GOVERNMENT OF WESTERN AUSTRALIA

Environmental Protection Authority

Western Extension to the Keysbrook Mineral Sands Project

Keysbrook Leucoxene Pty Ltd

Report 1794

October 2025

This assessment report has been prepared by the Environmental Protection Authority (EPA) under s. 44 of the *Environmental Protection Act 1986* (WA). It describes the outcomes of the EPA's assessment of the Western Extension to the Keysbrook Mineral Sands Project by Keysbrook Leucoxene Pty Ltd.

The Western Extension to the Keysbrook Mineral Sands Project was determined under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* to be a controlled action and to be assessed by the EPA under an accredited process. This document is also the result of the EPA's accredited assessment process.

This assessment report is for the Western Australian and Commonwealth Ministers for Environment and sets out:

- what the EPA considers to be the key environmental factors identified in the course of the assessment
- an assessment of the matters of national environmental significance
- the EPA's recommendations as to whether or not the proposal may be implemented and, if it recommends that implementation be allowed, the conditions and procedures, if any, to which implementation should be subject
- other information, advice and recommendations as the EPA considers appropriate.

Darren Walsh
Chair
Environmental Protection Authority

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Summary

Background

Proposal

The Western Extension to the Keysbrook Mineral Sands Project is a significant amendment to an existing proposal, the 'Keysbrook Mineral Sands Mine' authorised under Ministerial Statement (MS) 810. The proposal involves an extension immediately west of the current mining operation. The significant amendment to the approved proposal will extend the operational life of the mine by five and a half years.

The proposal is located 2.5 kilometres (km) west of the Keysbrook townsite and 23 km northeast of Mandurah, in the Peel region of Western Australia.

Context and Key Environmental Values

The proposal is located on mostly cleared pastural land on the Swan Coastal Plain. The proposed development envelope contains biodiversity values including: Potential nesting, roosting and foraging habitat for Baudin's cockatoo, Carnaby's cockatoo and forest red-tailed black cockatoo (black cockatoos).

Consultation

The level of assessment was published as Referral Information with additional information, with a four-week public review. The proponent provided the additional information/draft environmental review document (ERD) on 7 February 2025. EPA Services sought technical advice and provided comments to the proponent on 2 April 2025. Nine public comments were received during the four-week public comment period. The response to submissions was submitted on 5 May 2025.

Assessment of key environmental factors

The EPA has identified the key environmental factors (listed below) in the course of the assessment. For each factor, the EPA has assessed the residual impacts of the proposal on the environmental values and considered whether the environmental outcomes are likely to be consistent with the EPA environmental factor objectives. As the proposal is a significant amendment to an existing proposal, the EPA's assessment has been undertaken in the context of the existing proposal, with regard to the combined and cumulative effects on the environment. The EPA has also considered whether to inquire into the implementation conditions for the existing proposal.

Environmental Factor: Terrestrial fauna	
Residual impact on key environmental value	Assessment finding
Direct impacts Clearing of 21.15 ha of native vegetation	The loss of black cockatoo nesting, roosting and foraging habitat is a significant residual impact, noting the cumulative loss of black cockatoo habitat on the Swan Coastal Plain.

including habitat for black cockatoo: • 18 trees with suitable hollows and 636 potential nesting trees • 122 roosting trees • 21.15 ha of foraging habitat Clearing of 5.98 ha of planted non-native low-quality black cockatoo foraging habitat. *Indirect impacts* Habitat degradation from weeds and dieback.	The proponent proposed avoidance of large black cockatoo habitat trees along the edges of the proposed disturbance footprint and a tree with chew marks around a suitable breeding hollow. During the assessment the proponent has also proposed to minimise clearing of potential black cockatoo nesting trees with potential suitable hollows in the northeastern section of the disturbance footprint where further avoidance is practicable. The proponent's on-site management measures include weed and dieback management. Subject to recommended conditions and the implementation of offsets to counterbalance the significant residual impacts to black cockatoo habitat, the environmental outcome is likely to be consistent with the EPA objective for terrestrial fauna.

Environmental Factor: Inland waters	
Residual impact on key environmental value	Assessment finding
Drawdown from abstraction	Predicted drawdown contours range from a maximum of 0.5 metres directly outside the development envelope to 0.1 metres up to 3.2 km from the mining area. Predicted groundwater impacts outside the development envelope are temporary and spatially limited, with monitoring to be continued to validate model predictions. Potential impacts to other groundwater users are unlikely. Regulation of groundwater abstraction will include abstraction limits and monitoring under existing RiWI Act licences. Based on the above, the environmental outcome is likely be consistent with the EPA's objective for this factor.
Impacts to watercourses within the development envelope.	The proponent proposes to protect major and medium watercourses through 20 m buffers, bunding and to temporarily diverted minor watercourses. Progressive mining in sections will disturb a relatively small portion of catchments at any given time, and diverted flows will be returned to natural drainage lines. Significant residual impacts to runoff and flow rates are unlikely. Subject to recommended limits on clearing and mitigation under Part V of the EP Act, the environmental outcome is likely to be consistent with the EPA objective for inland waters.
Impacts to Conservation Category Wetlands and vegetation	CCWs in this area are surface water rather than groundwater dependent. While surface water diversion could result in a decrease of up to 21% in the surface water catchment for CCWs located west of the development envelope, existing long-term monitoring of vegetation health indicates that CCWs and associated vegetation are resilient to changes in water flows and availability from current mining.

	Subject to mitigation through licences under the RiWI Act, impacts to CCWs will be minimised so that the outcome is likely consistent with the EPA objective for inland waters.
Potential acidification of groundwater, wetlands and waterways through the disturbance of acid sulfate soils.	To date, no significant acid-generating material has been encountered during mining operation within the proposal area. The results of field testing for Acid Sulfate Soils (ASS) for the proposed expansion are similar to the findings of all previous ASS investigations for the Project, which demonstrate low to moderate risk of ASS. The licence under Part V of the EP Act will be amended to regulate emissions and discharges, including potential acidification so that the outcome is likely to be consistent with the EPA objective for inland waters.

Environmental Factor: Social surroundings	
Residual impact on key environmental value	Assessment finding
Impact to culturally significant ethnographic site within development envelope	The proponent has taken reasonable steps to consult with the Gnaala Karla Booja (GKB) Traditional Owner Group. Primary impacts relate to the disturbance of an unregistered culturally significant ethnographic site. While the risk of significant impacts to cultural heritage values is low, the proponent's proposed exclusion zone around the ethnographic site is appropriate. The recommended conditions would ensure potential impacts to culturally important Aboriginal heritage is avoided such that the environmental outcome is likely to be consistent with the EPA's objective.
Amenity - Noise	The operation of the approved mine generated a high number of noise complaints from nearby residents, which resulted in an inquiry and new conditions for noise management (MS)1089. Noise modelling for the proposal indicates that some noise sensitive receptors (residences) are likely to receive noise above the assigned levels in the Noise Regulations. However, predicted noise levels can be mitigated for all receptors provided the proponent can reach amenity agreements with those parties. The potential impacts from noise exceedances can be mitigated through adopting the noise management condition framework in MS1089 to apply to the significant amendment, to ensure the environmental outcome is consistent with the EPA objective for social surroundings.

Environmental Factor: Air quality	
Residual impact on key environmental value	Assessment finding
Potential impacts to air quality from dust emissions (PM_{10} and	Although the dust-generating activities remain unchanged from the approved proposal, the extension westward

Total Suspended Particulate TSP) from land clearing, mining operations and wind erosion of exposed surfaces.	increases the potential impact on nearby residences from dust emissions. The proponent's current dust monitors which also measure wind speed and direction, allow reactive dust management to mitigate emissions. This monitoring enables scheduling and scale-down options of the individual dust generating mining activities to control dust emissions. The impacts of the proposal can be mitigated to provide for an environmental outcome that is consistent with the EPA's objective for air quality, subject to the proponent implementing the proposal to not exceed air quality standards and criteria set under Part V of the EP Act.

Holistic assessment

The EPA considered the connections and interactions between relevant environmental factors and values to inform a holistic view of impacts to the whole environment. The EPA formed the view that the holistic impacts would not alter the EPA's conclusions about consistency with the EPA factor objectives.

Conclusion and recommendations

The EPA has taken the following into account in its assessment of the proposal:

- environmental values which may be significantly affected by the proposal
- assessment of key environmental factors, separately and holistically (this has included considering cumulative impacts of the proposal where relevant)
- likely environmental outcomes which can be achieved with the imposition of conditions
- consistency of environmental outcomes with the EPA's objectives for the key environmental factors
- EPA's confidence in the proponent's proposed mitigation measures
- whether other statutory decision-making processes can mitigate the potential impacts of the proposal on the environment
- principles of the *Environmental Protection Act 1986* (EP Act).

The EPA has recommended that the proposal may be implemented subject to conditions recommended in Appendix A.

1 Proposal

The Western Extension to the Keysbrook Mineral Sands Project is a significant amendment to an existing proposal, the 'Keysbrook Mineral Sands Mine' authorised under Ministerial Statement MS 810. The proposal involves an extension immediately west of the current mining operation, to include an additional 512.94 hectares (ha) of mining area (disturbance footprint) to the existing 1,744.3 ha disturbance footprint for the approved proposal. The significant amendment to the approved proposal will extend the operational life of the mine by five and a half years to 17 years in total.

The proposal is located 2.5 kilometres (km) west of the Keysbrook townsite and 23 km northeast of Mandurah, in the Peel region of Western Australia (Figure 1).

The proponent for the proposal is Keysbrook Leucoxene Pty Ltd, a subsidiary of Doral Mineral Sands Pty Ltd.

The Keysbrook Mineral Sands Project consists of a shallow, low grade ore deposit. Ore from the deposit is mined progressively via a series of shallow open cut pits using dry mining techniques. Dewatering of groundwater inflows into the pit will be required to enable dry mining during wetter times of the year. The volume of dewatering is not proposed to change for the significant amendment.

Processing of ore commences in-pit whereafter slurry is pumped from the feed preparation plant to the existing wet concentration plant for further processing. Waste clay and sand materials from processing of this ore is combined and backfilled into the mine voids using co-flocculation (co-disposal system) where possible.

The product is stockpiled on site prior to transport to a Dry Separation Plant, located approximately 120 km south of the mine. The Dry Separation Plant is not included in the approved proposal and significant amendment.

Although ore reserves within the current approved proposal MS 810 development envelope are due to be exhausted by 2024 (ABEC 2025), associated activities (e.g. processing and rehabilitation) will continue in the approved proposal MS 810 development envelope.

The proponent for the significant amendment proposal is Keysbrook Leucoxene Pty Ltd (a subsidiary of Doral Mineral Sands Pty Ltd). The proponent referred the proposal to the Environmental Protection Authority (EPA) on 11 September 2023. The referral information was published on the EPA website for seven days public comment. On 31 October 2023, the EPA decided to assess the proposal at the level of Referral Information with additional information required. The EPA also published the environmental review document (ERD) (ABEC 2025) on its website for public review for four weeks (from 23 May 2025 to 21 June 2025).

The proposal was determined a under the *Environment Protection and Biodiversity Conservation Act 1999* to be a controlled action and to be assessed by the EPA under an accredited process.

The main elements of the proposal which have been subject to the EPA's assessment are outlined in Table 1.

Table 1: Location and proposed extent of proposal elements

Proposal element	Location	Original proposal[1]	Significant amendment	Combined proposal
Physical elements				
Development envelope (DE)	Figure 2	3,064.3 ha	+ 167.51 ha	3,231.81 ha
Disturbance footprint (DF)	Figure 2	Disturbance footprint of up to 1,744.3 ha which includes native vegetation to be cleared	+ 512.94 ha	2,257.94 ha
Clearing of vegetation, excluding pastured areas	Within DF	Up to 182 ha	+ 21.15 ha of native vegetation + 5.98 ha of non-native vegetation	203.15 ha of native vegetation to be cleared and 5.98 ha of non-native vegetation
Mine elements including: • Open pits • Overburden stockpiles • Topsoil stockpiles Processing elements including: • Ore stockpiles • Wet concentrator • Process water dam Infrastructure elements: • Supporting infrastructure Buildings, roads	Within DF	No change	No change	No change
Operational elements				
Plant processing limit		Processing of ore to produce 1,085,000 tonnes of heavy mineral concentrate over life of mine	Processing of ore to produce 250,000 tonnes of heavy mineral	Processing of ore to produce 1,335,000 tonnes of heavy mineral

Proposal element	Location	Original proposal[1]	Significant amendment	Combined proposal
			concentrate over life of mine.	concentrate over life of mine.
Groundwater abstraction for dewatering		In-pit sumps to dewater the superficial Bassendean Sand aquifer at 0.2 GL/a	No change	In-pit sumps to dewater the superficial Bassendean Sand aquifer at 0.2 GL/a
Groundwater abstraction for water supply		Up to 1.8 GL/a from the Leederville aquifer	No change.	Up to 1.8 GL/a from the Leederville aquifer
Greenhouse gas emissions				
Scope 1		Mobile plant and equipment: 8,742 t CO_2-e per annum	No change	Mobile plant and equipment: 8,742 t CO_2-e per annum
Scope 2		Electricity use: 18,827 t CO_2-e per annum	No change	Electricity use: 18,827 t CO_2-e per annum
Other elements which affect extent of effects on the environment				
Estimated Project Life		11.5 years	5.5 years	17 years

[1] Note: The original proposal has been amended by s45C, most recently by Attachment 5 to (MS) 810 on 16 October 2023

Units and abbreviations
ha – hectare
GL/a – gigalitres per annum
t CO_2-e - tonnes of carbon dioxide equivalent.

Application of *Environmental Protection Act 1986* amendments to the proposal

The proposal is a significant amendment to the approved proposal, Keysbrook Mineral Sands Mine regulated under MS 810 issued on 19 October 2009 as amended by MS 984 issued on 16 October 2014 and MS1089 issued on 8 February 2019.

The EPA has assessed the residual impacts of the significant amendment by considering the life of mine extension and changes which are now proposed in the context of the original (approved) proposal (Figure 2). The EPA has considered the combined impacts of the original proposal and the significant amendment, and the cumulative impacts with other proposals in the region. The proposal elements for the approved proposal along with the proposed amendments are provided in Table 1 to enable the EPA to assess the significant amendment in the context of the approved proposal.

The EPA has considered whether to inquire into the implementation conditions for the existing proposals. However, the EPA has not reassessed the approved proposal authorised under MS 810 (as amended by MS 984 and MS 1089) and has decided that an inquiry into the existing conditions is not necessary. The EPA has considered new information on the mitigation of impacts on the approved proposal and significant amendment, and proposed changes to the conditions accordingly.

Proposal alternatives

The proponent did not consider an alternative location for the proposal to be practical as the location of mineral sands deposits are limited to the proposal location, and in the Peel Region these are largely associated from the foothills of the Darling Scarp to the coast. The location of the Western Extension is immediately adjacent to the current mine area, which enables the existing processing infrastructure to remain operational in its current location (ABEC 2025), minimising additional clearing for infrastructure.

The proponent holds other tenements in the southwest, however economic resources have yet to be defined for these tenements. As such limited environmental or technical studies have been undertaken (ABEC 2025).

Approved proposal implementation

The original proposal to develop the Keysbrook Mineral Sands Mine was assessed by the EPA in 2007. The proposal was authorised under MS 810 on 19 October 2009. The proponent was Matilda Zircon Ltd (formally known as Olympia Resources Ltd and later known as MZI Resources Ltd).

The approved proposal included:

- Progressive mining of an area of 30 hectares any time.
- Backfill of mined areas with waste from processing.
- Progressive re-contouring of backfilled areas and stabilisation prior to topsoil replacement and return to pasture or native vegetation.
- A wet concentrator plant will be relocated three times throughout the life of mine.
- Support infrastructure, such as pipelines, offices and workshops will be relocated with the wet concentrator plant.
- A site dam will be constructed at each of the three locations.

On 16 October 2014, the time limit for proposal implementation was extended under MS 984. MS 1089 was issued to MZI Resources Ltd on 8 February 2019 under section 46 of the EP Act which amended condition 14 of MS 810 to ensure noise is appropriately regulated and managed for future operations.

On 3 September 2019 the Department of Water and Environmental Regulation (DWER) nominated Keysbrook Leucoxene Pty Ltd as the new proponent for MS 810, 984 and 1089.

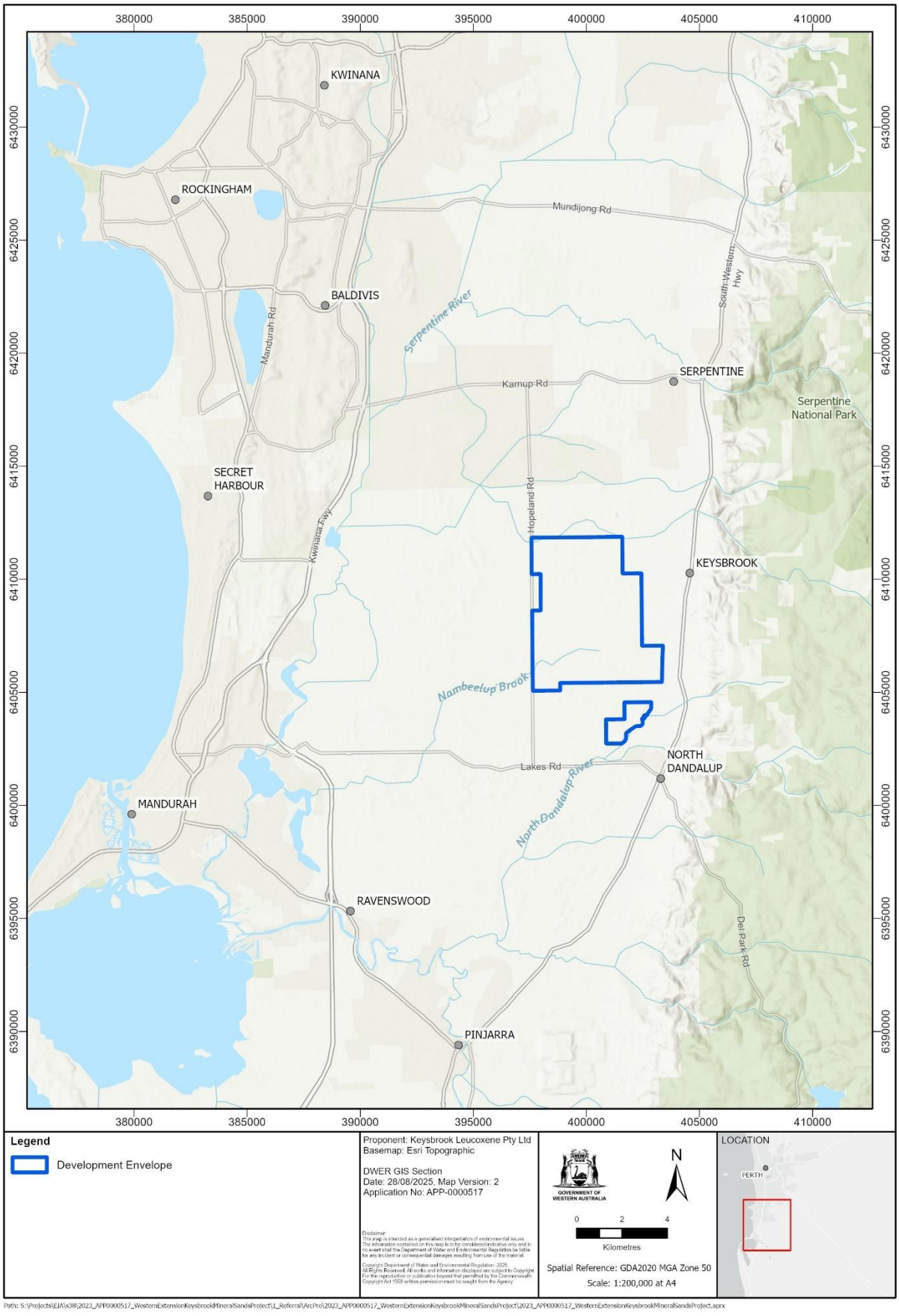

Figure 1: Project location

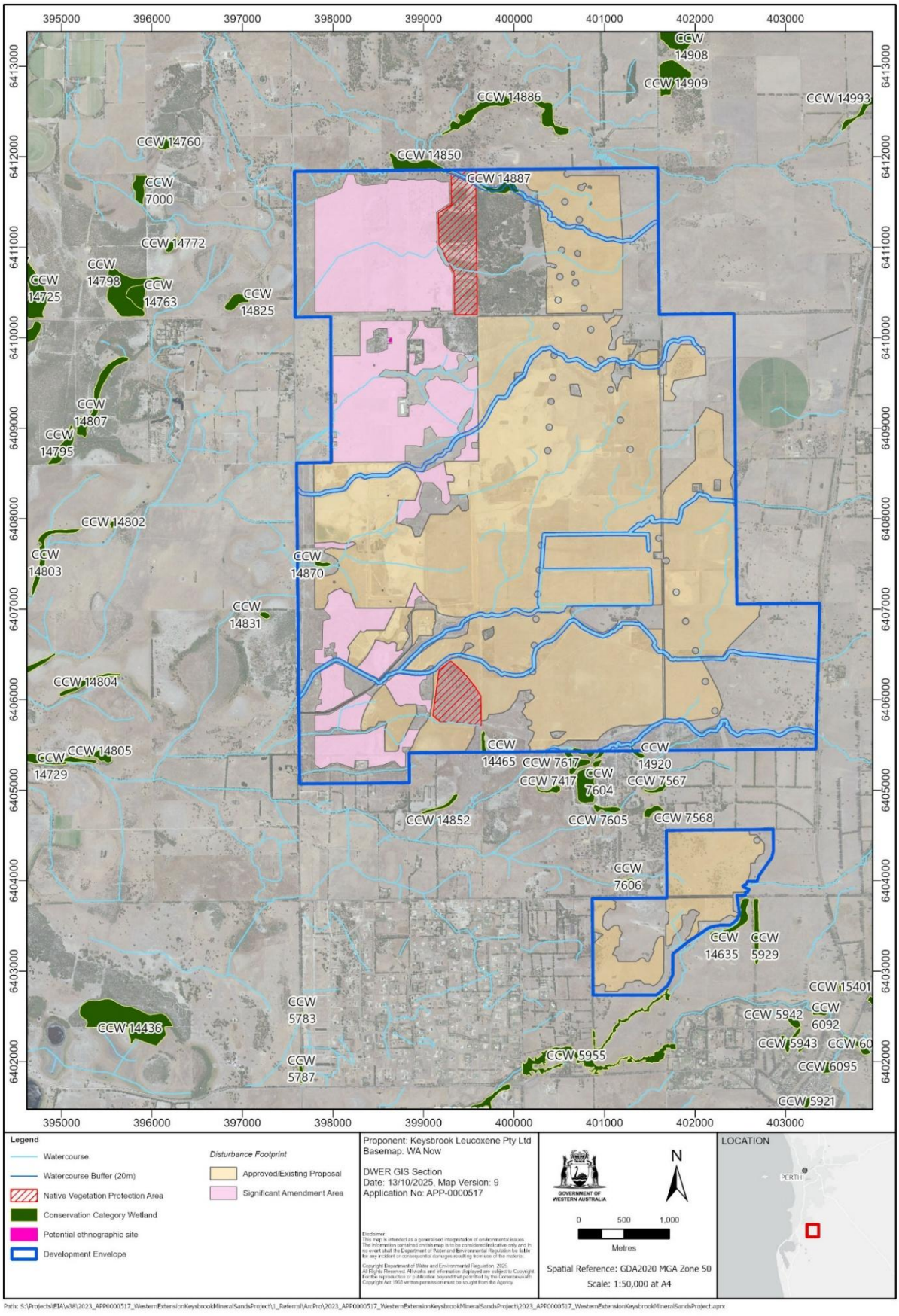

Figure 2: Proposed development envelope including the significant amendment and approved proposal disturbance footprints

2 Assessment of key environmental factors

This section includes the EPA's assessment of the key environmental factors. The EPA also evaluated the impacts of the proposal on other environmental factors and concluded these were not key factors for the assessment. This evaluation is included in Appendix E.

The EPA has assessed the proposal in the context of the approved proposal (MS 810, 964 and 1089) while having regard to the combined and cumulative effect that the implementation of the approved proposal and significant amendment may have on the following key environmental factors.

2.1 Terrestrial fauna

2.1.1 Environmental objective

The EPA environmental objective for terrestrial fauna is *to protect terrestrial fauna so that biological diversity and ecological integrity are maintained* (EPA 2016).

2.1.2 Investigations and surveys

The EPA used the following investigations and surveys to inform the assessment of the potential impacts to terrestrial fauna:

- Assessment of the Nesting and Foraging Values of three Lots (508, 201 and 64) near Keysbrook for Doral Mineral Sands Pty Ltd, Keysbrook Mineral Sands Mine (Bamford Consulting Ecologists 2021).
- Assessment of Nesting, Foraging and Roosting Values for Three Species of Black-Cockatoo in Lots 62, 63, 20 and 507 near Keysbrook, Western Australia (Bamford Consulting Ecologists 2022).
- Assessment of 28 trees for Nesting Values for Three Species of Black-Cockatoo in Lots 64, 201, 507, 508 Keysbrook, Western Australia (Australian Black Cockatoo Specialists 2023).
- Assessment of 11 trees for Nesting Values for Three Species of Black-Cockatoo in Lot 63, Hopeland Rd Keysbrook, Western Australia (Australian Black Cockatoo Specialists 2023).
- Re-assessment of potential nest trees for Black-Cockatoos and comments on other conservation significant species in the Keysbrook project area (Bamford Consulting Ecologists 2024).
- Short-range endemic desktop review for the Keysbrook Mineral Sands Project (Western Extension) (Phoenix Environmental Services 2024).
- Assessment of tree #1567 for its Nesting Value for Three Species of Black Cockatoo in Lot 508 Elliot Rd Keysbrook, Western Australia (Australian Black Cockatoo Specialists 2025).

The surveys were consistent with the *Technical Guidance – Terrestrial fauna surveys for environmental impact assessment* (EPA 2020A) and provided sufficient information to complete this assessment.

Table 2: Summary of Assessment for Terrestrial fauna

Key environmental values and context
The proposal is located on the Swan Coastal Plain bioregion. This region has been heavily cleared for agriculture, housing and associated infrastructure (DoEE 2016). The original proposal involved the clearing of 1,366 ha of land (defined as the proposal area in MS 810) which included 182 ha of native vegetation with the remainder consisting of pasture (EPA 2007). The disturbance footprint authorised by MS 810 has increased to 1,744.3 ha via section 45C. The conservation significant fauna discussed below are either known or likely to occur within the proposal area: • Baudin's cockatoo (*Zanda baudinii*) - Endangered under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) and *Biodiversity Conservation Act 2016* (BC Act) • Carnaby's cockatoo (*Zanda latirostris*) – Endangered under the EPBC Act and BC Act • Forest red-tailed black cockatoo *(Calyptorhynchus banksii naso*) – Vulnerable under the EPBC Act and BC Act Carnaby's cockatoo and forest red-tailed black cockatoo are considered Matters of National Environmental Significance (MNES) under the EPBC Act for the Commonwealth assessment. The EPA considers impacts to Baudin's cockatoo to also be relevant to this assessment. *Context – Native Vegetation Protection Areas* During the assessment of the original proposal, the EPA did not support the clearing of 87 ha of remnant native vegetation including black cockatoo foraging habitat and potential nesting hollows. The proponent excised these areas from the mine plan (EPA 2007). The EPA also recommended that areas of remnant native vegetation be protected from grazing, enhanced through revegetation and weed control, and secured in perpetuity for conservation purposes by means of a conservation covenant. Condition 6-1 of MS 810 requires that a minimum 75 ha of native vegetation is protected (Native Vegetation Protection Areas in Figure 2). Twelve black-cockatoo roost sites have been confirmed within a 12 km radius of the project area, with the two closest sites located in the Native Vegetation Protection Areas. *Context – Rehabilitation of cleared areas* Under the current approval, the proponent is required to rehabilitate native vegetation cleared in the implementation of the proposal to re-establish self-sustaining local provenance native vegetation at a ratio of not less than 1.4:1 (1.4 ha of revegetation per 1 ha of vegetation cleared). The proponent has reported that 785 ha has been rehabilitated back to pasture and 164.12 ha has been rehabilitated with native vegetation (Doral 2024). In 2024, 130,000 of local provenance seedlings were planted in the Native Vegetation Protection Areas (Doral 2024). There are no offset conditions in MS 810. A desktop assessment was undertaken for the following species: • chuditch (*Dasyurus geoffroii)* – Vulnerable under the EPBC Act and BC Act • quokka (*Setonix brachyurus*) – Vulnerable under the EPBC Act and BC Act • quenda (*Isoodon fusciventer*) – Priority 4 under the BC Act • Carter's freshwater mussel – (*Westralunio carteri*) - Vulnerable under the EPBC Act and BC Act.

The desktop assessment found that the quenda may be an irregular visitor to the proposal area with the chuditch, and Carter's freshwater mussel likely to be locally extinct (ABEC 2025).

A review of the vegetation mapping assigned all vegetation within the proposal area a low potential habitat rating and it is unlikely any short range endemic invertebrates (ABEC 2025).

Impacts from the proposal	Assessment finding, environmental outcome and recommended conditions
Potential impacts *Direct impacts* Clearing of 21.15 ha of native vegetation including black cockatoo habitat containing: • nesting habitat (18 trees with suitable hollows; 636 potential nesting trees) • roosting habitat (122 trees) • foraging habitat (27.13 ha, including clearing of 5.98 ha of planted non-native low-quality foraging habitat). *Indirect impacts* • habitat degradation from introduction or spread of weeds and dieback. **Avoidance and minimisation measures** • a tree with chew marks around a suitable breeding hollow within the disturbance footprint will be avoided and protected with a 10 m buffer • avoidance of the clearing of approximately 102 ha of native vegetation including 487 trees considered as suitable black cockatoo habitat • avoidance of large black cockatoo habitat trees along the edges of the proposed disturbance footprint • rehabilitation similar to the approved mine rehabilitation including revegetation of local native provenance species at a ratio of 1.4 ha per 1 ha cleared (approximately 30 ha based on clearing of 21.15 ha) within the development envelope.	**Assessment finding and environmental outcomes** The tree species in the proposed expansion disturbance footprint which include Marri (*Corymbia calophylla*) and Jarrah (*Eucalyptus marginata*) with small numbers Tuart (*E. gomphocephala*), represent important habitat species for the black cockatoo on the Swan Coastal Plain. The proposed clearing of an additional 27.13 ha of potential habitat for the significant amendment represents a 15% increase compared to the 182 ha clearing for the approved proposal, assuming all of the native vegetation approved for clearing for the approved proposal was potential black cockatoo habitat. The EPA considers that the clearing of black cockatoo habitat for the proposal is a significant residual impact that adds to the cumulative impacts of black cockatoo habitat loss in the region and increases habitat fragmentation. During the assessment the proponent has proposed to minimise clearing of potential black cockatoo nesting trees (with a diameter of 500 mm at breast height) and potential suitable nesting hollows in the northeastern section of the disturbance footprint where further avoidance is practicable. The proponent has proposed an offset including conservation and management of remnant vegetation, as well as restoration of black cockatoo habitat to counterbalance the significant residual impacts of on black cockatoo. The EPA's assessment of the proposed offset is included in Section 4. Subject to the recommended conditions below and implementation of offsets to counterbalance the significant residual impact black

DMA regulation *Mining Act 1978* The proposal does not require approval under the *Mining Act 1978* as the land titles pre-date 1 January 1899. Rehabilitation of the site is be regulated under the EP Act. **Consultation** The key matters raised during the consultation period include: • loss of habitat for fauna species particularly threatened species of cockatoo • management and rehabilitation measures and adequacy of offsets for black cockatoo habitat. These comments have been considered and addressed through the assessment.	cockatoo habitat, the environmental outcome is likely to be consistent with the EPA objective for terrestrial fauna. **Recommended conditions:** **Condition A1** • disturbance limits to clearing of native vegetation. **Condition B1 Terrestrial Fauna** • disturbance limits to clearing of on black cockatoo habitat • protection of existing Native Vegetation Protection Areas • minimise the clearing of potential black cockatoo nesting habitat trees in the north-eastern section of the disturbance footprint. **Condition B6 Rehabilitation** • progressive rehabilitation of cleared native vegetation that is habitat for black cockatoo species. **Condition B7 Offsets** • land acquisition, on-ground management and restoration requirements to offset significant residual impact to black cockatoo habitat (Section 4).

2.2 Inland Waters

2.2.1 Environmental objective

The EPA environmental objective for inland waters is *to maintain the hydrological regimes and quality of groundwater and surface water so that environmental values are protected* (EPA 2018A).

2.2.2 Investigations and surveys

The EPA advises the following investigations and surveys were used to inform the assessment of the potential impacts to inland waters:

- Keysbrook Mineral Sands Mine Groundwater Assessment for Western Extension (AQ2 Pty Ltd, August 2023)
- Keysbrook Mineral Sands Mine Surface Water Assessment for Western Extension (AQ2 Pty Ltd, August 2023)
- Acid Sulphate Soil Investigation, Western Extension of Keysbrook Mineral Sands Project (ABEC Environmental Consulting, 2023)
- Keysbrook Project Wetland Vegetation Monitoring Spring 2021 (Rockwater, 2022)

The inland waters studies were largely consistent with *the Environmental Factor Guideline – Inland Waters* (EPA 2018A). The EPA considered that the studies are appropriate to inform the assessment of the potential impacts to the above environmental factor.

Table 3: Summary of Assessment for Inland waters

Key environmental values and context	
The proposal is situated on the Swan Coastal Plain, approximately 3 km west of the Darling Scarp, within the Serpentine and Murray groundwater management areas. The proposal area is underlain by two aquifers: an unconfined Superficial aquifer and a confined Leederville aquifer. Both aquifers consist of fresh to brackish water (ABEC 2025). The proponent is licensed to dewater the Superficial aquifer at 0.2 GL/a and abstract up to 1.8 GL/a from two bores into the Leederville aquifer for the approved proposal. The proposed significant amendment does not alter these annual abstraction volumes. 551 bores are located within 10 km of the proposal area which forms part of the DWER Groundwater Assessment Network and numerous registered bores for other groundwater users within and surrounding the Project area (AQ2 2023). Groundwater abstraction from the Leederville aquifer is seasonal and generally limited to summer and autumn months. Surface water drainage from the proposal area flows westward toward a chain of wetlands that ultimately discharge into the Peel Inlet. Conservation Category Wetlands (CCWs) within the existing and proposed expansion development envelope in northern, western and southern locations (Figure 2), are in a degraded to completely degraded condition, similar to several in the broader area. These wetlands are primarily damplands and palusplain – seasonally waterlogged ecosystems which are surface water dependent rather than groundwater dependent (ABEC 2025). A Threatened Ecological Community (Forests and woodlands of deep seasonal wetlands of the Swan Coastal Plain – SCP15) is located in land immediately east of the northern native vegetation protection area (Figure 2) which was excised from the original proposal area. This area is not considered to be connected in terms of surface water flows and is not considered groundwater dependent (ABEC 2025). Most of the approved proposal area is classified as 'moderate to low risk' acid sulfate soils (ASS), with ASS layers predicted at depths greater than 3 mbgl, with two areas within approved mined areas classified as 'high risk'. Mining is proposed to have an average depth of 2 mbgl, with a maximum depth of 6 mbgl in sandy dune areas. While the ore body extends below the seasonal water table in some locations, and requires dewatering, it is confined to the Bassendean Sand Formation. Potential acid sulfate soils (PASS) are associated with the underlying Guildford Formation, which will not be disturbed by excavation or dewatering activities.	
Impacts from the proposal	**Assessment finding, environmental outcome and recommended conditions**
Potential Impacts • Drawdown from abstraction • Impacts to watercourses within the development envelope • Impacts to CCWs and vegetation • Potential acidification of groundwater, wetlands and waterways through the disturbance of ASS.	**Assessment finding and environmental outcomes** <u>Drawdown from abstraction</u> Predicted drawdown contours indicate a maximum of 0.5 m directly outside the development envelope to 0.1 m up to 3.2 km from the mining area. The predicted groundwater drawdown for the amendment is slightly greater than for approved mining, but likely to be localised and contained within the disturbance footprint. Based on this assessment, the EPA considers the

Avoidance and minimisation measures • Surface water diversions constructed around mining areas to redirected clean surface water from upstream catchments • Staged mining and dewatering approach to avoid cumulative impacts on CCWs • Inclined Pit Mining Strategy to retain water in sumps at the lowest points, reducing the need for active dewatering • Reduce risk of ASS formation by passive dewatering systems configured to maintain a minimum of 0.5 m of saturated pit floor to prevent the exposure of sulfide-bearing materials to oxygen • Utilise ring drains and perimeter sumps, tails decant sumps, bunding of mine voids and "V" drains • Surface water quality protection measures: sediment and oil traps, spill response protocols, and turbidity control via sedimentation ponds • Weekly sampling of pit and tailings materials to assess acid-generating potential. **DMA regulation** The significant amendment does not propose to increase dewatering and bore abstraction volumes beyond the limits of *Rights in Water and Irrigation Act 1914* (RiWI Act) groundwater licences obtained for the approved proposal. Currently, superficial groundwater abstraction within the development envelope is licenced under separate groundwater licences with only one licences implemented at a time across the entire proposal and approved annual abstraction rate of 0.2 GL. Impacts from changes to surface water hydrology is outside the scope of the RiWI Act.	predicted groundwater impacts outside the development envelope are temporary and spatially limited. Potential impacts to other groundwater users are unlikely and will be managed, including abstraction limits and monitoring under existing RiWI Act licences. Groundwater modelling predicts a maximum drawdown of 0.1 m to conservation significant vegetation (Threatened Ecological Community SCP3c) east of the proposal development envelope, indicating a low likelihood of adverse impacts on vegetation health or condition. This vegetation is not connected in terms of surface water flows and is not groundwater dependent (ABEC 2025). Regulation through existing licences under the RiWI Act can ensure that the environmental outcome for abstraction for dewatering is likely consistent with the EPA's objective for inland waters. <u>Impacts to watercourses</u> The proponent proposes to protect major and medium watercourses through 10 m buffers and bunding. Minor watercourses will be temporarily diverted using drains and bunds to prevent runoff from entering the disturbance footprint. The EPA notes that progressive mining in sections will disturb a relatively small portion of catchments at any given time, and diverted flows will be returned to natural drainage lines. As such, regional impacts on runoff and flow rates are unlikely to be significant. The EPA's recommended condition B-2 for limitation of clearing on the banks of watercourses and regulation of water discharge and diversion infrastructure through a licence under the Part V of the EP Act will ensure that the environmental outcome for watercourses is likely consistent with the EPA's objective for inland waters. <u>Impacts to CCWs and vegetation</u> CCWs located downslope to the west of proposed disturbance areas may be impacted by a reduction in surface water availability due to catchment reduction. These include CCW 14825 (approximately 500 m west of the development envelope) where modelling predicts a 21% reduction in the catchment area and a 17% reduction across CCWs 14763 and 14798. Minor and temporary groundwater level reduction from dewatering abstraction is predicted at 0.1 m at these CCWs. Long-term monitoring of vegetation health

Part V, Division 3 of the EP Act Emissions and discharges during construction and operation of the significant amendment can be regulated under Part V of the EP Act, including: • Category 6: Mine dewatering: premises on which water is extracted and discharged into the environment to allow mining of ore • Potential Acid Sulfate Soils, including monitoring of impacts associated with potential acid generation. **Consultation** The key matters raised during the consultation period include: • groundwater modelling and potential impacts from drawdown • management and rehabilitation measures to protect waterways and wetlands • the potential impact to water security for adjacent landowners. These comments have been considered and addressed through the assessment.	to date, indicate that CCWs and associated vegetation are resilient to changes in water availability. The EPA advises that subject to mitigation of dewatering and abstraction through licences under the RiWI Act, the environmental outcome is likely to be consistent with the EPA objective for inland waters. <u>Potential acidification</u> To date, no significant acid-generating material has been encountered during mining operation within the approved proposal area. Field testing for ASS identified only minor levels of actual acidity present within the soil profile, at depths below the base of the mine pits. The results are similar to the findings of all previous ASS investigations for the approved proposal, which demonstrate that the proposal area is low to moderate risk of ASS (ABEC 2023). DWER advised that potential ASS can be regulated via the licence under Part V of the EP Act, which may include monitoring and mitigation of impacts. The EPA advises that the impacts of the proposal, in the context of the environmental values at risk, can be managed to provide for an environmental outcome that is likely consistent with the EPA's objective for inland waters. **Recommended conditions**: **Condition B2 Inland waters** • protect watercourses and wetlands through specified buffers similar to conditions specified in MS 810. **Condition B6 Rehabilitation** • Rehabilitate watercourse vegetation to be self-sustaining within the development envelope through the implementation of an approved Rehabilitation Management Plan. Regulation by other decision-making authorities: • Part V Division 3 of the EP Act will regulate emissions to water quality, as well as water discharge and diversion • the RIWI Act will mitigate impacts to groundwater through licences, including abstraction and dewatering limits.

2.3 Social Surroundings

2.3.1 Environmental objective

The EPA environmental objective for social surroundings is *to protect social surroundings from significant harm* (EPA 2023A).

2.3.2 Investigations and surveys

The investigations and surveys were used to inform the assessment of the potential impacts to social surroundings:

- Report on Archaeological Survey on Lots 20, 64, 201, 507 and 508 Keysbrook, Western Australia (Archae-aus 2023)
- Environmental Noise Impact Assessment for Keysbrook mining Operations Western Areas Extension (Wood 2023)

These documents were sufficient to inform the assessment for the proposed extension.

Table 4: Summary of Assessment for Social surroundings

Key environmental values and context	
Noise The proposal is located within a predominantly rural farming area 2.5 km west of the Keysbrook town site and approximately 7.5 km northwest of the North Dandalup town site, in a generally flat landscape (ABEC 2025). Twenty (20) residential properties are located within 2 km of the revised (combined proposal) development envelope boundary – an increase of nine (9) residences compared with what was assessed for the approved proposal. The previous approved proposal mining operations resulted in a high number of noise complaints from nearby residents, which led to the then Minister for Environment requesting the EPA in December 2016 to inquire into and report on the matter. This inquiry determined that noise emissions from the proposal were higher than predicted in the original assessment. Based on a high likelihood that the proposal is unable to comply with the Noise Regulations, the EPA recommended amended conditions to ensure that noise emissions could be managed for future operations to be compliant with the Noise Regulations at all times. Based on this determination, MS 1089 issued on 8 February 2019, replaced condition 14 of MS 810 relating to noise management, to limit mining operations and mineral processing based on separation distances unless an amenity agreement is in place between the proponent and the landowner and occupier of those premises. When this occurs revised noise emission levels are applied based on World Health Organisation guidelines. DWER has not received a public noise complaint in relation to the approved proposal since MS 1089 was issued. Aboriginal heritage In Report 1269 for the approved proposal, the EPA determined that the proponent will be required to comply with the requirements of the *Aboriginal Heritage Act 1972* (AH Act) (EPA 2007). For this proposal, a survey was undertaken with representatives from the Gnaala Karla Booja (GKB) Traditional Owner Group. The findings from the survey determined that the proposal area does not intersect with any previously recorded Registered Aboriginal Sites, or Other Heritage Places. No new Aboriginal Archaeological Sites were identified. The GKB representatives identified one potential ethnographic site within the development envelope (Figure 2). No archaeological material was identified at this place. To avoid any potential impacts to Aboriginal Heritage or significant Sites, the proponent committed to excluding the potential ethnographic site from the disturbance footprint of the proposal (ABEC 2025).	
Impacts from the proposal	Assessment finding, environmental outcome and recommended conditions
Noise	
Potential impacts Potential noise impacts on the amenity of residents from mining activities.	**Assessment finding and environmental outcomes** Noise modelling for the proposal indicates that some noise sensitive receptors (residences) are likely to receive noise above the assigned

Avoidance and minimisation measures Implementation of measures effective for the existing mine including: • Noise bunds at mobile screening plants oriented to attenuate sound propagation towards the nearest affected receptors • Noise barriers at field pumps oriented to attenuate sound propagation towards the nearest affected receptors • Restriction of mining operations (Monday to Saturday 07:00 to 19:00, excluding public holidays). **DMA regulation** *Part V EP Act* DWER has advised impacts to amenity from noise emissions require management measures outside the scope of Part V registered premises, and therefore it is appropriate that these emissions continue to be regulated under Part IV of the EP Act. **Consultation** The key matters raised during the consultation period include: • current and additional impacts from noise emissions on adjacent landowners • noise compliance breaches. These comments have been considered and addressed through the assessment.	levels currently included in MS 1089. However, predicted noise levels can be mitigated for all receptors provided the proponent can reach amenity agreements with those parties. **Recommended conditions** **Condition B3 Social Surroundings (Noise)** Continuation of regulation for the existing mine specified in MS 1089: • limitations on mining and processing within 2 km of a highly sensitive area during the day and 3.3 km during the night unless an amenity agreement is in place. If so, revised noise emission levels are applied. • Noise emission limits can be varied upon implementation of a revised Noise Management Plan • Proponent shall provide evidence of noise monitoring and report against exceedances of noise criteria.
Aboriginal heritage	
Potential impacts Impact to culturally significant ethnographic site within development envelope. **Avoidance measure** • Exclusion of the ethnographic site from the disturbance footprint.	**Assessment finding and environmental outcomes** The EPA considers that the proponent has taken reasonable steps to consult with the GKB people. Primary impacts relate to the disturbance of a culturally significant ethnographic site. While the EPA considers that the risk of significant impacts to cultural heritage values is low, the proponent's proposed exclusion zone around the ethnographic site is recommended through the definition of the disturbance footprint and fencing before ground-disturbance activities.

DMA Regulation Consent is required to alter registered Aboriginal heritage sites under section 18 of the *Aboriginal Heritage Act 1972*. **Consultation** Impact to Aboriginal heritage areas was not raised as a key issue by the public or government agencies.	If a significant site is identified, its disturbance would be subject to assessment and regulation under the AH Act. The recommended conditions would ensure potential impacts to culturally important Aboriginal heritage are managed for the environmental outcome to likely be consistent with the EPA's objective. **Recommended conditions** **Condition A1-1** • definition of the Disturbance Footprint (Figure 1) includes an exclusion zone around the ethnographic site **Condition B4** • protect the potential ethnographic site through demarcation and avoidance before ground disturbance activities for mining operations in the significant amendment area.

2.4 Air Quality

2.4.1 Environmental objective

The EPA environmental objective for air quality is *to maintain air quality and minimise emissions so that environmental values are protected* (EPA 2020B).

2.4.2 Investigations and surveys

The proponent has updated its Air Quality and Dust Environmental Management Plan previously approved under condition 15 of MS 810 to incorporate the revised (combined proposal) development envelope. This plan was developed based on baseline dust monitoring undertaken in 2007 (SKM 2007) and an air dispersion model undertaken in 2013 (MZI Resources 2013).

These documents and results from ambient air quality monitoring, implemented and reported under MS 810, have been used by the EPA as the basis for its assessment.

Table 5: Summary of Assessment for Air quality

Key environmental values and context	
The proposal is located within a predominantly rural farming area 2.5 km west of the Keysbrook town site and approximately 7.5km northwest of the North Dandalup town site, in a generally flat landscape (ABEC 2025). Proposal operations are expanding in a westerly direction away from those sites but towards singular, isolated rural residences. From 2020 onwards, the proponent has annually reported between two and eight exceedances of the PM_{10} limit based on the National Environmental Protection Measure (NEPM) and between zero and nine complaints annually from the public related to dust emissions. DWER received five complaints relating to dust from this site between 2020 and 2024.	
Impacts from the proposal	**Assessment finding, environmental outcome and recommended conditions**
Potential impacts • Potential impacts to air quality from dust emissions (PM_{10} and Total Suspended Particulate TSP) from land clearing, mining operations and wind erosion of exposed surfaces. **Avoidance and minimisation measures** Continuation of dust management measures for the existing mine including: • Progressive backfill and rehabilitation activities • Minimisation of open ground and stockpile areas • Utilisation of water carts to dampen active mining areas • Utilisation of water carts adapted to distribute wet clay fines to provide a clay sealant for open areas and stockpiles. Stabilisation of backfilled mine voids by sowing an intermediate cover crop of ryegrass and oats to create a ground cover prior to topsoil replacement. • Use of weather forecasts to identify potentially high-risk conditions conducive to dust generation, and initiation of proactive dust management practices • Restriction of mining within 300m of a residence without agreement with the owner and occupier of the residence	**Assessment finding and environmental outcomes** The nature and type of dust generating activities from the proposed amendment will be the same as those from the approved proposal. There is potential for residences west of the combined proposal to be impacted from dust emissions as the proposal extends in that direction. The proponent's current dust monitors which also measure wind speed and direction, allow reactive dust management to mitigate emissions. The EPA supports this type of monitoring which enables scheduling and scale down options of the individual dust generating mining activities to control dust emissions. The EPA considers that the impacts of the combined proposal can be mitigated to provide for an environmental outcome that is consistent with the EPA's objective for air quality subject to the proponent implementing the proposal to not exceed air quality standards and criteria set under Part V of the EP Act. **Recommended conditions** **Condition B5 Air quality** • No exceedance of air quality standards and criteria set under Part V of the EP Act.

• Ceasing of mining activity in areas impacted by dust emissions until prevailing weather conditions subside. **DMA regulation** *Part V EP Act* Air emissions and discharges associated with the proposal can be mitigated under Part V of the EP Ac to maintain air quality and minimise emissions. **Consultation** The key matters raised during the consultation include: • dust monitoring • current and additional impacts from dust emissions on adjacent landowners. These comments have been considered and addressed through the assessment.	

3 Holistic and cumulative assessment

While the EPA assessed the impacts of the proposal against the key environmental factors and environmental values individually in the key factor assessments above, given the link between social surroundings and air quality and terrestrial fauna and inland waters, the EPA also considered connections and interactions between them to inform a holistic view of impacts to the whole environment.

The EPA has considered the proposal in the context of cumulative and holistic impacts within the regional setting.

Air quality and social surroundings

Actions which may cause impacts to air quality are likely to also impact social surroundings as increased dust emissions have the potential to interfere with the health, welfare, convenience and comfort of people. The EPA has recommended condition B4 which aims to minimise impact to residents in proximity to the proposal, by requiring the proponent to manage dust emissions.

Inland waters and terrestrial fauna

The approved mining has had impacts to vegetation along watercourses which may in turn affect black cockatoo habitat. The EPA considers that the implementation of the proposed mitigation and management measures required by recommended condition B6 (which requires the proponent to rehabilitate watercourses through re-establishing local provenance native vegetation) will require black cockatoo habitat to be rehabilitated and, over time improve the water quality in rehabilitated watercourses.

The EPA's evaluation of other environmental factors (those which were not considered key factors for assessment) is included in Appendix E.

Summary of holistic assessment

When the separate environmental factors and values affected by the proposal were considered together in a holistic assessment, the EPA formed the view that the impacts from the proposal, as well as the combined proposal would not alter the EPA's views about consistency with the EPA's factor objectives as assessed in section 2.

The EPA considered the cumulative effects from a range of threats and pressures in the area of the proposal and whether the environment affected by the proposal has significant value.

The EPA has considered the proposal in the context of cumulative and holistic impacts associated with terrestrial fauna. The additional area of proposed clearing of vegetation that is potential black cockatoo habitat for the significant amendment (27.13 ha) is small in proportion to the amount of clearing for the approved proposal

(182 ha), representing an additional 15% increase. However, due to the cumulative impacts on black cockatoo habitat, the EPA has recommended setting specific proposal limitations to ensure consistency with the relevant EPA environmental factor objectives. The planting of vegetation on site that provide connectivity between existing vegetation communities will enhance black cockatoo habitat and increase the overall health and resilience of remnant vegetation into the future.

An additional offset condition to counterbalance the clearing of an additional 27.13 ha of threatened cockatoo nesting, roosting and foraging habitat is required to ensure the environmental outcome will be consistent with the EPA objective for terrestrial fauna. Section 4 of this report further documents the offset required.

4 Offsets

Environmental offsets are actions that provide environmental benefits which counterbalance the significant residual impacts of a proposal.

Consistent with the *WA Environmental Offsets Guidelines* (Government of Western Australia 2014), the EPA may consider the application of environmental offsets to a proposal where it determines that the residual impacts of a proposal are significant, after avoidance, minimisation and rehabilitation have been pursued.

In this case the proponent applied the mitigation hierarchy by utilising existing cleared pasture areas (485.81 ha) as far as practicable and by proposing to rehabilitate areas of native vegetation identified to be cleared. After considering these measures, the EPA determined the significant residual impacts of the proposal to be the loss of:

- clearing of 27.13 ha of native vegetation consisting of the following black cockatoo habitat:
  - 18 potential nesting trees
  - 122 trees suitable for night-roosting (of which one tree is also identified as a suitable nesting tree)
  - 27.13 ha of foraging habitat.

Further details on avoidance, minimisation and rehabilitation and the EPA's determination of significant residual impacts are included in section 2.1 of this report.

Environmental offsets are not appropriate in all cases. In this case the EPA considers offsets are appropriate given the proponent has applied avoidance and mitigation measures by minimising impacts to environmental values (principle 1 of the *WA Environmental Offsets Policy*) and the scale of the significant residual impacts on environmental biodiversity values are not minor (principle 2 of the *WA Environmental Offsets Policy*).

The key matters raised during the consultation period include:

- significant residual impacts to night roosting habitat
- conservation mechanism for proposed offset areas
- protection and restoration of black cockatoo habitat
- offset measures for black cockatoo nesting habitat
- offsets completion criteria
- offset calculations.

In response to public submissions and feedback from agencies, the proponent submitted a revised Offsets Strategy (Doral 2025A). This document and the Offset Management Plan form the basis of the offset assessment.

For this proposal, the EPA advises the preferred approach is a combination of land acquisition and on-ground management (including restoration/revegetation), aimed at delivering benefits to the values being impacted across short, medium and long-term time scales.

Proposed offset

The proponent has proposed offsets over two locations.

Offsets within the development envelope

The proponent has proposed to add offsets of around 36.3 ha to two areas included as 'native vegetation protection areas' (MS 810) identified during the previous assessment. These areas include mature black cockatoo habitat trees and will be avoided during mining, enhanced through infill planting and protected through conservation covenant.

The proponent proposed to include a small area of the mining disturbance footprint within the northern offset area (Figure 3), after which infill planting will be implemented. This area will be included in the conservation covenant as part of the area that will be protected.

Jelcobine offsets

The proposed offset is located approximately 60 km east from the proposal, within the Northern Jarrah Forest subregion of the Jarrah Forest bioregion. The proposed offset components are:

- Land acquisition, conservation (via conservation covenant) and management of 162.43 ha of land located at Lot DP 90037 Jelcobine in between two State managed reserves; Boyagarring Conservation Park to the east and Youraling State Forest to the west and approximately 60 km from the proposal (Offset Area in Figure 4) which includes:
    - 102.02 ha of Baudin's cockatoo foraging and roosting habitat
    - 114.02 ha of Carnaby's cockatoo foraging and roosting habitat
    - 113.02 ha of forest red-tailed black cockatoo foraging and roosting habitat
    - 63 known potential black cockatoo nesting trees

- Enhancement and restoration of 132.02 ha within the above Offset Area (Figure 4):
    - enhancement of 65 ha of remnant Eucalyptus woodland (Zone A) through infill planting
    - enhancement of 30 ha of a drainage channel consisting of Eucalyptus rudis (flooded gum) and planted non-native Eucalyptus spp. (ironbark, river red gum) (Zone B) through infill planting
    - revegetation of 37.02 ha of previously pastured land to provide black cockatoo foraging habitat (Zone C).

The proponent is proposing to undertake enhancement and restoration of 132.02 ha within the 162.43 ha Offset Area. Approximately 37.02 ha of previously pastured land (Zone C) will be revegetated using tubestock and direct seeding with a range of local

species focusing on *Eucalyptus wandoo* as black cockatoo roosting habitat. *Hakea*, *Banksia* (formerly *Dryandra*), and *Banksia* sens. str. Species will provide black cockatoo feeding habitat, and local understorey native legumes (e.g. *Acacia*, *Gastrolobium*, *Gompholobium*, *Kennedia*, and *Templetonia*) will be planted for nitrogen fixation and further feeding habitat (Western Botanical 2025). Areas consisting of remnant Eucalyptus woodland (Zone A) and drainage channel (Zone B) (95 ha total) will receive infill planting of vegetation considered to be foraging habitat for black cockatoos.

The proponent proposed on-ground management, fencing and protection by conservation covenant for the above offsets. The assessment of the proposed offsets and how they have been considered are described below.

Assessment

Offsets in development envelope

The EPA recognises that existence of foraging habitat and potential future breeding habitat in the broader proposal area is important for the long-term support of local black cockatoo flocks. The proposed avoidance, enhancement and protection of existing black cockatoo habitat within the development envelope will contribute to counterbalancing the loss of black cockatoo habitat from clearing for the proposal.

The proponent's proposed enhancement of remnant black cockatoo habitat through infill planting is aimed at increasing foraging habitat and a diversity of food sources for all three species of black cockatoo. The variety of plant species that has been used in infill planting include *Eucalyptus rudis* (Flooded gum), *Eucalyptus marginata* (Jarrah) and *Corymbia calophylla* (Marri). The proponent's progress and demonstrated success with infill planting that has been implemented for the approved proposal provide the EPA with confidence that this offset can be achieved.

The proposed avoidance and enhancement of habitat within proximity of the impacted disturbance footprint area will maintain a level of habitat connectivity for local black cockatoo flocks, as well as foraging habitat in an extensively cleared area. The EPA supports the proponent's proposed offsets within the development envelope noting they contain the same environmental values as those being impacted.

Jelcobine offsets

The proponent's experience with infill planting is expected to be relevant and transferrable to the Jelcobine location.

The EPA has reviewed and considered the proposed Jelcobine offsets against relevant guiding values in its *Public Advice for Considering Environmental Offsets at a Regional Scale* (EPA 2024A) in relation to significant residual impacts for this proposal:

- **Land availability and security:** The offset area contains high value black cockatoo habitat however is likely to come under pressure from ongoing

agricultural land use. The EPA notes that securing this land will reduce pressure from agricultural land use in this area.

- **Restoration:** Existing remnant vegetation within the offset area contains high value black cockatoo habitat. Enhancement to improve vegetation quality in the absence of mid-storey species, will improve vegetation to good quality and provide environmental buffers to protect the values within the two state reserves.

- **Regional scale management:** Protection, enhancement and restoration of the offset area minimise impacts on the two state reserves and complement management on lands outside of the boundary of the environmental offset consistent with regional scale management.

  The proposed offset actions are considered consistent with the most recent black cockatoo recovery plans (DPaW 2013 and DEC 2008) as fencing and restoration is expected to manage existing threatening processes such as weed invasion and grazing.

- **Resilient systems:** The offset will buffer and improve a significant ecological linkage between Boyagarring Conservation Park and Youraling State Forest, and provide more foraging habitat to black cockatoos. While the proposed offset is in a neighbouring region, the improvement and protection of the offset area will provide beneficial connectivity between reserves with existing black cockatoo habitat which may improve the overall resilience of black cockatoo species in the region. The enhancement of vegetation along a drainage channel will improve the ecological function of the area.

- **Like for like, and similar, values**: The purpose of the land acquisition and restoration is to offset the impact to 27.13 ha of nesting, foraging and roosting habitat for threatened species of black cockatoos. While the offset site is located in the Northern Jarrah Forest bioregion approximately 60 km from the impact site on the Swan Coastal Plain, the proposed offset includes existing habitat for all three values. In addition to protection, the restoration of cleared areas with foraging habitat and enhancement to improve vegetation quality, will increase the extent and connectivity of like for like habitat for black cockatoo.

It follows that the EPA considers the proposed offsets are appropriate to counterbalance the significant residual impacts of the proposal subject to the following:

- Protect the offsets within the development envelope through conservation covenant and enhance remnant vegetation including black cockatoo foraging habitat
- Acquisition of Lot DP 90037 Jelcobine
- Implementation of the *Offset Management Plan for Jelcobine, Lot DP 90037* which includes the on-ground management actions required to restore threatened cockatoo nesting, roosting and foraging habitat.

The EPA considers that the above actions will collectively improve the security, resilience and extent of the threatened cockatoo species nesting, roosting and foraging habitat to ensure the proposal is not inconsistent with the EPA's objectives for terrestrial fauna.

Conclusion

The EPA considered whether the proposed offset is likely to counterbalance the significant residual impacts associated with the proposal in the context of the existing approved proposal and its implementation to date. The offset was considered within the context of impacts on black cockatoo habitat, the proponent's implementation of condition requirements in relation to Vegetation Protection Areas) under existing ministerial statements and the opportunity to provide a combination of both land acquisition and on-ground management offset measures.

The EPA recognises that the proponent revised its Offset Strategy in 2025 in response to submissions on the ERD and advice from the EPA, DBCA and other government stakeholders.

Having regard to the conservation listing of all three black cockatoo species and the incremental clearing from the proposal that adds to cumulative impacts of clearing on the Swan Coastal Plain, the EPA has recommended conditions to ensure that risks are minimised or avoided where possible (section 2.1), and that relevant measures are undertaken by the proponent to manage residual impacts. The EPA acknowledges the proponent's addition of offsets in response to advice from EPA members during a recent site visit to increase environmental protection on the Swan Coastal Plain.

The EPA is of the view that the proposed offsets within the development envelope, maintain habitat values for local black cockatoo flocks in an area that has been impacted by historical and cumulative impacts. The acquisition and restoration of Lot DP 90037 Jelcobine will enhance regional protection and improve connectivity of black cockatoo habitat by linking two areas in the existing conservation estate, which will improve their resilience and enhance a broad suite of environmental values. The EPA considers that these measures are consistent with the priorities in each species' recovery plan.

The EPA advises that the offsets are relevant and proportionate to the environmental values that will be impacted and includes black cockatoo nesting, roosting and foraging habitat. The benefits of the offset are multifaceted, including a mix of conservation, land management and enhancement and are consistent with the priorities in the WA Offsets policy and guidance and several guiding principles in the EPA's *Public Advice - Consideration of offsets at a regional scale*.

The combination of proposed offset measures includes acquisition and conservation of the Jelcobine site for short term benefit and on-ground management for medium term value to all three black cockatoo. Connectivity between two conservation reserves is expected to increase, which may over the long-term support recovery of black cockatoo species from improved access to habitat.

In summary, the EPA is of the view that the proposed offsets would likely counterbalance the significant residual impacts to the values being impacted. Subject to condition B7 requiring the protection and enhancement of habitat within the proposal development envelope; and acquisition, on-ground management and restoration of habitats on Lot DP 90037 (Jelcobine) through an Offset Strategy Environmental Management Plan, the EPA is satisfied that the offset is likely to counterbalance the significant residual impacts of the proposal, and the outcome is likely to be consistent with the EPA's objective for terrestrial fauna.

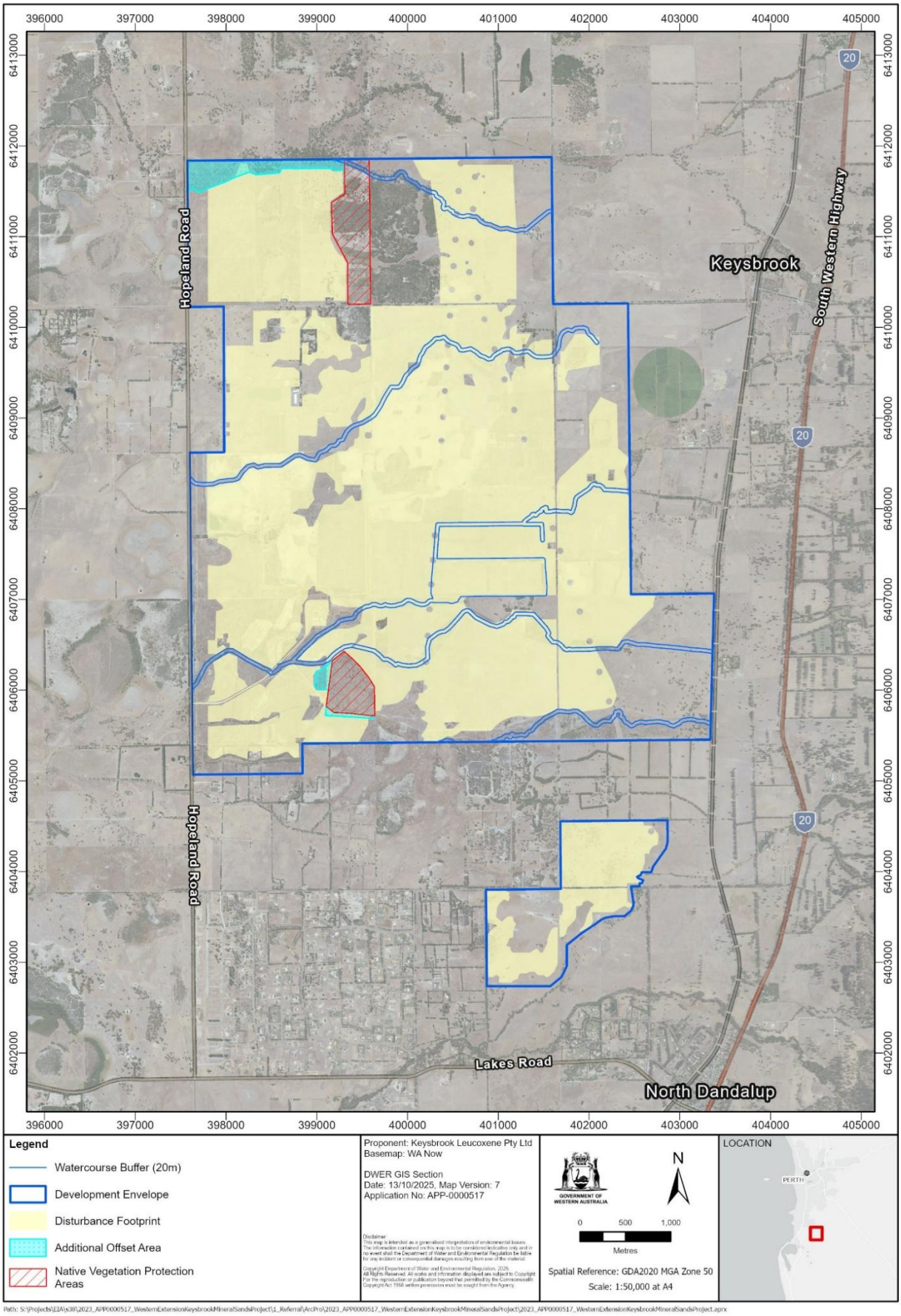

Figure 3: Proposed offsets within development envelope

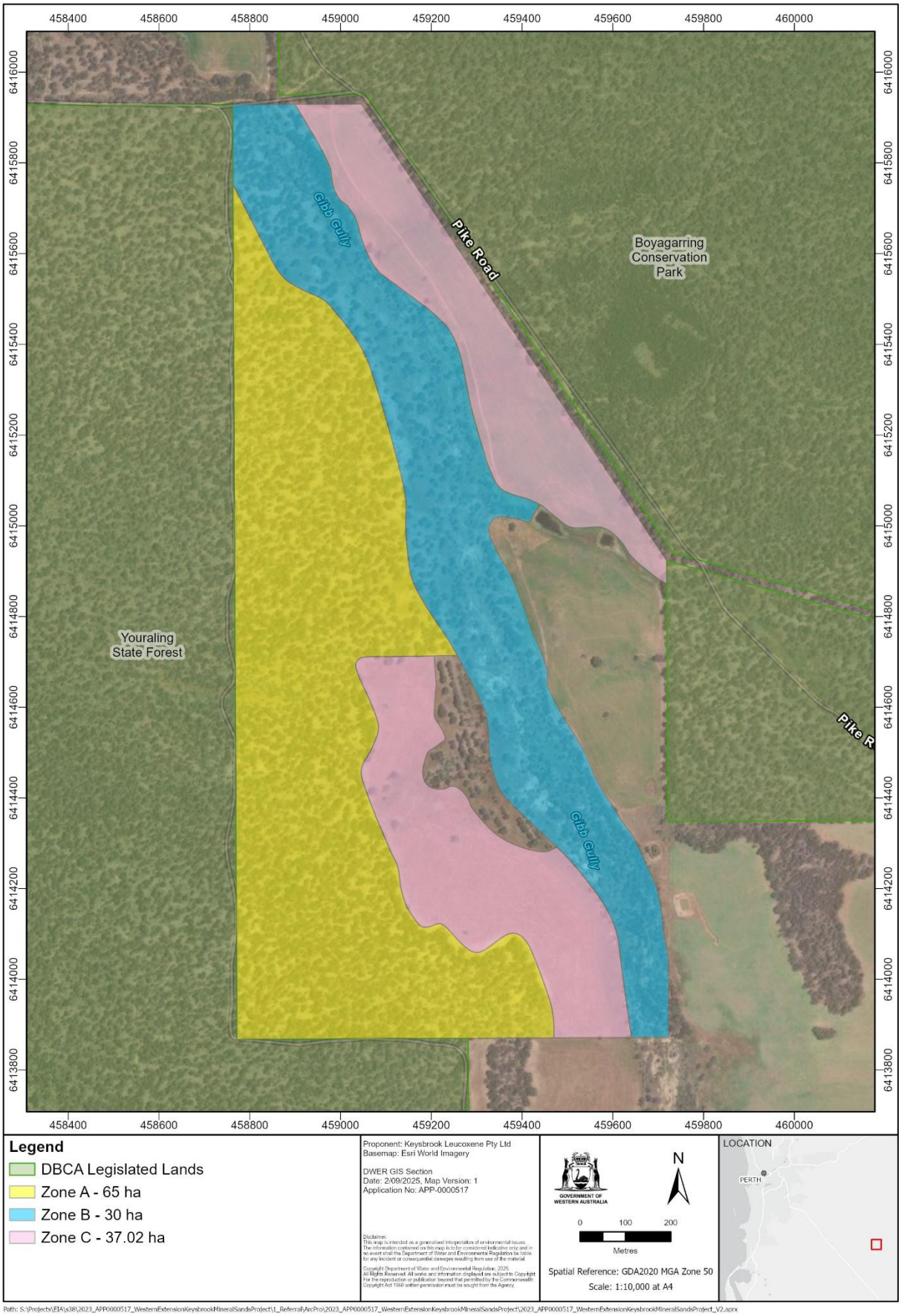

Figure 4: Proposed offset location - Jelcobine

5 Matters of national environmental significance

The Commonwealth Minister for the Environment has determined that the proposal is a controlled action under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) as it is likely to have a significant impact on one or more Matters of National Environmental Significance (MNES). It was determined that the proposed action is likely to have a significant impact on the following matters protected by the EPBC Act:

- Listed threatened species and communities (s. 18 and s. 18A).

The EPA has assessed the controlled action on behalf of the Commonwealth as an accredited assessment under the EPBC Act.

This assessment report is provided to the Commonwealth Minister for Environment who will decide whether to approve the proposal under the EPBC Act. This is separate from any Western Australian approval that may be required.

Commonwealth policy and guidance

The EPA had regard to the following relevant Commonwealth guidelines, policies and plans during its assessment:

- *Commonwealth EPBC Act Environmental Offsets Policy* (Commonwealth of Australia 2012)
- Carnaby's Cockatoo (*Calyptorhynchus latirostris*) Recovery Plan (DPaW 2013)
- Forest Black Cockatoo *(Baudin's Cockatoo Calyptorhynchus baudinii and Forest Red-tailed Black Cockatoo Calyptorhynchus banksii naso)* Recovery Plan (DEC 2008)
- Referral guideline for three WA threatened black cockatoo species: Carnaby's Cockatoo (*Zanda latirostris*), Baudin's Cockatoo (*Zanda baudinii*) and the Forest Red-tailed Black cockatoo (*Calyptorhynchus banksia naso*) (DAWE 2022)
- Threat abatement plan for disease in natural ecosystems caused by Phytophthora cinnamomi (DoEE 2018).

EPA assessment

Impacts to the environment relating to MNES are also covered under the key environmental factor Terrestrial fauna (section 2.1) of this report.

Listed threatened species and communities (sections 18 and 18A)

Listed threatened species and communities and listed migratory species that occur or may occur in the proposal area include:

- Carnaby's cockatoo (*Zanda latirostris*) – Endangered under the EPBC Act, confirmed

- Forest red-tailed black cockatoo (*Calyptorhynchus banksii naso*) – Vulnerable under the EPBC Act, confirmed.

The occurrence of the above-listed threatened species is discussed in sections 6 and 11 of the proponent's ERD (ABEC 2025A) and in the proponent's response to submissions (Doral 2025B).

Potential impacts to listed species are primarily a result of clearing of vegetation and habitat loss. The proposal will result in the loss of up to 21.15 ha of native vegetation and 5.98 ha of planted non-native vegetation considered to be potential nesting and foraging habitat for black cockatoos. Discussion of these species is provided in section 2.1 of this report.

Summary

The EPA recommends the following environmental conditions to minimise impacts on MNES from the proposal:

- condition A1 - limits the extent of clearing of native vegetation within the development envelope.
- condition B1 - limits the extent of clearing of black cockatoo habitat; minimises the clearing of potential black cockatoo nesting habitat trees in the north-eastern section of the disturbance footprint where practicable.
- condition B5 - requires rehabilitation of black cockatoo habitat cleared.

The EPA considers that there will be a significant residual impact from the clearing and disturbance of habitat for black cockatoos. The EPA has recommended an offset in condition B6 (section 4) which takes into account the significant residual impact due to implementation of the proposal.

Subject to the recommended conditions, the EPA's view is that the impacts from the proposal on the above-listed species are therefore not expected to result in an unacceptable or unsustainable impact on any matters of national environmental significance.

6 Recommendations

The EPA has taken the following into account in its assessment of the proposal:

- environmental values which may be significantly affected by the proposal
- assessment of key environmental factors, separately and holistically (this has included considering cumulative impacts of the proposal where relevant)
- likely environmental outcomes which can be achieved with the imposition of conditions
- consistency of environmental outcomes with the EPA's objectives for the key environmental factors
- EPA's confidence in the proponent's proposed mitigation measures
- whether other statutory decision-making processes can mitigate the potential impacts of the proposal on the environment
- principles of the EP Act.

The EPA recommends that the proposal may be implemented subject to the conditions recommended in Appendix A.

Appendix A: Recommended conditions

Recommended Environmental Conditions

STATEMENT THAT A PROPOSAL MAY BE IMPLEMENTED
***(Environmental Protection Act 1986*)**

WESTERN EXTENSION TO THE KEYSBROOK MINERAL SANDS PROJECT

Proposal:	The continuation of mining operations at the Keysbrook Mineral Sands Project, to include an additional mining area located immediately west of the current operations.
Proponent:	Keysbrook Leucoxene Pty Ltd Australian Company Number 137 091 297
Proponent address:	25 Harris Road PICTON WA 6229
Assessment number:	2382

Report of the Environmental Protection Authority: 1794

Introduction: The proposal is a significant amendment for the development of a new mining area to continue mining at the existing operations which was agreed to be implemented under Ministerial Statement 810 as amended by Ministerial Statement 984 and Ministerial Statement 1089. The EPA's Reports for the existing proposal are 1269, 1528 and 1627, and corresponding EPA Assessment Numbers 1580, 2020 and 2110.

Pursuant to section 45 of the *Environmental Protection Act 1986*, it is now agreed that:

1. the significant amendment proposal described and documented in the proponent's Proposal Content Document (August 2025), may be implemented

2. Ministerial Statements 810, 984 and 1089 for the existing Keysbrook Mineral Sands Mine Shire of Serpentine – Jarrahdale and Shire of Murray are superseded under section 40AA (6) (b) of the *Environmental Protection Act 1986*

3. the implementation of the significantly amended proposal (being the existing approved proposal as amended by the significant amendment proposal) is subject to the following implementation conditions and procedures.

Conditions and procedures

Part A: Proposal extent

Part B: Environmental outcomes, prescriptions and objectives

Part C: Environmental management plans and monitoring

Part D: Compliance and other conditions

PART A: PROPOSAL EXTENT

A1 Limitations and Extent of Proposal

A1-1 The proponent must ensure that the proposal is implemented in such a manner that the following limitations or maximum extents / capacities / ranges are not exceeded:

Proposal element	Location	Maximum extent
Physical elements		
Development envelope	Figure 1	3,231.81 **ha**
Disturbance footprint	Figure 1	2,257.94 **ha**
Direct **disturbance** of native vegetation	Within the development envelope shown in Figure 1	**Clearing** of no more than 203.15 **ha**.

PART B – ENVIRONMENTAL OUTCOMES, PRESCRIPTIONS AND OBJECTIVES

B1 Terrestrial Fauna

B1-1 The proponent must ensure the implementation of the proposal achieves the following environmental **outcome** for the **significant amendment**:

(1) **Disturb** no more than 27.13 **ha** of **black cockatoo foraging habitat**.

B1-2 The proponent shall ensure the implementation of the proposal achieves the following environmental **objective:**

(1) minimise the amount of **clearing** of potential **black cockatoo nesting habitat** in Lot 201 and Lot 508 Elliott Road, Keysbrook**.**

B1-3 The proponent must prepare a Black Cockatoo Nesting Habitat Management Plan that satisfies the requirements of condition C4-1 and demonstrates how the environmental **objective** in condition B1-2(1) will be achieved and submit the plan to the **CEO**.

B2 Inland waters

B2-1 The proponent must ensure the implementation of the proposal achieves the following environmental **outcome**:

(1) No **clearing** of vegetation or undertaking of mining activities:

(a) Within 20 metres of the banks of watercourses shown in Figure 1.

(b) Within 100 metres of a boundary of a **conservation category wetland** shown in Figure 1.

B3 Social Surroundings (Noise)

B3-1 The proponent shall implement the proposal as follows, unless varied by condition B3-2 or B3-3:

(1) no **Mineral Processing Activity** is to be undertaken at any time within two (2) kilometres of any **noise sensitive premises**

(2) during the **Day** and **Evening periods**, no **Mining Operations** are undertaken within two (2) kilometres of any **noise sensitive premises,** and

(3) during the **Night period**, no **Mining Operations** are undertaken within three point three (3.3) kilometres of any **noise sensitive premises**.

B3-2 The requirements in condition B3-1 do not apply in respect of a particular **noise sensitive premises** if:

(1) the proponent and the landowner and occupier of that **noise sensitive premises,** have **agreed** otherwise in writing; and

(2) notwithstanding any **agreement** referred to in condition B3-2(1):

(a) **Noise Emission** levels received **Indoors** during the **Evening period** do not exceed 30 **dB L_{A10}** + **Influencing factor** (**Tonal adjustment** is applicable).

(b) **Noise Emission** levels received **Indoors** during the **Night period** do not exceed 25 **dB L_{A10}** + **Influencing factor** (**Tonal adjustment** is applicable).

(c) The proponent shall ensure that **noise sensitive premises** have appropriate acoustic attenuation to demonstrate that **Noise Emission** levels received **Indoors** as defined in conditions B-3(2)(a) and B-3(2)(b) can be met at all times.

(d) The proponent shall assume worst case conditions for modelling and attenuation, to be verified by an **Independent acoustic expert**.

B3-3 The requirements in condition B3-1 may be varied or substituted if:

(1) the proponent prepares and submits a Noise Management and Monitoring Plan to the **CEO**, in accordance with condition C5-1, which demonstrates that reduced distances will achieve compliance with the **assigned level** in the **Noise Regulations**;

(2) the **CEO** approves in writing the Noise Management and Monitoring Plan for the purpose of varying condition B3-1; and

(3) the proponent implements the provisions of the approved Noise Management and Monitoring Plan.

B4 Social Surroundings (Aboriginal Cultural Heritage)

B4-1 The proponent must protect the identified potential ethnographic site shown in Figure 1 from disturbance by demarcating and avoiding the exclusion zone within the disturbance footprint during **mining operations** in the **significant amendment area**.

B5 Air Quality

B5-1 The proponent must ensure the implementation of the proposal achieves the following environmental **outcome**:

(1) ensure dust emissions from activities undertaken in implementing the proposal do not result in an exceedance of **air quality standards and criteria**.

B6 Rehabilitation

B6-1 The proponent must implement the proposal to ensure the following environmental **outcomes** are achieved:

(1) areas of native vegetation **cleared** in the implementation of the proposal must be rehabilitated to contain **self-sustaining** native vegetation at a ratio of not less than 1.4:1 (1.4 hectares of **revegetation** per 1 hectare of native vegetation **cleared**);

(2) **revegetated** native vegetation within areas of remnant vegetation described in condition B2-1(1)(a) and native vegetation protection areas defined in Figure 1 are **self-sustaining**, including not **adversely impacted** by **environmental weeds**, **dieback**, hydrological changes or **contamination**;

(3) rehabilitated areas are consistent with the species diversity and abundance of native vegetation within comparative analogue or reference sites;

(4) rehabilitation includes the use of native seeds and propagated material collected from native vegetation within the **disturbance** footprints;

(5) rehabilitated landforms are stable and do not cause **pollution** or **environmental harm**;

(6) rehabilitated watercourses are stable, not prone to erosion, and support ecological processes;

(7) rehabilitated vegetation achieves a cover and diversity of native vegetation species comparable to pre-clearing **nesting habitat, night roosting habitat** and **foraging habitat** for **black cockatoos**; and

(8) closure planning and **rehabilitation** are undertaken in a progressive manner consistent with achievement of the above **outcomes** during **operational activities**, and upon closure.

B6-2 In order to ensure the **outcomes** of condition B6-1 are met, the proponent must implement the *Conservation and Rehabilitation Environmental Management Plan Version 6, 25 August 2023)*, or any revisions required under condition C2-2.

B7 Offsets

B7-1 The proponent must protect the native vegetation protection areas within Figure 1 in perpetuity by an instrument or instruments approved by the **CEO.**

B7-2 The proponent must implement offsets to counterbalance the significant residual impacts of the **significant amendment** on the following **environmental values**:

(1) **nesting habitat, night roosting habitat** and **foraging habitat** for **black cockatoos**.

B7-3 The proponent must ensure the implementation of the offset identified in condition B7-2(1) achieves the following environmental **outcomes**:

(1) counterbalance the significant residual impacts to the **environmental values** identified in condition B7-2(1);

(2) undertake works to enhance habitat for **black cockatoos** in offset areas within Figure 2 to achieve a **tangible improvement** including an improvement in vegetation condition and to contribute to the recovery of the **environmental values** identified in condition B7-2(1);

(3) ensure a **tangible improvement** in habitat managed for conservation purposes for **black cockatoos**; and

(4) ensure a **strategic conservation benefit** is achieved for **black cockatoos**.

Offset Environmental Management Plan

B7-4 In order to ensure the environmental **outcomes** of condition B7-3 are met, the proponent must implement the *Offset Management Plan for Jelcobine, Lot DP 90037* (August 2025) or subsequent versions approved by the **CEO**.

B7-5 The *Offset Management Plan for Jelcobine, Lot DP 90037* (August 2025) and any subsequent versions approved by the **CEO** must:

(1) include the implementation of the offset measures to the extent and at the locations as set out and described in Table 1, and Figure 3.

Table 1: Environmental values, locations and extent and type of offset measures required to meet condition B7-2

Environmental Value	Offset location	Extent of area to receive offset measures	Type of offset measures
Nesting habitat, night roosting habitat and **foraging habitat** for **black cockatoos**	Lot DP 90037 Jelcobine (Figure 3)	162.43 **ha** 132.02 **ha**	- **Land acquisition** - **On-ground management** to achieve a measurable and **tangible improvement** of habitat quality for **black cockatoos**

(2) demonstrate that the **environmental outcomes** in condition B7-3 will be met;

(3) describe how the offset measures will be implemented consistent with condition B7-3;

(4) have regard to the **conservation advice**, **recovery plans** and threat abatement plans relevant to **black cockatoos**;

(5) spatially identify the **Offset Conservation Areas** to be acquired in accordance with condition B7-5(1) for **on-ground management**, that contains the **environmental values** identified in condition B7-2(1);

(6) demonstrate how the **environmental values** within the **Offset Conservation Areas** will be maintained, improved and/or managed in order to counterbalance the significant residual impact to the **environmental values** in condition B7-2(1) and achieve the environmental **outcomes** in condition B7-3;

(7) demonstrate application of the principles of the WA Environmental Offsets Policy, the WA Environmental Offsets Metric and the WA Offsets Template, as described in the WA Environmental Offsets Guidelines, and the *Environment Protection and Biodiversity Conservation Act 1999* Environmental Offsets Policy Assessment Guide, or any subsequent revisions of these documents;

(8) identify how the ongoing performance of the offset measures, and whether they are achieving the **outcomes** in condition B7-3, will periodically be made publicly available;

(9) identify how the **Offset Conservation Areas** will be protected, being either the site is ceded to the Crown for the purpose of management for conservation, or the site is managed under another suitable mechanism for the purpose of conservation as agreed by the **CEO** by notice in writing;

(10) for the **land acquisition** offset identified in condition B7-5(1):

(a) a timeframe and works associated with establishing the **Offset Conservation Area**, including a contribution for maintaining the offset for at least twenty (20) years after completion of purchase; and

(b) identify the relevant management body for the on-going management of the **Offset Conservation Area**, including its role, and the role of the proponent, and confirmation in writing that the relevant management body accepts responsibility for its role.

(11) where **on-ground management** is proposed:

(a) state the **management targets** for each environmental value to be achieved by **on-ground management**, including completion criteria, which will result in a **tangible improvement** to the environmental values listed in condition B7-2.

For **revegetation** offsets, this must include, but not be limited to:

i. quantity of potential **nesting habitat** and **foraging habitat** for **black cockatoos** to be achieved;

ii. completion criteria to measure (at a minimum) **foraging habitat** value, vegetation structure, species diversity and abundance, plant density and vegetation condition that is to be achieved to provide high-quality potential **nesting habitat** and **foraging habitat** for **black cockatoos**;

iii. criteria to measure and demonstrate the **revegetation** is **self-sustaining**; and

iv. adaptive management to ensure successful **revegetation**.

(b) demonstrate the consistency of the targets with the environmental **outcomes** in condition B7-3 and the **objectives** of any relevant guidance, including but not limited to, **recovery plans** or area management plans;

(c) detail the **on-ground management actions**, with associated timeframes for implementation and completion, to achieve the targets identified in condition B7-5(11)(a); and

(d) detail the monitoring, reporting and evaluation mechanisms for the targets and actions identified under condition B7-5(11)(a) and condition B7-5(11)(c).

B7-6 The proponent must submit an **addendum** to the *Offset Management Plan for Jelcobine, Lot DP 90037* (August 2025) to the **CEO**. The **addendum** to the *Offset Management Plan for Jelcobine, Lot DP 90037* (August 2025) must:

(1) retain the requirements under B7-5

(2) include the implementation of the offset measures to the extent and at the location set out and described in Table 2, and Figure 2; and

Table 2: Environmental values, locations and extent and type of offset measures required to meet condition B7-6

Environmental Value	Offset location	Extent of area to receive offset measures	Type of offset measures
Nesting habitat and **foraging habitat** for **black cockatoos**	Lots 201, 508, 507 and 62 (Figure 2)	36.3 **ha**	- **On-ground management** to achieve a measurable and **tangible improvement** of habitat quality for **black cockatoos**

(3) include the requirements under B7-5(2) to B7-5(11) which are to be applied to the Offset location set out and described in Table 2, and Figure 2.

PART C – ENVIRONMENTAL MANAGEMENT PLANS AND MONITORING

C1 Environmental Management Plans: Conditions Related to Commencement of Implementation of the Proposal

C1-1 The proponent must:

(1) not undertake ground disturbing activities in the **significant amendment area** until the **CEO** has confirmed in writing that the environmental management plan required by condition B1-3, meets the requirements of that condition and condition C4;

(2) submit the **addendum** to the *Offset Management Plan for Jelcobine, Lot DP 90037* (August 2025) required by condition B7-6 to the **CEO**, within six (6) months of this Ministerial Statement being issued.

C2 Environmental Management Plans: Conditions Relating to Approval, Implementation, Review and Publication

C2-1 Upon being required to implement an environmental management plan under Part B, or after receiving notice in writing from the **CEO** under condition C1-1 that the environmental management plan(s) required in Part B satisfies the relevant requirements, the proponent must:

(1) implement the most recent version of the **confirmed** environmental management plan; and

(2) continue to implement the **confirmed** environmental management plan referred to in condition C2-1(1), other than for any period which the **CEO** confirms by notice in writing that it has been demonstrated that the relevant requirements for the environmental management plan have been met, or are able to be met under another statutory decision-making process, in which case the implementation of the environmental management plan is no longer required for that period.

C2-2 The proponent:

(1) may review and revise a **confirmed** environmental management plan provided it meets the relevant requirements of that environmental management plan, including any consultation that may be required when preparing the environmental management plan;

(2) must review and revise a **confirmed** environmental management plan and ensure it meets the relevant requirements of that environmental management plan, including any consultation that may be required when preparing the environmental management plan, as and when directed by the **CEO;** and

(3) must revise and submit to the **CEO** the **confirmed** Environmental Management Plan if there is a material risk that the **outcomes** or **objectives** it is required to achieve will not be complied with, including but not limited to as a result of a change to the proposal.

C2-3 Despite condition C2-1, but subject to conditions C2-4 and C2-5, the proponent may implement minor revisions to an environmental management plan if the revisions will not result in new or increased **adverse impacts** to the environment or result in a risk to the achievement of the limits, **outcomes** or **objectives** which the environmental management plan is required to achieve.

C2-4 If the proponent is to implement minor revisions to an environmental management plan under condition C2-3, the proponent must provide the **CEO** with the following at least twenty (20) business days before it implements the revisions:

(1) the revised environmental management plan clearly showing the minor revisions;

(2) an explanation of and justification for the minor revisions; and

(3) an explanation of why the minor revisions will not result in new or increased **adverse impacts** to the environment or result in a risk to the achievement of the limits, **outcomes** or **objectives** which the environmental management plan is required to achieve.

C2-5 The proponent must cease to implement any revisions which the **CEO** notifies the proponent (at any time) in writing may not be implemented.

C2-6 Confirmed environmental management plans, and any revised environmental management plans under condition C2-4(1), must be published on the proponent's website and provided to the **CEO** in electronic form suitable for on-line publication by the Department of Water and Environmental Regulation within twenty (20) business days of being implemented, or being required to be implemented (whichever is earlier).

C3 Conditions Related to Monitoring

C3-1 The proponent must undertake monitoring capable of:

(1) substantiating whether the proposal limitations and extents in Part A are exceeded; and

(2) **detecting** and substantiating whether the environmental **outcomes** identified in Part B are achieved (excluding any environmental **outcomes** in Part B where an environmental management plan is expressly required to monitor achievement of that **outcome**).

C3-2 The proponent must submit as part of the Compliance Assessment Report required by condition D2, a compliance monitoring report that:

(1) outlines the monitoring that was undertaken during the implementation of the proposal;

(2) identifies why the monitoring was capable of substantiating whether the proposal limitation and extents in Part A are exceeded;

(3) for any environmental **outcomes** to which condition C3-1(2) applies, identifies why the monitoring was scientifically robust and capable of **detecting** whether the environmental **outcomes** in Part B are met;

(4) outlines the results of the monitoring;

(5) reports whether the proposal limitations and extents in Part A were exceeded and (for any environmental **outcomes** to which condition C3-1 (2) applies) whether the environmental **outcomes** in Part B were achieved, based on analysis of the results of the monitoring; and

(6) reports any actions taken by the proponent to remediate any potential non-compliance.

C4 Environmental Management Plans: Conditions Related to Management Actions and Targets for Objective Based Conditions

C4-1 The environmental management plan required under condition B1-3 must contain provisions which enable the achievement of the relevant **objectives** of those conditions and substantiation of whether the **objectives** are reasonably likely to be met, and must include:

(1) **management actions**;

(2) **management targets**;

(3) **contingency measures** if **management targets** are not met; and

(4) reporting requirements.

C5 Environmental Management Plans: Conditions Relating to Monitoring and Adaptive Management for Outcomes Based Conditions

C5-1 The environmental management plan required under condition B3-3 (1) must contain provisions which enable the substantiation of whether the relevant **outcomes** of those conditions are met, and must include:

(1) **threshold criteria** that provide a limit beyond which the environmental **outcomes** are not achieved;

(2) **trigger criteria** that will provide an early warning that the environmental **outcomes** are not likely to be met;

(3) monitoring parameters, sites, control/reference sites, methodology, timing and frequencies which will be used to measure **threshold criteria** and **trigger criteria**. Include methodology for determining alternate monitoring sites as a contingency if proposed sites are not suitable in the future;

(4) baseline data;

(5) data collection and analysis methodologies;

(6) adaptive management methodology;

(7) **contingency measures** which will be implemented if **threshold criteria** or **trigger criteria** are not met

(8) reporting requirements.

(9) a calibrated noise model that assumes worst case meteorological conditions for noise propagation and tonal characteristics at all times, that is validated by an **independent acoustic expert**;

(10) details of management measures, including but not limited to, any actions undertaken to reduce **noise emissions** from the proposal, monitoring, and reporting;

(11) community consultation that has been undertaken, including any agreement on implementation of noise mitigation measures with residents; and

(12) the procedure and data reporting required to demonstrate compliance in the event of a community complaint regarding operational noise, or at the request of the **CEO**.

C5-2 Without limiting condition C3-1, failure to achieve an environmental **outcome**, or the exceedance of a **threshold criteria**, regardless of whether threshold **contingency measures** have been or are being implemented, represents a non-compliance with these conditions.

PART D – COMPLIANCE, TIME LIMITS, AUDITS AND OTHER CONDITIONS

D1 Non-compliance Reporting

D1-1 If the proponent becomes aware of a potential non-compliance, the proponent must:

(1) report this to the **CEO** within seven (7) days;

(2) implement **contingency measures**;

(3) investigate the cause;

(4) investigate environmental impacts;

(5) advise rectification measures to be implemented;

(6) advise any other measures to be implemented to ensure no further impact;

(7) advise timeframe in which contingency, rectification and other measures have and/or will be implemented; and

(8) provide a report to the **CEO** within twenty-one (21) days of being aware of the potential non-compliance, detailing the measures required in conditions D1-1(1) to D1-1(7) above.

D1-2 Failure to comply with the requirements of a condition, or with the content of an environmental management plan required under a condition, constitutes a non-compliance with these conditions, regardless of whether the **contingency measures**, rectification or other measures in condition D1-1 above have been or are being implemented.

D2 Compliance Reporting

D2-1 The proponent must provide an annual Compliance Assessment Report to the **CEO** for the purpose of determining whether the implementation conditions are being complied with.

D2-2 Unless a different date or frequency is approved by the **CEO**, the first annual Compliance Assessment Report must be submitted on the first 19 October after the Ministerial Statement is issued, and subsequent reports must be submitted annually from that date.

D2-3 Each annual Compliance Assessment Report must be endorsed by the proponent's Chief Executive Officer, or a person approved by proponent's Chief Executive Officer to be delegated to sign on the Chief Executive Officer's behalf.

D2-4 Each annual Compliance Assessment Report must:

(1) state whether each condition of this Statement has been complied with, including:

(a) exceedance of any proposal limits and extents;

(b) achievement of environmental **outcomes**;

(c) achievement of environmental **objectives**;

(d) requirements to implement the content of environmental management plans;

(e) monitoring requirements;

(f) implement **contingency measures**;

(g) requirements to implement adaptive management; and

(h) reporting requirements;

(2) include the results of any monitoring (inclusive of any raw data) that has been required under Part C in order to demonstrate that the limits in Part A, and any **outcomes** or any **objectives** are being met;

(3) provide evidence to substantiate statements of compliance, or details of where there has been a non-compliance;

(4) include the corrective, remedial and preventative actions taken in response to any potential non-compliance;

(5) be provided in a form suitable for publication on the proponent's website and online by the Department of Water and Environmental Regulation; and

(6) be prepared and published consistent with the latest version of the Compliance Assessment Plan required by condition D2-5 which the **CEO** has confirmed by notice in writing satisfies the relevant requirements of Part C and Part D.

D2-5 The proponent must prepare a Compliance Assessment Plan which is submitted to the **CEO** within six (6) months of this Ministerial Statement being issued.

D2-6 The Compliance Assessment Plan must include:

(1) what, when and how information will be collected and recorded to assess compliance;

(2) the methods which will be used to assess compliance;

(3) the methods which will be used to validate the adequacy of the compliance assessment to determine whether the implementation conditions are being complied with;

(4) the retention of compliance assessments;

(5) the table of contents of Compliance Assessment Reports, including audit tables; and

(6) how and when Compliance Assessment Reports will be made publicly available, including usually being published on the proponent's website within sixty (60) days of being provided to the **CEO**.

D3 Contact Details

D3-1 The proponent must notify the **CEO** of any change of its name, physical address or postal address for the serving of notices or other correspondence within twenty-eight (28) days of such change. Where the proponent is a corporation or an association of persons, whether incorporated or not, the postal address is that of the principal place of business or of the principal office in the State.

D4 Public Availability of Data

D4-1 Subject to condition D5-2, within a reasonable time period approved by the **CEO** upon the issue of this Statement and for the remainder of the life of the proposal, the proponent must make publicly available, in a manner approved by the **CEO**, all validated environmental data collected before and after the date of this Statement relevant to the proposal (including sampling design, sampling methodologies, monitoring and other empirical data and derived information products (e.g. maps)), environmental management plans and reports relevant to the assessment of this proposal and implementation of this Statement.

D4-2 If:

(1) any data referred to in condition D5-1 contains trade secrets; or

(2) any data referred to in condition D5-1 contains particulars of confidential information (other than trade secrets) that has commercial value to a person that would be, or could reasonably be expected to be, destroyed or diminished if the confidential information were published,

the proponent may submit a request for approval from the **CEO** to not make this data publicly available and the **CEO** may agree to such a request if the **CEO** is satisfied that the data meets the above criteria.

D4-3 In making such a request the proponent must provide the **CEO** with an explanation and reasons why the data should not be made publicly available.

D5 Independent Audit

D5-1 The proponent must arrange for an independent audit of compliance with the conditions of this statement, including achievement of the environmental **outcomes** and/or the environmental **objectives** and/ or environmental performance with the conditions of this statement, as and when directed by the **CEO**.

D5-2 The independent audit must be carried out by a person with appropriate qualifications who is nominated or approved by the **CEO** to undertake the audit under condition D6-1.

D5-3 The proponent must submit the independent audit report with the Compliance Assessment Report required by condition D2, or at any time as and when directed in writing by the **CEO**. The audit report is to be supported by credible evidence to substantiate its findings.

D5-4 The independent audit report required by condition D6-1 is to be made publicly available in the same timeframe, manner and form as a Compliance Assessment Report, or as otherwise directed by the **CEO**.

Table 3: Abbreviations and definitions

Acronym or abbreviation	Definition or term
Addendum	A supplement to the existing *Offset Management Plan for Jelcobine, Lot DP 90037* (August 2025)
Adverse impact / adversely impacted	Negative change that is neither trivial nor negligible that could result in a reduction in health, diversity or abundance of the receptor/s being impacted, or a reduction in **environmental value**. Adverse impacts can arise from direct or indirect impacts, or other impacts from the proposal.
Agreed / agreement	a document signed and dated by the proponent and the landowner and occupier demonstrating consensus relating to noise emissions described in condition B3-2.
Air quality standards and criteria	Air quality standards and criteria as required under a works approval or licence issued under Part V of the *Environmental Protection Act 1986*.
Approved/ Existing proposal	Keysbrook Mineral Sands Mine Shire of Serpentine-Jarrahdale and Shire of Murray approved under MS 810, MS 984 and MS 1089.
Assigned level	Noise levels determined under regulation 8 of the **Noise Regulations**
Black cockatoos	Baudin's cockatoo (*Zanda baudinii*) Carnaby's cockatoo (*Zanda latirostris*) and Forest red-tailed black cockatoo (*Calyptorhynchus banksii naso*)
CEO	The Chief Executive Officer of the Department of the Public Service of the State responsible for the administration of section 48 of the *Environmental Protection Act 1986*, or the **CEO's** delegate.
Cleared / Clearing	Has the same meaning as in section 51A of the *Environmental Protection Act 1986*.
Confirmed	In relation to a plan required to be made and submitted to the **CEO**, means, at the relevant time, the plan that the **CEO** confirmed, by notice in writing, meets the requirements of the relevant condition. In relation to a plan required to be implemented without the need to be first submitted to the **CEO**, means that plan until it is revised, and then means, at the relevant time, the plan that the **CEO** confirmed, by notice in writing, meets the requirements of the relevant condition.
Conservation advice	Conservation advice made or adopted by the Australian Government Minister for Environment under the *Environment Protection and Biodiversity Conservation Act 1999*.

Acronym or abbreviation	Definition or term
Conservation category wetland(s)	Wetlands which support a high level of attributes and ecological function including CCW 14825, CCW 14763 and CCW 14798.
Contamination	Having a substance present at above background concentrations that presents, or has the potential to present, a risk or harm to human health, the environment or any **environmental value**.
Contingency measures	Planned actions for implementation if it is identified that an environmental **outcome**, environmental **objective**, **threshold criteria**, or management target are likely to be, or are being, exceeded. Contingency measures include changes to operations or reductions in disturbance or **adverse impacts** to reduce impacts and must be decisive actions that will quickly bring the impact to below any relevant threshold, management target and to ensure that the environmental **outcome** and/or **objective** can be met.
Day period	Monday to Saturday between the hours of 0700 to 1900 Australian Western Standard Time.
dB	decibels
Detecting/ Detectable	The smallest statistically discernible effect size that can be achieved with a monitoring strategy designed to achieve a statistical power value of at least 0.8 or an alternative value as determined by the **CEO**.
Dieback	A plant disease of native ecosystems. The main species responsible, *Phytophthora cinnamomi*, is a microscopic and soilborne organism that was introduced into Western Australia.
Disturb/ disturbance	Means directly has or materially contributes to the disturbance effect on health, diversity or abundance of the receptor/s being impacted or on an **environmental value**. In relation to flora, vegetation or fauna habitat, includes to result in the death, destruction, removal, severing or doing substantial damage. In relation to fauna, includes to have the effect of altering the natural behaviour of fauna to its detriment. In relation to inland waters, includes to have the effect of altering hydrological regimes or water quality to the detriment of the **environmental values** supported by or dependent on surface water and/or groundwater. In relation to Aboriginal heritage, means an activity that would constitute an offence under section 17 of the AHA.
Environmental value(s)	A beneficial use, or ecosystem health condition.
Environmental harm	Has the meaning provided by section 3A(2) of the *Environmental Protection Act 1986*.

Acronym or abbreviation	Definition or term
Environmental weeds	Any plant declared under section 22(2) of the *Biosecurity and Agriculture Management Act 2007*, any plant listed on the Weeds of National Significance List and any weeds listed on the Department of Biodiversity, Conservation and Attractions' Midwest Impact and Invasiveness Ratings list, as amended or replaced from time to time.
Evening period	Monday to Saturday between the hours of 1900 to 2200 Australian Western Standard Time; and Sundays and public holidays between the hours of 0900 and 2200 Australian Western Standard Time.
Foraging habitat	Vegetation and plant species known to support foraging within the range of the **black cockatoos** including proteaceous and myrtaceous plant species.
Ground disturbing activities	Any activity or activities undertaken in the implementation of the proposal, including any clearing, civil works or construction.
Ha	hectare
Independent acoustic expert	A person qualified and experienced in the area of environmental noise assessment and who by their qualifications and experience is eligible to hold membership of the Association of Australasian Acoustical Consultants. The acoustic expert must be without conflict of interest or any business or financial relationship with the proponent or its associates other than being recompensed for professional services rendered to the proponent.
Indoors	Locations which reasonably represent human occupation of an enclosed space within a highly sensitive area as defined in regulation 8 of the **Noise Regulations**, with all windows and doors in their closed position.
Influencing factor	Determined under Schedule 3 of the **Noise Regulations**.
Land acquisition	The protection of **environmental values** on an area of initially unprotected land for the purpose of conservation through improved security of tenure or restricting the use of land (e.g. ceding land to the Crown or perpetual conservation covenants). This includes upfront costs of establishing the offset site and the on-going management of costs of maintaining the offset for the long term (20 years).
L_{A10}	Has the same meaning as defined by regulation 8(1) of the **Noise Regulations**.
Management action(s)	The identified actions implemented with the intent of achieving the environmental **objective**.
Management target(s)	A type of indicator to evaluate whether an environmental **objective** is being achieved.

Acronym or abbreviation	Definition or term
Mineral processing activity	Use of equipment in the processing of minerals, which includes: • loading of ore to the Mine Field Unit; • operation of the Mine Field Unit; • associated motors delivering ore from the Mine Field Unit to the Wet Concentrator Plant and movement of tailings and water between the Wet Concentrator Plant and mine void; • operation of the Wet Concentrator Plant; and • fixed equipment associated with the Wet Concentrator Plant (cyclones and thickener).
Mining Operations	Use of equipment in the extraction and haulage of earth bearing minerals, including: • the removal of overburden by mechanical or other means and the stacking, deposit, and storage of any substance considered to contain any mineral; • field pumps, including production bores with surface mounted motors/pumps; • the use of mobile mining fleet (graders, bulldozers, excavators and haul trucks within the disturbance footprint); and • any works associated with **rehabilitation** of land disturbed in the extraction and processing of the mineral resource, except land disturbed prior to 31 December 2019.
Nesting habitat	Trees of a species known to support black cockatoos that currently contain hollows or have a suitable diameter at breast height (DBH) to develop a nest hollow, but do not currently have suitable hollows. Trees suitable to develop a nest hollow in the future are 500 mm DBH or greater, or for *Eucalyptus wandoo* 300 mm or greater.
Night period	Monday to Saturday between the hours of 2200 to 0700 Australian Western Standard Time; and Sundays and public holidays until 0900 Australian Western Standard Time.
Night roosting habitat	Vegetation and plant species known to support roosting within the range of the **black cockatoos**.
Noise emissions	Noise emitted from premises occupied by the Keysbrook Mineral Sands Mine.
Noise regulations	*Environmental Protection (Noise) Regulations 1997*
Noise sensitive premises	Has the same meaning as defined by regulation 2(1) of the **Noise Regulations**.
Objective(s)	An objective is the proposal-specific desired state for an environmental factor/s to be achieved from the implementation of **management actions**.

Acronym or abbreviation	Definition or term
Offset Conservation Area(s)	The land(s) identified in condition B7-5 containing the **environmental values** identified in condition B7-2.
On-ground management	This includes **revegetation** (re-establishment of native vegetation in degraded areas) and **e**nhancement (repair of ecosystem processes and management of weeds, disease or feral animals) with the objective to achieve a **tangible improvement** to the **environmental values** in the offset area.
Outcome(s)	A proposal-specific result to be achieved when implementing the proposal.
Pollution	Has the meaning provided by section 3A(1) of the *Environmental Protection Act 1986*.
Recovery plans	Recovery plans made or adopted by the Australian Government Minister for Environment under the *Environment Protection and Biodiversity Conservation Act 1999*.
Revegetate/ revegetation	Re-establishment of native vegetation/habitat in degraded areas.
Self-sustaining	Refers to vegetation that can survive (continue indefinitely) without ongoing **management actions** such as watering, weed control, **dieback** management or infill planting.
Significant amendment	The **significant amendment** is the extension to the **approved/existing proposal** shown within the development envelope in Figure 1 and documented in the proponent's Proposal Content Document (August 2025).
Strategic conservation benefit	Overall or long-term improvements in ecological resilience and/or function.
Tangible improvement	A perceptible, measurable and definable improvement that provides additional ecological benefit and/or value.
Trigger criteria	Indicators that have been selected for monitoring to provide a warning that, if exceeded, the environmental outcome may not be achieved. They are intended to forewarn of the approach of the threshold criteria and trigger response actions.
Threshold criteria	The indicators that have been selected to represent limits of impact beyond which the environmental outcome is not being met.
Tonal adjustment	Determined under regulation 9 of the **Noise Regulations**.

Figures (attached)

Figure 1 Development envelope (This map is a representation of the co-ordinates referenced in Schedule 1)
Figure 2 Offset area within development envelope
Figure 3 Offset site

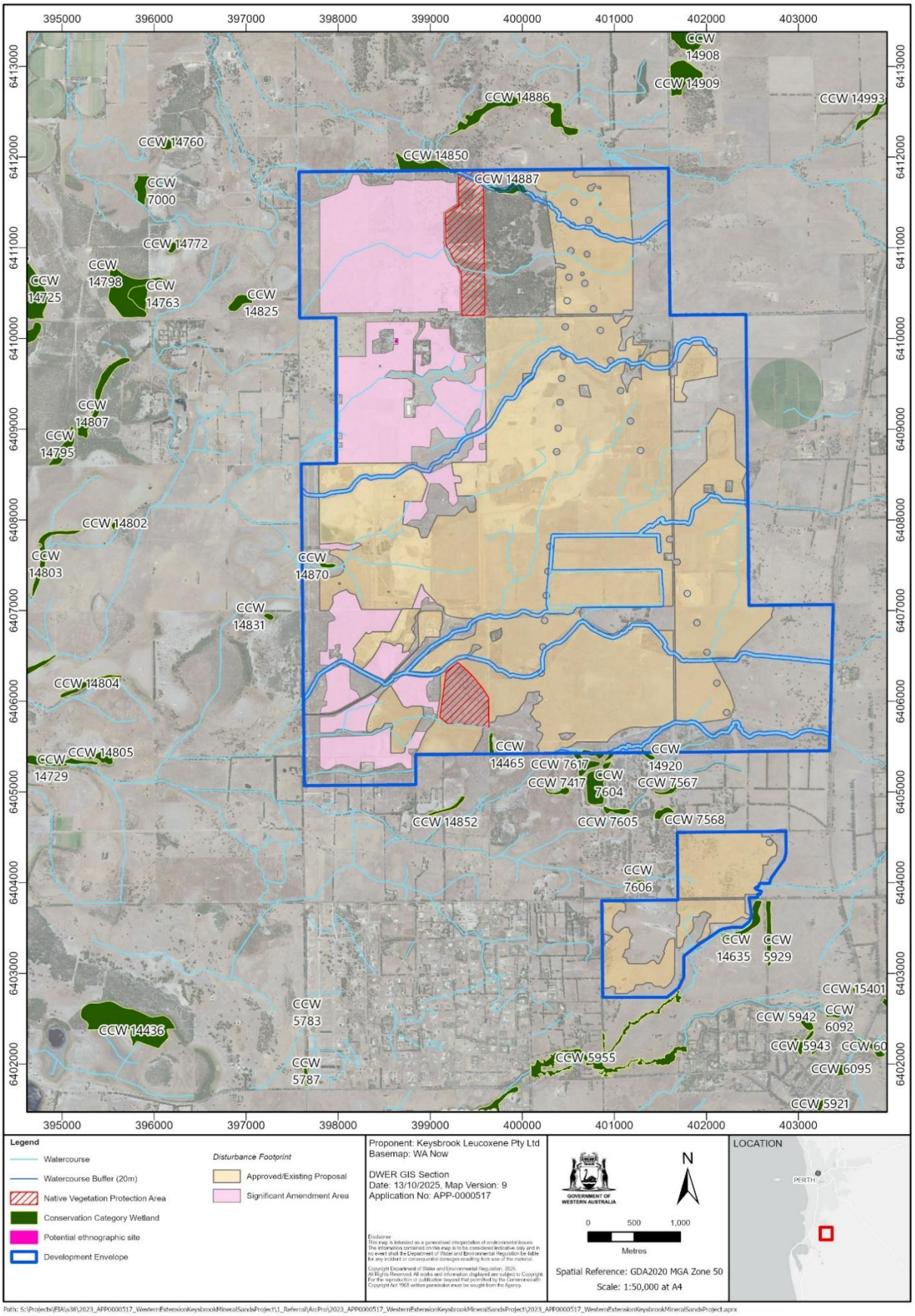

Figure 1 Development envelope, disturbance footprint and conservation category wetlands

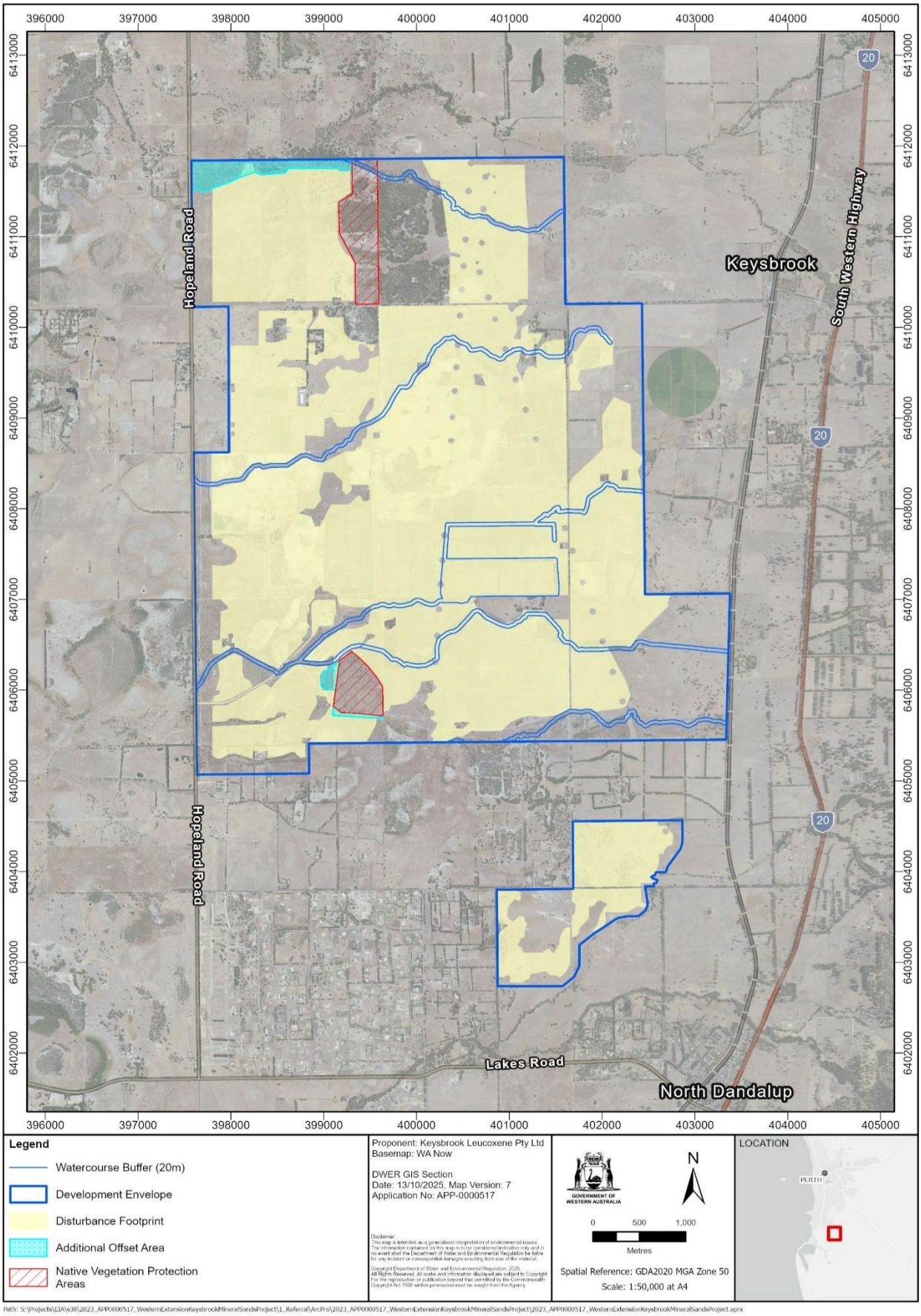

Figure 2 Offset area within development envelope

Figure 3 Offset site

Schedule 1

All co-ordinates are in metres, listed in Map Grid of Australia Zone 50 (MGA Zone 50), datum of Geocentric Datum of Australia 2020 (GDA 2020).

Spatial data depicting the figures are held by the Department of Water and Environmental Regulation (DWER) Environment Online.

Appendix B: Decision-making authorities

Table B1: Identified relevant decision-making authorities for the proposal

Decision-Making Authority	Legislation (and approval)
1. Minister for Aboriginal Affairs	*Aboriginal Heritage Act 1972* *a.* section 18 consent to impact a registered Aboriginal heritage site)
2. Minister for Environment	*Biodiversity Conservation Act 2016* b. section 40 authority to take or disturb threatened species
3. Minister for Water	*Rights in Water and Irrigation Act 1914* - permit to take water - groundwater abstraction licence (dewatering and water supply) - licence to construct bores
4. Chief Executive Officer, Department of Biodiversity, Conservation and Attractions	*Biodiversity Conservation Act 2016* - authority to take flora and fauna (other than threatened species)
5. Chief Dangerous Goods Officer Department of Energy, Mines, Industry Regulation and Safety	*Dangerous Goods Safety Act 2004* - storage and handling of dangerous goods
6. Director Worksafe Mines Safety Department of Energy, Mines, Industry Regulation and Safety	*Mines Safety and Inspection Act 1994* - mine safety - approval to commence mining operations
7. Chief Executive Officer, Department of Water and Environmental Regulation	*Environmental Protection Act 1986* - part V works approval and licence - part V clearing permit - part IV compliance (Ministerial statements)
8. Secretary, Radiological Council	*Radiation Safety Act 1975* - permit to mine radioactive materials - permit to transport radioactive materials
9. Chief Executive Officer Shire of Murray	*Planning and Development Act 2005* - extractive industries licence
10. Chief Executive Officer Shire of Serpentine Jarrahdale	*Planning and Development Act 2005* - extractive industries licence

Appendix C: Regulation under other statutory processes

Table C1: Identified relevant decision-making authorities for the proposal

Statutory decision-making process	Environmental outcome
Aboriginal Heritage Act 1972	No disturbance to Aboriginal cultural heritage, unless consent is granted to disturb that site under the Aboriginal Heritage Act 1972 and has involved reasonable steps to consult with relevant Traditional Owners.
Environmental Protection Act 1986 - part V works approval and licence	Regulate emissions and discharges from construction and operations to achieve the following outcomes: • no adverse impacts to soil, surface water and groundwater quality
Rights in Water and Irrigation Act 1914	No adverse impacts to groundwater or surface water.
Environment Protection and Biodiversity Conservation Act 1999	The EPA has recommended conditions in relation to impacts on listed threatened species and communities protected by the EPBC Act. The Department of Climate Change, Energy, Environment and Water may impose additional conditions under the EPBC Act.

Appendix D: Environmental Protection Act principles

Table D1: Consideration of principles of the *Environmental Protection Act 1986*

EP Act principle	Consideration
1. The precautionary principle *Where there are threats of serious or irreversible damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation. In application of this precautionary principle, decisions should be guided by –* *(a) careful evaluation to avoid, where practicable, serious or irreversible damage to the environment; and* *(b) an assessment of the risk-weighted consequences of various options.*	The EPA has considered the precautionary principle in its assessment and has had particular regard to this principle in its assessment of terrestrial fauna. The proposal will add cumulatively to clearing of habitat for all three black cockatoo on the Swan Coastal Plain. The EPA notes that the proponent has applied the mitigation hierarchy to avoid potential black cockatoo nesting trees, including amending the proposal design on the boundary of the disturbance footprint and including a buffer zone within the disturbance footprint. The EPA has recommended conditions to ensure that risks are minimised or avoided where possible, and that relevant measures are undertaken by the proponent to manage residual impacts. The EPA has concluded that subject to the implementation of the recommended conditions, the proposal is unlikely to pose a threat of serious or irreversible harm
2. The principle of intergenerational equity *The present generation should ensure that the health, diversity and productivity of the environment is maintained and enhanced for the benefit of future generations.*	The EPA has considered the principle of intergenerational equity in its assessment and has had particular regard to the principle in its assessment of terrestrial fauna. The EPA has considered the principle of intergenerational equity when examining the potential long-term impacts to black cockatoo habitat. In light of the known and future pressures to this habitat, the EPA has concern regarding the limited amount of high-quality black cockatoo breeding, roosting and foraging sites. To address these concerns, the EPA has recommended offsets that address short, medium and long term regional needs for black cockatoo habitat to ensure that significant residual impacts are counterbalanced. The EPA has also recommended rehabilitation of cleared native vegetation to maintain habitat connectivity. From its assessment of this proposal, the EPA has concluded that the health, resilience and productivity of the environment will likely be maintained for the benefit of future generations, conditional on implementation of recommendations, particularly offsets.
3. The principles of the conservation of biological diversity and ecological integrity	The EPA has considered the principle of conservation of biological diversity and ecological integrity in its assessment and has had particular regard to this principle in its assessment of conservation significant terrestrial fauna species.

EP Act principle	Consideration
Conservation of biological diversity and ecological integrity should be a fundamental consideration.	The EPA has recommended limits of disturbance to black cockatoo habitat and the implementation of mitigation measures, which will contribute to the conservation of biodiversity diversity and ecological integrity of these values. The EPA has required the proponent to avoid and minimise impacts to a low level and propose direct and indirect offsets. The EPA has concluded that given the nature of the impacts that the proposed offsets are likely to counter-balance the impacts of the loss of biological diversity and ecological integrity.
4. Principles relating to improved valuation, pricing and incentive mechanisms *(1) Environmental factors should be included in the valuation of assets and services.* *(2) The polluter pays principle — those who generate pollution and waste should bear the cost of containment, avoidance or abatement.* *(3) The users of goods and services should pay prices based on the full life cycle costs of providing goods and services, including the use of natural resources and assets and the ultimate disposal of any wastes.* *(4) Environmental goals, having been established, should be pursued in the most cost-effective way, by establishing incentive structures, including market mechanisms, which enable those best placed to maximise benefits and/or minimise costs to develop their own solutions and responses to environmental problems.*	In considering this principle, the EPA notes that the proponent will bear the costs relating to implementing the proposal to achieve environmental outcomes, and management and monitoring of environmental impacts during construction, operation and decommissioning of the proposal. The EPA has had particular regard to the principles considering proposal relation impacts to Flora and vegetation and Terrestrial fauna. The EPA notes the proponent has demonstrated alignment with this principle through: • the acquisition and protection of proposed offsets under conservation covenant and the implementation of enhancement, restoration and management to counterbalance the significant residual impacts terrestrial fauna • noise and dust controls and monitoring to avoid amenity impact to social surroundings and air quality. The EPA notes the commitments proposed by the proponent particularly in relation to bearing the costs to achieve environmental outcomes and concludes this principle is upheld.
5. The principle of waste minimisation *All reasonable and practicable measures should be taken to minimise the generation of waste and its discharge into the environment.*	In considering the principle of waste minimisation in its assessment, the EPA notes that the mining operations, by their nature, optimise the extraction of mineral sands and due to economic pressures, minimise waste streams of overburden and topsoil by reusing the materials to backfill the landscape. The EPA notes that waste will be minimised through the control of dust emissions through compliance with air quality standards and criteria.

Appendix E: Other environmental factors

Table E1: Evaluation of other environmental factors

Environmental factor	Description of the proposal's likely impacts on the environmental factor	Government agency and public comments	Evaluation of why the factor is not a key environmental factor
Land			
Flora and vegetation	Clearing of 21.15 ha of native vegetation will reduce the extent of soil-landscape systems, vegetation complexes and vegetation units	Public comments Concern regarding mining close to vegetation fringing damplands and watercourses, weeds and the effectiveness of rehabilitation Agency comments Concern regarding potential impact to remnant vegetation and threatened species and communities on Swan Coastal Plain	The EPA did not identify flora and vegetation as a preliminary key environmental factor when the EPA decided to assess the proposal. Most of the land within the significant amendment development envelope consists of cleared pasture, interspaced with pockets of degraded or completely degraded native vegetation. The proposal has been designed to use existing cleared areas where practicable to avoid clearing of 102 ha of native vegetation. No threatened or priority flora species or ecological communities will be directly impacted by the proposal. Clearing of up to 21.15 ha of native vegetation will occur however this has been assessed under Terrestrial fauna as it contains potential nesting, roosting and foraging habitat for black cockatoos (Section 2.1). Potential impacts to watercourses and wetlands have been assessed under Inland waters (Section 2.2). It is noted that 1.6 ha of the Guildford Vegetation Complex will be cleared. This complex has 5.09% of its pre-European distribution remaining however much of the remaining complex within the development envelope is contained within a native vegetation protection area which is to be protected and enhanced under conditions B1-2 and B5-1(2). Rehabilitation of vegetation, including weed management, is addressed under Terrestrial fauna (Section 2.1) and Inland waters (Section 2.2). By following the mitigation hierarchy, the proponent has reduced the additional cumulative impacts to flora and vegetation. Accordingly, the EPA did not consider flora and vegetation to be a key environmental factor at the conclusion of its assessment.
Subterranean fauna	Dewatering of groundwater from the Leederville and superficial aquifers.	Public comments None	The EPA did not identify subterranean fauna as a preliminary key environmental factor when the EPA decided to assess the proposal.

Environmental factor	Description of the proposal's likely impacts on the environmental factor	Government agency and public comments	Evaluation of why the factor is not a key environmental factor
		Agency comments None	The proponent intends to implement a staged mining approach. Mining is proposed to be to an average depth of 2 mbgl, with a maximum depth of 6 mbgl in sandy dune areas and to utilise suction pumps configured to maintain a minimum of 0.5 metres of saturated pit floor. This process both minimises drawdown and the risk of PASS and reduces impact to groundwater aquifers, and therefore a reduced impact to potential subterranean fauna habitat. The EPA environmental guideline for subterranean fauna describes habitat as underground environments where air or water can exist within pores or voids in certain geological formations, such as calcretes, alluvium, fractured rock, and karst limestone. Whilst there is (limited) potential for subterranean fauna occurrence, the aquifers within the proposal area do not present ideal habitat conditions. Accordingly, the EPA did not consider subterranean fauna to be a key environmental factor at the conclusion of its assessment.
Air			
Greenhouse gas emissions	Scope 1: 8,742 tonnes/annum of CO_2 (predominantly diesel consumption for mobile machines and pumps). Scope 2: 18,827 tonnes/annum of CO_2 (predominantly SWIS electricity supply for fixed processing plant).	Public comments Concern regarding this proposal's contribution to greenhouse gas emissions Agency comments None	The proposal does not involve any change to existing mining or processing methods or volumes therefore greenhouse gas emissions are expected to be similar to existing operations (scope 1 and 2). The project operates below the EPA Greenhouse Gas threshold of 100,00 tonnes of CO_2 for both scope 1 and scope 2 emission. Accordingly, the EPA did not consider greenhouse gas emissions to be a key environmental factor at the conclusion of its assessment.

Appendix F: List of submitters

7-day comment on referral

Organisations and public

- Two public submissions were received from individuals.

Government agencies

- No submissions were received from government agencies.

Public review of proponent information

Organisations and public

- Conservation Council of Western Australia
- Private submitters (8)

Government agencies

- Department of Biodiversity, Conservation and Attractions
- Department of Climate Change, Energy, the Environment and Water
- Department of Water and Environmental Regulation
- Shire of Murray

Appendix G: Assessment timeline

Date	Progress stages	Time (weeks)
31 October 2023	EPA decided to assess – level of assessment set	
24 June 2024	EPA requested additional information	34
7 February 2025	EPA received additional information	32
2 April 2025	EPA requested additional information	8
5 May 2025	EPA received additional information	5
23 May 2025	EPA released additional information for public review	3
21 June 2025	Public review period for additional information closed	4
29 August 2025	EPA received final information for assessment	10
18 September	EPA completed its assessment	7
27 October	EPA provided report to the Minister for Environment	6
29 October	EPA report published	3 days
19 November	Appeals period closed	3

Timelines for an assessment may vary according to the complexity of the proposal and are usually agreed with the proponent soon after the EPA decides to assess the proposal and records the level of assessment.

In this case, the EPA met its timeline objective to complete its assessment and provide a report to the Minister.

Appendix H: Contemporising of Ministerial Statement 810

Ministerial Condition	Environmental factor	Proposed changes	Assessment and Evaluation of proposed changes: will the change ensure the combined proposal can be implemented consistently with EPA objectives?
Condition 1 Proposal Implementation	NA	Delete condition and replace with consolidated contemporary style condition.	Recommended condition A1. EPA recommends condition 1 is replaced with a new condition setting the maximum limits on proposal characteristics which will ensure the implementation of the proposal is consistent with EPA objectives. This condition reflects a contemporary condition setting approach recommended by the EPA.
Condition 2 Proponent Nomination and Contact Details	NA	Delete condition and replace with consolidated contemporary style condition.	Recommended condition D3. The requirements of this condition are still relevant and will be retained consistent with contemporary condition setting approach recommended by the EPA.
Condition 3 Time Limit of Authorisation	NA	Delete condition	Condition superseded by condition 3 of Ministerial Statement 984 (See Appendix I)
Condition 4 Compliance Reporting	NA	Delete condition and replace with consolidated contemporary style condition.	Recommended conditions D1 and D2. The requirements of this condition are still relevant and will be retained consistent with contemporary condition setting approach recommended by the EPA.
Condition 5 Performance Review and Reporting	NA	Delete condition.	Current condition requires the proponent to provide Performance Review Reports every three years. Given the proposed amendment is likely to last less than six years this condition is no longer required. Proponent will be required to submit annual reports under condition D2.
Condition 6 Protection of native vegetation	Terrestrial fauna	Delete condition and replace with consolidated contemporary style condition.	Recommended condition B1-2 The requirements of this condition are still relevant and will be retained consistent with the contemporary condition setting approach recommended by the EPA.
Condition 7 Protection of watercourses and wetlands	Inland waters	Delete condition and replace with consolidated contemporary style condition.	Recommended condition B2

Ministerial Condition	Environmental factor	Proposed changes	Assessment and Evaluation of proposed changes: will the change ensure the combined proposal can be implemented consistently with EPA objectives?
			The requirements of this condition are still relevant and will be retained consistent with the contemporary condition setting approach recommended by the EPA.
Condition 8 Rehabilitation management plan	Terrestrial fauna	Delete condition and replace with consolidated contemporary style condition.	Recommended condition B5 The requirements of this condition are still relevant and will be retained consistent with the contemporary condition setting approach recommended by the EPA.
Condition 9 Weed and dieback	Terrestrial fauna	Delete condition and replace with consolidated contemporary style condition.	Recommended condition B5 The requirements of this condition are still relevant and will be retained consistent with the contemporary condition setting approach recommended by the EPA.
Condition 10 Nutrient mobilisation	Inland waters	Delete condition.	Condition relates to ensuring the proposal assists in meeting the water quality objectives of the Peel-Harvey Water Quality Improvement Plan – now *Gabi Warlang Bidi Water quality improvement plan for the Peel-Harvey estuary system – January 2025*. Mining activities associated with this proposal are not considered likely to significantly contribute to eutrophication of the Peel-Harvey Estuary. Grazing for beef contributes 393 tonnes (62 per cent) of the nitrogen (N) and 40 tonnes (67 per cent) of the phosphorus (P) load. Cropping (12 per cent), dairy farming (7.8 per cent), intensive animal industries (3.8 per cent) and septic tanks (3.7 per cent) are the next largest contributors to the N load (DWER 2025).
Condition 11 Water Management	Inland waters	Delete condition.	The abstraction of groundwater required for the implementation of this proposal and its impacts can be regulated under the *Rights in Water and Irrigation Act 1914.* Emissions from discharges and disturbance to soils can be regulated under Part V of the EP Act.
Condition 12 Acid Sulphate Soils Management	Inland waters	Delete condition.	DWER can regulate Potential Acid Sulfate Soils under Part V of the EP Act, which will consider monitoring of potential acid generation and ensure that impacts are appropriately regulated.

Ministerial Condition	Environmental factor	Proposed changes	Assessment and Evaluation of proposed changes: will the change ensure the combined proposal can be implemented consistently with EPA objectives?
Condition 13 Performance Bond	NA	Delete condition.	The EPA recommended a condition for a performance bond related to rehabilitation to ensure the return of functioning pasture and enhance the condition of vegetation in the excised area on Lots 59 and/or 62 and along watercourses. The EPA notes that the proponent has successfully returned other mine sites to pasture including the Dardanup Minerals Sands Mine which was regulated under MS 484 and MS 789 and were successfully withdrawn under s47A of the EP Act. The EPA considers proposed condition B5 adequately addresses the rehabilitation of vegetation in native vegetation protection areas and along watercourses. For this reason, the EPA considers that a Performance Bond is no longer necessary.
Condition 14 Noise Management	Social Surroundings	Condition deleted.	Condition superseded by condition 14 of Ministerial Statement 1089 (See Appendix J)
Condition 15 Air Quality and Dust Management	Air Quality	Delete condition and replace with consolidated contemporary style condition.	Recommended condition B4 Air emissions and discharges associated with the proposal can be adequately managed under Part V of the EP Act.
Condition 16 Definitions	NA	Delete condition and replace with consolidated contemporary style.	Relevant condition elements included in Table 2 of draft ministerial Statement.

Appendix I: Contemporising of Ministerial Statement 984

Ministerial Condition	Environmental factor	Proposed changes	Assessment and Evaluation of proposed changes: will the change ensure the combined proposal can be implemented consistently with EPA objectives?
Condition 3 Time Limit for Authorisation	NA	Delete condition.	Construction of the proposal commenced in 2015. Requirement for condition relating to substantial commencement is no longer required.
Condition 16 Definitions	NA	Delete condition and replace with consolidated contemporary style.	Relevant condition elements included in Table 2 of draft ministerial Statement.

Appendix J: Contemporising of Ministerial Statement 1089

Ministerial Condition	Environmental factor	Proposed changes	Assessment and Evaluation of proposed changes: will the change ensure the combined proposal can be implemented consistently with EPA objectives?
Condition 14 Noise management	Social surroundings	Delete condition and replace with consolidated contemporary style condition.	Recommend condition B3. The requirements of this condition are still relevant and will be retained consistent with the contemporary condition setting approach recommended by the EPA.

Appendix K: Relevant policy, guidance, procedures and references

The EPA had particular regard to the policies, guidelines and procedures listed below in the assessment of the proposal.

ABEC Environmental Consulting 2023, *Acid Sulfate Soil Investigation, Western Extension of Keysbrook Mineral Sands Project*, Busselton, WA

ABEC Environmental Consulting 2025, *Western Extension to the Keysbrook mineral Sands Project, Section 40AA, Referral Under s. 38 the EP Act*, Busselton, WA

AQ2 2023, *Keysbrook Mineral Sands Mine Groundwater Assessment for Western Extension*, AQ2 Pty Ltd, Perth WA

DEC 2008, *Forest Black Cockatoo (Baudin's Cockatoo Calyptorhynchus baudinii and Forest Red-tailed Black Cockatoo Calyptorhynchus banksii naso)* Recovery Plan, Department of Environment and Conservation, Perth WA

DoEE 2016, *Banksia Woodlands of the Swan Coastal Plain: a nationally protected ecological community* Department of the Environment and Energy, Canberra ACT

Doral 2024, *Keysbrook Mineral Sands Mine Compliance Assessment Report October 2024* Doral Mineral Sands Pty Ltd, Picton WA.

Doral 2025A, *Keysbrook Western Extension Mineral Sands Offsets Strategy*, Doral Mineral Sands Pty Ltd, Picton WA.

Doral 2025B, *Response to Submissions Document* Doral Mineral Sands Pty Ltd, Picton WA.

DPaW 2013, *Carnaby's Cockatoo (Calyptorhynchus latirostris) Recovery Plan*, Department of Parks and Wildlife, Perth WA

DWER 2025, *Gabi Warlang Bidi Water quality improvement plan for the Peel-Harvey estuary system*, Department of Water and Environmental Regulation, Perth WA

EPA 2007, *Keysbrook Mineral Sands Mine Report and Recommendation of the Environmental Protection Authority (Report 1269),* Environmental Protection Authority, Perth, WA.

EPA 2016, *Environmental factor guideline – Terrestrial fauna*, Environmental Protection Authority, Perth, WA.

EPA 2018A, *Environmental factor guideline – Inland waters*, Environmental Protection Authority, Perth, WA.

EPA 2018B, *Keysbrook Mineral Sands Mine – Inquiry Under Section 46 of the Environmental Protection Act 1986 to Amend Ministerial Statement 810 (Report 1627)*, Environmental Protection Authority, Perth, WA.

EPA 2020A, *Technical guidance –Terrestrial vertebrate fauna surveys for environmental impact assessment,* Environmental Protection Authority, Perth, WA.

EPA 2020B, *Environmental factor guideline – Air quality*, Environmental Protection Authority, Perth, WA.

EPA 2023A, *Environmental factor guideline – Social surroundings*, Environmental Protection Authority, Perth, WA.

EPA 2023B, *Statement of environmental principles, factors, objectives and aims of EIA*, Environmental Protection Authority, Perth, WA.

EPA 2024A, *Public Advice: Considering environmental offsets at a regional scale*. Environmental Protection Authority, Perth, WA.

EPA 2024B, *Environmental impact assessment (Part IV Divisions 1 and 2) procedures manual*, Environmental Protection Authority, Perth, WA.

Government of Western Australia 2011, *WA Environmental Offsets Policy*, Government of Western Australia, Perth, WA.

Government of Western Australia 2014, *WA Environmental Offsets Guidelines*, Government of Western Australia, Perth, WA.

Groundwater Resource Management 2024, *2021 – 2023 Monitoring Review Keysbrook Leucoxene Pty Ltd Keysbrook Mineral Sands Project*), Groundwater Resource Management, Bayswater, WA.

MZI Resources 2013 *Air Quality & Dust Management Plan Addendum* Perth, WA.

SKM 2007, *Keysbrook Mineral Sand. Dust modelling. (Unpub)* Sinclair Knight Merz Pty Ltd. Perth WA

State of Western Australia 2024, *Western Australia Government Gazette, No.153*, *Environmental Impact Assessment (Part IV Divisions 1 and 2) Administrative Procedures 2024,* 10 December 2024.

Western Botanical 2025, *Offset Management Plan for Jelcobine, Lot DP 90037 Prepared for: Doral Mineral Sands Pty Ltd*. Mahogany Creek, WA.

World Health Organisation 1999, *Guidelines for Community Noise*, WHO in association with Stockholm University and Karolinska Institute, WHO, Geneva, Switzerland.