised include:</p> <ul style="list-style-type: none"> ▪ Giant Burrowing Frog ▪ Powerful Owl; ▪ Sooty Owl; ▪ Common wombat; ▪ Echidna; ▪ Sugar Glider and Feathertail Glider; ▪ Wedged-tail Eagle; ▪ Swift Parrots ▪ Painted Honeyeater; ▪ Dwarf Galaxias; ▪ Goanna; ▪ Deer; and ▪ Grey Headed Flying Fox. ▪ New Holland Mouse 	<p>14, 77, 110, 153, 167, 259, 268, 302, 308, 312, 317, 322, 325, 328, 335, 341, 348, 351, 352, 363, 372, 373, 388, 389, 401, 405, 408, 413, 417, 420, 421, 430, 431, 432, 441, 458, 484, 488, 516, 521, 540, 563, 559, 575, 608, 609, 614, 638, 657, 663, 665, 673, 679, 715, 720, 721, 725, 733, 749, 753, 812, 813, 828, 840, 846, 850, 851, 857, 863, 869, 875, 881, 893, 895, 909</p>	<p>2.2 Issue number 4</p>	<ul style="list-style-type: none"> ▪ Giant Burrowing Frog was considered unlikely to occur after targeted surveys and a desktop assessment. A management plan should be implemented with detailed mitigation measures, as well as salvage and translocation protocols in case an individual is found. ▪ Powerful Owl has shown a capacity to adapt to human-altered landscapes provided large forest block remain in the landscape for frosting and breeding. This species may be less vulnerable to the activity caused by the mine than others. ▪ Sooty Owl tends to occur in the more continuous, extensive forests of the mountains of Victoria rather than in small, isolated patches of native vegetation such as occur on the mine site. ▪ Painted Honeyeater and Swift Parrot were not recorded within the study area but suitable low quality woodland habitat for the species was identified. These species are both nomadic and highly mobile species ▪ Dwarf Galaxias was not detected during targeted surveys. Habitat for the species is considered to be of low quality in the project area compared with the surrounding landscape. ▪ Grey-headed Flying-fox was recorded on site in 2019. It's occurrence and extent of habitat has been acknowledged and addressed in the EES. ▪ General concern for noise and light pollution has been acknowledged. The immediate surrounding ecosystem will be disturbed by the 24/7 operation of the mine. It is not expected that ecosystems outside the local scale will be affected. ▪ Impacts from dust have been considered and modelled to comply with Victorian protocols (Appendix A005). Mitigation measures, such as applying water and suppressants, will be implemented (EES 9-47).
<p>Comment that Kalbar needs to demonstrate that it can obtain adequate offsets. Concern that offset estimate is seriously undervalued and that the current offset strategy does not satisfy DELWP requirements as only some of the offsets required are currently available and able to be secured. General concern with offsetting as a principle. Comment that mature hollow bearing trees cannot be offset.</p>	<p>77, 97, 268, 408, 429, 484, 488, 521, 534, 638, 672, 673, 680, 712, 724, 734, 813, 909</p>	<p>2.2 Issue number 5</p>	<ul style="list-style-type: none"> ▪ The proponent must demonstrate that the full offset target can be met before approval is granted. This is yet to be demonstrated (see my original witness statement Nature Advisory 2021)

Topic/Issue	Submission number	Source	Response
<p>Concern regarding the impact of the infrastructure on biodiversity. Including:</p> <p>Fernbank East railway siding</p> <ul style="list-style-type: none"> due to the highly significant biodiversity values present within the railway reserve, the road reserve and at Saplings Morass Flora and Fauna Reserve, namely impacts to Swamp Everlasting, Dwarf Kerrawang and Seasonal Herbaceous Wetlands Community Forest Fire and Regions Group (FFR) provided biodiversity exclusion zone maps and requested detailed biodiversity assessments and construction plans for this site and has requested alternative sites be adequately assessed. Kalbar has yet to provide this information <p>proposed haul road and rail siding, particularly given the number of large old trees that will require removal and the proximity to Sapling Morass. Submitter suggests an alternative route for the haul road so as to avoid removal of large old trees (i.e. the unused road from the bore field that extends onto the Bairnsdale-Dargo Road from Cowell's Lane then continue through the mined out area on the south side of Bairnsdale-Dargo Rd to the processing plant).</p>	77, 268, 288, 521, 734, 813	2.2 Issue number 6	See comments above in relation to the layout of the siding and associated access, as well as Sapling Morass.
Potential for dust to 'smother' vegetation and prevent photosynthesis.	77, 673	2.2 Issue number 7	See comment above in relation to dust suppression measures being in line with approved standards.
<p>General concern for migratory bird species.</p> <p>Comment that even though the ecological assessment identified only 4 of the 18 migratory species as being potential users of the proposed mine site, the records of all 18 of these species are old. Of these species, only the Rufous Fantail was observed during the surveys, but was not recorded in the birddata surveys.</p> <p>It is suggested that the proposed Fingerboards site is not likely to be a critical habitat for any of the listed migratory species.</p>	268, 77, 408	2.2 Issue number 9	I concur with the view that the mine site does not support any habitat critical for migratory species listed on the EPBC Act.
Comment that Red Gum Grassy Woodlands and associated wetland communities exist in the area because of abundant underground aquifers. Concern that removal of the vegetation will damage the aquifers and surrounding areas will dry out, impacting vegetation beyond the mine footprint.	638	2.2 Issue number 9	This requires further investigation.
Flinders Pygmy Perch and Emu	77		<p>Emus is not a threatened species. It does occur on the site and the mine will temporarily reduce habitat available to it. Once site rehabilitation proceeds the species will move back into the area (It was observed on the site in former Blue Gum Plantation areas indicating a capacity to utilise formerly disturbed sites.</p> <p>See earlier comments about aquatic ecosystems.</p>
Inadequate long term monitoring plan of rehabilitation. No contingency for drought periods.	268, 77, 484, 813		Information presented in Chapter 11 of the EES (Closure) provides a clear direction for rehabilitation but ultimately, implementation will require greater detail. It is important that a detailed mine rehabilitation plan be developed before works commence to ensure the capacity of the site for rehabilitation and that rehabilitation itself is demonstrated to be feasible and that it is documented in detail.

2. References

A list of references is provided in my Peer Review Report

Le Roux, D., Ikin, K., Lindenmayer, D., Bistricher, G., Manning, A. and Gibbons, P., 2015. Enriching small trees with artificial nest boxes cannot mimic the value of large trees for hollow-nesting birds. *Restoration Ecology*, 24(2), pp.252-258.

3. Declaration

I have made all the inquiries that I believe are desirable and appropriate and no matters of significance which I regard as relevant have to my knowledge been withheld from the Inquiry and Advisory Committee.

Signed:

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15th February 2021