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# **MARBLE BAR ROAD WIDENING**

**NATIVE VEGETATION CLEARING PERMIT APPLICATION  
SUPPORTING INFORMATION**

19 February 2025

**PREPARED FOR ROY HILL INFRASTRUCTURE PTY LTD  
BY PRESTON CONSULTING PTY LTD**

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**Appendix 1:** Marble Bar Road Upgrades SLK 97-179 Biological Survey Report (Biota, 2021).

**Appendix 2:** Marble Bar Road Targeted Flora Survey Report (Pilbara Environmental, 2021).





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# 1 INTRODUCTION

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## 1.1 BACKGROUND

Roy Hill Infrastructure Pty Ltd (RHI) is seeking to upgrade a 2.5 km section of the Marble Bar Rd Expansion (Project) to accommodate safe merging of heavy vehicles from the Roy Hill Process Service Area (PSA) alternate access road intersection. The upgrade includes widening of the intersection and the western side of Marble Bar Road running 2.5 km north of the intersection. The Project is located approximately 61 km south of Nullagine (Figure 1).

The Project occurs entirely within the Marble Bar Road Reserve (held by Commissioner of Main Roads Western Australia (MRWA)). In consultation with MRWA, RHI have proposed to develop the Project in two stages:

1. Road construction within a 10.86 ha area of previously cleared land; and
2. Completion of road construction within a 1.86 ha area that requires clearing of native vegetation.

To meet contractor scheduling requirements, commencement of Stage 1 is planned for March 2025. Commencement of Stage 2 will be subject to approval of this Native Vegetation Clearing Permit (NVCP) and its commencement will be subject to regulatory assessment timeframes. RHI are currently progressing two separate applications (Stage 1 and 2) to MRWA to undertake works within a road reserve. MRWA's approval of Stage 2 will be subject to the approval of this NVCP application.

MRWA holds CPS9475 for a 500 ha area to the north of the Project for upgrades of the Marble Bar Road through to Nullagine. Biological surveys conducted for these works included the Project area and have therefore been used to inform this report.

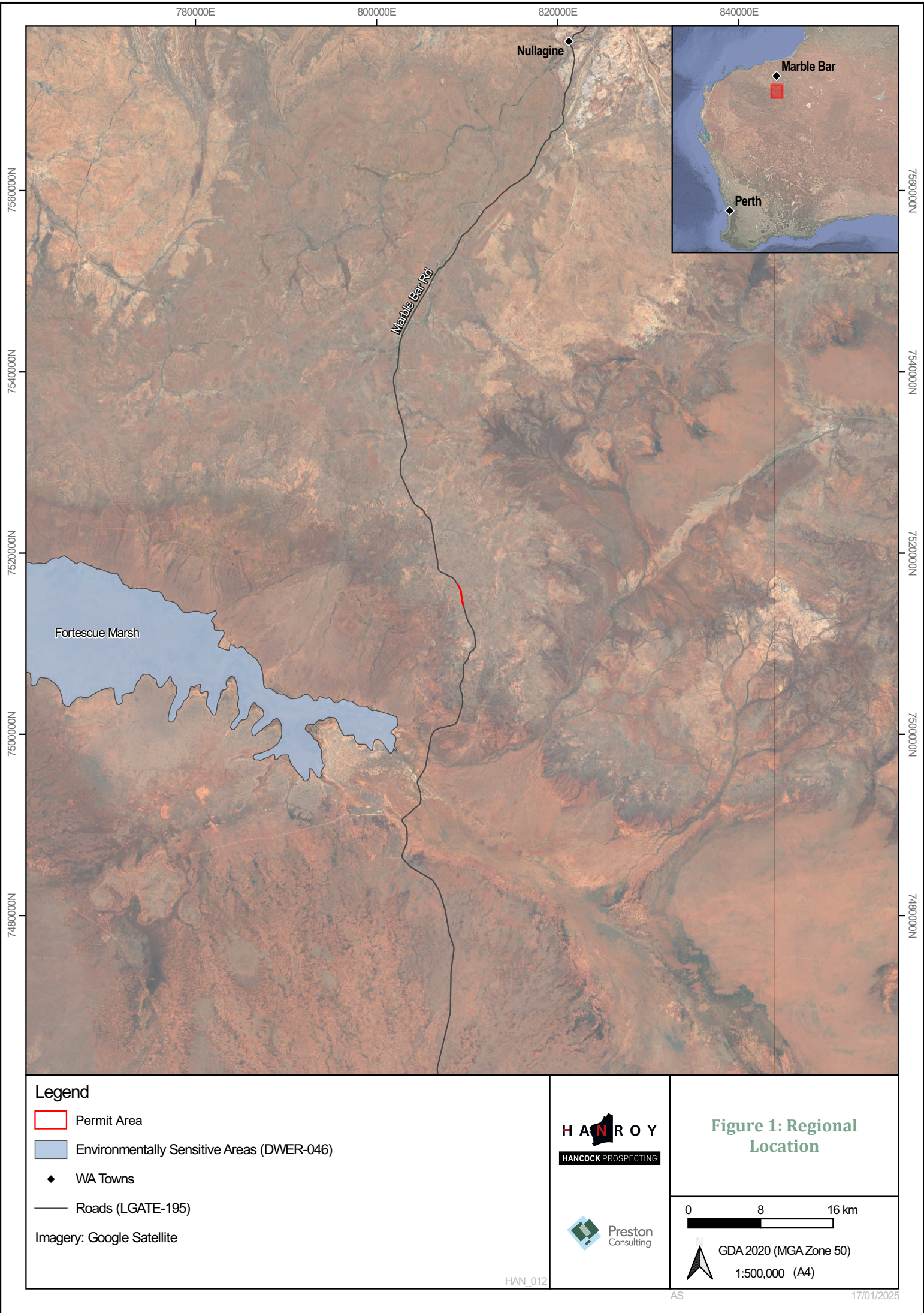
## 1.2 PURPOSE

This NVCP application seeks approval to clear up to 1.86 ha of native vegetation within the proposed 12.72 ha Purpose Permit Area. Mechanical clearing of native vegetation is proposed within the Permit Area to allow construction of the road surface.





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## 2 PURPOSE PERMIT AREA

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Clearing activities are proposed to occur only within the 12.72 ha Permit Area (Figure 2). The Permit Area encompasses the whole Project (Stages 1 and 2); however, native vegetation clearing is only proposed for Stage 2. The 1.86 ha of native vegetation proposed to be cleared occurs in small sections, intermittently along the verge of the existing cleared areas for the Marble Bar Road (discussed further in Section 4).

### 2.1 RELATIONSHIP TO LANDOWNER

All proposed clearing will occur within the Marble Bar Road Reserve (Figure 2; held by Commissioner of MRWA), which is zoned as Rural under the Shire of East Pilbara Scheme No. 4 (Shire of East Pilbara, 2023). RHI have consulted with MRWA regarding the Project and have prepared applications to undertake works within a road reserve. MRWA's approval of Stage 2 will be subject to the approval of this NVCP.

MRWA holds CPS9475 for a 500 ha area to the north of the Project for upgrades of the Marble Bar Road through to Nullagine. Biological surveys conducted to support CPS9475 included the Project area and have therefore been used to inform this report.

### 2.2 NATIVE TITLE

All vegetation disturbance will occur within the Determined Reference Area WCD2018/008 of the Niyaparli People. The Karlka Niyaparli Aboriginal Corporation (KNAC) have been consulted with regards to the Project and surveys have confirmed the Permit Area is cleared of Aboriginal heritage.



808000E

809000E

810000E

811000E

7517000N

7516000N

7515000N

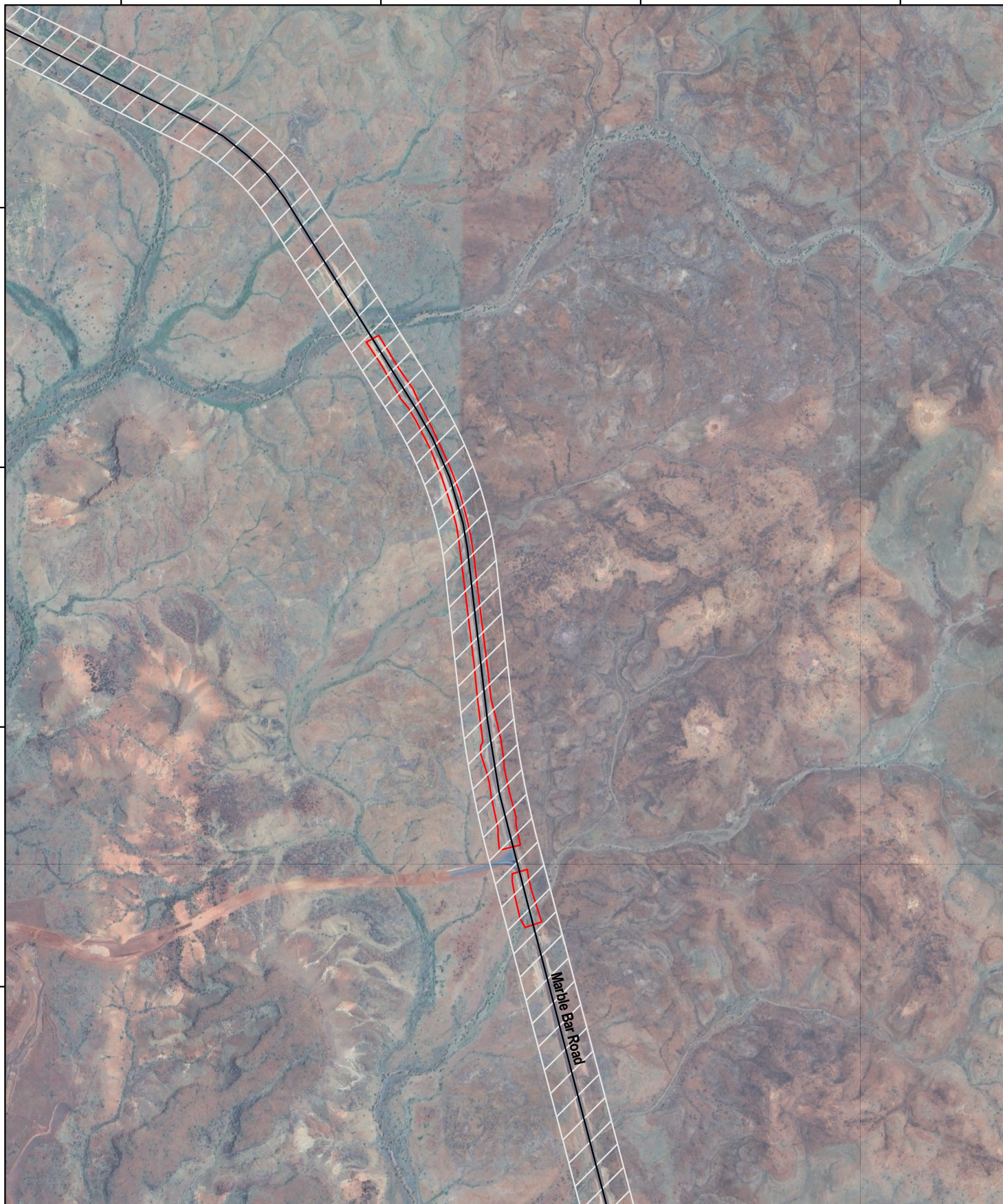
7514000N

7517000N

7516000N

7515000N

7514000N



### Legend

- Permit Area
- Road Reserve (FNA 10085)
- Marble Bar Road

Imagery: Google Satellite

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HANCOCK PROSPECTING

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### Figure 2: Purpose Permit Area

0 300 600 m



GDA 2020 (MGA Zone 50)

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## 3 PROPOSED ACTIVITIES

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Clearing is proposed along small sections of the existing road verge to allow the road widening works. The road design utilises existing cleared areas wherever possible to minimise the extent of native vegetation clearing. This includes all laydown and stockpile areas required for construction. All works will be carried out in accordance with MRWA standard management requirements for working in a road reserve.

Road development will involve the following activities:

- Clearing of 1.86 ha of native vegetation via mechanical clearing;
- Topsoil stripping;
- Topsoil and cleared vegetation stockpiled for use for post construction rehabilitation (as required);
- Installation of surface water drainage structures;
- Construction of road surface in accordance with MRWA specifications; and
- Post construction rehabilitation (as required).



## 4 ENVIRONMENTAL CHARACTERISTICS

### 4.1 SURVEY DETAILS

Historical vegetation mapping (Beard, 1976; Shepherd et al., 2002), land systems mapping (Schoknecht & Payne, 2011), and the Interim Biogeographic Regionalisation for Australia (IBRA) classification system (Kendrick & Stanley, 2001) were reviewed to provide broad contextual knowledge of the vegetation units and habitat likely to be encountered within the Permit Area. Additionally, two environmental surveys undertaken by Biota Environmental Sciences (Biota) and Pilbara Environmental Pty Ltd (Pilbara Environmental) to support CPS9475 overlay the Permit Area. The details of the surveys used to characterise the environmental values of the Permit Area are provided in Table 1.

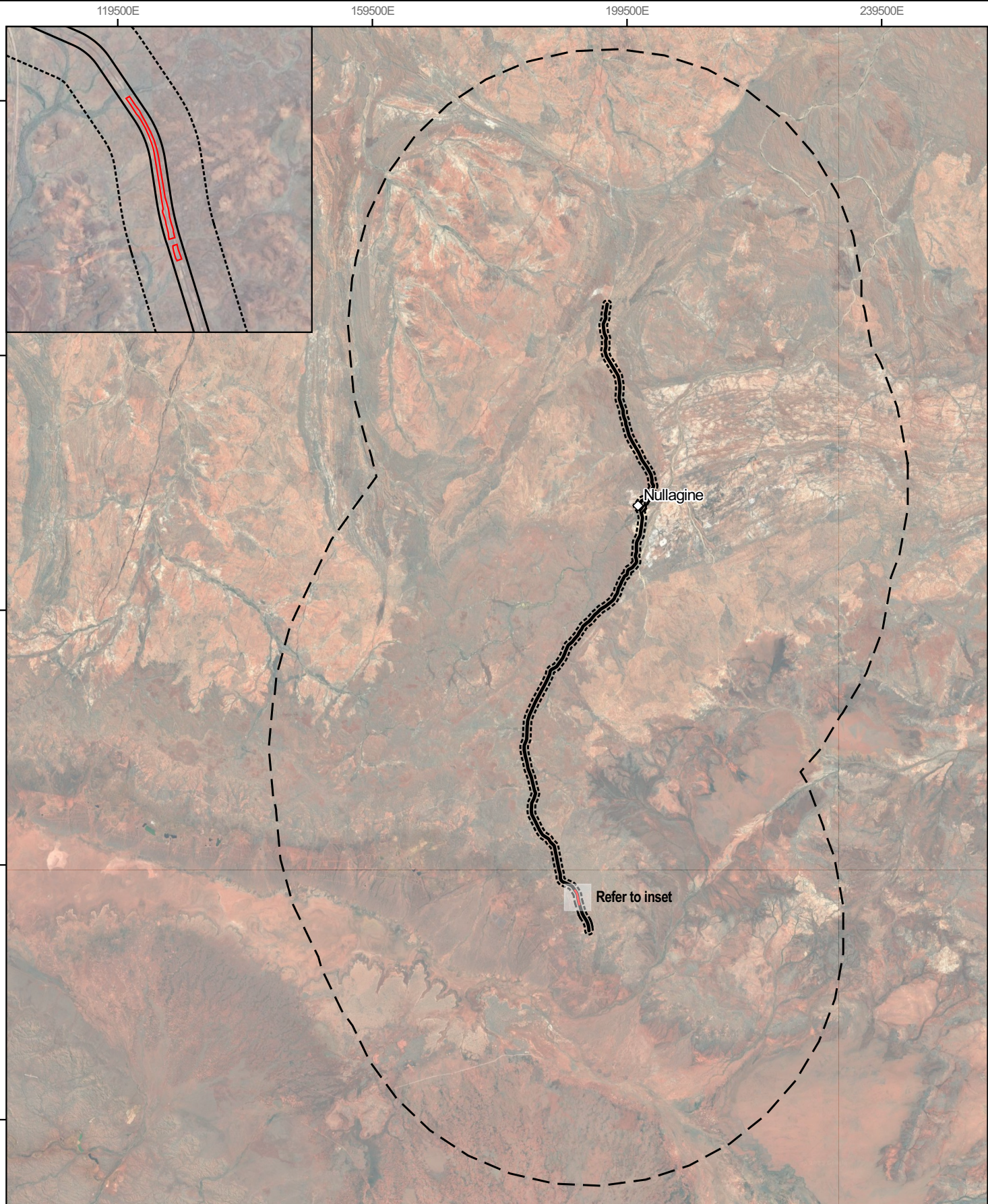
**Table 1: Survey Details**

Survey	Reference	Context
Marble Bar Road Upgrades SLK 97-179 Biological Survey	(Biota, 2021)	A regional biological survey was undertaken by Biota in 2021 for MRWA. This survey was inclusive of the Permit Area and involved a desktop flora and fauna assessment of the study area, followed by a targeted flora and vegetation survey and a Level 1 targeted fauna field survey (EPA, 2016a; 2016b; 2016c; 2016d; 2016e). Surveys were undertaken in March 2020 and followed high rainfall in January. The total survey area was 2,319.8 ha (Figure 3).
Marble Bar Targeted Flora Survey	(Pilbara Environmental, 2021)	Pilbara Environmental were commissioned by MRWA to undertake a targeted flora survey to assess the presence, extent and abundance of Priority flora within the Permit Area. A targeted survey was also conducted outside of the Permit Area to assess proportional impacts of the Proposal on Priority flora (EPA 2016a; 2016b). The total survey area reflected that of the Biota study (Figure 3).






The Pilbara Environmental (2021) survey area lies entirely within the slightly larger Biota (2021) survey area. These two survey areas are referred to as one consolidated Survey Area for simplicity in this application, as the differences in the two survey area boundaries are not relevant to the Permit Area.



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### Legend

-  Permit Area
-  Contextual Area
-  Study Area
-  Survey Area
-  WA Towns

Imagery: Google Satellite



**Figure 3: Survey Areas  
(Biota, 2021; Pilbara  
Environmental, 2021)**

0 15 30 km



GDA 2020 (MGA Zone 51)  
1:800,000 (A4)



## 4.2 BIOGEOGRAPHIC REGIONS

The Permit Area lies entirely within the Pilbara Bioregion, specifically within the Chichester Subregion (PIL01; Figure 4). The Chichester Subregion covers 9,044,560 ha and is characterised by:

- 'Undulating Archaean granite and basalt plains including significant areas of basaltic ranges. Plains support a shrub steppe characterised by *Acacia pyrifolia* over *Triodia pungens* hummock grasslands, while *Eucalyptus leucophloia* tree steppes occur on the ranges' (Department of Biodiversity, Conservation and Attractions (DBCA), 2022); and
- Climate is arid (semi-desert) tropical and receives 300 mm of rainfall annually. Drainage occurs to the north via numerous rivers (e.g. De Grey, Oakover, Nullagine, Shaw, Yule and Sherlock).

## 4.3 LAND SYSTEMS

The Department of Primary Industries and Regional Development (DPIRD) identifies the land system within the Permit Area as the McKay System (282Mk; Figure 5). The Permit Area represents less than 1% of the McKay land system mapped within the Pilbara Bioregion. The McKay System has a state-wide extent of approximately 427,501 ha and is comprised of hills, ridges, plateaux remnants and breakaways of meta sedimentary and sedimentary rocks supporting hard spinifex grasslands with Acacias and occasional Eucalypts (Pilbara Environmental, 2021).



806500E

809500E

812500E

7518500N

7515500N

7512500N


7518500N

7515500N

7512500N




## Legend

 Permit Area

### IBRA7 Subregions

 Chichester

 Fortescue

 Roads (LGATE-195)

Imagery: Google Satellite

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**Figure 4: Bioregional  
Context of the Purpose  
Permit Area**

0 1 2 km



GDA 2020 (MGA Zone 50)

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806500E

809500E

812500E

7518500N

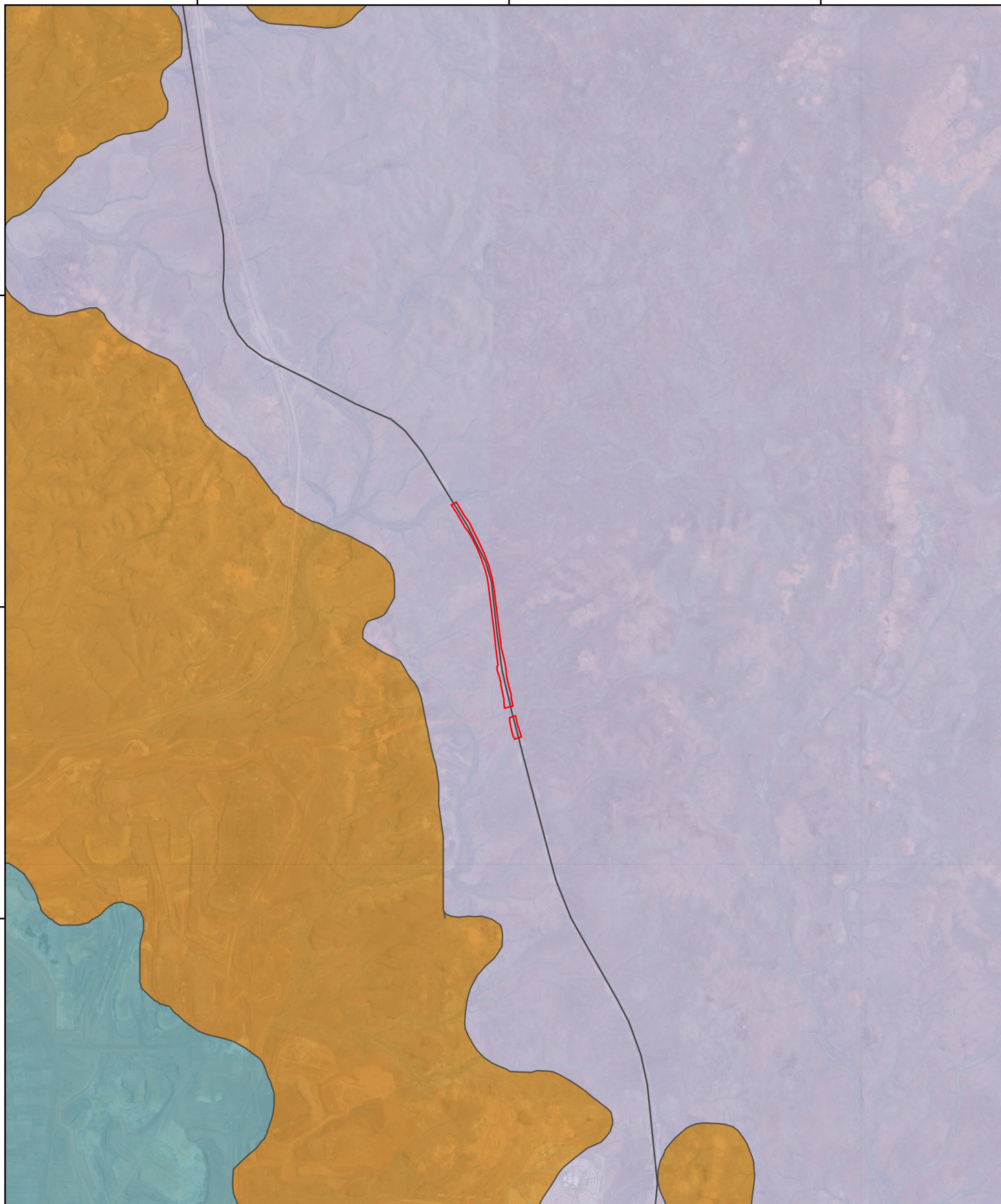
7515500N

7512500N

7518500N

7515500N

7512500N



## Legend

 Permit Area


Imagery: Google Satellite

### Soil Landscape Systems (DPIRD-064)

 Jamindie System

 McKay System

 Newman System

 Roads (LGATE-195)

**HANRO Y**  
HANCOCK PROSPECTING

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## Figure 5: Land Systems

0 1 2 km



GDA 2020 (MGA Zone 50)

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17/01/2025

## 4.4 FLORA AND VEGETATION

### 4.4.1 FLORA

Biota (2021) recorded 466 native vascular flora species from 166 genera and 55 families within the 2,319.8 ha Survey Area.

### 4.4.2 SIGNIFICANT FLORA

The following sources were searched for records of flora of significance that were previously recorded within, or potentially occurring in the study area:

- Nature Map (<http://NatureMap.dec.wa.gov.au>) (including a 10 km and 20 km buffer area);
- DBCA databases showing species listed under the *Biodiversity Conservation Act 2016* (WA) (BC Act) (including a 40 km buffer area):
  - TEC/PEC; and
  - Declared rare and priority flora.
- Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) protected matters database (including a 20 km buffer area); and
- Publicly available literature (including previous surveys commissioned by Main Roads).

Based on a review of reports conducted by Biota (2021) and Pilbara Environmental (2021), a total of 15 flora species listed under DBCA's Priority flora list were considered likely/possible to occur or were otherwise recorded within the survey area (Table 2).

Table 2: Significant flora species with a high likelihood of occurrence

Species	Likelihood of Occurrence	
	Biota, 2021	Pilbara Environmental, 2021
<b>Priority 1</b>		
<i>Acacia aphanoclada</i>	Recorded	Recorded
<i>A. cyperophylla</i> var. <i>omearana</i>	Recorded	Recorded
<i>Solanum</i> sp. Mosquito Creek (A.A. Mitchell et al. AAM 10795)	Recorded	Recorded
<i>Atriplex spinulosa</i>	Recorded	Recorded
<b>Priority 2</b>		
<i>Euphorbia inappendiculata</i> var. <i>inappendiculate</i>	Recorded	Recorded
<i>Ipomoea racemigera</i>	Recorded	Recorded
<i>Paspalidium retiglume</i>	Recorded	Recorded
<b>Priority 3</b>		
<i>Eragrostis crateriformis</i>	Recorded	Likely to occur
<i>Nicotiana umbratica</i>	Recorded	Recorded
<i>Dolichocarpa</i> sp. Hamersley Station (A.A. Mitchell PRP 1479)		Recorded
<i>Rhagodia</i> sp. Hamersley (M. Trudgen 17794)	Recorded	Recorded
<i>Swainsona thompsoniana</i>	Recorded	Likely to occur
<i>Themeda</i> sp. Hamersley Station (M.E. Trudgen 11431)	Recorded	Likely to occur



Species	Likelihood of Occurrence	
	Biota, 2021	Pilbara Environmental, 2021
<i>Iotasperma sessilifolium</i>	May occur	
<b>Priority 4</b>		
<i>Rostellularia adscendens</i> var. <i>latifolia</i>	May occur	Possible

The closest Priority flora species recorded during the field surveys was located approximately 5.7 km to the north of the Permit Area (Figure 6). Considering the small areas of proposed clearing are located along heavily disturbed road verges and no significant flora were recorded in the surveys, any potential impact to significant flora will be negligible.

#### 4.4.3 INTRODUCED FLORA SPECIES

Biota (2021) recorded 25 introduced (weed) species including declared plants under the *Biosecurity and Agriculture Management Act 2007* (WA) (BAM Act) within the Survey Area. Three of these species *Azadirachta indica* (Neem Tree), *Calotropis procera* (Calotrope) and *Tamarix aphylla* (Athel Tree)), are declared plants under the BAM Act (DPIRD, 2020). *Tamarix aphylla* is also registered as a Weed of National Significance (WoNS), while *Azadirachta indica* and *Calotropis procera* are listed “Priority Alert Weeds” by DBCA (Department of Parks and Wildlife, 2013). Biota (2021) conducted an analysis of the 25 introduced species and concluded that over half (14) have a ‘Rapid’ ranking for Invasiveness, with ten of these species also having a ‘High’ ranking for Ecological Impact.

The introduced species were recorded over a significantly larger range than the Permit Area; however, given the location along a major road and other land use history of the area (particularly pastoral and mining purposes) it is possible that many of these species may occur within the Permit Area.

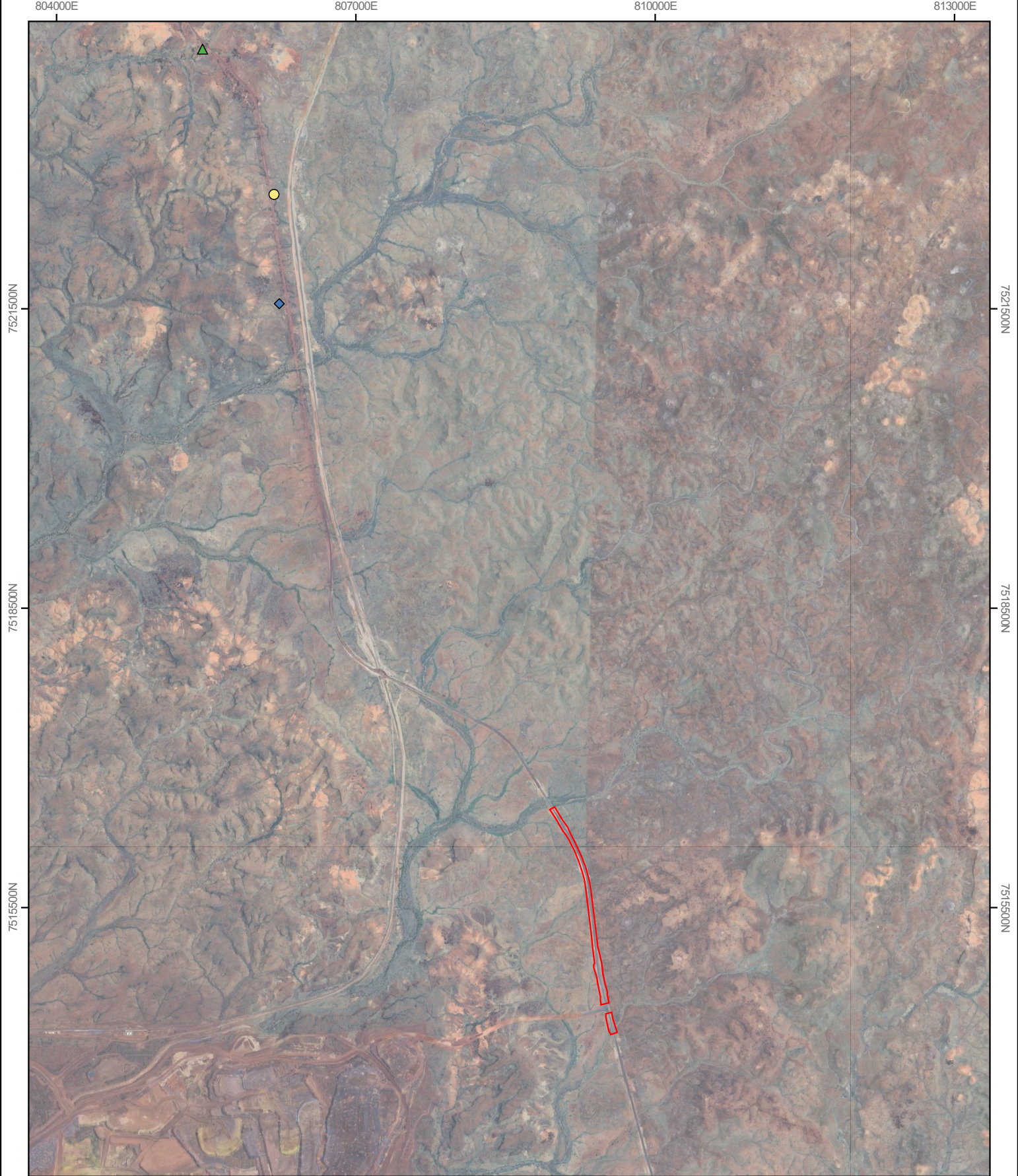
#### 4.4.4 PRE-EUROPEAN VEGETATION

An assessment of DPIRD’s (2021) regional scale vegetation mapping data, found one vegetation association within the Permit Area (Table 3). The remaining pre-European extent of vegetation association 173 exceeds 99% and is therefore considered of Least Concern (DPRID, 2021).


**Table 3: State-wide extent of pre-European vegetation associations present in the Permit Area (Ecoscape, 2022)**

Vegetation association	Pre-European extent (ha)	Current extent (ha)	Remaining (%)	% of Permit Area
173 - Hummock grasslands, shrub steppe; Kanji over Soft Spinifex & Limestone Spinifex on basalt.	1,753,104.09	1,748,260.83	99.72	100%








Legend

 Permit Area

Significant Flora

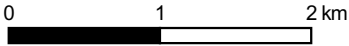
-  *Rhagodia* sp. Hamersley (M. Trudgen 17794) (P3)
-  *Solanum* sp. Mosquito Creek (A.A. Mitchell et al. AAM 10795) (P1)
-  *Themeda* sp. Hamersley Station (M.E. Trudgen 11431) (P3)

Imagery: Google Satellite

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Figure 6: Significant Flora Records



GDA 2020 (MGA Zone 50)  
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#### 4.4.5 VEGETATION TYPE

Biota (2021) identified 23 vegetation types within the 2,319.8 ha Survey Area, three of which were identified within the Permit Area (excl. cleared). Vegetation types and their relative extents across the Permit Area are presented in Table 4. The majority of vegetation (73.55% of the 1.86 ha native vegetation) in the Permit Area consisted of vegetation type H7. The spatial extents of each vegetation type and previously cleared areas are shown in Figure 7.

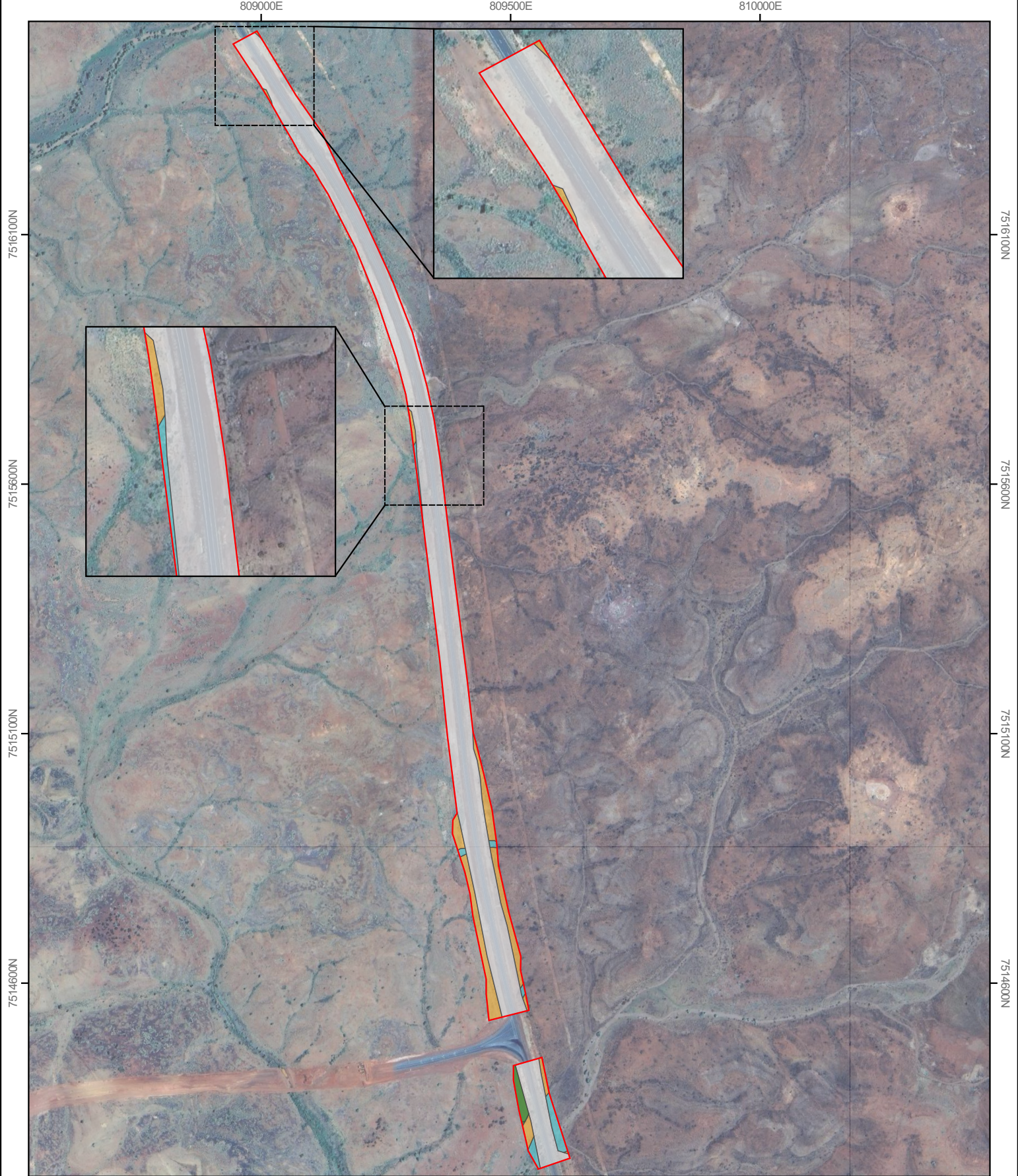
**Table 4: Vegetation Types within the Permit Area**

Type	Description	Survey Area	Clearing (ha)	Proportion of mapped extent to be cleared (%)
D6	<i>Eucalyptus xerothermica</i> scattered low trees over <i>Grevillea wickhamii</i> , <i>Acacia ancistrocarpa</i> , <i>A. bivenosa</i> tall shrubland over <i>Cenchrus ciliaris</i> , <i>C. setiger</i> open tussock grassland (Figure 8).	129.55	0.34	0.26
H7	<i>Triodia wiseana</i> , <i>T. scintillans</i> hummock grassland. (Figure 9)	1,295.69	1.37	0.11
M1	<i>Acacia aptaneura</i> scattered low trees to low woodland over <i>Triodia longiceps</i> , <i>T. epactia</i> hummock grassland. (Figure 10)	70.70	0.15	0.21
<b>Total Area of Vegetation</b>			<b>1.86</b>	

Approximately 0.34 ha (vegetation type D6) within the Permit Area, growing in association with a watercourse, has been mapped as riparian (Figure 8). Riparian vegetation (also known as fringing vegetation) grows along the banks of waterways, extending to the outer edge of the floodplain and includes the emergent aquatic plants growing at the edge of the waterway channel and the ground cover plants, shrubs and trees within the riparian zone (Department of Water and Environmental Regulation (DWER), 2023). Removal or degradation of riparian vegetation through activities such as land clearing for agriculture, grazing, mining and weed invasion has resulted in the degradation of many waterways (DWER, 2023). The disturbance of riparian vegetation for this Proposal will require the approval of an application to interfere with bed and banks permit. The application to interfere with bed and banks is being progressed in parallel to this NVCP application.

Considering the clearing is proposed for very small proportions of the mapped extent of each vegetation type that are located along heavily disturbed road verges, any potential impact to individual vegetation types will be negligible.





**Legend**

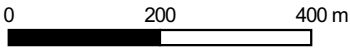
- Permit Area
  
- Vegetation Type**
- D6
- H7
- M1
- Cleared

Imagery: Google Satellite

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**Figure 7: Vegetation Types within the Permit Area**



GDA 2020 (MGA Zone 50)  
1:10,000 (A4)





Figure 8: Vegetation Unit D6 (Biota, 2021)



Figure 9: Vegetation Unit H7 (Biota, 2021)



Figure 10: Vegetation Unit M1 (Biota, 2021)



#### 4.4.6 VEGETATION CONDITION

Regional vegetation condition mapping was undertaken by Biota (2021) based on the appropriate condition scale for the Eremaean Botanical Province (Keighery, 1994). Vegetation in the Permit Area was recorded to be in Poor to Excellent condition, while the majority of the Permit Area (85.38%) has been previously cleared and considered to be completely degraded (Table 5; Figure 11).

**Table 5: Vegetation Condition within the Permit Area**

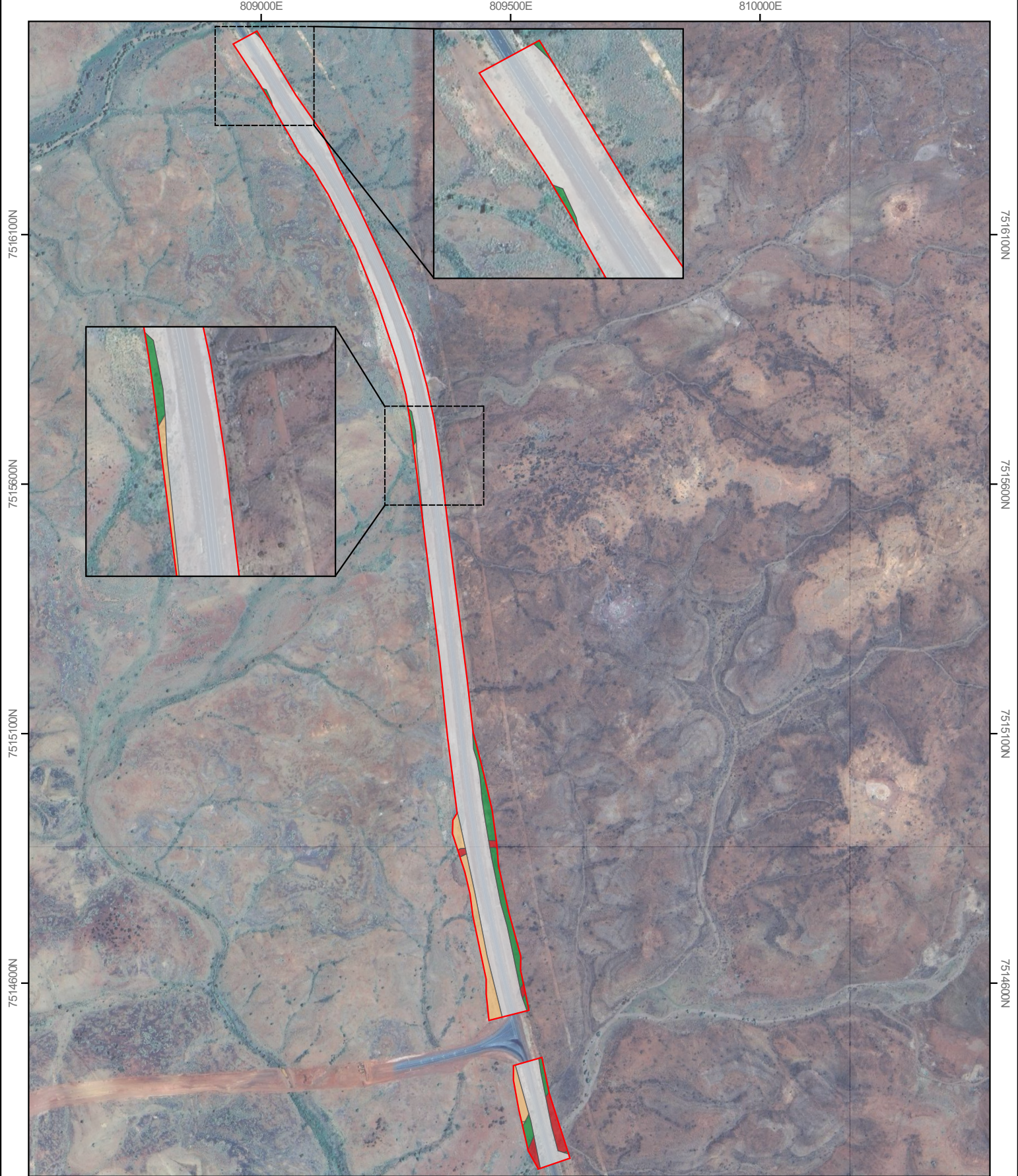
Condition Ranking	Extent within Permit Area (ha)	Proportion of Permit Area (%)
Excellent	0.79	6.21
Excellent to Very Good	0.00	0.00
Good	0.77	6.05
Poor	0.29	2.28
<b>Total Native Vegetation</b>	<b>1.85</b>	<b>14.54</b>
Cleared	10.86	85.38
<b>TOTAL</b>	<b>12.72</b>	<b>100</b>

#### 4.4.7 THREATENED AND PRIORITY ECOLOGICAL COMMUNITIES







No Threatened Ecological Communities (TECs) or Priority Ecological Communities (PECs) were recorded within the Permit Area.

Two PECs (Priority 1 “Four plant assemblages of the Wona land system” and Priority 3 “Stony saline plains of the Mosquito land system”) were recorded in the broader Survey Area (Biota, 2021). These are well removed from the Permit Area (34 km and 48 km respectively; Figure 12). The Fortescue Marsh (Environmentally Sensitive Area) is also noted to be located more than 14 km to the southwest of the Permit Area (Figure 12).



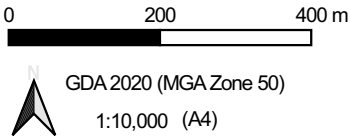


**Legend**

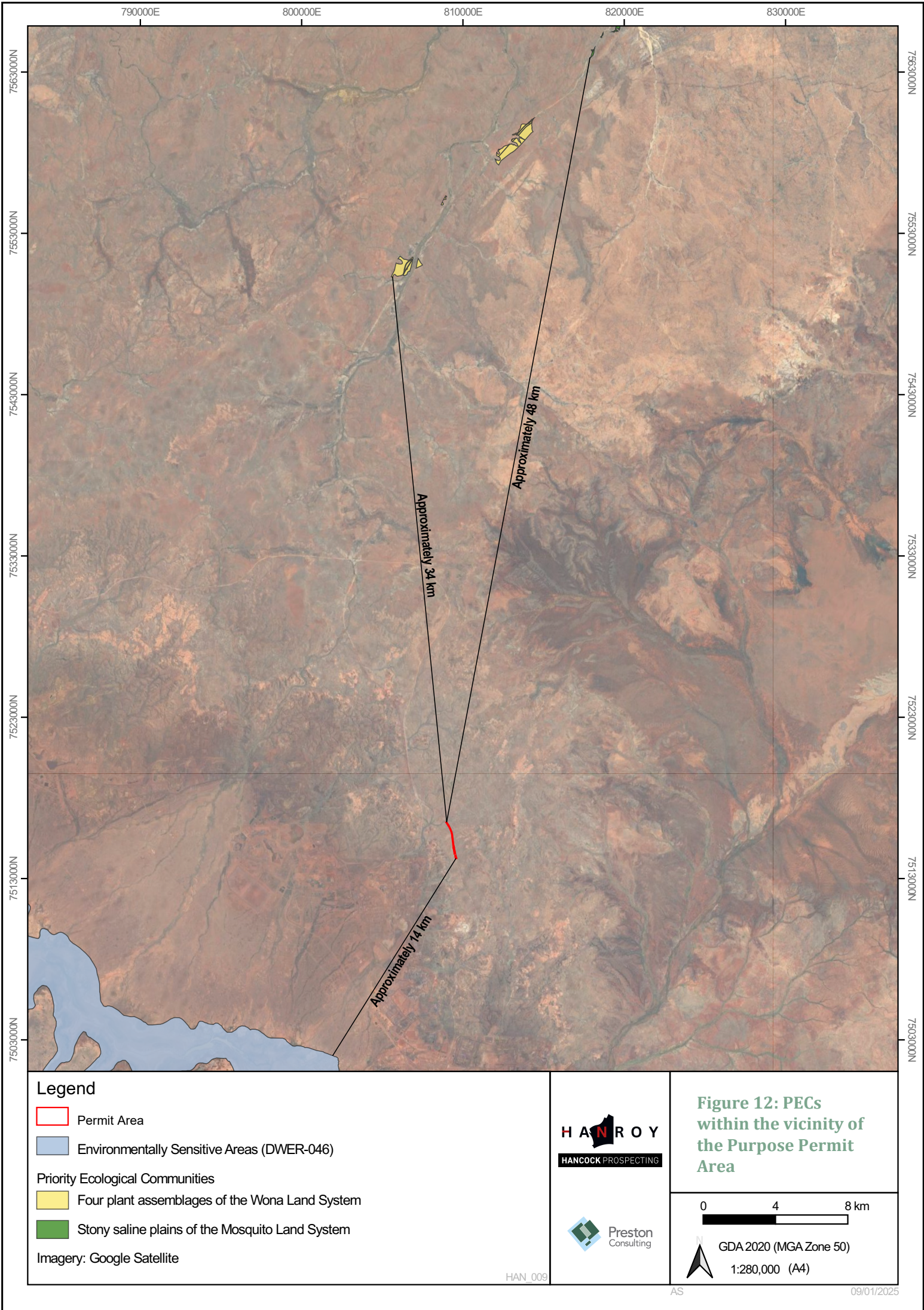
- |   |   |
|---|---|
|  Permit Area            |  Cleared |
| Vegetation Condition  |   |
|  Excellent              | Imagery: Google Satellite   |
|  Excellent to Very Good |   |
|  Good                   |   |
|  Poor                   |   |



**Figure 11: Vegetation Condition within vicinity of Permit Area (Biota, 2021)**









## 4.5 FAUNA

### 4.5.1 FAUNA HABITAT

Biota (2021) identified 15 fauna habitats across the study area, four of which (excluding cleared areas) were identified within the Permit Area (Table 6; Figure 13). The majority of the remaining vegetation within the Permit Area (60%) is comprised of Low rolling stony hills habitat.

Table 6: Fauna habitat recorded within Permit Area (Biota, 2021)

Code	Habitat Type	Permit Area (ha)
HS	Low rolling stony hills	1.11
MFL	Minor flowlines	0.34
MW	Mulga woodland plains and knolls	0.15
OS	Open shrubland/woodland on spinifex plains	0.26
<b>Total Fauna Habitat</b>		1.86
C	Cleared	10.86
<b>TOTAL AREA</b>		<b>12.72</b>

### 4.5.2 SIGNIFICANT FAUNA

Biota (2021) identified 23 significant fauna species that have been recorded or potentially occur within the Survey Area. This includes ten birds, nine mammals and four reptile species. Of these Biota (2021) assessed five as likely and four that may occur within the habitats recorded within the Permit Area (Figure 7). No significant fauna were recorded within or in close proximity to the Permit Area.

Table 7: Significant fauna potentially occurring within the Permit Area

Species	Common Name	Conservation Status	Fauna Habitats
<b>Likely to occur</b>			
<i>Macrotis lagotis</i>	Bilby	Vulnerable	HS, MFL, MW, OS
<i>Falco hypoleucos</i>	Grey Falcon	Vulnerable	HS, MFL, MW, OS
<i>Apus pacificus</i>	Fork-tailed Swift	Migratory	HS, MFL, MW, OS
<i>Falco peregrinus</i>	Peregrine Falcon	Other Specially Protected	HS, MFL, MW, OS
<i>Pseudomys chapmani</i>	Western Pebble-mound Mouse	Priority 4	HS
<b>May occur</b>			
<i>Anilius ganei</i>	Gane's Blind Snake	Priority 1	MW
<i>Dasyercus blythi</i>	Brush-tailed Mulgara	Priority 4	OS
<i>Sminthopsis longicaudata</i>	Long-tailed Dunnart	Priority 4	OS
<i>Lagorchestes conspicillatus leichardti</i>	Spectacled Hare-wallaby	Priority 4	OS

Considering the clearing is proposed for very small proportions of the mapped extent of each habitat type that are located along heavily disturbed road verges, any potential impact to individual fauna habitat will be negligible.

#### 4.5.3 BILBY HABITAT

Up to 1.86 ha of fauna habitat is proposed to be cleared within the 12.72 ha Permit Area, the majority of which (>85%) has been previously cleared. Fauna habitat proposed to be cleared will occur in small sections, intermittently along the verge of the existing cleared areas for the Marble Bar Road.

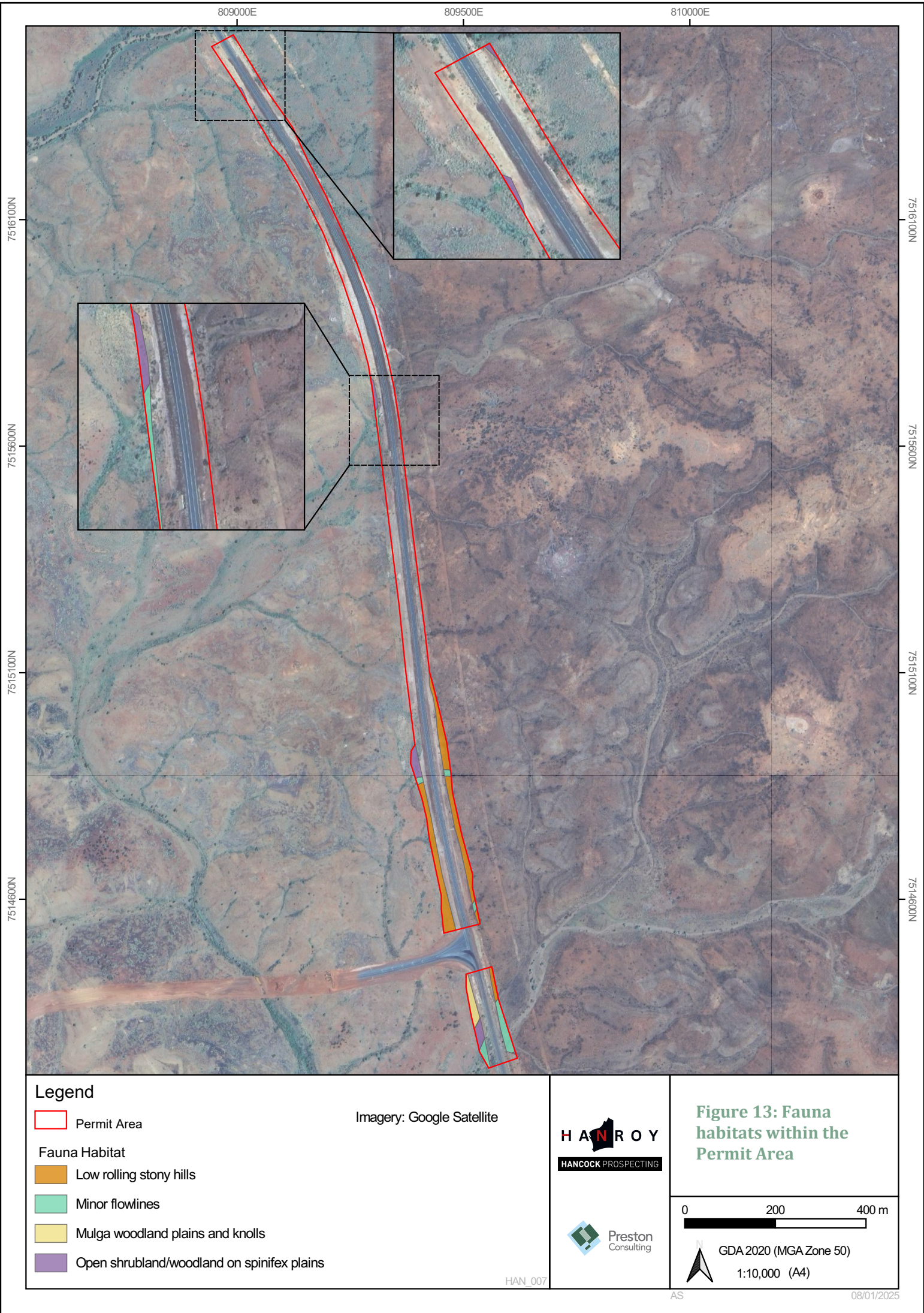
More than half the vegetation proposed to be cleared is in poor to good condition; however, some areas (cumulatively 0.79 ha) were in excellent condition. Fauna habitat identified within the Permit Area is not considered critical to significant fauna.

No significant fauna were recorded within the Permit Area. However, a likelihood of occurrence within the Permit Area assessment indicated that *Macrotis lagotis* (Bilby), which are considered Vulnerable under the EPBC Act, are likely to occur within the Permit Area on occasions.

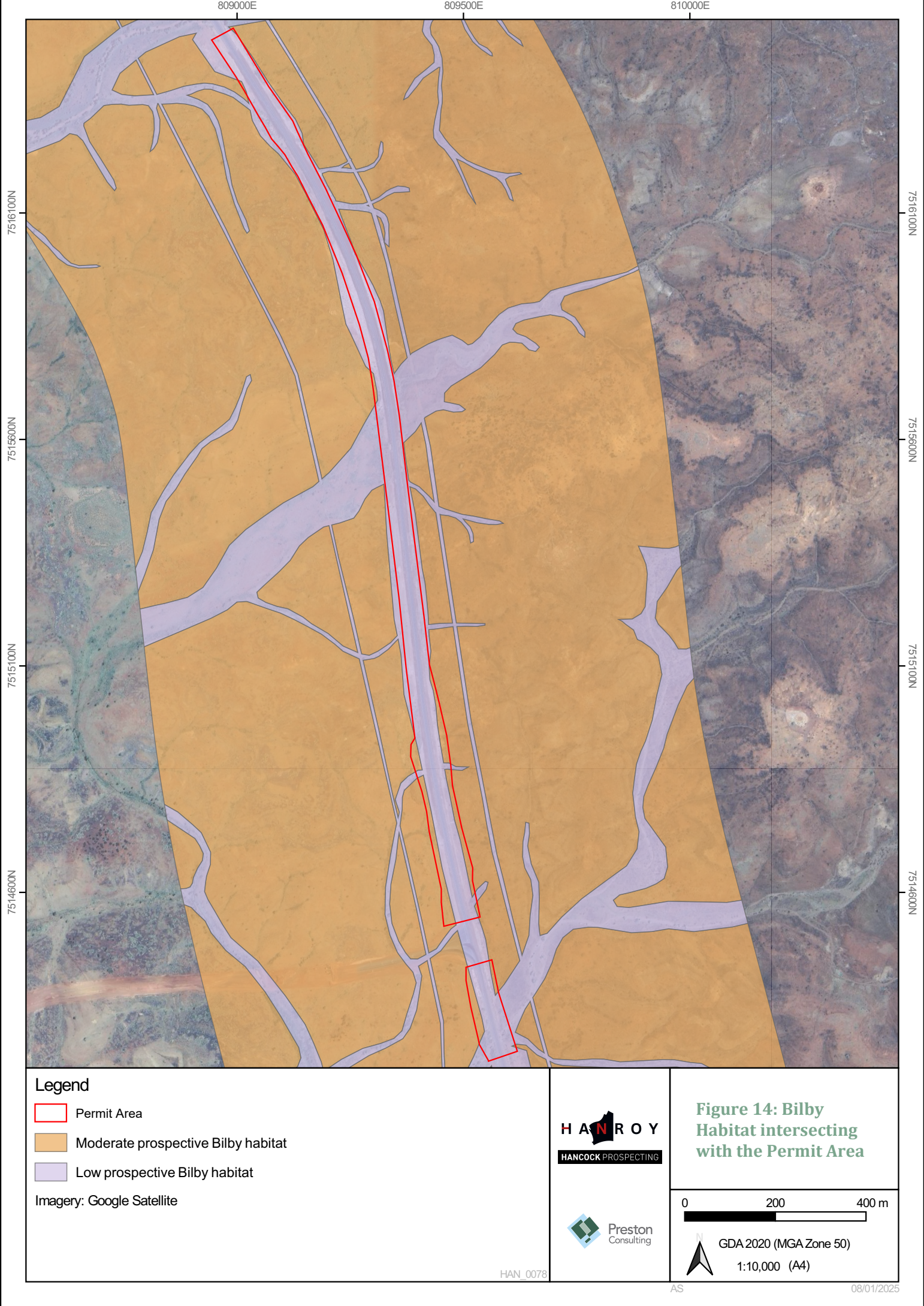
No highly prospective Bilby habitat was mapped within the Permit Area, the majority being low prospective (cleared) (Figure 14). The small intermittently spaced areas of moderate prospective Bilby habitat occur along the verge of the existing road and consists of a very small proportion of Bilby habitat mapped over much larger areas surrounding the Permit Area. Considering this, it is understood that additional management measures will not be required for this species due to the relatively small, low grade and fragmented nature of the habitat present within the Permit Area, and its location adjacent to an existing road.

Clearing of Bilby habitat will be conducted in a slow, progressive manner allowing any fauna that may be present to relocate into adjacent undisturbed habitat outside of the clearing area on their own accord.









## 4.6 WATER AND DRAINAGE

Two minor, non-perennial water courses intersect with the northern and southern sections of the Permit Area (Geoscience Australia, 2015). An application to interfere with bed and banks will be required to undertake works within these watercourses (currently being progressed in parallel to this NVCP application). The Permit Area falls within the Fortescue River catchment zone and is situated approximately 0.9 km away from the major watercourse, Kulbee Creek, a tributary of the Fortescue River (National map, 2025).

No new culverts are required for the road upgrade. Instead, existing culverts will be extended, and headwalls will be relocated. Construction water will be sourced from Roy Hill mine. Water for construction and dust management is to be stored in tanks and carted to the work site. The Marble Bar Road floodway (SLK 116.66 to 116.76) has been designed to meet MRWA Guidelines.

## 4.7 CURRENT LAND USE

The dominant land uses in this subregion include grazing of native pastures, Aboriginal lands and Reserves, Unallocated Crown Land (UCL) and Crown Reserves, conservation and mining leases (Kendrick and McKenzie, 2001). The current land use within the Permit Area is Rural as determined by the Shire of East Pilbara and the Permit Area is entirely located within the Marble Bar road reserve.



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## 5 STAKEHOLDER CONSULTATION

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RHI have consulted with relevant stakeholders during the design and planning stages of the Project. Consultation to date with key stakeholders MRWA and KNAC has resulted in agreements relating to land access and the approach to development and construction of the Project. These key stakeholders will continue to be consulted with throughout implementation of the Project.

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## 6 ASSESSMENT OF CLEARING AGAINST THE TEN CLEARING PRINCIPLES

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The proposed vegetation clearing has been assessed against the ten clearing principles described within *A Guide to the Assessment of Applications to Clear Native Vegetation* (Department of Environment Regulation (DER), 2014). The assessment is summarised in Table 8.





Table 8: Assessment of proposed vegetation clearing against the ten clearing principles

Relevant information	Assessment of potential impacts	Proposed control measures	Outcome – Assessment of variance with clearing principle
<b>1. Native vegetation should not be cleared if it comprises a high level of biological diversity</b>			
<p>Up to 1.86 ha of native vegetation is proposed to be cleared within a 12.72 ha Permit Area. The majority (&gt;85%) of the Permit Area has been previously cleared.</p> <p>The native vegetation proposed to be cleared occurs in small sections, intermittently along the verge of the existing cleared areas for the Marble Bar Road.</p> <p>More than half the vegetation proposed to be cleared is in poor – good condition; however, the remaining areas (cumulatively 0.79 ha) were in excellent condition.</p> <p>The Permit Area is not located within a known biodiversity hotspot in WA.</p> <p>The Permit Area is located within the Pilbara bioregion of the Interim Biogeographic Regionalisation for Australia (IBRA) of which approximately 99.6% of pre-European extent of vegetation still remains (Main Roads, 2021). The vegetation in the Permit Area is identified as Vegetation Association 173, which has over 99% of pre-European extent remaining.</p> <p>No significant flora species, including Threatened or Priority, were recorded within or in close proximity to the Permit Area. The closest Priority flora species recorded during the field surveys was located approximately 5.7 km to the north of the Permit Area.</p> <p>No TEC/PEC or ESA occurs within or in close proximity to the Permit Area.</p>	<p>The small areas of proposed clearing do not comprises a high level of biological diversity:</p> <ul style="list-style-type: none"> <li>The proposed clearing is located along heavily disturbed road verges and no significant flora, vegetation or communities were recorded in the surveys; and</li> <li>Less than 0.01% of the remaining extent of Vegetation Association 173 is proposed to be cleared.</li> </ul>	<p>All clearing will adhere to the MRWA standard management requirements for working in a road reserve.</p> <p>Total extent of clearing is limited to 1.86 ha of disturbance.</p> <p>All clearing will be kept to a minimum within the Permit Area and completed only when required.</p>	<p>Proposed clearing is not likely to be at variance to this Principle.</p>
<b>2. Native vegetation should not be cleared if it comprises the whole, or part of, or is necessary for the maintenance of, a significant habitat for fauna indigenous to WA</b>			
<p>Up to 1.86 ha of fauna habitat is proposed to be cleared within a Permit Area of 12.72 ha. The majority (&gt;85%) of the Permit Area has been previously cleared.</p> <p>The fauna habitats proposed to be cleared occur in small sections, intermittently along the verge of the existing cleared areas for the Marble Bar Road.</p> <p>More than half the vegetation proposed to be cleared is in poor – good condition; the remaining areas (cumulatively 0.79 ha) were in excellent condition.</p> <p>No significant fauna were recorded within the Permit Area. A likelihood of occurrence within the Permit Area assessment indicated that:</p> <ul style="list-style-type: none"> <li>Likely to occur: Five significant fauna species including the Bilby (Vulnerable); and</li> <li>May occur: Four Priority fauna species.</li> </ul> <p>Mapping of Bilby habitat within and surrounding the Permit Area recorded:</p> <ul style="list-style-type: none"> <li>Majority of the Permit Area as low prospective Bilby habitat (cleared areas including the existing road);</li> <li>Small areas of moderate prospective Bilby habitat intermittently located throughout the Permit Area, along the existing road verge; and</li> <li>No high prospective Bilby habitat.</li> </ul>	<p>Fauna habitat occurring within the Permit Area is not considered critical to significant fauna:</p> <ul style="list-style-type: none"> <li>No significant fauna were recorded within the Permit Area;</li> <li>The proposed clearing will occur within habitat that is likely to be utilised by significant fauna; however, the small intermittently spaced areas of habitat occur along the verge of the existing road and would only be use intermittently;</li> <li>The proposed clearing consists of a very small proportion of each habitat type which have been mapped over much larger areas surrounding the Permit Area;</li> <li>Significant bird species assessed as likely to occur would predominately be flying over and only occasionally foraging within the Permit Area; and</li> <li>No high prospective Bilby habitat was mapped within the Permit Area, the majority is low prospective (cleared). The small intermittently spaced areas of moderate prospective Bilby habitat occur along the verge of the existing road and consists of a very small proportion of Bilby habitat mapped over much larger areas surrounding the Permit Area.</li> </ul>	<p>Implement control measures described above.</p> <p>Clearing will be conducted in a slow, progressive manner allowing potential fauna to passively relocate into adjacent undisturbed habitat outside of the clearing area.</p>	<p>Proposed clearing is not likely to be at variance to this Principle.</p>
<b>3. Native vegetation should not be cleared if it includes, or is necessary for the continued existence of, rare flora</b>			
<p>No Threatened or Priority Flora were recorded in the Permit Area.</p> <p>16 flora species listed under DBCA's Priority flora list were considered Likely or Possible to occur within the broader Survey Area. The Priority flora species recorded closest to the Permit Area were approximately 5.7 km to the north.</p>	<p>No clearing of known Threatened or Priority flora is expected to occur as a result of the Activities.</p> <p>Considering the small areas of proposed clearing are located along heavily disturbed road verges and no significant flora were recorded in the surveys, any potential impact to significant flora will be negligible.</p>	<p>Implement control measures described above.</p>	<p>Proposal is not at variance to this Principle.</p>
<b>4. Native vegetation should not be cleared if it comprises the whole or part of, or is necessary for the maintenance of, a Threatened Ecological Community</b>			
<p>The Permit Area does not intersect with areas that are representative of a TEC. Only two TEC's are listed as present within the Pilbara, the "Themeda grasslands on cracking clays (Hamersley Station, Pilbara)", and the "Ethel Gorge aquifer stygobiont community". Both TEC's are restricted to the Hamersley subregion and are not present within the Permit Area (Biota, 2021).</p>	<p>The proposed clearing will not impact any area of known TEC.</p>	<p>Not Applicable</p>	<p>Proposed clearing is not at variance to this Principle.</p>
<b>5. Native vegetation should not be cleared if it is significant as a remnant of native vegetation in an area that has been extensively cleared</b>			
<p>The Permit Area lies entirely within the Pilbara Bioregion, specifically located on the Chichester IBRA Subregion. The Chichester subregion covers 9,044,560 ha.</p> <p>The vegetation in the Permit Area is identified as Vegetation Association 173. Vegetation Association 173 has over 99% of pre-European extent remaining and is classed as Least Concern.</p>	<p>The Permit Area does not represent a significant remnant of native vegetation in an extensively cleared area.</p>	<p>Implement control measures described above.</p>	<p>Proposed clearing is not at variance to this Principle.</p>



Relevant information	Assessment of potential impacts	Proposed control measures	Outcome – Assessment of variance with clearing principle
<b>6. Native vegetation should not be cleared if it is growing in, or in association with, an environment associated with a watercourse or wetland</b>			
Two minor, non-perennial water courses intersect with the northern and southern sections of the Permit Area. The main drainage feature of the region is the Nullagine River, flowing northeast.	There are no permanent watercourses or water bodies within the Permit Area. Impacts to watercourses are likely to be minimal as clearing is liner in nature and the Marble Bar Road floodway (SLK 116.66 to 116.76) has been designed to MRWA Guidelines. Existing culvert crossings will be extended under the road widening with headwalls relocated only. No new culverts are proposed.	Implement control measures described above. Where practicable avoid clearing riparian vegetation. Maintain the existing surface flow by use of culverts where a watercourse is impacted by clearing. Comply with the conditions of an interfere with bed and banks permit.	Proposed clearing may be at variance to this Principle.
<b>7. Native vegetation should not be cleared if the clearing of the vegetation is likely to cause appreciable land degradation</b>			
25 weed species including declared plants and WoNS were recorded in the broader Survey Area. The introduced species were recorded over a significantly larger range than the Permit Area; however, given the location along a major road and other land use history of the area (particularly pastoral and mining purposes) it is possible that many of these species may occur within the Permit Area.	No appreciable land degradation will occur: <ul style="list-style-type: none"> <li>Clearing will be limited to the 1.86 ha within the Permit Area;</li> <li>The proposed clearing will impact small intermittently spaced areas of native vegetation of which more than half is in poor-good condition and is not likely to cause significant land degradation; and</li> <li>The prevalence of weeds recorded in the broader survey area increases the likelihood of clearing activities to the spread of weeds; however, the small Project area can be adequately managed through industry standard weed hygiene controls.</li> </ul>	Implement control measures described above. Implement industry standard weed control measures including: <ul style="list-style-type: none"> <li>All vehicles, equipment and personnel will be inspected and cleaned as required to prevent the incidental spread of weeds;</li> <li>No known weed-affected soil, mulch, fill or other material is brought into the area to be cleared; and</li> <li>All machinery will be limited to the confines of the Permit Area to avoid the incidental spread of weeds.</li> </ul>	Proposed clearing is not likely to be at variance to this Principle.
<b>8. 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>			
The Permit Area does not intersect any known conservation areas or DBCA managed lands, and there are no DBCA managed lands within close proximity of the Permit Area. The nearest DBCA managed land is Mungaroona Range Nature Reserve which is approximately 155 km northeast of the Permit Area.	Not applicable	Not applicable	Proposed clearing is not at variance to this Principle.
<b>9. Native vegetation should not be cleared if the clearing is likely to cause deterioration in the quality of surface or underground water</b>			
Mapping of the Survey Area demonstrated areas of creek crossings and riparian vegetation. Watercourses are only expected to flow following significant rainfall events. Two minor, non-perennial water courses intersect with the northern and southern sections of the Permit Area. Approximately 0.34 ha of the vegetation within the Permit Area is growing in association with a watercourse has been mapped as riparian (vegetation type D6) (Biota, 2021).	The proposed clearing will be linear in nature predominantly along the existing road corridor which would unlikely be detrimental to the current surface hydrology: <ul style="list-style-type: none"> <li>Creek lines in the region are dry for most of the year, only flowing briefly immediately following significant rainfall;</li> <li>The proposed clearing is unlikely to cause deterioration in the quality of groundwater as the scale of clearing at any one location is minor and there is no abstraction, dewatering or deep excavation being proposed;</li> <li>Areas surrounding the Permit Area will remain largely vegetated, which also minimises the risk of water quality deterioration; and</li> <li>Existing culvert crossings will be extended under the road widening with headwalls relocated only. No new culverts are proposed.</li> </ul>	Implement control measures described above. The clearing activities associated with the proposal will be compatible with the DoW's (now DWER's) Land Use Compatibility Tables and activities will comply with the DoW's (now DWER's) Water Quality Protection Notes and Guidance (Main Roads, 2021).	Proposed clearing is not likely to be at variance to this Principle.
<b>10. Native vegetation should not be cleared if the clearing is likely to cause, or exacerbate, the incidence or intensity of flooding</b>			
The climate of the region is arid, with a low average rainfall of approximately 403.1 millimetres per year (Pilbara Environmental, 2021). Drainage lines in the area are dry for most of the year, only flowing briefly immediately following significant rainfall (Pilbara Environmental, 2021).	The proposed linear clearing along the existing road is unlikely to cause or exacerbate the incidence or intensity of flooding: <ul style="list-style-type: none"> <li>There are no permanent watercourses or water bodies within the Permit Area;</li> <li>The proposed works is inclusive of the extension of pre-existing culverts to ensure natural hydrology is maintained;</li> <li>Impacts to watercourses will be minimal as clearing is liner in nature and the Marble Bar Road floodway (SLK 116.66 to 116.76) has been designed to Main Roads Guidelines; and</li> <li>Existing culvert crossings will be extended under the road widening with headwalls relocated only.</li> </ul>	Implement the control measures described above.	Proposed clearing is not likely to be at variance to this Principle.





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## 7 SUMMARY AND CONCLUSIONS

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The purpose of this NVCP Application is to allow the clearing of up to 1.86 ha of native vegetation within a 12.72 ha Purpose Permit Area for road expansion activities as described in Section 3.

The following key points are noted:

- The area has been extensively surveyed for MRWA and the results of these surveys have been used to assess the impacts of clearing; and
- The proposed clearing will not result in any significant impacts to the following:
  - Threatened and Priority Flora;
  - TECs or PECs;
  - Wetlands / surface water; or
  - Conservation areas.

RHI has identified a number of control measures to minimise the impacts to native vegetation. These measures include the following:

- All clearing will adhere to the MRWA standard management requirements for working in a road reserve;
- Total extent of clearing is limited to 1.86 ha of disturbance;
- All clearing will be kept to a minimum within the Permit Area and completed only when required;
- All vehicles, equipment and personnel will be inspected and cleaned as required to prevent the incidental spread of weeds;
- No known weed-affected soil, mulch, fill or other material is brought into the area to be cleared;
- All machinery will be limited to the confines of the Permit Area to avoid the incidental spread of weeds;
- Where practicable the clearing of riparian vegetation will be avoided; and
- Existing culverts will be extended to accommodate the Proposal.

This NVCP application assessed the proposed vegetation clearing against the ten clearing principles described in *A Guide to the Assessment of Applications to Clear Native Vegetation* (DER, 2014). Based on this assessment, the clearing may be at variance with one principle; is not likely to be at variance with five of the principles and is not at variance with four of the principles.



## 8 GLOSSARY

Term	Meaning
BAM Act	Biodiversity and Agriculture Management Act
BC Act	<i>Biodiversity Conservation Act 2016</i> (WA)
Biota	Biota Environmental Sciences
Cth	Commonwealth
DBCA	Department of Biodiversity, Conservation and Attractions
DPaW	Department of Parks and Wildlife
DPIRD	Department of Primary Industries and Regional Development
DWER	Department of Water and Environmental Regulation
EPA	Environmental Protection Authority (WA)
EPBC Act	<i>Environment Protection and Biodiversity Conservation Act 1999</i> (Commonwealth)
ha	Hectare
RHI	Roy Hill Infrastructure Pty Ltd
IBRA	Interim Biogeographic Regionalisation for Australia
km	Kilometres
KNAC	Karlka Nyiyaparli Aboriginal Corporation
m	Metre
MRWA	Main Roads Western Australia
NVCP	Native Vegetation Clearing Permit
PEC	Priority Ecological Communities – plant communities listed as being potentially threatened under the <i>Biodiversity Conservation Act 2016</i> (WA)
Pilbara Environmental	Pilbara Environmental Pty Ltd
Project	Marble Bar Road Expansion
TEC	Threatened Ecological Community
UCL	Unallocated crown land
WA	Western Australia
WoNS	Weeds of National Significance
WPP	Weed Prioritisation Process





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## 9 REFERENCES

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- Beard, J. S (1976). *Vegetation survey of Western Australia. 1 000 000 vegetation series.*  
<http://nla.gov.au/nla.obj-893259734>.
- Biota Environmental Sciences (2021). *Marble Bar Road Upgrades SLK 97-179 Biological Survey.*  
CPS 9475/1 – Supporting documentation – Biological Survey. March 2021.
- Department of Biodiversity, Conservation and Attractions (2022). *Pilbara.* Available at:  
<https://library.dbca.wa.gov.au/FullTextFiles/021926/021926-019.pdf>
- Department of Environment Regulation (2014). *A guide to the assessment of applications to clear native vegetation: UNDER Part V Division 2 of the Environmental Protection Act 1986.*  
December 2014.
- Department of Parks and Wildlife (2013). *Pilbara Region - Impact and Invasiveness Rankings.xls.*  
List of weed rankings for the Pilbara derived from the DPaW Invasive Plant Prioritisation Process, downloaded from DBCA website in 2020, Department of Parks and Wildlife, Western Australia.
- Department of Primary Industries and Regional Development (2020). *Western Australian Organism List (WAOL) Declared Pest Database [WWW Document].* Department of Primary Industries and Regional Development, Agriculture and Food Division. Retrieved from  
<https://www.agric.wa.gov.au/organisms>.
- Department of Primary Industries and Regional Development (2021). *Pre-European Vegetation (DPIRD-006).* Accessed 16 January 2025. Available at:  
<https://catalogue.data.wa.gov.au/dataset/pre-european-dpird-006>
- Department of Water and Environmental Regulation (2023). *Aquatic and riparian vegetation.*  
Aquatic and riparian vegetation is important for the health of waterways. Accessed on 20 January 2025. Available at: <https://www.wa.gov.au/service/natural-resources/water-resources/aquatic-and-riparian-vegetation>
- Ecoscape (2022). *McPhee Creek Flora and Vegetation Survey.* Prepared by Ecoscape by Atlas Iron. Available at:  
[https://www.epa.wa.gov.au/sites/default/files/PER\\_documentation2/Appendix%20L.%20McPhee%20Creek%20Flora%20and%20Vegetation%20Survey%20and%20Addendum%20%28Ecoscape%202020a%20and%20Ecoscape%202020b%29\\_Part%201.pdf](https://www.epa.wa.gov.au/sites/default/files/PER_documentation2/Appendix%20L.%20McPhee%20Creek%20Flora%20and%20Vegetation%20Survey%20and%20Addendum%20%28Ecoscape%202020a%20and%20Ecoscape%202020b%29_Part%201.pdf)
- Environmental Protection Authority (2016a). *Technical Guidance: Flora and Vegetation Surveys for Environmental Impact Assessment.* Environmental Protection Authority, Western Australia.
- Environmental Protection Authority (2016b). *Environmental Factor Guideline: Flora and Vegetation.* Environmental Protection Authority, Western Australia.
- Environmental Protection Authority (2016c). *Technical Guidance: Terrestrial Fauna Surveys.* Environmental Protection Authority, Western Australia.



- Environmental Protection Authority (2016d). *Technical Guidance: Sampling Methods for Terrestrial Vertebrate Fauna*. Environmental Protection Authority, Western Australia.
- Environmental Protection Authority (2016e). *Environmental Factor Guideline: Terrestrial Fauna*. Environmental Protection Authority, Western Australia.
- Geoscience Australia (2015). Surface Hydrology Lines (Regional). Accessed 16 January 2025. Available at: [Product catalogue - Geoscience Australia](#)
- Keighery, BJ (1994). *Bushland plant survey: a guide to plant community survey for the community*. Wildflower Society of WA (Inc.), Western Australia. 1994
- Kendrick, P. & Stanley, F. (2001). *Pilbara 4 (PIL4—Roebourne synopsis)*. In: May, J. E. & McKenzie, N. L. (eds) A biodiversity audit of Western Australia's 53 biogeographical subregions in 2002. Department of Conservation and Land Management, Perth, WA, pp. 581–594.
- Kendrick, P & McKenzie N. (2001). *Pilbara 1 (PIL1 – Chichester subregion)*. Available at: <https://library.dbca.wa.gov.au/FullTextFiles/021927.044.pdf>
- Main Roads Western Australia (2021). *Clearing Assessment Report*. CP 9475/1 – Supporting Information – Clearing Assessment Report. October 2021.
- National Map (2025). *Rivers Data Set*. Accessed 16 January 2025. Available at: <https://nationalmap.gov.au/>
- Pilbara Environmental Pty Ltd (2021). *Marble Bar Road Targeted Flora Survey*. CPS 9475/1 – Supporting documentation – Flora Survey. Prepared for Main Roads. October 2021.
- Schoknecht, N. R. & Payne, A. L. (2011). *Land systems of the Kimberley region, Western Australia*. Department of Agriculture and Food, Western Australia, Perth.
- Shepherd, D. P., Beeston, G. R. & Hopkins, A. J. M. (2002). *Native vegetation in Western Australia*. Extent, type and status. Department of Agriculture, South Perth, WA. Resource Management Technical Report 249.
- Shire of East Pilbara (2023). *Town Planning Scheme and Documents*. Accessed on 16 January 2025. Available at: <https://www.eastpilbara.wa.gov.au/plan-and-develop/local-planning-services/town-planning-scheme-documents.aspx>







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## **APPENDIX 1: MARBLE BAR ROAD UPGRADES SLK 97-179 BIOLOGICAL SURVEY REPORT (BIOTA, 2021).**

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## APPENDIX 2: MARBLE BAR ROAD TARGETED FLORA SURVEY REPORT (PILBARA ENVIRONMENTAL, 2021)

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