



CLEARING PERMIT

Granted under section 51E of the Environmental Protection Act 1986

Purpose Permit number:	CPS 9704/1
Permit Holder:	Shire of Merredin
Duration of Permit:	From 10 November 2022 to 10 November 2032

The permit holder is authorised to clear *native vegetation* subject to the following conditions of this permit.

PART I – CLEARING AUTHORISED

1. Clearing authorised (purpose)

The permit holder is authorised to clear *native vegetation* for the purpose of road construction/widening.

2. Land on which clearing is to be done

Merredin-Naremben Road reserve (PINs 1299723 and 1324951), Merredin.

3. Clearing authorised

The permit holder must not clear more than 0.11 hectares of *native vegetation* within the area cross-hatched yellow in Figure 1 of Schedule 1.

4. Period during which clearing is authorised

The permit holder must not clear any *native vegetation* after 10 November 2027.

PART II – MANAGEMENT CONDITIONS

5. Avoid, minimise, and reduce impacts and extent of clearing

In determining the *native vegetation* authorised to be cleared under this permit, the permit holder must apply the following principles, set out in descending order of preference:

- (a) avoid the clearing of *native vegetation*;
- (b) minimise the amount of *native vegetation* to be cleared; and
- (c) reduce the impact of clearing on any environmental value.

6. Weed and dieback management

When undertaking any clearing authorised under this permit, the permit holder must take the following measures to minimise the risk of introduction and spread of *weeds* and *dieback*:

- (a) clean earth-moving machinery of soil and vegetation prior to entering and leaving the area to be cleared;
- (b) ensure that no known *dieback* or *weed*-affected soil, *mulch*, *fill*, or other material is brought into the area to be cleared; and
- (c) restrict the movement of machines and other vehicles to the limits of the areas to be cleared.

7. Vegetation Management

- (a) Prior to undertaking any clearing authorised under this permit in relation to the area cross-hatched yellow in Figure 1 of Schedule 1, the permit holder must demarcate the 12 *Eucalyptus salmonophloia* (salmon gum) trees at the locations in Table 1 (red dot areas within Figure 1 of Schedule 1).

Table 1: Locations of habitat trees to be retained

Tree	Tree species	Longitude	Latitude
1	<i>Eucalyptus salmonophloia</i> (salmon gum)	118.30441041	-31.49089871
2	<i>Eucalyptus salmonophloia</i> (salmon gum)	118.30441477	-31.49090215
3	<i>Eucalyptus salmonophloia</i> (salmon gum)	118.30440907	-31.49104681
4	<i>Eucalyptus salmonophloia</i> (salmon gum)	118.30442480	-31.49108340
5	<i>Eucalyptus salmonophloia</i> (salmon gum)	118.30441712	-31.49114287
6	<i>Eucalyptus salmonophloia</i> (salmon gum)	118.30442516	-31.49117489
7	<i>Eucalyptus salmonophloia</i> (salmon gum)	118.30442480	-31.49119319
8	<i>Eucalyptus salmonophloia</i> (salmon gum)	118.30441712	-31.49216752
9	<i>Eucalyptus salmonophloia</i> (salmon gum)	118.30440639	-31.49229560
10	<i>Eucalyptus salmonophloia</i> (salmon gum)	118.30456464	-31.49181530
11	<i>Eucalyptus salmonophloia</i> (salmon gum)	118.30456196	-31.49209433
12	<i>Eucalyptus salmonophloia</i> (salmon gum)	118.30452977	-31.49245799

- (b) The permit holder must not clear the trees as described in condition 7(a).

8. Revegetation and rehabilitation

The permit holder must within 24 months of undertaking clearing authorised under this permit:

- (a) undertake the deliberate *planting* of at least 16 (sixteen) *Eucalyptus salmonophloia* (salmon gum) seedlings within Merredin-Narembeen Road reserve (PINs 1299723 and 1324951), Merredin;
- (b) ensure only *local provenance* species are used;
- (c) ensure planting is undertaken at the *optimal time*;
- (d) the permit holder must within 24 months of *planting* the 64 *Eucalyptus salmonophloia* (salmon gum) seedlings in accordance with condition 8(a) of this permit;
 - (i) engage an *environmental specialist* to make a determination that at least 16 *Eucalyptus salmonophloia* (salmon gum) seedlings will survive; and

- (ii) if the determination made by the *environmental specialist* under condition 8(d)(i) that at least 16 *Eucalyptus salmonophloia* (salmon gum) seedlings will not survive, the permit holder must *plant* additional native seedlings that will result in at least 16 *Eucalyptus salmonophloia* (salmon gum) seedlings persisting within Merredin-Narembeen Road reserve (PINs 1299723 and 1324951), Merredin.
- (e) where additional *planting* of native seedlings is undertaken in accordance with condition 8(d)(ii), the permit holder must repeat the activities required by condition 8(b), 8(c) and 8(d) of this permit.

PART III - RECORD KEEPING AND REPORTING

9. Records that must be kept

The permit holder must maintain records relating to the listed relevant matters in accordance with the specifications detailed in Table 1.

Table 1: Records that must be kept

No.	Relevant matter	Specifications
1.	In relation to the authorised clearing activities generally	<ul style="list-style-type: none"> (a) the species composition, structure, and density of the cleared area; (b) the location where the clearing occurred, recorded using a Global Positioning System (GPS) unit set to Geocentric Datum Australia 1994 (GDA94), expressing the geographical coordinates in Eastings and Northings; (c) the date that the area was cleared; (d) the size of the area cleared (in hectares); (e) actions taken to avoid, minimise, and reduce the impacts and extent of clearing in accordance with <i>condition 5</i>; and (f) actions taken to minimise the risk of the introduction and spread of <i>weeds</i> and <i>dieback</i> in accordance with <i>condition 6</i>; (g) actions taken to manage and avoid impacts to trees in accordance with <i>condition 7</i>. (h) <i>planting</i> activities undertaken in accordance with <i>condition 9</i>.

10. Reporting

The permit holder must provide to the *CEO* the records required under *condition 9* of this permit when requested by the *CEO*.

DEFINITIONS

In this permit, the terms in Table have the meanings defined.

Table 2: Definitions

Term	Definition
CEO	Chief Executive Officer of the department responsible for the administration of the clearing provisions under the <i>Environmental Protection Act 1986</i> .
clearing	has the meaning given under section 3(1) of the EP Act.
condition	a condition to which this clearing permit is subject under section 51H of the EP Act.
fill	means material used to increase the ground level, or to fill a depression.
dieback	means the effect of <i>Phytophthora</i> species on native vegetation.
department	means the department established under section 35 of the <i>Public Sector Management Act 1994</i> (WA) and designated as responsible for the administration of the EP Act, which includes Part V Division 3.
environmental specialist	means a person who holds a tertiary qualification in environmental science or equivalent, and has experience relevant to the type of environmental advice that an environmental specialist is required to provide under this Permit, or who is approved by the CEO as a suitable environmental specialist.
EP Act	<i>Environmental Protection Act 1986</i> (WA)
local provenance	means <i>native vegetation</i> seeds and propagating material from natural sources within 50 kilometres and the same IBRA subregion of the area cleared.
mulch	means the use of organic matter, wood chips or rocks to slow the movement of water across the soil surface and to reduce evaporation.
native vegetation	has the meaning given under section 3(1) and section 51A of the EP Act.
optimal time	means the period from May to July for undertaking <i>planting</i> .
planting	means the re-establishment of vegetation by creating favourable soil conditions and planting seedlings of the desired species.
weeds	means any plant – <ol style="list-style-type: none"> (a) that is a declared pest under section 22 of the <i>Biosecurity and Agriculture Management Act 2007</i>; or (b) published in a Department of Biodiversity, Conservation and Attractions species-led ecological impact and invasiveness ranking summary, regardless of ranking; or (c) not indigenous to the area concerned.

END OF CONDITIONS

A handwritten signature in black ink, appearing to read 'Mathew Gannaway', written over a horizontal line.

Mathew Gannaway
MANAGER
NATIVE VEGETATION REGULATION

*Officer delegated under Section 20
of the Environmental Protection Act 1986*

17 October 2022

Schedule 1

The boundary of the area authorised to be cleared is shown in the map below (Figure 1).

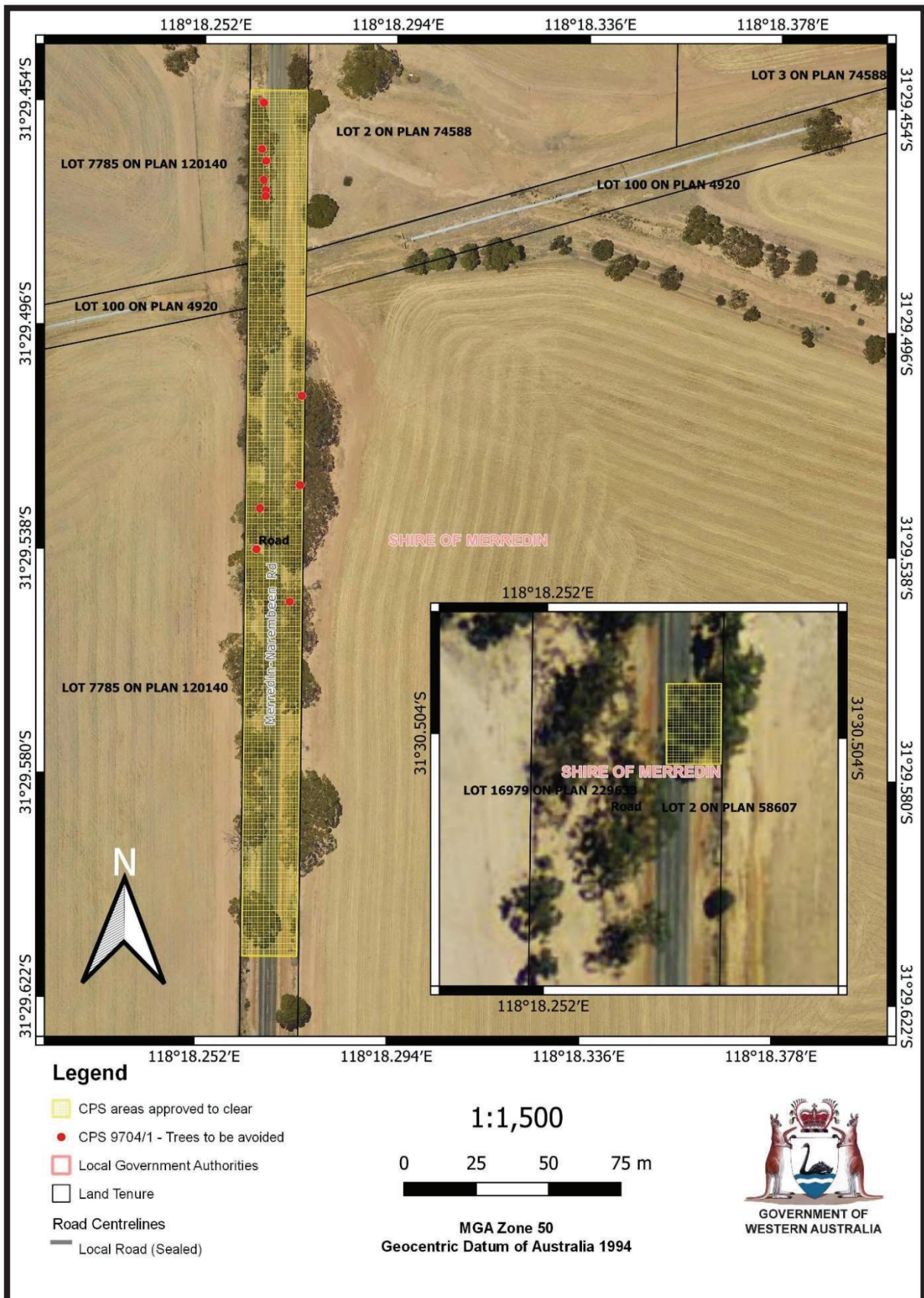


Figure 1: Map of the boundary of the area within which clearing may occur



Clearing Permit Decision Report

1 Application details and outcome

1.1. Permit application details

Permit number:	CPS 9704/1
Permit type:	Purpose permit
Applicant name:	Shire of Merredin
Application received:	14 April 2022
Application area:	0.11 hectares of native vegetation within a total clearing footprint of 0.6 hectares (revised)
Purpose of clearing:	Road construction/widening
Method of clearing:	Mechanical clearing
Property:	Merredin-Narembeen Road reserve (PINs 1299723 and 1324951), Merredin
Location (LGA area/s):	Shire of Merredin
Localities (suburb/s):	Merredin

1.2. Description of clearing activities

The application is to clear 0.11 hectares of native vegetation within a total clearing footprint of 0.6 hectares within Merredin-Narembeen Road reserve (PINs 1299723 and 1324951), Merredin, for the purpose of road construction/widening.

1.3. Decision on application

Decision:	Granted
Decision date:	17 October 2022
Decision area:	0.11 hectares of native vegetation within a total clearing footprint of 0.6 hectares, as depicted in Section 1.5, below.

1.4. Reasons for decision

This clearing permit amendment application was submitted, accepted, assessed and determined in accordance with sections 51E and 51O of the *Environmental Protection Act 1986* (EP Act). The Department of Water and Environmental Regulation (DWER) advertised the application for 21 days and no submissions were received.

In making this decision, the Delegated Officer had regard for the site characteristics (see Appendix B), relevant datasets (see Appendix F.1), the clearing principles set out in Schedule 5 of the EP Act (see Appendix C), relevant planning instruments and any other matters considered relevant to the assessment (see Section 3).

The Delegated Officer also took into consideration that the clearing was a part of the Wheatbelt Secondary Freight Network (WSFN) project with the aim to improve safety and efficiency along a key transport route that supports the region's major industries. Merredin-Narembeen Road, where the proposed clearing area is located is frequented by both light and heavy vehicles travelling to and from Merredin or connecting other key transport routes. As per the

WSFN Basis of Design, the road seal is required to be widened from a seven metre seal to an eight metre seal to enable heavy vehicles to pass other vehicles in a safe manner.

The assessment identified that the proposed clearing may result in:

- loss of native trees that are foraging and/or future breeding habitat for *Zanda latirostris* (Carnaby's black cockatoo);
- the introduction and spread of weeds and dieback into adjacent vegetation, which could impact on the quality of the adjacent vegetation and its habitat values;
- loss of native vegetation within an extensively cleared landscape; and
- impact on surface water quality of watercourses within and close by the proposed clearing area.

After consideration of the available information, as well as the applicant's avoidance and mitigation measures (Section 3.1) to reduce the clearing area from 0.2 to 0.11 hectares and remove 12 trees from the clearing application, the Delegated Officer determined the proposed clearing is unlikely to lead to appreciable land degradation or have long-term adverse impacts on conservation significant fauna or flora species and 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.
- avoid clearing of 12 trees from within the application, through avoidance measures agreed upon with the applicant.
- take hygiene steps to minimise the risk of the introduction and spread of weeds and dieback. Weeds and dieback management measures as specified in the clearing permit.
- plant a minimum 16 *Eucalyptus salmonophloia* (salmon gum) seedlings within the road reserve, to mitigate the loss of eight native salmon gums in the degraded road reserve.

1.5. Site map

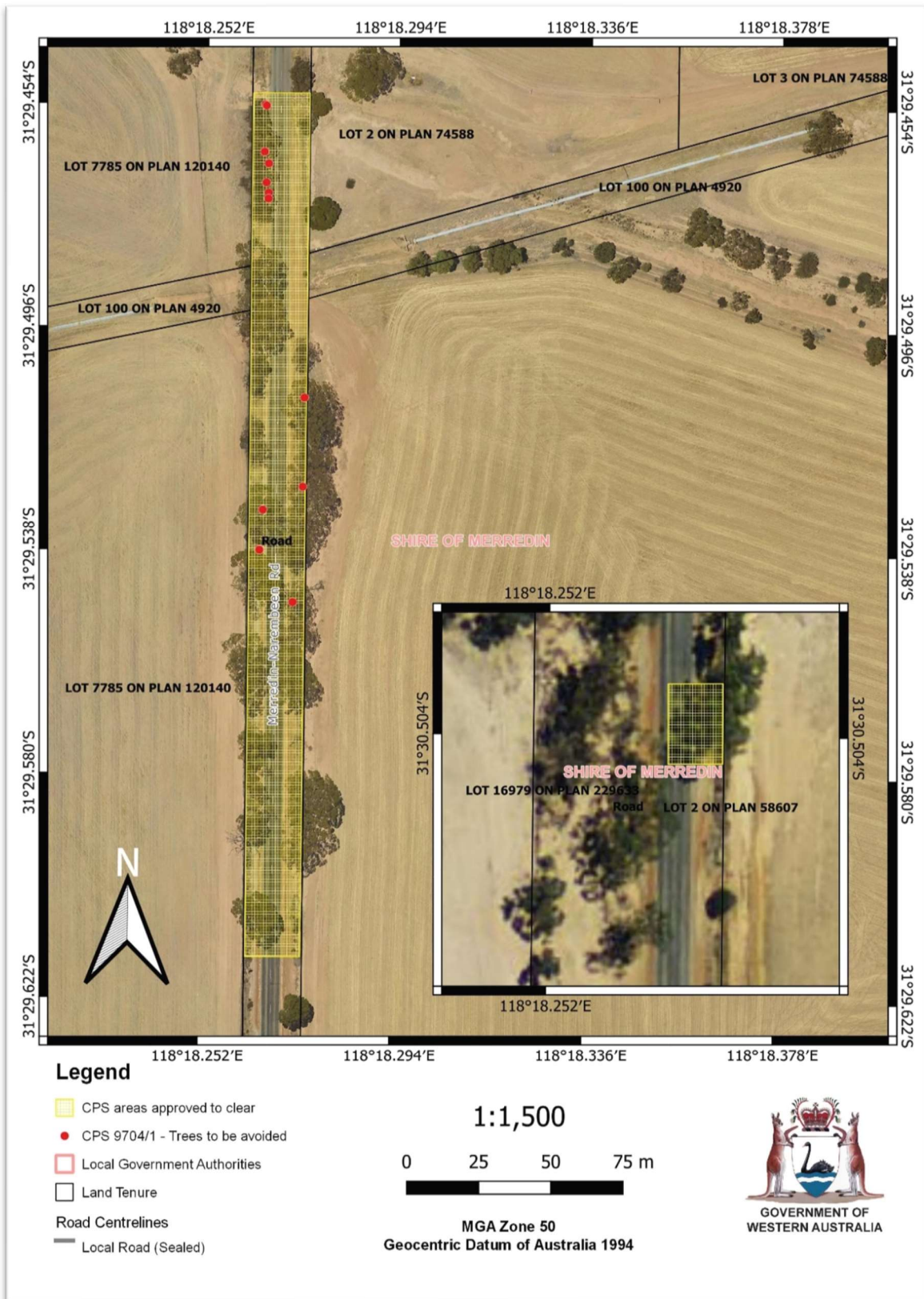


Figure 1: Map of the application area. The areas crosshatched yellow indicates the areas authorised to be cleared under the granted clearing permit. The red dots indicate the areas subject to conditions.

2 Legislative context

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

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

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

Other legislation of relevance for this assessment include:

- *Biodiversity Conservation Act 2016* (WA) (BC Act)
- *Conservation and Land Management Act 1984* (WA) (CALM Act)
- *Environment Protection and Biodiversity Conservation Act 1999* (Cth) (EPBC Act)
- *Rights in Water and Irrigation Act 1914* (RIWI Act)
- *Soil and Land Conservation Act 1945* (WA)

The key guidance documents which inform this assessment are:

- *A guide to the assessment of applications to clear native vegetation* (DER, December 2013)
- *Procedure: Native vegetation clearing permits* (DWER, October 2019)

3 Detailed assessment of application

3.1. Avoidance and mitigation measures

Evidence was submitted by the applicant, demonstrating that explanation of avoidance and mitigation measures (Shire of Merredin, 2022c). 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.

Avoidance measures

This project is part of the WSNF with the aim to improve safety and efficiency along a key transport route that supports the region's major industries. As a key transport route, Merredin-Narembene Road is frequented by both light and heavy vehicles travelling to and from Merredin or connecting other key transport routes. As per the WSNF Basis of Design the road seal is required to be widened from a seven metre seal to an eight metre seal to enable heavy vehicles to pass other vehicles in a safe manner. The minimum pavement width for an eight metre seal is ten metres. Generally, to improve the road quality, the shoulders of a road should be at least 1.5 metres with table drains or similar an additional 1.8 metres wide. The ideal design of the road would therefore require a clear cross section of 13.6 metres. However, to reduce the amount of required clearing the road shoulders have been reduced to one metre, where possible trees have been left in drains, and the road has been offset from its original location. It should also be noted that safety barriers were investigated as an option to reduce the required clearing as part of the Shire's assessment. However, if the barriers were to be installed as per the relevant standards, project cross section would increase and result in further clearing being required (Shire of Merredin, 2022c).

The change in road design has enabled the clearing of an additional 12 trees to be avoided (Figure 1). On the eastern side of the road, there are a total of 18 individual trees, clearing five of which is considered vital for the project. Considering environmental impacts in the design, the clearing of three trees has been avoided, refer to Appendix A. On the western side of the road, there are a total of 43 individual trees, clearing three of which was considered vital for the project. Considering environmental impacts in the design, the clearing of nine trees has been avoided, refer to Appendix A. In total eight trees will need to be cleared to enable the delivery of this project.

Additionally, if any conservation significant flora is found during the clearing works, the Shire of Merredin Project Manager will be onsite to supervise and ensure that works will cease while the plant is assessed. Other control methods that will be put in place to reduce any potential impacts will include the erection of visual barriers to ensure all equipment and personal are located on the road pavement or drain when completing the works (Shire of Merredin, 2022d).

Mitigation measures

To ensure appropriate implementation of onsite mitigation, for every tree cleared, there will be eight seedlings planted. These seedlings, totalling 64, will be of the *Eucalyptus salmonophloia* (salmon gum) variety to replicate

precisely those being cleared. The required seedlings will be supplied from Chatfield's Tree Nursery at Tammin, or a similar supplier, using appropriately sourced seeds. Planting is to be undertaken in winter 2023 and will consist of pre-planting weed control, followed by seedling planting. The Shire of Merredin will then oversee a watering and 12-month monitoring program to ensure that a minimum replacement ratio of 2:1 is achieved (Shire of Merredin, 2022d).

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.

3.2. Assessment of impacts on environmental values

In assessing the application, the Delegated Officer has had regard for the site characteristics (see 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.

The assessment against the clearing principles (Appendix C) identified that the impacts of the proposed clearing present a risk to fauna, remnant vegetation, and land and water resources. 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 (fauna) - Clearing Principle (b)

Assessment

In determining the likelihood of conservation significant fauna occurring within the application area, considerations were given to number of records in the local area, preferred habitat types and typical home ranges, proximity of records to the application area, the type and condition of the vegetation within the application area and historical nature of the records. A summary of fauna recorded within the local area and their potential of occurrence within the application area is presented in Appendix B.

The application area is located within *Zanda latirostris* (Carnaby's black cockatoo) known distribution area. The trees proposed to be cleared have been identified as *Eucalyptus salmonophloia* (salmon gum) (Shire of Merredin, 2022c), which are a species known to be used by Carnaby's cockatoo for breeding and night roosting (DAWE, 2022). The nearest black cockatoo roost was recorded approximately 7.7 kilometres from the application area. The eight trees proposed to be cleared do not contain any hollows (Shire of Merredin, 2022d). Given the absence of hollow-bearing trees necessary for black cockatoo species and low quality foraging habitat within the application area, proximity of records and extent of clearing proposed, the vegetation within the application area is considered unlikely to comprise significant habitat for Carnaby's cockatoos.

Given the lack of suitable habitat and connectivity between the proposed clearing area and large stands of native vegetation, the application area is not likely to comprise significant habitat for the remaining conservation significant species recorded within the local area.

It is not considered likely that the clearing of eight trees over the 0.6 hectare application area, within the already 'Degraded' (Keighery, 1994) road reserve, would severely impact upon the suitability of this road verge to act as black cockatoo habitat or as a suitable habitat corridor.

The vegetation within the application area contains many exotic herbs and grasses, therefore, the clearing activities have the potential to cause and/or exacerbate the introduction and spread of weeds and dieback into nearby vegetation, which could impact on the quality of fauna habitat.

Conclusion

Noting the proposed clearing is for eight trees, and the avoidance and mitigation measures the applicant has taken, the application area is not likely to comprise significant habitat for conservation significant fauna, nor be significant for the continued survival of conservation significant fauna. The clearing activities have the potential to cause and/or exacerbate the introduction and spread of weeds and dieback into nearby vegetation, which could impact on the quality of fauna habitat.

Conditions

To address potential impacts to nearby native vegetation from the proposed clearing, weed and dieback management measures will be required as a condition on the clearing permit to mitigate impacts to adjacent vegetation.

3.2.2. Environmental value: significant remnant vegetation - Clearing Principle (e)

Assessment

The National Objectives Target for Biodiversity Conservation in Australia has a target to prevent clearance of ecological communities with an extent below 30 per cent of that present pre-1750 (i.e. pre-European settlement) (Commonwealth of Australia, 2001). This is the threshold level below which species loss appears to accelerate exponentially at an ecosystem level.

According to available databases, the area proposed to be cleared consists of two vegetation complexes, including (Mattiske and Havel, 1998): Muntadgin_36 Complex in the northern portion (Wattle, casuarina and tea tree *Acacia-Allocasuarina-Melaleuca* alliance) and Muntadgin_1055 Complex in the southern portion (Eucalypt shrubland *Eucalyptus eremophila*, *E. redunca*, *E. spp.*). From photos received from the applicant, the application area is a degraded representation of the Muntadgin_1055 complex.

The Muntadgin_1055 Complex retains only 13.34 per cent vegetation coverage of its pre-European native vegetation extent. Within a 10 kilometre radius of the application area, approximately 13.2 per cent of the pre-European native vegetation extent remains (Government of Western Australia, 2019). The local area and mapped vegetation type is inconsistent with the national target of biodiversity conservation of Australia.

Whilst the proposed clearing is located within an extensively cleared landscape, the application area does not contain any conservation significant flora, does not provide significant habitat for any conservation significant fauna, does not contain high levels of biodiversity nor impact on the road to function as an ecological linkage. Given the above, it is considered that the impact of clearing can be mitigated through appropriate onsite revegetation.

The applicant has committed to planting 64 *Eucalyptus salmonophloia* seedlings to mitigate the clearing of eight trees, to ensure the clearing will not contribute to the decline of vegetation within the local area (see **Error! Reference source not found.**). DWER has assessed the suitability of this mitigation measure. The mitigation planting proposed was input into the *WA Environmental Offsets Metric Calculator* to determine the ratio required to mitigate the loss of eight trees. From this, a minimum of 11 trees were determined to be a suitable mitigation measure. DWER considers that the mitigation planting aligns with the *WA Environmental Offset Policy* (2011) and *WA Environmental Offsets Guideline* (2014). DWER considers that the retention of plantings at a minimum 2:1 ratio as committed by the applicant to be an adequate mitigation measure.

Conclusion

Clearing in the area will contribute to the further loss of native vegetation cover in the Avon Wheatbelt region. As a result, avoidance and mitigation measures were requested from the applicant. In response the applicant avoided a further 12 trees from being cleared, reducing the clearing from 0.2 within 0.6 hectares to 0.11 within the 0.6 hectares. The Applicant also introduced mitigation measures, which will involve the retention of a minimum 2:1 ratio of *Eucalyptus salmonophloia* (salmon gum) seedlings for every tree being cleared within the road reserve, to mitigate the clearing. It is considered that the impact of clearing can be mitigated through appropriate onsite revegetation and that a significant residual impact does not remain.

Conditions

To ensure there is no net loss of trees within the local area, the following management measure will be required as a condition on the clearing permit:

- Survival of 16 *Eucalyptus salmonophloia* (salmon gum) seedlings being planted within the road reserve, to mitigate the clearing.

3.2.3. Environmental value: land and water resources - Clearing Principles (f) & (i)

Assessment

The application area is located within the Avon River System Surface Water Area (UFI 24), proclaimed under the RIWI Act. The Cohn Creek crosses Merredin-Naremben Road approximately seven metres north of the application area and Yilgarn River intersects the application area approximately 54 metres from the most northern point of the application area (Figure 2). These natural, nonperennial watercourses are tributaries of the Avon River. Due to the proximity of these watercourse to the area proposed to be cleared and the potential of the clearing to alter the surface water quality locally and downstream and/or increase the risk of waterlogging or flooding, approval under the RIWI

Act will be required to make any modifications to the existing road culverts. The applicant has obtained a permit under section 17 of the RIWI Act, to authorise them to modify the existing culvert by the beds and banks of the watercourse. The conditions of the permit state that the applicant must undertake the works authorised by the permit with minimal disturbance to bed/banks and that they shall ensure the ponding does not act as an artificial barrier or levee, causing water to pond upstream.

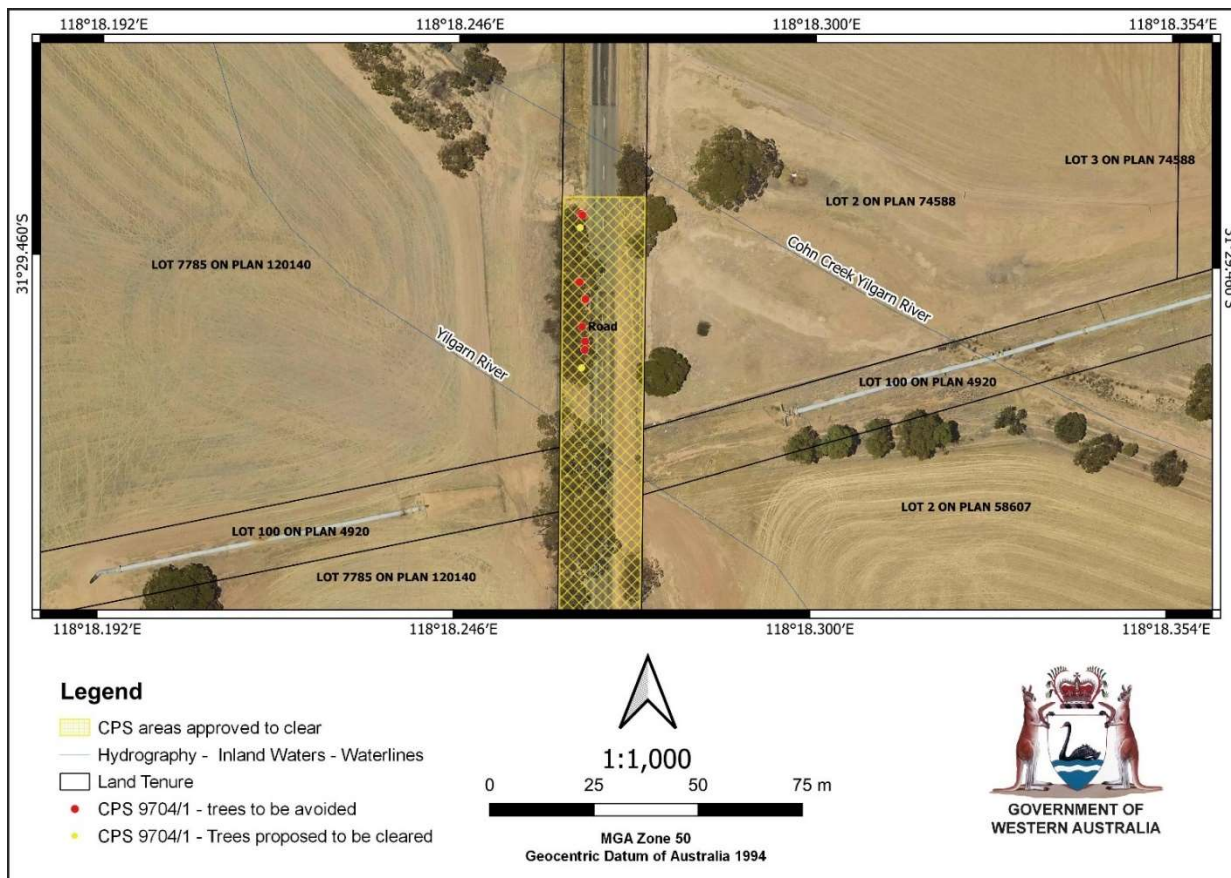


Figure 2: Watercourses located within, and in close proximity to, CPS 9704/1 application area.

Conclusion

Noting the conditions associated with the RIWI Act approval, the proposed clearing is not likely to lead to a long term impact to water quality or increase the incidence or intensity of flooding. There is minimal clearing that is required to occur within the Yilgarn River watercourse.

3.3. Relevant planning instruments and other matters

The proposed clearing is consistent with the Shire of Merredin's Local Planning Scheme.

No Aboriginal Heritage Places have been mapped within 10 kilometres of the application area, however, the entire area does lie within the Registered Ballardong People Indigenous Land Use Agreement (WI2017/012) area. It is the permit holder's responsibility to comply with the *Aboriginal Heritage Act 1972* (WA) and ensure that no Aboriginal Sites of Significance are damaged through the clearing process.

End

Appendix A. Additional information provided by applicant

The applicant supplied photos of the area proposed to be cleared, including photos of marked trees they were proposing to clear and trees they were able to avoid clearing (Appendix E).

DWER requested additional mitigation measures, specifically requesting the planting of trees to mitigate the loss of trees proposed to be cleared within the application area. In response, the Shire of Merredin outlined their avoidance and mitigation measures (Shire of Merredin, 2022c), including the planting of trees within the road reserve. This information has been taken into consideration by the Delegated Officer in determining the outcome of this application.

Appendix B. Site characteristics

The information provided below describes the key characteristics of the area proposed to be cleared and is based on the best information available to DWER at the time of this assessment. This information was used to inform the assessment of the clearing against the Clearing Principles, contained in Appendix C.

B.1. Site characteristics

Characteristic	Details
Local context	<p>The native vegetation proposed to be cleared, comprises of 0.11 hectares of native vegetation within a 0.6 hectare footprint, located along a road reserve within an intensive land use zone in the Shire of Merredin, Western Australia. The majority of this roadside vegetation is adjacent to cleared paddocks used for agricultural purposes. The proposed clearing area contributes to habitat linkages in a north-south direction between parcels of native vegetation.</p> <p>Aerial imagery and Spatial data the local area (10 kilometre radius from the centre of the area proposed to be cleared) retains approximately 13.2 percent of the original remnant vegetation cover.</p>
Ecological linkage	<p>There are several Roadside Conservation – Road centreline (DBCA-030) area linkages within the local area (10 kilometre radius from the centre of the area proposed to be cleared), however, none are mapped directly within the application area.</p> <p>The roadside vegetation on Merredin-Naremben Road is likely to act as an informal ecological linkage in a north-south direction between parcels of native vegetation.</p>
Conservation areas	<p>There are no conservation areas mapped within the area proposed to be cleared. There are several reserves mapped within the local area, however, none nearby to the application area. The nearest park/recreation area is mapped around 950 metres from the application area.</p>
Vegetation description	<p>There are two mapped vegetation complexes found within the proposed areas to be cleared. These consist of (Mattiske and Havel, 1998):</p> <ul style="list-style-type: none">Northern portion - MUNTADGIN_36 Complex - Wattle, casuarina and tea tree <i>acacia-allocauarina-melaleuca</i> alliance.Southern portion - MUNTADGIN_1055 Complex - Eucalypt shrubland <i>Eucalyptus eremophila</i>, <i>E. redunca</i>, <i>E. spp.</i> <p>Within a 10 kilometre radius of the application area, these vegetation complexes have retained 24.17 and 13.34 per cent, respectively, of the pre-European extent (Government of Western Australia, 2019).</p>
Vegetation condition	<p>Photographs supplied by the applicant indicate the vegetation within the proposed clearing area is in Degraded (Keighery, 1994) condition.</p> <p>The full Keighery (1994) condition rating scale is provided in Appendix D. Representative photos are available in Appendix E.</p>

Characteristic	Details
Climate and landform	<p>The Shire of Merredin experience hot, dry summers and mild winters with an average maximum temperature of 24.7°C and an average minimum temperature of 10.6°C. The temperature remains in the low 30's or above between December and February.</p> <p>The average annual rainfall is 314 millimetres, with wettest months usually being May until August.</p>
Soil description	<p>The northern portion of the application area (approximately 97% of the area proposed to be cleared) is located within the 58Kb - Kellerberrin Soil System and sits within its 258KbME - Merredin Subsystem - Broad, which is described as flat valleys of the eastern wheatbelt containing heavy, red and grey soils.</p> <p>The southern portion of the application area (approximately 3% of the area proposed to be cleared) is located within the 258Ta - Tandegin System and sits within its 258KbME - Booraan Subsystem - Hillslopes that predominantly contains hardsetting, grey to brownish sandy loam over clay soils.</p>
Land degradation risk	Please see Land Degradation Table in Section B.5.
Waterbodies	Available mapping and aerial photography indicate that the closest watercourses to the application area are the Cohn Creek, which crosses Merredin-Narembeen Road approximately seven metres north of the application area, and Yilgarn River which intersects the application area approximately 54 metres from its most northern point. Both of these natural, nonperennial watercourses are tributaries of the Avon River which is located beyond the local area.
Hydrogeography	<p>The application area is located within the Avon River System Surface Water Area (UFI 24) and the Northern Zone of Ancient Drainage System - An ancient plain of low relief and lateritic uplands on weathered granite. Ranges and stony plains in the north-east. No connected drainage, remnant salt lake chains occur in ancient drainage systems which now only function in very wet years.</p> <p>The area proposed to be cleared also sits within the South West catchment division (6), the Avon River Basin (615) and the SwanAvon_Yilgarn catchment - UFI 167.</p>
Flora	There are records of eight conservation significant flora species recorded with the local area (10 kilometre radius from the centre of the area proposed to be cleared). A likelihood analysis was completed for these eight species, which can be found in Section B.3. None of these flora records occur within the application area. Photos received of the application area indicate a low likelihood of conservation significant flora occurring due to the degraded condition of the vegetation and the prevalence of agricultural weeds.
Ecological communities	The only Threatened Ecological Community (TEC) found within the local area of proposed clearing, is the Wheatbelt Woodlands - Eucalypt woodlands of the Western Australian Wheatbelt which is listed as Critically Endangered under the EPBC Act. The closest community is approximately 4.36 kilometres from the application area. The application area does not meet the minimum condition thresholds to be classified as this TEC.
Fauna	<p>Nine different fauna species of conservation significance have been recorded in the local area, seven of which are on the threatened list and two are priority listed. The nearest record to the application area is the <i>Falco peregrinus</i> (Peregrine falcon), found approximately 1.38 kilometres away, and list as 'other specially protected species' (OS) under the BC Act.</p> <p>The application area and local area are also mapped as Carnaby's black cockatoo distribution. There is one black cockatoo roost recorded within the local area, which is approximately 7.7 kilometres west of the application area.</p>

B.2. Vegetation extent

	Pre-European extent (ha)	Current extent (ha)	Extent remaining (%)	Current extent in all DBCA managed land (ha)	Current proportion (%) of pre-European extent in all DBCA managed land
IBRA bioregion*					
Avon Wheatbelt	9,517,109.95	1,761,187.42	18.51	174,980.68	1.84
Vegetation complex*					
Hedde / Mattiske vegetation complex Muntadgin_36	300,996.97	72,745.12	24.17	9,676.56	3.21
Hedde / Mattiske vegetation complex Muntadgin_1055	136,168.62	18,159.95	13.34	1,291.38	0.95
Local area					
10 kilometre radius of the application area	35,361	4675.36	13.2	-	-

*Government of Western Australia (2019)

B.3. Flora analysis table

Species name	Conservation status	Suitable habitat features? [Y/N]	Suitable vegetation type? [Y/N]	Suitable soil type? [Y/N]	Distance of closest record to application area (km)	Number of known records (total)	Are surveys adequate to identify? [Y, N, N/A]
<i>Acacia sclerophylla</i> var. <i>teretiuscula</i>	1	Y	Y	Y	2.34	3	N/A
<i>Conostylis albescens</i>	2	N	N	Y	5.77	6	N/A
<i>Eucalyptus brockwayi</i>	3	N	N	Y	1.05	1	N/A
<i>Rinzia torquata</i>	3	N	N	Y	9.07	1	N/A
<i>Verticordia mitodes</i>	3	N	N	Y	2.34	2	N/A
<i>Verticordia multiflora</i> subsp. <i>solox</i>	2	N	N	Y	2.34	1	N/A
<i>Vittadinia cervicularis</i> var. <i>oldfieldii</i>	1	N/A	N/A	Y	2.34	1	N/A
<i>Xanthoparmelia subimitatrix</i>	3	N	N	Y	2.11	2	N/A

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

B.4. Fauna analysis table

Species name	Conservation status	Suitable habitat features? [Y/N]	Suitable vegetation type? [Y/N]	Distance of closest record to application area (km)	Number of known records (total)	Are surveys adequate to identify? [Y, N, N/A]
Threatened fauna species						
<i>Falco peregrinus</i> (Peregrine falcon)	OS	N	N	1.38	2	N/A
<i>Leipoa ocellata</i> (malleefowl)	VU	N	N	2.17	6	N/A
<i>Idiosoma nigrum</i> (shield-backed trapdoor spider)	EN	Y	Y	2.96	3	N
<i>Myrmecobius fasciatus</i> (Numbat, walpurti)	EN	N	N	3.68	1	N/A

Species name	Conservation status	Suitable habitat features? [Y/N]	Suitable vegetation type? [Y/N]	Distance of closest record to application area (km)	Number of known records (total)	Are surveys adequate to identify? [Y, N, N/A]
<i>Zanda latirostris</i> (Carnaby's black cockatoo)	EN	Y	Y	4.00	4	Y
<i>Myrmecobius fasciatus</i> (bilby, dalgyte, ninu)	VU	N	N	5.43	1	N/A
<i>Dasyurus geoffroyi</i> (chuditch, western quoll)	VU	N	N	9.30	2	N/A
Priority fauna species						
<i>Aganippe castellum</i> (tree-stem trapdoor spider)	P4	Y	Y	1.98	154	N
<i>Aspidites ramsayi</i> (woma, southwest subpop.)	P1	N/A	N/A	2.17	1	N/A

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

B.5. Land degradation risk table

Risk Categories	Northern portion of application area	Southern portion of application area
Wind erosion	L1: <3% of map unit has a high to extreme wind erosion risk	L2: 3-10% of map unit has a high to extreme wind erosion risk
Water erosion	L1: <3% of map unit has a high to extreme water erosion risk	
Water logging	H2: >70% of map unit has a moderate to very high waterlogging risk	L2: 3-10% of map unit has a moderate to very high waterlogging risk
Water Repellence	L1: <3% of map unit has a high water repellence risk	
Sub-surface Acidification	L2: 3-10% of map unit has a high subsurface acidification risk or is presently acid	M1: 10-30% of map unit has a high subsurface acidification risk or is presently acid
Phosphorous export	H2: >70% of map unit has a high to extreme phosphorus export risk	L1: <3% of map unit has a high to extreme phosphorus export risk
Salinity	M2: <3% of map unit has a moderate to high salinity risk or is presently saline	L1: 30-50% of map unit has a moderate to high salinity risk or is presently saline
Flooding	L1: <3% of the map unit has a moderate to high flood risk	

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> "Native vegetation should not be cleared if it comprises a high level of biodiversity."</p> <p><u>Assessment:</u></p> <p>The area proposed to be cleared is not likely to contain local or regionally significant flora, fauna, habitats or assemblages of plants. Given the extent of clearing and the completely degraded condition of the vegetation, the proposed clearing is not considered to comprise a high level of biodiversity.</p>	Not likely to be at variance	No
<p><u>Principle (b):</u> "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."</p> <p><u>Assessment:</u></p> <p>The area proposed to be cleared contains foraging habitat for Carnaby's black cockatoos.</p>	At variance	Yes <i>Refer to Section 3.2.1, above.</i>

Assessment against the clearing principles	Variance level	Is further consideration required?
<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>Due to the degraded condition of the vegetation, the area proposed to be cleared is unlikely to contain habitat for threatened flora.</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>The local area contains occurrences of the Wheatbelt Woodlands - Eucalypt woodlands of the Western Australian Wheatbelt TEC. The application area does not meet the minimum condition thresholds to be classified as this TEC. The vegetation within the application area is in degraded condition and no TECs listed under the BC Act or EPBC Act were recorded within the proposed clearing area.</p>	Not 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 extent of the mapped vegetation type and the native vegetation in the local area is not consistent with the national objectives and targets for biodiversity conservation in Australia.</p>	At variance	Yes <i>Refer to Section 3.2.2, above.</i>
<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 and the lack of topographical connectivity from the application area to conservation areas, the proposed clearing is not likely to have an impact on the environmental values of nearby conservation areas.</p>	Not likely to be at variance	No
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>Given a water course is recorded within the application area, the proposed clearing is growing in association with an environment associated with a watercourse.</p>	At variance	Yes <i>Refer to Section 3.2.3, above.</i>
<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>Two soil types were mapped within the application area. Noting the low land degradation risks of soil types mapped and the extent and location of the application area, the proposed clearing is not likely to have an appreciable impact on land degradation.</p>	Not likely to be at variance	No

Assessment against the clearing principles	Variance level	Is further consideration required?
<p><u>Principle (i):</u> “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.”</p> <p><u>Assessment:</u></p> <p>Given the application area is located within the Avon River System Surface Water Area (UFI 24), the proposed clearing may impact surface water quality.</p>	May be at variance	Yes <i>Refer to Section 3.2.3, above.</i>
<p><u>Principle (j):</u> “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 mapped soils and topographic contours in the surrounding area do not indicate the proposed clearing is likely to contribute to increased incidence or intensity of flooding.</p>	Not likely to be at variance	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. Photographs of the vegetation



Figure 3: Representative photograph (taken Mar 2022) supplied by applicant, of road reserve proposed to be cleared under clearing application CPS 9704/1, demonstrating vegetation condition - Degraded according to Keighery (1994) scale (Shire of Merredin, 2022a).



Figure 4: Representative photographs (taken Mar 2022) supplied by applicant, of road reserve proposed to be cleared under clearing application CPS 9704/1, demonstrating vegetation condition - Degraded according to Keighery (1994) scale (Shire of Merredin, 2022a).



Figure 5: Photographs (taken Sept 2022), supplied by applicant, of road reserve proposed to be cleared under clearing application CPS 9704/1. Demonstrates avoidance measures taken (green = avoided trees) (Shire of Merredin, 2022d)

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)
- Cadastre Address (LGATE-002)
- Contours (DPIRD-073)
- 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)
- Hydrography – Inland Waters – Waterlines
- Hydrological Zones of Western Australia (DPIRD-069)
- IBRA Vegetation Statistics
- Imagery
- Local Planning Scheme – Zones and Reserves (DPLH-071)
- Native Title (ILUA) (LGATE-067)
- Offsets Register – Offsets (DWER-078)
- Pre-European Vegetation Statistics
- Public Drinking Water Source Areas (DWER-033)
- Ramsar Sites (DBCA-010)
- 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 Land Quality – Flood Risk (DPIRD-007)
- Soil Landscape Land Quality – Phosphorus Export Risk (DPIRD-010)
- Soil Landscape Land Quality – Subsurface Acidification Risk (DPIRD-011)
- Soil Landscape Land Quality – Water Erosion Risk (DPIRD-013)
- Soil Landscape Land Quality – Water Repellence Risk (DPIRD-014)
- Soil Landscape Land Quality – Waterlogging Risk (DPIRD-015)
- Soil Landscape Land Quality – Wind Erosion Risk (DPIRD-016)
- Soil Landscape Mapping – Best Available
- Soil Landscape Mapping – Systems
- Wheatbelt Wetlands Stage 1 (DBCA-021)

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)

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