

1. Application details and outcomes

1.1. Permit application details

Permit number:	3143/5
Permit type:	Purpose Permit
Applicant name:	St Ives Gold Mining Company Pty Ltd
Application received:	4 June 2024
Application area:	220 hectares
Purpose of clearing:	Mineral Production and Associated Activities
Method of clearing:	Mechanical Removal
Tenure:	Mining Lease 15/475 Mining Lease 15/476 Mining Lease 15/1560 Mining Lease 15/1561 Mining Lease 15/1595 Mining Lease 15/1596 Mining Lease 15/1638 Mining Lease 15/1639 Mining Lease 15/1652 Mining Lease 15/1710 Miscellaneous Licence 15/145
Location (LGA area/s):	Shire of Coolgardie
Colloquial name:	Athena Complex Mining Project

1.2. Description of clearing activities

St Ives Gold Mining Company Pty Ltd proposes to clear up to 220 hectares of native vegetation within a boundary of approximately 653 hectares, for the purpose of mineral production and associated activities. The project is located approximately 24 kilometres south-east of Kambalda, within the Shire of Coolgardie.

Clearing permit CPS 3143/1 was granted by the Department of Mines and Petroleum (now the Department of Energy, Mines, Industry Regulation and Safety) on 30 July 2009 and was valid from 29 August 2009 to 31 July 2014. The permit authorised the clearing of up to 220 hectares of native vegetation within a boundary of approximately 653 hectares, for the purpose of mineral production and associated activities.

CPS 3143/2 was granted on 30 June 2011, amending the permit to change the annual reporting date from 31 July to 31 January each year, and to extend the duration of the permit by one year.

CPS 3143/3 was granted on 29 January 2015, amending the permit to extend the permit duration by five years, to 31 January 2020.

CPS 3143/4 was granted on 14 November 2019, amending the permit to extend the permit duration by five years, to 31 January 2025.

On 4 June 2024, the Permit Holder applied to amend CPS 3143/4 to extend the permit duration by five years, to 31 January 2030.

According to the latest annual clearing report, 93.71 hectares had been cleared as of December 2023 under this clearing permit (St Ives Gold Mining Company Pty Ltd, 2024a).

1.3. Decision on application and key considerations

Decision:	Grant
Decision date:	30 January 2025
Decision area:	220 hectares of native vegetation

1.4. Reasons for decision

This clearing permit application was submitted, accepted, assessed, and determined in accordance with sections 51KA and 51O of the *Environmental Protection Act 1986* (EP Act). The Department of Energy, Mines, Industry Regulation and Safety (DEMIRS) advertised the application for a public comment for a period of 7 days, and no submissions were received.

In making this decision, the Delegated Officer had regard for the site characteristics (Appendix B), relevant datasets (Appendix F), additional information provided by the applicant (Appendix A), including the results of flora and vegetation, and fauna surveys (Anditi Pty Ltd, 2020, 2022; Keith Lindbeck and Associates, 2009; Appendix F), the clearing principles set out in Schedule 5 of the EP Act (Appendix C), proposed avoidance and minimisation measures (Section 3.1), relevant planning instruments and any other matters considered relevant to the assessment (Section 3.3).

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;
- impacts to conservation significant flora;
- impacts to conservation significant fauna;
- the loss of native vegetation that is suitable habitat for conservation significant fauna; and
- potential indirect impacts to the adjacent claypans.

After consideration of the available information, as well as the applicant's minimisation and mitigation measures (Section 3.1), the Delegated Officer determined the proposed 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;
- a pre-clearance survey condition for conservation significant flora;
- undertake slow, progressive one-directional clearing to allow terrestrial fauna to move into adjacent habitat ahead of the clearing activity;
- commence activities no later than three months after undertaking clearing to reduce the risk of erosion; and
- a pre-clearance survey condition for malleefowl and arid bronze azure butterfly.

The assessment has not changed since the assessment for CPS 3143/4, except in the case of principle (a) and principle (b), which have changed in light of updated information on species, guidance documents (Appendix F), and records (Section 3.2.1; Section 3.2.2; Appendix B).

The Delegated Officer determined that the proposed extension of duration is not likely to lead to an unacceptable risk to environmental values.

1.5. Site map

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

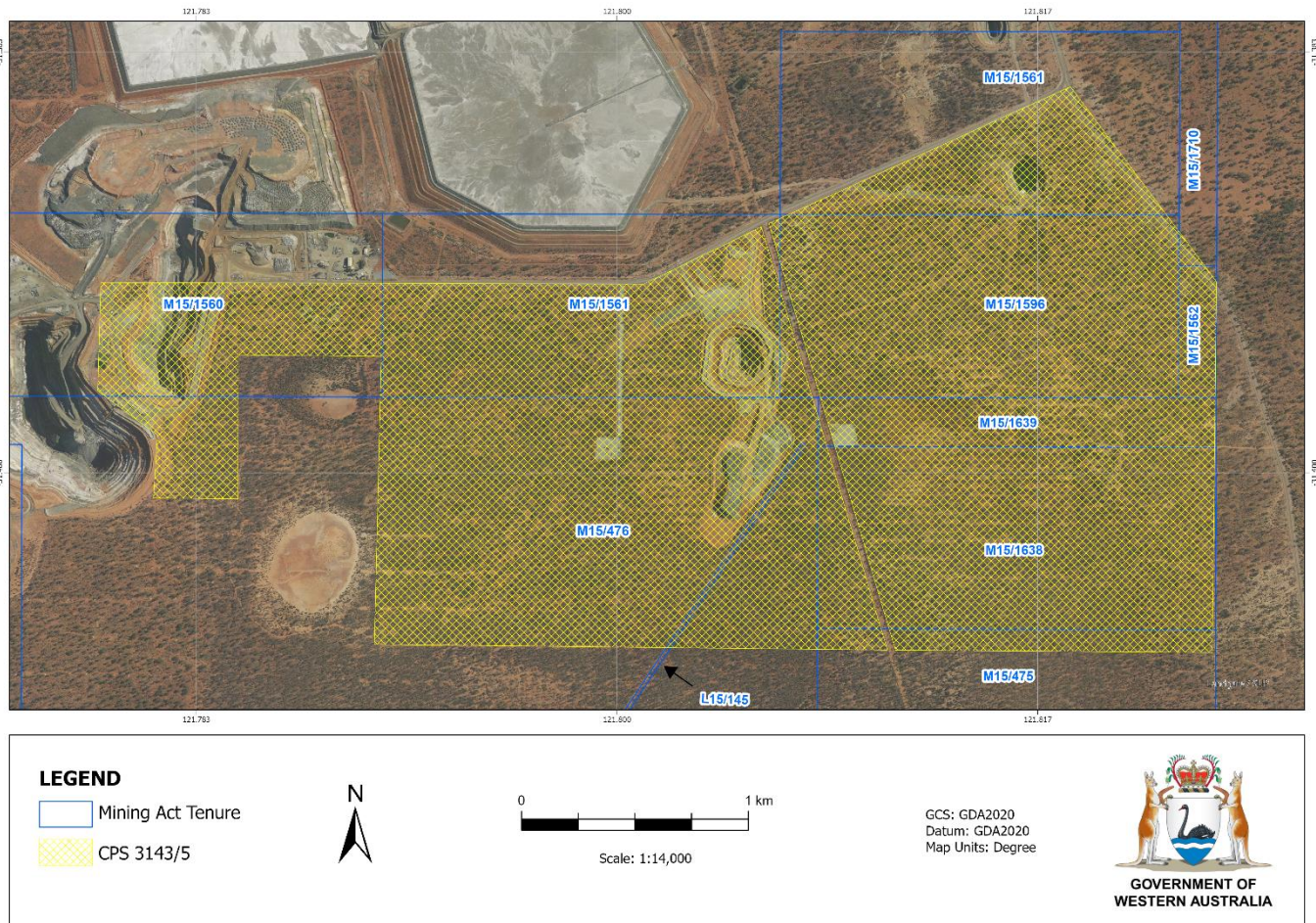


Figure 1. Map of the application area. The yellow area indicates the area within which conditional authorised clearing can occur under the granted clearing permit.

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 (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)
- *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)

Relevant agreements (treaties) considered during the assessment include:

- Japan-Australia Migratory Bird Agreement

The key guidance documents which inform this assessment are:

- *A guide to the assessment of applications to clear native vegetation* (DER, December 2014)
- *Procedure: Native vegetation clearing permits* (DWER, October 2021)
- *Guidance for the Assessment of Environmental Factors – Terrestrial Fauna Surveys for Environmental Impact Assessment in Western Australia* (EPA, 2004a)
- *Guidance for the Assessment of Environmental Factors – Terrestrial Flora and Vegetation Surveys for Environmental Impact Assessment in Western Australia* (EPA, 2004b)
- *Technical guidance – Flora and Vegetation Surveys for Environmental Impact Assessment* (EPA, 2016a)
- *Technical guidance – Terrestrial Fauna Surveys for Environmental Impact Assessment* (EPA, 2016b)

- Technical guidance – *Terrestrial Fauna Surveys for Environmental Impact Assessment* (EPA, 2020)

3. Detailed assessment of application

3.1. Avoidance and mitigation measures

St Ives Gold Mining Company Pty Ltd noted the following avoidance and mitigation measures in their application for this amendment (St Ives Gold Mining Company Pty Ltd, 2024b):

- Ongoing identification and avoidance of any potential protected species, using existing surveys and pre-clearance inspections.
- Potential retention of cleared vegetation and timber for beneficial reuses as part of local forestry schemes where possible.

Although commitments have been made, the Delegated Officer was not satisfied that all reasonable efforts had been made to avoid and minimise potential impacts of the proposed clearing on environmental values, due to operating in the context of outdated biodiversity knowledge and potential risks to environmental values.

Potential impacts associated with avoidance and mitigation measures will be addressed in the conditions implement on this permit.

Potential impacts from the proposed clearing of native vegetation will be addressed through additional conditions on the permit

3.2. Assessment of impacts on environmental values

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

A review of current environmental information (Appendix B; Appendix C) reveals that the assessment against the clearing principles has not changed significantly from the Clearing Permit Decision Report CPS 3143/4, however updated information on flora and fauna species has been incorporated into this assessment.

The assessment against the clearing principles with this current information identified that the impacts of the proposed clearing present a risk to biological values (fauna and flora). The consideration of these impacts, and the extent to which they can be managed through conditions applied in line with sections 51H and 51I of the EP Act, is set out below.

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

Assessment

A reconnaissance flora and vegetation survey was conducted over the majority of the application area (Appendix E) by Botanica Consulting on 24 September 2008 and 21 October 2008 (Keith Lindbeck and Associates, 2009; GIS Database). No threatened or priority flora species were recorded during the 2008 flora survey (Keith Lindbeck and Associates, 2009). The survey recorded 90 species from 43 genera and 24 families and revealed the application area to be diverse in flora species, however, these species were not restricted to the application area and occurred throughout the region (Keith Lindbeck and Associates, 2009).

The flora and vegetation survey identified five vegetation communities, which ranged from 'excellent' to 'good' condition. The disturbance which reduced the quality of the vegetation condition in the area was mostly due to mining and exploration activities (Keith Lindbeck and Associates, 2009). All five vegetation communities in the application area were identified as *Eucalyptus* woodland, noted for high species and ecosystem diversity in the Eastern Goldfields bioregion (CALM, 2002).

Field surveys have not been undertaken over the application area since the 2008 survey and in addition, the surveyed area did not cover the entirety of the application area (Keith Lindbeck and Associates, 2009; GIS Database).

A review of available databases revealed no records of threatened flora species within 50 kilometres of the application area and records of 15 priority flora species within 20 kilometres of the application area (GIS Database). Table B.3 contains a list of the conservation significant priority flora species recorded within 20 kilometres of the application area that have potential to be present within the application area (DPIRD, 2024; Western Australian Herbarium, 1998-; GIS Database). While none of these species have been recorded within the application area, a desktop assessment of available information including presence of suitable habitat, proximity and distribution of known records, the age of the survey (seventeen years old) and the level of the survey undertaken (reconnaissance), indicate that there is potential for these species to occur within the application area. A number of these species don't appear to have been considered or considered as possible to occur during the 2008 survey, including species that weren't previously described.

Given the age of the survey, the presence of these species within the application area is unverified and therefore the risk to these species is unknown. If present, clearing of individuals of these species could significantly impact the species at a local scale and potentially at a regional scale. Potential impacts from the proposed clearing may be managed by implementing a flora management condition requiring pre-clearance flora surveys to be undertaken prior to any clearing.

Introduced flora

Two weed species were recorded within the application area in 2008 (Keith Lindbeck and Associates, 2009). Neither of the species are listed as Weeds of National Significance or declared pest plants in Western Australia under the *Biosecurity and Agriculture Management Act 2007*, however weeds have potential to outcompete native flora and reduce biodiversity of an area. Potential impacts to biodiversity as a result of the proposed clearing may be minimised by maintaining the weed management condition.

Conclusion

For the reasons set out above, it is considered that the potential impacts of the proposed clearing on conservation significant flora can be managed by taking steps to minimise the risk of the introduction and spread of weeds, undertake appropriate targeted flora surveys prior to clearing, and implementing buffers to avoid conservation significant flora.

Conditions

To address the above impacts, the following management measures will be required as conditions on the clearing permit:

- take hygiene steps to minimise the risk of the introduction and spread of weeds;
- pre-clearance flora surveys for conservation significant flora; and
- no clearing occurs within 10 metres of identified priority flora.

3.2.2. Biological values (fauna) - Clearing Principles (a) and (b)

Assessment

A level 1 fauna survey was conducted over the majority of the application area by Keith Lindbeck and Associates on 24 September 2008 (Keith Lindbeck and Associates, 2009; GIS Database). The survey was conducted in accordance with the Environmental Protection Authority (EPA) Position Statement No. 3 and Guidance Statement 56: 'Terrestrial Fauna Surveys for Environmental Impact Assessment in Western Australia' (EPA, 2002; 2004a). The survey identified two broad habitat types within the application area (Keith Lindbeck and Associates, 2009): Eucalypt woodland over spinifex; and Eucalypt woodland over shrubs. Large tracts of similar, yet undisturbed habitat were present within the local and regional area (Keith Lindbeck and Associates, 2009). The survey recorded one amphibian, 52 reptiles, three mammals, and seven bird species within the application area and surrounds and noted that the local area appears to be diverse in reptile species.

The survey report identified 20 fauna species of conservation significance that had the potential to occur within the application area (Keith Lindbeck and Associates, 2009). Of these 20 species, only two were identified in the report and previous assessments of the clearing permit as likely to utilise the surveyed area (Keith Lindbeck and Associates, 2009). These species were:

- Malleefowl (*Leipoa ocellata* - VU); and
- Rainbow Bee-eater (*Merops ornatus*).

Malleefowl

Malleefowl (*Leipoa ocellata*, VU) is a large ground-dwelling bird that occurs in a range of habitat types, primarily found in semi-arid to arid shrublands and low woodlands (3-8 metres in height) dominated by mallee and associated habitats (Commonwealth of Australia, 2008). The nest is constructed in sandy soils and leaf litter by building a large mound for egg incubation (Commonwealth of Australia, 2008). This species favours mallee that has been long unburnt and ungrazed (Commonwealth of Australia, 2008). While the application area does contain some disturbances, there are areas that remain uncleared (GIS Database).

Suitable habitat for malleefowl is present within the application area and the species is known to occur within the local area. The nearest recorded malleefowl mound from available databases is located approximately 25 kilometres away, this record and other malleefowl records are connected to the application area by contiguous habitat (GIS Database). While no malleefowl mounds or tracks were identified during the one day level 1 fauna survey, the survey report noted that preferred habitat for this species was present and that malleefowl had a medium likelihood of occurrence. The survey report also recommended a targeted malleefowl search be conducted prior to disturbance (Keith Lindbeck and Associates, 2009).

Malleefowl mound LiDAR surveys were completed over the application area by Anditi Pty Ltd in January 2020 and early 2022, and field verifications were undertaken following these surveys in 2021, 2022, and 2023 (Anditi Pty Ltd, 2020, 2022; St Ives Gold Mining Company Pty Ltd, 2021, 2022, 2023). Results from these surveys and verifications indicate that malleefowl mounds are present in the general area, including one malleefowl mound recorded within the application area. This mound was recorded on 20 December 2023, with some eggshells present, and had not been recorded in the LiDAR surveys or any field verifications prior to December 2023. Given the above information, this indicates recent breeding had taken place within the application area. As malleefowl will renovate old mounds (Frith, 1959; and Benshemesh, 2007c as cited in DCCEE, 2024), each old mound is a potential site for breeding. In addition, malleefowl will also build new mounds (DCCEE, 2024). Therefore, regular monitoring for both old and new mounds should take place.

Given the above information, this species is likely utilising the application area for breeding and foraging and are therefore likely to be impacted by the proposed clearing. As breeding habitat is present within the application area, impacts to this species may be significant. Conditions aiming to minimise impact to malleefowl are present on the existing permit and this amendment will update the conditions to reflect current expectations in relation to this species.

Rainbow bee-eater

The rainbow bee-eater (*Merops ornatus*) is found across most of Australia and is said to be seasonally common and locally abundant throughout much of its range (Commonwealth of Australia, 2008). This species inhabits open forests and woodlands, shrublands and various cleared or semi-cleared habitats (Commonwealth of Australia, 2008). This species has been recorded near the application area and in the general area on BirdLife Australia's citizen science application, *Birddata* (BirdLife Australia, 2025). The application area contains potential habitat and is within the migratory route for this species, therefore it would not be unexpected for this species to use the application area as part of its migratory path (Commonwealth of Australia, 2008; Keith Lindbeck and Associates, 2009). Given this bird's migratory habits, the widespread nature of this species, and the expanse of

native vegetation surrounding the application area, it is unlikely that the proposed clearing will significantly impact the conservation status of this species.

It is noted that since the granting of CPS 3143/1, rainbow bee-eater (*Merops ornatus*) has since been removed from the list of migratory species under section 209 of the EPBC Act in 2016 and is no longer listed as a migratory bird by the Japan-Australia Migratory Bird Agreement (JAMBA). They are however listed as a marine species under section 248 of the EPBC Act.

It is noted that the biological surveys used to assess and inform the previous decision reports are dated, with the fauna survey undertaken in 2008. A desktop review of current information undertaken for this amendment assessment indicates potential for additional conservation significant species to utilise the proposed clearing area, including species not previously discussed in the assessment of CPS 3143/1 and subsequent amendments. Appendix B.4 contains a list of conservation significant fauna species recorded within 50 kilometres of the application area that have potential to be present in or nearby the application area (GIS Database). While none of these species have been recorded within the application area, the presence of suitable habitat, the proximity of records, a review of aerial imagery, the age of the survey (over fifteen years old), and the level of the survey undertaken (level 1) indicate there is potential for these species to occur within the application area.

The following species identified in Appendix B.4 warranted further discussion:

Arid bronze azure butterfly (ABAB)

Arid bronze azure butterfly (ABAB) (*Ogyris petrina*) is listed as Critically Endangered under the BC Act and the EPBC Act. ABAB populations are severely fragmented, restricted in geographic range and sensitive to clearing and habitat disturbance (DBCA, 2020). ABAB has an obligate association with sugar ant *Camponotus* sp. nr. *terebrans* (DBCA, 2020). Habitat where this species has previously been described is vegetation of mature mixed gimlet (*Eucalyptus salubris*), salmon gum (*Eucalyptus salmonophloia*) woodlands on red-brown loam soils, with an open understorey (DBCA, 2020).

ABAB have the potential to be present within the application area. The 2008 fauna survey report (Keith Lindbeck and Associates, 2009) stated that the distribution of this species was restricted to a small area northeast of Lake Douglas and that given the very limited range of this species it was unlikely to occur at the survey site. Further work on this species has revealed new populations and an expansion in the extent of occurrence (DBCA, 2024). The application area occurs within the mapped potential habitat area for ABAB's host ant (DBCA, 2020) and potentially suitable habitat is present in the form of Eucalypt woodlands (Keith Lindbeck and Associates, 2009). In the absence of suitable surveys, this species should be considered as having the potential to occur within the application area.

Given this butterfly is only known from two subpopulations in Western Australia (DBCA, 2024), if present, the proposed clearing has the potential to have a species level impact. Potential impacts to ABAB can be minimised with the implementation of a pre-clearance survey to determine presence of host ant and if present, avoidance of critical habitat.

Inland hairstreak butterfly

Inland hairstreak butterfly (*Jalmenus aridus*) is listed as priority 1 and is data deficient. Similarly to ABAB, the fauna survey report (Keith Lindbeck and Associates, 2009) noted that the distribution of this species was restricted to Lake Douglas, however further research on this species has expanded the extent of occurrence (Eastwood et al., 2023). Although available databases do not contain recent records for this species, recent research indicates at least ten locations within 100 kilometres of Kalgoorlie (Eastwood et al., 2023). The application area is located approximately 75 kilometres from Kalgoorlie (GIS Database).

This species' preferred habitat is open woodlands with *Senna artemisioides* subsp. *filifolia* and mixed flowering shrubs, including *Eremophila*, *Scaevola*, and *Maireana*, along with open areas of exposed ground and good drainage near older *Senna* shrubs (Eastwood et al., 2023). The flora survey (Keith Lindbeck and Associates, 2009) recorded species that form suitable habitat.

While potential habitat may be present in the application area, given the widespread nature of the preferred habitat in the local area the size of the proposed work, and the recent findings of new populations, if present in the application area this species is unlikely to be significantly impacted at a regional or species scale.

Western rosella (inland)

The western rosella inland subspecies (*Platycercus icterotis xanthogenys* – P4) occurs across the wheatbelt, where it has declined in range considerably since 1970 and is now a rare and uncommonly recorded species (Fox et al., 2016; Mawson and Long, 1995). This subspecies inhabits open eucalypt forest and eucalypt and sheoak woodlands and scrubs, and is more commonly recorded in areas with over 15% tree cover (BirdLife Australia, 2024b; DEC, 2009; Fox et al., 2016). These birds may move around the landscape depending on water and food availability, however during breeding they likely confine themselves to their breeding territories (Fox et al., 2016). Western rosellas nest in hollows, including in marri (*Corymbia calophylla*), wandoo (*Eucalyptus wandoo*), york gum (*Eucalyptus loxophleba*), flooded gum (*Eucalyptus grandis*) and salmon gum (*Eucalyptus salmonophloia*) (DEC, 2009).

The fauna survey report commented on the distance to the nearest reported records of these species being greater than 60 kilometres away as a reason for a low expected impact to this species, however this species has since been recorded within 38 kilometres of the application area (GIS Database). The location of this closer record is connected to the area by contiguous habitat and suitable habitat, including potential breeding, roosting, and foraging habitat, and is likely to be present in the application area (Keith Lindbeck and Associates, 2009; GIS Database). The 2008 survey report did not report on presence or absence of hollows within the application area and therefore the potential for breeding habitat is unknown, however given the tree species reported in the flora survey, potential breeding habitat is likely to be present (Keith Lindbeck and Associates, 2009). Research on the minimum dimensions of nest hollows preferred by western rosellas appears to be limited, however this bird has been recorded in nest hollows with a minimum internal width of 95 millimetres (Whitford, 2001). While the application area contains potentially suitable habitat for these species, it is unlikely these species will be significantly impacted at a species level, CPS 3143/5

however there is potential for it to be impacted at local and regional level. It is recommended that large trees be inspected for hollows prior to clearing and avoided where possible to avoid clearing any potential nesting or roosting habitat to minimise impacts to this species.

Risks to the fauna listed above, and other fauna likely to be in the area, can be further reduced by the implementation of a slow directional clearing condition to allow fauna to move into adjacent vegetation.

Conclusion

For the reasons set out above, it is considered that the impacts to potential habitat for several conservation significant fauna species can be managed by slow directional clearing to allow fauna to move into adjacent vegetation and a pre-clearance survey condition for malleefowl and ABAB.

Conditions

To address the above impacts, the following management measures will be required as conditions on the clearing permit:

- direction of clearing - undertake slow, progressive one-directional clearing to allow terrestrial fauna to move into adjacent habitat ahead of the clearing activity;
- a fauna management (malleefowl) condition is currently present on the permit, however this condition will be updated to reflect current expectations in relation to this species; and
- a fauna management (ABAB) condition requiring areas proposed to be cleared to be surveyed to identify critical habitat, ant colonies, and ABAB individuals and no clearing within 100 metres of ant colonies.

3.3. Relevant planning instruments and other matters

The clearing permit amendment application was advertised on 16 August 2024 by the Department of Energy, Mines, Industry Regulation and Safety inviting submissions from the public. No submissions were received in relation to this application.

There are two native title claims (WCD2014/004 – Ngadju and WCD2017/002 - Ngadju Part B) over the area under application (DPLH, 2024). These claims have been determined by the Federal Court on behalf of the claimant groups. 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 no registered Aboriginal Sites of Significance within the application area (DPLH, 2024). It is the proponent's responsibility to comply with the *Aboriginal Heritage Act 1972* and ensure that no Aboriginal Sites of Significance are damaged through the clearing process.

It is noted that the proposed clearing may impact on malleefowl (*Leipoa ocellata*, VU) and ABAB (*Ogyris petrina*) which are a protected matter under 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 and the Environment for further information regarding notification and referral responsibilities under the EPBC Act.

Other relevant authorisations required for the proposed land use include:

- A Programme of Work approved under the *Mining Act 1978*; and
- 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.

End

Appendix A. Additional information provided by applicant

Summary of comments	Consideration of comment
On 21 November 2024, the department requested spatial data showing the location of all disturbance that has been undertaken since CPS 3143/1 was originally granted.	The spatial data were provided per request of the Environmental Officer. It was used to assess Principles (a) and (b).
On 14 January 2024, the department requested survey reports and any other related information relating to malleefowl mound surveys undertaken since the granting of the initial clearing permit (CPS 3143/1) in relation to the imposed malleefowl condition. The annual clearing report for CPS 3143/4 for 2022 noted that a malleefowl mound LiDAR survey was completed by Anditi Pty Ltd in 2022. The Environmental Officer received this report on 15 January 2025 (Anditi Pty Ltd, 2022).	A 2022 LiDAR survey report for malleefowl mounds was provided. It was used to assess Principles (a) and (b).

Appendix B. Site characteristics

B.1. Site characteristics

Characteristic	Details
Local context	<p>The area proposed to be cleared is part of an expansive tract of native vegetation in the extensive land use zone of Western Australia. It is surrounded by native vegetation, mining operations, pastoral leases and rural townships (GIS Database). The proposed clearing area is approximately 2 kilometres east of Lake Lefroy at its closest point.</p> <p>The area is located within the Eastern Goldfield subregion of the Coolgardie Interim Biogeographic Regionalisation for Australia (IBRA) (GIS Database). This subregion is characterised by gently undulating plains interrupted in the west with low hills and ridges of Archaean greenstones and in the east by a horst of Proterozoic basic granulite. A series of large playa lakes in the western half are the remnants of an ancient major drainage line (CALM, 2002). At a broad scale, the vegetation can be described as mallees, <i>Acacia</i> thickets and shrubheaths on sandplains. Diverse <i>Eucalyptus</i> woodlands occur around salt lakes, on ranges, and in valleys. Salt lakes support dwarf shrublands of samphire (CALM, 2002).</p>
Ecological linkage	According to available databases the application area does not form part of a formally mapped ecological linkage (GIS Database). A review of aerial imagery and spatial data indicates no informal ecological linkages occur (GIS Database).
Conservation areas	<p>There are no conservation areas located within the area proposed to be cleared (GIS Database). The nearest conservation areas are:</p> <ul style="list-style-type: none"> • Kambalda Timber Reserve vested in the Conservation Commission of WA - located approximately 21 kilometres northwest of the application area; and • Kambalda Nature Reserve vested in the Conservation Commission of WA for the purpose of Conservation of Flora and Fauna - located approximately 22 kilometres northwest of the application area (GIS Database).
Vegetation description	<p>The vegetation of the application area is broadly mapped as the following Beard vegetation associations:</p> <ul style="list-style-type: none"> • 9: Medium woodland; coral gum (<i>Eucalyptus torquata</i>) and goldfields blackbutt (<i>Eucalyptus lesouefii</i>), (also some e10,11); and • 936: Medium woodland; salmon gum (GIS Database). <p>A flora and vegetation survey was conducted over the application area by Botanica Consulting during September and October 2008. The following five vegetation communities were recorded within the application area (Keith Lindbeck and Associates, 2009):</p> <ol style="list-style-type: none"> 1. <i>Eucalyptus</i> woodland over <i>Cratystylis conocephala</i>; 2. <i>Eucalyptus</i> woodland over <i>Triodia irritans</i>; 3. <i>Eucalyptus salmonophloia</i> open woodland over <i>Maireana sedifolia</i>; 4. <i>Eucalyptus salicola</i> over <i>Triodia irritans</i>; and 5. Rehabilitated tip area.

Characteristic	Details
Vegetation condition	<p>The vegetation survey (Keith Lindbeck and Associates, 2009) indicates the vegetation within the proposed clearing area is in Good to Excellent (Keighery, 1994) condition, described as</p> <ul style="list-style-type: none"> • Excellent: Vegetation structure intact, with disturbance affecting individual species; weeds are non-aggressive species. • Very good: Vegetation structure altered, with obvious signs of disturbance. For example, disturbance to vegetation structure caused by repeated fires, the presence of some more aggressive weeds, dieback, logging and/or grazing. • Good: Vegetation structure significantly altered by very obvious signs of multiple disturbances. Retains basic vegetation structure or ability to regenerate it. For example, disturbance to vegetation structure caused by very frequent fires, the presence of some very aggressive weeds at high density, partial clearing, dieback and/or grazing. <p>The full Keighery (1994) condition rating scale is provided in Appendix D.</p> <p>The survey noted that the disturbance to the vegetation area was due to historical mining activities, exploration activities, tracks, and rehabilitation (Keith Lindbeck and Associates, 2009).</p> <p>Two weed species were recorded within the application area: Ice Plant (<i>Mesembryanthemum crystallinum</i>) and <i>Oncosiphon suffruticosum</i> (Keith Lindbeck and Associates, 2009).</p>
Climate and landform	<p>The climate of the Eastern Goldfields IBRA subregion is described as arid to semi-arid, with mainly winter rainfall (CALM, 2002). The nearest weather station (Coolgardie, WA) recorded an average rainfall of approximately 265.4 millimetres per year (BoM, 2024).</p> <p>The application area is mapped with an elevation of 300 metres AHD (GIS Database).</p> <p>The application area is located within the Kambalda Soil-Landscape Zone (Tille, 2006). This zone is characterised by flat to undulating plains (with hills, ranges and some salt lakes and stony plains) on greenstone and granitic rocks of the Yilgarn Craton (Tille, 2006).</p> <p>Four land units were identified within the application area (Keith Lindbeck and Associates, 2009):</p> <ol style="list-style-type: none"> 1. Sandy sheets – level to gently undulating plains; 2. Dunes – ill-defined linear sandy rises, crests and dunes up to 8 metres above the sandy sheets, becoming more distinct near margins with adjacent salt lake systems; 3. Loamy plains – level to very gently inclined plains slightly lower than sandy sheets; and 4. Claypans – level pans and drainage foci usually circular or oval and up to 2 kilometres in extent.
Soil description	<p>The soil is mapped as:</p> <ul style="list-style-type: none"> • Lakeside system (265Ls): Sandplains with occasional sand dunes and prominent claypans, supporting mallee eucalypts and spinifex; • Gumland system (265Gm): Extensive pedepains supporting eucalypt woodlands with halophytic and non-halophytic shrub understoreys; • Gumland system Disturbed terrain Mine (265GmX_MIN): Disturbed area, mines, mullock dumps etc.; • Moriarty system (265Mo): Low greenstone rises and stony plains supporting chenopod shrublands with patchy eucalypt overstoreys; and • Moriarty system Disturbed terrain Mine (265MoX_MIN): Disturbed area, mines, mullock dumps etc.
Land degradation risk	<p>The erosion hazard of the soils within the land units present (sandy sheets, dunes, loamy plains and claypans) range from low to moderate (Keith Lindbeck and Associates, 2009).</p> <p>The geomorphology of the Lakeside system is depositional surfaces; elongated, curved lunettes and occasional dunes of less than 8 metres flanking adjacent playas; gently undulating to level sand sheets, typically forming back slopes of lunettes; minor loamy plains; no organised drainage pattern (Waddell and Galloway, 2023). Loss of stabilising perennial vegetation may exacerbate wind erosion of sandy surfaces in this system (Waddell and Galloway, 2023).</p> <p>The geomorphology of the Gumland system is depositional surfaces; alluvial plains in broad, level valleys, typically receiving flow from greenstone hills; loamy plains; restricted areas of slightly more elevated stony surfaces and plains with fine gravelly ironstone mantles; central drainage tracts receiving concentrated through flow; occasional drainage foci typically occurring as very gently inclined alluvial fans or level to subsided drainage sumps (Waddell and Galloway, 2023). Alluvial plains, drainage tracts and alluvial fan or drainage focus in the Gumland system are susceptible to erosion if perennial shrub cover is substantially reduced. Footslopes are also susceptible to erosion if protective mantles are disturbed (Waddell and Galloway, 2023).</p>

Characteristic	Details
	<p>The geomorphology of the Moriarty system is erosional and depositional surfaces; low rises (relief up to 20 metres, but typically less); gently undulating stony plains and gently inclined footslopes with stony mantles adjacent to uplands; gently inclined to level loamy sheetwash plains often with a mantle of fine ironstone gravel; very gently inclined alluvial fans and level alluvial plains; sparse drainage tracts (Waddell and Galloway, 2023). The slopes of low rises without protective stone mantles, alluvial plains, and narrow drainage tracts in this land system are moderately susceptible to water erosion if perennial shrub cover is substantially reduced or the soil surface is disturbed (Waddell and Galloway, 2023).</p> <p>The pH of the surface soil within the application area is 5.5 – 6.5 and there has been no known occurrence of acid sulphate soils (CSIRO, 2009). An adjacent clay pan area identified by Botanica Consulting as being the '<i>Melaleuca</i> thicket surrounding clay pan' vegetation type, which has a high probability of acid sulphate soil occurrence (CSIRO, 2009; Keith Lindbeck and Associates, 2009), however this is unlikely to impact the application area.</p> <p>Between 1966 and 2016, the application area had an annual average evaporation rate of which is approximately 10 times the annual average rainfall (BoM, 2024; GIS Database).</p>
Waterbodies	<p>The desktop assessment and aerial imagery indicated that there are no watercourses or wetlands within the area proposed to be cleared (GIS Database).</p> <p>The application area is directly adjacent to two minor, non-perennial lakes/claypans. Botanica Consulting identified the vegetation associated with these two waterbodies as '<i>Melaleuca</i> thicket surrounding clay pan' (Keith Lindbeck and Associates, 2009).</p> <p>The application area is approximately 1.6 kilometres east of Lake Lefroy, a large salt lake, at its closest point (GIS Database).</p>
Hydrogeography	<p>The application area is part of the <i>Rights in Water and Irrigation Act 1914</i> (RIWI Act) Goldfields Groundwater Area (GIS Database). The application area is not within any Public Drinking Water Source Areas (PDWSA) (GIS Database).</p> <p>Groundwater at the St Ives Gold mine is hypersaline with typical salinities ranging between 150,000 and 400,000 mg/L TDS and a pH range of 6.0 to 8.0 (Keith Lindbeck and Associates, 2009).</p>
Flora	<p>A review of available databases revealed zero records of threatened flora species within 50 kilometres of the application area and records of 15 priority flora species within 20 kilometres of the application area (GIS Database).</p> <p>Botanica Consulting conducted a flora and vegetation survey within the application area in September and October 2008. No threatened or priority flora species were recorded during the 2008 flora survey (Keith Lindbeck and Associates, 2009).</p>
Ecological communities	<p>There are no known records of threatened ecological communities (TECs) or priority ecological communities (PECs) within the application area (GIS Database). The nearest known ecological community is a PEC, located approximately 43 kilometres southeast of the application area (GIS Database).</p>
Fauna	<p>There are eight conservation significant fauna species that have the potential to occur within the application area (Keith Lindbeck and Associates, 2009; GIS Database). A secondary sign of a threatened species (malleefowl mound) was recorded in the application area (St Ives Gold Mining Company Pty Ltd, 2023)</p>
Fauna habitat	<p>The survey identified two broad habitat types within the application area (Keith Lindbeck and Associates, 2009):</p> <ol style="list-style-type: none"> 1. Eucalypt woodland over spinifex; and 2. Eucalypt woodland over shrubs.

B.2. Vegetation extent

	Pre-European area (ha)	Current extent (ha)	Extent remaining (%)	Current extent in all DBCA managed land (ha)	Current extent in all DBCA Managed Land (proportion of pre-European extent) (%)

IBRA Bioregion - Coolgardie	12,912,204.35	12,648,491.39	97.96	2,114,349.37	16.37
Beard vegetation associations - State					
Veg Assoc No. 9	240,509.33	235,161.94	97.78	18,984.28	7.89
Veg Assoc No. 936	698,752.00	676,689.18	96.84	28,010.13	4.01
Beard vegetation associations – Bioregion (Coolgardie)					
Veg Assoc No. 9	240,441.99	235,100.97	97.78	18,984.28	7.90
Veg Assoc No. 936	586,792.23	584,336.14	99.58	18,103.64	3.09

Government of Western Australia (2019)

B.3. Flora analysis table

With consideration for the site characteristics set out above, relevant datasets (Appendix F.1), and biological survey information (Keith Lindbeck and Associates, 2009; Western Australian Herbarium, 1998-; GIS Database), impacts to the following conservation significant flora required further consideration.

Species name	Conservation status	Suitable habitat features? [Y/N]	Distance of closest record to application area (km)	Number of known records from Florabase
<i>Chrysocephalum apiculatum</i> subsp. <i>norsemanense</i>	P3	Y	<10	18
<i>Eremophila perglandulosa</i>	P1	Y	<20	8
<i>Eremophila praecox</i>	P2	Y	<12	50
<i>Eucalyptus x brachyphylla</i>	P4	Y	<17	24
<i>Phlegmatospermum eremaeum</i>	P3	Y	<16	18
<i>Pityrodia scabra</i> subsp. <i>dendrotricha</i>	P3	Y	<8	27
<i>Prostanthera splendens</i>	P1	Y	<12	13
<i>Sowerbaea multicaulis</i>	P4	Y	<15	22
<i>Trachymene pyrophila</i>	P2	Y	<13	10
<i>Xanthoparmelia xanthomelanoides</i>	P2	Y	<20	5

T: threatened, CR: critically endangered, EN: endangered, VU: vulnerable, P: priority

B.4. Fauna analysis table

The following conservation significant fauna species have records within a 50 kilometre radius of the application area, or habitat modelling has indicated the species may occur (GIS Database). Habitat suitability, likelihood of occurrence, and impact was determined utilising a range of sources, and each species known distribution and habitat preferences were evaluated and compared to the available fauna habitats within the application area (BirdLife Australia, 2024a, 2024b; Commonwealth of Australia, 2008; DBCA, 2020; DCCEEW, 2024; Eastwood, 2024; Keith Lindbeck and Associates, 2009; Menkhorst, 2010, 2017; St Ives Gold Mining Company Pty Ltd, 2023; GIS Database).

Species name	Common name	Conservation status	Suitable habitat features? [Y/N]	Distance of closest record to application area (km)	Comment
BIRDS					
<i>Calidris acuminata</i>	Sharp-tailed sandpiper	MI	N	25	Suitable habitat not present in application area.
<i>Falco peregrinus</i>	Peregrine falcon	OS	Y	23	Found in most habitats, from rainforests to the arid zone, and at most altitudes, from the coast to alpine areas. It requires abundant prey and secure nest sites and prefers coastal and inland cliffs or open woodlands near water. Given the species' highly dispersal nature and lack of preferred habitat within the application area, the proposed clearing is unlikely to lead to a significant impact.
<i>Leipoa ocellata</i>	Malleefowl	VU	Y	Within application area	Malleefowl mound recorded within application area in a 2023 field verification survey. Determined to have a medium likelihood of occurrence during 2008 survey. Suitable habitat present. Further discussion in Section 3.2.2.
<i>Merops ornatus</i>	Rainbow bee-eater	Marine	Y	N/A	Determined to have a medium likelihood of occurrence during 2008 survey as within migratory route. Suitable habitat present. Further discussion in Section 3.2.2.
<i>Platycercus icterotis xanthogenys</i>	Western rosella (inland)	P4	Y	38	Discussed in Section 3.2.2.
INVERTEBRATES					
<i>Branchinella basispina</i>	A fairy shrimp (Balladonia-Norseman)	P3	N	50	Suitable habitat not present in application area.
<i>Jalmenus aridus</i>	Inland hairstreak butterfly	P1	Y	73	Discussed in Section 3.2.2.
<i>Ogyris petrina</i>	Arid bronze azure butterfly (ABAB)	CR	Y	68	Discussed in Section 3.2.2.
MAMMALS					
<i>Dasyurus geoffroii</i>	Chuditch, western quoll	VU	Y	26	The nearest record is from 1974. There are no recent records within 100 kilometres of the site in available databases. The application area is approximately 70-80 kilometres outside of the current estimated distribution for this species. While suitable habitat is present on site, the proposed clearing is unlikely to have a significant impact on this species.

Species name	Common name	Conservation status	Suitable habitat features? [Y/N]	Distance of closest record to application area (km)	Comment
<i>Phascogale calura</i>	Red-tailed phascogale, kenngoor	CD	Y	31	While this record is from 2005, the certainty of the record is "uncertain" and the application area is currently outside the known current range for this species. The record is likely to be an outlier. It is unlikely that the proposed clearing will significantly impact this species.

T: threatened, CR: critically endangered, EN: endangered, VU: vulnerable, P: priority

Appendix C. Assessment against the clearing principles

Assessment against the clearing principles	Variance level	Is further consideration required?
Environmental value: biological values		
<p><u>Principle (a):</u> <i>"Native vegetation should not be cleared if it comprises a high level of biodiversity."</i></p> <p><u>Assessment:</u></p> <p>The area proposed to be cleared contains potential habitat for conservation significant flora and fauna.</p>	<p>May be at variance</p> <p>(changed from CPS 3143/4)</p>	<p>Yes</p> <p><i>Refer to Section 3.2.1 and 3.2.2, above.</i></p>
<p><u>Principle (b):</u> <i>"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."</i></p> <p><u>Assessment:</u></p> <p>The area proposed to be cleared contains potential foraging, roosting, and breeding habitat for conservation significant fauna.</p>	<p>At variance</p> <p>(changed from CPS 3143/4)</p>	<p>Yes</p> <p><i>Refer to Section 3.2.2, above.</i></p>
<p><u>Principle (c):</u> <i>"Native vegetation should not be cleared if it includes, or is necessary for the continued existence of, threatened flora."</i></p> <p><u>Assessment:</u></p> <p>Given the results of the desktop assessment and flora survey, the area proposed to be cleared is unlikely to contain habitat for threatened flora species listed under the BC Act.</p>	<p>Not likely to be at variance</p> <p>(as per CPS 3143/4)</p>	<p>No</p>
<p><u>Principle (d):</u> <i>"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."</i></p> <p><u>Assessment:</u></p> <p>There are no known threatened ecological communities (TECs) located within or in close proximity to the application area or original application area (GIS Database). A flora and vegetation assessment of the area did not identify any TECs (Keith Lindbeck and Associates, 2009). The vegetation present is unlikely to be necessary to maintain a TEC.</p>	<p>Not likely to be at variance</p> <p>(as per CPS 3143/4)</p>	<p>No</p>
Environmental value: significant remnant vegetation and conservation areas		
<p><u>Principle (e):</u> <i>"Native vegetation should not be cleared if it is significant as a remnant of native vegetation in an area that has been extensively cleared."</i></p> <p><u>Assessment:</u></p> <p>The extent of the mapped vegetation type is consistent with the national objectives and targets for biodiversity conservation in Australia (Commonwealth of Australia, 2001). The vegetation proposed to be cleared is not considered to be part of a significant ecological linkage in the local area.</p>	<p>Not at variance</p> <p>(as per CPS 3143/4)</p>	<p>No</p>
<p><u>Principle (h):</u> <i>"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></p> <p><u>Assessment:</u></p> <p>Given the distance to the nearest conservation area, the proposed clearing is not likely to have an impact on the environmental values of nearby conservation areas.</p>	<p>Not likely to be at variance</p> <p>(as per CPS 3143/4)</p>	<p>No</p>
Environmental value: land and water resources		
<p><u>Principle (f):</u> <i>"Native vegetation should not be cleared if it is growing in, or in association with, an environment associated with a watercourse or wetland."</i></p> <p><u>Assessment:</u></p> <p>There are no watercourses or wetlands within the application area (GIS Database). The vegetation proposed to be cleared is not associated with any watercourses, wetlands, or wetland dependent vegetation (Keith Lindbeck and Associates, 2009). The proposed clearing is not likely to impact on the nearby</p>	<p>Not likely to be at variance</p> <p>(as per CPS 3143/4)</p>	<p>No</p>

Assessment against the clearing principles	Variance level	Is further consideration required?
waterbodies or the vegetation associated with them or impact on Lake Lefroy approximately 1.6 kilometres away (GIS Database).		
<p><u>Principle (g):</u> <i>“Native vegetation should not be cleared if the clearing of the vegetation is likely to cause appreciable land degradation.”</i></p> <p><u>Assessment:</u></p> <p>The mapped soils are low to moderately susceptible to wind and water erosion (Keith Lindbeck and Associates, 2009; Waddell and Galloway, 2023).</p> <p>The pH of the surface soil within the application area is 5.5 – 6.5 and there has been no known occurrence of acid sulphate soils (CSIRO, 2009). However, an adjacent clay pan area identified by Botanica Consulting as being the ‘<i>Melaleuca</i> thicket surrounding clay pan’ vegetation type has a high probability of acid sulphate soil occurrence (CSIRO, 2009; Keith Lindbeck and Associates, 2009). This vegetation type is not present within the application area, and there the risk of acid sulphate soils is minimal.</p> <p>The application area has an annual average evaporation rate of approximately 10 times the annual average rainfall (BoM, 2024; GIS Database). Based on this information, recharge to groundwater would be minimal, thereby reducing the likelihood of salinity increasing as a result of the proposed clearing. A groundwater exploration survey recorded no occurrence of groundwater, so the risk of saline groundwater rising as a result of clearing would be considered minimal (Keith Lindbeck and Associates, 2009).</p> <p>Noting the extent of the application area, the size of the proposed clearing area and the condition of the vegetation, the proposed clearing is not likely to have an appreciable impact on land degradation. However, any potential impacts from wind and water erosion can be managed with a staged clearing condition to prevent cleared areas from being exposed for long periods of time.</p>	Not likely to be at variance (as per CPS 3143/4)	No
<p><u>Principle (i):</u> <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.”</i></p> <p><u>Assessment:</u></p> <p>No Public Drinking Water Sources Areas are recorded within the application area. In addition, there are no permanent or ephemeral waterbodies located within the application area, however there are two claypans directly adjacent to the application area (Keith Lindbeck and Associates, 2009; GIS Database). There is a low average annual rainfall in the greater Kalgoorlie area (265.4 millimetres) (BoM, 2024). Given the above and the relative flatness of the application area, the proposed clearing is not likely to cause sedimentation or deteriorate the quality of surface water in nearby areas.</p> <p>Given the groundwater is already hypersaline, any clearing within the application area is not likely to alter the existing groundwater quality.</p>	Not likely to be at variance (as per CPS 3143/4)	No
<p><u>Principle (j):</u> <i>“Native vegetation should not be cleared if the clearing of the vegetation is likely to cause, or exacerbate, the incidence or intensity of flooding.”</i></p> <p><u>Assessment:</u></p> <p>Based on the average annual rainfall and annual evaporation rate of the area, any surface water resulting from rainfall events is likely to be relatively short lived.</p> <p>There are no watercourses or wetlands within the application area (GIS Database). The application area does not lie within a floodplain and the proposed clearing is not likely to impact surface runoff and drainage in the local area (Keith Lindbeck and Associates, 2009).</p> <p>The application area is within the Lake Lefroy catchment area which covers 2,488,250 hectares (GIS Database). Given the size of the area to be cleared (220 hectares) in relation to the size of the catchment area, the proposed clearing is not likely to increase the incidence or intensity of flooding.</p> <p>Given the above, the proposed clearing is unlikely to contribute to increased incidence or intensity of flooding or waterlogging.</p>	Not likely to be at variance (as per CPS 3143/4)	No

Appendix D. 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 Keighery, B.J. (1994) *Bushland Plant Survey: A Guide to Plant Community Survey for the Community*. Wildflower Society of WA (Inc). Nedlands, Western Australia.

Measuring vegetation condition for the South West and Interzone Botanical Province (Keighery, 1994)

Condition	Description
Pristine	Pristine or nearly so, no obvious signs of disturbance.
Excellent	Vegetation structure intact, with disturbance affecting individual species; weeds are non-aggressive species.
Very good	Vegetation structure altered, with obvious signs of disturbance. For example, disturbance to vegetation structure caused by repeated fires, the presence of some more aggressive weeds, dieback, logging and/or grazing.
Good	Vegetation structure significantly altered by very obvious signs of multiple disturbances. Retains basic vegetation structure or ability to regenerate it. For example, disturbance to vegetation structure caused by very frequent fires, the presence of some very aggressive weeds at high density, partial clearing, dieback and/or grazing.
Degraded	Basic vegetation structure severely impacted by disturbance. Scope for regeneration but not to a state approaching good condition without intensive management. For example, disturbance to vegetation structure caused by very frequent fires, the presence of very aggressive weeds, partial clearing, dieback and/or grazing.
Completely degraded	The structure of the vegetation is no longer intact and the area is completely or almost completely without native species. These areas are often described as 'parkland cleared' with the flora comprising weed or crop species with isolated native trees or shrubs.

Appendix E. Biological survey information excerpts / photographs of the vegetation / DEMIRS site inspection report

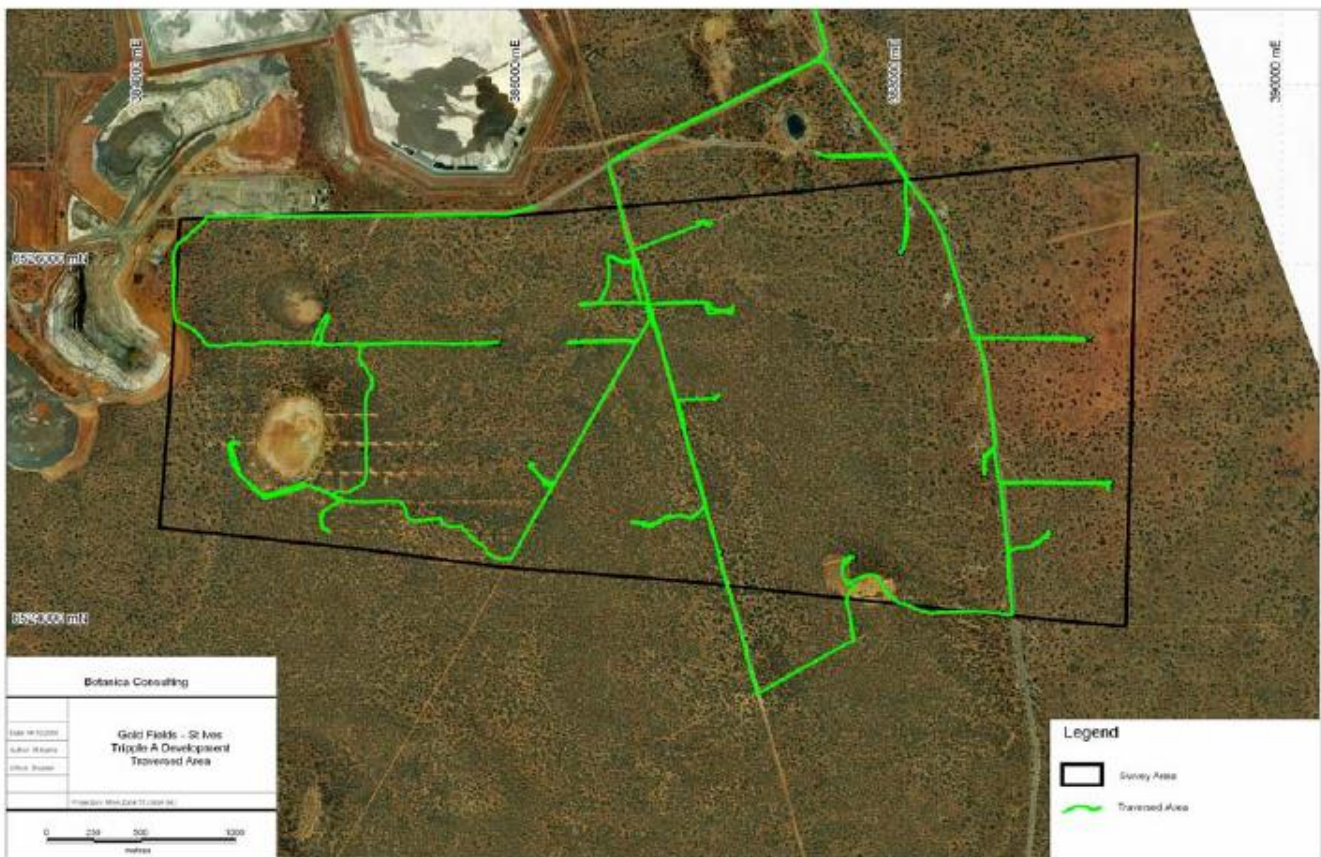


Figure 1: Map of the tracks traversed by Botanica Consulting to conduct the reconnaissance flora and vegetation survey (Keith Lindbeck and Associates, 2009).

Appendix F. Sources of information

F.1. GIS databases

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

- 10 Metre Contours (DPIRD-073)
- Aboriginal Heritage Places (DPLH-001)
- Cadastre (LGATE-218)
- Contours (DPIRD-073)
- 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)
- Flood Risk (DPIRD-007)
- Groundwater Salinity Statewide (DWER-026)
- Hydrographic Catchments – Catchments (DWER-028)
- Hydrography – Inland Waters – Waterlines
- Hydrography, Linear (DWER-031)
- Hydrological Zones of Western Australia (DPIRD-069)
- IBRA Vegetation Statistics
- Local Planning Scheme – Zones and Reserves (DPLH-071)
- Native Title (ILUA) (LGATE-067)
- Pre-European Vegetation Statistics
- Regional Parks (DBCA-026)
- Remnant Vegetation, All Areas
- 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)

F.2. References

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4. Glossary

Acronyms:

BC Act	<i>Biodiversity Conservation Act 2016</i> , 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
DEMIRS	Department of Energy, Mines, Industry Regulation and Safety
DER	Department of Environment Regulation, Western Australia (now DWER)
DMIRS	Department of Mines, Industry Regulation and Safety, Western Australia (now DEMIRS)
DMP	Department of Mines and Petroleum, Western Australia (now DEMIRS)
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	<i>Environmental Protection Act 1986</i> , Western Australia
EPA	Environmental Protection Authority, Western Australia
EPBC Act	<i>Environment Protection and Biodiversity Conservation Act 1999</i> (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	<i>Rights in Water and Irrigation Act 1914</i> , Western Australia
TEC	Threatened Ecological Community

Definitions:

{DBCA (2023) 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 the species of fauna that are listed as critically endangered, endangered or vulnerable threatened species.

Threatened flora is the species of flora that are listed as critically endangered, endangered or vulnerable threatened species.

The assessment of the conservation status of threatened species is in accordance with the BC Act listing criteria and the requirements of [Ministerial Guideline Number 1](#) and [Ministerial Guideline Number 2](#) that adopts the use of the International Union for Conservation of Nature (IUCN) [Red List of Threatened Species Categories and Criteria](#), and is based on the national distribution of the species.

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.

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.

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.

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).

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.

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).

Migratory species include birds that are subject to an agreement between the government of Australia and the governments of Japan (JAMBA), China (CAMBA) or 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.

CD

Species of special conservation interest (conservation dependent fauna)

Species of special conservation need that are 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).

Currently only fauna are listed as species of special conservation interest.

OS

Other specially protected species

Species 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).

Currently only fauna are listed as species otherwise in need of special protection.

P

Priority species:

Priority is not a listing category under the BC Act. The Priority Flora and Fauna lists are maintained by the department and are published on the department’s website.

All fauna and flora are protected in WA following the provisions in Part 10 of the BC Act. The protection applies even when a species is not listed as threatened or specially protected, and regardless of land tenure (State managed land (Crown land), private land, or Commonwealth land).

Species that may possibly be threatened species that do not meet the criteria for listing under the BC Act because of insufficient survey 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 prioritisation for survey and evaluation of conservation status so that consideration can be given to potential listing as threatened.

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

Assessment of priority status 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 – known from few locations, none on conservation lands

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, for example, 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 for threatened listing and appear to be under immediate threat from known threatening processes. These species are in urgent need of further survey.

P2 Priority Two - Poorly-known species – known from few locations, some on conservation lands

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, for example, 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 for threatened listing and appear to be under threat from known threatening processes. These species are in urgent need of further survey.

P3 Priority Three - Poorly-known species – known from several locations

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. These species need 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 a conservation dependent specially protected species.

(c) Species that have been removed from the list of threatened species or lists of conservation dependent or other specially protected species, during the past five years for reasons other than taxonomy.

(d) Other species in need of monitoring.

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.