Enquiries:Karen BettinkOur Ref:002\_2024\_01\_30Your Ref:Extension of Sand Extraction Lot 1001, Lake Clifton RoadFile No.:CM\_CO\_200\_Out\_2024



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To whom it may concern,

#### Expansion of quarry operations - Lot 1001 Lake Clifton Rd, Lake Clifton - Not Supported

The Peel-Harvey Catchment Council (PHCC) appreciates the opportunity to provide comment on the renewal and expansion of quarry operations from Cougar Mineral Sands Mine, within Lot 1001 Lake Clifton Rd.

Upon reviewing all information provided, current scientific evidence and consideration of alternatives, **PHCC strongly objects to this proposal**, as well as others to clear any further native vegetation on Lot 1001. Detailed rationale is provided for this position. PHCC recommends the Shire of Waroona reject the current proposal and concurrently the project be referred and assessed under the Environmental Protection Act 1986 (EP Act 1986) and Environmental Protection and Biodiversity Conservation Act 1999 (EPBC Act 1999).

# **Background**

The proposal lies within the southwest Western global biodiversity hotspot, one of only 36 recognized biodiversity hotspots and the only occurrence in Australia. The criteria for a biodiversity hotspot is that an area must contain at least 1,500 endemic species of vascular plants found have lost at least 70 percent of its primary native vegetation. The 2023 State of the Environment Report (DCCEW 2023) found that on national level "in a rapidly changing climate, with unsustainable development and use of resources, the general outlook for our environment is deteriorating" and "Overall, the state and trend of the environment of Australia are poor and deteriorating as a result of increasing pressures from climate change, habitat loss, invasive species, pollution and resource extraction". This is also the case in Western Australia, where the State's native vegetation is in decline and biodiversity loss is escalating (WA Government 2022).

The application proposes clearing of 9ha vegetation within the Swan Coastal Plain is in the intensive land use zone where historic clearing has been extensive. The 9ha loss of a vegetation complex type falls well under Environmental Protection Authority (EPA) thresholds for extent before extinctions occur. This area also comprises Threatened Ecological Communities TECs) and supports four Matters

58 Sutton Street, Mandurah Western Australia 6210 T: +61 8 6369 8800 www.peel-harvey.org.au of National Environmental Significant (MNES) fauna species, including the Critically Endangered Western Ringtail Possum. Mitigation measures and offsets do not adequately reduce impacts and provide for net loss of native vegetation and biodiversity. Under a rapidly changing climate, proposed rehabilitation will at best result in a site of lesser condition, diversity and function, resulting in significant residual loss.

Environmental concerns are long-recognised as relevant in planning law and considerations and are now, quite properly, core planning considerations, including proposals to clear native vegetation (e.g., Shire of Augusta Margaret River recently refused an application from Mr Brian Terry Hutchings to remove 97 peppermint trees on his land at 453 Burnside Road, Burnside due to potential impact to Western Ringtail Possums – WASAT 2023). Of late, the issue of ongoing cumulative loss of native vegetation in the southwest of Western Australia has been given greater consideration in policy and planning decisions. This is highlighted through the State Native Vegetation Policy (2022) and in recent state planning tribunal finding that "the incremental and ad hoc loss of native vegetation is an issue which requires urgent attention by those that administer planning and environmental laws in Western Australia. That is particularly so in the south-west which is the Australia's sole global biodiversity hotspot" (see point 40 in WASAT 2023).

The proposed mine expansion of sand extraction does not comply with the State Native Vegetation Policy (2022) due to significant residual environmental harm. The Proposal states the natural environment is provided with best protection possible, by management plan, selection of the site, operation staging and footprint and rehabilitation, however the information outlined does not support this. This submission contests the Proponent's claims that there will be no anticipated residual impacts, highlighting major flaws in assumptions and statements made that there will be a net gain to the overall quality and protection of the remnant vegetation and fauna habitats and linkages. This is furthered that the approval is being sought on certain conditions that cannot be fulfilled and flawed assumptions. Removal of 9ha of native vegetation that is already threatened, and below EPA retention thresholds, that supports nationally significant fauna species already in decline is not modest, nor could it be considered sustainable particularly in this bioregion. Research undertaken in 2015 suggests that there is a 92% likelihood that the Western Ringtail Possum will be extinct within 20 years if action is not taken to protect populations and habitat (Yokochi, 2015).

PHCC also notes that much information and justification is provided in the proposal with the necessity to clear this site, relating to meeting community and industry needs for sand resource. PHCC contest that due consideration needs to be given to avoidance of nationally significant biodiversity and species' critical habitat. For this reason, there should be effort made to investigate low-impact alternatives.

#### PHCC Interest

PHCC has a direct interest in the Proposal, due to it being the largest remnant patch of excellent condition Banksia Woodland that supports a range of threatened species in the Peel-Harvey Catchment. Extensive clearing in the Lake Clifton area has led to fragmentation and, coupled with invasive weeds, feral animals and the spread of disease, ecological processes have been diminished.

Over the last 5 years, PHCC has implemented a federally funded 5-year project (World for Woodlands) to work with our community and land managers on a set of actions aimed at maintaining or improving the extent and condition of these Banksia Woodlands and associated Threatened Ecological Communities (TEC's), based on Federal Conservation Advice. These actions have included funding fencing, access control and signage of the adjacent large area of vegetation in conservation estate. PHCC is providing comment and objecting to residual loss of native vegetation and the biodiversity it supports, which is contrary to federal and state policy/legislation and investment.

# **Objection grounds**

In summary, the objection grounds relate to:

- 1. Clearing of 9ha of significant trees and vegetation complex in excellent condition below EPA thresholds;
- 2. Significant errors and downplaying of impact;
- 3. Clearing of 9ha of Nationally Threatened Ecological Communities;
- 4. Loss of 9ha of critical habitat (foraging and breeding resources) for three MNES threatened Black Cockatoo species;
- 5. Direct and Indirect impacts to MNES Western Ringtail Possum;
- 6. Inadequate and Incomplete Fauna Surveys;
- 7. Variance to Clearing and other Principles;
- 8. Incomplete and Flawed Revegetation Plan;
- 9. Unacceptable and Inadequate Mitigation Measures;
- 10. Offsets;
- 11. Threatened species, habitats and native vegetation as community assets and
- 12. Avoidance as First Tier of Mitigation Hierarchy.
- 13. The Proposed expansion area occurs within a DMIRS mining exclusion zone.

# **<u>1. Clearing of 9ha of significant trees and vegetation complex in excellent condition below</u></u> <u>EPA thresholds</u>**

# **1.1 Clearing below EPA thresholds**

The clearing of another 9 ha of the Karrakatta Complex will further reduce its extent on the Swan Coastal Plain, below thresholds that are known to cause species' extinctions. The vegetation that would be cleared for the mine expansion is part of the Karrakatta Complex Central and South, of which "approximately 23.49% of the Karrakatta Complex Central and South remains on the southern Swan Coastal Plain based on the pre-European extent with 3.87% in secure tenure" (DBCA 2018).

The consultant report *notes that* "the percentage retention of Karrakatta Complex Central and South and Bassendean Complex-Central and South is below EPA's target for minimum 30% retention of vegetation complexes State-wide in the Perth and Peel Region Constrained Areas and the area in protection is below the 10% minimum criteria for vegetation complexes" (p67). Despite these thresholds being in place to limit any more clearing of these complexes to prevent extinctions the report incorrectly and irresponsibly attempts to suggest "The total, clearing of 9.0 ha of the Karrakatta – Central and South Vegetation Complex will marginally reduce the amount of this complex on the southern Swan Coastal Plain".

Furthermore, the report argues that the addition of the vegetation into Conservation Estate will secure more of these complexes". These proposed additional areas are in "lesser condition" degraded and modified condition (p69) as opposed to the excellent condition vegetation proposed to be cleared.

# **1.2 Cumulative loss of native vegetation**

Any approval to clear native vegetation on Lot 1001 will impact on a significant area of native vegetation, in a bioregion which is already over-cleared. The value of native vegetation and the need to protect remaining areas is stated clearly in the Native Vegetation Policy of WA (2022). This states "Western Australia's native vegetation supports our internationally renowned biodiversity and unique fauna. It also plays many other roles such as fixing carbon and supporting cool and liveable cities, community wellbeing and productive landscapes. Our state's sustainable future requires that we address and reverse its decline".

The high biodiversity values, and ecological importance, of Lot 1001 have been adequately established through previous studies, decisions and submissions, however, some important biodiversity values have been overlooked in this quarry expansion application.

The application to clear an additional 9ha of a TEC, represents concerning cumulative impacts of an increasing footprint over time, unacceptable clearing of a nationally TEC, risks further degradation and undermining the investment of the Australian Government as well as work being undertaken by PHCC and the community to protect Banksia Woodlands and improve the trajectory of threatened Black Cockatoo species.

PHCC is concerned the multitude of applications and piecemeal approach to expanding clearing of a TEC for mining purposes, including the current application to expand quarry operations at Lot 1001, is not allowing an adequate assessment of cumulative impacts. Undoubtedly, with the extent of land clearing still occurring at local and regional scales, the excuse that the Native Vegetation Policy's 'net gain in vegetation' doesn't' apply to local scales (and only applies at the regional scale) does not justify clearing at the local scale. Certainly, in terms of foraging and breeding habitat for native fauna, clearing at the local scale has disastrous implications for local species with a limited home range.

The application does not provide any assessment of cumulative impacts of previous clearing and mining within the site nor in the local area. More broadly, the Swan Coastal Plain has been extensively cleared, with ongoing clearing for residential housing and mining. Given extent of native vegetation clearing for roads, residential development, timber plantations, mines and for agriculture, any approval to clear native vegetation in this bushland will subsequently erode remaining environment values of the area.

#### **1.3 Significant long-term residual impacts**

The Proponent states that taking the additional 9.0 hectares of resource will require the "temporary loss of 9.01 hectares of Karrakatta Complex vegetation in Excellent condition" however, over a decade of mining, at best any rehabilitation returning the native vegetation to part of its previous diversity and condition, particularly under climate change means this loss is unlikely to be temporary, but rather a permanent net loss in habitat condition and quality. The permanent loss of this excellent condition vegetation condition is not able to be offset by proposal to revegetate degraded land (see Section 10).

The proposal claims that there will be a temporary loss in vegetation cover, while failing to acknowledge the challenges associated to re-establishing ecological values in the cleared landscape, particularly Banksia Woodlands on the Swan Coastal Plain. The proposal makes no attempt to avoid clearing of excellent condition Banksia Woodland TEC. For example, there has been no spatial analysis to determine whether the high-quality building sand occurs on adjacent cleared land.

The Woodlands at Lot 1001 and the adjoining bushland (Treasure Block) are the largest, continuous patch of excellent condition Banksia Woodland in the Peel-Harvey Catchment. The Banksia Woodland at Lowlands Reserve is larger, but this Reserve is degraded and heavily impacted by dieback, weeds and pests. Given this is the largest remaining patch of Banksia Woodland within the Shire of Waroona, and highly likely the last patch of excellent condition Banksia Woodland within the Shire of Waroona, this Woodland must be protected at all costs. Within the Peel-Harvey Catchment, there are very few patches of Banksia Woodland remaining that are dieback free (not infested with *Phytophthora cinnamomi*) and the ecological significance of this Woodland will increase as Phytophthora continues to spread though Woodlands already infected.

# 1.4 Connectivity

Lot 1001 supports a significant area of native vegetation of high ecological value. It is part of a much larger area of native vegetation which has been identified as regionally significant by the EPA. The vegetation on Lot 1001 is part of the Bassendean Complex and the connecting bushland to the west of mining operations (within the proposed expansion area) is part of the Karrakatta Complex, of which over 76% has already been cleared and parts of that remaining are degraded. The connecting bushland west and south of the mining tenement, locally known as Treasure Block, includes 607ha of excellent condition Woodland and combined with the area within the mining tenement, forms a 771ha patch in-tact remnant Woodland in excellent condition. The Woodland directly connects to intact bushland to the south, which is a major ecological linkage. This Woodland is Banksia and/or Tuart Woodland, both of which are listed as TECs which should be preserved.

# 1.5 Condition and Ecological value

The report states the site "was mostly parkland cleared in 1978", however aerial imagery shows extensive sections of uncleared vegetation and other areas of intact and dense canopy throughout.

Given its location and isolation, soil type and excellent condition Woodland, the vegetation has very high ecological value. The consultant's survey recorded a total of 147 plant species including 133

native species (p63). For these reasons the excellent condition vegetation should be retained, and given its regional significance, should ideally be protected in perpetuity.

This vegetation will be subject to edge effects from any further approved clearing. Further, the clearing site contains one of the few patches of Banksia Woodland presumable not infected with Phytophthora, thereby heightening the ecological significance of the remnant. There has been no thorough dieback assessment for the proposed clearing area or adjacent Woodland. There is a high chance that mining activities (i.e., moving soils through excavation and use of vehicles) spread dieback, causing vegetation degradation and potentially death. During 2021-2023 on-ground works implemented at the adjacent Treasure Block, PHCC staff observed several small patches of dead trees close to the track, although no formal dieback assessments have yet been undertaken to confirm presence of *Phytophthora cinnamomi*. Further loss of native vegetation (and sand) will increase water runoff to local watercourses and the risk of increased sediment and nutrient movement to downstream ecosystems. As such, the PHCC does not recommend this proposal which will involve substantial clearing and clearing of significant vegetation and habitats.

The further loss of native vegetation and perennial vegetation cover in the coastal catchment of the Peel-Harvey Estuary Ramsar site should not be supported.

#### 1.6 Long Term Loss of Approximately 50 Significant Trees

Terrestrial Ecosystems recorded 206 trees that met the Commonwealth Government's assessment criteria of ≥50cm, of which 14 appeared to have hollows that may provide a suitable nesting hollow for Black-Cockatoos (Appendix D). While no nesting of Black Cockatoos was recorded during site surveys, this site represents a significant current and future breeding and foraging resource for these and other hollow dependant species.

No figure or mapping is provided on the number of significant trees proposed to be cleared, however overlaying the clearing footprint on mapping provided of significant trees show that approximately 50 trees are proposed to be cleared (refer Figure 22 main report or Figure 1 below) within the 9ha clearing area. There is a concentration of these within the 9ha footprint. These trees represent key habitat features particularly for arboreal and hollow dependant fauna such as conservation dependant brush tail phascogale, Western Ringtail Possum and all three species of Black Cockatoo. The supporting information states that "The area of Banksia Woodland chosen for clearing is in an area of less "Habitat Trees (trunk diameter > 500 mm)" (p79), however no revised figure of the number of trees in the revised footprint area is provided. Based on the overlay provided below, an unacceptably high number of habitat trees will be lost. Habitat trees of this size and bearing hollows of sufficient size for Black Cockatoos can take up to 200 years to form. The habitat loss is stated as being "temporary", "will be offset by protection and enhancement of the natural habitats on Lot 1001" (p79) and large habitat trees with hollows will be "relocated" to the degraded areas on other parts of the lot.

The report demonstrates that no hollows were inspected or surveyed for Western Ringtail Possum or Brush-tailed Phascogale use or occupation, via stagwatching or camera hollow monitoring. Given the abundance of significant habitat trees and the known presence of these species in this area, it is highly likely that hollows are occupied by native species that are required to be afforded protection, within the clearing footprint. Despite consultants stating that "the progressive clearing of vegetation around the boundary of the existing sand pit to enlarge the area available for sand extraction annually will enable the majority of vertebrate fauna to move into adjacent areas... conservation significant species such as the Western Ringtail Possums...and Black Cockatoos are unlikely to be injured or killed during the vegetation clearing program, but they will lose habitat." It is demonstrated that these species are unlikely to move from hollows (or dreys) during clearing, and as such shaking or felling or trees represent high risk of injury or death, contrary to the consultant's statement. For this reason, every single tree must be inspected for Ringtail Possums and other species during the felling process (immediately before each tree is cleared). However, relocation of Western Ringtail Possum carries high risk of death due to stress, increased predation and is not recognised as an offset measure by the EPA in impact assessment and therefore clearing of habitat trees should not be approved.

Other mitigation measures are vastly inadequate and do not offset the loss of habitat trees. "Relocation" of a subset of dead habitat trees to degraded areas Lot 1001 can only marginally offset loss, as dead trees will not form future hollows and cannot provide the ecological value of living trees.



Figure 1: Adaption from Figure 22 from the Proponent's main report, showing revised 9ha clearing area in yellow (PHCC) overlaid with significant tree mapping and original clearing area (red).

Given the value of the vegetation (proposed to be cleared) for foraging and breeding habitat, as a corridor and to prevent further land degradation, as the application does not consider cumulative impacts, no further native vegetation clearing permits should be granted as part of this mine development. Ideally, the remaining excellent condition vegetation should be protected in conservation estate or by conservation covenant.

# 2. Significant errors and downplaying of impact

The Proposal and supporting information contain significant errors, leading to lack of adequate assessment and downplaying of impacts and underestimation of residual impacts.

### 2.1 Planning Strategies and Policies

Firstly, the main report states that the Proposal is consistent with State Planning Strategy Policy 2025 (WAPC 2014) principles and objectives. In several ways the proposal in inconsistent with this aforementioned Policy. While economic development is a key principle, the environment is also a key principle, yet has not been adequately considered or equally prioritised.

The State Planning Policy (SPP) Version 2.4 (2021) policy objective e) states that "ensure extraction of Basic Raw Materials avoids, minimises or mitigates any adverse impact on...biodiversity values". The Proposal, even with mitigation measures proposed will have an unacceptable short term and residual impact on biodiversity. PHCC argues the impact will be long term as rehabilitation would not commence until at least July 2038 when extraction ends, and then decades before the habitat begins to provide some of the value that the existing habitat already provides.

# 2.2 Extent and Impacts to Tuart Woodland TEC

The supporting report vastly understates the extent of Tuart Woodland TEC on Lot 1001, and fails to state or assess impacts to Tuart Woodland in the southern section of the 9ha proposal footprint. In contradiction to statement made that *"there is very little Tuart Woodland Vegetation on Lot 1001 and it will not be disturbed by this proposal as it lies at the extreme south western corner of Lot 1001"* (p68) there is a total of 28.52ha Tuart Woodland type (EMEGBAXoAflex) in Lot 1001, with 1.92ha proposed to be cleared in the original 51.96ha pit expansion area (Figure 2). Tuart Woodland occurs within the revised 9ha pit expansion area, with no calculation of this area, but appears to involve clearing of approximately 1ha of Tuart TEC in the southeast corner. This is a major oversight and serves to underestimate loss and impact to a Critically Endangered TEC.



*Figure 2. Copy of mapping of Banksia (light purple) and Tuart woodland (dark purple) mapping, with previous pit footprint area shown in red hashing (p66).* 

### 2.3 Single wildlife corridor

Repeated statements are made that the improved wildlife corridor as an offset will "form the only possible link between the National Park and the wetlands of the Peel Harvey Estuary and Koeljerrenup Nature Reserve" (p70); the wildlife corridor in the north east will "provide the only possible vegetation and wildlife corridor between the Yalgorup National Park and the Peel Harvey Estuary"; "the proposed conservation provides the missing link between the east and west Peel Harvey Estuary". This is heavily relied upon to mitigate impacts of clearing, even claiming there will be a net gain, "even with clearing there will be a net gain to the overall quality and protection of the remnant vegetation and fauna habitats and linkages" (p70).

This is not the case and is misleading. Regional ecological linkages mapping undertaken by Molloy (2009) show that there are multiple corridors in the local and regional area that meet the objectives stated in the proposal (see Annexure X). This highlights significant overstating of the corridor importance and mitigation measures proposed. Retaining the existing vegetation is the best approach for maintaining wildlife corridors.

# 2.4 Net Benefit to Protection of Vegetation

Statements that "The protection of vegetation will provide a net benefit to the level of protection to vegetation on Lot 1001" are incorrect, as the large 172.55ha area of Tuart and Banksia Woodland in excellent condition "to be retained" nevertheless remains unprotected, and may be cleared subject to future development applications. Indeed, the consultant's reports provided show that the recent intention and potential future intention is to clear and mine a total of 51ha within the lot. Despite recommendations to protect the western area of this in conservation estate or covenant, no such measure has been taken. The Proponent seeks to have the pit extension of 9.01ha approved on the proviso that 172.55ha of Banksia Woodland be retained, without measures in place to ensure it is retained in the future.

#### 2.5 Revegetation area

It is stated that 19.88 hectares of degraded pasture are to be revegetated to Good Condition on the previously cleared ground. This is relied upon as a mitigation measure in order to leverage clearing of excellent condition vegetation. However this amount will be reduced if sand and limestone spoil areas are used, undermining the amount of revegetation area able to be achieved.

#### 2.6 Parkland clearing

The Proponent notes that the site was mostly parkland cleared in 1978, however, there remained continuous canopy or areas uncleared in sections and several large trees were retained in cleared areas. Thus, mining by Cougar Mineral Sands Mine is the only occasion that the Site was cleared entirely. The understorey had been historically grazed but these historical pressures do not compare to the impacts from mining. The Proponent makes several references that the Site can be rehabilitated back to excellent condition Banksia Woodland but their examples of 'successful' revegetation occurs in areas that were parkland cleared, not the areas impacted by mining. The parkland cleared areas should not be used as a baseline for revegetation goals. This approach underestimates biodiversity values of the Site, which means their revegetation targets represent an

already degraded landscape and not an excellent condition Banksia Woodland (i.e., that was present prior to parkland clearing and mining).

# 2.7 Inadequacies and Significant limitations to fauna survey

In consideration of possible survey limitations, the consultants have rated limitations to the scope of survey, e.g. where faunal groups were excluded from the survey as "No", stating that "Targeted surveys achieved the stated objectives of identifying the presence of conservation significant species in the project area. Weather was suitable for the various site visit (p199)". This is despite no information provided on weather conditions particularly during nocturnal spotlighting. Further, reptile survey groups were excluded from the targeted survey, including the conservation significant *Lerista lineata*.

# 2.8 Underrated Risks to Fauna

The risks to fauna are rated (by consultants Terrestrial Ecosystems) as being Low, apart from three areas of Moderate risk. The latter is stated as *"Loss of a Western Ringtail Possum or small population of Western Ringtail Possums"* and *"Changed vegetation and a resulting loss of fauna habitat"* (p78). The low risk rating has failed to consider a range of factors including no inspection of hollows prior to clearing, long term loss of a high number of significant trees, forcing fauna to move into a more compressed area, injury or death from clearing activities to less mobile, smaller home range species, increased predation risk, particularly from foxes and risk of injury or death from the large mine depth (up to 50m) at the interface of the remaining vegetation. The risk to Western Ringtail Possum should be stated as high, given the site is Western Ringtail Possum habitat, contains a large number of significant trees and hollows and the clearing boundary is very close to two records of individuals, with these locations recorded only on two site visits. This 9ha area of habitat will be lost in the longer term. Fauna spotters are proposed to be used however this does not mitigate the risk of injury or death from falling large occupied habitat trees. On this basis, the risks to fauna should instead be moderate to high.

# 2.9 Errors in Black Cockatoo Assessment

The Proponent has made significant errors when assessing the potential impacts to Black Cockatoos. Page 78 states that "*Terrestrial Ecosystems did not record any nesting trees within the project area and noted that the area proposed for the pit lies outside known breeding or roosting habitats. There is no known roost site within 5 km of the proposed disturbance*". This is incorrect. The current and proposed mine area is only 3km from a confirmed roost site - WARLAKR004. This location may not be publicly available as the data is sourced under agreement from Birdlife. Site WARLAKR002 to the northwest is publicly available (from DBCA buffered roost data) and that is 4km away, so there are confirmed roost sites within 5 km (Figure 3).



Figure 3. Image above shows two Black Cockatoo roost sites within 5km of the current mine and proposed expansion area.

# Due to significant errors and downplaying of impacts, that are likely to be significantly greater than stated, the proposal should be rejected.

# 3. Clearing of 9ha of Nationally Threatened Ecological Communities

The proposed clearing would directly impact on 9ha of excellent condition Banksia Woodlands of the Swan Coastal Plain Nationally TEC and approximately 1 ha of Tuart Woodland Critically Endangered Nationally TEC.

# 3.1 Banksia Woodlands of the Swan Coastal Plain National TEC

The proposal would result in loss of up to 9ha occurrence of Banksia Woodlands of the Swan Coastal Plain Nationally TEC, declared in 2016. Today only approximately 35% of these remnant woodlands remain, and less than 22,000 ha remain in the Peel-Harvey Catchment. What make Banksia Woodlands unique from other local Woodlands is their high diversity of plant species, particularly in the understorey. Around 15 native trees are associated with the overstorey, but more than 600 native plant species have been recorded overall. An average of 50 plant taxa have been recorded within 100m<sup>2</sup> sample plots of Banksia Woodlands in the Perth area, and the Banksia Woodlands in the adjacent bush Reserve (Treasure Block) exhibit similarly high levels of diversity. PHCC have several long-term monitoring plots at Treasure Block and, in one standard 100m<sup>2</sup> plot, approx. 40 different native plant species are recorded. Surprisingly, their Flora and Vegetation Survey reported considerably lower diversity than expected, 151.7 ha surveyed yet only 139 native species were recorded. This relatively low diversity reported is likely to be a legacy from historic clearing (highlighting the challenging in restoring Banksia Woodlands and highlighting the need to protect remaining Woodlands).

Banksia Woodlands are also extremely sensitive to phosphorous and reduced water availability. The Swan Coastal Plain dune systems are generally composed of well-drained and weathered pale yellow

(Spearwood) or white (Bassendean) guartz sands which form coarse-textured soils that are extremely poor in nutrients. Compaction occurs naturally at depths greater than 0.5m, which traps moisture in the upper soil layers (where plant roots occur), preventing rainfall from leeching straight through to the groundwater. Mining to depths proposed in this application will seriously impede water-holding capacity of sandy soils because reconstructed soils tend to lack a compacted layer around the root zone (it also increases compaction at the soil surface so water tends to run off the surface rather than penetrating quickly to lower depth where soil moisture can be stored for many months (even during summer). Furthermore, excavating Spearwood Sands (which are much higher in phosphorus than Bassendean Sands) may result in higher phosphorous loads in the upper soil layers, which is likely harmful for Banksia's. Banksia attenuata is the most dominant Banksia at Treasure Block and, although it is usually groundwater dependent, we suspect that the Banksia's in the proposed clearing area are not groundwater dependent because depth to groundwater is beyond the reach of roots (Banksia roots extend to a maximum of approx. 30m below the soil surface). This means that the Banksias in the clearing area have adapted to site conditions, investing less in tap root development and instead investing in superficially extending, lateral roots in upper regions of the profile where moisture is readily available (though not in reconstructed soils). This makes the restoration process even more challenging. Coupled with reduced water holding capacities of reconstructed soils, the Banksia Woodlands will not return to their original 'excellent' condition after mining. This is evident in their previous revegetation as plants in the revegetation area exhibit signs of water stress (leaf curling, leaf yellowing and stunted growth), which will be further exasperated by reduce rainfall under climate change.

The proposal will detrimentally impact Banksia Woodland TEC and the threatened species that inhabit them. It is very surprising that consultants did not identify threatened or priority species at the site in 2005, 2019 and 2021. For every occasion that PHCC have completed flora surveys at Treasure Block, priority species were recorded including *Pterostylis frenchii* (P3). This species has been critically overlooked in the flora and fauna report. It has been identified in the database search (P8 - Flora and Vegetation Survey), yet it is not listed in their assessment of likelihood of significant flora occurring on the site (P9 - P13). We found this species in our 2021 survey, less than 770 m from the proposed pit extension area. There is a very high likelihood that this species occurs in the proposed pit extension area.

#### 3.2 Tuart Woodland Critically Endangered National TEC

Tuart Woodlands and Forests of the Swan Coastal Plain ecological community is listed as Critically Endangered under Federal EPBC Act 1999. This vegetation type is fragmented and represented poorly in conservation reserves. No detail is provided on the area and impacts to Tuart Woodland Critically Endangered TEC, despite an area of this vegetation type falling within the clearing footprint (see objection grounds section 2). From mapping provided it appears approximately 1 ha of this vegetation type is to be directly impacted by clearing. Lack of avoidance and mitigation measures proposed for this vegetation complex, along with the fauna values it supports are environmentally unacceptable, particularly for the loss of large significant trees.

# No permit should be granted due to permanent loss of 9ha of excellent condition Banksia Woodland and Tuart Woodland TEC.

# <u>4. Loss of 9ha of critical habitat (foraging and breeding resources) for three MNES</u> threatened Black Cockatoo species

The overall population trend for all 3 Black Cockatoo species is declining, and is expected to continue to decline, primarily due to the loss and fragmentation of habitat as a result of clearing native vegetation (DCCEW 2022, p7). It is widely recognised that Black Cockatoos are running out of food resources and threatened with extinction because of extensive land clearing of their foraging and breeding habitat. This proposal would directly contribute to these threats. Under significant impact criteria under Federal referral guidelines, for the three species of Black Cockatoo the site represents critical habitat and proposed clearing represent high risk of significant impact for loss of breeding and foraging. The guidelines state that "Clearing or degradation of any part of a vegetation community known to contain breeding habitat (see Section 3)....Clearing of more than 1 ha of quality foraging habitat" ((p23) Table 1). The proposal to clear 9ha greatly exceeds the threshold for clearing of high quality native foraging habitat under Federal referral guidelines (1ha Loss of greater than or equal to 1ha of foraging). Along with loss of / impact upon known, suitable or potential nesting trees, and the habitat around these trees, the proposal is considered significant impact highly likely to require a Federal referral to the minister. Clearing of 9ha of critical habitat (foraging and breeding resources) for all three MNES Threatened Black Cockatoo species, represents unacceptable short, medium- and long-term residual impact.

# 4.1 Critical Foraging Habitat

The site contains 9ha of high value food resources for Black Cockatoos and evidence of black cockatoos foraging was observed at several locations during field surveys. The bushland is also known to contain Black Cockatoo breeding habitat. As such the proposed clearing area is considered critical habitat. Loss of 9ha of critical habitat, even if cleared in a staged manner, has the potential to impact foraging and breeding for Black Cockatoos, particularly in the context of wide scale historical habitat loss and ongoing contemporary losses, leading to decline in species trajectories (refer National Recovery Plans). The error in assessment of proximity to roosting site downplays impacts to the level of loss of this critical habitat.

# 4.2 Critical Breeding habitat

The assessment of actions provided in Table 16 of the Proponent's Attachment report (p37) which include creating a gap of greater than 4 km between patches of Black Cockatoo habitat is an unacceptable approach to overturning the foraging and breeding habitat loss for Black Cockatoos. Regardless of whether Black Cockatoos are currently breeding at this site, they have historically been known to breed in the area and are likely to return to this breeding site in the future as habitat continues to be cleared, demonstrating a higher value for resources for, arguably, unsustainable development, over the continued extinction of our native species.

The clearing area contains high value foraging and breeding habitat with consultants Terrestrial Ecosystems recording 206 trees that met the Commonwealth Government's assessment criteria of ≥50cm, of which 14 appear to have hollows that may provide a suitable nesting hollow for Black-Cockatoos (Appendix D). While no nesting of Black Cockatoos was recorded during site surveys, this site represents a significant current and future breeding and foraging resource for these and other

hollow dependant species. As stated in section 2.6, approximately 50 significant trees including a proportion with hollows are proposed to be cleared.

These impacts are not able to be adequately offset by the measures proposed. As a mitigation measure, the proponent proposes that the "occasional hollows in large trees on site will be retained and the hollows relocated" (p33). This will negligibly mitigate the loss of a large number of dead, living and developing trees as only a small number of part sections of trees that will die will be relocated, with no retention of trees in-situ possible. Trees take 200 hundred years to develop suitable hollows for their breeding and the legacy of clearing at this site likely means there are few suitable tree hollows within the proposed expansion area. However, the trees that have returned following historical clearing are on the trajectory towards the developing suitable hollows (likely to be approx. ¼ the age required to develop suitable hollows for Black Cockatoos). To clear this Woodland again undoes more than 60 years of work to re-establish foraging and breeding resources for Black Cockatoos and identifies an additional issue with offsets that are not protected in perpetuity.

# 4.3 Cumulative loss of foraging habitat

A portion of the Pine Plantations south of the current mine have recently been cleared. Black Cockatoos are known to forage from this Pine Plantation and the recent logging/clearing of these Pines leaves a foraging deficit for Black Cockatoos. A further 2000ha of Pine Plantations within the Myalup State Forest are proposed to be converted to intensive agriculture, implemented in stages over 20 years. The loss of the important food source must be considered in cumulative impact assessment which the Proponent hasn't done. Similarly, wide scale clearing of nearby residential properties, which can be readily viewed via satellite imagery, shows the recent loss of large trees in the surrounding area and this loss should be considered. Black Cockatoos are literally starving to death as a direct consequence of land clearing. The approval of further clearing of Black Cockatoo habitat goes against the principles of the Australian Biodiversity Strategy and undermines several Projects funded in the Peel-Harvey Catchment to protect Black Cockatoos, via the protection and enhancement of foraging and breeding habitat. The loss of this critical food source means that the foraging trees at Lot 1001 and Treasure Block become increasingly important. With their current rate of decline due to habitat clearing, every single foraging tree matters.

# Due to high risk of significant impact to Black Cockatoo critical habitat (foraging and breeding), inadequate mitigation measures, as further loss to previously granted clearing related to this development, no further clearing should be granted.

# 5. Direct and Indirect impacts to MNES Western Ringtail Possum

The Western Ringtail Possum (*Pseudocheirus occidentalis*) is a MNES, listed as Critically Endangered under EPBC Act 1999 and Biodiversity Conservation Act 2016 (WA). National Conservation advice (2018) for the species states that the high rate of decline over the past 10 years (2006 to 2015), suggest that the population size reduction will continue (p5) with potential extinction within years. Original habitat loss, coupled with ongoing loss and degradation of habitat and other threatening processes, has contributed to a decline and restriction of the species range. The key threats to the Western Ringtail Possum in the southern Swan Coastal Plain include habitat loss and fragmentation habitat degradation, fragmentation and clearing. The proposal will result in unacceptable impact to Western Ringtail Possum through direct loss of 9ha of habitat for Western Ringtail Possum along with indirect impacts to the remainder of the local population, with losses in direct contradiction of Conservation Advice for the species (TSSC 2018; DCCEEW 2018). The proposal represents a significant impact under Federal Referral guidelines that state that there is a real chance or possibility of a significant impact on the species if the action will result in *"clearing in a remnant habitat patch that is greater than 0.5 hectares in size"* or *"degradation or sterilisation of an area to the extent that appropriate habitat could not be enhanced or re-established in the future these are to highlight the need to maintain the ecological function in the important areas"* (DEWHA 2009). Furthermore, the information of Western Ringtail Possum provided fails to meet the basic survey standards for Environmental Impact Assessment.

#### 5.1 Failure to meet survey standards

The proponents Targeted Western Ringtail Possum survey fails to meet basic Western Ringtail Possum survey standards for Environmental Impact Assessment (see more detail under section 6 below). No information on survey pathways were included. No secondary searches for scats, dreys or use of large numbers of suitable hollows was undertaken, failing to meet the National and subsequent State survey standards (Environment Protection and Biodiversity Conservation Act Survey Guidelines for Australia's Threatened mammals (DSEWPaC 2011); EPA's (2020) Technical Guidance on terrestrial fauna surveys for arboreal mammals). On this basis, the information provided in the reporting cannot be relied upon to adequately provide details of Western Ringtail Possum abundance and impact and cannot be relied upon for decision making purposes.

#### 5.2 Population Abundance

Despite the proponent and consultant reports stating the Western Ringtail Possum at the site in "very low abundance", evidence of a small to medium size population spanning into the adjacent Treasure Block, suggests the local area supports a healthy and likely viable population of Western Ringtail Possum individuals. In the site surveys, three Western Ringtail Possum individuals were located across two nights of only one season spotlighting survey in 2022, with no detail of area covered and spotlight transects. It could be presumed that the original 51ha was surveyed, giving a population density of 1 individual per 17ha. On this basis, presuming the excellent condition area of remaining suitable habitat within lot 1001 was occupied, the site would support approximately 10 Western Ringtail Possums. In November 2023 during DBCA surveys, four individuals were observed in adjacent conservation land within 200m of the boundary of Lot 1001 during 1-hour spotlighting effort. This suggests a medium abundance and viable population, contradicting statements made in consultant's report. Further, the consultant recorded 206 trees within a 51ha area within the lot, that met the Commonwealth Government's assessment criteria of ≥50cm diameter within a 51ha area, many of these comprising hollows that may provide suitable hollows for Western Ringtail Possum. Approximately 50 significant trees are proposed to be cleared, which would result in the removal of a significant resource of hollows for Western Ringtail Possum.

#### **5.3 Mitigation Measures**

As a proposed avoidance and mitigation measure, the 9ha clearing boundary has been delineated directly adjacent to the recorded locations of two Western Ringtail Possums. This clearing will nonetheless result in a direct loss of a significant area of these individuals' territories, as well as cause indirect impacts such as disturbance from edge effects and greater susceptibility from predators. The area for proposed clearing contains the same vegetation complex as where the three individuals were recorded during spotlighting, so it would be safe to presume Western Ringtail Possum are using this entire area, including the 9ha area proposed to be cleared. The subsequent mining will also present significant risk of injury or death from the boundary between mine edges (up to 50m in height) to native vegetation, which has not been addressed.

The proposed relocation of animals within the clearing footprint is not appropriate as "Translocation does not reduce the impact of an action, and is not considered to be a mitigation or offset measure for the purposes of EPBC Act assessment" (p11). Western Ringtail Possum are notoriously difficult to translocate due to territoriality, stress and high rates of myopathy.

Given the species is Critically Endangered, all individuals and populations are critical to arresting the trajectory of decline of the species. Loss of 9ha of habitat, including suitable hollows, and part of the two recorded individuals home ranges represents unacceptable impacts and the proposal should be rejected.

# 6. Inadequate and Incomplete Fauna Surveys

# 6.1 Field surveys

The Proponent's Flora and Vegetation Survey Report P6: "Field surveys were undertaken on two separate occasions, with a total of four nights only, on 28 August and 3 October 2019 during the initial proposed expansion area and on 29 and 30 September 2021". This means that the site has not been surveyed for at least two years. Furthermore, although 50 camera traps may appear robust, cameras were only placed for 4 days total and there remains considerable area within the clearing zone without camera traps. A non-reward lure in a pod was used with camera traps, however, non-reward lures rarely entice Chuditch. Banksia Woodlands provide critical habitat for Chuditch and, given their current rate of decline, all Banksia Woodlands should be protected. Chuditch have been recorded less than 4.5 km south east (within Yalgorup National Park) and less than 6 km directly south from the of the pit expansion area. Given their historical distribution in this area and their irregular appearance in similar, isolated patches of bushland (i.e., Lowlands Nature Reserve), more robust surveys for Chuditch should be undertaken at this site prior to clearing approvals. Also note that most cameras were placed along, or close to, tracks. Chuditch are reclusive and shy animals that rarely stick to tracks.

DBCA and the PHCC (with on-ground support from the Winjan Bindjareb Boodja Rangers) undertook a biodiversity survey for reptiles, frogs, mammals and birds at the adjacent bushland (Treasure Block) in December 2022. This was the first biodiversity survey for fauna at this Woodland. Several Ringtail Possums were observed during spotlighting surveys, while echidna and brush-tailed possums were observed in cage traps. Several Western Brush Wallabies were also sighted during the day, which is an important record as this Priority species has disappeared from much of the Swan Coastal Plain. Four frog species and 16 reptile species were recorded in the pit and funnel traps, and one record of a *Ctenotus labillardieri* which is unusual and potentially suggests a range extension for this species. This skink is locally restricted to the Darling Range where it inhabits Woodlands and rocky areas (especially granite outcrops). None of this information was presented in the applicants

# 6.2 Western Ringtail Possum

The 'targeted' fauna surveys for Western Ringtail Possum fail to meet the standards of EPA's technical guidance (EPA 2020) and the Environment Protection and Biodiversity Conservation Act Survey Guidelines for Australia's Threatened mammals (DSEWPaC 2011). As such the assessment of impacts to WRP cannot be relied upon.

The State guidelines (EPA) Survey methods recommended to detect the presence of the western ringtail possum in areas up to 5 hectares in size, daytime searches for potential den sites in hollowbearing trees, daytime searches for signs of activity, such as nests (dreys) in trees, scratches on tree trunks or scats on the ground below trees with hollows or dreys (description of the survey technique and recommended effort and stagwatching surveys at potential nest sites (dreys and tree hollows) Spotlight surveys are of limited use in dense vegetation as the light cannot penetrate far enough from the observer (p26). Despite this, no daytime targeted searches for scats, dreys and use of hollows were undertaken. No details of weather conditions during nocturnal Western Ringtail Possum field survey were provided to be able to consider whether these were adequate for identifying individuals. Weather conditions are also known to influence the success of spotlight surveys as extreme temperature, rainfall or wind can reduce animal activity and also make it more difficult for an observer to see fauna. No diurnal surveys were conducted for secondary evidence of WRP presence in the clearing area and larger study area. No details of survey route were provided to determine if the site was adequately surveyed spatially.

# Prior to a more thorough and recent fauna assessment being undertaken for the clearing area, no application be granted until this information is provided and can be considered.

# 7. Variance to Clearing and other Principles

Any further clearing of bushland on Lot 1001 will likely be at variance to a number of clearing principles under Part V Division 2 of the EP Act 1986. Due to this, it is questionable whether a vegetation clearing permit will be considered by the Department of Water Environment and Regulation (DWER). As noted above, clearing of Banksia Woodlands TEC is not in-line with the Australian Biodiversity Strategy, nor the Native Vegetation Policy 2022. Given the current extent of land clearing occurring at local and regional scales, the Native Vegetation Policy's 'net gain in vegetation' must apply at a local scale in this instance, as this is the largest and last remnant patch of Banksia Woodland TEC within the Shire of Waroona.

# 8. Incomplete and Flawed Revegetation Plan

# 8.1 Revegetation of Banksia Woodlands

As discussed, Banksia Woodlands are notoriously difficult to restore. They can be rehabilitated, but to date there are no success stories of returning the full suite of species following soil reconstruction. At best, keystone overstorey species can be recruited and a small subset of the understorey. The understorey of Banksia Woodland is exceptionally diverse and dominated by long-lived species, some of which take several decades to reach maturity and most are difficult to source as tubestocks or seeds. Nurseries are only able to supply a very small portion of the most common species in the understorey, and seed is equally difficult to source as many species do not produce viable seed every year. Banksia's produce good quality seeds only after a very wet winters (not every year) and many of the understorey species have complex physiological seed dormancy strategies that prevent them from germinating during unfavourable conditions. Undoubtedly, the Proponent will not be able to restore plant diversity post mining. The Proponent has made no attempt to explain where they will source the seedlings or seeds from that are difficult to obtain. Presumably, there will be no attempt to revegetate these rarer species, some of which are critical for maintaining microbat and insect populations.

The overwhelming number of unsubstantiated statements and downplaying of challenges associated to revegetation of Banksia Woodland will result in an inadequate revegetation plan. Statements suggesting that mining activities do not encourage introduced predators, that they will turn the very degraded land into good condition Banksia Woodland within 10 years and that there will be no impact on weeds, are farcical at best and ignore the most important factors to successful revegetation.

# 8.2 Changes in substrate and soil properties

Significant changes to post-mining soil properties impacts on the ability to revegetate to meet completion criteria, and will result in the long-term permanent loss of habitat values and function. Mining is the most severe of all disturbances, completely altering soil structure and below-ground dynamics. Recent research undertaken by Robinson *et al.* (2023) found that "Post-mining scenarios present challenges for restoration in a wide range of environments, especially in the context of climate change". Even with substrate reconstruction prior to vegetation re-establishment, the study found that there was 100% mortality in the post-mining substrate for Banksia and Eucalypt species, but high survival and no clear provenance effect in the un-mined substrate and that post-mining substrate changes can overwhelm provenance issues. This highlights the difficulty and risk in returning native vegetation to post sand mined sites due to changes in substrates and soil structures, particularly under a drying and warming climate, and raises concerns that the clearing will result in permanent loss of the vegetation complex in this condition and associated habitat values.

#### 8.3 Fencing

Ideally, the revegetation areas would be fenced. The mine pit and wall should also be fenced so that native fauna do not accidently fall into the pit when escaping from predators.

# 8.4 Revegetation Targets

The revegetation targets are too low as the Proponent is using their 'rehabilitated' Woodland as the baseline, which has significantly lower diversity than Treasure Block that wasn't cleared or Lot 1001

prior to historical 'Parkland clearing'. More appropriate targets are those used for Treasure Block and Banksia Woodlands generally where, as mentioned above, we expect to see approx. 40-50 different plant species per 100m<sup>2</sup> plot. Their target for ground cover and ground shrubs (which is the most diverse plant type from Banksia Woodland) is only 10 different species per 100m<sup>2</sup> is far from what is expected in this Woodland, which is at least double (approx. 25). Similarly, their target for medium and taller shrub plant density (includes trees) is only 5 species per 100m<sup>2</sup>, yet flora surveys in treasure block record at least double the number of shrubs. Their total plant completion criteria is 20,100 plants per ha, which is acceptable for year 1. Infill plantings should occur in subsequent years to replace seedlings that have not survived. Their plant list is also inadequate, with only 33 different genera, largely neglecting most of the dominant understorey species. There's no Macrozamia, Hibbertia, Stylidium, Drosera, Caladenia, Lomandra, Leptospermum species, all of which are common to Banksia Woodlands in the Lake Clifton area. They also haven't included Agonis flexuosa (which is the preferred habitat tree for Ringtail Possums), or grasses, sedges or climbers that are also common to these Woodlands. Furthermore, several species on the plant list are not typically found in Banksia Woodland or within the Peel-Harvey region (i.e., Dodonaea hackettiana). This plant list looks like the typical list received when contacting a nursery to supply Banksia Woodland species. The Proponent will need technical assistance to develop a more suitable and diverse plant list, that considers habitat needs of all animals, including insects and bats. That means recreating structural and biological diversity, rather than selecting only the species that are easier and cheaper to source and recruit.

The revegetation plan should include soil amendments to help alleviate water stress, such as Terracottem or mulch, and products to stimulate growth of soil microbes (i.e., Bactivate Microbial Soil Conditioner). As the reconstructed soils have poor water-holding capacities and almost no beneficial soil microbes, investment in soil conditioners early on in the restoration process is essential.

#### 8.5 Stockpiling

Soil stockpiling is not recommended for topsoils. Stockpiling topsoil significantly degrades beneficial soil microbes, reduces carbon content and storage capacities and topsoil quantity. Regarding topsoil recovery, the Proponent states that a topsoil cover of 50 - 100 mm will be pushed to the edge of the current excavation (P86), which is already very little topsoil and a fraction of what occurs naturally. The seedbank of Banksia Woodland species is generally long lived, so it's critical to maintain as much of the topsoil as possible because it will have a significant seedbank and organic/microbial properties. The topsoil should be returned to the revegetation area immediately, to prevent further degradation. If the topsoil is stockpiled, then it MUST be covered at all times, yet covering is not mentioned in their revegetation actions. A triple stripping approach is recommended instead of their suggested method of double stripping (removing up to 100 mm of topsoil, and then the remaining overburden). Triple stripping means removing the topsoil layer, then removing the sub-soil where plant roots and organic matter occur, then removing the overburden, and reconstructing in the same order. This approach preserves topsoil quality, reduces loss of topsoil minimises the risk of seeds or microbes dying from exposure and greatly enhances restoration outcomes. Note also that topsoil depth should be a minimum of 100 mm, not 50 mm. Double stripping demonstrates a bare minimum approach to protect and restore these threatened Woodlands.

The Proponent states 'Studies have shown that topsoil stripping and placement is best undertaken in summer for maximum germination and this will be done, but this raises the potential for additional dust generation from the fine humus particles', yet provides no references for this statement. We caution against topsoil stripping in summer because the hot temperatures degrade soil microbes and seed viability. If the exposed topsoil gets hot, it can trigger germination in some Banksia Woodland species (many are cued to germinate following very hot conditions) which would result in seed death. The accepted and best practice for Banksia Woodland is 'Stripping and spreading during autumn' (Rokich et al., 2000). Correct handling of the topsoil, stripped and replaced fresh and dry (autumn direct return) to depths of 10 cm, can be used to optimize revegetation of species-rich plant communities with this type of seedbank. Rokick et al. (2000) further note that ripping of topsoil and subsoil should be considered to ease compaction at the surface layer in newly constructed soils.

# The proposal should be rejected. In the very least, no approval for clearing provided until a thorough revegetation plan is submitted, and reviewed, addressing the key challenges to Banksia Woodland restoration.

# 9. Unacceptable and Inadequate Mitigation Measures

Overall, there are no acceptable mitigation or avoidance measures presented in the application to expand quarry operations.

#### 9.1 Lack of protection and management of remaining native vegetation

PHCC has significant concern re the lack of protection and management of remaining native vegetation, this is despite "retention of a 172ha area the western area of native vegetation is used as a mitigation measure" and indicating plans to expand clearing areas to 51ha and despite recommendations to protect this area in conservation estate or conservation covenants.

# 9.2 Edge effects

Page 56 of the *Rehabilitation Management Plan* states that edge effects are minimised by having one relatively circular disturbance pattern with clearing occurring from the east and south. P66 also states that *'the shape of the proposed disturbances minimises habitat fragmentation'*. In terms of minimising edge effects, clearing in a circular pattern as opposed to a linear or square patter only marginally reduces the length of the perimeter or edge, therefore, the benefits for flora and fauna along the permitter edge are likely to be negligible (particularly as the current mine edge already has a linear pattern and because the proposed expansion area actually resembles a rectangle NOT circle). Clearing in a circle, or in this case a rectangle, does not demonstrate avoidance or mitigation considerations. PHCC does not support this as a mitigation method to reduce edge effects. The greatest threat to Black Cockatoos is loss of breeding and foraging habitat, not fragmentation.

#### 9.3 Avoidance

Avoidance measures have been proposed for groundwater (i.e., the floor of the pit will have a separation to the highest known groundwater in excess of 3 metres) but not for groundwater used

for dust suppression. If using groundwater for dust suppression, the Proponent should provide details around quantity used and impacts.

There are no avoidance measures presented for clearing of Black Cockatoo habitat. Clearing of any large trees suitable for Black Cockatoo breeding or foraging can no longer continue if we are to secure breeding and foraging habitat into the future. All trees with hollows suitable for Black Cockatoo breeding should be avoided. Avoidance measures for Western Ringtail Possum are discussed in 5.3.

# 9.4 Fauna impacts

The Proponent states (P66) that 'Fauna spotters will be used during clearing to relocate fauna or assist injured animals. Vegetation ahead of land clearing will be examined by fauna experts who will recover animals and relocate them to areas that are not to be cleared. This will particularly apply to Ringtail Possum habitat and hollows located in trees.' Having appropriately qualified fauna spotters on-site, inspecting every single tree immediately prior to feeling, would need to be a condition of approval to ensure compliance, using appropriately qualified spotters. The final sentence in their statement above raises significant concerns because generally, Western Ringtail Possum cannot be relocated (refer to Section 5.3).

Page 66 also notes that 'Tree hollows recovered during clearing will be relocated to areas of natural vegetation that are to be retained'. Any artificial tree hollow will require regular maintenance, even if it's using natural hollows strung up to the tree. Under no circumstances should a habitat box (regardless of whether it's a pine box or natural hollow) be installed without a thorough monitoring and maintenance plan. Given sick and injured animals often use habitat boxes or hollows for safety and often die inside them, a long-term monitoring and maintenance program must be developed for the life of the habitat box. The mine must be required to monitor the installed hollows, at least on a monthly basis, to remove dead animals, decontaminate the hollow and maintain connective wiring that fixes the habitat box to the tree.

No consideration risk of injury or death to fauna due to the height of the mine to native vegetation from falls from 30-40m high or suffocation in sand is provided, nor mitigation measures.

The Proponent has inaccurately stated that "[they] do not have any current activities that would encourage introduced predators" (p66). Clearing in itself encourages pests, particularly rabbits, foxes, cats and kangaroos. Foxes and cats use open spaces to herd their prey into, making them easier to catch, and rabbits love the fresh young shoots/roots of juvenile plants. Similarly, Kangaroos are drawn to wide open spaces for rest and also to feed on the young plants and grasses. Lake Clifton has a prolific rabbit problem, as the rabbits have developed an immunity to Calicivirus, and revegetation will be significantly impeded by the increase in rabbits and kangaroos. Tree guards and/or fencing should be used to increase revegetation success.

# 9.5 Revegetation and condition change

Despite signification revegetation efforts spanning decades, the Woodlands that have re-established within the areas previously cleared are a depauperate ecosystem, with reduced biodiversity compared to the adjacent Reserve (Treasure Block). For this reason, we question whether the

Proponent can achieve the statement made on P67 – '16.55 hectares of wildlife corridor is to be established along the northern boundary of the property provided by lifting the quality of that vegetation to Good or better'. It's very difficult to turn a very degraded Woodland into a good condition Woodland, which is ultimately a measure of diversity and number of native species vs number of weeds. The statement that there will be 'No additional weed load as a result of mining activities that will adversely impact on the environmental values of the local area' is misleading (P84). Clearing and disturbance always results in an increase in weeds, especially if there is no active weed control program.

The Woodlands are classified as Banksia Woodland TEC and, although the application states that revegetation following mining will assist in mitigating potential impacts, Banksia Woodlands are notoriously difficult to re-establish. Arguably, they cannot be restored, only rehabilitated (with considerably lower diversity, particularly in the long-lived understorey species that are difficult to recruit). The sandy soils which they occur on have low water-holding capacities and, coupled with climate change and modern threats such as invasive weeds and pests, high seedling mortality is expected. Despite considerable efforts from the mine to improve revegetation outcomes (i.e., through installation of soil pits around tree species to increase soil moisture), revegetation in areas previously mined remain degraded today. This is evident in the degraded northern area of the mine, which has been 'rehabilitated'. It is noted that the Proponent has not provided photos that accurately represent the current state of their rehabilitation. For a more accurate representation, refer to Fig. 15 of Attachment 5 (or Figure 4 below), which shows 'Banksia planting at 18 months old'. This photo better represents their revegetation sites, which are degraded, with stunted plant growth, low plant diversity and open bare patches. These bare patches are also evident in spatial imagery and we recommend that the Shire/EPA visit these revegetated areas to better understand the potential success of future rehabilitation efforts.



Figure 4: Typical revegetation area at Cougar Mineral Sands Mine.

P57 of the Proponent's Evacuation and Rehabilitation Management Plan states that current rehabilitation trials demonstrate that the local native species can be returned to excavated and disturbed areas, but fails to acknowledge the poor diversity and vegetation condition at these trial sites. The results from their 2008 revegetation trials in the SE corner, 2013 species trials with stag

trees on pit floor and 2020 annual planting of tubestocks should be made publicly available to more accurately determine revegetation outcomes. Certainly, from the site visit and images of the rehabilitation area provided below, the revegetated areas are severely degraded with very little plant diversity. This result highlights the challenges in restoring Banksia Woodland and, in line with the Australian Biodiversity Strategy, biodiversity is best conserved by protecting existing natural habitats, rather than restoring cleared areas. Furthermore, due to the long life of many understorey species, Banksia Woodlands have a large and delayed extinction debt compared to other Woodlands (Fowler et al., 2023), which means that we do not yet fully comprehend the losses incurred from extensive historical clearing around the Lake Clifton area. For these reasons, the Precautionary Principle should be applied.

# The application should not be granted given further clearing of TEC is not justified in the absence of avoidance or mitigation measures.

# 10. Offsets

Although the offset proposed may be sufficient in terms of DWER's offset calculations for the area cleared, all offsets only involve land tenure change in existing vegetation and a net loss of native vegetation if the application is granted. Like most bushland patches on the urban fringes in WA, Treasure Block does not have adequate management resources and hence is slowly degrading due to an increased presence of weeds, pests, illegal access and rubbish dumping. DBCA have struggled to maintain vegetation condition at Treasure Block due to an increase in threats and, as result, PHCC have value added to this area by providing funding opportunities to support restoration works. In the past four years alone, PHCC have contributed more than \$62,000 for on-ground works to protect Treasure Block from further degradation (fencing, pest and weed control, access control, fauna surveys, etc) with DBCA providing similar amounts of funding through contractual, in-kind and cash contributions. Given DBCA already struggle to source funding for the works required at Treasure Block, it is questionable that they would have an increased investment required to restore and protect the offset area, as well as Treasure Block. Poor revegetation outcomes from historical clearing at this site has resulted in reduced diversity and ecological values, reinforcing our argument that further clearing at this site should be avoided.

Due to the nature of offsets, being an exchange of land ownership rather than increasing native vegetation cover, they cannot be used to justify clearing of a TEC. There should be no further clearing of Woodlands at this site, as they are on the slowly recovering from historical clearing.

# 11. Threatened species, habitats and native vegetation as community assets

Throughout the application, the value of the sand resource on Lot 1001 to the community is continually emphasised. However there is a lack of consideration and recognition of the value of threatened species, habitats and native vegetation as community assets. This is discussed further under avoidance, as the first tier of the mitigation hierarchy.

# 12. Avoidance as First Tier of Mitigation Hierarchy

There is a clear lack of avoidance of environmental impact in the mitigation hierarchy with alternatives available with significantly lower environmental impact to meet the demands outlined for community resources.

A further 9ha of clearing is proposed in environmentally sensitive areas, with clearing proposed to continue to expand with little to no avoidance or mitigation measures to reduce clearing footprints of TEC being implemented, nor alternatives presented for locating facilities and extractive industries on existing cleared or degraded lands.

The Proponent makes several statements relating to the rarity of Spearwood Sands and, contrary to the Proponents statements, it is not the largest supply of high phosphate retaining sand for fill. Spearwood (S1B Phase) Sands extend southwards through the pine plantations, where there is little to no native vegetation and very few native fauna (except for Black Cockatoos which forage from Pines) (see Annexure 2). The most northern plot of the pine plantation would be a far more suitable option for mining. It has at least 82 ha of the same Spearwood Sand as the proposed expansion area, is only 1.17 km south of the existing mine, has private road access, is currently cleared (recently logged) and has a similar elevation profile of 50 m. Spearwood Sand occurs across the entire Pine Plantation, excluding the small patch of native vegetation on the southern boundary of the Pine Plantation, covers 197ha. Spearwood Sands on Lot 1001 cover only 155 ha, thus is considerably smaller than the patch within the Pine Plantation. The Proponent should approach the Forest Products Commission and DBCA to ascertain the potential of a 10-year mining lease prior to the site being developed for intensive agriculture.

The area to the east is also surrounded by degraded farmland and there has been no indication that the proponent has attempted to source high-quality sand from nearby degraded land as opposed to clearing excellent condition Woodland TEC which is home for our Black Cockatoos. The lack of avoidance measure and net loss of vegetation cover contradicts the principles of the Australian Biodiversity Strategy 2010-2030 and the Native Vegetation Policy 2022.

#### 13. Proposed expansion area occurs in a DMIRS exclusion zone

Figure 4 of the Proponents applications shows that the proposed expansion area occurs within a DMIRS exclusion zone. Exclusion areas are those that contain known Basic Raw Material (BRM) resources that are considered unfavourable for excavation. These areas are likely to have protected environmental values or are excluded for planning or infrastructure reasons. These exclusion areas were identified by an extensive interagency BRM planning process, which included public consultation in 2015 and 2016. The proposal should be rejected as it is within an identified exclusion zone. Figure 5 shows the exclusion area, extracted from Geoview.

#### Mining should not be approved in DMIRS exclusion zones and the proposal should be refused.



Figure 5: DMIRS exclusion zone, as mapped by Geoview.

# **Conclusion**

For the reasons outlined above, PHCC does not support any further native vegetation clearing being permitted at Lot 1001 Lake Clifton Rd, Lake Clifton. The proposed clearing is unacceptable as it occurs in a DMIRS exclusion zone and the risks to native flora and fauna are too high when alternative sites are available for this basic raw material.

PHCC strongly recommends the Proposal is referred to the under the WA Environmental Protection Act 1986 and the Environmental Protection Biodiversity and Conservation Act 1999, due to the impacts on significant flora, fauna and Threatened Ecological Communities.

Due its high biodiversity and community value and regional significance, PHCC recommends the excellent condition vegetation and the Retained Banksia woodland area of 172.55ha is protected in perpetuity and nearby degraded land sand resources are preferentially sourced.

Should you require further information, please do not hesitate to contact PHCC's Program Manager, Land Conservation, Dr Karen Bettink on (08) 6369 8800 or email <u>admin@peel-harvey.org.au</u>.

Yours sincerely,

Jane O'Malley Chief Executive Officer

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#### Annexure 1: Regional Ecological Linkages

While the vegetation on Lot 1001 is important in providing connectivity to the Harvey River, Regional ecological linkages mapping by Molloy et al (2007) showing there are multiple other linkages in the local area, contradicting statements made throughout the provided documents.



#### Annexure 2: Alternative local Spearwood white and yellow sand sources on degraded sites

2a. Map of Spearwood S1b phase sands (in orange, sourced form Soil Landscape Mapping DPIRD-027) overlying aerial imagery, showing extent of existing cleared and degraded land as alternative site for sand mining on Lot 100. In particular, harvested areas of pines to the direct south within Mylaup State Forest, could provide ample sand resource (refer to b for details) to supply community demand.



2b. Overleaf – detail of Spearwood S1b phase sands (in orange, sourced form Soil Landscape Mapping DPIRD -027) with contour layer (sourced Landgate -015) of degraded land directly to the south of Lot 100, within Mylaup State Forest. This shows land currently and previously used for pine plantation that could offer a large area (>150ha in the northern section alone, highlighted in yellow outline) and depth (shown as up to 50m contour) of sand resource. This area is in completely degraded condition, and would provide an environmentally acceptable alternative site for sand mining to meet community demand.



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