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Clearing Assessment Report – CPS 818

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Great Northern Highway
Realignment Port Hedland Airport

October 2021

EOS#2045






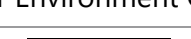


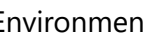

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Amendments

Report Compilation & Review	Name and Position	Document Revision	Date
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Reviewer:	 Senior Environment Officer	Rev 1	28/10/2021

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: Great Northern Highway Realignment Port Hedland Airport

Project Purpose / Components: Main Roads Pilbara region is planning to realign Great Northern Highway (GNH) adjacent to Port Hedland airport. The GNH realignment project will occur between H006 1610.93 Straight Line Kilometre's (SLK) and 1615.08 SLK. The project is in the development stages, and the resultant vehicle access modifications that are required for local business, airport and industry are yet to be confirmed.

Approvals have been granted for part of the project (see PCIA D17#347550, clearing of up to 36 ha) however due to design changes and the need to extract material out of the project area for construction further approvals are required outside the original boundaries.

Realignment of the existing road is required for safety reasons. Alternative alignments were considered and all involved clearing of native vegetation. The extent of native vegetation clearing will be minimised where possible by utilising already cleared areas and degraded areas.

Area Proposed to be Cleared: up to 55 ha within a development envelope of 112 ha (current project area excluding previously approved area and riparian vegetation).

Temporary Clearing Required: none

Key clearing impact assessment points are listed below.

- the project clearing is 'not likely to be at' variance with the 10 Clearing Principles
- the main native vegetation clearing impacts of the project (2020 extension) is the removal of up to 55 hectares of native vegetation (under CPS 818)
- No more than 42 individuals of *Tephrosia rosea* var. Port Hedland (P1) will be removed.
- No more than 70 individuals of *Goodenia nuda* (P4) will be removed.
- No more than 1 individual of *Abutilon* sp. Pritzelianum (P3) will be removed.
- A Bed and Banks permit to clear vegetation growing in association with a watercourse and riparian vegetation within the project area has been obtained from DWER.

Main Roads Statewide Purpose Clearing Permit CPS 818 will be used to undertake native vegetation clearing for the project. Project clearing will be undertaken in accordance with the conditions of CPS

818 and detailed records of native vegetation clearing will be maintained as required under the permit.

Project Location(s): Great Northern Highway near Port Hedland airport 1610.25-1614.75 SLK, Town of Port Hedland.

The project area is located on Great Northern Highway (H006), 1610.25-1614.75 SLK, Town of Port Hedland as shown in Figure 1.

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671066 Easting
7746036 Northing

2.2 Assessment Report Scope

This clearing impact assessment involved a desktop analysis of environmental aspects and impacts, a site investigation, and an assessment of native vegetation clearing impacts. The study area is confined to a local area of a 40 km radius shown in Figure 2.



Figure 1. Project Area

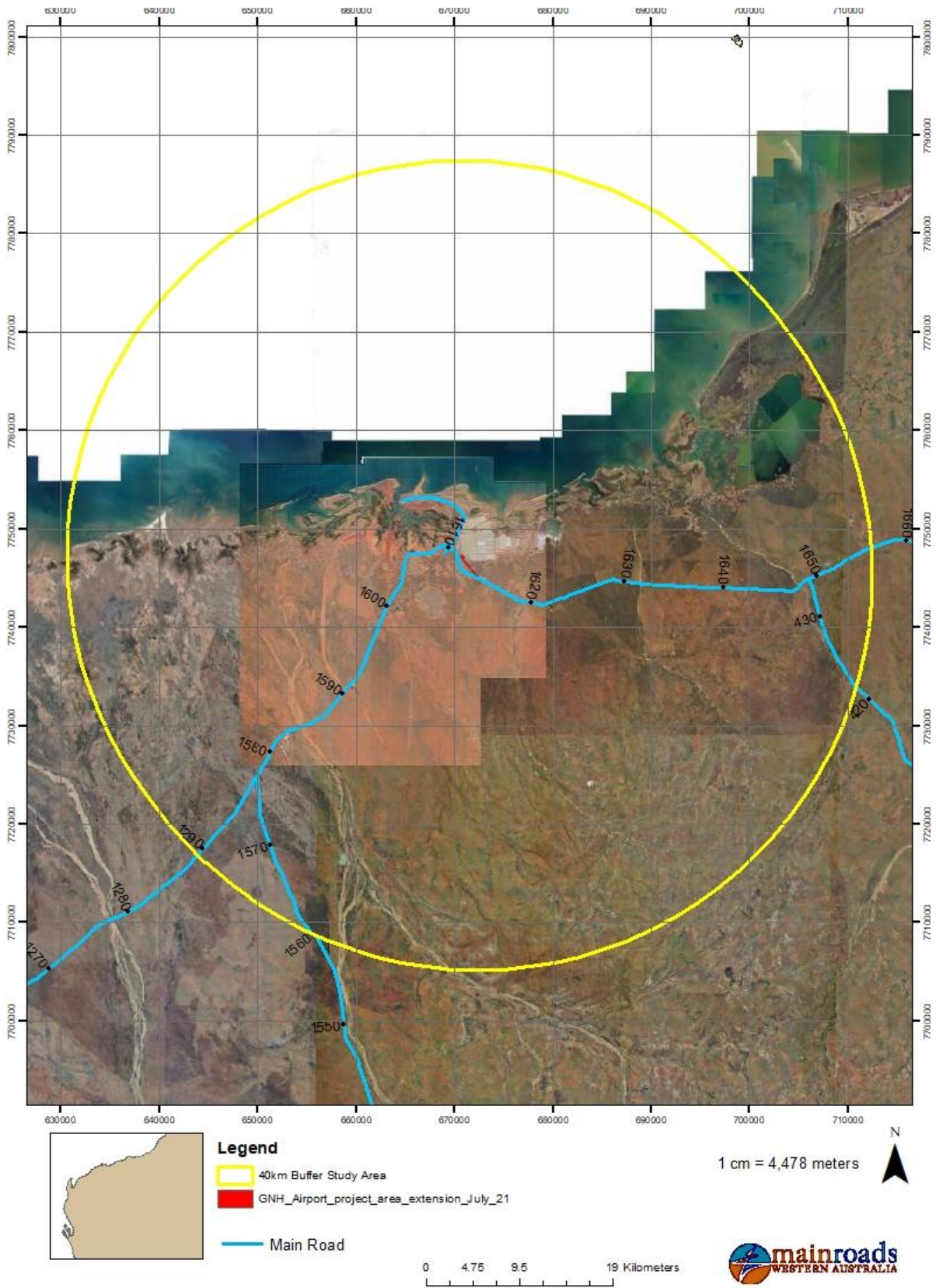


Figure 2. Project Location and Study Area

2.3 Alternatives to clearing

Realignment of the existing road is required for safety reasons. Alternative alignments were considered and all involved clearing of native vegetation. The extent of native vegetation clearing will be minimised where possible by utilising already cleared areas and degraded areas.

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

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

- The clearing area will be demarcated prior to the commencement of project activities and prior to the commencement of native vegetation clearing
- Survey has been undertaken to assess biological impacts on design which resulted in no significant issues identified.
- Pre cleared and degraded areas are being utilised to reduce clearing.

Table 1. Justification of Avoiding, Minimising, Mitigating and Managing Project Clearing Impacts

Design or Management Measure	Applied to Current Design	Discussion and Justification
Steepen batter slopes	No	Due to the traffic volumes, vehicle type (haul trucks) and posted speeds these batters cannot be changed significantly.
Installation of safety barriers	Yes	Standard barriers will be implemented at various location where batters are steepened and around lighting near the eastern end.
Alignment to one side of existing road	No	As there are no significant environmental factors or remanent vegetation the alignments have been designed primarily on safety needs.
Alternative alignment to follow existing road (or) to preferentially locate within pasture or a degraded areas	Yes	Realignment away from the current route has been identified due to safety measures the existing alignment will be kept where possible.
Installation of kerbing	Yes	Kerbing has been considered and implemented in the design where possible.
Simplification of design to reduce number of lanes and/or complexity of intersections	No	The widening scope of works cannot be further simplified whilst retaining the necessary safety benefits.
Preferential use of existing cleared areas for access tracks, construction storage and stockpiling	Yes	Further project clearing will be avoided as the site office, materials storage areas, construction vehicles/machinery and access tracks will be located on previously disturbed or cleared areas.
Drainage modification	Yes	Appropriate drainage and culverts if required are currently being designed to ensure there is no deviation to surface hydrology.

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

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 GHD 2015

GHD undertook a biological survey of 120 ha for the GNH realignment project (SLK 1610.93-1615.08) in 2015. Key results were following:

- Four vegetation associations:
 - VT1 *Triodia epactia*, *Eragrostis* sp., *Acacia stellaticeps* low shrubland / herbfield
 - VT2 *Tecticornia* low shrubland with bare areas
 - VT3 *Tecticornia pruinosa* low shrubland
 - VT4 *Acacia tumida*, *Acacia trachyandra* tall open shrubland over *Eragrostis* sp.
- No Threatened or Priority ecological communities.
- Vegetation condition mostly Excellent (113.1 ha) with small areas in Degraded and Completely Degraded condition.
- 67 flora taxa including two introduced taxa recorded in the field, including no Declared Pest species of Weeds of National Significance.
- No Threatened flora species were recorded.
- 70 plants of *Goodenia nuda* (Priority 4) and unknown number of *Pterocaulon intermedium* (then Priority 3, but no longer listed) were recorded. Four significant taxa were considered 'may possibly occur' (*Tephrosia rosea* var Port Hedland Priority 1, *Heliotropium muticum* Priority 3, *Rothia indica* subsp. *australis* Priority 3, and *Eragrostis crateriformis* Priority 3).
- Two fauna habitat type:
 - Native grasslands with scattered *Acacia* (corresponding to VT1 and VT4)
 - Low Samphire (*Tecticornia* sp.) shrubland and low lying/saline drainage areas (corresponding to VT2 and VT3)
- 36 fauna species, including five introduced species were recorded in the field. No significant species were recorded but four were considered likely to occur (Peregrine Falcon, Barn Swallow, Rainbow Bee-eater, Brush-tailed Mulgara).

3.2 Pilbara Environmental 2020

Pilbara Environmental undertook a biological survey of 13.5 ha for the GNH realignment project (SLK 1610.25 - 1614.75) in 2015. Key results were following:

- The same four vegetation associations mapped by GHD in 2015 as well as a fifth association consisting of disturbance species occurring on highly disturbed landforms.
- No Threatened or Priority ecological communities.
- Vegetation condition range from Good to Completely Degraded.
- Three significant flora species were recorded in the survey area:
 - 9 individuals of *Tephrosia rosea* var. Port Hedland (P1)
 - 20 individuals of *Gomphrena leptophylla* (P3)
 - 1 individual of *Abutilon* sp. Pritzelianum (P3)
- No Declared Pests or Weeds of National Significance were recorded.
- The same fauna habitat types recorded by GHD in 2015.
- No significant fauna species were recorded but four were considered likely to occur (Peregrine Falcon, Barn Swallow, Rainbow Bee-eater, Brush-tailed Mulgara).

3.3 Pilbara Environmental 2021

Pilbara Environmental undertook a biological survey of 55.29 ha for the GNH realignment project (SLK 1610.93 – 1615.08) in 2015. Key results were following:

- Three vegetation associations:
 - *Acacia stellaticeps* low sparse shrubland over *Triodia epactia*, *Triodia secunda* low hummock grassland over *Eriachne obtusa* low open tussock grassland (AsTeTsEo)

- *Tecticornia auriculata*, *Tecticornia indica* subsp. *leiostachya*, *Tecticornia halocnemoides* subsp. *tenuis* low open samphire shrubland over *Frankenia ambita* low sparse shrubland over *Eragrostis falcata* low sparse tussock grassland (TaTiIThtFaEf)
- *Acacia trachycarpa*, *Acacia ancistrocarpa* tall sparse shrubland over *Triodia epactia*, *Triodia secunda* open low hummock grassland over **Cenchrus ciliaris* low tussock grassland (AtAaTeTsCc).
- No Threatened or Priority ecological communities.
- Vegetation condition range from Very Good to Poor.
- 8 individuals of *Tephrosia rosea* var. Port Hedland (P1) but not other significant flora.
- No Declared Pests or Weeds of National Significance were recorded.
- Two fauna habitat types:
 - Native grassland with scattered low *Acacia* shrubland on sandy plain (FH1)
 - Samphire open shrubland on saline flowlines (FH2)
- No significant fauna species were recorded but four were considered likely to occur (Barn Swallow, Rainbow Bee-eater, Brush-tailed Mulgara).

4 Vegetation Details

4.1 Project Site Vegetation Description

In total eight vegetation types have been identified and described from the project area (GHD 2015, Pilbara Environmental 2020 and 2021). They include:

- VT1 *Triodia epactia*, *Eragrostis* sp., *Acacia stellaticeps* low shrubland / herbfield
- VT2 *Tecticornia* low shrubland with bare areas
- VT3 *Tecticornia pruinosa* low shrubland
- VT4 *Acacia tumida*, *Acacia trachyandra* tall open shrubland over *Eragrostis* sp.
- VT5 Disturbance species occurring on highly disturbed landforms
- AsTeTsEo *Acacia stellaticeps* low sparse shrubland over *Triodia epactia*, *Triodia secunda* low hummock grassland over *Eriachne obtusa* low open tussock grassland
- TaTiIThtFaEf *Tecticornia auriculata*, *Tecticornia indica* subsp. *leiostachya*, *Tecticornia halocnemoides* subsp. *tenuis* low open samphire shrubland over *Frankenia ambita* low sparse shrubland over *Eragrostis falcata* low sparse tussock grassland
- AtAaTeTsCc *Acacia trachycarpa*, *Acacia ancistrocarpa* tall sparse shrubland over *Triodia epactia*, *Triodia secunda* open low hummock grassland over **Cenchrus ciliaris* low tussock grassland.

Clearing of *Tecticornia* shrublands (VT2 ,VT3 and TaTiIThtFaEf) will be undertaken under a separate Bed and Banks permit and not under CPS 818.

Tables 3 and 4 provide details of the Pre-European Vegetation Associations with the project area and the remaining extents of these associations.

Table 3. Summary of Project Area's Mapped Pre-European Vegetation Associations

Pre-European Vegetation Association(s)	Clearing Description	Vegetation Condition	Comments
Vegetation Association 647 described as a Hummock grasslands, dwarf-shrub steppe; <i>Acacia translucens</i> over soft spinifex	Clearing of up to 55 ha for road realignment	Excellent to Completely Degraded	Vegetation description and condition determined from GHD biological assessment on 21 to 23 September 2015 and aerial imagery.

Table 4. Pre-European Vegetation Representation

Pre-European Vegetation Association	Scale	Pre-European (ha)	Current Extent (ha)	% Remaining	% Remaining in DBCA reserves
Veg Assoc No. 647	Statewide 647	195,860.89	191,711.41	97.88	0
	IBRA Bioregion Pilbara	195,859.95	191,710.92	97.88	0
	IBRA Sub-region Roebourne Pil4	188,901.32	184,774.70	97.82	0
	Local Government Authority Town of Port Hedland	180,908.49	176,759.02	97.71	0

5 Assessment against the Ten Clearing Principles

In assessing whether the project's proposed clearing is likely to have a significant impact on the environment, the project was assessed against the ten clearing principles (EP 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.

Comments	Proposed clearing is not likely to be at variance to this Principle
	<p>The pre-European vegetation association 647 occurs within the project area, which is described as Hummock grasslands, dwarf-shrub steppe; <i>Acacia translucens</i> over soft spinifex. This vegetation association is widespread throughout the Pilbara and is not restricted to the study area.</p> <p>The field surveys conducted within the project area recorded 67 flora taxa representing 29 families and 49 genera. This total comprised 65 native and two introduced (exotic) species.</p> <p>No flora taxa listed as threatened under the EPBC Act or BC Act were recorded within the project area.</p> <p>Three currently DBCA Priority-listed flora species were recorded in the project area <i>Tephrosia rosea</i> var. Port Hedland (P1), <i>Goodenia nuda</i> (P4) and <i>Abutilon</i> sp. <i>Pritzelianum</i> (P3). <i>Gomphrena leptophylla</i> (P3) records (Pilbara Environmental 2020) are located outside the current project area and will not be impacted.</p> <p>Approximately 70 individuals of <i>Goodenia nuda</i> (P4) were recorded in the south east of the project area (GHD 2015). This species has a wide distribution (Gascoyne, Little Sandy Desert, Pilbara bioregions), with 109 known records in FloraBase, including more than 400 individuals. Suitable habitat for the species in similar or better condition occur within the study area and region. The clearing of up to 70 <i>Goodenia nuda</i> will be less than 20% of known recorded individuals of the species. Given the linear nature of the clearing, the relatively small clearing area and the wide distribution of the species and its habitat, the project clearing is unlikely to significantly impact the species.</p> <p>42 individuals of <i>Tephrosia rosea</i> var. Port Hedland (P1) were found within the project area (Pilbara Environmental 2020, Pilbara Environmental 2021). <i>Tephrosia rosea</i> var. Port Hedland has previously been recorded within 620 m of the survey area. This species habitat includes loamy sand to sand soils on coastal dunes, sandy plains and road verges on plains. This species occurs within one IBRA region and is locally common where it is</p>

	<p>recorded. Recent Main Roads biological surveys for the Buttsweld Rd project found approximately 2000 individuals approximately 2.5km south. Buttsweld Rd surveys indicates that the species is a disturbance specialist. Due to the large locally known population, the clearing for the project is minor (up to 42 individuals) and is unlikely to significantly impact this species conservation.</p> <p>One individual of <i>Abutilon</i> sp. <i>Pritzelianum</i> (P3) was located on the edge of the project area (Pilbara Environmental 2020). The species is known to be locally abundant with 96 known records within the 40 km study area (DBCA Shapefiles). Clearing of up to one individual will not significantly impact the species.</p> <p>The likelihood of occurrence assessment post-field survey concluded that five taxa, <i>Rothia indica</i> subsp. <i>australis</i> (Priority 3), <i>Heliotropium muticum</i> (Priority 3) and <i>Eragrostis crateriformis</i> (Priority 3) may possibly occur within the project area, however these species have not been observed in any of the three field surveys.</p> <p><i>Rothia indica</i> subsp. <i>australis</i> has previously been recorded within 3.5 km of the project area. This species habitat includes sandy soils, sand hills and sandy flats, with most records adjacent to creeks and rivers. This species has a wide distribution; it has been recorded over three IBRA regions. Some habitat in the form of sandy flats occurs within the project area. Given this species wide distribution and the nature of the clearing (linear), clearing for the project is unlikely to significantly impact this species.</p> <p>Some suitable habitat for <i>Heliotropium muticum</i> and <i>Eragrostis crateriformis</i> occurs within the project area, however habitat in similar or better condition is located adjacent to the project area and more widely locally and regionally; clearing for the project is linear in nature and is unlikely to significantly impact these species.</p> <p>ArcMap and the EPBC PMST database searches did not identify any Commonwealth or State listed TECs or PECs within the study area. No Commonwealth or State listed TECs or PECs were identified within the project area during the field survey.</p> <p>Two main fauna habitat types were recorded during the field survey consistent with the vegetation types.</p> <p>Thirty-six fauna species were reported within the project area including: 23 birds; eight mammals; and five reptiles. Five introduced mammal species were recorded.</p> <p>Database searches identified 66 conservation significant fauna species within the study area. No fauna species of conservation significance were recorded during the field surveys within the project area.</p> <p>A likelihood of occurrence assessment identified the Peregrine Falcon, Barn Swallow, Rainbow Bee-eater and Brush-tailed Mulgara and Bilby as potentially occurring within the project area. As clearing for the project is linear in nature and similar or better quality habitat is readily available in the local area, the clearing for the project is not expected to significantly impact these species.</p> <p>The project area is considered to represent a moderate level of flora, fauna and habitat diversity, with surrounding areas comprising similar or higher biodiversity values. Three Priority flora species were recorded within the project area, however the projects clearing is unlikely to have a significant impact on these species. Given the vegetation to be cleared is similar in diversity to adjacent areas, the clearing is linear in nature and the clearing area is not large in local context, the clearing for the project is not likely to be at variance to this principle.</p>
Methodology	<p>GHD assessment (2015)</p> <p>Pilbara Environmental (2020, 2021)</p> <p>DBCA shapefiles</p> <p>MRWA GIS Shapefiles</p> <p>NatureMap (2020)</p> <p>FloraBase (WA Herbarium 2020)</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.

Comments	Proposed clearing is not likely to be at variance to this Principle
	<p>Two main fauna habitat types were recorded during the field survey consistent with the vegetation types: native grasslands and low Samphire (<i>Tecticornia</i> sp.). Clearing of the Samphire habitat will occur under a separate Bed and Banks permit.</p> <p>Thirty-six fauna species were recorded within the project area including: 23 birds; eight mammals; and five reptiles. Five introduced mammal species were recorded.</p> <p>Database searches identified 66 conservation significant fauna species within the project area. No fauna species of conservation significance were recorded during the field surveys within the project area.</p> <p>A likelihood of occurrence assessment identified the Peregrine Falcon (S), Barn Swallow (IA), Rainbow Bee-eater (T), Brush-tailed Mulgara (P4) and Bilby (T) as potentially occurring within the project area. All of these other than Bilby and Brush-tailed Mulgara are highly mobile and are able to move away from disturbance.</p> <p>Taking into consideration that the area has a high portion of infrastructure including the adjacent airport and large amounts of traffic, noise and lights, it is unlikely Bilby would utilise the habitat within the project area. Given the narrow linear nature of the clearing and availability of similar or better quality habitat in the local area, the clearing for the project is not expected to significantly impact Bilby.</p> <p>The Brush-tailed Mulgara may occur within parts of the project area. This species has a wide distribution. As clearing for the project is linear in nature and similar or better quality habitat is available in the local area, clearing for the project is not expected to significantly impact this species.</p> <p>Additional GIS database searches identified two conservation significant species which may occur within the project area (excluding species dependent on aquatic environments). They include <i>Lagostrophus fasciatus</i> subsp. <i>fasciatus</i> (Banded Hare-Wallaby, T) and <i>Dasyercus cristicauda</i> (Crest-tailed Mulgara, P4). The Banded Hare-Wallaby is restricted to the Dorre and Bernier Islands and is highly unlikely to occur within the project area. Records for the Crest-tailed Mulgara within the study area are likely to have been misidentified as the Brush-tailed Mulgara. This species occurs in the Little Sandy Desert and is therefore unlikely to occur within the project area. Clearing for the project is not expected to impact these species.</p> <p>All habitats within the project area have been impacted to some degree by past and present disturbances including the construction of infrastructure. No habitats were recorded that are considered to be exclusive to the project area and when aligned with the vegetation associations, the habitats of the project area are considered to be well represented at a local and regional scale.</p> <p>The habitats proposed to be cleared are well represented within the study area and region and no significant fauna are considered to be reliant on the clearing area. Given this and the linear nature of clearing; the project clearing is not likely to be at variance to this Principle.</p>
Methodology	<p>DBCA Shapefiles</p> <p>NatureMap (2020)</p> <p>GHD assessment (21-23/9/2015)</p> <p>Pilbara Environmental (2020, 2021)</p>

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

Comments	Proposal is not at variance to this Principle
	<p>Database searches did not identify any threatened flora species listed under the <i>Biodiversity Conservation Act 2016</i> (BC Act) within the 40 km study area. A likelihood of occurrence assessment did not identify any species listed under the BC Act as likely or possibly occurring within the project area. No listed species were recorded during the surveys of the project area.</p> <p>Given no BC Act listed Threatened species have been previously recorded within the project area and none are likely to occur within the project area, the clearing for the project is unlikely to impact on threatened/rare flora. As such, the clearing of native vegetation for this project is not at variance to this Principle.</p>
Methodology	DBCA shapefiles NatureMap (2020) GHD assessment (21-23/9/2015) Pilbara Environmental (2020, 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.

Comments	Proposed clearing is not at variance to this Principle
	<p>Database searches did not identify any State listed TECs within the study area. No State listed TECs were identified within the project area during the surveys. The nearest TEC to the project area is located approximately 350 km south of the project area.</p> <p>Given no TECs are likely to occur within the project area and the distance from the nearest known TEC, this project is not at variance to this Principle.</p>
Methodology	DBCA shapefiles GHD assessment (21-23/9/2015) Pilbara Environmental (2020, 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.

Comments	Proposed clearing is not at variance to this Principle																									
	<p>This project proposes to clear up to 55ha of native vegetation in Excellent to Completely Degraded condition. The project area is mapped as pre - European vegetation association 647; Hummock grasslands, dwarf-shrub steppe; <i>Acacia translucens</i> over soft spinifex.</p> <p>Table 2: Pre-European Vegetation Representation</p> <table><tr><th>Project Area</th><th>Pre-European (ha)</th><th>Current Extent (ha)</th><th>% Remaining</th><th>% Remaining in DBCA reserves</th></tr><tr><td>IBRA Region Pilbara</td><td>195,860.89</td><td>191,711.41</td><td>97.88</td><td>0</td></tr><tr><td>Vegetation Association No. 647 Statewide</td><td>195,859.95</td><td>191,710.92</td><td>97.88</td><td>0</td></tr><tr><td>Veg Assoc No. 647 in the IBRA Pilbara region</td><td>188,901.32</td><td>184,774.70</td><td>97.82</td><td>0</td></tr><tr><td>Veg Assoc No. 647 in the Town of Port Hedland</td><td>180,908.49</td><td>176,759.02</td><td>97.71</td><td>0</td></tr></table>	Project Area	Pre-European (ha)	Current Extent (ha)	% Remaining	% Remaining in DBCA reserves	IBRA Region Pilbara	195,860.89	191,711.41	97.88	0	Vegetation Association No. 647 Statewide	195,859.95	191,710.92	97.88	0	Veg Assoc No. 647 in the IBRA Pilbara region	188,901.32	184,774.70	97.82	0	Veg Assoc No. 647 in the Town of Port Hedland	180,908.49	176,759.02	97.71	0
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	<p>It is evident from the table above that the vegetation in the local area is well represented with more than 97 % of pre-European vegetation remaining. As a result, this area does not represent an area that has been extensively cleared.</p> <p>This vegetation is not significant as a remnant as there is a large amount of well represented vegetation within the study area and region. The vegetation is partially fragmented within the study area, however the proposed clearing is not expected to significantly reduce ecological functioning or impact linkages.</p> <p>Given the above, this proposed clearing is not at variance to this Principle as the clearing does not represent an area that is significant as a remnant nor is it in an extensively cleared landscape.</p>
Methodology	<p>GHD assessment (21-23/9/2015)</p> <p>Pilbara Environmental (2020, 2021)</p> <p>Government of Western Australia (2020)</p> <p>Aerial photography</p>

(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
	<p>Numerous major and minor watercourses occur within the 40 km study area. One lake occurs 13 km south of the project area. Clearing for the project is not expected to impact the lake.</p> <p>One minor non-perennial watercourse intersects the project area in multiple locations. Associated saline <i>Tecticornia</i> shrublands are considered riparian vegetation. The clearing of vegetation associated with a riparian area and watercourse will be undertaken under a Bed and Banks permit and not under CPS 818.</p> <p>The clearing proposed under CPS 818 is not at variance to this Principle.</p>
Methodology	<p>DWER shapefiles</p> <p>GHD assessment (21-23/9/2015)</p> <p>Pilbara Environmental (2020, 2021)</p>

(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
	<p>The clearing of vegetation associated with a watercourse will be undertaken under the Bed and Banks permit and not under CPS 818 and the assessment below will cover clearing under CPS 818 only.</p> <p>The clearing area under CPS 818 occurs within Uaroo System (281Ua) soil subsystem and is described as broad sandy plains, pebbly plains and drainage tracts supporting hard and soft spinifex hummock grasslands with scattered Acacia shrubs.</p> <p>According to available databases, the clearing area is not within an area subject to inundation. Based on the mapped land degradation risk, the application area has a relatively low likelihood of salinity and subsurface acidification (Schoknecht et al. 2004). The ASRIS Acid Sulfate Soils (ASS) database indicates that the project area occurs in areas classified as having an 'extremely low probability of occurrence'.</p> <p>Wind erosion is considered a potential risk but the linear nature of the project and retention of native vegetation in surrounding areas reduce this risk. Further, the CEMP will cover erosion and will ensure no appreciable land degradation will occur.</p>

	Based on the above, the project clearing is not likely to be at variance to this clearing principle.
Methodology	GHD assessment (21-23/9/2015) Pilbara Environmental (2020, 2021) ASRIS (2020) Natural Resource Management SLIP Soil Systems

(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
	<p>No conservation areas are located within the 40km study area. The nearest conservation area is North Turtle Island Nature Reserve which is located 60 km north of the project area (offshore). Given the distance to the nearest conservation area and the nature of the project activities it is unlikely that any conservation area will be directly or indirectly impacted by the project.</p> <p>Given the above the proposed clearing is not at variance to this Principle.</p>
Methodology	DBCA shapefiles

(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
	<p>The climate of the Pilbara is described as arid-tropical with two distinct seasons. Rainfall in the Pilbara is highly variable and may occur during both seasons. Average long-term annual rainfall for the area is 319.3 mm (Port Hedland Airport, station number 4032) which can occur in heavy localised falls (BoM 2020). Based on very high annual evaporation rates, any surface runoff resulting from rainfall events is likely to be relatively short lived. In addition the project area is largely surrounded by native vegetation and it is likely that a large proportion of runoff will be absorbed by this natural environment.</p> <p>The NRM SLIP database identified that there are no known risks of flooding, water logging or salinity to occur within the clearing area under CPS 818.</p> <p>A search of Department of Water and Environmental Regulation (DWER) database has confirmed that the project area occurs within the Pilbara Groundwater Area and the Pilbara Surface Water Area as listed under the <i>Rights in Water and Irrigation Act 1914</i> (RIWI Act). The nearest Public Drinking Water Source Area is the Yule River Water Reserve located approximately 40 km from the project area. Clearing for the project will not impact the Water Reserve.</p> <p>One minor non-perennial watercourse intersects the project area at multiple locations. Clearing of vegetation associated with the watercourse area will be undertaken under a Bed and Banks permit.</p> <p>Control measures will be in place to manage the risks of erosion within the project area. Measures to control erosion will be covered in the CEMP.</p> <p>With the low levels of rainfall, erosion control measures and the high evaporation rates, the limited linear clearing of native vegetation in a mostly vegetated setting is unlikely to cause appreciable deterioration in the quality of surface or underground water and is therefore not likely to be at variance with this clearing principle.</p>
Methodology	DWER shapefiles

	BOM (2020)
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(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
	<p>The NRM SLIP database identified that there are no known risks of flooding or water logging to occur within the clearing area under CPS 818. This project proposes to clear up to 55 ha of vegetation across a narrow linear area where there is surrounding vegetation. It is unlikely that the proposed clearing would increase the incidence or intensity of flooding.</p> <p>Therefore this project clearing is not likely to be at variance to this Principle.</p>
Methodology	<p>GHD assessment (21-23/9/2015)</p> <p>Natural Resource Management SLIP Soil Systems (Accessed 25/5/2020)</p>

6 ADDITIONAL ACTIONS REQUIRED

Table 6 summarises what further pre-clearing impact assessment and vegetation management is required in accordance with CPS 818.

Table 6. Summary of Additional Management Actions Required by Permit 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. The CAR indicates that the 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 	No	<p>4a.</p> <p>No further action required.</p>
<p>4b. Does the proposed works require clearing within or adjacent to DBCA estate in non-dry conditions?</p>	No	<p>4b.</p> <p>No further action required.</p>

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

No stakeholder consultation required for the proposed clearing in accordance with CPS 818/15.

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. A Vegetation Management Plan is not required for this project as there is no variance to the clearing principles. Vegetation management will be addressed under Construction Environmental Management Plan.

9 REFERENCES

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