

# Clearing Assessment Report – CPS 818

We're working for Western Australia.

Karijini Drive Rest Area Extension 0.5 SLK

November 2021

EOS No. 2332

Printed copies are uncontrolled unless marked otherwise. Refer to iRoads for current version.

TRIM No: D21#998391

# Contents

1	PURPOSE	4
2	SCOPE	4
2.1	Proposal Scope	4
2.2	Assessment Report Scope	4
2.3	Alternatives to clearing	7
2.4	Measures to Avoid, Minimise, Reduce and Manage Proposal Clearing Impacts	7
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
4	VEGETATION DETAILS	. 11
	4.1.1 Proposal Site Vegetation Description	. 11
	4.1.2 Vegetation Units and Condition	. 11
5	ASSESSMENT AGAINST THE TEN CLEARING PRINCIPLES	. 14
6	ADDITIONAL ACTIONS REQUIRED	. 21
7	STAKEHOLDER CONSULTATION	. 22
8	VEGETATION MANAGEMENT	. 22
9	REFERENCES	. 23

# Amendments

Report Compilation & Review	Name and Position	Document Revision	Date
Author:	Senior Environmental Scientist	Draft	September 2021
Reviewer:	Senior Environmental Scientist	Draft	September 2021
Reviewer:	Senior Environment Officer	Draft	October 2021
Author:	Environmental Scientist	Rev0	October 2021
Reviewer:	Senior Environmental Scientist	Rev0	October 2021
Reviewer:	Senior Environment Officer	Rev0	November 2021
Author:	Senior Environmental Consultant	Rev1	November 2021
Reviewer:	viewer: Manager		November 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 Proposal is at concept stage only, and the full extent of ground disturbance at this point in time is unknown. Therefore, this document assesses the environmental impact of a 7.87 ha Development Envelope (Figure 1). It is anticipated the actual impacts of extension of the rest area will be significantly less once final design of the rest area is determined.

The CAR 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 (EP Act, Schedule 5) and the strategies used to manage vegetation clearing.

### 2 SCOPE

#### 2.1 Proposal Scope

Proposal Name: Karijini Drive Rest Area Extension 0.5 SLK.

**Proposal Purpose / Components:** Main Roads is proposing to upgrade and extend an existing rest area on Karijini Drive 0.5 Straight Line Kilometre (SLK).

Components of the Proposal are detailed as follows:

- Extension of existing rest area boundaries
- Establishment of additional parking space
- Installation of rubbish bins
- Extraction of water from an existing bore
- Bitumen sealing.

The proposed clearing undertaking using CPS 818: Up to 6.56 ha.

#### The proposed temporary clearing undertaking using CPS 818: Nil.

**Proposal Location(s):** Karijini Drive 0.5 SLK, approximately 100 m west from the Great Northern Highway turnoff, Shire of Ashburton, Pilbara Region, Western Australia.

Location in decimal degrees: 118.699, -22.668

#### 2.2 Assessment Report Scope

The Study area, see Figure 2, is confined to a local area of a 40 km radius.



#### Figure 1. Development Envelope



#### Figure 2. Study Area

#### 2.3 Alternatives to clearing

The Proposal is at concept stage only and the extent of ground disturbance at this point in time is unknown. It is anticipated the actual impacts of extension of the rest area will be significantly less once final design is determined.

Temporary access tracks, construction storage, and storage/stockpile locations will be contained within the Development Envelope to minimise or avoid any unnecessary clearing of vegetation. Large trees will be retained and only large shrubs or small trees will be removed as part of the Proposal activities.

#### 2.4 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 are provided in Table 1.

Table 1. Measures undertaken to Avoid, Minimise, Reduce and Manage the Proposal Clearing In
---

Design or Management Measure	Discussion and Justification
Steepen batter slopes	The design has sought to reduce earthworks as much as possible to minimise earthworks (fill height/cut depth) in areas of significant vegetation.
Installation of safety barriers	Safety barriers were not applicable to the design.
Alignment to one side of existing road	The Proposal area extends to the north and south of Karijini Drive; however only a very small section to the north of the road will be impacted by the extension of the rest area. No land acquisition has been necessary to accommodate the design.
Alternative alignment to follow existing road (or) to preferentially locate within pasture or degraded areas	The Proposal is located within the existing road reserve. Clearing of vegetation and ground disturbance has been maintained within the existing disturbance footprint as much as possible.
Installation of kerbing	Kerbing has been considered and implemented in the design where possible.
Simplification of design to reduce number of lanes and/or complexity of intersections	The design has been simplified as much as practicable.
Preferential use of existing cleared areas for access tracks, construction storage and stockpiling	Temporary access tracks, construction storage, and storage/stockpile locations have been contained within the Proposal area, away from native vegetation as much as possible.
Drainage modification	The Proposal will involve the construction of offshoot drains around the periphery of the rest area which will divert surface water run-off to adjacent vegetated areas. The location of offshoot drains will avoid the clearing of vegetation as much as possible.

#### 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 510 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

Pilbara Environmental Pty Ltd (Pilbara Envionmental) conducted a detailed and targeted flora survey and basic fauna survey of the Development Envelope from the 5th to the 7th of May 2021. Section 3.1.1 provides a summary of the survey.

#### 3.1.1 Summary of Biological Survey

A total of 68 flora taxa (including species, subspecies, varieties and forms) were recorded from within the Development Envelope representing 15 families and 37 genera. This total comprised 64 native taxa and 4 introduced taxa. No Threatened flora listed under the EPBC Act, BC Act or Department of Biodiversity, Conservation and Attractions (DBCA) listed Priority flora were recorded within the Development Envelope. Based on a 'likelihood of occurrence' assessment three priority flora were considered to possibly occur within the Development Envelope. These were:

- Aristida lazaridis (P2)
- Euphorbia australis var. glabra (P3)
- Aristida jerichoensis var. subspinulifera (P3).

The total area of vegetation mapped was 6.56 ha. This also included 0.18 ha mapped as 'Disturbance species on disturbed landforms' that had no consistent vegetation unit/structure but exhibited some native species. A total of 1.31 ha of the Development Envelope was cleared and therefore not mapped as vegetation. No riparian vegetation was recorded during the field survey. The dominant vegetation unit across the Development Envelope was '*Eucalyptus xerothermica* low open woodland over *Acacia inaequilatera, Acacia colei, Acacia dictyophleba* tall open shrubland over *Themeda triandra, Eulalia aurea (Chrysopogon fallax*) mid tussock grassland' (VT1). The vegetation units within the Development Envelope are not representative of any Threatened or Priority Ecological Communities (TECs or PECs) listed under the EPBC Act, BC Act or by DBCA.

Vegetation within the Development Envelope is in a variable condition, largely due to the presence of Karijini Drive and the existing rest stop. The vegetation condition ranged from 'Very Good' to 'Degraded'. The majority of the Development Envelope was in a 'Very Good' condition (59.72 %). Disturbances impacting the Development Envelope include edge effects from the roadside/rest area clearing, weed infestation (dominated by \**Cenchrus ciliaris*), vehicle tracks and historic clearing associated with station fence lines. Areas of the Development Envelope completely devoid of vegetation including roads, tracks or clearing associated with the rest area were categorised as 'Cleared' and not assessed for vegetation condition.

Three main habitat types were recorded during the Development Envelope namely:

- Low open woodland over tall open shrubland over tussock grassland on clay/loam plain (FH1)
- Low open woodland over tall open shrubland over hummock grassland on clay/loam plain (FH2)
- Tall sparse shrubland over hummock grassland on clay/loam plain (FH3).

The dominant habitat type within the Development Envelope was 'Low open woodland over tall open shrubland over tussock grassland on clay/loam plain'. Surrounding habitat features include a low stony hill running north from the Development Envelope and an ephemeral drainage line (approximately 100m wide) 100m to the south and 200m to the west of the Development Envelope. Localised areas of stony mantle are present within the Development Envelope.

The habitat types mapped are well represented within the Hamersley IBRA subregion. Due to its small size, the abundance of analogous, contiguous habitat in the surrounding area and presence of Karijini Drive and a rest area within the Development Envelope it is considered highly unlikely the Development Envelope represents key habitat for any significant species.

No significant fauna species were recorded during the field survey. No evidence, such as burrows, diggings, tracks and scats, of significant fauna was recorded.

### **4 VEGETATION DETAILS**

#### 4.1.1 Proposal Site Vegetation Description

The Proposal lies within the Hamersley Botanical District of the Eremaean Botanical Province as defined by Beard (1975). There is one vegetation association within the Development Envelope. The vegetation association and its extent are presented within Table 2.

Pre-European Vegetation Association	Scale	Pre– European (ha)	Current Extent (ha)	% Remaining	% Remaining in DBCA reserves
Veg Assoc No. 18 Described as	<b>Statewide</b> Western Australia	19,892,306	19,843,148	99.75	6.64
Mulga (Acacia aneura) and	<b>IBRA Bioregion</b> Pilbara	676,556	671,843	99.30	25.35
associated species	IBRA Sub-region Hamersley	633,833	576,541	99.19	29.54
	<b>Local Government</b> <b>Authority</b> Shire of Ashburton	342,205	341,418	99.77	48.33

#### Table 2. Pre-European Vegetation Representation (GoWA 2019)

#### 4.1.2 Vegetation Units and Condition

Seven vegetation units were mapped within the Development Envelope and are presented in Table 3. The total area of native vegetation mapped was 6.56 ha. This also included 0.18 ha mapped as 'Disturbance species on disturbed landforms' that had no consistent vegetation unit/structure but exhibited some native species. A total of 1.31 ha of the Development Envelope was cleared and therefore not mapped as vegetation. The dominant vegetation unit across the Development Envelope was 'Eucalyptus xerothermica low open woodland over Acacia inaequilatera, Acacia colei, Acacia dictyophleba tall open shrubland over Themeda triandra, Eulalia aurea (Chrysopogon fallax) mid tussock grassland'.

#### Table 3. Vegetation Units within the Development Envelope (Pilbara Environmental 2021)

Vegetation Unit	Landform & Soils	Development Envelope (ha)
<i>Eucalyptus xerothermica</i> low open woodland over Acacia inaequilatera, Acacia colei, Acacia dictyophleba tall open shrubland over <i>Themeda triandra</i> , <i>Eulalia</i> <i>aurea</i> ( <i>Chrysopogon fallax</i> ) mid tussock grassland (VT1). Associated Species: <i>Triodia epactia</i> , Acacia <i>trachycarpa</i> , <i>Bonamia erecta</i>	Red/brown clay loam on plain	4.90
Corymbia hamersleyana, Eucalyptus leucophloia low open woodland over Eucalyptus gamophylla low open mallee woodland over Acacia inaequilatera tall open shrubland over Triodia pungens mid open hummock grassland (VT2). Associated Species: Acacia colei, Themeda triandra	Red/brown clay loam on plain with isolated patches of stony plain.	0.35
<i>Eucalyptus leucophloia</i> low open woodland over <i>Acacia inaequilatera</i> tall open shrubland over <i>Triodia</i> <i>vanleeuwenii</i> open low hummock grassland with mid isolated clumps of <i>Eulalia aurea</i> , <i>Chrysopogon fallax</i> and <i>Paraneurachne muelleri</i> tussock grasses (VT3). Associated Species: <i>Seringia exastia, Themeda</i> <i>triandra</i>	Red/brown clay loam on plain with isolated patches of stony plain.	0.34
<i>Eucalyptus leucophloia</i> low open woodland over <i>Acacia inaequilatera</i> tall open shrubland over <i>Triodia</i> <i>pungens</i> mid open hummock grassland (VT4). Associated Species: <i>Themeda triandra, Seringia</i> <i>exastia</i>	Red/brown clay loam on plain with isolated patches of stony plain.	0.29
<i>Eucalyptus leucophloia</i> low open woodland over <i>Acacia colei, Acacia aptaneura</i> tall open shrubland over <i>Triodia pungens</i> mid open hummock grassland (VT5). Associated Species: <i>Acacia rhodophloia, Eulalia aurea</i>	Red/brown clay loam on plain with isolated patches of stony plain.	0.18
Acacia inaequilatera, Acacia dictyophleba tall sparse shrubland over Triodia vanleeuwenii (Triodia pungens) low hummock grassland with isolated clumps of Eucalyptus xerothermica low trees (VT6). Associated Species: Eucalyptus gamophylla	Red/brown clay loam on plain with isolated patches of stony plain.	0.32
Disturbance species on disturbed landforms (D). This vegetation unit has no consistent vegetation structure and does not represent any existing vegetation units. It has therefore been mapped separately. Associated Species: * <i>Cenchrus ciliaris, Aristida</i> <i>contorta</i>	Disturbed landforms	0.18
Total native vegetation		6.56

Vegetation within the Development Envelope is in a variable condition, largely due to the presence of Karijini Drive and the existing rest stop. The vegetation condition ranged from 'Very Good' to 'Degraded'. The majority of the Development Envelope vegetation was in a 'Very Good' condition (59.72 %). Disturbances impacting the Development Envelope include edge effects from the existing roadside/rest area clearing, weed infestation (dominated by \**Cenchrus ciliaris*), vehicle tracks and historic clearing associated with maintenance of station fence lines. Areas of the Development Envelope completely devoid of vegetation including roads, tracks or clearing associated with the rest area were categorised as 'Cleared' and not assessed for vegetation condition. Vegetation condition rating and extents are listed in Table 4 below.

able 4. regetation contation (i houra Environmental Edel)				
Condition	Extent in Development Envelope (ha)	% of Development Envelope		
Excellent	0	0		
Very Good	4.7	59.72		
Good	1.47	18.68		
Poor	0.21	2.67		
Degraded	0.18	2.29		
Cleared	1.31	16.64		
Total	7.87	100		

#### Table 4. Vegetation Condition (Pilbara Environmental 2021)

### **5 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 (*Environmental Protection Act 1986*, Schedule 5).

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

Proposed clearing of native vegetation is not, or unlikely to be, at variance to any of the Ten Clearing Principles.

Comments	Proposed clearing is not likely to be at variance to this Principle
	<u>Vegetation &amp; flora</u> The Development Envelope comprises 6.56 ha native vegetation ranging in condition from 'Very Good' to 'Degraded' with 59.72 % of the Development Envelope assessed as 'Very Good' (Pilbara Environmental 2021).
	The dominant vegetation unit across the Development Envelope was 'Eucalyptus xerothermica low open woodland over Acacia inaequilatera, Acacia colei, Acacia dictyophleba tall open shrubland over Themeda triandra, Eulalia aurea (Chrysopogon fallax) mid tussock grassland'.
	The vegetation units within the Development Envelope are not representative of any TECs or PECs listed under the EPBC Act, BC Act or by DBCA.
	A total of 45 Priority flora species were identified from DBCA datasets as occurring within a 40 km buffer of the Development Envelope. Most of these flora taxa are associated with specific habitats of the Hamersley Ranges such as hill tops, hill slopes, gorges, gullies and permanent water. These habitats are not present within the Development Envelope. No conservation significant flora listed under the EPBC Act, BC Act or DBCA listed Priority flora were recorded within the Development Envelope. However, a 'likelihood of occurrence' assessment was conducted following the field survey for conservation significant flora. Three priority flora species were considered to possibly occur within the Development Envelope. These were: <ul> <li>Aristida lazaridis (P2 DBCA listed)</li> <li>Euphorbia australis var. glabra (P3 DBCA listed).</li> </ul> <li>Suitable habitat exists for these species within the Development Envelope and clearing associated with the Proposal may impact isolated individuals. However, since the vegetation within the Development Envelope is well represented locally and regionally, clearing associated with the Proposal would not impact the long-term maintenance of these species, if present.</li>
	Fauna habitat
	<ul> <li>Three main habitat types were recorded during the Development Envelope namely:</li> <li>Low open woodland over tall open shrubland over tussock grassland on clay/loam plain</li> <li>Low open woodland over tall open shrubland over hummock grassland on clay/loam plain</li> <li>Tall sparse shrubland over hummock grassland on clay/loam plain.</li> <li>The dominant habitat type within the Development Envelope was 'Low open woodland over</li> </ul>
	tall open shrubland over tussock grassland on clay/loam plain'. Surrounding habitat features

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

	<ul> <li>include a low stony hill running north from the Development Envelope and an ephemeral drainage line (approximately 100 m wide) 100 m to the south and 200 m west of the Development Envelope. Localised areas of stony mantle are present within the Development Envelope.</li> <li>The habitat types mapped are well represented within the Hamersley IBRA subregion. Due to its small size, the abundance of analogous, contiguous habitat in the surrounding area and presence of Karijini Drive and a rest area within the Development Envelope it is</li> </ul>
	considered highly unlikely the Development Envelope represents key habitat for any significant fauna species.
	Fauna
	No conservation significant fauna species were recorded during the field survey. No evidence, such as burrows, diggings, tracks and scats, of significant fauna was recorded.
	Whilst the Proposal will result in the loss of up to 6.56 ha of native vegetation, the vegetation does not comprise a high biological diversity in the local or regional context. The proposal involves clearing from within a narrow linear section of vegetation that has been historically
	disturbed as a result of the operation of the existing rest area, and exposed to edge effects
	from the adjacent Karijini Drive.
Mothodology	Proposed clearing is not likely to be at variance to this Principle.
wethodology	Plibara Environmental (2021)
	DAWE (2021)
	GIS Database:
	Threatened and Priority Ecological Communities
	Threatened and Priority Flora (WA Herbarium and TPFL)
	Threatened and Priority Fauna
	DBCA Legislated Lands and Waters
	DWER Clearing Regulations - Environmentally Sensitive Areas

# (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.

Comments	Proposed clearing is not likely to be at variance to this Principle.
	<ul> <li><u>Significant fauna</u></li> <li>A search of the DBCA significant fauna records and the EPBC Act Protected Matters Search Tool (PMST) identified the presence/potential presence of 20 fauna species of significance within the Development Envelope. Species that are exclusively marine or aquatic have not been included as there is no marine or aquatic habitat within the Development Envelope. The numbers of species within each conservation category are: <ul> <li>Eleven Threatened species</li> <li>Four Migratory species</li> <li>One Specially protected fauna species</li> <li>One Priority 2 species</li> <li>Three Priority 4 species.</li> </ul> </li> <li>No significant fauna species were recorded during the field survey. No evidence, such as burrows, diggings, tracks and scats, of significant fauna was recorded (Pilbara Environmental 2021). However, the biological survey identified one species of conservation significance that is likely to occur and four that may possibly occur within the survey area:</li> </ul>
	<ul> <li>Likely.</li> <li>Falco peregrinus (Peregrine Falcon) – Least Concern</li> </ul>
	Possible:

	<ul> <li>Macrotis lagotis (Bilby) – Vu (EPBC Act and BC Act)</li> </ul>
	<ul> <li>Falco hypoleucos (Grey Falcon) – Vu (EPBC Act and BC Act)</li> </ul>
	<ul> <li>Pseudomys chapmani (Western Pebble-mound Mouse) – P4 DBCA listed</li> </ul>
	<ul> <li>Leggadina lakedownensis (Northern Short-tailed Mouse) – P4 DBCA listed.</li> </ul>
	Potential foraging habitat exists for each species within the Development Envelope and each species is known to exist in the vicinity of the Development Envelope. Sighting records exist at a distance of approximately 27 km to 32 km for all species except for the Western Pebble-mound Mouse, known from a record 4 km to the north of the Development Envelope. The vegetation within the Development Envelope is well represented locally and regionally. Each of the above species are highly mobile and can relocate to good or better vegetation adjacent to the Development Envelope. Clearing associated with the Proposal is unlikely to significantly impact the maintenance of conservation significant fauna species.
	<ul> <li>Inree main nabitat types were recorded during the Development Envelope namely:</li> <li>Low open woodland over tall open shrubland over tussock grassland on clay/loam plain</li> </ul>
	Low open woodland over tall open shrubland over hummock grassland on clay/loam plain
	• Tall sparse shrubland over hummock grassland on clay/loam plain. The dominant habitat type within the Development Envelope was 'Low open woodland over tall open shrubland over tussock grassland on clay/loam plain'. Surrounding habitat features include a low stony hill running north from the Development Envelope and an ephemeral drainage line (approximately 100 m wide) 100 m to the south and 200 m west of the Development Envelope. Localised areas of stony mantle are present within the Development Envelope.
	The habitat types mapped are well represented within the Hamersley IBRA subregion. Due to its small size, the abundance of analogous, contiguous habitat in the surrounding area and presence of Karijini Drive and the existing rest area within the Development Envelope it is considered highly unlikely the Development Envelope represents key habitat for any significant fauna species.
	Based on above, the vegetation proposed to be cleared is not necessary for the maintenance of local fauna species and is not considered to represent significant fauna habitat. Therefore, proposed clearing is not likely to be at variance to this Principle.
Methodology	Pilbara Environmental (2021)
	DAWE (2021)
	DBCA (2021)
	GIS Database:
	Inreatened and Priority Fauna

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

Comments	Proposed clearing is not likely to be at variance to this Principle.
	No Threatened flora were identified within the Development Envelope by Pilbara Environmental (2021) and none are considered likely to occur.
	Therefore, the proposed clearing is not likely to be at variance to this Principle.
Methodology	Pilbara Environmental (2021)
	DAWE (2021)
	DBCA (2021)
	GIS Database:
	Threatened and Priority Flora (WA Herbarium and TPFL)

# (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.

Comments	Proposed clearing is not at variance to this Principle.
	No State listed TECs were recorded in the Development Envelope; therefore, proposed
	clearing is not at variance to this Principle.
Methodology	Pilbara Environmental (2021)
	DAWE (2021)
	GIS Database:
	Threatened and Priority Ecological Communities

# (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.

Comments	Proposed clearing is not at variance to this Principle.
	The Proposal comprises 6.56 ha native vegetation ranging in condition from 'Very Good' to
	'Degraded' with 59.72 % of the Development Envelope assessed as 'Very Good' (Pilbara Environmental 2021).
	The Proposal area is not located within a "constrained" area. Vegetation associated number
	18 has over 99% pre-European vegetation remaining within the State and within the IBRA region and sub-region.
	The Proposal comprises extension of an existing rest area which is already highly disturbed.
	The vegetation within the Development Envelope is well represented locally and regionally
	and is not considered significant as a remnant of native vegetation. Therefore, the proposal
	is not at variance to this Principle.
Methodology	Pilbara Environmental (2021)
	Beard (1975)
	GoWA (2019)
	GIS Database:
	DPIRD Remnant Vegetation
	Pre-European Vegetation

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

Comments	Proposed clearing is not at variance to this Principle.
	No vegetation communities within the Development Envelope had values associated with wetland or dampland vegetation. No riparian vegetation was recorded during the field survey (Pilbara Environmental 2021).
	A search of the PMST did not identify any Wetlands of International Importance (i.e., RAMSAR wetlands) within the Proposal area. Two nationally important wetlands surround the Development Envelope:
	• The Fortescue Marsh is located 37 km to the north-east of the Development Envelope
	• Karijini (Hamersley Range) Gorges is located 15 km to the north of the Development Envelope.
	No significant surface water features were present within the Development Envelope. Proposed clearing is not at variance to this clearing Principle.
Methodology	Pilbara Environmental (2021)
	GIS Database:
	Directory of Important Wetlands
	RAMSAR Wetlands

<ul> <li>Hydrography, Linear</li> </ul>	•	Hydrography, Linear	
---	---	---------------------	--

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

Comments	Proposed clearing is not likely to be at variance to this Principle.
	Soils
	The Australian Soil Resource Information System (ASRIS 2021) describes one soil type as occurring within the Development Envelope:
	<ul> <li>Fb3 – High-level valley plains set in extensive areas of banded jaspilite and chert ranges. There are extensive areas of pisolitic limonite deposits: principal soils are deep earthy loams.</li> </ul>
	Tille (2006) more recently classified Western Australia's rangelands into soil-landscape mapping units. Under this classification the Development Envelope sits within zone 285, described as "Hills and dissected plateaux (with some stony plains and hardpan wash plains) on sedimentary and volcanic rocks of the Hamersley Basin (Ophthalmia Fold Belt). Stony soils with red shallow loams and some Red/brown non-cracking clays and Red loamy earths. Spinifex grasslands with snappy gum and kanji (and some mulga shrublands)."
	The Development Envelope is located within the Boolgeeda land system. The Boolgeeda Land System is characterised as follows (van Vroeswyk et al. 2004):
	<ul> <li>Description: Stony lower slopes and plains below hill systems supporting hard and soft spinifex grasslands and mulga shrublands</li> <li>Geology: Quaternary colluvium</li> </ul>
	<ul> <li>Geomorphology: Predominantly depositional surfaces; very gently inclined stony slopes and plains below hill systems becoming almost level further downslope; closely spaced, dendritic and sub-parallel drainage lines. Relief up to about 20m.</li> <li>The Proposal will involve the construction of offshoot drains around the periphery of the rest area which will divert surface water run-off to adjacent vegetated areas. Although the Proposal area comprises clay soils which retain water and are not prone to draining easily, surface water management measures will be implemented as part of Proposal design to maintain existing flow lines/watercourses and to avoid impact to adjacent native vegetation.</li> </ul>
Methodology	The Proposal is not likely to be at variance to this Principle.
methodology	
	Tille (2006)
	van Vreeswyk et al. (2004)

#### (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.

Comments	Proposed clearing is not at variance to this Principle.
	Conservation Estates
	The Proposal is not located within any Commonwealth or State listed conservation reserves or DBCA managed lands. Karijini National Park is situated 12 km to the west of the Development Envelope. No impact to Karijini National Park will occur as a result of the
	Proposal. <u>ESAs</u>
	An ESA associated with the Fortescue Marsh is located 37 km to the north-east of the
	Development Envelope. Given this distance to the ESA, there will be no impact on the environmental values associated with the Fortescue Marsh.
	Proposed clearing is not at variance to this Principle.

Methodology	Pilbara Environmental (2021)
	GIS Database:
	DBCA Legislated Lands and Waters

# (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.

Comments	Proposed clearing is not likely to be at variance to this Principle.			
	Clearing associated with the Proposal is unlikely to cause deterioration in the quality of			
	surface and/or underground water.			
	The Proposal is not located in a Public Drinking Water Source Area (PDWSA) (GoWA 2021)			
	however is located with the proclaimed Pilbara groundwater area. The Proposal is located			
	within the Upper Fortescue sub area of the Pilbara groundwater plan area. The groundwater resources in the Pilbara are mainly alluvial, sedimentary or fractured rock aguifers.			
	The Proposal is located within the Pilbara surface water area as proclaimed under the RIWI			
	Act. The surface waters within the Pilbara region are largely restricted to drainage lines, with			
	river pools sustained by local bank or local water table storage. The rivers are dry most of			
	the year, except for the chain of large pools which are common in the river beds of large			
	rivers and which may last through the dry season. A search of the PMST did not identify any			
	Wetlands of International Importance (i.e. RAMSAR wetlands) within the Development			
	Envelope. Two nationally important wetlands are present in the Study area:			
	• The Fortescue Marsh is located 37 km to the north-east of the Development			
	Envelope			
	Karijini (Hamersley Range) Gorges is located 15 km to the north of the Development			
	Envelope.			
	No significant surface water features were present within the Development Envelope. An			
	ephemeral drainage line runs 100 m to the south and 200 m to the west of the Development			
	Envelope. There is potential for contamination of these ephemeral drainage lines to occur			
	during construction of the Proposal due to the accidental release of nazardous materials,			
	due to the implementation of environmental management controls during clearing and the			
	consequence of contamination is temporary and would be easily remediated.			
	Clearing associated with the Proposal is unlikely to cause deterioration in the quality of			
	surface and/or underground water. Therefore, the Proposal is not likely to be at variance to			
	this Principle.			
Methodology	Pilbara Environmental (2021)			
	DAWE (2021)			
	GIS Database:			
	Public Drinking Water Source Areas			
	RIWI Act, Surface Water Areas and Irrigation Districts			
	RIWI Act, Groundwater Areas			
	Directory of Important Wetlands			
	RAMSAR Wetlands			
	Hydrography, Linear			

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

Comments	Proposed clearing is not likely to be at variance to this Principle.	
	Surface water management measures will be implemented as part of Proposal design to maintain existing flow lines/watercourses and to avoid impact to adjacent native vegetation.	

	As described under clearing principle (g) the Proposal will involve the construction of				
	onshoot drains around the periphery of the rest area which will divert surface water full-off				
	to adjacent vegetated areas. Although the Proposal area comprises clay soils which retain				
	water and are not prone to draining easily, surface water management measures will be				
	implemented as part of Proposal design to maintain existing flow lines/watercourses and to				
	avoid impact to adjacent native vegetation.				
	Road runoff and storm water will be managed via the CEMP with the objective of				
	maintaining local hydrological regimes through enabling infiltration close to the point of				
	collection. Therefore, proposed clearing is not likely to be at variance to this Principle.				
Methodology	Pilbara Environmental (2021)				
	GIS Database:				
	Soil landscape land quality - Flood Risk				
	Soil landscape land quality - Water Erosion Risk				
	Soil landscape land guality - Waterlogging Risk				

### **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
<b>1.</b> The CAR 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.
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: (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; the preparation of an Assessment Report, as required by condition 6(e), is not required.		
<b>2.</b> 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.	NA	No further action required.
<b>3.</b> The Proposal involves clearing for temporary works (as defined by CPS 818).	Νο	No further action required.
<ul> <li>4 a. Proposal is within Region that:</li> <li>Has rainfall greater than 400mm and</li> <li>Is South of the 26<sup>th</sup> parallel and</li> <li>Works are in 'Other than dry conditions' and</li> <li>Works have potential for uninfested areas to be impacted</li> </ul>	Νο	Proceed with standard Vehicle and Plant management actions from PEMRs and Vehicle and Plant Hygiene Checklists.
<b>4b.</b> Does the proposed works require clearing within or adjacent to DBCA estate in non-dry conditions?	Νο	No further action required.
<b>5.</b> 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.
<b>6.</b> The vegetation within the area to be cleared and/or the surrounding vegetation in a good or better condition and	No	No further action required.

Impact of Clearing	Yes/No or NA	Further Action Required
weeds likely to spread to and result in environmental harm to adjacent areas of native vegetation that are in good or better condition		

### 7 STAKEHOLDER CONSULTATION

No stakeholder consultation has been undertaken for this Proposal. As the Proposal design further develops, Main Roads will undertake stakeholder consultation as necessary

### **8 VEGETATION MANAGEMENT**

Main Roads will avoid clearing native vegetation where possible. A Construction Environmental Management Plan (CEMP) will be developed which will detail standard environmental management actions to avoid or minimise impact to environmental and heritage aspects.

### 9 **REFERENCES**

Australian Soil Resource Information System (ASRIS) 2021, *Australian Soil Resource Information Viewer*, retrieved September 2018, from <u>http://www.asris.csiro.au/index</u>.

Beard, JS 1975, *Vegetation Survey of Western Australia: Pilbara*, Western Australia, map and explanatory memoir 1:250,000 series, Applecross, Vegmap Publications.

Department of Biodiversity, Conservation and Attractions (DBCA) 2021. *Threatened and Priority Flora (DBCA-036),* retrieved from <u>https://catalogue.data.wa.gov.au/dataset/threatened-and-priority-flora</u>

Department of Agriculture, Water and the Environment (DAWE) 2021, *Environment Protection and Biodiversity Conservation Act 1999 Protected Matters Search Tool Results*, retrieved September 2021, from <a href="http://www.environment.gov.au/epbc/pmst/index.html">http://www.environment.gov.au/epbc/pmst/index.html</a>.

Environmental Protection Authority (2016). *Technical Guidance –Flora and Vegetation Surveys for Environmental Impact Assessment*. Gov. of Western Australia, Perth.

Government of Western Australia (GoWA) 2019, 2018 Statewide Vegetation Statistics incorporating the CAR Reserve Analysis (Full Report). Current as of March 2019. Department of Biodiversity, Conservation and Attractions, Perth, Western Australia.

Government of Western Australia (GoWA) 2021, Data WA, retrieved September 2021, from <u>https://data.wa.gov.au/</u>.

Pilbara Environmental Pty Ltd (2021). Karijini Drive Biological Survey. Pilbara, Western Australia.

Tille, P., (2006), Soil Landscapes of Western Australia's Rangelands and Arid Interior. Resource Management Technical Report 313. Department of Agriculture and Food, Western Australia.

Van Vreeswyk, A M, Leighton, K A, Payne, A L, and Hennig, P., (2004), An inventory and condition survey of the Pilbara region, Western Australia. Department of Agriculture and Food, Western Australia, Perth. Technical Bulletin 92.