



# Clearing Assessment Report – CPS 818

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Western Australia.*

Shoemaker Levy Crossing (Phase 3)  
Intersection Works with South Coast  
Highway (H008, SLK 318.87-318.94,  
319.24-319.34), Ravensthorpe

April 2021

EOS 2338

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# Amendments

Report Compilation & Review	Name and Position	Document Revision	Date
Author:	Eco Logical Australia Pty Ltd	Draft v1	16 March 2021
Reviewer:	MRWA Great Southern Environment Officer MRWA Great Southern Senior Environment Officer	Draft v1	29 March 2021
Reviewer:	MRWA CRSP Environment Officer	Draft v1	07/04/2021
Approver:	MRWA CRSP Environment Officer	Rev 0	28/04/2021

## 1 PURPOSE

The purpose of this Clearing Assessment Report (CAR) is to detail 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 (MRWA).

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:** Shoemaker Levy Crossing (Phase 3) Intersection Works with South Coast Highway (H008 SLK 318.87-318.94, 319.24-319.34), Ravensthorpe

**Project Purpose / Components:** The Ravensthorpe Nickel Project (RNP) is an open pit nickel mining operation owned and operated by First Quantum Minerals Australia Nickel Pty Limited (FQMAN), a wholly owned subsidiary of First Quantum Minerals Pty Limited. The RNP includes existing mine pits, infrastructure and processing facilities to the south of South Coast Highway (SCH) and an approved mine to the north of SCH; Shoemaker-Levy (SML). In order to facilitate the development of the SML deposit to the north of the SCH, a conveyor over the highway and access roads must be constructed within the Main Roads Western Australia (MRWA) road reserve.

The majority of the proposed conveyor crossing works and the construction of a permanent access road to SML intersecting with SCH occurs within an Approved Infrastructure Corridor (AIC) between the main RNP processing facilities and the SML deposit and is approved under Ministerial Statement 633 (MS633). However, this current phase of works, known as Phase 3, requires clearing of native vegetation within the MRWA road reserve outside the AIC to:

- widen SCH to allow access;
- install drainage structures and permanent protective barriers; and
- install permanent signage within the road reserve to manage traffic.

**The proposed clearing undertaking using CPS 818 is:** A total of up to 0.6 hectares (ha) of vegetation is required to be cleared for the Project, within a 1.1 ha Project Area. This includes a 5 m construction buffer (~0.3 ha) being applied to the earthworks footprint, which is unlikely to be impacted by the Works.

**The proposed temporary clearing undertaking using CPS 818 is:** None.

**Project Location(s):** The Project Area is located on the South Coast Highway (SCH), between Straight Line Kilometre (SLK) 318.87-318.94 and 319.24-319.34, approximately 28 kilometres (km) east of Ravensthorpe, in the Shire of Ravensthorpe.

The location of the Project Area is shown in Figure 2-1.

## 2.2 Assessment Report Scope

The Desktop Study Area (Figure 2-2) is confined to a radius of 10 km from the Project Area.



**Figure 2-1: Project Area for Shoemaker Levy Crossing (Phase 3) Intersection Works with South Coast Highway (H008 SLK 318.87-318.94, 319.24-319.34), Ravensthorpe**



**Figure 2-2: Desktop Study Area for Shoemaker Levy Crossing (Phase 3) Intersection Works with South Coast Highway (H008 SLK 318.87-318.94, 319.24-319.34), Ravensthorpe**

### **2.3 Alternatives to clearing**

There is no opportunity for the intersection to follow the alignment of the existing highway, as the direction of travel away from the intersection will be to the north, perpendicular to the highway. There is also no opportunity to locate the intersection or conveyor crossing in farmland or degraded areas given the location of the SML resource being fixed, as well as the location of the AIC.

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

The design and management measures implemented to avoid and minimise the clearing impacts by the Project are provided in Table 2-1.

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

<b>Design or Management Measure</b>	<b>Discussion and Justification</b>
<b>Steepen batter slopes</b>	<p>The batter slopes designed for the Project are aligned with the MRWA design criteria as per the design report (Fluor 2020). The South Coast Highway batter design will involve Cut / Fill: 1 in 6 typical and 1 in 4 back slope, and the SML access road batter design will involve Cut / Fill: 1 in 4 typical (Fluor 2020).</p> <p>Steepening of batter slopes is not applicable to the Project given the relatively flat nature of the terrain in the Project Area and that there are not any significant environmental values that would be avoided or impacts minimised as a result of steepening batter slopes for the design.</p>
<b>Installation of safety barriers</b>	<p>There are no significant environmental values that would be avoided or impacts minimised as a result of installing safety barriers.</p> <p>It is anticipated that initially a temporary safety barrier will be installed until the Phase 3 works are undertaken to complete the highway widening works and installation of the permanent barriers. Both temporary and permanent barriers will be located within the final permanent infrastructure footprint.</p>
<b>Alignment to one side of existing road</b>	<p>Clearing is required on both sides of the South Coast Highway. However, the vegetation condition is the same either side of the highway (all Pristine); therefore, if clearing was able to be restricted to one side only, this would not result in the avoidance of any areas of vegetation in better condition.</p>
<b>Alternative alignment to follow existing road (or) to preferentially locate within pasture or a degraded areas</b>	<p>There is no opportunity to undertake the Phase 3 Works in farmland or degraded areas given the location of the SML resource, South Coast Highway and mine road are fixed. There are no further practical measures that can be taken to avoid, minimise or reduce clearing impacts within the MRWA road reserve.</p>
<b>Installation of kerbing</b>	<p>Kerbing is not considered practical/of significant benefit to the road design and will not result in a reduction in clearing required for the Project.</p>



Design or Management Measure	Discussion and Justification
<b>Simplification of design to reduce number of lanes and/or complexity of intersections</b>	The intersection is small-scale and not complex and already includes the minimum number of lanes, so opportunity to reduce further is not available.
<b>Preferential use of existing cleared areas for access tracks, construction storage and stockpiling</b>	The Project is adjacent to an existing road and does not require the construction of new access tracks. Where required, construction storage and stockpiling will be managed within pre-disturbed areas of AIC, SML or RNP located south of the SCH.
<b>Drainage modification</b>	The proposed works in the road reserve have been designed so that there is minimal impact to existing water flows from rainfall events. The existing culvert drain through the South Coast Highway in the vicinity of the works will be utilised initially and ultimately be made redundant through filling in for the final access road in Phase 3. The temporary and ultimate drainage modifications have been designed so that they will not alter the natural hydrology or existing drainage regime.

## 2.5 Approved Policies and Planning Instruments

The clearing of native vegetation in Western Australia is regulated under the *Environmental Protection Act 1986* (WA) (EP Act) and the *Environmental Protection (Clearing of Native Vegetation) Regulations 2004* (WA) (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* (WA)
- *Aboriginal Heritage Act 1972* (WA)
- *Town Planning and Development Act 1928* (WA)

### **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**

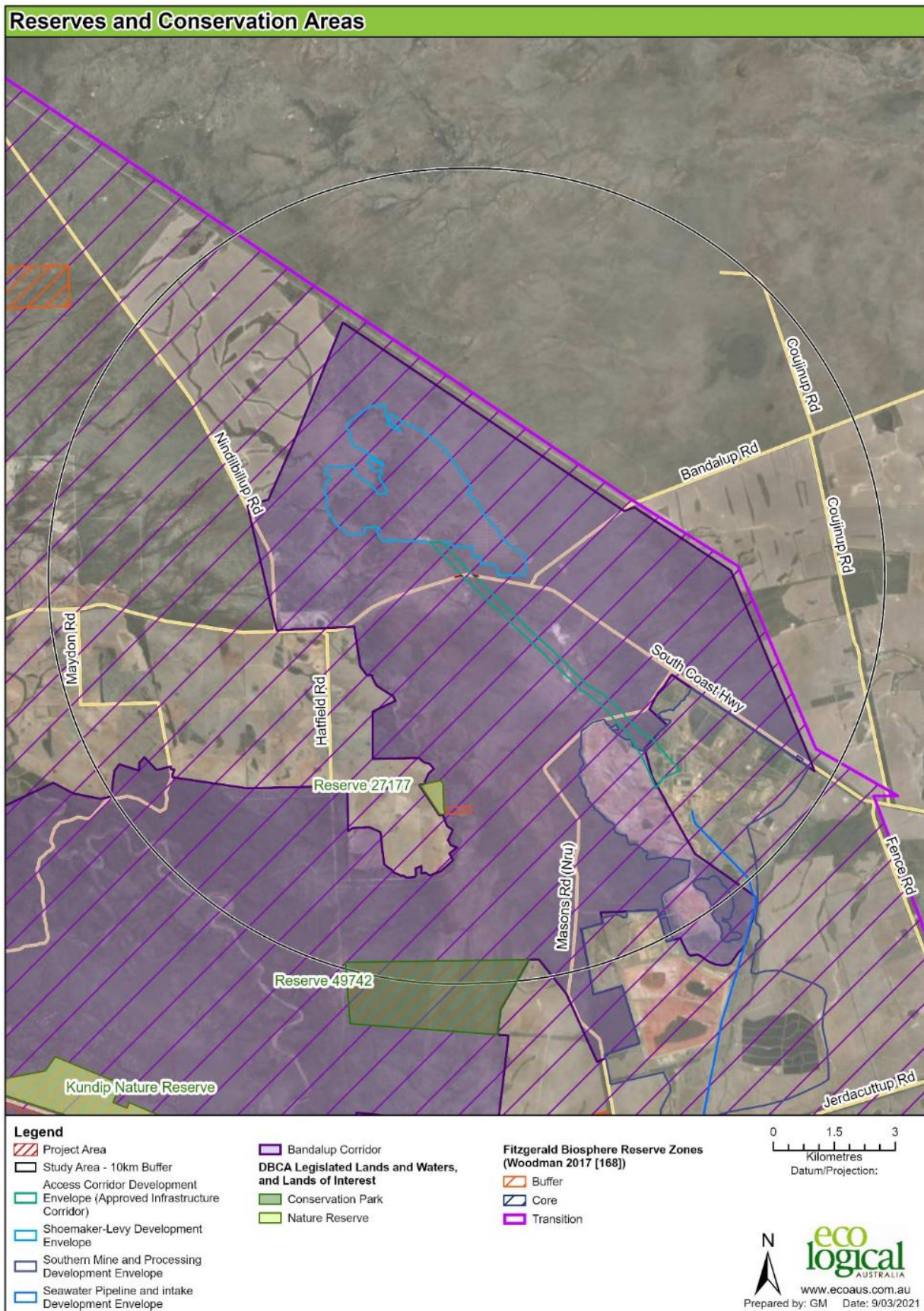
### **3.1 Results of desktop investigation**

A preliminary assessment of the Project Area and the potential constraints of the Project were undertaken by reviewing DBCA data sourced from MRWA and conducting a search via the DAWE Protected Matters Search Tool (PMST). The results of this desktop study are shown on Figure 3-1 to Figure 3-6 and the PMST results are provided in Appendix 1.

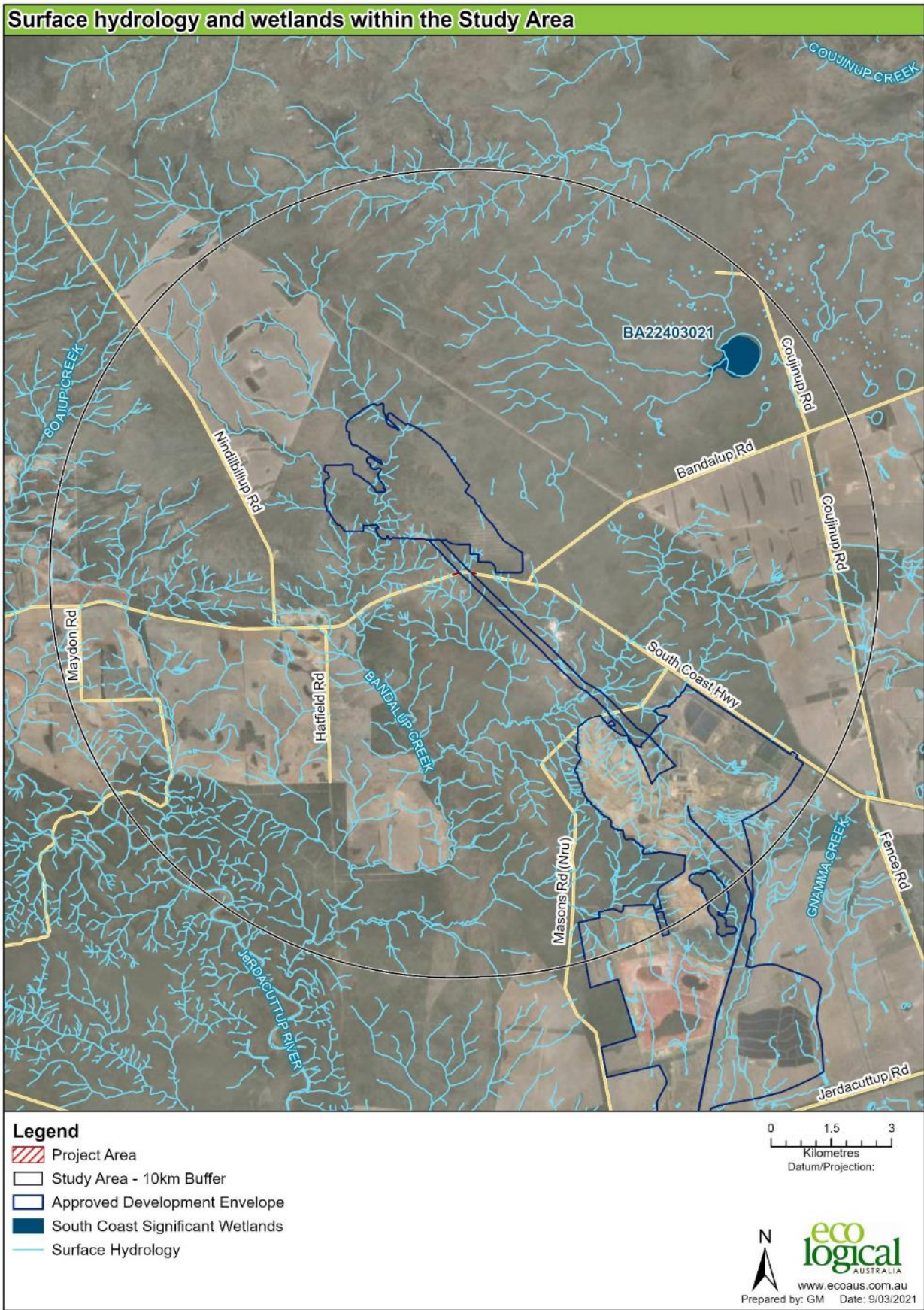
A detailed environmental assessment of potential impacts to key values in the Project Area has also been undertaken using survey information specifically gathered for the Project Area and vicinity. The results of this assessment are detailed in Sections 4 and 5, and in the Environmental Impact Assessment Report (EIA)..



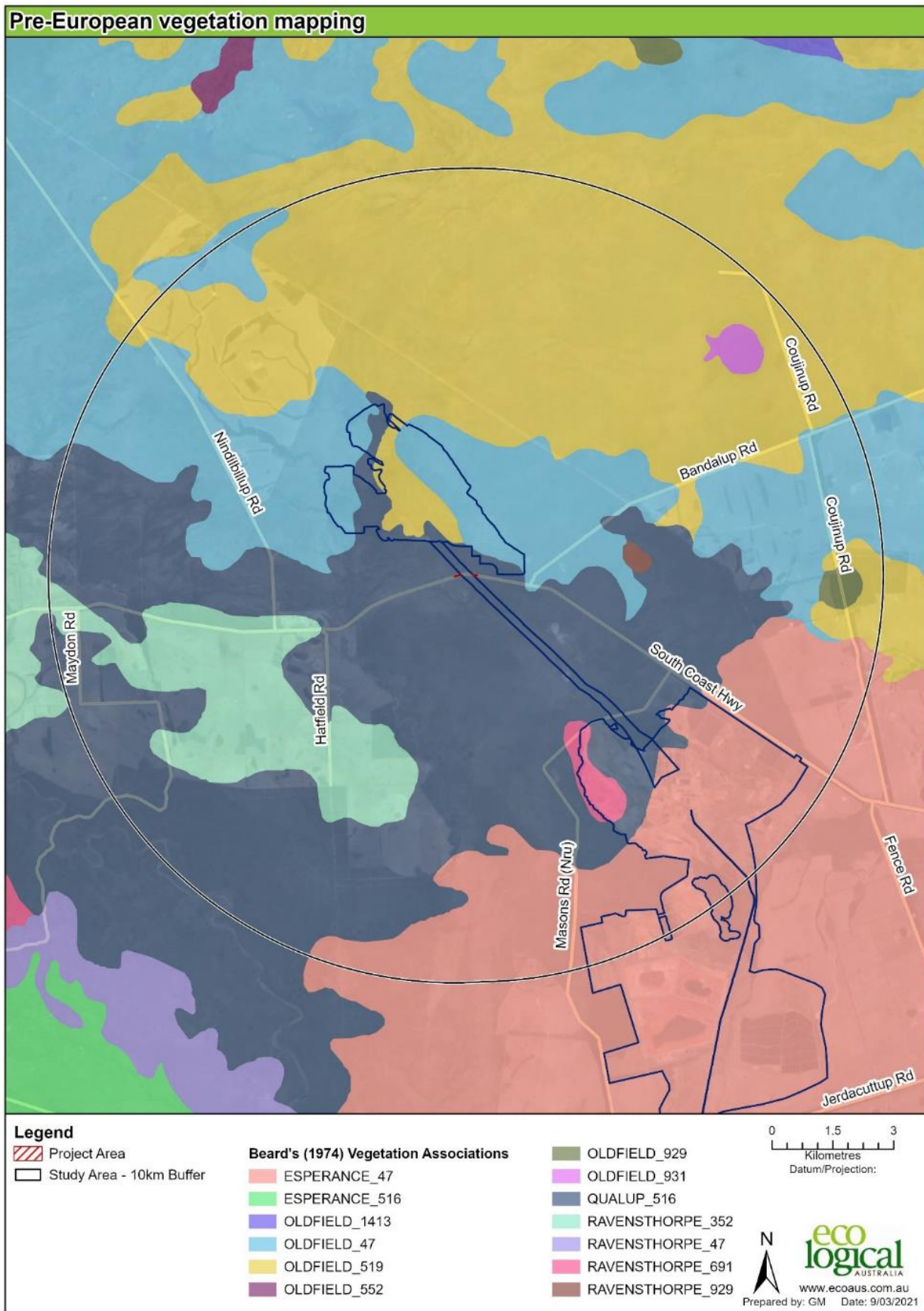
**Figure 3-1: Carnaby's Cockatoo Modelled Distribution Area in relation to the Shoemaker Levy Crossing (Phase 3) Intersection Works with South Coast Highway (H008 SLK 318.87-318.94, 319.24-319.34), Ravensthorpe**



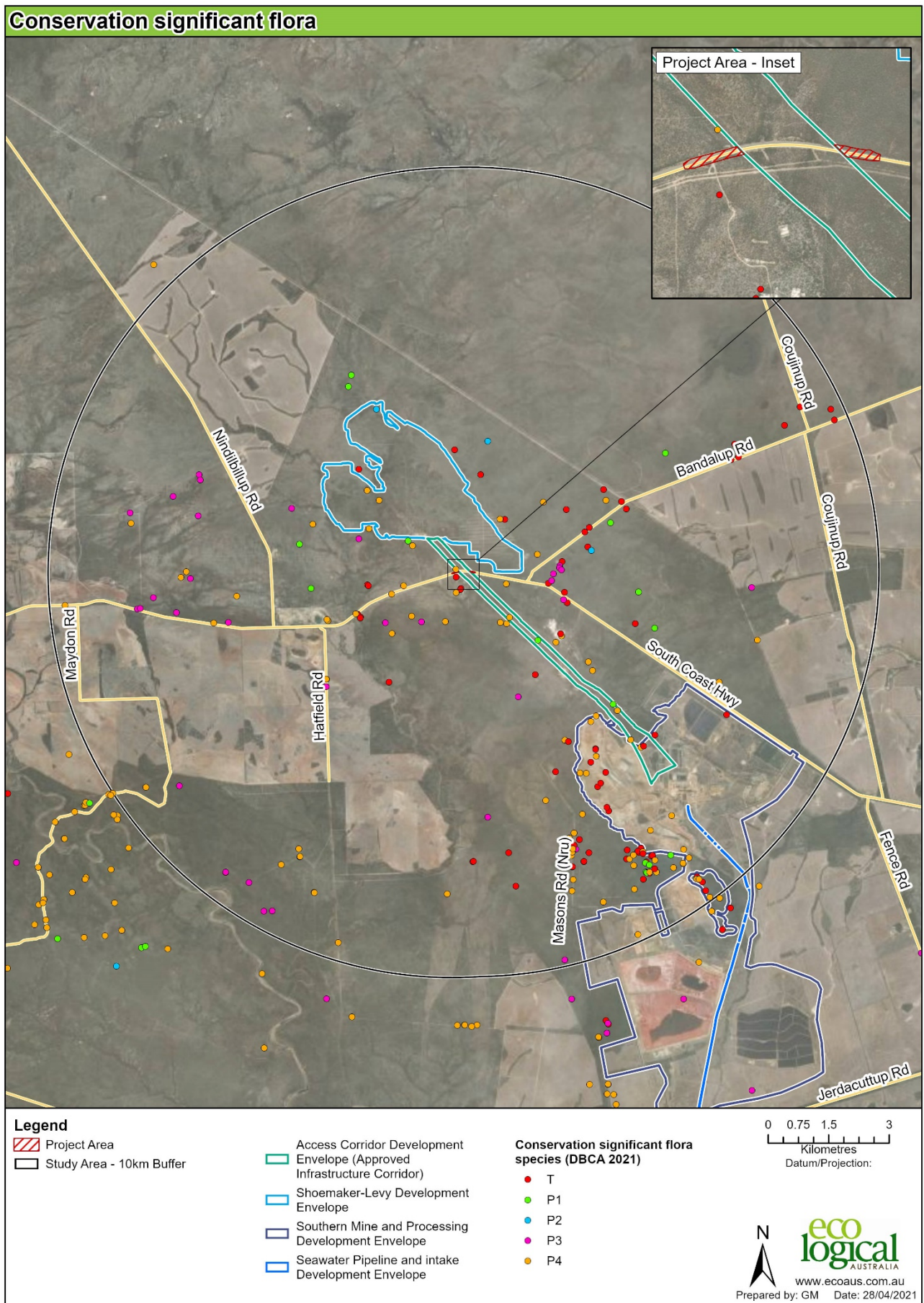
**Figure 3-2: Reserves and conservation areas within 10km of the Shoemaker Levy Crossing (Phase 3) Intersection Works with South Coast Highway (H008 SLK 318.87-318.94, 319.24-319.34), Ravensthorpe**



**Figure 3-3: Surface hydrology and wetlands within 10km of the Shoemaker Levy Crossing (Phase 3) Intersection Works with South Coast Highway (H008 SLK 318.87-318.94, 319.24-319.34), Ravensthorpe**



**Figure 3-4: Pre-European vegetation mapping within 10km of the Shoemaker Levy Crossing (Phase 3) Intersection Works with South Coast Highway (H008 SLK 318.87-318.94, 319.24-319.34), Ravensthorpe**



**Figure 3-5: Conservation significant flora within 10km of the Shoemaker Levy Crossing (Phase 3) Intersection Works with South Coast Highway (H008 SLK 318.87-318.94, 319.24-319.34), Ravensthorpe**





**Figure 3-6: Conservation significant fauna within 10km of the Shoemaker Levy Crossing (Phase 3) Intersection Works with South Coast Highway (H008 SLK 318.87-318.94, 319.24-319.34), Ravensthorpe**

### 3.2 Biological Surveys

Detailed assessments and surveys have been undertaken to identify the key environmental and heritage values of the Project Area. These assessments and surveys are summarised in Table 3-1..

**Table 2: Summary of surveys**

Report	Summary	Survey date	Within the Project Area?	Trigger for survey
<b>Flora and vegetation</b>				
Changes to Ravensthorpe Nickel Operations – Flora and Vegetation Assessment (Woodman Environmental 2017a)	A flora and vegetation assessment of the Ravensthorpe Nickel Operations was undertaken to acquire relevant baseline information for the study area. The survey included a Level 2 assessment involving a desktop study and a detailed survey. <b>Results in Project Area:</b> <i>No conservation significant flora recorded.</i>	31 October – 8 November; 21 – 28 November; 5 – 14 December (2016, spring – early summer).	<b>Yes.</b> This survey included traversing between quadrats or detailed recording sites which involved continual searching for locations of any significant flora taxa. The central portion of the Project Area was traversed (track logs as shown in Woodman Environmental 2017a) as part of these searches. In addition, the track immediately south of the western portion of the Project Area was also traversed. No quadrats were surveyed within the Project Area.	Survey required to support State and Commonwealth assessment of Ravensthorpe Nickel Project Revised Proposal. This required an update of studies over the previously surveyed RNP, and new survey to cover changes to the RNP.
Changes to Ravensthorpe Nickel Operations – Conservation Significant Flora Assessment (Woodman Environmental 2017b)	A targeted flora survey undertaken across the RNP. The survey aimed to identify any conservation significant flora through a series of transects at a maximum grid distance of 50m intervals.	6 – 13 October 2014 17 – 21 November 2014 11 August 2015 (spring) 31 October – 8 November 2016 (spring)	<b>No.</b> The overall study area included the entire Project Area however, the targeted survey transects were undertaken in areas outside of, but nearby the Project Area.	Targeted flora survey required to support State and Commonwealth assessment of Ravensthorpe Nickel Project Revised Proposal

Report	Summary	Survey date	Within the Project Area?	Trigger for survey
<p>Ravensthorpe Nickel Operations Flora and Vegetation Survey (ELA 2018)</p>	<p>A flora and vegetation survey of an area surrounding SML proposed for expansion as well as a previously unsurveyed area north of the RNP was undertaken to provide a contiguous mapping layer across the entire RNP Area and surrounds. Twenty quadrats were surveyed within the unsurveyed area, with data being subsequently merged with previous mapping undertaken by Woodman Consulting. To provide a more accurate vegetation mapping layer, analysis to reassign individual sites and reclassify groups of sites within the merged dataset was undertaken. This resulted in 18 Vegetation Types being delineated and mapped across the study area. Targeted surveys were undertaken in the proposed SML expansion area. Conservation significant flora and significant vegetation (Threatened Ecological Communities (TECs) and Priority Ecological Communities (PECs)) were recorded.  <b>Results in Project Area:</b>  <i>Vegetation types mapped (Section4)</i></p>	<p>10 – 19                      September 2018                      15 - 24 October                      2018</p>	<p><b>Yes.</b> The entire Project Area was included in the broader vegetation mapping and consolidation exercise undertaken (combining new and previous vegetation data for the RNP and surrounds). No quadrats were located within the Project Area however the central portion of the Project Area was traversed (survey tracks as shown in ELA 2018).</p>	<p>Additional detailed flora and vegetation survey and targeted flora survey required to build on the Woodman (2017a, 2017b) work, to fill gaps and search for more individuals of significant flora species to support State and Commonwealth assessment of Ravensthorpe Nickel Project Revised Proposal</p>
<p>Ravensthorpe Nickel Targeted Flora Survey (ELA 2019)</p>	<p>The scope of work included a Targeted survey for three (3) conservation significant flora species: <i>Conostylis lepidospermoides</i> (T), <i>Acrotriche orbicularis</i> (T) and <i>Drosera grievei</i> (P1) (while also noting any occurrences of other conservation significant flora species). None of the three targeted conservation significant</p>	<p>26 to 29                      November 2019</p>	<p><b>No.</b> The study area focussed on unsurveyed areas around the SML deposit, which included the area immediately north-east of the Project Area.</p>	<p>ELA was engaged by FQMAN to undertake a Targeted survey for selected conservation listed flora species within unsurveyed areas around the SML deposit to support the proposed expansion of SML (Ravensthorpe Nickel Project Revised Proposal). The survey</p>

Report	Summary	Survey date	Within the Project Area?	Trigger for survey
	flora species were recorded within the survey area.			was required to fill in data gaps from a survey undertaken by ELA in 2018 (ELA 2018), due to changes in the expansion design.
Targeted Flora Survey of additional potential SML expansion areas (Eco Logical Australia (ELA 2021)	The survey focussed primarily on identifying locations of three conservation significant flora species; <i>Conostylis lepidospermoides</i> (T) and <i>Drosera grieviei</i> (P1) <i>Acrotriche orbicularis</i> (T). <b>Results in Project Area:</b> <i>No conservation significant flora recorded.</i>	14-17 September 2020	<b>Yes.</b> The study area focussed on areas to the east of SML to inform the impact assessment of the expansion. However, the entire Project Area was also traversed, as shown on Figure 2 of ELA 2021.	The targeted survey was undertaken to infill survey gaps in the 2019 survey and in areas not previously surveyed within a potential further revision to the expansion of SML.
<b>Dieback</b>				
SML Approved Footprint and Expansion Areas – Phytophthora Dieback occurrence assessment (Glevan 2017)	An assessment for the presence of Dieback was conducted through a series of linear transects within the SML footprint and surrounds. <b>Results in Project Area:</b> <i>Project area and surrounds mapped as uninterpretable. No occurrences of Dieback were recorded within or nearby the Project Area.</i>	September 2016	<b>Yes.</b> The study area covered a broad area within and surrounding the RNP, which included the entire Project Area	The survey was undertaken to support the expansion of SML.
SML, Conveyor Corridor, Halley’s Pit and Hale Bopp Phytophthora Dieback occurrence assessment – Version 1.0 (Glevan 2020)	An assessment of various sites associated with the RNP was conducted for the presence of Phytophthora Dieback. The survey included current mining areas, proposed disturbance areas and vegetation immediately adjacent to tracks and roads. The AIC was included in this survey, however the Project Area was not.  <b>Results immediately adjacent to Project Area</b>	November 2019 June 2020	<b>No.</b> The survey covered the RNP, including the AIC. The Project Area was excluded however conclusions are able to be drawn from this detailed survey given the AIC is immediately adjacent and vegetation is the same in both areas.	Glevan was commissioned by FQMAN to conduct an assessment of various sites associated with the RNP for the presence of Phytophthora Dieback. The survey was to ensure the Dieback mapping is current for management purposes and to support the assessment of impacts

Report	Summary	Survey date	Within the Project Area?	Trigger for survey
	The entire AIC was mapped as Uninterpretable, with no occurrences of Dieback within or nearby.			associated with the RNP Revised Proposal.
<b>Terrestrial fauna</b>				
Ravensthorpe Nickel Operations Short Range Endemic Invertebrates Desktop and Field Assessment (Bennelongia 2017)	A desktop review and targeted species survey for Short-range Endemic invertebrate fauna within the Approved Disturbance (MS 633) areas at Shoemaker-Levy, the proposed curved infrastructure corridor and Hale-Bopp Northwest Development Envelope and surrounding areas. Sampling techniques included hand foraging, cup-trapping, UV spotlight searches, litter sieving and habitat assessment via mapping along with any <i>in situ</i> field observations. <b>Results in Project Area:</b> <i>Two broad potential habitat types with low likelihood of supporting Short-range Endemic (SRE) were mapped in the Project Area.</i>	28 March – 2 April 2017	<b>Yes.</b> The sampling sites were all outside of the Project Area however the SRE habitat mapping undertaken included the entire Project Area.	Survey required of expansion areas to support the assessment of impacts associated with the RNP Revised Proposal.
Vertebrate fauna survey for a proposed infrastructure corridor at the Ravensthorpe Nickel Operations – 2018 (Terrestrial Ecosystems 2018)	A targeted terrestrial fauna survey of conservation significant fauna species that may be utilising the AIC. The survey specifically targeted the threatened and conservation significant Malleefowl, Heath mouse, Western mouse, Western Whipbird, Chuditch, Western brush wallaby and <i>Isoodon obesulus fusciventer</i> (Quenda). One hundred (100) camera traps were deployed for 44 days and 150 large cage	January to March 2018	<b>No.</b> Cage, Box and Camera traps were utilised within the road reserve, immediately surrounding the Project Area.	Survey required to update terrestrial fauna information to support development of the AIC.

Report	Summary	Survey date	Within the Project Area?	Trigger for survey
	<p>traps and 450 aluminium box traps were deployed for five nights of trapping. Monitoring for Western Whipbird occurred while setting up the camera traps and conducting the trapping survey, and observations and locations of any Malleefowl mounds were recorded during the set- up of the traps.</p> <p><b>Results immediately adjacent to Project Area:</b> No conservation significant fauna species were recorded, adjacent to the Project area including no Malleefowl mounds.</p>			
<p>Ravensthorpe Nickel Operation Level 1 Targeted Fauna Survey (Stantec 2019)</p>	<p>A Level 1 targeted fauna survey covering the entire Fauna Study Area which is a broad area encompassing the RNP and surrounds. The objectives were to define the environmental values of the Fauna Study Area and to assess their conservation significance in relation to the proposed SML expansion. These were addressed by undertaking a desktop assessment and a Level 1 fauna field survey and consolidating all previous fauna surveys within and adjacent to the RNP.</p> <p><b>Results in Project Area:</b> <i>Fauna habitat types mapped (Section 5).</i></p>	<p>25 September - 5 October 2018</p>	<p><b>Yes.</b> The entire Project Area was included in the broader fauna habitat mapping and consolidation exercise undertaken (combining new and previous fauna habitat data for the RNP and surrounds). No camera traps were deployed within the Project Area however the central portion of the Project Area was traversed (survey tracks as shown in Stantec 2019). In addition, the track immediately south of the western portion of the Project Area was also traversed.</p>	<p>The survey was undertaken to support the assessment of impacts associated with the RNP Revised Proposal, including expansion areas and filling gaps of previous surveys.</p>

## 4 VEGETATION DETAILS

### 4.1 Project Site Vegetation Description

One vegetation type covers the Project Area (Figure 4-1); VT6 as mapped by ELA (2018) and is described as Mid Open Mallee Woodland of mixed taxa including *Eucalyptus phaenophylla* subsp. *interjacens*, *Eucalyptus leptocalyx* subsp. *leptocalyx* and *Eucalyptus flocktoniae* subsp. *flocktoniae* over Tall Sparse Shrubland dominated by *Banksia media*, *Melaleuca hamata* and *Hakea laurina* over Mid Shrubland of mixed taxa including *Melaleuca rigidifolia*, *Tetrapora verrucosa*, *Melaleuca subfalcata*, *Grevillea oligantha* and *Gastrolobium parviflorum* over Low Sparse Shrubland of mixed taxa including *Daviesia anceps*, *Acacia ingrata*, *Beaufortia schaueri*, *Acacia curvata* and *Grevillea nudiflora* over Low Sparse Sedgeland of mixed taxa including *Gahnia ancistrophylla*, *Lepidosperma humile* and *Tetraria* sp. Mt Madden (C.D. Turley 40 BP/897) on brown to cream clays and clay loam, usually with lateritic gravel or quartz stones, on slopes and undulating plains.

Vegetation within the Project Area and surrounds is considered to be in Pristine condition (Figure 4-2) (ELA 2018). Approximately 45% of the Project Area comprises cleared areas associated with the South Coast Highway.

Tables 1 and 2 provide details of the Pre-European Vegetation Associations with the Project Area and the remaining extents of these associations (Figure 3-4).

For a full description of the existing vegetation, refer to ELA (2018).

**Table 1 Summary of Project Area’s Mapped Pre-European Vegetation Associations**

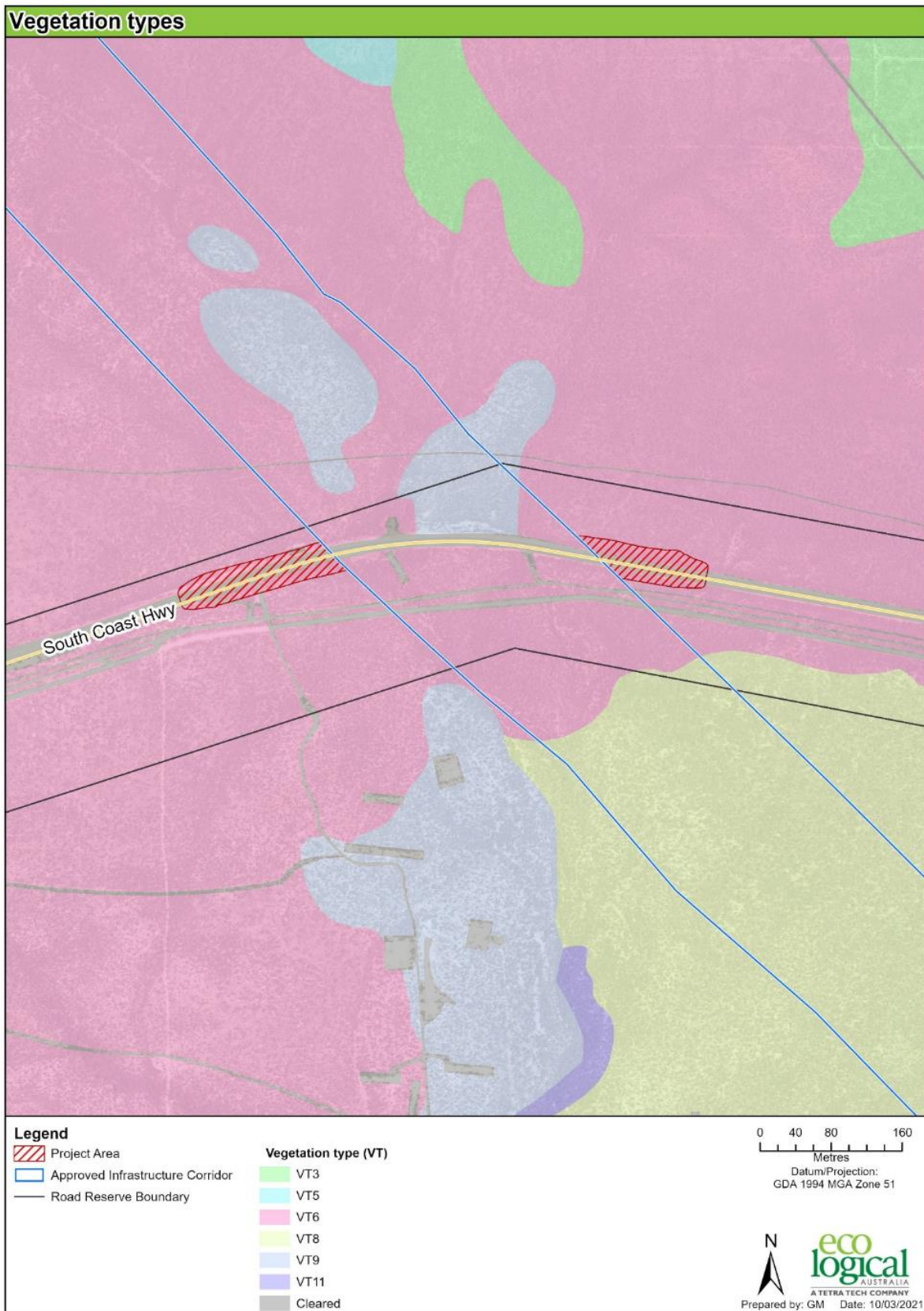
Pre-European Vegetation Association(s)	Clearing Description	Vegetation Condition	Comments
<i>Vegetation Association 516 described as Shrublands; mallee scrub, black marlock (Government of Western Australia, 2018)</i>	<i>Clearing of up to 0.6 ha for construction of an intersection on South Coast Highway.</i>	<i>Pristine (EPA 2016)</i>	<i>Vegetation description and condition determined from biological survey (ELA 2018).</i>

**Table 2. Pre-European Vegetation Representation**

Pre-European Vegetation Association	Scale	Pre-European (ha)	Current Extent (ha)	% Remaining	% Remaining in DBCA reserves
<b>Veg Assoc No. 516</b>	<b>Statewide</b>	607,434.08	332,848.54	54.8	24.19
	<b>IBRA Bioregion</b> <i>Esperance Plains</i>	318,746.74	219,798.44	68.96	28.72
	<b>IBRA Sub-region</b> <i>Fitzgerald</i>	219,038.35	183,114.14	83.6	38.43
	<b>Local Government Authority</b> <i>Shire of Ravensthorpe</i>	153,600.87	128,117.32	83.41	32.72

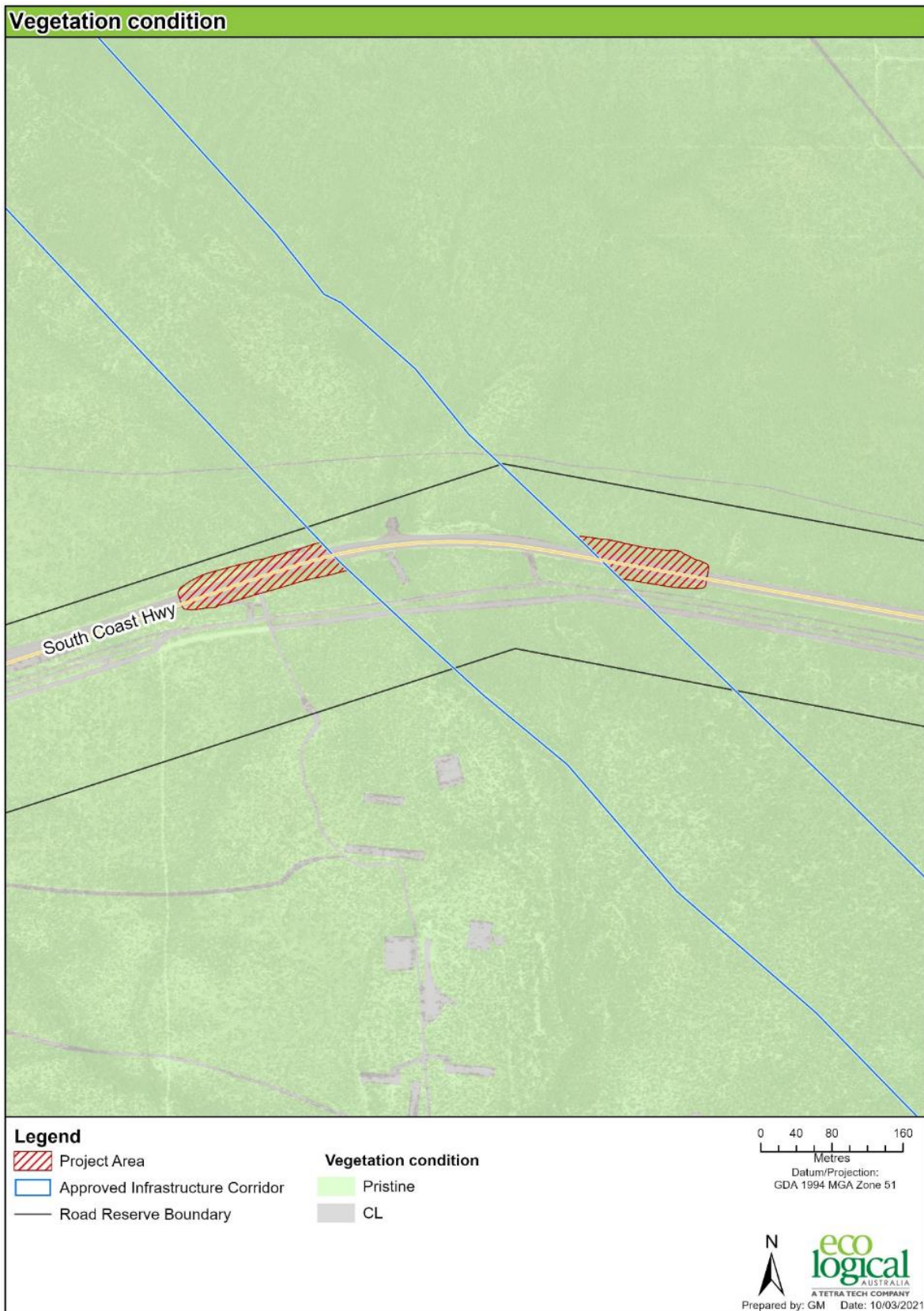
### 4.2 Vegetation Complexes and Representation

The Project Area is located outside of the Perth, Peel and Warren regions and therefore the finer scale vegetation mapping is not available for this location.



**Figure 4-1: Vegetation types within the Project Area of the Shoemaker Levy Crossing (Phase 3) Intersection Works with South Coast Highway (H008 SLK 318.87-318.94, 319.24-319.34), Ravensthorpe**





**Figure 4-2: Vegetation condition within the Project Area of the Shoemaker Levy Crossing (Phase 3) Intersection Works with South Coast Highway (H008 SLK 318.87-318.94, 319.24-319.34), Ravensthorpe**

## 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, 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 <u>not likely</u> to be at variance to this Principle
	<p>The Project is seeking approval to clear up to 0.6 ha of native vegetation within an area of 1.1 ha (which includes a 5 m construction buffer around the earthworks footprint that is unlikely to be cleared). One vegetation type (VT) covers the Project Area (Figure 4-1); VT6 as mapped by ELA (2018) and is described as Mid Open Mallee Woodland of mixed taxa including <i>Eucalyptus phaenophylla</i> subsp. <i>interjacens</i>, <i>Eucalyptus leptocalyx</i> subsp. <i>leptocalyx</i> and <i>Eucalyptus flocktoniae</i> subsp. <i>flocktoniae</i> over Tall Sparse Shrubland dominated by <i>Banksia media</i>, <i>Melaleuca hamata</i> and <i>Hakea laurina</i> over Mid Shrubland of mixed taxa including <i>Melaleuca rigidifolia</i>, <i>Tetrapora verrucosa</i>, <i>Melaleuca subfalcata</i>, <i>Grevillea oligantha</i> and <i>Gastrolobium parviflorum</i> over Low Sparse Shrubland of mixed taxa including <i>Daviesia anceps</i>, <i>Acacia ingrata</i>, <i>Beaufortia schaueri</i>, <i>Acacia curvata</i> and <i>Grevillea nudiflora</i> over Low Sparse Sedgeland of mixed taxa including <i>Gahnia ancistrophylla</i>, <i>Lepidosperma humile</i> and <i>Tetraria</i> sp. Mt Madden (C.D. Turley 40 BP/897) on brown to cream clays and clay loam, usually with lateritic gravel or quartz stones, on slopes and undulating plains.</p> <p>Vegetation within the Project Area and surrounds is considered to be in Pristine condition (Figure 4-2) (ELA 2018). Outside of Pristine areas, approximately 45% of the Project Area comprises cleared areas associated with the South Coast Highway.</p> <p>No TECs or PECs occur in the Project Area. The nearest occurrence of conservation significant vegetation is the ‘<i>Proteaceae Dominated Kwongkan Shrublands of the Southeast Coastal Floristic Province of Western Australia</i>’ (Kwongkan TEC) which occurs 300 m north of the Project Area (Figure 5-1). The Kwongkan TEC is protected under the EPBC Act. At a State level, the Kwongkan TEC has been classified as a Priority 3 Ecological Community. The Project does not contain any TEC listed under the State <i>Biodiversity Conservation Act 2016 (WA)</i>.</p> <p>No Threatened or Priority flora species occur in the Project Area (Figure 5-2). Threatened and Priority flora do occur in the vicinity and were returned in the desktop assessment search results. However many of these species are unlikely to occur based on a lack of habitat in the Project Area, as described in the Environmental Impact Assessment document prepared for the Project. The Project Area and surrounds have been extensively surveyed (ELA 2021, Woodman 2017a, ELA 2018) to target for these and other potentially occurring species of conservation significance, including the most recent flora survey (ELA 2021) which included targeted searches of the entire Project Area for conservation significant flora and none have been found.</p> <p>Fauna and fauna habitats are summarised here and discussed further in response to clearing principle (b). No threatened or Priority terrestrial fauna species have been recorded</p>

	<p>in the Project Area, although the Project Area was only traversed (Stantec 2019) no camera or other traps have been utilised in the Project Area during surveys (Figure 5-3). Conservation significant fauna may utilise the Project Area based on nearby records. The terrestrial fauna habitat of the Project Area has been mapped by Stantec (2019) as 'Low Mallee on Stony Rise' which is widespread and locally common (1,546 ha mapped in the surrounding area) (Figure 5-4).</p> <p>No Short Range Endemics (SREs) have been recorded in the Project Area or nearby. Two SRE habitat types occur in the Project Area as mapped by Bennelongia (2017) (Figure 5-5). Both are considered to have a low likelihood of supporting SRE species.</p> <p>The Project Area is located within the Bandalup Corridor; an area of remnant vegetation, which, along with other vegetation corridors such as the Ravensthorpe Ranges and Carlingup Corridor, links the Fitzgerald River National Park with vegetation to the northeast, leading to the Great Western Woodlands. This provides a linkage for fauna to move between the coast and inland areas. However, the Bandalup Corridor is very large (approximately 46,000 ha) and the minimal amount of linear clearing proposed (approximately 570 m in length within a 11 km wide corridor) will not fragment this linkage in any way and is not considered to be a significant reduction in the available habitat.</p> <p>Given the proposed clearing comprises thin strips of vegetation adjacent to an existing highway and there are large areas of similar vegetation in pristine condition in the local area, it is not likely to be at variance to this principle.</p>
<b>Methodology</b>	<p>DBCA shapefiles                  ELA (2021)                  Woodman (2017a)                  ELA (2018)                  Stantec (2019)                  Bennelongia (2017)</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.**

<b>Comments</b>	<b>Proposed clearing is <u>not likely</u> to be at variance to this Principle</b>
	<p>The terrestrial fauna habitat of the Project Area has been mapped by Stantec (2019) as 'Low Mallee on Stony Rise (Figure 5-4)'. This habitat type is widespread and characterised by relatively young mallee forming minimal or no upper cover and a dense mid-storey. The shrub lower storey comprised Melaleuca and Acacia, commonly <i>Acacia glauca</i>, over mixed shrubs and sedges. Most ground cover comprised coarse rocks and fragments, ranging from 20 – 200 mm. Woody debris are abundant, with a moderate amount of leaf litter and peeling bark. Stantec (2019) mapped 1,546 ha of Low Mallee on Stony Rise in the area surrounding, but not including, the RNP. Therefore, this habitat type is locally common and the 0.6 ha to be cleared comprises less than 0.04% of the Low Mallee on Stony Rise habitat present in the local area</p> <p>No threatened or Priority terrestrial fauna species have been recorded in the Project Area, although the Project Area was only traversed (Stantec 2019) no camera or other traps have been utilised in the Project Area during surveys (Figure 5-3). Conservation significant fauna may utilise the Project Area based on nearby records.. A number of species recorded during the desktop search have been assessed as unlikely to occur in the RNP area by</p>

Stantec (2019). Six species of conservation significance have been recorded nearby (Figure 5-3) and may occur in the Project Area:

- Carnaby's Cockatoo (*Calyptorhynchus latirostris*) (Endangered, EPBC Act Schedule 2, BC Act)
- Heath Mouse (*Pseudomys shortridgei*) (Endangered, EPBC Act Schedule 3, BC Act)
- Chuditch (*Dasyurus geoffroii*) (Vulnerable, EPBC Act Schedule 3, BC Act)
- Malleefowl (*Leipoa ocellata*) (Vulnerable, EPBC Act Schedule 3, BC Act)
- Western Whipbird (*Psophodes nigrogularis oberon*) (Priority 4, DBCA)
- Western Brush Wallaby (*Notamacropus irma*) (Priority 4, DBCA).

**Carnaby's Cockatoo** (*Calyptorhynchus latirostris*) (Endangered, EPBC Act Schedule 2, BC Act)

The Project Area lies within a much larger area of foraging habitat for Carnaby's Cockatoo mapped across the RNP and surrounds, that has been assigned a foraging habitat quality score of 2 (out of a possible 10) which is considered to be 'low quality' according to the DoEE (2017) draft foraging scoring tool. No records of this species have been made in the Project Area however the species has been recorded foraging in the vicinity, around the southern portion of the RNP and flying over the RNP.

While the Significant Impact Guidelines (DoE 2013) are applicable to all Matters of National Environmental Significance (MNES), impacts to black cockatoos are discussed more specifically in the EPBC Act referral guidelines for three threatened black cockatoo species (black cockatoo referral guidelines; DSEWPac 2012). The draft Revised draft referral guideline for three threatened black cockatoo species (DoEE 2017) were also considered, but as these guidelines are yet to be finalised, the original guidelines are considered the benchmark for determining the need for referral.

The black cockatoo referral guidelines (DSEWPac 2012) considers any of the following activities are at a high risk of causing significant impacts to Carnaby's Cockatoo:

- Clearing of any known nesting tree;
- Clearing or degradation of any part of a vegetation community known to contain breeding habitat;
- Clearing of more than 1 ha of quality foraging habitat;
- Clearing or degradation (including pruning the top canopy) of a known night roosting site; and
- Creating a gap of greater than 4 km between patches of black cockatoo habitat (breeding, foraging or roosting).

None of the above activities will be undertaken for the Project. The Stantec (2019) survey stated that no suitable breeding trees are present in the areas surveyed. Although this did not include a specific search of the Project Area, Stantec (2019) also states that only one habitat type mapped during the survey contains trees that would be marginally suitable for roosting ('Tall Trees in Depression'), therefore the 'Low Mallee on Stony Rise' habitat mapped in the Project Area does not contain trees suitable for use by Carnaby's Cockatoo for breeding or roosting. The only impact of the project on Carnaby's Black Cockatoo will be the removal of up to 0.6 ha of low-quality foraging habitat. Therefore, the Project is considered unlikely to have a significant impact on this species.

**Heath Mouse** (*Pseudomys shortridgei*) (Endangered, EPBC Act Schedule 3, BC Act)

Heath Mouse has been historically recorded in several habitat types across the RNP, including the habitat type mapped in the Project Area (Stantec 2019). The species is considered sparsely distributed indicating they potentially occupy other suitable habitats

mapped nearby. The species has been recorded at the RNP and surrounds historically (once in 2010 and several times between 1999-2000). The closest record to the Project Area is 4 km to the south-east.

Trapping for this species has not been undertaken in the Project Area. However, Terrestrial Ecosystems (2018) deployed aluminium box traps for approximately one month in transects of 25 traps, at four locations in the vicinity of the Project Area (between 20 m and 400 m away from the Project Area) specifically targeting three species including the Heath Mouse. The species was not recorded during the survey.

The lack of recent records, despite extensive trapping effort, may indicate the population has declined within the area (Stantec 2019). Stantec (2019) concluded this may be partially attributed to a large-scale fire which burnt through most of the RNP, including the Project Area in 2003 (Stantec 2019). The Heath Mouse prefer areas unburnt for at least 10 years with the largest numbers recorded in vegetation unburnt for 30 years (TSSC 2016). Consequently, the Project Area may contain more suitable habitats for these species in the future once 30 years have passed, but potentially did not at the time of the recent surveys.

The Project Area may be occasionally used for foraging, however the habitat present for the Heath Mouse is not considered to be critical habitat for the species. Critical habitat for the Heath Mouse is defined as the area of occupancy of the known populations and similar habitat within 1 km of all species' records (DEC 2012). Whilst suitable habitat for the species occurs within the Project Area, this habitat is not defined as critical habitat given that there are no records within 1 km.. Based on this and given the very small scale of clearing and its location adjacent to the South Coast Highway, the Project is not likely to have a significant impact on the Heath Mouse.

**Chuditch** (*Dasyurus geoffroii*) (Vulnerable, EPBC Act Schedule 3, BC Act),

Stantec (2019) indicated that most habitats identified in the broader RNP area may support Chuditch. The Low Mallee on Stony Rise habitat type mapped within the Project Area has limited burrowing suitability owing to the abundance of relatively large rocks. Other habitats in the surrounding area comprised substrates with medium to high burrowing suitability. All habitat types included shelter and prey species (e.g. varanids, reptile and mammal diggings etc.). Chuditch have been recorded throughout the RNP area and immediate surrounds in a variety of habitats. The Project Area may be occasionally utilised for foraging, however, given the very small scale of clearing and its location adjacent to the South Coast Highway, the Project is not likely to have a significant impact on the Chuditch.

**Malleefowl** (*Leipoa ocellata*) (Vulnerable, EPBC Act Schedule 3, BC Act)

Malleefowl have been sighted during surveys of the RNP and mounds have also been recorded in the vicinity of the RNP (active and inactive). The species is therefore breeding and foraging in the local area, however based the assessment of Stantec (2019), the habitat within the Project Area is suitable for foraging only as the substrate within the habitat of the Project Area has limited burrowing suitability owing to the abundance of relatively large rocks, which may have reduced suitability for Malleefowl mound construction. Based on this, the species may utilise the Project Area for foraging. However, given the very small scale of clearing and its location adjacent to the South Coast Highway, the Project is not likely to have a significant impact on the Malleefowl.

**Western Whipbird** (*Psophodes nigrogularis oberon*) (Priority 4, DBCA)

The Western Whipbird has been recorded in almost all historic surveys undertaken at the RNP, including being heard (14 locations) and sighted (one location) during the recent Stantec (2019) survey. The Western Whipbird has a distinctive call and records are widespread throughout the broader RNP and immediate surrounds, occurring in various

	<p>habitats including the one mapped within the Project Area (Low mallee on stony rise) (Stantec 2019). While the flora species most commonly associated with nesting (<i>Banksia caleyi</i>) has not been recorded at the RNP or immediate surrounds, Hakea and Daviesia may also serve as nesting sites. These flora species occurred in 6 of the mapped habitat types across the RNP, including Low mallee on stony rise.</p> <p>Even if the species does utilise the Project Area, the species has been recorded extensively in various other habitats nearby and more broadly. In addition, given the very small scale of clearing and its location adjacent to the South Coast Highway, the Project is not likely to have a significant impact on the the Western Whipbird.</p> <p><b>Western Brush Wallaby (<i>Notamacropus irma</i>) (Priority 4, DBCA).</b> The Western Brush Wallaby has been recorded extensively across the RNP and surrounding area during the most recent Stantec (2019) survey as well as during historic surveys. Records have comprised scats ranging from very old to recent (437 locations), opportunistic observations (13 locations), motion camera photos (13 locations) and one carcass of a young individual with a wound that indicated predation (Stantec (2019). While evidence of the species was recorded in all habitats during Stantec (2019), the vast majority of scat records and all opportunistic observations were recorded in dense and open mallee over heath and low heath habitats, indicating that the species favours sandy areas dominated by heath.</p> <p>Given the habitat in the Project Area is not preferred by this species, and the very small scale of clearing and its location adjacent to the South Coast Highway, the Project is not likely to have a significant impact on the the Western Brush Wallaby.</p> <p>Based on the above, the proposed clearing is not likely to be at variance with this principle.</p>
<b>Methodology</b>	<p>DoE (2013) DSEWPaC (2012) DoEE (2017) Stantec (2019) Threatened Species Scientific Committee (2016) DBCA shapefiles</p>

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

<b>Comments</b>	<p><b>Proposal is <u>not likely</u> to be at variance to this Principle</b></p>
	<p>No Threatened or Priority flora species have been identified in the Project Area (Figure 5-2). Threatened and Priority flora do occur in the vicinity, however the Project Area and surrounds have been extensively surveyed (ELA 2021, Woodman 2017a, ELA 2018) to target for these and other potentially occurring species of conservation significance, including the most recent flora survey (ELA 2021) which included targeted searches of the entire Project Area for conservaton significant flora and none have been found.</p> <p>Based on the above, the proposed clearing is not likely to be at variance with this principle.</p>
<b>Methodology</b>	<p>DBCA shapefiles ELA (2021) Woodman (2017a) ELA (2018)</p>

**(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.**

<b>Comments</b>	<b>Proposed clearing is not likely to be at variance to this Principle</b>
	There are no TECs listed under the State <i>Biodiversity Conservation Act 2016 (WA)</i> within or in proximity to the Project Area. Based on the above, the proposed clearing is not likely to be at variance with this principle.
<b>Methodology</b>	DBCA shapefiles ELA (2018)

**(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 <u>not likely</u> to be at variance to this Principle																																							
<p>The Project Area occurs in the Esperance Plains IBRA bioregion, of which approximately 51.5% of pre-European vegetation extent remains (Government of Western Australia 2018). The Project Area is located within an area of mostly uncleared vegetation. More broadly, beyond the Project Area, there has been clearing in the landscape predominantly for agriculture and mining.</p> <p>The Project Area is located within the Bandalup Corridor; an area of remnant vegetation which, along with other vegetation corridors such as the Ravensthorpe Ranges and Carlingup Corridor, links the Fitzgerald River National Park with vegetation to the northeast, leading to the Great Western Woodlands.</p> <p>One pre-European vegetation association has been mapped in the Project Area; 516: Shrublands; mallee scrub, black marlock. The percentage remaining of vegetation association 516 is &gt;30% at all scales (see table below).</p> <p style="text-align: center;"><b>Summary of Project Area’s Mapped Pre-European Vegetation Associations</b></p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr style="background-color: #008080; color: white;"> <th>Pre-European Vegetation Association(s)</th> <th>Clearing Description</th> <th>Vegetation Condition</th> <th>Comments</th> </tr> </thead> <tbody> <tr> <td><i>Vegetation Association 516 described as Shrublands; mallee scrub, black marlock (Government of Western Australia, 2018)</i></td> <td><i>Clearing of up to 0.6 ha for construction of an intersection on South Coast Highway.</i></td> <td><i>Pristine (EPA 2016)</i></td> <td><i>Vegetation description and condition determined from biological survey (ELA 2018).</i></td> </tr> </tbody> </table> <p style="text-align: center;"><b>Pre-European Vegetation Representation</b></p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr style="background-color: #008080; color: white;"> <th>Pre-European Vegetation Association</th> <th>Scale</th> <th>Pre-European (ha)</th> <th>Current Extent (ha)</th> <th>% Remaining</th> <th>% Remaining in DBCA reserves</th> </tr> </thead> <tbody> <tr> <td rowspan="4" style="text-align: center;"><b>Veg Assoc No. 516</b></td> <td><b>Statewide</b></td> <td style="text-align: right;"><i>607,434.08</i></td> <td style="text-align: right;"><i>332,848.54</i></td> <td style="text-align: center;"><i>54.8</i></td> <td style="text-align: center;"><i>24.19</i></td> </tr> <tr> <td><b>IBRA Bioregion</b> <i>Esperance Plains</i></td> <td style="text-align: right;"><i>318,746.74</i></td> <td style="text-align: right;"><i>219,798.44</i></td> <td style="text-align: center;"><i>68.96</i></td> <td style="text-align: center;"><i>28.72</i></td> </tr> <tr> <td><b>IBRA Sub-region</b> <i>Fitzgerald</i></td> <td style="text-align: right;"><i>219,038.35</i></td> <td style="text-align: right;"><i>183,114.14</i></td> <td style="text-align: center;"><i>83.6</i></td> <td style="text-align: center;"><i>38.43</i></td> </tr> <tr> <td><b>Local Government Authority</b> <i>Shire of Ravensthorpe</i></td> <td style="text-align: right;"><i>153,600.87</i></td> <td style="text-align: right;"><i>128,117.32</i></td> <td style="text-align: center;"><i>83.41</i></td> <td style="text-align: center;"><i>32.72</i></td> </tr> </tbody> </table> <p>The Project is unlikely to significantly impact the Bandalup Corridor as an ecological linkage, as discussed in principle (a). The remnant vegetation surrounding the Project Area is extensive and the proposed clearing will impact &lt;1 ha of this broader area of vegetation, along an already cleared road. Given this, and the percentage remaining of vegetation association 516 is &gt;30% at all scales, the Project will not contribute significantly to reducing the remaining extent of association 516.</p> <p>Based on the above, the proposed clearing is not likely to be at variance with this principle.</p>						Pre-European Vegetation Association(s)	Clearing Description	Vegetation Condition	Comments	<i>Vegetation Association 516 described as Shrublands; mallee scrub, black marlock (Government of Western Australia, 2018)</i>	<i>Clearing of up to 0.6 ha for construction of an intersection on South Coast Highway.</i>	<i>Pristine (EPA 2016)</i>	<i>Vegetation description and condition determined from biological survey (ELA 2018).</i>	Pre-European Vegetation Association	Scale	Pre-European (ha)	Current Extent (ha)	% Remaining	% Remaining in DBCA reserves	<b>Veg Assoc No. 516</b>	<b>Statewide</b>	<i>607,434.08</i>	<i>332,848.54</i>	<i>54.8</i>	<i>24.19</i>	<b>IBRA Bioregion</b> <i>Esperance Plains</i>	<i>318,746.74</i>	<i>219,798.44</i>	<i>68.96</i>	<i>28.72</i>	<b>IBRA Sub-region</b> <i>Fitzgerald</i>	<i>219,038.35</i>	<i>183,114.14</i>	<i>83.6</i>	<i>38.43</i>	<b>Local Government Authority</b> <i>Shire of Ravensthorpe</i>	<i>153,600.87</i>	<i>128,117.32</i>	<i>83.41</i>	<i>32.72</i>
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<b>Methodology</b>	Aerial photography ELA (2018) EPA (2016) Government of Western Australia (2018)
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**(f) Native vegetation should not be cleared if it is growing in, or in association with, an environment associated with a watercourse or wetland.**

<b>Comments</b>	<b>Proposed clearing is <u>not likely</u> to be at variance to this Principle</b>
	A search of ArcGIS shapefiles indicates no wetlands (RAMSAR, geomorphic, etc.) are located within or in the vicinity of the Project Area. General drainage lines occur in the Project Area, however there are no significant watercourses or surface water features present (Figure 3-3).  Based on the above, the proposed clearing is not likely to be at variance with this principle.
<b>Methodology</b>	DWER and DBCA shapefiles

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

<b>Comments</b>	<b>Proposed clearing is <u>not likely</u> to be at variance to this Principle</b>
	The soil landscape land quality and land capability data set (accessed via Landgate SLIP Locate v5 database) and CSIRO risk mapping indicates the soils of the proposal area generally have a low risk of land degradation (waterlogging, flood risk, water erosion). The Project Area is however located in a mapped area where 50-70% of the map unit has a high to extreme risk of wind erosion.  Given the linear nature of the clearing and that the road areas being constructed will be sealed, the proposed clearing is not likely to lead to an appreciable increase in land degradation. Erosion and dust management control measures in line with MRWA standards will be implemented during construction to reduce the incidence of wind erosion.  Based on the above, the proposed clearing is not likely to be at variance to this principle.
<b>Methodology</b>	Landgate SLIP Locate v5 database

**(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.**

<b>Comments</b>	<b>Proposed clearing is <u>not likely</u> to be at variance to this Principle</b>
	There are no DBCA managed lands in the vicinity of the Project Area.  The Project Area is located within the Transition Zone of the Fitzgerald River Biosphere, one of 12 United Nations recognised international biospheres in Australia which is internationally and nationally recognised for its extreme biological richness, species endemism and high level of threats (Figure 3-2). The biosphere captures the Fitzgerald River National Park and Ravensthorpe Ranges.

	<p>The Project Area is also located within the Bandalup Corridor; an area of remnant vegetation which, along with other vegetation corridors such as the Ravensthorpe Ranges and Carlingup Corridor, links the Fitzgerald River National Park with vegetation to the northeast, leading to the Great Western Woodlands.</p> <p>The nearest conservation reserves to the Project Area include Nature Reserve 27177, for Conservation of Flora, 5 km to the south-west; and Nature Reserve 43060 13 km to the south, (Scarlet Pear Gum Reserve), located on the corner of Mason Bay Road and Jerdacuttup Road. Other reserves in the region include the heritage listed Fitzgerald River National Park located 33 km to the south-west, Kundip Nature Reserve 15 km to the south-west and Jerdacuttup Lakes Nature Reserve 35 km to the south of the Project Area (Figure 3-2).</p> <p>Given the minimal amount of clearing along an already cleared highway, the Project will not contribute to loss of ecological connectivity within the Fitzgerald River Biosphere or the Bandalup Corridor.</p> <p>Based on the above, the proposed clearing is not likely to be at variance with this principle.</p>
<b>Methodology</b>	<p>DBCA shapefiles EPA (2016)</p>

**(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.**

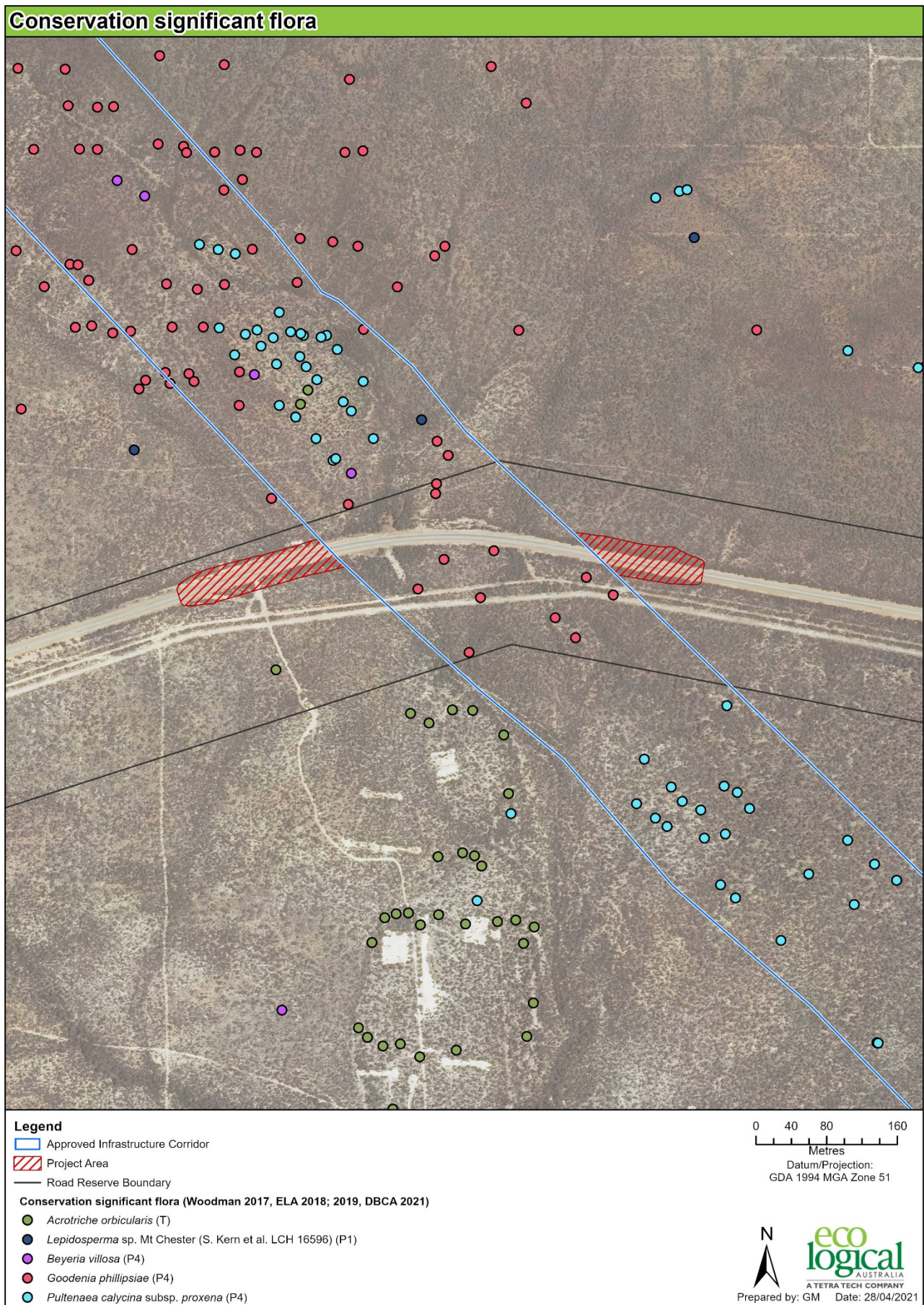
<b>Comments</b>	<b>Proposed clearing is <u>not likely</u> to be at variance to this Principle</b>
	<p>General drainage lines occur in the Project Area, however there are no significant watercourses or surface water features present. No impacts to surface water are likely from the Project and drainage in the Project Area will be managed as per the measures described in the CEMP.</p> <p>The Project Area is not located within a Public Drinking Water Source Area (PDWSA) or catchment proclaimed under the <i>Country Areas Water Supply Act 1947</i>, the closest is located approximately 9 km to the west. The Project Area is also not located within a Groundwater Proclamation Area under the <i>Rights in Water and Irrigation Act 1914</i>.</p> <p>Groundwater appears generally continuous within basement rocks, at depths of between 20 to 80 m below ground level (bgl) (RPS 2013). Native vegetation within the Project Area is not groundwater dependent, given the vegetation type and the fact that the watertable is well below the rooting depth of vegetation. Groundwater also does not appear to interact with ephemeral creeks in the vicinity of the RNP (RPS 2013).</p> <p>No dewatering is required for the Project. Drainage modifications will be implemented however given the depth to groundwater there will be no impact to groundwater level or quality.</p> <p>Based on the above, the proposed clearing is not likely to be at variance with this principle.</p>
<b>Methodology</b>	<p>DWER and DBCA shapefiles RPS (2013)</p>

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

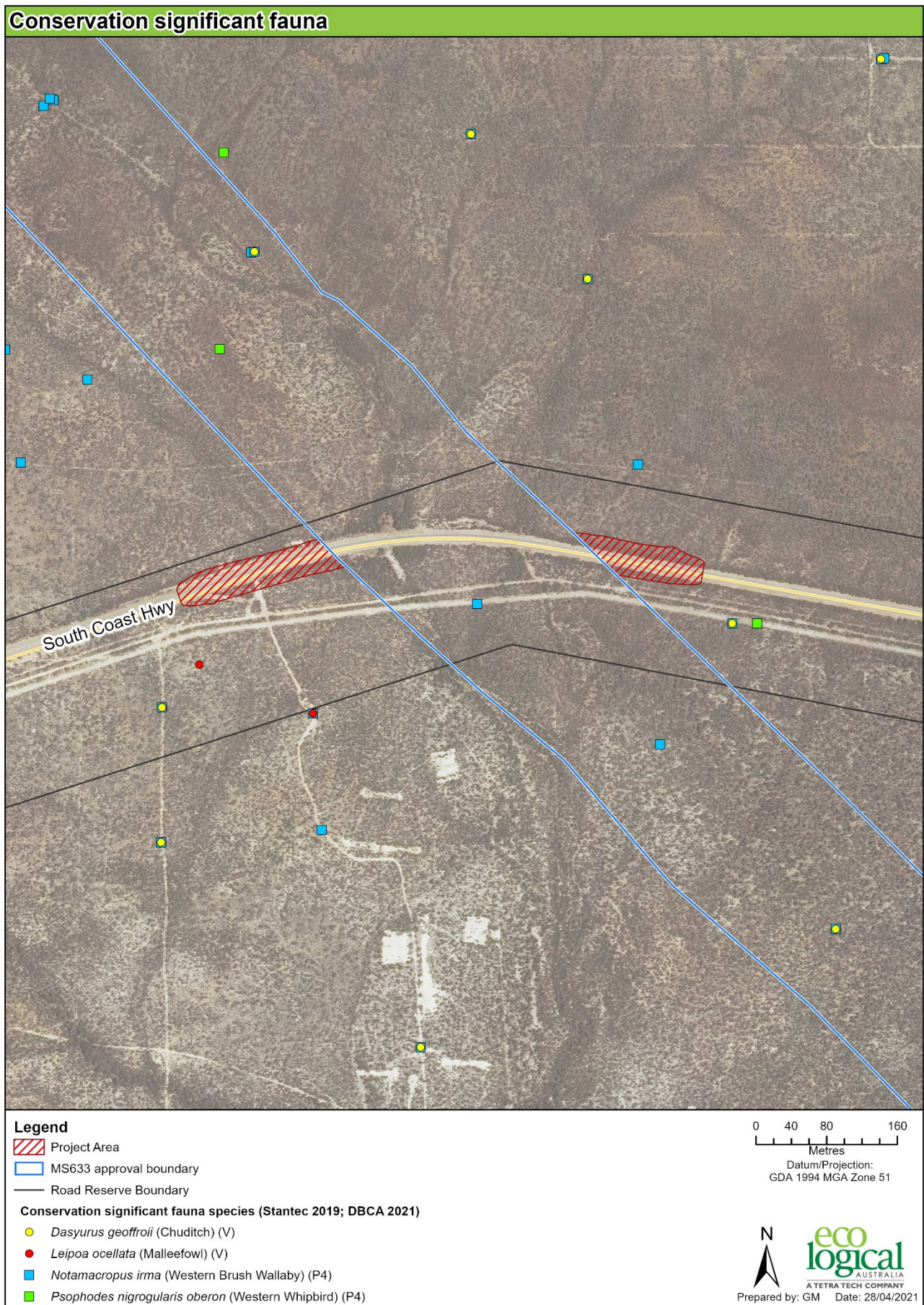
Comments	Proposed clearing is <u>not likely</u> to be at variance to this Principle
	<p>The Esperance Plains region is characterised by a warm Mediterranean climate with winter rainfall. There are 5-6 dry months per year (where evaporation exceeds precipitation); with Ravensthorpe generally receiving an average of 430 mm of rain annually (BoM 2021). The average monthly rainfall peaks from late autumn to early spring, with the highest rainfall on average received in July.</p> <p>The soil landscape land quality and land capability data set (accessed via Landgate SLIP Locate v5 database) indicates the Project Area is located within an area mapped as having a low risk of flooding. General drainage lines occur in the Project Area, however there are no significant watercourses or surface water features present. No impacts to surface water are likely from the Project and drainage in the Project Area will be managed as per the measures described in the CEMP.</p> <p>The minimal area of clearing proposed along an already cleared highway is unlikely to result in an increased risk of flooding.</p> <p>Based on the above, the proposed clearing is not likely to be at variance with this principle.</p>
<b>Methodology</b>	Landgate SLIP Locate v5 database BoM (2021)



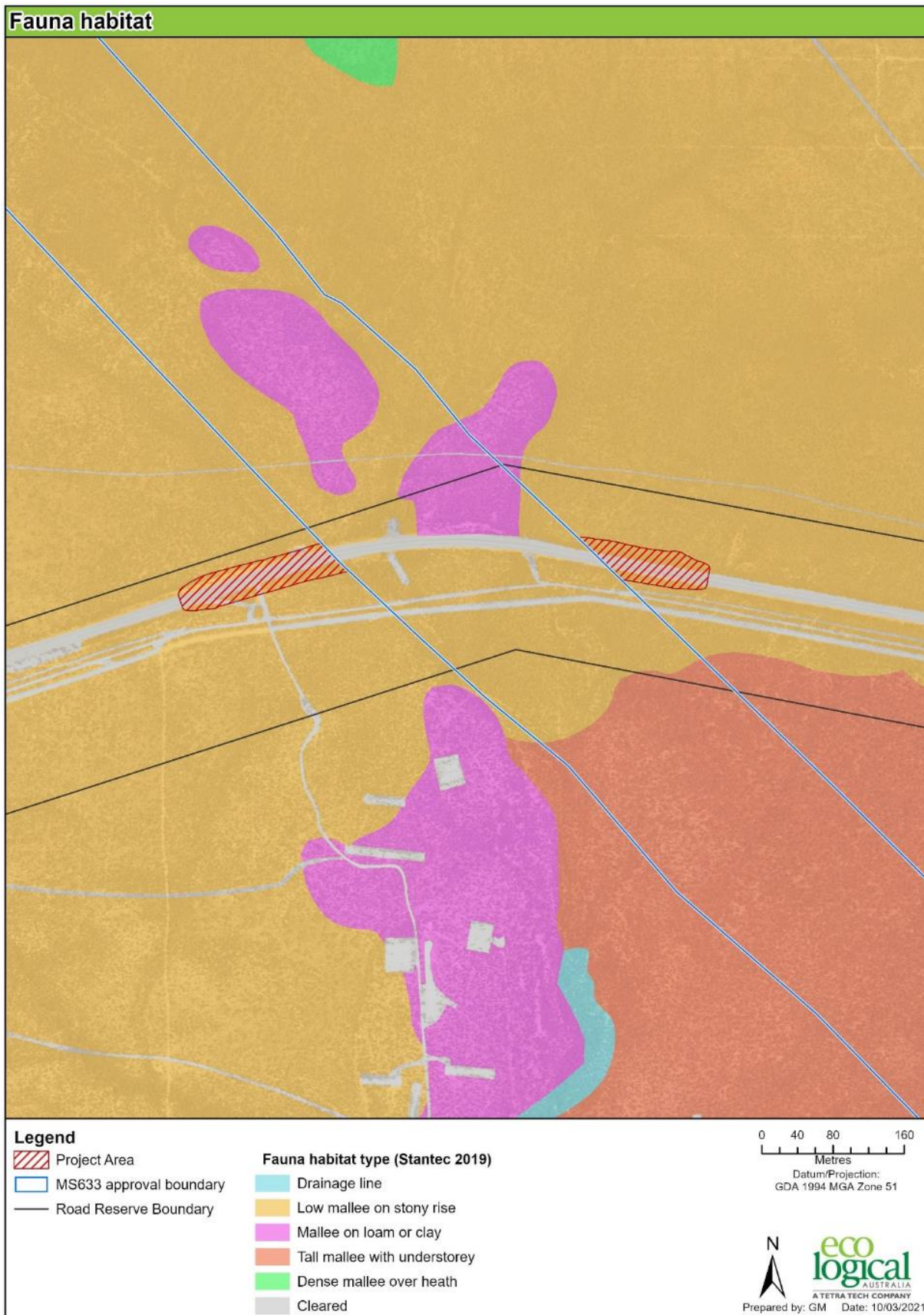
**Figure 5-1: Conservation significant vegetation communities within the Project Area of the Shoemaker Levy Crossing (Phase 3) Intersection Works with South Coast Highway (H008 SLK 318.87-318.94, 319.24-319.34), Ravensthorpe**



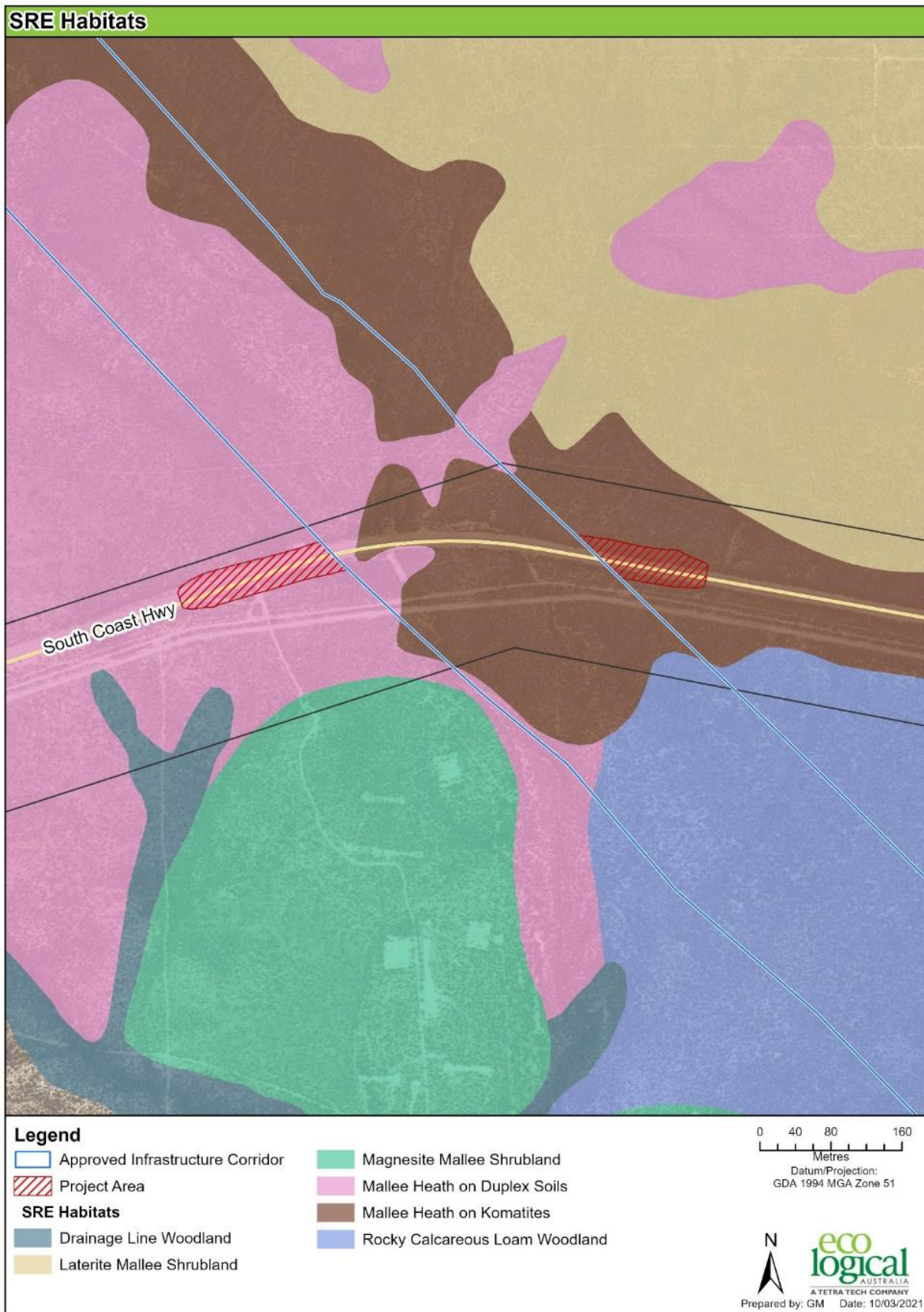
**Figure 5-2: Conservation significant flora within the Project Area of the Shoemaker Levy Crossing (Phase 3) Intersection Works with South Coast Highway (H008 SLK 318.87-318.94, 319.24-319.34), Ravensthorpe**



**Figure 5-3: Conservation significant fauna within the Project Area of the Shoemaker Levy Crossing (Phase 3) Intersection Works with South Coast Highway (H008 SLK 318.87-318.94, 319.24-319.34), Ravensthorpe**



**Figure 5-4: Fauna habitat within the Project Area of the Shoemaker Levy Crossing (Phase 3) Intersection Works with South Coast Highway (H008 SLK 318.87-318.94, 319.24-319.34), Ravensthorpe**



**Figure 5-5: Short Range Endemic (SRE) habitat within the Project Area of the Shoemaker Levy Crossing (Phase 3) Intersection Works with South Coast Highway (H008 SLK 318.87-318.94, 319.24-319.34), Ravensthorpe**



## 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><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.</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"> <li>(i) a minor non-perennial watercourse(s);</li> <li>(ii) a wetland(s) classed as a multiple use management category wetland(s); and/or</li> <li>(iii) a wetland that is not a defined wetland;</li> </ul> <p>the preparation of an Assessment Report, as required by condition 6(e), is not required.</p>	<b>No</b>	No further action required.
<p><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.</p>	<b>No</b>	No further action required.
<p><b>3.</b> The project involves clearing for temporary works (as defined by CPS 818).</p>	<b>No</b>	No further action required.
<p><b>4 a.</b> Project is within Region that:</p> <ul style="list-style-type: none"> <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 <b>uninfested</b> areas to be impacted</li> </ul>	<b>No</b>	Works will be conducted in accordance with standard management actions from MRWA PEMR's and MRWA Vehicle and Plant Hygiene Checklist will be completed.

Impact of Clearing	Yes/No or NA	<i>Further Action Required</i>
<p><b>4b.</b> Does the proposed works require clearing within or adjacent to DBCA estate in non-dry conditions?</p>	<p><b>No</b></p>	<p>No further action required.</p>
<p><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</p>	<p><b>No</b></p>	<p>No further action required.</p>
<p><b>6.</b> 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</p>	<p><b>No</b></p>	<p>No further action required.</p>

## **7 STAKEHOLDER CONSULTATION**

Stakeholder consultation is not required as the proposed clearing is considered unlikely to be at variance with one or more of the ten Clearing Principles.

## **8 VEGETATION MANAGEMENT**

A VMP has not been prepared as the proposed clearing is considered unlikely to be at variance with one or more of the ten Clearing Principles.

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## 10 APPENDICES

Appendix	Title
<b>Appendix 1</b>	PMST Search results within 10km of the Shoemaker Levy Crossing (Phase 3) Intersection Works with South Coast Highway (H008 SLK 318.87-318.94, 319.24-319.34), Ravensthorpe