



Clearing Permit Decision Report

1. Application details and outcomes

1.1. Permit application details

Permit number:	9699/1
Permit type:	Purpose Permit
Applicant name:	Aurumin Mt Dimer Pty Ltd
Application received:	13 April 2022
Application area:	3.5 hectares
Purpose of clearing:	Waste Rock Dump remediation and associated access roads
Method of clearing:	Mechanical Removal
Tenure:	Mining Lease 77/427 Mining Lease 77/428
Location (LGA area/s):	Shire of Yilgarn
Colloquial name:	Mt Dimer Gold Project (MDGP)

1.2. Description of clearing activities

Aurumin Mt Dimer Pty Ltd (Aurumin) proposes to clear up to 3.5 hectares of native vegetation within a boundary of approximately 13.84 hectares, for the purpose of access tracks and remediation works. The project is located approximately 120 kilometres north-east of Southern Cross, within the Shire of Yilgarn.

The application is to allow for the remediation of erosion gullies on the external batters of the Karli West Waste Rock Dump. Clearing is required to gain access around the base of the Waste Rock Dump (WRD) to install sediment capture structures and remediate the erosion. Additionally, access to the operational Mt Dimer airstrip is via a road that runs through the mining area, which is a foreseen safety risk. Therefore the proposed clearing will allow for the construction of a new access road to the airstrip that does not traverse the mining areas (Aurumin, 2022).

1.3. Decision on application and key considerations

Decision:	Grant
Decision date:	29 July 2022
Decision area:	3.5 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 13 April 2022. 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 3.3). The Delegated Officer also took into consideration the purpose and total area of the clearing to facilitate the remediation of the WRD.

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;
- potential land degradation in the form of wind or water erosion.

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 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; and

- commence construction no later than three months after undertaking clearing to reduce the risk of erosion.

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 (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 includes:

- *Biodiversity Conservation Act 2016 (WA) (BC Act)*
- *Conservation and Land Management Act 1984 (WA) (CALM 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 2021)
- Technical guidance – *Flora and Vegetation Surveys for Environmental Impact Assessment* (EPA, 2016)
- Technical guidance – *Terrestrial Fauna Surveys for Environmental Impact Assessment* (EPA, 2020)

3. Detailed assessment of application

3.1. Avoidance and mitigation measures

The Delegated Officer was satisfied that the applicant has made a reasonable effort to avoid and minimise potential impacts of the proposed clearing on environmental values.

Evidence was submitted by the applicant, committing to the following environmental management measures (Aurumin, 2022):

- Minimising disturbed areas and rehabilitating areas of disturbance to avoid the spread of weed species;
- Ensuring that no weed-affected materials are brought into the area to be cleared;
- Salvage topsoil up to a depth of 200mm and stockpile for future rehabilitation. Topsoil stockpiling will occur within the clearing footprint and away from low lying areas to avoid surface water erosion. In addition, vegetation removed during clearing will be stockpiled separately and will be respread with topsoil once areas are no longer required;
- The road to the airstrip (Area B) will remain on grade to allow water to pass over the road surface; and
- Erosion will be contained within the clearing footprint and controlled as part of operations with the use of bunds and placement of material.

Given the purpose for which the clearing permit has been applied for (under direction of DMIRS to remediate the waste rock dump), the extent to which clearing can be avoided is limited. As such, the Delegated officer is satisfied with the proposed management measures on potential impacts to environmental values.

3.2. 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 identified that the impacts of the proposed clearing may present a risk to biological values. 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. Biodiversity (flora and fauna) - Clearing Principles (a and b)

Assessment

The application area occurs within the Southern Cross (COO2) subregion of the Coolgardie Interim Biogeographic Regionalisation of Australia (IBRA) bioregion (GIS Database). This subregion is characterised by gently undulating uplands dissected by broad valleys with bands of low greenstone hills (CALM, 2002). Diverse Eucalyptus woodlands rich in endemic Eucalyptus occur around salt lakes, low greenstone hills, valley alluvials and broad plains of calcareous earths (CALM, 2002). Mallees and scrub-heaths occur on uplands as well as sand lunettes associated with playas along the broad valley floors and sand sheets around the granite outcrops. The scrubs are rich in endemic acacias and Myrtaceae (CALM, 2002).

Extensive flora and vegetation surveys have been undertaken across the Mt Dimer area, which covers approximately 2,773 hectares in total. Woodgis prepared a report in February 2022 (Woodgis, 2022) that consolidated the survey work across the Mt Dimer area (which includes this clearing permit application). The report provides an update to flora and vegetation surveys as of November 2021. The report also incorporates data from 9 vegetation quadrats established by Woodgis between 15 and 16 November 2021 in conjunction with data from the following surveys/reports:

- *Flora and Vegetation of the Mount Dimer Tenements by Western Botanical* - Vegetation mapping of the 665-hectare mining tenement M77/427, and targeted threatened and priority flora surveys of 48 hectares therein, 30 May - 10 June 2016 and 14 - 23 October 2016;
- *Mount Dimer Targeted Flora Survey 2020 by Woodgis* - Targeted priority flora surveys of contiguous areas in tenement M77/427 totalling 72 hectares, 7-13 December 2020;
- *Mount Dimer Targeted Flora Survey March 2021 by Woodgis* - Targeted priority flora surveys of contiguous areas in tenement M77/427 totalling 181 hectares, 2-7 March 2021;
- *Woodcutter Tenements Targeted Flora Survey May 2021 by Woodgis* - Targeted priority flora survey across tenements M77/0965, M77/0957, E77/1992 and P77/4568 totalling 158-hectare area, 10-17 May 2021;
- *Mount Dimer Priority Flora Update July 2021 by Woodgis* - consolidated previous data; and
- *Mount Dimer Vegetation and Priority Flora Update October 2021 by Woodgis* - Establishment of 54 vegetation quadrats established between 05 August and 05 September 2021.

No Threatened Ecological Communities or Priority Ecological Communities (TECs/PECs) have been recorded within the application area (GIS Database; Woodgis, 2022). The closest Priority Ecological Community (PEC), the 'Finnerty Range vegetation complex (Banded Iron Formation)' is approximately 4 kilometres to the northeast of the application area (GIS Database). The area proposed to be cleared contains no banded iron formation outcrops and does not contain any conservation significant flora species known from these areas (Aurumin, 2022; Woodgis, 2022).

A total of 281 flora taxa have been identified within the Mt Dimer tenements (Woodgis, 2022). In area A (outlined in Section 1.5), three Priority Flora have been identified in the area, which include:

- *Neurachne annularis* (P3) - the number of individuals in this area represents 0.0005% of the known population in the Mt Dimer area;
- *Eucalyptus formanii* (P4) - the number of individuals in this area represents 0.2% of the known population in the Mt Dimer area; and

- *Grevillea erectiloba* (P4) - the number of individuals in this area represents 0.3% of the known population in the Mt Dimer area.

In application Area B, ten Priority flora species may occur based on the mapped vegetation types:

- *Acacia* sp. *Southern Cross* (P1) - the vegetation type within the area represents 0.2% of potential habitat for this species in the Mt Dimer area and the closest known occurrence of this species is 2.9km to the northeast of Area B;
- *Eremophila hamulata* (P1) - the vegetation type within the area represents 0.2% of potential habitat for this species in the Mt Dimer area;
- *Hysterobaeckea ochropetala* ssp. *ochropetala* (P1) - the vegetation type within the area represents 0.5% of potential habitat for this species in the Mt Dimer area and the closest known occurrence of this species is 1.9km to the west of Area B;
- *Cryptandra crispula* (P3) - the vegetation type within the area represents 1.1% of potential habitat for this species in the Mt Dimer area.
- *Neurachne annularis* (P3) - the vegetation types within the area represent 0.7% of potential habitat for this species in the Mt Dimer area.
- *Notisia intonsa* (P3) - the vegetation type within the area represents 0.2% of potential habitat for this species in the Mt Dimer area.
- *Philotheca coateana* (P3) - the vegetation types within the area represent 1.1% of potential habitat for this species in the Mt Dimer area.
- *Eremophila caerulea* subsp. *merrallii* (P4) - the vegetation type within the area represents 0.3% of potential habitat for this species in the Mt Dimer area.
- *Eucalyptus formanii* (P4) - the vegetation types within the area represent 0.6% of potential habitat for this species in the Mt Dimer area.
- *Grevillea erectiloba* (P4) - the vegetation types within the area represent 0.4% of potential habitat for this species in the Mt Dimer area.

It is noted, the actual area of vegetation or number of individual plants disturbed are likely to be less than the percentages quoted above for Area A and B, as only 3.5 hectares of vegetation will be cleared compared to the 13.84 hectares of the purpose permit clearing boundary for which the percentages are quoted against (Woodgis, 2022). Given that the estimated percentages of disturbances to Priority flora individuals and/or associated vegetation types are 1.1% or below, the proposed clearing is unlikely to have a significant impact to Priority flora populations in a local or regional extent.

Six introduced flora species were recorded within the Mt Dimer area: *Brassica* aff. *juncea* (Indian Mustard), *Carrichtera annua* (Wards Weed), *Cynodon dactylon* (Couch), *Erodium cicutarium* (Storksbill), *Rumex vesicarius* (Ruby Dock) and *Sonchus oleraceus* (Common Sowthistle). No Declared Pests (weeds), as listed pursuant to the *Biosecurity and Agriculture Management Act 2007* have been identified within the application area (Aurumin, 2022). Weeds have the potential to out-compete native flora and reduce the biodiversity of an area. Potential impacts to biodiversity as a result of the proposed clearing may be minimised by the implementation of a weed management condition.

A basic fauna survey was conducted over the application area by Bamford Consulting Ecologists (Bamford) in February 2022 (Bamford, 2022), which included a literature review of previous surveys undertaken over the Mt Dimer area. From the basic fauna survey, a Priority 4 fauna species, the Tree-Stem Trapdoor Spider (*Idiosoma castellum*), was recorded within areas A and B. Active burrows of this species were recorded during the site inspection in Area B and an inactive burrow was recorded in Area A (Bamford, 2022). The Tree-stem Trapdoor Spider occurs in the southern mid-west, northern and central wheatbelt and south-western goldfields regions of Western Australia. It is noted that the ecology and distribution of short-range endemic invertebrates is often poorly understood or documented, and the survey areas occur in a region that is remote and likely to be poorly-surveyed for these groups (Bamford, 2022). As such, it is likely that this species is more abundant than its known extent. Given this, the known distribution of the Tree-stem Trapdoor Spider across various regions and suitable habitat being present across the local and regional area, the proposed clearing is unlikely to significantly impact this species or its available habitat.

A targeted Malleefowl survey was conducted by Bamford in February 2022 across the application area due to known records of Malleefowl within the region. No Malleefowl or mounds (active and inactive) were identified during the survey (Bamford, 2022).

No other conservation significant fauna were recorded within the application area (Bamford, 2022).

Four broad fauna habitat types were recorded within the application area (Bamford, 2022), which include:

- VSA 1. **Acacia shrublands.** Open shrublands of Mulga (*Acacia* spp.) over a mixed understorey of shrubs, including *Acacia*, *Allocasuarina*, *Banksia*, *Eremophila*, *Grevillea* and a range of *Myrtaceae*, on gravel or gravel/loam.
- VSA 2. **Mallee woodlands on sands.** A complex mosaic of open mallee eucalypt woodland over a mixed understorey of shrubs and/or spinifex on sands, or sandy loams.

- VSA 3. **Eucalypt woodlands on loams.** Woodland of Salmon Gum (*Eucalyptus salmonophloia*) and Gimlet (*E. salubris*) with sparse shrubs on loams.
- VSA 4. **Disturbed or cleared areas.** Cleared or largely disturbed areas (e.g. roads, or where mining or exploration has taken place).

The landforms, vegetation associations and fauna habitat types found within the application area are well represented within the region (GIS Database; Bamford, 2022; Woodgis, 2022). The application area is unlikely to represent an area of higher biodiversity than surrounding areas or significant habitat for fauna, in either a local or regional context

Conclusion

Based on the above assessment, the proposed clearing may result in the potential spread of weeds, which subsequently may impact on the biodiversity within the local area.

For the reasons set out above, it is considered that the impacts of the proposed clearing on biodiversity can be managed by taking steps to minimise the risk of the introduction and 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; and
- take hygiene steps to minimise the risk of the introduction and spread of weeds.

3.3. Relevant planning instruments and other matters

The clearing permit application was advertised on 24 May 2022 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 over the area under application (DPLH, 2022). This claim has been registered with the National Native Title Tribunal (No. WC2017/007) and the Federal Court (Ref. WAD647/2017) 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 no registered Aboriginal Sites of Significance within the application area (DPLH, 2022). 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 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.

Other relevant authorisations required for the proposed land use include:

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

End

Appendix A. Site characteristics

A.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. Land uses within the local area are predominantly mining, pastoral and conservation areas (GIS Database).</p> <p>The application area is adjacent to a conservation area that supports vegetation communities associated with banded iron formations (BIF) (GIS Database).</p>
Ecological linkage	<p>According to available databases, there are no formal ecological linkages mapped within the application area (GIS Database).</p>
Conservation areas	<p>The application area is located on unallocated Crown Land (former Jaurdi station, which is proposed to be a Reserve managed for the purposes of Conservation and Mining) (GIS Database; Aurumin, 2022). There are no other conservation areas within the application area.</p> <p>Two conservation parks exist within close proximity to the application area, which are outlined below:</p> <ul style="list-style-type: none"> • Mount Manning – Helena and Aurora Ranges Conservation Park – approximately 500 metres west of the application area; and • The Mount Manning Range Nature Reserve - approximately 12 kilometres north of the application area. (GIS Database) <p>The Helena and Aurora Ranges contain the Helena and Aurora Range vegetation complexes (banded ironstone formation) and the Mount Manning Range contains the Mount Manning Range vegetation complex (banded ironstone formation) (Aurumin, 2022).</p>
Vegetation description	<p>The vegetation of the application area is broadly mapped as the following Beard vegetation association/s:</p> <p>141: Medium woodland; York gum, salmon gum & gimlet; and 538: Shrublands; <i>Acacia brachystachya</i> scrub (GIS Database).</p> <p>Six vegetation types were identified within the Mt Dimer area (Woodgis, 2022). Four of the six vegetation types identified in the broader Mt Dimer Area were represented in the application area (13.84 hectares). The types can be summarised as follows (Woodgis, 2022):</p> <ul style="list-style-type: none"> • Vegetation Type 1 – <i>Acacia acutivalvis</i> shrublands over <i>Amphipogon</i> tussock grasses. • Vegetation Type 3 – <i>Eucalyptus ebbanoensis</i> mallees over <i>Triodia scariosa/tomentosa</i> hummock grasses. • Vegetation Type 4 – <i>Eucalyptus loxophleba</i> mallees over <i>Austrostipa elegantissima</i> tussock grasses. • Vegetation Type 5 – <i>Eucalyptus transcontinentalis</i> woodlands over <i>Austrostipa elegantissima</i> tussock grasses.
Vegetation condition	<p>The vegetation surveys (Woodgis, 2022) indicate the vegetation within the proposed clearing area is in Completely Degraded to Excellent (Trudgen, 1991) condition. Areas that are completely degraded have been affected by historical mining or exploration disturbances.</p> <p>The full Trudgen (1991) condition rating scale is provided in Appendix C.</p>
Climate and landform	<p>The average rainfall within the local area is approximately 400mm per year (BoM, 2022). The topography of the Mt Dimer area has minor relief with broad areas of sheet flow transected by poorly defined creek lines (Aurumin, 2022).</p>
Soil description	<p>The soil-landscape system is mapped as 263m1 (GIS Database). This unit is described as undulating terrain with small gently sloping plains and some ranges on basic schists, gneisses, and allied rocks (DPIRD, 2022).</p> <p>Soils are mainly reddish-loamy earths with some occurrences of laterite on the surface. Various levels of land disturbance occur with the area through mining activities, as well as current impacts from feral animals including rabbits and camels (Aurumin, 2022)</p>
Land degradation risk	<p>There is a moderate risk of land degradation in the form of wind and water erosion within the application area due to the undulating terrain and loamy earths.</p>

Characteristic	Details
Waterbodies	<p>According to available databases, no permanent surface water features or groundwater dependent ecosystems have been recorded within application area (GIS Database; Aurumin, 2022).</p> <p>The application area is located within the Swan Avon/Yilgarn River catchment area, which covers 5,838,600 hectares (GIS Database).</p> <p>The Karli West area (Area A) generally drains to the south south-east while the access road area (Area B) drains to the south/south-west. Both catchments drain into hypersaline playa systems located approximately 56 km south of the site (Aurumin, 2022).</p>
Hydrogeography	<p>The application area is within the Goldfields Groundwater Area, proclaimed under the <i>Rights in Water and Irrigation Act 1914</i> (GIS Database).</p> <p>Based on the groundwater wells on the Mt Dimer tenements, groundwater in the area is typically recorded at depths ranging from 50 to 65 metres below ground level. The physical water quality characteristics recorded from bores have a neutral pH of 7.0 and salinity averages 31,000mg/L total dissolved solids (TDS) (Aurumin, 2022).</p>
Flora	<p>There are records of 38 Priority flora species and five Threatened flora species within 20 kilometres of the application area (GIS Database). No Threatened flora are known to occur within the application area (GIS Database).</p> <p>During the surveys, no Threatened Flora were recorded within the application area. Three Priority species were identified in Area A. No conservation significant flora were identified within Area B, however, some vegetation types exist within Area B that may exhibit suitable habitat for 10 Priority flora species (Aurumin, 2022).</p>
Ecological communities	<p>According to available databases, there are no known Threatened or Priority Ecological Communities (TECs/PECs) within the application area (GIS Database). No TECs or PECs were identified during a flora and vegetation survey of the application area (Woodgis, 2022).</p> <p>The closest PEC, the 'Finnerty Range vegetation complex (Banded Iron Formation)' is four kilometres to the northeast of the application area (GIS Database). The area proposed to be cleared contains no banded iron formation outcrops and does not contain any of the known Threatened flora species known from these areas (Aurumin, 2022).</p>
Fauna	<p>According to available databases, Malleefowl (<i>Leipoa ocellata</i>) has been recorded approximately 20 kilometres from the application area (GIS Database). There are no records of conservation significant fauna within the application area (GIS Database).</p> <p>During the level 1 fauna survey, 43 fauna species, including 36 birds, two reptiles and five mammals were recorded within the Mt Dimer tenements. No Threatened fauna were recorded within the application area or wider Mt Dimer area (Bamford, 2022). A Priority 4 species, the Tree-Stem Trapdoor Spider (<i>Idiosoma castellum</i>), was identified in Area A and Area B (Aurumin, 2022; Bamford, 2022).</p>

Appendix B. 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 three Priority flora species and one Priority 4 fauna species, however, the vegetation types and habitat types within the application area are well represented within the region. Given this and the relatively small area proposed to be cleared (3.5 hectares), the application area is not considered to be of higher biodiversity than surrounding areas.</p>	Not likely to be at variance	Yes <i>Refer to Section 3.2.1, above.</i>
<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>No threatened fauna were recorded within the application area (Aurumin, 2022; GIS Database). One Priority 4 short-range endemic fauna species was recorded within the application area. The fauna habitats within the application area are common and widespread within the region (GIS Database; Woodgis, 2022). As such, the proposed clearing is likely to have minimal impacts on fauna habitats in a local and regional context.</p>	Not likely to be at variance	Yes <i>Refer to Section 3.2.1, above.</i>
<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>There are no known records of Threatened flora within the application area (GIS Database) and no Threatened flora species have been identified within the application area during field surveys (Woodgis, 2022).</p> <p>The vegetation associations within the application area are common and widespread within the region (GIS Database), and the vegetation proposed to be cleared is unlikely to be necessary for the continued existence of any species of Threatened flora (Aurumin, 2022).</p>	Not likely to be at variance	No
<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 TECs within the application area (GIS Database). No TECs were identified during a flora and vegetation survey of the application area (Woodgis, 2022).</p>	Not likely to be at variance	No
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 application area occurs within the Coolgradie Interim Biogeographic Regionalisation of Australia (IBRA) bioregion, in which approximately 98.0% of the pre-European vegetation remains (GIS Database; Government of Western Australia, 2019).</p> <p>The vegetation within the application area has been mapped as Beard vegetation association 141 and 538 (GIS Database; Woodgis, 2022). Vegetation associations 141 and 538 are both well represented at both a state and bioregional level. Given the amount of vegetation remaining in the local area and bioregion, the vegetation proposed to be cleared is not considered to represent remnant vegetation.</p>	Not at variance	No

Assessment against the clearing principles	Variance level	Is further consideration required?
<p>Principle (h): <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>The application area is located within a proposed Conservation Reserve (former Jaurdi Pastoral Lease), managed by the Department of Biodiversity, Conservation and Attractions (DBCA).</p> <p>Given the purpose of the proposed clearing (rehabilitation and access tracks for rehabilitation), and given the size of clearing (3.5 hectares) in relation to the size of the conservation area (273,672 hectares) (GIS Database), it is considered unlikely that the proposed clearing will significantly impact on the environmental values of the proposed Conservation Reserve.</p>	Not likely to be at variance	No
Environmental value: land and water resources		
<p>Principle (f): <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 area proposed to clear (Aurumin, 2022; GIS Database). The nearest watercourse is a minor non-perennial watercourse approximately four kilometres to the east of the application area (GIS Database). No riparian vegetation was identified during the flora and vegetation survey over the application area (Woodgis, 2022).</p>	Not likely to be at variance	No
<p>Principle (g): <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 land systems within the application area are generally not susceptible to erosion. However, erosion can be induced by vegetation clearing and heavy rainfall/winds in areas of sloped landforms, loamy earths and shallow soils, which occur within the application area (Pringle et al., 1994).</p> <p><u>Conclusion:</u></p> <p>Given that the land systems within the application area exhibit sloped landforms, loamy earths and shallow soils, the Delegated Officer has determined that the proposed clearing requires further management conditions to compliment the management and mitigations measures outlined by Aurumin (Aurumin, 2022) in relation to land degradation.</p> <p><u>Condition:</u></p> <p>The following management measures will be required as conditions on the clearing permit:</p> <ul style="list-style-type: none"> no clearing of native vegetation unless remediation of the Waste Rock Dump and associated activities commence within three months of the authorised clearing being undertaken. 	May be at variance	No
<p>Principle (i): <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>There are no Public Drinking Water Source Areas within or in close proximity to the application area (GIS Database). There are no permanent watercourses or wetlands within the area proposed to clear (GIS Database). Drainage lines in the region are dry for most of the year, only flowing briefly immediately following significant rainfall. The proposed clearing is unlikely to result in significant changes to surface water flows.</p> <p>Given the depth to groundwater within the application area (50-65 metres below ground level), the proposed clearing is unlikely to cause deterioration in the quality of underground water.</p> <p>Based on the above, the proposed clearing is not likely to cause deterioration in surface or groundwater quality.</p>	Not likely to be at variance	No

Assessment against the clearing principles	Variance level	Is further consideration required?
<p>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."</p> <p><u>Assessment:</u></p> <p>The climate of the region is semi-arid, with a low average rainfall of approximately 400 millimetres per year (BoM, 2022). Based on an average annual evaporation rate of 2,600 – 2,800 millimetres (BoM, 2022), any surface water resulting from rainfall events is likely to be relatively short lived.</p> <p>There are no permanent water courses or waterbodies within the application area (GIS Database). The application area is located within the Swan Avon/Yilgarn River catchment area which covers 5,838,600 hectares (GIS Database). Given the size of the area to be cleared (3.5 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>	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):

- 10 Metre Contours (DPIRD-073)
- Aboriginal Heritage Places (DPLH-001)
- Clearing Regulations – Schedule One Areas (DWER-057)
- DBCA – Lands of Interest (DBCA-012)
- DBCA Legislated Lands and Waters (DBCA-011)
- 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)
- IBRA Vegetation Statistics
- Native Title (ILUA) (LGATE-067)
- Pre-European Vegetation Statistics
- RIWI Act, Groundwater Areas (DWER-034)
- RIWI Act, Surface Water Areas and Irrigation Districts (DWER-037)
- Soil Landscape Land Quality – Water Erosion Risk (DPIRD-013)
- Soil Landscape Land Quality – Wind Erosion Risk (DPIRD-016)
- 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

- Aurumin Limited (Aurumin) (2022) Supporting documentation for Native Vegetation Clearing Permit Application – Purpose Permit – Mt Dimer Gold Project on M77/427 AND M77/428. Aurumin Limited, April 2022.
- Bamford (2022), Mt Dimer Project Assessment of Fauna Values unpublished consultancy report by Bamford Consulting Ecologists prepared for Aurumin Limited, March, 2022.
- BoM (2022) Bureau of Meteorology Website – Climate Data Online, Meekatharra. Bureau of Meteorology. <http://www.bom.gov.au/climate/data/> (Accessed 26 July 2022).
- CALM (2002) A Biodiversity Audit of Western Australia's 53 Biogeographic Subregions in 2002. Department of Conservation and Land Management, Western Australia.
- Department of Environment Regulation (DER) (2013) *A guide to the assessment of applications to clear native vegetation*. Perth. Available from: https://www.der.wa.gov.au/images/documents/your-environment/native-vegetation/Guidelines/Guide2_assessment_native_veg.pdf
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- Department of Primary Industries and Regional Development (DPIRD) (2022) NRInfo Digital Mapping. Department of Primary Industries and Regional Development. Government of Western Australia. URL: <https://maps.agric.wa.gov.au/nrm-info/> (Accessed 25 July 2022).
- Environmental Protection Authority (EPA) (2016) Technical Guidance - Flora and Vegetation Surveys for Environmental Impact Assessment. Available from: http://www.epa.wa.gov.au/sites/default/files/Policies_and_Guidance/EPA%20Technical%20Guidance%20-%20Flora%20and%20Vegetation%20survey_Dec13.pdf
- Environmental Protection Authority (EPA) (2020) Technical Guidance – Terrestrial Fauna Surveys. Available from: https://www.epa.wa.gov.au/sites/default/files/Policies_and_Guidance/Tech%20guidance-%20Terrestrial%20Fauna%20Surveys-Dec-2016.pdf
- Government of Western Australia (2019) 2018 Statewide Vegetation Statistics incorporating the CAR Reserve Analysis (Full Report). Current as of March 2019. WA Department of Biodiversity, Conservation and Attractions. <https://catalogue.data.wa.gov.au/dataset/dbca-statewide-vegetation-statistics>
- Keighery, B.J. (1994) Bushland Plant Survey: A Guide to Plant Community Survey for the Community. Wildflower Society of WA (Inc). Nedlands, Western Australia.
- Pringle, H.J.R., Van Vreeswyk, A.M.E., Gillian, S.A. (1994) An Inventory and Condition Survey of Rangelands in the north-eastern Goldfields, Western Australia. Department of Agriculture, Western Australia.
- 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.
- Woodgis (2022) Mount Dimer Vegetation and Priority Flora Update February 2022, unpublished consultancy report by Woodgis prepared for Aurumin Limited.

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)
DAWE	Department of Agriculture, Water and the Environment, 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 DAWE)
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 (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.