



mainroads
WESTERN AUSTRALIA

Clearing Desktop Report – CPS 818

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Western Australia.*

Maddock South Material Pit Access Track
Great Eastern Hwy (H005)
Wheatbelt Region
EOS 2870

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Document Control

Report Compilation & Review	Name and Position	Document Revision	Date
Author:	Senior Environment Officer	1	07/12/2022
Reviewer:	Principal Environment Officer	1	12/12/2022

1 PROPOSAL

1.1 Purpose and Justification

Main Roads Western Australia (Main Roads) plans to establish a new materials pit, referred to as Maddocks South Pit, to provide naturally occurring road-building materials for upcoming safety upgrade projects along Great Eastern Hwy (GEH) between Walgoolan and Southern Cross. The materials pit will be located in cleared farmland and access will be via an existing access track. Main Roads proposes to undertake minor clearing of native vegetation at the entrance and exit points of the access track to provide a safe turning area for heavy vehicles using the materials pit.

1.1.1 Main Roads Approach to Road Safety and the Environment

Main Roads is committed to minimising the environmental impacts of all of its activities, and manages the State road network to achieve balanced economic, social, safety and environmental benefits for the community. Main Roads recognises that Western Australia's environment is significant from a global perspective and the unique conservation values that are contained within its road reserve. Main Roads road network often adjoins natural areas and, in some locations, the reserve itself hosts remnant vegetation with high environmental values. Although the reserves were not established for this purpose, Main Roads recognises that it has a responsibility to conserve the environmental values that occur within the State's road network and minimise the impact its proposals have on the environment. In addition to providing a safe and efficient road network for all people using the roads under its control, Main Roads is also committed to protecting and enhancing the natural environment.

In accordance with National and State Government road safety policies, Main Roads is also committed to substantially reducing road trauma on the road network through Safe System principles. The Safe System approach acknowledges that more than two thirds of all serious crashes are due to human error rather than deliberate risk taking (e.g. speeding or drink driving) and seeks to improve behaviour through education and enforcement while managing the safety of vehicles, speeds and the road and road infrastructure. It is shown that improving sub-optimal road formation will substantially reduce the likelihood and severity of road crashes. For example, according to the Road Safety Management Guideline, increasing the sealed shoulder from 0.5 m to 2 m will reduce Killed and Seriously Injured numbers by more than 50%.

As the statutory authority responsible for providing and managing a safe and efficient main road network in Western Australia, Main Roads focuses on improving road safety by thoroughly considering all environmental, economic and community benefits and impacts. It operates on a hierarchy of avoiding, minimising, reducing and then, if required, offsetting our environmental impacts. This has been achieved through changes in proposal scope and design. Main Roads regularly reduces its clearing footprint by restricting earthworks limits for proposals, steepening batters, installing barriers, establishing borrow pits in cleared paddocks and avoiding temporary clearing for storage, stockpiles and turn around bays to avoid and minimise its impacts.

Further details on measures to avoid, minimise and reduce are provided in Section 1.5.

1.2 Proposal Scope

The scope of the project is to undertake minor clearing of native vegetation to widen the entrance and exit points of the access track to the Maddocks South Pit. The clearing area comprises the following areas:

- Clear a strip of vegetation to widen the entrance by 4 m (0.007 ha)
- Clear a corner of vegetation at the intersection of two existing tracks to widen the exit (0.006 ha)

1.3 Proposal Location

The Clearing Area is located in an undeveloped road reserve west of Moorine Rock, in the Shire of Yilgarn.

1.4 Clearing Details

Proposed Clearing to be undertaken using CPS 818: 0.013 ha

Areas of Native Vegetation Clearing: The areas of native vegetation to be cleared are shown in Figure 1.

Type of Native Vegetation: The type of vegetation to be cleared under this Proposal is wattle, casuarina and teatree *acacia-allocauarina-melaleuca* alliance.



Figure 1 – Clearing Area

1.5 Alternatives to Native Vegetation Clearing Considered During Proposal Development

The following alternatives to clearing were considered during the development of the proposal:

- Using an existing commercial material source, however there are no commercial sources in close proximity to GEH. The carting distance and cost required to source materials from existing commercial sources would make upgrading GEH unfeasible and would significantly increase vehicle greenhouse gas emissions.
- Locate the materials pit such that no clearing is required for access. This was investigated however due to the specific geotechnical requirements of the material source and logistical requirements from the landowner, there are limited alternative locations Main Roads can develop this materials pit.
- Use the access track as is (i.e. no clearing). The nominated access route to the materials pit is well established and requires only minimal clearing to make safe and trafficable. A no clearing option was investigated however it was found that the entrance and exit points are too constrained to be traversed safely by a large haulage truck.

1.6 Measures to Avoid, Minimise, Reduce and Manage Proposal Clearing Impacts

The design and management measures implemented to avoid and minimise the clearing impacts by the Proposal include the following:

- Main Roads is utilising an existing cleared farm paddock for the materials pit, thereby avoiding any clearing to source road-building materials. Main Roads is also utilising an existing access route, therefore only minimal clearing is required to provide access. Where clearing is required, the clearing area has been minimised as much as possible to only what is required to make the access track accessible to large haulage trucks.
- 0.013 ha represents the maximum clearing area required for the works. This area will be assessed again on site prior to clearing to determine if further reductions can be made (eg, pruning vegetation).
- The clearing will be undertaken in accordance with Main Roads Principle Environmental Management Requirements (PEMRs), which include management controls to minimise indirect impacts to vegetation from clearing activities. These include, but not limited to, dust management, vehicle hygiene, hydrocarbons storage and spill management and fauna.

1.7 Approved Policies and Planning Instruments

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, Main Roads has also had regard to the below instruments where relevant.

Other Legislation potentially relevant for assessment of clearing and planning/other matters:

- *Biodiversity Conservation Act 2016* (WA) (BC Act)
- *Conservation and Land Management Act 1984* (WA) (CALM Act)
- *Country Areas Water Supply Act 1947* (WA) (CAWS Act)
- *Environment Protection and Biodiversity Conservation Act 1999* (Cth) (EPBC Act)
- *Planning and Development Act 2005* (WA) (P&D Act)
- *Soil and Land Conservation Act 1945* (WA)
- *Rights in Water and Irrigation Act 1914*
- *Aboriginal Heritage Act 1972* (WA).

Other relevant policies and guidance documents:

- Environmental Offsets Policy (Government of Western Australia, 2011)
- A guide to the assessment of applications to clear native vegetation (Government of WA, December 2014)
- Procedure: Native vegetation clearing permits (Government of WA, October 2019)
- Environmental Offsets Guidelines (Government of Western Australia, 2014)
- Technical guidance – Flora and Vegetation Surveys for Environmental Impact Assessment (EPA, 2016)
- Technical guidance – Terrestrial Vertebrate Fauna Surveys for Environmental Impact Assessment (EPA, 2020)
- Approved conservation advice under section 266B of the EPBC Act for threatened flora/fauna/vegetation communities.
- Approved Conservation Advice (including listing advice) for the Eucalypt Woodlands of the Western Australian Wheatbelt (Department of the Environment, 2015)
- Carnaby's Cockatoo (*Calyptorhynchus latirostris*) Recovery Plan (Department of Parks and Wildlife, 2013)
- Referral guideline for 3 WA threatened black cockatoo species (DSWEPaC, 2012)

2 SCOPE AND METHODOLOGY OF CLEARING DESKTOP ASSESSMENT

Native vegetation will be cleared to accommodate this Proposal. This clearing will be undertaken using the Main Roads Statewide Clearing Permit CPS 818.

To comply with CPS 818, Main Roads must prepare a Clearing Desktop Report (CDR).

The CDR outlines the key activities associated with the Proposal, the existing environment and an assessment of native vegetation clearing. This assessment provides an evaluation of the vegetation clearing impacts associated with the Proposal using the ten Clearing Principles listed under s51 of the *Environmental Protection Act 1986* (EP Act) and strategies used to manage vegetation clearing.

2.1 Report Terminology and Sources

The following terms are used in this Clearing Report:

- **Native Vegetation Clearing Area (Clearing Area)** – The maximum amount of native vegetation to be cleared for the Proposal.
- **Study Area** – Area covered by the Desktop Assessment. The Study Area for the Proposal is confined to a local area of a 20 km radius.

2.2 Desktop Assessment

A desktop assessment of the Native Vegetation Clearing Area was undertaken by viewing internal datasets and other government agency managed databases, and consulting with relevant stakeholders where necessary. Results from searches can be found in Appendix 1.

GIS layer viewing and mapping is done using Esri ArcGIS Pro and Main Roads corporate mapping system iMaps. Referencing of the GIS layers accessed is done under the relevant methodology section of each clearing principle. Government managed databases were searched to locate additional information, which are found under References in Section 6.

3 VEGETATION DETAILS

3.1 Proposal Site Vegetation Description

The Clearing Area is located within the eastern Wheatbelt region, which is characterised by a mosaic of cleared agricultural land and patches of remnant native vegetation. The Clearing Area is made up of two separate areas that both occur on the edge of an existing access track. The vegetation forms part of a wider corridor of native vegetation that occurs parallel to GEH.

Table 1 and Table 2 provide details of the vegetation types and their condition within the Proposal and the remaining extents of these associations.

Table 1. Summary of Vegetation Types within Clearing Area

Vegetation Type	Extent within Clearing Area (ha)
Vegetation association 8: Medium woodland; salmon gum & gimlet	0.06 ha
Vegetation association 1413: Shrublands; acacia, casuarina & melaleuca thicket	0.07 ha

Table 2. Pre-European Vegetation Representation

Pre-European Vegetation Association	Scale	Pre-European Extent (ha)	Current Extent (ha)	% Remaining	% Current Extent in DBCA Managed Land (proportion of pre-European Extent)
Veg Assoc No. 8	Statewide	694,638.14	346,425.77	50%	7%
	IBRA Bioregion Avon Wheatbelt	356,571.81	50,340.31	14%	1%
	IBRA Sub-region Merredin	353,871.79	49,941.57	14%	1%
	Local Government Authority Shire of Yilgarn	163,920.73	59,992.64	37%	7%
Veg Assoc No. 1413	Statewide	1,679,916.32	1,286,855.48	77%	13%
	IBRA Bioregion Avon Wheatbelt	546,675.55	174,102.84	32%	2%
	IBRA Sub-region Merredin	546,675.55	174,102.84	32%	2%
	Local Government Authority Shire of Yilgarn	538,791.10	395,458.48	73%	19%

Site photographs indicate that the vegetation comprises of a tall shrubland with scattered mallees, which is consistent with the description of vegetation association 1413. As no salmon gum or gimlet woodlands have been observed in the Clearing Area, the vegetation is not considered representative of vegetation association 8.

4 ASSESSMENT AGAINST THE TEN CLEARING PRINCIPLES

In assessing whether the Proposal’s proposed clearing is likely to have a significant impact on the environment, the Proposal was assessed against the ten Clearing Principles (EP Act, Schedule 5).

Each principle has been assessed in accordance with the former Department of Environment Regulation (now Department of Water and Environmental Regulation (DWER) ‘*A Guide to the Assessment of Applications to Clear Native Vegetation*’ (Department of Environment Regulation, 2014) and other relevant clearing permit application decision reports prepared by DWER.

The proposed clearing is not likely to be at variance with the ten Clearing Principles.

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

Proposed clearing is not likely to be at variance to this Principle.

Assessment

The proposal requires the clearing of up to 0.013 ha of native vegetation for the purpose of widening an existing access track. The vegetation has been broadly mapped as shrublands comprising *Acacia*, *Casuarina*, and *Melaleuca*. Site photographs show the vegetation is in very good condition.

According to the desktop assessment, a part of the clearing occurs in the mapped distribution of the Eucalypt Woodlands of the Western Australian Wheatbelt (Wheatbelt Woodlands), which is listed by DBCA as a Priority 3 Priority Ecological Community (PEC). The Wheatbelt Woodlands PEC is synonymous with the EPBC Act-listed Eucalypt Woodlands Threatened Ecological Community (TEC). According to the approved conservation advice for the Wheatbelt Woodlands TEC (Department of the Environment, 2015), a key characteristic of the community is a woodland structure with a tree canopy dominated by eucalypt species. Aerial imagery and site photographs indicate the Clearing Area comprises a tall shrubland consistent with vegetation association 1413. Accordingly, the vegetation is not considered representative of the Wheatbelt Woodlands TEC or PEC.

The desktop assessment did not identify any other TECs or PECs in the Study Area.

The desktop assessment identified 13 significant flora species known to occur in the study area. None of these records occur within the Clearing Area. Given the soil and vegetation type present, the following seven Priority flora species have the potential of occurring in the Clearing Area:

- *Eucalyptus calycogona* subsp. *miraculum* (P1)
- *Acacia filifolia* (P3)
- *Balaustion grandibracteatum* subsp. *grandibracteatum* (P3)
- *Lepidosperma* sp. *Pigeon Rocks* (H. Pringle 30237) (P3)
- *Rinzia triplex* (P3)
- *Stylidium choreanthum* (P3)
- *Verticordia mitodes* (P3)

The habitat requirements of *Eucalyptus calycogona* subsp. *miraculum*, *Balaustion grandibracteatum* subsp. *grandibracteatum*, and *Lepidosperma* sp. *Pigeon Rocks* are not known, therefore these species are considered possible to occur in the Clearing Area.

Eucalyptus calycogona subsp. *miraculum* is known from 12 records across the Avon Wheatbelt and Coolgardie regions. Records of this species are confined to the Marvel Loch area, extending from Dulyabin to east of Southern Cross. The closest record is located 19.5 km south-east of the Clearing Area. *Balaustion grandibracteatum* subsp. *grandibracteatum* is known from 35 records across the Avon Wheatbelt and Coolgardie regions, mostly occurring in the Southern Cross and Marvel Loch area. The closest record is 13 km east of the Clearing Area. *Lepidosperma* sp. Pigeon Rocks is known from eight records across the Avon Wheatbelt, Coolgardie, Mallee, and Murchison regions. The closest record is 13 km north-west of the Clearing Area. Considering these species occur across a wide distribution outside of the Study Area, and the minor scale of clearing, the proposed clearing is not likely to impact the conservation of these species.

Acacia filifolia occurs on yellow sand or gravelly lateritic sand, on sandplains. This species is known from 48 records extending from Coorow eastward through Wongan Hills to near Burracoppin and Southern Cross (Maslin, 2018). The closest record is 15 km north-east of the Clearing Area. *Rinzia triplex* occurs on yellow sand on undulating plains. This species is known from 13 records, the majority of which occur north-west of the Mt Manning area, with the remaining records occurring between Moorine Rock and Coolgardie. The closest record is 13 km south-east of the Clearing Area. *Stylidium choreanthum* occurs on white/yellow or red sand plains. This species is known from 29 records, occurring north of Southern Cross to south of Coolgardie. The closest record is 16 km south of the Clearing Area. *Verticordia mitodes* occurs in yellow sand on undulating plains. This species is known from 23 records extending from Merredin east to near Marvel Lock and Boorabbin, and near Warralakin south to near Narembeen. The nearest record is 5 km east of the Clearing Area. The Clearing Area contains suitable habitat for these species; however, these species have a wide distribution outside of the Study Area and the proposed clearing is minor in scale that will not significantly reduce habitat for these species in the local or regional area. The proposed clearing is unlikely to impact on Priority flora.

The desktop assessment identified one Threatened, one Priority and one other specially protected fauna species that have been recorded in the Study Area. As discussed in principle (b), given the small area to be cleared and connectivity to surrounding vegetation, the Clearing Area is unlikely to provide significant habitat.

Based on the above, the proposed clearing is not likely to be at variance to this principle.

Methodology

- Department of the Environment (2015)
- Government GIS Databases:
 - DBCA Threatened and Priority Ecological Community database search (Accessed 07/12/2022)
 - DBCA Threatened and Priority flora database search (Accessed 07/12/2022)
 - WA Herbarium flora database search (07/12/2022)
 - DBC Threatened and Priority fauna database search (Accessed 07/12/2022)
- WA Herbarium Florabase (2022)

(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 indigenous to Western Australia.

Proposed clearing is not likely to be at variance to this Principle.

Assessment

According to the desktop assessment, the following significant fauna species are known to occur in the Study Area:

- *Leipoa ocellata* (Mallefowl – T)
- *Falco peregrinus* (Peregrine Falcon – Other specially protected)
- *Parartemia contracta* (a brine shrimp – P1)

Available databases and site photographs indicate the fauna habitat comprises *Acacia*, *Casuarina* and *Melaleuca* shrublands on sandy yellow earths with ironstone gravels.

The clearing area does not contain suitable habitat for *Parartemia contracta*.

Malleefowl are found in arid and semi-arid areas dominated by mallee eucalypts on sandy soils. They are known to also occur in Mulga (*Acacia aneura*), Broombush (*Melaleuca uncinata*), Scrub Pine (*Callitris verrucosa*), *Eucalyptus* woodlands and coastal heathlands (DPaW, 2016). There are numerous records of this species in the Study Area, including in vegetation along GEH near the Clearing Area and near Moorine Rock. The clearing area may provide suitable habitat for this species given the vegetation comprises shrublands with scattered mallees over sandy soils. However, the extent of clearing is very minor (0.013 ha) and similar habitat occurs outside the Clearing Area. Site photographs do not show any recent or historical breeding activity in the Clearing Area. The vegetation is not considered significant habitat for this species.

Peregrine falcon is a highly mobile species with a large home range and utilises a variety of habitat types. The Clearing Area may provide suitable foraging habitat for this species, but peregrine falcon would not be reliant on the vegetation for foraging resources.

Based on the above, the proposed clearing is not likely to be at variance to this principle.

Methodology

- Government GIS Shapefiles:
 - DBCA Threatened and Priority fauna database search (Accessed 07/12/2022)
- Species specific conservation listing advice and recovery plans

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

Proposal is not likely to be at variance to this Principle.

Assessment

The desktop assessment identified one Threatened flora species known to occur in the Study Area, being *Eucalyptus crucis* subsp. *crucis*. According to the WA Herbarium (2022), this species is associated with granite outcrops. The Clearing Area does not contain suitable habitat for this species.

Based on the above, the proposed clearing is not likely to be at variance to this principle.

Methodology

- Government GIS shapefiles:
 - DBCA Threatened flora database search (Accessed 07/12/2022)
 - WA Herbarium flora database search (Accessed 07/12/2022)

(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.

Proposed clearing is not likely to be at variance to this Principle.

Assessment

As assessed under principle (a), the desktop assessment has identified part of the clearing area occurring in the mapped distribution of the Wheatbelt Woodlands TEC. According to aerial imagery and site photographs, the vegetation to be cleared is consistent with vegetation association 1413, which is described as *Acacia*, *Casuarina* and *Melaleuca* shrublands. Given the absence of a *Eucalyptus*-dominated canopy within the clearing area, the vegetation is not likely to represent the Wheatbelt Woodlands TEC.

The desktop assessment did not identify any other TECs in the Study Area.

Based on the above, the proposed clearing is not likely to be at variance to this principle.

Methodology

- Community specific conservation listing advice and recovery plans
- Government GIS shapefiles:
 - DBCA Threatened Ecological Community database search (Accessed 07/12/2022)

(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.

Proposed clearing is not likely to be at variance to this Principle.

Assessment

The vegetation to be cleared has been broadly mapped as the following pre-European vegetation associations:

- 8: Medium woodland; salmon gum & gimlet
- 1413: Shrublands; acacia, casuarina & melaleuca thicket

The National Objectives and Targets for Biodiversity Conservation recognise that the retention of 30% or more of the pre-clearing extent of each ecological community is necessary if Australia’s biological diversity is to be protected (Commonwealth of Australia, 2001). Vegetation association retains over 30% of pre-European extent at all scales.

Vegetation association 8 has less than 30% of pre-European extent within the bioregion and subregion remaining. This vegetation type is mapped across 0.06 ha of the Clearing Area. The occurrence of this vegetation association is associated with broad-scale mapping. Aerial imagery and site photographs indicate the vegetation is a shrubland that is consistent with vegetation association 1413, and the species that characterise vegetation association 8 have not been observed in the Clearing Area. Given the absence of a *Eucalyptus*-dominated canopy within the Clearing Area, the vegetation is not likely to be representative of this vegetation association.

The Clearing Area is located in the Avon Wheatbelt IBRA bioregion, of which approximately 19% vegetation cover remains. The Study Area retains approximately 21% native vegetation (approximately 27,170 ha). According to aerial imagery, the Clearing Area forms part of a wide corridor of native vegetation that occurs parallel to GEH. The proposed clearing represents less than 0.0001% of vegetation in the local area. Furthermore, noting the very minor scale of the clearing along an existing access track, the proposed clearing is unlikely to significantly increase fragmentation of native vegetation.

While the Clearing Area is located within an extensively cleared area, the vegetation to be cleared is not considered to be significant as a remnant of native vegetation.

Based on the above, the proposed clearing is not likely to be at variance to this principle.

Methodology

- Aerial photography
- Government GIS shapefiles:
 - Native Vegetation Extent (Accessed 07/12/2022)
 - Pre-European vegetation (Accessed 07/12/2022)
 - Vegetation complexes (Accessed 07/12/2022)
- Statewide Vegetation Statistics (Government of Western Australia 2019)

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

Proposed clearing is not at variance to this Principle.

Assessment

According to the desktop assessment, no watercourses or wetlands occur within or in close proximity to the clearing area. The nearest surface water feature is a minor non-perennial watercourse mapped approximately 1 km to the west of the Clearing Area.

Based on aerial imagery, site photographs and the distance from known watercourses and wetlands, the vegetation to be cleared is not considered to be growing in association with a watercourse or wetland. The proposed clearing is therefore not at variance to this principle.

Methodology

- Government GIS shapefiles:
 - Geomorphic Wetlands (Accessed 07/12/2022)
 - Ramsar Wetlands (Accessed 07/12/2022)
 - Important Wetlands (Accessed 07/12/2022)
 - Watercourses (Accessed 07/12/2022)
 - RIWI Act Rivers (Accessed 07/12/2022)

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

Proposed clearing is not likely to be at variance to this Principle.

Assessment

According to state-wide soil mapping, the Clearing Area is described as gently sloping to gently undulating plateau areas, or uplands with long and very gentle slopes, chiefly comprising sandy yellow earths and yellow earthy sands on depositional slopes, and ironstone gravels on erosional ridges and slopes (Northcote et al, 1960-68).

The Clearing Area has a relatively flat topography (approximately 2%) and an average rainfall of 320 mm per annum (BoM, 2022). According to DPIRD land degradation risk mapping, the Clearing Area has a low risk of land degradation from water erosion, waterlogging, flooding and salinity, and a high risk of land degradation from wind erosion. Given the very minor scale of the clearing and retention of native vegetation in the vicinity of the Clearing Area, the proposed clearing is not likely to lead to an appreciable increase in land degradation. Main Roads standard erosion and dust management controls will be implemented through the Construction Environmental Management Plan to reduce the incidence of wind erosion.

Based on the above, the proposed clearing is not likely to be at variance to this principle.

Methodology

- BoM Climate Data Online (Accessed 07/12/2022)
- Government GIS Shapefiles:
 - WB North Contours 25000-100000 (Accessed 07/12/2022)
 - Soil landscape land quality – Water Erosion Risk (Accessed 07/12/2022)
 - Soil landscape land quality – Wind Erosion Risk (Accessed 07/12/2022)
 - Soil landscape land quality – Salinity Risk (Accessed 07/12/2022)
 - Soil landscape land quality – Surface Acidity (Accessed 07/12/2022)
 - Soil landscape land quality – Waterlogging Risk (Accessed 07/12/2022)
 - Soil landscape land quality – Flood Risk (Accessed 07/12/2022)
- Statewide Soil Mapping (Northcote et al, 1960-68)

(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.

Proposed clearing is not at variance to this Principle.

Assessment

According to the desktop assessment, the Clearing Area does not occur within or adjacent to a conservation area. The nearest conservation area is an unnamed nature reserve (R 40460) located approximately 17 km south-west of the Clearing Area. Noting the distance between the Clearing Area and the nearest conservation area, the proposed clearing will not affect the values of any adjacent or nearby conservation areas.

Based on the above, the proposed clearing is not at variance to this principle.

Methodology

- Government GIS Shapefiles:
 - DBCA Legislated Lands and Waters & Lands of Interest (Accessed 07/12/2022)

(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.

Proposed clearing is not likely to be at variance to this Principle.

Assessment

There are no watercourses or wetlands mapped within the Clearing Area. The proposed clearing is unlikely to result in significant changes to surface water flows.

The Clearing Area is not located in a Public Drinking Water Source Area. Groundwater salinity in the local area is mapped between 14,000-35,000 milligrams per litre total dissolved solids, which is considered saline. Noting the salinity level and the minor extent of the proposed clearing, the proposed clearing of 0.013 ha is not likely to cause deterioration in the quality of underground water.

The proposed clearing is not likely to be at variance to this principle.

Methodology

- Government GIS Shapefiles:
 - PDWSAs
 - RIWI Act, Surface Water Areas and Irrigation Districts (Accessed 07/12/2022)

- RIWI Act, Groundwater Areas (Accessed 07/12/2022)
- Soil landscape land quality - Salinity Risk (Accessed 07/12/2022)
- Groundwater Salinity Statewide (Accessed 07/12/2022)

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

Proposed clearing is not likely to be at variance to this Principle.

Assessment

The nearest weather station is Noongaar, which is 17 km northeast of the Clearing Area, with an average rainfall of approximately 320 mm per year (BOM, 2022). As discussed in principle (g), the Clearing Area has a low risk of flooding and waterlogging. There are no watercourses or wetlands within the Clearing Area. The proposed clearing is unlikely to increase the incidence or intensity of flooding.

Based on the above, the proposed clearing is not likely to be at variance to this principle.

Methodology

- BoM Climate Data Online (Accessed 07/12/2022)

5 COMPLIANCE WITH CPS 818

The clearing associated with the proposal is unlikely or not at variance with the Clearing Principles. Additional management actions under CPS 818 are detailed in Table 3.

Table 3. Summary of Additional Management Actions Required by CPS 818

Impact of Clearing	Yes/No or NA	Further Action Required
1. The CDR indicates that the clearing is 'At Variance' or 'May be at Variance' with one or more of the Clearing Principles.	No	No further action required.
2. Clearing is at variance or may be at variance with Clearing Principle (g) land degradation, (i) surface or underground water quality or (j) the incidence of flooding.	No	No further action required.
3. Clearing is at variance with Clearing Principle (g) land degradation, (i) surface or underground water quality and (j) the incidence of flooding.	No	No further action required.
4. The Proposal involves clearing for temporary works (as defined by CPS 818).	No	No further action required.
5a. Proposal is within a Region that: <ul style="list-style-type: none"> • has rainfall greater than 400mm; and, • is South of the 26th parallel; and, • works are necessary in 'Other than dry conditions'; and, • works have potential for uninfested areas to be impacted. 	No	Standard Vehicle and Plant management actions from Principal Environmental Management Requirements (PEMRs) and <u>Hygiene Checklists</u> will be applied.
5b. Do the proposed works require clearing within or adjacent to DBCA managed lands in non-dry conditions?	No	No further action required.
6. Main Roads has been notified by DWER or an environmental specialist that the area to be cleared is susceptible to a pathogen other than dieback.	No	No further action required.
7. Weeds are likely to spread to and result in environmental harm to adjacent areas of native vegetation that are in good or better condition.	No	No further action required.
8. Did an environmental specialist conduct the survey or field assessment?	N/A	

Impact of Clearing	Yes/No or NA	Further Action Required
9. Did an environmental specialist prepare the Assessment Report and any other associated documentation including the VMP, Dieback Management Plan or Offset Proposal?	Yes	The Environmental Specialist preparing the Assessment Report and any other associated documentation including the VMP, Dieback Management Plan or Offset Proposal was suitably qualified and had more than three years' experience.

6 REFERENCES

Bureau of Meteorology Australia (2022). Climate Averages for Australian Sites – Noongaar – Available online from <http://www.bom.gov.au/climate/data/index.shtml> Accessed 14/11/2022.

Department of the Environment (2013). *Significant Impact Guidelines 1.1 – Matters of National Environmental Significance, Environment Protection and Biodiversity Conservation Act 1999*. Canberra, Australian Capital Territory.

Department of the Environment (2015). Approved Conservation Advice (including listing advice) for the Eucalypt Woodlands of the Western Australian Wheatbelt. Canberra: Department of the Environment. Available from: <http://www.environment.gov.au/biodiversity/threatened/communities/pubs/128-conservation-advice.pdf>. In effect under the EPBC Act from 04-Dec-2015.

Department of Environment and Conservation (2014). *A guide to the assessment of applications to clear native vegetation under Part V Division 2 of the Environmental Protection Act 1986*. Department of Environment Regulation. Perth, Western Australia.

Department of Sustainability, Environment, Water, Population and Communities (DSEWPaC) (2012). *Referral guideline for 3 WA threatened black cockatoo species: Carnaby's Cockatoo, Baudin's Cockatoo and the Forest Red-tailed Black cockatoo*. Canberra, Australian Capital Territory.

Environmental Protection Authority (2020). *Technical Guidance – Terrestrial Vertebrate Fauna Surveys for Environmental Impact Assessment*. Perth, Western Australia.

Environmental Protection Authority (2016). *Technical Guide – Terrestrial Flora and Vegetation Surveys for Environmental Impact Assessment* (eds. K Freeman, G Stack, S Thomas and N Woolfrey). Perth, Western Australia.

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, Perth. Available online from: <https://catalogue.data.wa.gov.au/dataset/dbca-statewide-vegetation-statistics>

Government of Western Australia (2014a). *A guide to the assessment of applications to clear native vegetation Under Part V Division 2 of the Environmental Protection Act 1986*. Department of Environmental Regulation.

Government of Western Australia (2014b). *WA Environmental Offset Guidelines*. Perth, Western Australia.

Government of Western Australia (2011). *WA Environmental Offset Policy*. Perth Western Australia.

Maslin, B.R. (2018). WATTLE, Interactive Identification of Australian Acacia. Version 3. Australian Biological Resources Study, Canberra; Department of Biodiversity, Conservation and Attractions, Perth; Identic. Pty. Ltd., Brisbane.

Northcote, K. H. with Beckmann, G. G., Bettenay, E., Churchward, H. M., Van Dijk, D. C., Dimmock, G. M., Hubble, G. D., Isbell, R. F., McArthur, W. M., Murtha, G. G., Nicolls, K. D., Paton, T. R., Thompson, C. H., Webb, A. A. and Wright, M. J. (1960-1968) Atlas of Australian Soils, Sheets 1 to 10. With explanatory data (CSIRO Aust. and Melbourne University Press: Melbourne).

Western Australian Herbarium (2022). *FloraBase* - The Western Australian Flora. Department of Biodiversity, Conservation and Attractions. Available online from: <https://florabase.dpaw.wa.gov.au/> Accessed 07/12/2022.