Government of Western Australia
Department of Mines, Industry Regulation and Safety

Clearing Permit Decision Report

1. Application details and outcomes

1.1. Permit application details

Permit number:	10251/1
Permit type:	Purpose Permit
Applicant name:	Pilbara Manganese Pty Ltd
Application received:	22 June 2023
Application area:	450 hectares
Purpose of clearing:	Mineral production
Method of clearing:	Mechanical Removal
Tenure:	General Purpose Leases 45/37, 45/38, 45/39, 45/40, 45/279. 45/280, 45/283, 45/284, 45/332, 45/333, 45/334, 45/335, 46/4, 46/5 Miscellaneous Licences 45/145, 45/680, 45/688, 46/29 Mining Leases 45/107, 45/429, 45/430, 45/431, 45/432, 45/433, 45/517, 45/600, 45/601, 45/602, 45/637, 45/638, 45/639, 45/640, 45/1115, 45/1218, 46/92, 46/93, 46/108, 46/137, 46/150, 46/161, 46/162, 46/383, 46/384.
Location (LGA area/s):	Shire of East Pilbara
Colloquial name:	Woodie Woodie Manganese Operations

1.2. Description of clearing activities

Pilbara Manganese Pty Ltd proposes to clear up to 450 hectares of native vegetation within a boundary of approximately 2,670 hectares, for the purpose of mineral production and associated activities. The project is located approximately 400 kilometres south-east of Port Hedland and 100 kilometres east of Marble Bar.

The application is to facilitate the expansion of existing mining operations. Most of the application area has been cleared under previously granted permit (CPS 6792/1), which has now expired. The current application proposes to clear the remaining vegetation adjacent to existing mining pits and other mining disturbances as well as areas of natural re-growth that may need to be re-cleared.

1.3. Decision on application and key considerations

Decision:	Grant
Decision date:	28 September 2023
Decision area:	450 hectares of native vegetation

1.4. Reasons for decision

This clearing permit application was made in accordance with section 51E of the *Environmental Protection Act 1986* (EP Act) and was received by the Department of Mines, Industry Regulation and Safety (DMIRS) on 22 June 2023. DMIRS advertised the application for a public comment for a period of 21 days, and no submissions were received.

In making this decision, the Delegated Officer had regard for the site characteristics (Appendix A), relevant datasets (Appendix D), the clearing principles set out in Schedule 5 of the EP Act (Appendix B), proposed avoidance and minimisation measures (Section 3.1), relevant planning instruments and any other matters considered relevant to the assessment (Section 3.2). The

The assessment identified that the proposed clearing may result in:

- the potential introduction and spread of weeds into adjacent vegetation, which could impact on the quality of the adjacent vegetation and its habitat values, and
- the loss of native vegetation that is suitable habitat for northern quoll (*Dasyurus hallucatus*).

After consideration of the available information, as well as the applicant's minimisation and mitigation measures (see Section 3.1), the Delegated Officer determined the proposed clearing is unlikely to have adverse impacts on environmental values and the impacts of clearing can be minimised and managed to be unlikely to lead to an unacceptable risk to environmental values.

The Delegated Officer decided to grant a clearing permit subject to conditions to:

- avoid, minimise to reduce the impacts and extent of clearing;
- take hygiene steps to minimise the risk of the introduction and spread of weeds;
- undertake slow, progressive one directional clearing to allow terrestrial fauna to move into adjacent habitat ahead of the clearing activity;
- seasonal restrict clearing of native vegetation for northern quoll, and
- undertake pre-clearance fauna surveys to ensure no direct impacts occur to northern quoll.

1.5. Site map

A site map of proposed clearing is provided in Figure 1 and 2 below.

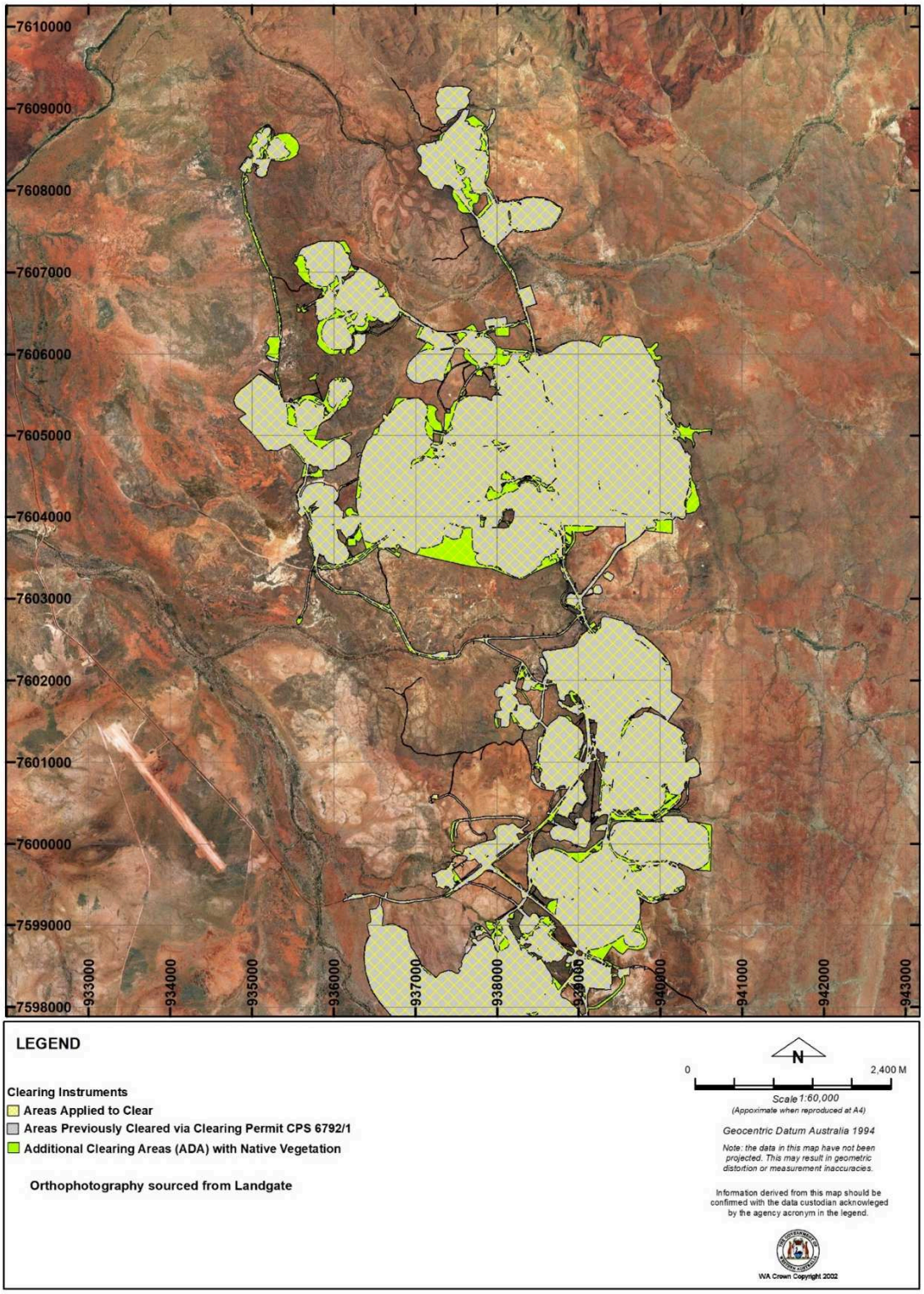

Figure 1. Map of the application area. The yellow cross-hatched area indicates the area applied to clear (application area). The grey areas indicate the existing mining activities and areas previously cleared under previous permits, including CPS 6792/1. The green areas indicate areas with native vegetation that were added to this clearing permit.

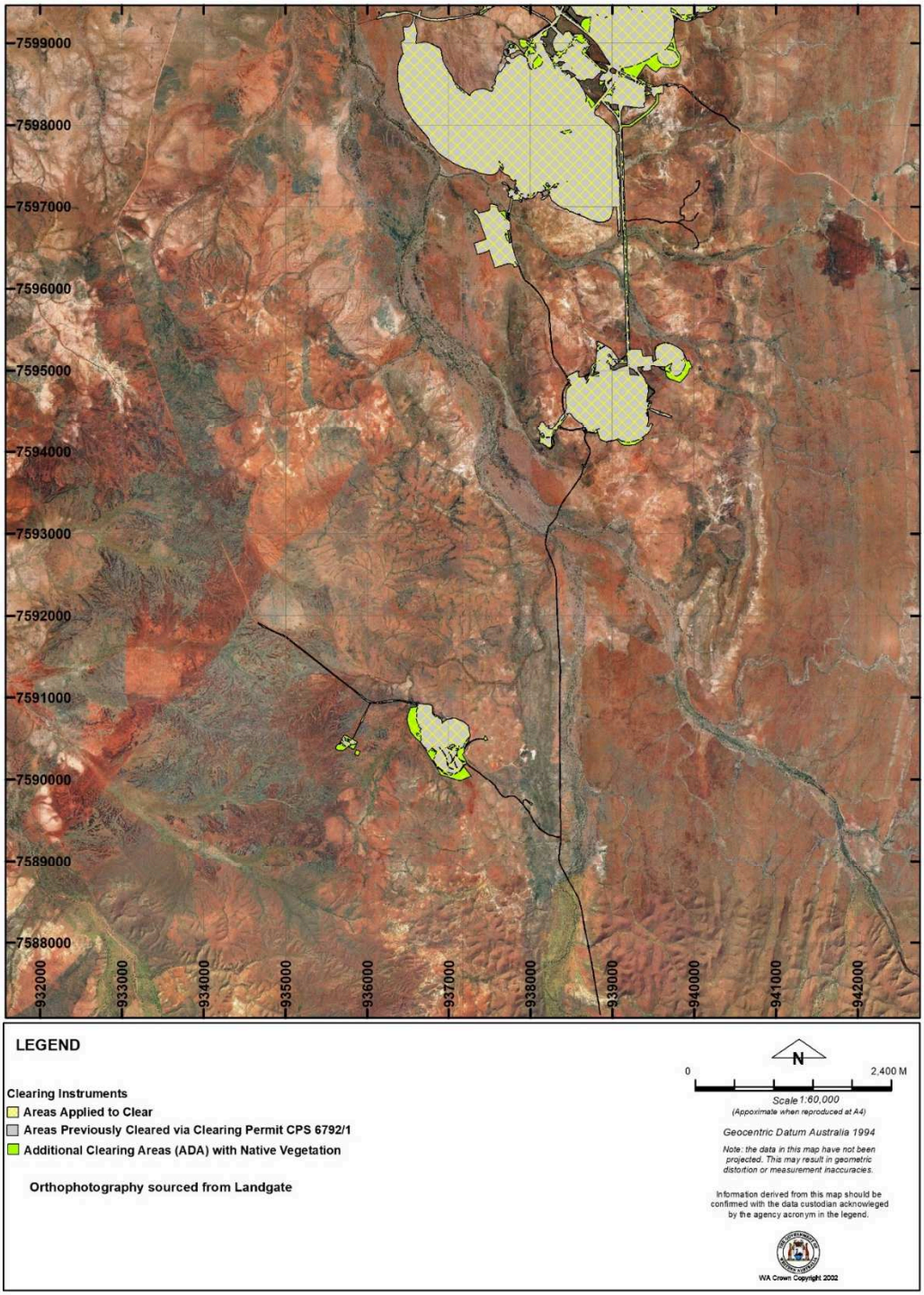

Figure 2. Map of the application area. The yellow cross-hatched area indicates the area applied to clear (application area). The grey areas indicate the existing mining activities and areas previously cleared under previous permits, including CPS 6792/1. The green areas indicate areas with native vegetation that were added to this clearing permit.

2. Legislative context

The clearing of native vegetation in Western Australia is regulated under the EP Act and the Environmental Protection (Clearing of Native Vegetation) Regulations 2004 (Clearing Regulations).

In addition to the matters considered in accordance with section 51O of the EP Act (see Section 1.4), the Delegated Officer has also had regard to the objects and principles under section 4A of the EP Act, particularly:

- the precautionary principle
- the principle of intergenerational equity
- the principle of the conservation of biological diversity and ecological integrity.

Other legislation of relevance for this assessment include:

- *Biodiversity Conservation Act 2016* (WA) (BC Act)
- *State Biosecurity and Agriculture Management Act 2007* (BAM Act)
- *Conservation and Land Management Act 1984* (WA) (CALM Act)
- *Environment Protection and Biodiversity Conservation Act 1999* (Cth) (EPBC Act)

- *Mining Act 1978* (WA)

The key guidance documents which inform this assessment are:
- *A guide to the assessment of applications to clear native vegetation* (DER, December 2013)
- *Procedure: Native vegetation clearing permits* (DWER, October 2019)
- Technical guidance – *Flora and Vegetation Surveys for Environmental Impact Assessment* (EPA, 2016)
- Technical guidance – *Terrestrial Fauna Surveys for Environmental Impact Assessment* (EPA, 2020)
- Technical guidance – *Subterranean Fauna Surveys for Environmental Impact Assessment* (EPA, 2021)

3. Detailed assessment of application

3.1. Avoidance and mitigation measures

The applicant has provided the following relevant avoidance and mitigation measures to support this clearing permit application (ConsMin, 2023):

- The proposed clearing will be limited to areas that have previously been approved for disturbance and are located adjacent existing mine disturbance in the highly disturbed Woodie mine corridor.
- Vegetation clearing will be in accordance with the existing operations.
- Vegetation clearing will be scheduled to occur immediately before planned earthworks and construction to minimize the potential for dust emissions, where practicable.
- Weed control measures will be implemented to minimise the risk of spread or introduction of new weed species to the site.
- Feral animal control will be undertaken to reduce impact to any displaced fauna from clearing activities.
- Direct disturbance to key Northern Quoll habitat identified in the broader study area will be avoided through the use of Environment Exclusion Zones and Seasonal Avoidance Areas. Clearing within the Seasonal Avoidance Areas will not occur between 1 November and 1 March, when Northern Quolls have denning young, except if required for emergency management purposes.
- Surface water, groundwater and vegetation health monitoring will continue in accordance with L6131/1990/13, GWL65080 and GWL150949 conditions.

Further, the applicant designed the application area to avoid critical habitats for conservation significant fauna and flora.

The Delegated Officer is satisfied that reasonable efforts have been made to avoid and mitigate the impacts of the proposed clearing.

3.1. Assessment of impacts on environmental values

In assessing the application, the Delegated Officer has had regard for the site characteristics (see Appendix A) and the extent to which the impacts of the proposed clearing present a risk to biological, conservation, or land and water resource values.

The assessment against the clearing principles (see Appendix B) identified the impacts of the proposed clearing are limited and able to be managed to be environmentally acceptable with an avoid and minimise, seasonal restrict clearing in certain areas, preclearance surveys, water resources management, and hygiene management conditions.

3.1.1. Biological values (flora) - Clearing Principle (a)

Assessment

A detailed flora and vegetation survey and a further targeted flora survey were undertaken over an extensive study area of approximately 24,868 hectares, including the application area (2,670 hectares) (ConsMin, 2023; Unwelt, 2021). The surveys were carried out in numerous stages (Umwelt, 2021):

- 8 – 15 June 2020 (flora and vegetation quadrat assessment)
- 25 June – 2 July 2020 (flora and vegetation quadrat assessment)
- 18 – 26 March 2021 (flora and vegetation quadrat assessment)
- 9 – 16 April 2021 (flora and vegetation quadrat assessment and targeted significant flora searching)
- 6 – 14 May 2021 (flora and vegetation quadrat assessment and targeted significant flora searching)
- 20 – 28 May 2021 (flora and vegetation quadrat assessment and targeted significant flora searching)
- 17 – 25 June 2021 (targeted significant flora searching).

The application area has been reduced since the completion of the Umwelt (2021) survey. Therefore, 360 Environmental (2022) was commissioned to review and compile relevant information from this survey specific to the uncleared areas included in the current application area (Section 1.5 Site Map). The review of these uncleared areas, named Additional Clearing Areas (ACA), showed that no Threatened flora listed under the BC Act or the EPBC Act was recorded. Three Priority flora species and one flora taxon of other significance were recorded within the ACA of the application area (360 Environmental, 2022). These species and the total amount of individuals surveyed within and out of the application area are specified below (360 Environmental, 2022; Umwelt, 2021):

- *Tribulus minutus* (P1) - 71 individuals recorded within the application area out of 9,457 individuals within the survey area;
- *Goodenia pedicellata* (P1) - 100 individuals recorded within the application area out of 12,807 individuals within the survey area;

- *Euphorbia clementii* (P3); - 43 individuals recorded within the application area out of 685 individuals within the survey area; and
- *Corchorus* aff. *incanus* (potentially undescribed) - unknown but heavily recorded outside the application area. 57,551 individuals within the survey area;

In addition, three other Priority flora species and one flora taxon of other significance, which have been recorded on the broader study area, are likely to occur within the ACA due to the presence of similar habitats and proximity of confirmed locations of each: *Lepidium amelum* (P1), *Euphorbia inappendiculata* var. *inappendiculata* (P2), *Kohautia australiensis* (P2), and *Heliotropium* aff. *argyreum* (potentially undescribed).

According to GIS analysis of the surveys' records, all previously mentioned species are heavily present outside the application area, and many of the species have wide distributions through the Pilbara and the arid zone (Unwelt, 2021). Moreover, the majority of the application area has previously been cleared under past permits, and the remaining uncleared portions comprise of approximately 270 hectares (ConsMin, 2023). Therefore, the proposed clearing within the ACA is unlikely to significantly impact the status of these Priority flora species.

18 introduced flora taxa were recorded within the study area, including one Declared Pest under the *Biosecurity and Agriculture Management Act 2007* (BAM Act) - *Calotropis procera.* No Weeds of National Significance (WoNS) were recorded (Umwelt, 2021). Of these, *Aerva javanica* and *Cenchrus ciliaris* were recorded at many locations and high densities (Umwelt, 2021).

Conclusion

For the reasons set out above, it is considered that the proposed clearing is unlikely to represent an area of high biodiversity value. There is potential for weeds being present within the application area and the proposed clearing has the potential to exacerbate the spread of weeds.

Conditions

To address the above impacts, the following management measures will be required as conditions on the clearing permit:
- avoid, minimise to reduce the impacts and extent of clearing;
- take hygiene steps to minimise the risk of the introduction and spread of weeds.

3.1.2. Biological values (fauna) - Clearing Principle (b)

Assessment

Several detailed and basic fauna surveys were undertaken over the application area and surrounding region. The surveys usually covered an area of approximately 12,500 hectares to 22,000 hectares, whereas the application area covers approximately 2,670 hectares.

Five fauna habitats were identified in the uncleared areas within the application area (Western Wildlife, 2022):
- Major creeklines: 1.5%
- Minor creeklines: 2.4%
- Spinifex plains/ Spinifex flats: 39%
- Spinifex stony hills: 38.3%
- Rocky hills and breakaways: 0.4%

Of the mapped habitats, the rocky hills and breakaway habitat is considered most important as it provides habitat for several Threatened and Priority fauna species and is limited in extent in the region compared with other mapped habitats (Western Wildlife, 2022; ConsMin, 2023). The rocky outcrops and breakaways provide caves, cracks and crevices for shelter, breeding, and roosting sites for a range of native fauna, including the northern quoll (*Dasyurus hallucatus*) (Western Wildlife, 2022).

The following significant fauna species have been recorded in the study area (Western Wildlife, 2019a):
- Northern quoll (Endangered) – known to occur in the study area. Shelter habitat and foraging/dispersal habitat are considered habitats critical to the species' survival.
- Pilbara leaf-nosed bat (Vulnerable) – recorded at several sites within the study area. The surveys are inconclusive as to whether the bat roosts in the area or is just a foraging visitor.
- Pilbara olive python (Vulnerable) – recorded within the study area.
- Common sandpiper – recorded but migratory.
- Wood sandpiper – recorded but migratory.
- Peregrine falcon – recently recorded in 2019. Although Specially Protected, this species has an extensive range, and its population is considered secure.
- Western pebble-mound mouse – recorded in several surveys, but only inactive mounds were found in the study area.

The Pilbara leaf-nosed bat, listed as Vulnerable under the EPBC and BC Act, was recorded during the Targeted Conservation Significant Bat Survey; however, no critical habitat (diurnal roosting caves) has been recorded (Western Wildlife, 2022). Although not considered critical habitat, foraging habitats and nocturnal refuges are likely to be essential for maintaining local populations of these species (Western Wildlife, 2021).

A targeted survey for night parrots conducted by Western Wildlife (2019c) found no evidence of night parrots within the study area. The survey concluded that although potential breeding or roosting habitat is present, much of the area has been burnt over the last 18 years and may not currently represent suitable habitat (ConsMin, 2023).

The project proposes to clear approximately 0.9 hectares of denning habitat out of approximately 306 hectares of high-value habitat for northern quoll found outside of the application area. A similar situation applies to the potential impacts on their foraging areas. Western Wildlife (2019b) mapped an area of approximately 7,468 hectares of foraging/dispersal habitats based on the survey records and denning habitats. According to ConsMin (2023), only 94 hectares of dispersal/foraging habitats out of approximately 7,468 hectares mapped are supposed to be impacted by the clearing activities; however, part of this mapped area has been cleared for mining operations. Considering the above, the proposed clearing activities are unlikely to significantly impact critical habitats that would influence the perpetuity of this fauna species (GIS Database).

According to Commonwealth of Australia (2016), foraging or dispersal habitat is recognised to be any land comprising predominantly native vegetation in the immediate area (i.e. within 1 km) of shelter habitat, quoll records or land comprising predominately native vegetation that is connected to shelter habitat within the range of the species. Additionally, some actions that would not significantly impact the northern quoll include the maintenance of dispersal opportunities to populations essential for the long-term survival of this species (DCCEEW, 2021). Most of the application area has previously been cleared; however, a preclearance survey for the northern quoll within the ACA that intersects foraging areas is recommended.

To further minimise potential impacts on the key northern quoll's habitat, it is recommended to implement a seasonal restrict clearing within critical areas. This restriction would occur between 1 August and 1 March to avoid potential impacts when the northern quoll has pouch and denning young (DBCA, 2022). The areas within the clearing restriction would cover 300 metres from the critical shelter/denning habitat that intersects the application area (as per permit map). The 300-metre buffer will offer an approximately range of 28.3 hectares, which indicates to be sufficient based on home range studies by Cowan et al. (2020) when northern quolls are denning. This mitigation measure is closely aligned with the proponent's commitment to applying the 'Seasonal Avoidance Areas', pointed out in section 3.1 (ConsMin, 2023).

Of the 450 hectares applied to clear, approximately 270 hectares will constitute the clearing of new areas adjacent to existing mining infrastructures (ConsMin, 2023). The remaining areas comprise vegetation re-growth in areas previously cleared under a permit that has now expired. The application area was purposely designed to avoid the majority of critical habitats that support conservation significant fauna species (i.e. northern quolls, Pilbara leaf-nosed bats, Pilbara olive python) and potentially other species of a lesser conservation status. Therefore, the proposed clearing will avoid impacts on the core conservation significant fauna habitats that occur outside the application area.

According to the short-range endemic (SRE) survey undertaken by Bennelongia (2022a), 3,454 individuals pertaining to SRE groups were recorded, representing at least 76 species within the study area. Of the 76 species collected, 51 are new (Bennelongia, 2022a). The identified habitat for these species is widespread and extends well beyond the application area. Since the completion of the survey, the application area has been significantly reduced and re-designed. Therefore, approximately 99 per cent of all species recorded in the survey are located outside the application area (GIS Database).

The results from the subterranean fauna survey (stygofauna and troglofauna) indicate that most of the species collected are known or potentially known only from the survey area (Bennelongia, 2022b). However, the survey area is significantly more extensive than the application area. Furthermore, the subterranean fauna species considered unique to the survey area or even restricted to disturbance footprint areas were collected from depths of approximately 14 metres or deeper. The only species recorded at a shallower depth was *Tyrannochthonius* `BPS434`, a singleton troglofauna specimen collected in a trap set at 5 metres (Bennelongia, 2022b); however, this species is currently outside the application area. Removing vegetation proposed by this native vegetation clearing permit is unlikely to impact these subterranean fauna species.

Conclusion

Based on the above assessment, it is considered that the impacts of the proposed clearing on potential habitats for conservation significant species are not likely to be significant if avoidance, mitigation and management measures are implemented.

For the reasons set out above, it is considered that the impacts of the proposed clearing on potential habitats for conservation significant fauna species can be managed with conditions to be environmentally acceptable.

Conditions:

While low impact to the above habitats and species is anticipated, the below measures will require implementation to further reduce risk to these findings.
· slow progressive directional clearing;
· seasonal restrict clearing of native vegetation for northern quoll; and
· preclearance surveys for the northern quoll

3.2. Relevant planning instruments and other matters

The clearing permit application was advertised on 14 July 2023 by the Department of Mines, Industry Regulation and Safety inviting submissions from the public. No submissions were received in relation to this application.

There is one native title claim (WAD20/2019 - NYAMAL PEOPLE #1) over the area under application (DPLH, 2023). This claim has been determined by the Federal Court on behalf of the claimant group. However, the mining tenure has been granted in accordance with the future act regime of the *Native Title Act 1993* and the nature of the act (i.e. the proposed clearing activity) has been provided for in that process, therefore, the granting of a clearing permit is not a future act under the *Native Title Act 1993*.

There are several registered Aboriginal Sites of Significance within the application area (DPLH, 2023). It is the proponent's responsibility to comply with the *Aboriginal Cultural Heritage Act 2021* and ensure that no Aboriginal Sites of Significance are damaged through the clearing process.

Other relevant authorisations required for the proposed land use include:

- A Mining Proposal / Mine Closure Plan approved under the *Mining Act 1978*.

It is the proponent's responsibility to liaise with the Department of Water and Environmental Regulation and the Department of Biodiversity, Conservation and Attractions, to determine whether a Works Approval, Water Licence, Bed and Banks Permit, or any other licences or approvals are required for the proposed works.

It is noted that the proposed clearing may impact on *Dasyurus hallucatus*, which is a protected matter under the *Environment Protection and Biodiversity Conservation Act 1999* (the EPBC Act). The proponent may be required to refer the project to the (Federal) Department of Climate Change, Energy, the Environment and Water for environmental impact assessment under the EPBC Act. The proponent is advised to contact the Department of Climate Change, Energy, the Environment and Water for further information regarding notification and referral responsibilities under the EPBC Act.

End

Appendix A. Site characteristics

A.1. Site characteristics

Characteristic	Details
Local context	The project is located approximately 100 km kilometres east of Marble Bar, within the Shire of East Pilbara, within the extensive land use zone (GIS Database). The predominant land use in the region is grazing of native pastures, conservation and mining activities.
Ecological linkage & Conservation areas	According to available databases, the application area is not considered an ecological linkage, nor is it located in close proximity to conservation areas (GIS Database).
Vegetation description	The vegetation of the application area is broadly mapped as the following Beard vegetation associations (GIS Database): **173:** Hummock grasslands, shrub steppe; kanji over soft spinifex & *Triodia wiseana* on basalt **177:** Hummock grasslands, sparse shrub steppe; *Acacia bivenosa* over hard spinifex, *Triodia brizioides* **82:** Hummock grasslands, low tree steppe; snappy gum over *Triodia wiseana* A detailed flora and vegetation survey and baseline flora and vegetation surveys were conducted over the application area and its surroundings (Umwelt,2021). The following vegetation associations were recorded within the application area (360 Environmental, 2023): • **HG1:** Occasional mid sparse shrubland of mixed species dominated by *Acacia bivenosa*, *Acacia robeorum* and occasionally *Acacia arida*, *Hakea lorea* subsp. *lorea* and *Grevillea wickhamii* subsp. *hispidula* over an occasional low sparse shrubland of mixed species including *Senna symonii*, *Senna sericea* and *Indigofera monophylla* over low open hummock grassland dominated by *Triodia wiseana*, *Triodia scintillans* and *Triodia longiceps* on brown, red-brown or orange-brown clay loam or sandy clay loam with dolerite, dolomite, ironstone, metamorphic, quartz and calcrete stones, sometimes with dolerite, dolomite or metamorphic outcropping on undulating plains and slopes and crests of hills. • **HG2**: Occasional tall to mid sparse shrubland of mixed species including *Acacia bivenosa*, *Acacia arida*, *Grevillea wickhamii* subsp. *hispidula*, *Senna glutinosa* subsp. *glutinosa* and *Acacia synchronicia* over low sparse shrubland of mixed species including *Senna symonii*, *Heliotropium* aff. *argyreum* (potentially undescribed) and *Corchorus lasiocarpus* subsp. *lasiocarpus* over mid open hummock grassland dominated by *Triodia wiseana* and occasionally *Triodia scintillans* on brown or red-brown clay loam with calcrete, dolomite, or dolerite stones, sometimes with calcrete or dolomite outcropping, on slopes and crests of low hills and undulating plains. • **HG4**: Occasional mid sparse shrubland of mixed species including *Acacia synchronicia*, *Acacia sclerosperma* subsp. *sclerosperma* and *Acacia robeorum* over mid open hummock grassland of mixed species including *Triodia longiceps*, *Triodia wiseana* and *Triodia epactia* over low sparse tussock grassland dominated by **Cenchrus ciliaris* and *Sporobolus australasicus* on brown clay loam or sandy clay with ironstone, calcrete, quartz, and dolerite stones on colluvial plains and flats. • **HG5:** Occasional tall to mid sparse shrubland of mixed species including *Acacia robeorum* and *Acacia synchronicia* over mid open hummock grassland of mixed species dominated by *Triodia wiseana* and occasionally *Triodia epactia* and *Triodia longiceps* over an occasional low sparse tussock grassland dominated by *Sporobolus australasicus* and **Cenchrus ciliaris* on red-brown, red, or brown clay loam or sandy clay loam with dolerite, metamorphic, ironstone and quartz stones on undulating plains and flat. • **HG6**: Occasional tall sparse shrubland of mixed species including *Hakea lorea* subsp. *lorea* and *Acacia inaequilatera* over mid open hummock grassland of mixed species including *Triodia longiceps*, *Triodia epactia* and occasionally *Triodia wiseana* over an occasional low sparse tussock grassland of **Cenchrus ciliaris* on red-brown or brown clay loam or sandy clay loam with metamorphic, quartz, ironstone, and dolomite stones on colluvial plains and flat. • **HG7:** Tall to mid sparse shrubland of mixed species including *Acacia bivenosa*, *Acacia robeorum* and occasionally *Acacia ancistrocarpa* over low sparse shrubland of mixed species including *Hibiscus sturtii* var. *campylochlamys*, *Corchorus lasiocarpus* subsp. *lasiocarpus*, *Scaevola amblyanthera* var. *centralis* and *Indigofera monophylla* over mid open hummock grassland of mixed species dominated by *Triodia wiseana* and occasionally *Triodia longiceps* and *Triodia epactia* over an occasional mid open tussock grassland of mixed species including **Cenchrus ciliaris*, *Paraneurachne muelleri* and *Chrysopogon fallax* on red-brown or brown sandy clay loam or clay loam, sometimes with ironstone, dolomite,

Characteristic	Details
	dolerite, quartz, calcrete and metamorphic stones, rarely with calcrete or metamorphic outcropping, on undulating and colluvial plains, flats, and minor drainage features. • **HG8:** Occasional tall to mid sparse shrubland of mixed species including *Acacia trachycarpa*, *Hakea lorea* subsp. *lorea*, *Acacia inaequilatera* and *Acacia pyrifolia* var. *pyrifolia* over low open hummock grassland of mixed species dominated by *Triodia epactia*, *Triodia wiseana* and occasionally *Triodia longiceps* over an occasional low open tussock grassland of mixed species including **Cenchrus ciliaris*, *Eragrostis eriopoda* and *Eragrostis desertorum* on red-brown or brown sandy clay loam or clay loam with dolerite, ironstone, quartz, dolomite and calcrete stones, occasionally with dolomite or calcrete outcropping on colluvial plains, flats and low rises. • **HG10:**Tall sparse shrubland of mixed species dominated by *Acacia inaequilatera* over low sparse shrubland of mixed species including *Corchorus lasiocarpus* subsp. *lasiocarpus*, *Indigofera monophylla*, *Abutilon* sp. Dioicum (A.A. Mitchell PRP 1618) and *Senna glutinosa* subsp. *pruinosa* over low open hummock grassland of mixed species including *Triodia brizoides*, *Triodia epactia* and *Triodia scintillans* on red-brown or orange-brown clay loam or sandy clay loam with dolerite, metamorphic, quartz and chert stones and dolerite, metamorphic or chert outcropping on slopes and crests of hills. • **HG11:** Tall to mid sparse shrubland of mixed species including *Grevillea wickhamii* subsp. *hispidula*, *Acacia inaequilatera* and *Acacia arida* over low sparse shrubland of mixed species including *Acacia hilliana*, *Corchorus lasiocarpus* subsp. *lasiocarpus*, *Triumfetta maconochieana* and *Dampiera candicans* over low open hummock grassland dominated by *Triodia scintillans* and *Triodia epactia* on red-brown, brown or orange-brown clay loam or sandy clay loam with chert stones over chert outcropping on slopes and crests of low hills and undulating plains. • **HG12:** Mid sparse shrubland of mixed species dominated by *Acacia arida* and occasionally *Grevillea wickhamii* subsp. *hispidula* and *Acacia bivenosa* over low sparse shrubland of mixed species including *Corchorus* aff. incanus (potentially undescribed), *Heliotropium* aff. *argyreum* (potentially undescribed) and **Aerva javanica* over low open hummock grassland dominated by *Triodia wiseana* on red-brown, brown, or orange-brown clay loam or sandy clay loam with dolomite, dolerite, metamorphic and quartz stones over dolomite or dolerite outcropping on slopes, crests, ridges and gorges of rocky hills and occasionally stony plains. • **S1:** Occasional low open woodland to isolated trees of mixed species dominated by *Corymbia hamersleyana* and occasionally *Eucalyptus odontocarpa* and *Corymbia candida* subsp. *dipsodes* over tall open shrubland to sparse shrubland of mixed species including *Acacia ancistrocarpa* and *Acacia tumida* var. *pilbarensis* over mid sparse shrubland of mixed species including *Acacia arida*, *Acacia bivenosa*, *Grevillea wickhamii* subsp. *hispidula* and *Acacia acradenia* over low sparse shrubland of mixed species including *Hibiscus sturtii* var. *campylochlamys*, *Anthobolus leptomerioides*, *Bonamia erecta* and *Indigofera monophylla* over low open hummock grassland to sparse hummock grassland of mixed species including *Triodia epactia*, *Triodia scintillans* and *Triodia wiseana* over low sparse tussock grassland of mixed species including *Paraneurachne muelleri*, *Aristida holathera* var. *holathera* and *Chrysopogon fallax* on red-brown or brown sandy clay loam, clay loam or sandy clay with colluvial stones, sometimes with metamorphic or dolerite outcropping in minor creeks and flowlines and sometimes on undulating or colluvial stony plains. • **S2:** Tall open shrubland to sparse shrubland of mixed species dominated by *Atalaya hemiglauca*, *Acacia trachycarpa* and occasionally *Acacia coriacea* subsp. *pendens* and *Acacia ancistrocarpa* over mid sparse shrubland of mixed species including *Acacia pyrifolia* var. *pyrifolia*, *Gossypium australe*, *Acacia bivenosa* and *Carissa lanceolata* over an occasional low sparse hummock grassland of *Triodia longiceps* and *Triodia wiseana* over mid closed tussock grassland to open tussock grassland to sparse tussock grassland of mixed species dominated by **Cenchrus ciliaris* and *Chrysopogon fallax* on brown or red-brown clay loam or sandy clay loam with colluvial stones, occasionally with dolerite or chert outcropping in minor creeklines, flowlines, and on colluvial plains and flats. • **TG1:** Tall to mid sparse shrubland of mixed species dominated by *Acacia trachycarpa*, *Atalaya hemiglauca* and occasionally *Hakea lorea* subsp. *lorea*, *Acacia pyrifolia* var. *pyrifolia* and *Acacia sclerosperma* subsp. *sclerosperma* over low sparse shrubland of mixed species including **Aerva javanica* and *Corchorus lasiocarpus* subsp. *lasiocarpus* over an occasional low sparse hummock grassland of *Triodia epactia* and *Triodia wiseana* over a mid-closed tussock grassland to sparse tussock grassland of **Cenchrus ciliaris* over an occasional low sparse forbland of mixed species including *Boerhavia coccinea*, *Trianthema pilosum* and *Boerhavia burbidgeana* on red-brown, brown or orange clay loam or sandy clay loam with colluvial stones on colluvial plains and flats

Characteristic	Details
	• **W1:** Low open woodland to isolated trees of mixed species dominated by *Corymbia hamersleyana* and occasionally *Eucalyptus leucophloia* subsp. *leucophloia*, *Corymbia candida* subsp. *dipsodes* and *Eucalyptus victrix* over tall sparse shrubland of mixed species including *Grevillea wickhamii* subsp. *hispidula*, *Atalaya hemiglauca* and *Acacia arida* over mid open shrubland to sparse shrubland of mixed species including *Gossypium australe*, *Acacia bivenosa*, *Acacia pyrifolia* var. *pyrifolia* and *Acacia ancistrocarpa* over low sparse shrubland of mixed species including *Indigofera monophylla*, *Tephrosia rose*a var. *clementii*, *Corchorus lasiocarpus* subsp. *lasiocarpus*, **Aerva javanica* and *Senna artemisioides* subsp. *oligophylla* over tall to mid sparse hummock grassland of mixed species including *Triodia epactia* and *Triodia wiseana* over mid tussock grassland to sparse tussock grassland of mixed species including **Cenchrus ciliaris*, *Paraneurachne muelleri* and *Chrysopogon fallax* on red-brown or brown clay loam, sandy clay loam or sandy loam with colluvial stones, sometimes with dolerite, dolomite, metamorphic, chert or calcrete outcropping in minor creeks and flowlines and sometimes on colluvial plains. • **W2:** Mid to low woodland to open woodland dominated by *Eucalyptus victrix* and occasionally *Eucalyptus camaldulensis* subsp. *refulgen*s and *Corymbia hamersleyana* over tall to mid sparse shrubland of mixed species dominated by *Atalaya hemiglauca*, *Acacia coriacea* subsp. *pendens* and occasionally *Acacia pyrifolia* var. *pyrifolia*, *Acacia trachycarpa* and *Melaleuca glomerata* over low sparse shrubland of mixed species including *Tephrosia rosea* var. *clementii*, *Cullen leucanthum*, *Corchorus lasiocarpus* subsp. *lasiocarpus* and *Corchorus laniflorus* over an occasional mid to low sparse hummock grassland of mixed species including *Triodia epactia*, *Triodia longiceps* and *Triodia wiseana* over mid tussock grassland to sparse tussock grassland of mixed species dominated by **Cenchrus ciliaris* and occasionally *Cymbopogon ambiguus*, *Eriachne tenuiculmis* and *Eriachne benthamii* over an occasional mid open sedgeland to sparse sedgeland of *Cyperus vaginatus* on brown or red-brown sandy clay loam, sandy clay or clayey sand with colluvial stones, occasionally with dolerite or dolomite outcropping in major creeks and flowlines. • **R:** Rehabilitated land • **C:** Cleared land
Vegetation condition	The vegetation survey (ConsMin, 2023; Umwelt, 2021) indicate the vegetation within the proposed clearing area is in Excellent to Completely Degraded condition (adaptation from Trudgen,1991), described as: • Excellent: Pristine or nearly so, no obvious signs of damage caused by human activities since European settlement. To • Completely Degraded: Areas that are completely or almost completely without native species in the structure of their vegetation, i.e., areas that are cleared or 'parkland cleared' with their flora comprising weed or crop species with isolated native trees or shrubs. Most of the application area has been cleared for mining activities (ConsMin, 2023). The full Trudgen (1991) condition rating scale is provided in Appendix C.
Climate and landform	The application area is mapped within elevations of 260 to 320 meters AHD (GIS Database). The climate of the region is arid to subtropical, and the annual rainfall average of approximately 400 millimetres (BoM, 2023).
Soil description & Land degradation risk	The soil is mapped as part of the following soil systems (DPIRD, 2023): • **Paterson system (287Pt):** Stony and sandy plains with isolated low hills of sandstone or conglomerate supporting hard spinifex (and occasionally soft spinifex) grasslands and minor tussock grasslands • **Oakover system (287Ok):** Breakaways, mesas, plateaux, and stony plains of calcrete supporting hard spinifex shrubby grasslands • **McKay system (287Mk):** Hills, ridges, plateaux remnants and breakaways of meta sedimentary and sedimentary rocks supporting hard spinifex grasslands with acacias and occasional eucalypts • **Coongimah system (287Cg):** Plateau surfaces, low hills with steep slopes and undulating uplands supporting hard spinifex grasslands • **Rocklea system (287Pk):** Basalt hills, plateaux, lower slopes and minor stony plains supporting hard spinifex and occasionally soft spinifex grasslands with scattered shrubs • **Billygoat system (287Bl):** Dissected plains and gravelly slopes supporting hard spinifex grasslands • **MIN Mine system (287CgX):** Disturbed area, mines, mullock dumps, etc

Characteristic	Details
	The application area falls within the Fortescue soil landscape province, which is mainly comprised of stony soils over hilly terrain, red shallow loams and sands elsewhere, with some clays on plains (ConsMin, 2023). The systems abovementioned are generally not prone to erosion, except for areas of alluvial plains and drainage lines where vegetation is depleted within the Paterson system (Van Vreeswyk et al. 2004). However, this system is only represented by minimal portions within the whole application area (ConsMin, 2023).
Waterbodies & Hydrogeography	There are three main watercourses that intersect the application area and drain to the Oakover River (ConsMin, 2023). The application area is not located within a Public Drinking Water Source Area (ConsMin, 2023). The mapped groundwater salinity is between 500 - 1,000 milligrams per litre total dissolved solids (GIS Database).
Flora	Flora and vegetation assessment undertaken by Umwelt (2021) and reviewed by 360 Environmental (2022) identified four Priority flora species, including a taxon of other significance, within the application area, and further four likely to occur (ConsMin, 2023).
Ecological communities	There are no mapped Threatened or Priority Ecological Communities (TEC/PEC) within the application area or in close proximity (360 Environmental, 2022; ConsMin, 2023).
Fauna	There are several conservation significant vertebrate fauna species and habitats within 10 kilometres of the application area (ConsMin, 2023; Western Wildlife, 2019a, 2019b). The subterranean fauna survey concluded that the study area, which includes the application area, contain prospective habitat for troglofauna and stygofauna (Bennelongia, 2022a; 2022b).

A.2. Flora analysis table

Likelyhood of occurance of conservation significant flora species within the application area, here after Permit Purpose Envelope (PPE) (ConsMIn, 2023).

Flora Taxa	Priority	Likelihood of occurrence within PPE
Tribulus minutus	P1	Recorded
Goodenia pedicellata	P1	Recorded
Corchorus aff. incanus	Potentially undescribed	Recorded
Euphorbia clementii	P3	Recorded
Lepidium amelum	P1	Recorded in previous surveys and likely to occur within PPE
Euphorbia inappendiculata var. inappendiculata	P2	Recorded in previous surveys and likely to occur within PPE
Kohautia australiensis	P2	Recorded in previous surveys and likely to occur within PPE
Heliotropium aff. argyreum	Potentially undescribed	Recorded in previous surveys and likely to occur within PPE

Flora Taxa	Priority	Likelihood of occurrence within PPE
Eremophila sp. Rudall River (P.G. Wilson 10512)	P2	Nearest location was recorded approximately 5 km south of the most southern portion of the proposed PPE
Stylidium weeliwolli	P3	Only a single individual was recorded in the entire Study Area, approximately 2 km from the nearest PPE
Ptilotus mollis	P4	Individuals recorded were restricted to a small population in the southern portion of the Study Area approximately 6.7km from the nearest PPE

Appendix B. Assessment against the clearing principles

Assessment against the clearing principles	Variance level	Is further consideration required?
Environmental value: biological values		

Assessment against the clearing principles	Variance level	Is further consideration required?
Principle (a): *"Native vegetation should not be cleared if it comprises a high level of biodiversity."* Assessment: According to available databases and flora and vegetation surveys, several Priority flora species occur or are likely to occur within the application area, but there are no known Threatened flora species (Umwelt, 2021; 360 Environmental; ConsMin, 2023). No Threatened or Priority Ecological Communities were identified within the application area (ConsMin, 2023; GIS Database).	May be at variance	Yes *Refer to Section 3.2.1, above.*
Principle (b): *"Native vegetation should not be cleared if it comprises the whole or a part of, or is necessary for the maintenance of, a significant habitat for fauna."* Assessment: Part of the application area contains suitable habitat for several conservation significant fauna species.	May be at variance	Yes *(delete if 'No') Refer to Section 3.2.2, above.*
Principle (c): *"Native vegetation should not be cleared if it includes, or is necessary for the continued existence of, threatened flora."* Assessment: There are no known records of Threatened flora within the application area (GIS Database). A flora and vegetation survey of the application area did not record any species of Threatened flora, and none were considered likely to occur (ConsMin, 2023; Umwelt, 2021).	Not likely to be at variance	No
Principle (d): *"Native vegetation should not be cleared if it comprises the whole or a part of, or is necessary for the maintenance of, a threatened ecological community."* Assessment: There are no known or mapped Threatened Ecological Communities (TECs) located within or in close proximity to the application area (ConsMin, 2023; Umwelt, 2021).	Not likely to be at variance	No
Environmental value: significant remnant vegetation and conservation areas		
Principle (e): *"Native vegetation should not be cleared if it is significant as a remnant of native vegetation in an area that has been extensively cleared."* Assessment: The application area falls within the Pilbara Bioregion of the Interim Biogeographic Regionalisation for Australia (IBRA) (GIS Database). Approximately 99.57% of the pre-European vegetation still exists in the Pilbara Bioregion (Government of Western Australia, 2019). The application area is broadly mapped as Beard vegetation associations 82, 173 and 177 (GIS Database). These vegetation associations have not been extensively cleared as over 99.9% of the pre-European extent of these vegetation associations remain uncleared at both the state and bioregional level (Government of Western Australia, 2019). The permit area does not contain any remnants, nor does it form part of any remnants in the local area (GIS Database).	Not at variance	No
Principle (h): *"Native vegetation should not be cleared if the clearing of the vegetation is likely to have an impact on the environmental values of any adjacent or nearby conservation area."* Assessment: Given the distance (85 kilometres) to the nearest conservation area, the proposed clearing is not likely to have an impact on the environmental values of any known or mapped conservation areas.	Not at variance	No
Environmental value: land and water resources		
Principle (f): *"Native vegetation should not be cleared if it is growing in, or in association with, an environment associated with a watercourse or wetland."* Assessment:	May be at variance	No

Assessment against the clearing principles	Variance level	Is further consideration required?
Five vegetation types mapped in the project area, named Woodie mining corridor, contain riparian vegetation that is considered to be partially or totally dependent on surface water flow (Umwelt, 2021). • HG7: mapped on undulating and colluvial plains and flats, and occasionally in minor ephemeral drainage features; • S1: mapped in minor ephemeral creeks and flowlines, and sometimes on undulating or colluvial stony plains; • S2: mapped in minor ephemeral creeks and flowlines, and on colluvial plains and flats; • W1: mapped in minor ephemeral creeks and flowlines and sometimes on colluvial plains; and • W2: mapped in major creeks and flowlines, predominately ephemeral, but with some areas receiving groundwater discharge having permanent water There are three main watercourses that intersect the application area and drain to the Oakover River (ConsMin, 2023). However, these creeks and tributaries are naturally dry for most of the year (ConsMin, 2023). The uncleared portions of the application area associated with two of these creeks (Muddauthera and Brumby Creeks) are located adjacent of existing service corridors and mine infrastructure, and the clearing on these locations is expected to be minimal (ConsMin, 2023). Based on the presence of *Eucalyptus camaldulensis* subsp. *refulgens* (the only obligate phreatophyte recorded in the Study area), it is possible that some occurrences of vegetation types S2 and W2 are dependent on groundwater, if the local water table is within reach of the root systems of these taxa (generally within 10 metres of the ground surface) (Umwelt, 2021). However, only 1.2 hectares of W2 vegetation type is within the application area, and the proposed clearing activities will be in areas of existing services corridors (ConsMin, 2023). Therefore, taking into consideration this scenario, the potential impacts to this vegetation type is likely to be minimal. No clearing is proposed on S2 vegetation type; however, this vegetation type covers approximately 2.4 hectares of the application area. The riparian vegetation condition ranges from degraded to good in the proposed clearing areas, represented by vegetation units W2 and HG7 (360 Environmental, 2022). Impacts to vegetation growing in association with a watercourse can be managed by a vegetation management condition to avoid clearing of riparian vegetation where possible and maintaining water flows.		
Principle (g): *"Native vegetation should not be cleared if the clearing of the vegetation is likely to cause appreciable land degradation."* Assessment: The mapped soils within the application (Appendix A.1) are generally not susceptible to erosion, except for specific areas within the Paterson system (Vreeswyk et al. 2004). However, this system comprises only a small section of the application area (ConsMin, 2023); hence, considerable land degradation is unlikely to occur.	Not likely to be at variance	No
Principle (i): *"Native vegetation should not be cleared if the clearing of the vegetation is likely to cause deterioration in the quality of surface or underground water."* Assessment: There are no Public Drinking Water Source Areas within or in close proximity to the application area (GIS Database). There are three main creeks that run across the application area and drain to the Oakover River. Muddauthera Creek, Brumby Creek and Warri Creek and their associated tributaries are ephemeral and tend to flow only during the summer (ConsMin, 2023). Muddauthera Creek is characterised by several semi-permanent waterholes, which may persist for many months after rainfall. However, there are no identified natural permanent water bodies or wetlands within the study area or the application area (Western Wildlife, 2022). It is likely that all the waterholes are semi-permanent, with some retaining water year-round in wetter years (Western Wildlife, 2022). The proposed clearing is unlikely to result in significant changes to surface water flows or to cause deterioration in the quality of underground water (ConsMin, 2023).	Not likely to be at variance	No

Assessment against the clearing principles	Variance level	Is further consideration required?
Principle (j): *"Native vegetation should not be cleared if the clearing of the vegetation is likely to cause, or exacerbate, the incidence or intensity of flooding."* Assessment: The climate of the region is semi-arid, with a low average rainfall of approximately 391.8 millimetres per year (BoM, 2023). Drainage lines in the area are dry for most of the year, only flowing following significant rainfall (Umwelt, 2021). There are no permanent water courses or waterbodies within the application area (GIS Database). Seasonal drainage lines are common in the region and temporary localised flooding may occur briefly following heavy rainfall events. However, the proposed clearing is unlikely to increase the incidence or intensity of natural flooding events.	Not likely to be at variance	No

Appendix C. Vegetation condition rating scale

Vegetation condition is a rating given to a defined area of vegetation to categorise and rank disturbance related to human activities. The rating refers to the degree of change in the vegetation structure, density and species present in relation to undisturbed vegetation of the same type. The degree of disturbance impacts upon the vegetation's ability to regenerate. Disturbance at a site can be a cumulative effect from a number of interacting disturbance types.

Considering its location, the scale below was used to measure the condition of the vegetation proposed to be cleared. This scale has been extracted from Trudgen, M.E. (1991) *Vegetation condition scale* in National Trust (WA) 1993 Urban Bushland Policy. National Trust of Australia (WA), Wildflower Society of WA (Inc.), and the Tree Society (Inc.), Perth.

Measuring vegetation condition for the Eremaean and Northern Botanical Provinces (Trudgen, 1991)

Condition	Description
Excellent	Pristine or nearly so, no obvious signs of damage caused by human activities since European settlement.
Very good	Some relatively slight signs of damage caused by human activities since European settlement. For example, some signs of damage to tree trunks caused by repeated fire, the presence of some relatively non-aggressive weeds, or occasional vehicle tracks.
Good	More obvious signs of damage caused by human activity since European settlement, including some obvious impact on the vegetation structure such as that caused by low levels of grazing or slightly aggressive weeds.
Poor	Still retains basic vegetation structure or ability to regenerate it after very obvious impacts of human activities since European settlement, such as grazing, partial clearing, frequent fires or aggressive weeds.
Very poor	Severely impacted by grazing, very frequent fires, clearing or a combination of these activities. Scope for some regeneration but not to a state approaching good condition without intensive management. Usually with a number of weed species present including very aggressive species.
Completely degraded	Areas that are completely or almost completely without native species in the structure of their vegetation; i.e. areas that are cleared or 'parkland cleared' with their flora comprising weed or crop species with isolated native trees or shrubs.

Appendix D. Sources of information

D.1. GIS databases

Publicly available GIS Databases used (sourced from www.data.wa.gov.au):

- Clearing Regulations – Schedule One Areas (DWER-057)
- DBCA – Lands of Interest (DBCA-012)
- DBCA Legislated Lands and Waters (DBCA-011)
- Directory of Important Wetlands in Australia – Western Australia (DBCA-045)
- Environmentally Sensitive Areas (DWER-046)
- Groundwater Salinity Statewide (DWER-026)
- Hydrographic Catchments – Catchments (DWER-028)
- Hydrography, Linear (DWER-031)
- IBRA Vegetation Statistics
- Pre-European Vegetation Statistics
- RIWI Act, Groundwater Areas (DWER-034)
- RIWI Act, Surface Water Areas and Irrigation Districts (DWER-037)
- Soil Landscape Mapping – Best Available (DPIRD-027)

- Soil Landscape Mapping – Rangelands (DPIRD-064)
- WA Now Aerial Imagery

Restricted GIS Databases used:

- Threatened Flora (TPFL)
- Threatened Flora (WAHerb)
- Threatened Fauna
- Threatened Ecological Communities and Priority Ecological Communities
- Threatened Ecological Communities and Priority Ecological Communities (Buffers)

D.2. References

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Western Wildlife (2021) Woodie Woodie Mine: Targeted Conservation Significant Bat Survey 2020. Western Australia.

4. Glossary

Acronyms:

BC Act	*Biodiversity Conservation Act 2016,* Western Australia
BoM	Bureau of Meteorology, Australian Government
DAA	Department of Aboriginal Affairs, Western Australia (now DPLH)
DAFWA	Department of Agriculture and Food, Western Australia (now DPIRD)
DCCEEW	Department of Climate Change, Energy, the Environment and Water, Australian Government
DBCA	Department of Biodiversity, Conservation and Attractions, Western Australia
DER	Department of Environment Regulation, Western Australia (now DWER)
DMIRS	Department of Mines, Industry Regulation and Safety, Western Australia
DMP	Department of Mines and Petroleum, Western Australia (now DMIRS)
DoEE	Department of the Environment and Energy (now DCCEEW)
DoW	Department of Water, Western Australia (now DWER)
DPaW	Department of Parks and Wildlife, Western Australia (now DBCA)
DPIRD	Department of Primary Industries and Regional Development, Western Australia
DPLH	Department of Planning, Lands and Heritage, Western Australia
DRF	Declared Rare Flora (now known as Threatened Flora)
DWER	Department of Water and Environmental Regulation, Western Australia
EP Act	*Environmental Protection Act 1986*, Western Australia
EPA	Environmental Protection Authority, Western Australia
EPBC Act	*Environment Protection and Biodiversity Conservation Act 1999* (Federal Act)
GIS	Geographical Information System
ha	Hectare (10,000 square metres)
IBRA	Interim Biogeographic Regionalisation for Australia
IUCN	International Union for the Conservation of Nature and Natural Resources – commonly known as the World Conservation Union
PEC	Priority Ecological Community, Western Australia
RIWI Act	*Rights in Water and Irrigation Act 1914*, Western Australia
TEC	Threatened Ecological Community

Definitions:

{DBCA (2019) Conservation Codes for Western Australian Flora and Fauna. Department of Biodiversity, Conservation and Attractions, Western Australia}:-

T **Threatened species:**

Listed by order of the Minister as Threatened in the category of critically endangered, endangered or vulnerable under section 19(1), or is a rediscovered species to be regarded as threatened species under section 26(2) of the *Biodiversity Conservation Act 2016* (BC Act).

Threatened fauna is that subset of 'Specially Protected Fauna' listed under schedules 1 to 3 of the *Wildlife Conservation (Specially Protected Fauna) Notice 2018* for Threatened Fauna.

Threatened flora is that subset of 'Rare Flora' listed under schedules 1 to 3 of the *Wildlife Conservation (Rare Flora) Notice 2018* for Threatened Flora.

The assessment of the conservation status of these species is based on their national extent and ranked according to their level of threat using IUCN Red List categories and criteria as detailed below.

CR **Critically endangered species**
Threatened species considered to be "*facing an extremely high risk of extinction in the wild in the immediate future, as determined in accordance with criteria set out in the ministerial guidelines*".

Listed as critically endangered under section 19(1)(a) of the BC Act in accordance with the criteria set out in section 20 and the ministerial guidelines. Published under schedule 1 of the *Wildlife Conservation (Specially Protected Fauna) Notice 2018* for critically endangered fauna or the *Wildlife Conservation (Rare Flora) Notice 2018* for critically endangered flora.

EN **Endangered species**
Threatened species considered to be "*facing a very high risk of extinction in the wild in the near future, as determined in accordance with criteria set out in the ministerial guidelines*".

Listed as endangered under section 19(1)(b) of the BC Act in accordance with the criteria set out in section 21 and the ministerial guidelines. Published under schedule 2 of the *Wildlife Conservation (Specially Protected Fauna) Notice 2018* for endangered fauna or the *Wildlife Conservation (Rare Flora) Notice 2018* for endangered flora.

VU **Vulnerable species**

Threatened species considered to be "*facing a high risk of extinction in the wild in the medium-term future, as determined in accordance with criteria set out in the ministerial guidelines*".

Listed as vulnerable under section 19(1)(c) of the BC Act in accordance with the criteria set out in section 22 and the ministerial guidelines. Published under schedule 3 of the *Wildlife Conservation (Specially Protected Fauna) Notice 2018* for vulnerable fauna or the *Wildlife Conservation (Rare Flora) Notice 2018* for vulnerable flora.

Extinct Species:

EX **Extinct species**
Species where "*there is no reasonable doubt that the last member of the species has died*", and listing is otherwise in accordance with the ministerial guidelines (section 24 of the BC Act).

Published as presumed extinct under schedule 4 of the *Wildlife Conservation (Specially Protected Fauna) Notice 2018* for extinct fauna or the *Wildlife Conservation (Rare Flora) Notice 2018* for extinct flora.

EW **Extinct in the wild species**
Species that *"is known only to survive in cultivation, in captivity or as a naturalised population well outside its past range; and it has not been recorded in its known habitat or expected habitat, at appropriate seasons, anywhere in its past range, despite surveys over a time frame appropriate to its life cycle and form*", and listing is otherwise in accordance with the ministerial guidelines (section 25 of the BC Act).

Currently there are no threatened fauna or threatened flora species listed as extinct in the wild. If listing of a species as extinct in the wild occurs, then a schedule will be added to the applicable notice.

Specially protected species:

Listed by order of the Minister as specially protected under section 13(1) of the BC Act. Meeting one or more of the following categories: species of special conservation interest; migratory species; cetaceans; species subject to international agreement; or species otherwise in need of special protection.

Species that are listed as threatened species (critically endangered, endangered or vulnerable) or extinct species under the BC Act cannot also be listed as Specially Protected species.

MI **Migratory species**
Fauna that periodically or occasionally visit Australia or an external Territory or the exclusive economic zone; or the species is subject of an international agreement that relates to the protection of migratory species and that binds the Commonwealth; and listing is otherwise in accordance with the ministerial guidelines (section 15 of the BC Act).

Includes birds that are subject to an agreement between the government of Australia and the governments of Japan (JAMBA), China (CAMBA) and The Republic of Korea (ROKAMBA), and fauna subject to the *Convention on the Conservation of Migratory Species of Wild Animals* (Bonn Convention), an environmental treaty under the United Nations Environment Program. Migratory species listed under the BC Act are a subset of the migratory animals, that are known to visit Western Australia, protected under the international agreements or treaties, excluding species that are listed as Threatened species.

Published as migratory birds protected under an international agreement under schedule 5 of the *Wildlife Conservation (Specially Protected Fauna) Notice 2018*.

CD **Species of special conservation interest (conservation dependent fauna)**
Fauna of special conservation need being species dependent on ongoing conservation intervention to prevent it becoming eligible for listing as threatened, and listing is otherwise in accordance with the ministerial guidelines (section 14 of the BC Act).

Published as conservation dependent fauna under schedule 6 of the *Wildlife Conservation (Specially Protected Fauna) Notice 2018*.

OS **Other specially protected species**
Fauna otherwise in need of special protection to ensure their conservation, and listing is otherwise in accordance with the ministerial guidelines (section 18 of the BC Act).

Published as other specially protected fauna under schedule 7 of the *Wildlife Conservation (Specially Protected Fauna) Notice 2018*.

P **Priority species:**

Possibly threatened species that do not meet survey criteria, or are otherwise data deficient, are added to the Priority Fauna or Priority Flora Lists under Priorities 1, 2 or 3. These three categories

are ranked in order of priority for survey and evaluation of conservation status so that consideration can be given to their declaration as threatened fauna or flora.

Species that are adequately known, are rare but not threatened, or meet criteria for near threatened, or that have been recently removed from the threatened species or other specially protected fauna lists for other than taxonomic reasons, are placed in Priority 4. These species require regular monitoring.

Assessment of Priority codes is based on the Western Australian distribution of the species, unless the distribution in WA is part of a contiguous population extending into adjacent States, as defined by the known spread of locations.

P1 **Priority One - Poorly-known species**
Species that are known from one or a few locations (generally five or less) which are potentially at risk. All occurrences are either: very small; or on lands not managed for conservation, e.g. agricultural or pastoral lands, urban areas, road and rail reserves, gravel reserves and active mineral leases; or otherwise under threat of habitat destruction or degradation. Species may be included if they are comparatively well known from one or more locations but do not meet adequacy of survey requirements and appear to be under immediate threat from known threatening processes. Such species are in urgent need of further survey.

P2 **Priority Two - Poorly-known species**
Species that are known from one or a few locations (generally five or less), some of which are on lands managed primarily for nature conservation, e.g. national parks, conservation parks, nature reserves and other lands with secure tenure being managed for conservation. Species may be included if they are comparatively well known from one or more locations but do not meet adequacy of survey requirements and appear to be under threat from known threatening processes. Such species are in urgent need of further survey.

P3 **Priority Three - Poorly-known species**
Species that are known from several locations, and the species does not appear to be under imminent threat, or from few but widespread locations with either large population size or significant remaining areas of apparently suitable habitat, much of it not under imminent threat. Species may be included if they are comparatively well known from several locations but do not meet adequacy of survey requirements and known threatening processes exist that could affect them. Such species are in need of further survey.

P4 **Priority Four - Rare, Near Threatened and other species in need of monitoring**
(a) Rare. Species that are considered to have been adequately surveyed, or for which sufficient knowledge is available, and that are considered not currently threatened or in need of special protection but could be if present circumstances change. These species are usually represented on conservation lands.
(b) Near Threatened. Species that are considered to have been adequately surveyed and that are close to qualifying for vulnerable but are not listed as Conservation Dependent.
(c) Species that have been removed from the list of threatened species during the past five years for reasons other than taxonomy.

Principles for clearing native vegetation:

(a) Native vegetation should not be cleared if it comprises a high level of biological diversity.

(b) Native vegetation should not be cleared if it comprises the whole or a part of, or is necessary for the maintenance of, a significant habitat for fauna.

(c) Native vegetation should not be cleared if it includes, or is necessary for the continued existence of, threatened flora.

(d) Native vegetation should not be cleared if it comprises the whole or a part of, or is necessary for the maintenance of a threatened ecological community.

(e) Native vegetation should not be cleared if it is significant as a remnant of native vegetation in an area that has been extensively cleared.

(f) Native vegetation should not be cleared if it is growing in, or in association with, an environment associated with a watercourse or wetland.

(g) Native vegetation should not be cleared if the clearing of the vegetation is likely to cause appreciable land degradation.

(h) Native vegetation should not be cleared if the clearing of the vegetation is likely to have an impact on the environmental values of any adjacent or nearby conservation area.

(i) Native vegetation should not be cleared if the clearing of the vegetation is likely to cause deterioration in the quality of surface or underground water.

(j) Native vegetation should not be cleared if the clearing of the vegetation is likely to cause, or exacerbate, the incidence or intensity of flooding.