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WESTERN AUSTRALIA

Clearing Assessment Report – CPS 818

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Western Australia.*

Thomas and Nicholson Road
Roundabout

October 2021

1141

D19#906594

Contents

1	PURPOSE	3
2	SCOPE.....	3
2.1	Project Scope	3
2.2	Assessment Report Scope.....	3
2.3	Alternatives to clearing.....	6
2.4	Measures to Avoid, Minimise, Reduce and Manage Project Clearing Impacts	6
2.5	Approved Policies and Planning Instruments	9
3	SUMMARY OF SURVEYS	10
3.1	Biological Survey	10
3.1.1	Summary of Biological Survey.....	10
3.2	Summary of dieback survey.....	12
3.2.1	Summary of Dieback Survey	12
4	VEGETATION DETAILS	13
4.1.1	Project Site Vegetation Description.....	13
4.1.2	Vegetation Complexes and Representation.....	14
5	ASSESSMENT AGAINST THE TEN CLEARING PRINCIPLES.....	15
6	ADDITIONAL ACTIONS REQUIRED	24
7	STAKEHOLDER CONSULTATION	26
8	VEGETATION MANAGEMENT	26
9	REFERENCES	27
10	APPENDICES	ERROR! BOOKMARK NOT DEFINED.

Amendments

Report Compilation & Review	Name and Position	Document Revision	Date
Author:	Environment Officer	Draft v1	09/09/2020
Reviewer:	Senior Environment Officer	Rev 0	29/09/2020
Revision:	Environmental Officer	Rev 1	28/10/2021
Reviewer:	Senior Environment Officer	Rev 1	02/11/2021

1 PURPOSE

The purpose of this Clearing Assessment Report (CAR) is to provide a report detailing the assessment of native vegetation clearing that is proposed to be undertaken using the Statewide Clearing Permit CPS 818 issued to Main Roads Western Australia (Main Roads).

The CAR outlines the key activities associated with the project, the existing environment and an assessment of native vegetation clearing. This assessment provides an evaluation of the vegetation clearing impacts associated with the project using the ten Clearing Principles, and the strategies used to manage vegetation clearing.

2 SCOPE

2.1 Project Scope

Project Name: Thomas Road and Nicholson Road Roundabout Construction

Project Purpose / Components: Conversion of existing staggered T-junction to a roundabout with free flowing slip lanes on North West corner. This intersection upgrade was prompted due to a high number of serious crashes at the intersection. As a result, Main Roads has identified the intersection for urgent improvement under the Safety Program.

The proposed clearing undertaking using CPS 818 is : Up to 0.49 ha of native vegetation within a project area of 14.17 ha.

The following terms have been applied to this report:

- *Project area:* the total project footprint. This is based on the current design and a buffer to allow for the movement of machinery during construction.

The proposed temporary clearing undertaking using CPS 818 is: Nil

Project Location(s): The project area is located along Thomas Road (H038) 13.6 – 14.8 SLK and Nicholson Road (1080129) 2.3– 3.1 SLK, Oakford within the Shire of Serpentine-Jarrahdale as shown in Figure 1.

- Latitude: -32.2043000°S
- Longitude: 115.9241892°E

The location of the proposed works is at Figure 1.

2.2 Assessment Report Scope

This Assessment Report involved a desktop analysis of environmental aspects and impacts, a site investigation and an assessment of native vegetation clearing impacts. The Assessment area is confined to a local area of a 5 km radius surrounding the project area, see Figure 2 below.

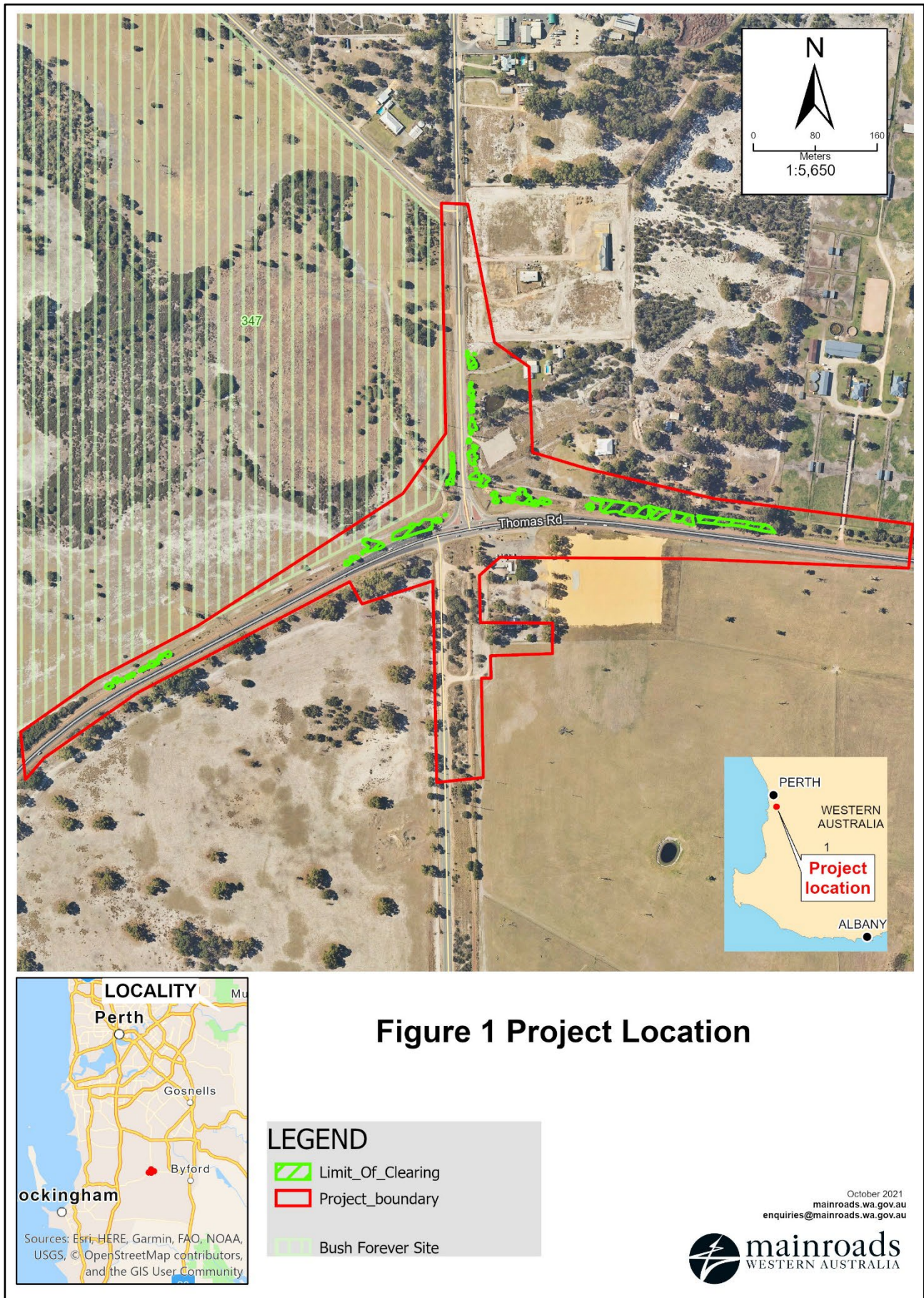


Figure 1. Project Area

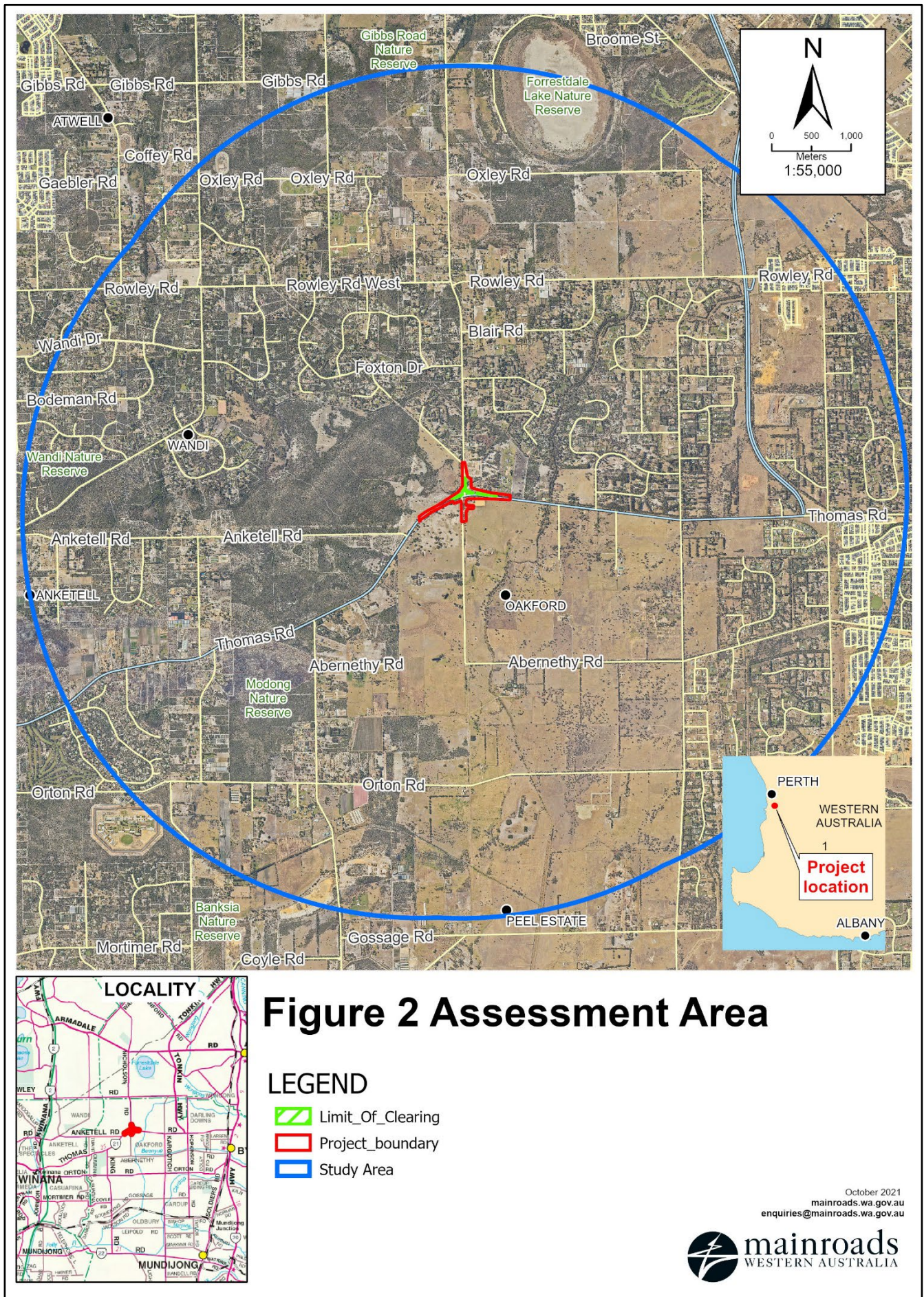


Figure 2. Assessment Area

2.3 Alternatives to clearing

The design of the roundabout considered minimising all native vegetation through the use of previously cleared land used for agricultural land, existing road infrastructure and other services including electrical distribution and transmission corridors and main water supply alignments.

2.4 Measures to Avoid, Minimise, Reduce and Manage Project Clearing Impacts

The design and management measures implemented to avoid and minimise the project clearing impacts are provided in Table 1.

There are no predicted residual impacts following the clearing of up 0.49 ha of native vegetation and therefore, no offsets are proposed as part of this project.

Table 1. Measures undertaken to Avoid, Minimise, Reduce and Manage the Project Clearing Impacts

Design or Management Measure	Discussion and Justification
Steepen batter slopes	Batters within the project extent have been steepened to reduce land acquisition within the Bush Forever site and extent of vegetation clearing.
Installation of safety barriers	The installation of barriers has allowed for a steeper batter as outlined above.
Alignment to one side of existing road	The project is constrained by a Bush Forever Site and Conservation Wetland located to the north-west of the Thomas Road/ Nicholson Road intersection. Project design aligned the new intersection upgrade to the east of the existing Nicholson Road southern approach to minimise all impact to the Bush Forever Site and Conservation Wetland.
Alternative alignment to follow existing road (or) to preferentially locate within pasture or a degraded areas	The existing intersection configuration with Nicholson Rd north and south being offset poses significant safety issues. The new configuration offsetting the existing southern intersection approach to the east effectively aligns the north and south portions removing the safety issue. The re-alignment will be positioned largely within the existing Road Reserve, existing commercial land to the south east and within highly disturbed private land to the north-east.
Installation of kerbing	Kerbing has been included in the design where appropriate. Kerbing will assist in stormwater management in addition to reducing clearing requirements.
Simplification of design to reduce number of lanes and/or complexity of intersections	Thomas Road is due to be dual carriageway in future. As such, the extent of the widening cannot be minimised from that being proposed.
Preferential use of existing cleared areas for access tracks, construction storage and stockpiling	During construction existing cleared areas will be used for access tracks, construction storage and stockpiling. Design has considered existing highly disturbed and degraded portions of land for alignment of the intersection upgrade and associated intersection approaches.

Design or Management Measure	Discussion and Justification
Drainage modification	Stormwater management has been incorporated to contain and direct excess surface water to the east of the intersection to avoid impacts to Conservation Wetlands and Bush Forever Site.
Additional avoidance and mitigation measures considered during the project design process	<p>The following additional avoidance and minimisation measures have been/will be implemented during design and/or construction:</p> <ul style="list-style-type: none"> • The north western extent of the design has been modified to reduce the footprint intersecting the Bush Forever site • Clearing area within the Bush Forever site will be avoided during construction through demarcation of the project boundary prior to the commencement of native vegetation clearing.

2.5 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 (see Section 1.3), Main Roads has also had regard to the below instruments.

Other Legislation of relevance 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)
- Town Planning and Development Act 1928

Environmental Protection Policies

- Environmental Protection (Peel Inlet - Harvey Estuary) Policy 1992;
- Environmental Protection (Western Swamp Tortoise Habitat) Policy 2011

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 (DEC, December 2014)
- Procedure: Native vegetation clearing permits (DWER, October 2019)
- Environmental Offsets Guidelines (Government of Western Australia, August 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 Recovery Plans for threatened species
- EPBC Act Referral guidelines for the three threatened black cockatoo species
- Strategic advice - EPA

3 SUMMARY OF SURVEYS

3.1 Biological Survey

Three site inspections were conducted by two Main Roads Environmental Officers on 18 June 2019, 2 October 2019 and 30 November 2020 to assess the flora and vegetation values associated with the project area, specifically to;

- determine the presence of Threatened or Priority flora or fauna species
- delineate vegetation type and condition, including any sensitive vegetation, Threatened Ecological Communities (TEC) or Priority Ecological Communities (PECs),
- identify suitable DBH trees for Black cockatoos, and
- outline any requirements for further spring surveys (if required).

Section 3.1.1 below contains the summary of the survey.

3.1.1 Summary of Biological Survey

Three site inspections were conducted by two Main Roads Environmental Officers on 18 June 2019, 2 October 2019 and 30 November 2020 to assess the flora and vegetation values associated with the project area, specifically to;

- determine the presence of Threatened or Priority flora or fauna species
- delineate vegetation type and condition, including any sensitive vegetation, Threatened Ecological Communities (TEC) or Priority Ecological Communities (PECs),
- identify suitable DBH trees for Black cockatoos
- outline any requirements for further spring surveys (if required).

The Site Inspection Report (Main Roads, 2021) identified six remnant vegetation types (VTs), along with planted and completely cleared areas. The survey area extended outside of the project area over a total area of 15.29 ha, of which 3.60 ha of native vegetation was identified and mapped into types listed below (VT1–VT6).

- VT1: *Melaleuca preissiana*, *Adenanthos cygnorum* and *Kunzea glabrescens* tall shrubland over *Avena barbata*, *Ehrharta calycina* and *Conostylis aculeata* grassland (0.70 ha)
- VT2: *Astartea scoparia* shrubland (0.42 ha)
- VT3: *Corymbia calophylla* and *Allocasuarina fraseriana* scattered trees over *Xanthorrhoea preissii* isolated shrubs over weeds (0.42 ha)
- VT4: *Corymbia calophylla*, Non-endemic *Eucalyptus* sp. and *Melaleuca preissiana* scattered trees over *Xanthorrhoea preissii* isolated shrubs over weeds (1.41 ha)
- VT5: *Eucalyptus rudis* and *Melaleuca preissiana* scattered trees over *Xanthorrhoea preissii* isolated shrubs over weeds (0.84 ha)
- VT6: *Melaleuca preissiana* tall shrubland over weeds (0.37 ha)
- Parkland Cleared: *Xanthorrhoea preissii* isolated shrubs over weeds (0.17 ha)
- Planted A: *Eucalyptus camaldulensis* and *Eucalyptus* sp. planted trees over weeds (0.23 ha)
- Planted B: *Pinus* sp. and non-endemic *Eucalyptus* sp. planted trees (0.22 ha)
- Pasture areas (4.79 ha)
- Cleared areas (roads/tracks) (5.72 ha).

The remnant native vegetation in the Biological Survey Area is mostly completely degraded in condition (3.12 ha; 75%), with small patches of degraded vegetation in VT1 (0.62 ha) and VT2 (0.42

ha). The remaining areas include; pasture areas, planted vegetation or areas cleared for tracks or roads (11.1 ha). No riparian vegetation exists.

High levels of disturbance occurred throughout, mostly from historical clearing and agricultural land use. The inspection survey area had high levels of weeds, with the understorey dominated by introduced grasses *Ehrharta calycina* and *Avena barbata*.

No TECs, PECs or Threatened or Priority flora were considered likely to occur, nor were any recorded in the assessment.

The Black cockatoo assessment was conducted in accordance with Black cockatoo referral guidelines (DSEWPaC 2012) and focused on the three Black Cockatoo species:

- Carnaby's Cockatoo (*Calyptorhynchus latirostris*),
- Forest Red-tailed Black Cockatoo (*Calyptorhynchus banksii subsp. naso*), and
- Baudin's Cockatoo (*Calyptorhynchus baudinii*).

The Site inspection identified seven (7) suitable potential future breeding trees for Black cockatoos within the survey area. These trees have a DBH of >500mm (or >300mm for *Eucalyptus wandoo*), suggesting that these trees may develop hollows and have the potential to be used for breeding in the future. Potential future breeding trees consist of four planted non-endemic *Eucalyptus* sp., one *Corymbia calophylla*, one *Eucalyptus rudis* and one *Eucalyptus wandoo*. No visible hollows were observed during the survey.

A total of 3.29 ha of poor potential Black Cockatoo foraging habitat was identified in the Site inspection Area, of which 1.97 ha was considered native remnant vegetation.

Foraging species consisted of *Corymbia calophylla*, *Allocasuarina fraseriana*, *Eucalyptus camaldulensis*, *Eucalyptus rudis*, *Pinus* sp. and *Xanthorrhoea preissii* (in VT3, VT4, VT5, Parkland Cleared, Planted A and Planted B).

Potential foraging habitat was considered poor quality due to the low density of foraging species, with foraging habitat consisting mostly of isolated trees over weeds and the presence of food sources generally limited to only one stratum.

No visible or secondary foraging or roosting evidence was observed during the survey. The survey area does not contain any known breeding or roosting habitat.

Vegetation type VT1 was initially assessed as remnant vegetation during the site inspection however, following review of aerial imagery (circa 1965 - 1970) VT1 was confirmed as regrowth following clearing in approximately 1965.

3.2 Summary of dieback survey

The Thomas Road Upgrades (Nicholson, Kargotich and Casuarina) Proposals Dieback Survey was conducted between December 2, 2020 and February 9, 2021 by Glevan Consulting.

Section 3.2.1 contains the summary of the survey.

3.2.1 Summary of Dieback Survey

Glevan Consulting was commissioned to conduct a dieback assessment of three separate project areas associated with upgrades on Thomas Road for the presence of Phytophthora Dieback.

An area comprising 35.13 ha for the Thomas Road / Nicholson Road Roundabout Construction Proposal (between 14.1-14.3 SLK) was excluded from the assessment due to being degraded or devoid of vegetation.

No clean on entry points are required for Thomas Road / Nicholson Road Intersection upgrade project.

As a general hygiene measure, vehicles and machinery will still be required to be clean when arriving on site. This will greatly reduce the likelihood that a clean-down will be required when arriving on site. After completion of work, vehicles and machinery will also be cleaned.

4 VEGETATION DETAILS

4.1.1 Project Site Vegetation Description

The project area and surrounds have been highly modified as a result of historic anthropogenic land uses including road construction and agriculture. The vegetation proposed to be cleared under CPS 818 (up to 0.49 ha) is in Completely Degraded condition. The project area has high levels of weeds, with most of the understorey dominated primarily by introduced grasses.

Details and extents of the vegetation recorded in the project area are presented in Table 3.

Table 1. Vegetation Types and Condition mapped within the Project area

Vegetation Type	Vegetation Description	Vegetation condition (ha) (EPA 2016)	Extent project area (ha)
VT3	<i>Corymbia calophylla</i> and <i>Allocasuarina fraseriana</i> scattered trees over <i>Xanthorrhoea preissii</i> isolated shrubs over weeds	Completely Degraded	0.09
VT4	<i>Corymbia calophylla</i> , Non-endemic <i>Eucalyptus</i> sp. and <i>Melaleuca preissiana</i> scattered trees over <i>Xanthorrhoea preissii</i> isolated shrubs over weeds	Completely Degraded	0.22
VT5	<i>Eucalyptus rudis</i> and <i>Melaleuca preissiana</i> scattered trees over <i>Xanthorrhoea preissii</i> isolated shrubs over weeds	Completely Degraded	0.15
VT6	<i>Melaleuca preissiana</i> tall shrubland over weeds	Completely Degraded	0.03
Total			0.49

Tables 2 and 3 provide details of the Pre-European Vegetation Associations with the project area and the remaining extents of these associations.

Table 2. Summary of Project Area's Mapped Pre-European Vegetation Associations

Pre-European Vegetation Association(s)	Clearing Description	Vegetation Condition	Comments
Vegetation Association 1001 Described as low forest, woodland or low woodland with scattered trees. <i>Eucalyptus marginata</i> , <i>Banksia</i> spp, and <i>Allocasuarina</i> low forest, woodland or low woodland with scattered trees (GoWA 2019)	Up to 0.29 ha	Completely Degraded (EPA 2016)	Based on condition, the vegetation to be cleared is no longer representative of the original vegetation association. Vegetation description and condition determined from Main Roads (2021) biological site assessment.
Vegetation Association 968 Described as <i>Eucalyptus marginata</i> , <i>Corymbia calophylla</i> and <i>Eucalyptus wandoo</i> woodland (GoWA 2019)	Up to 0.20 ha	Completely Degraded (EPA 2016)	

This information is taken from the 2019 Statewide Vegetation Statistics (current as of December 2018). The Statewide Vegetation Statistics are updated annually by DBCA and can be accessed via the following link - [Statewide Vegetation Statistics](#). Refer to Main Roads 'A Guide to Preparing a PEIA and PCIA' for further information.

Table 3. Pre-European Vegetation Representation

Pre-European Vegetation Association	Scale	Pre-European (ha)	Current Extent (ha)	% Remaining	% Remaining in DBCA reserves
Veg Association No. 1001	Statewide WA	57,410.23	12,660.76	22.05	14.19
	IBRA Bioregion SWA	57,410.23	12,660.76	22.05	14.19
	IBRA Sub-region SWA2	57,410.23	12,660.76	22.05	14.19
	Local Government Authority Shire of Serpentine-Jarrahdale	4,430.58	2,164.34	48.85	25.68
Veg Association No. 968	Statewide WA	296,877.84	95,048.82	32.02	57.64
	IBRA Bioregion SWA	136,188.20	9,017.32	6.62	21.61
	IBRA Sub-region SWA2	136,188.20	9,017.32	6.62	21.61
	Local Government Authority Shire of Serpentine-Jarrahdale	24,351.49	1,121.13	4.60	12.49

Source: Government of Western Australia (2019), IBRA = Interim Biogeographic Regionalisation for Australia

4.1.2 Vegetation Complexes and Representation

Vegetation complexes mapped within the project area and their extents remaining, are summarised in Table 4.

There is one Heddle et al. (1980) vegetation complex mapped within the project area.

Table 4. Vegetation Complexes (Heddle/Mattiske) within the Project Area

Heddle/Mattiske Veg Complex	Pre-European Extent (ha)	2013 Vegetation Extent	% Remaining
Bassendean Complex-Central and South	87,476.26	23,508.66	26.87

5 ASSESSMENT AGAINST THE TEN CLEARING PRINCIPLES

In assessing whether the project's proposed native vegetation clearing is not likely to have a significant impact on the environment, the project was assessed against the 'Ten Clearing Principles' (Environmental Protection Act 1986, Schedule 5).

Each principle has been assessed in accordance with DWER's 'A Guide to the Assessment of Applications to Clear Native Vegetation' and other relevant CPS Decision Reports prepared by DWER.

The proposed clearing is not likely to be at variance with the 10 Clearing Principles.

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

Proposed clearing is not at variance to this Principle
<p>Comment</p> <p>The project occurs on the Swan Coastal Plain within the Perth IBRA sub-region. Vegetation in the project area is highly degraded and has been subject to major disturbances including historical clearing for road construction and agricultural land uses. The small patches of native vegetation consist mostly of isolated trees and shrubs over a weedy understorey.</p> <p>A total of 16 native taxa of vascular flora were recorded in the Main Roads (2021) Site Inspection Report (D19#523395), which is considered low for the Swan Coastal Plain (Gibson et al. 1994) and is representative of the highly degraded and modified state of the vegetation in the project area.</p> <p>Up to 0.49 ha of native vegetation is proposed to be cleared under CPS 818, comprising four native vegetation types (Table 3). The native vegetation to be cleared is mapped as Completely Degraded. The vegetation proposed to be cleared is not representative of the Department of Biodiversity, Conservation and Attractions (DBCA) listed Priority Ecological Communities (PECs) or Threatened Ecological Communities (TECs) listed under the state Biodiversity Conservation Act 2016 (BC Act) or the federal Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act).</p> <p>The desktop assessment identified 18 Threatened and Priority flora recorded in the Study area (within 5km of the project area). During the Site Inspection a targeted flora survey was completed and no Threatened or Priority flora species were recorded. None of the Threatened or Priority flora species identified in the desktop assessment are considered likely to occur due to the highly degraded state of the project area and the lack of suitable habitat (Main Roads 2021).</p> <p>Additionally, findings of the Site Inspection Report (Main Roads, 2021) state that no conservation significant fauna were identified in the project area and the project area is unlikely to provide important habitat for fauna due to its highly fragmented and degraded state.</p> <p>The Site Inspection (Main Roads 2021) included a Black Cockatoo assessment to identify potential breeding, roosting and foraging habitat for the three Threatened Black Cockatoos species, EPBC Act and BC Act listed: Carnaby's Cockatoo (<i>Calyptorhynchus latirostris</i>), Forest Red-tailed Black Cockatoo (<i>Calyptorhynchus banksii subsp. naso</i>) and Baudin's Cockatoo (<i>Calyptorhynchus baudinii</i>).</p> <p>The proposed clearing will remove up to 0.49 ha of potential Black Cockatoo foraging habitat consisting of isolated foraging species including; <i>Corymbia calophylla</i>, <i>Allocasuarina fraseriana</i>, <i>Eucalyptus rudis</i> and <i>Xanthorrhoea preissii</i>. These remnants are highly degraded and fragmented and provide limited foraging habitat for Black Cockatoos.</p> <p>The proposed clearing will remove three suitable DBH trees for Black Cockatoos, including one <i>Corymbia calophylla</i>, one <i>Eucalyptus rudis</i> and one <i>Eucalyptus wandoo</i>. None of the identified trees contain suitable</p>

<p>breeding hollows. No visible or secondary foraging or roosting evidence was observed during the Site inspection (Main Roads, 2021).</p> <p>The removal of 0.49 ha potential habitat is unlikely to be significant for Black Cockatoos considering that the species is highly mobile, the habitat is highly degraded and no breeding or roosting trees exist. The removal of poor quality potential foraging habitat, is unlikely to cause a long-term decrease in the population of Black Cockatoos given the extent of available better high-quality foraging habitat in the vicinity of the project area. Approximately 1400 ha high quality foraging habitat occurs within Jandakot Regional Park immediately adjacent to the project area.</p> <p>Given that; no Threatened/Priority species or PECs/TECs occur in the project area and that the project will require the removal of native vegetation in Completely Degraded condition and only poor quality potential Black Cockatoo habitat exists, the proposed clearing area does not comprise a high level of biological diversity.</p> <p>Given the above, the proposed clearing is not at variance to this Principle.</p>
<p>Methodology</p> <p>DBCA shapefiles</p> <p>EPBC PMST Report (DotEE 2019)</p> <p>Main Roads Site Inspection Report (Main Roads 2021)</p> <p>ArcGIS aerial imagery</p> <p>EPA (2016)</p> <p>DSEWPaC (2012)</p> <p>EPA (2016)</p>

(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.

<p>Proposed clearing is not likely to be at variance to this Principle</p>
<p>Comments</p> <p>The desktop assessment identified that there are records of nine Threatened and four Priority Fauna species within 5 km of the project area.</p> <p>These include:</p> <ul style="list-style-type: none"> • <i>Oxyura australis</i> - Blue Billed Duck (Priority 4) • <i>Botaurus poiciloptilus</i> - Australasian Bittern (Endangered) • <i>Bettongia penicillata ogilbyi</i> – Woylie (Threatened) • <i>Calyptorhynchus latirostris</i> - Carnaby's Cockatoo (Endangered) • <i>Calyptorhynchus banksii naso</i> - Forest Red-tailed Black Cockatoo (Vulnerable) • <i>Calyptorhynchus baudinii</i> - Baudin's Cockatoo (Endangered) • <i>Dasyurus geoffroii</i> - Chuditch (Vulnerable) • <i>Isoodon fusciventer</i> - Quenda, Southern Brown Bandicoot (Priority 4) • <i>Lerista lineata</i> - Perth Slider, Lined Skink (Priority 3) • <i>Pseudocheirus occidentalis</i> - Western Ringtail Possum (Threatened) • <i>Synemon gratiosa</i> - Graceful Sunmoth (Priority 4) • <i>Setonix brachyurus</i> – Quokka (Threatened) • <i>Westralunio carteri</i> - Carter's Freshwater Mussel (Vulnerable) <p>Of these species, Carnaby's Cockatoo, Baudin's Cockatoo and Forest Red-tailed Black Cockatoo (Black Cockatoos) were identified as the only fauna that may possibly occur in the project area, due to the</p>

presence of potential habitat. All remaining fauna species were identified as unlikely to occur due to a lack of suitable habitat in the project area and a lack of nearby records.

The proposed clearing will remove up to 0.49 ha of Completely Degraded native vegetation that is potential foraging habitat for Black Cockatoos. This vegetation is highly degraded and fragmented and provide limited foraging habitat for Black Cockatoos.

The proposed clearing will remove up to three suitable DBH trees for Black Cockatoos, including one *Corymbia calophylla*, one *Eucalyptus rudis* and one *Eucalyptus wandoo*. None of these trees contain suitable breeding hollows.

No known roosting sites are present within the proposed clearing area. Nearest known roosting site is 1.8 km southwest from the project area.

The removal of up to 0.49 ha of low-quality potential habitat is unlikely to be significant for Black Cockatoos considering that the species is highly mobile, potential habitat is highly degraded and does not contain any known breeding or roosting trees. The removal of up to 0.49 ha of poor quality foraging habitat, is unlikely to cause a long-term decrease in the population of Black Cockatoos given the extent of available better high quality foraging habitat in the vicinity of the project area, including approximately 1400 ha within Jandakot Regional Park which is adjacent to the project area. Overall the vegetation proposed to be cleared is not considered to comprise significant habitat for the Black Cockatoos in the local context.

Given the above, the proposed clearing is not likely to be at variance with this principle.

Methodology

Main Roads Site Inspection Report (Main Roads 2021)
 DBCA shapefiles
 EPBC PMST Report (DotEE 2019)
 DSEWPaC (2012)

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

Proposal is not at variance to this Principle

Comment

The desktop assessment did not identify any records of Threatened flora species occurring in or adjacent to the project area, however 11 Threatened flora species were identified as occurring within a 5 km Study area.

As part of the Site inspection assessment (Main Roads 2021), targeted searches and a likelihood of occurrence assessment for Threatened and Priority flora was completed. No Threatened flora species were recorded in the Project area. The likelihood assessment and findings of the site inspection concluded it is unlikely that any Threatened flora species occur within the project area, due to lack of preferred habitat, and the Completely Degraded condition of the vegetation.

Given the above, the proposed clearing is not at variance with this principle.

Methodology

DBCA shapefiles
 EPBC PMST Report (DotEE 2019)
 Florabase (Western Australian Herbarium 1998)
 Main Roads Site Inspection Report (Main Roads 2021)

(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 at variance to this Principle
Comment The vegetation proposed to be cleared is in Completely Degraded condition. It does not represent a TEC and no impacts to any TEC are expected to occur as part of the project. Given the above, the proposed clearing is not at variance with this principle.
Methodology DBCA shapefiles EPBC PMST Report (DotEE 2019) Main Roads Site Inspection Report (Main Roads 2021)

(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

Comments

The EPA's Guidance Statement No.33 *"Environmental Guidance for Planning and Development"*, recognises the Perth Metropolitan Region (including project area) as a "constrained area" and has provided a threshold of retention to 10% of the pre-existing extent of native vegetation in constrained areas.

The table below provides a summary of Project Area's Mapped Pre-European Vegetation Associations remaining across relevant extents.

Pre-European Vegetation Association	Scale	Pre-European (ha)	Current Extent (ha)	% Remaining	% Remaining in DBCA reserves
Veg Association No. 1001	Statewide WA	57,410.23	12,660.76	22.05	14.19
	IBRA Bioregion SWA	57,410.23	12,660.76	22.05	14.19
	IBRA Sub-region SWA2	57,410.23	12,660.76	22.05	14.19
	Local Government Authority Shire of Serpentine-Jarrahdale	4,430.58	2,164.34	48.85	25.68
Veg Association No. 968	Statewide WA	296,877.84	95,048.82	32.02	57.64
	IBRA Bioregion SWA	136,188.20	9,017.32	6.62	21.61
	IBRA Sub-region SWA2	136,188.20	9,017.32	6.62	21.61
	Local Government Authority Shire of Serpentine-Jarrahdale	24,351.49	1,121.13	4.60	12.49

More than 10% of association 1001 is retained at all scales as shown in Table above. Given this, the removal of up to 0.28 ha of native vegetation in this association in the project area is negligible given that there is 12,660 ha of this association remaining in the state and 2,164 ha within the LGA.

Vegetation Association 968 has more than 10% remaining at the State level, however less than <10% at the local level. The removal of up to 0.20 ha of native vegetation in the project area is likely to be negligible given that there is 95,048.82 ha of this association remaining in the state, 9,017.32 ha within the Swan Coastal Plain and 1,121.13 ha within the LGA.

In addition, the project area has been extensively cleared and disturbed. The vegetation proposed to be cleared is in Completely Degraded condition and is not considered representative of the original vegetation associations. Clearing highly degraded and fragmented vegetation is not anticipated to have an impact on the mapped vegetation associations at a local or regional scale.

Proposed clearing will not impact vegetation that is significant as a remnant in an area that has been extensively cleared.

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

Methodology

Main Roads Site Inspection Report (Main Roads 2021)

EPA (2016)

GoWA (2018)

GoWA (2019)

Perth Biodiversity Project (2013)

EPA (2006)

Heddle et al. (1980)

Beard (1979)

(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 at variance to this Principle
<p>Comment</p> <p>Up to 0.48 ha of native vegetation associated with two Multiple Use Wetlands (MUWs) (ID 12608 basin/dampland and ID 12895 Armadale Palusplain) will be cleared. Vegetation was mapped within the Site Inspection Report (Main Roads, 2021) as VT3, VT4, VT5 and VT6. The vegetation is entirely in a Completely Degraded condition and consists of fragmented patches of native trees and shrubs over a weedy understorey.</p> <p>MUWs have few remaining important attributes and functions, the protection of these wetlands is the lowest priority. The project area is within an existing degraded area of land, are the proposed clearing is not likely to have an increased impact to the wetlands given the existing level of development within/adjacent to the project area.</p> <p>Due to the minimal amount of clearing required, high degree of fragmentation of native vegetation and extensive disturbance of the project area, project activities are unlikely to have a significant impact upon the existence or value of the existing wetlands.</p> <p>Due to clearing of 0.48 ha of native vegetation associated with two MUWs, the proposed clearing is at variance this principle, however the impacts are expected to be negligible.</p> <p>Methodology</p> <p>Data WA Shapefiles (GoWA 2020):</p> <p>Geomorphic Wetlands, Swan Coastal Plain</p> <p>Directory of Important Wetlands in Australia – Western Australia</p> <p>Ramsar Sites</p> <p>Watercourses</p> <p>Main Roads Site Inspection (Main Roads 2021)</p>

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

Proposed clearing is not at variance to this Principle
<p>Comment</p> <p>The project area is located within the Bassendean system characterised by sand dunes and sandplains with pale deep sand, semi-wet and wet soil.</p> <p>There is a low to moderate risk for Acid Sulphate Soils (ASS) within the project area. Due to the linear nature and relatively small scale of the required clearing, clearing of native vegetation is not expected to increase the risk of ASS or salinity.</p> <p>The Bassendean system has sandy soil types that are highly susceptible to wind erosion. To minimise the risk of wind erosion, Main Roads will undertake construction activities as soon as possible after clearing. This will prevent prolonged exposure of bare sandy soils and minimise wind erosion. Main Roads will also implement a Construction Environmental Management Plan that will include erosion control measures.</p> <p>The majority of the project area is mapped within an area of low risk of water erosion and flooding. Surface water management measures will be implemented as part of project design to maintain existing flow lines/watercourses and to avoid direct impact to adjacent native vegetation. The proposal has a low likelihood of water erosion given the presence of highly permeable sandy soils which typically have high infiltration rates.</p>

The proposed clearing is in an area that has already been subject to historical clearing, primarily for agricultural use. It is considered unlikely that removing up to 0.49 ha of fragmented patches of native vegetation will cause appreciable land degradation.

As such, the proposed clearing is not at variance to this Principle.

Methodology

Main Roads Site Inspection Report (Main Roads 2021)

Natural Resource Management SLIP Soil Systems (Accessed 2020)

Natural Resource Management SLIP Soil Systems and Water Erosion Risk mapping (Accessed 2020)

(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 likely to be at variance to this Principle

Comment

The project area intercepts an existing Bush Forever Site ID 347 which includes the Jandakot Regional Park (Figure 1). Prior to commencing construction, a small parcel (0.30 ha) of land required for the project within the Bush Forever site will be acquired by Main Roads through a Development Application under the Planning and Development Act 2005. Land to be acquired is largely cleared of native vegetation, with a small fragment of (up to 0.10 ha) isolated trees and shrubs over weeds in Degraded to Completely Degraded condition remaining. This vegetation is not proposed to be cleared.

The proposed clearing of up to 0.49 ha of native vegetation is located outside the Bush Forever Site / Jandakot Regional Park. The proposed clearing is unlikely to significantly impact on the ecological values of the adjacent conservation area given the parts of the conservation area located in the vicinity of the proposed works are already largely cleared and remaining vegetation is in a Degraded to Completely Degraded condition.

A project specific Hygiene Management Plan will be developed to manage potential direct and indirect impacts to the reserve, from the spread or introduction of weeds and Dieback.

The proposed small-scale linear clearing within the road reserve will not impact on ecological linkages between local conservation areas.

Overall, the proposed clearing will have no direct impact to the gazetted Bush Forever site, Jandakot Regional Park or other conservation areas. Potential indirect impacts will be avoided through implementation of Main Roads standard environmental management measures.

Given the above, the proposed clearing is not likely to be at variance with this principle.

Methodology

Data WA Shapefiles (GoWA 2020)

DBCA Legislated Lands and Waters

Environmentally Sensitive Areas

Main Roads Site Inspection (Main Roads 2021)

(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

Comment

<p>The project area is located in an area that is highly disturbed and degraded as a result of the historical agricultural activities, road construction, service installations and commercial development occurring within and immediately adjacent.</p> <p>Project construction works and associated vegetation clearing will be undertaken with best practice principles to ensure surface and groundwater are protected.</p> <p>Given the; minor scale of clearing required, high level of disturbance of the area, nature of the works and that no surface water will be abstracted for this project, it is unlikely that there will be a significant impact to the surface water quality.</p> <p>There are no Public Drinking Water Source Areas (PDWSA) or Protection Zones within the project area. The closest PDWSA (Jandakot Underground Water Pollution Control Area) is located over 1.5km west of the project area and will not be impacted by the project.</p> <p>There will be no deterioration to groundwater level or quality as clearing will be of small scale and no major drainage modifications will be required, and there will be no groundwater abstraction.</p> <p>Given the above, the proposed clearing is not likely to be at variance to this Principle.</p>
<p>Methodology</p> <p>Main Roads Site Inspection (Main Roads 2021)</p> <p>DWER PDWSA Database (accessed 2021)</p> <p>DWER and DBCA shapefiles</p> <p>EPA (2016)</p>

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

<p>Proposed clearing is not at variance to this Principle</p>
<p>Comment</p> <p>The small extent of localised clearing associated with this project is not anticipated to have any impacts at a catchment scale.</p> <p>The NRM SLIP database classified the project area as having <3% moderate to high risk of flooding. The proposed works will not significantly alter the topography or groundwater table. Given the minor nature of the works, it is unlikely that surface run off and erosion from project works will cause or exacerbate the incidence of flooding.</p> <p>Surface water management measures will be implemented as part of project design to maintain existing flow lines/watercourses and to avoid impact to adjacent native vegetation and conservation wetland.</p> <p>The native vegetation adjacent to the clearing footprint will remain undisturbed.</p> <p>The project area is located in a region that experiences moderate rainfall (900 millimetres per annum) with vegetation condition that is largely Completely Degraded. These factors would not result in the proposed clearing being likely to cause, or exacerbate, the incidence or intensity of flooding.</p> <p>Overall, the project is unlikely to cause, or exacerbate, the incidence or intensity of flooding in the project area or surrounds.</p> <p>Given the above, the proposed clearing is not at variance to this Principle.</p>
<p>Methodology</p>

Main Roads Site Inspection (Main Roads 2021)

Natural Resource Management SLIP Soil Systems and Water Erosion Risk mapping (2021)

Natural Resource Management SLIP Soil Systems (2020)

6 ADDITIONAL ACTIONS REQUIRED

Table 5 summarises what further pre-clearing impact assessment and vegetation management is required in accordance with CPS 818.

Table 5. Summary of Additional Management Actions Required by CPS 818

Impact of Clearing	Yes/No or NA	Further Action Required
<p>1. The CAR indicates that the clearing is 'At Variance' or 'May be at Variance' with one or more of the Clearing Principles.</p> <p>Where the clearing is at variance or may be at variance to Clearing Principle (f) and no other Clearing Principle, and the area of the proposed clearing is less than 0.5 hectares in size and the Clearing Principle (f) impacts only relate to:</p> <ul style="list-style-type: none"> (i) a minor non-perennial watercourse(s); (ii) a wetland(s) classed as a multiple use management category wetland(s); and/or (iii) a wetland that is not a defined wetland; <p>the preparation of an Assessment Report, as required by condition 6(e), is not required.</p>	No	No further action required.
<p>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.</p>	No	No further action required.
<p>3. The project involves clearing for temporary works (as defined by CPS 818).</p>	No	No further action required.
<p>4 a. Project is within Region that:</p> <ul style="list-style-type: none"> - Has rainfall greater than 400mm and - Is South of the 26th parallel and - Works are in 'Other than dry conditions' and - Works have potential for uninfested areas to be impacted 	Yes	<p>Although works are currently scheduled to occur during dry conditions, it is possible that works may occur outside of dry conditions.</p> <p>Given that there will be clearing adjacent to the Jandakot Regional Park, a Dieback Management Plan will be prepared in consultation with DBCA, as per condition 10 (b).</p>

Impact of Clearing	Yes/No or NA	<i>Further Action Required</i>
4b. Does the proposed works require clearing within or adjacent to DBCA estate in non-dry conditions?	Yes	As above
5. 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.
6. The vegetation within the area to be cleared and/or the surrounding vegetation in a good or better condition and weeds 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.

7 STAKEHOLDER CONSULTATION

Stakeholder consultation is not required under CPS 818/15 for this project.

8 VEGETATION MANAGEMENT

Main Roads will avoid clearing native vegetation where possible. Where clearing cannot be avoided then this clearing is kept to a minimum.

9 REFERENCES

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