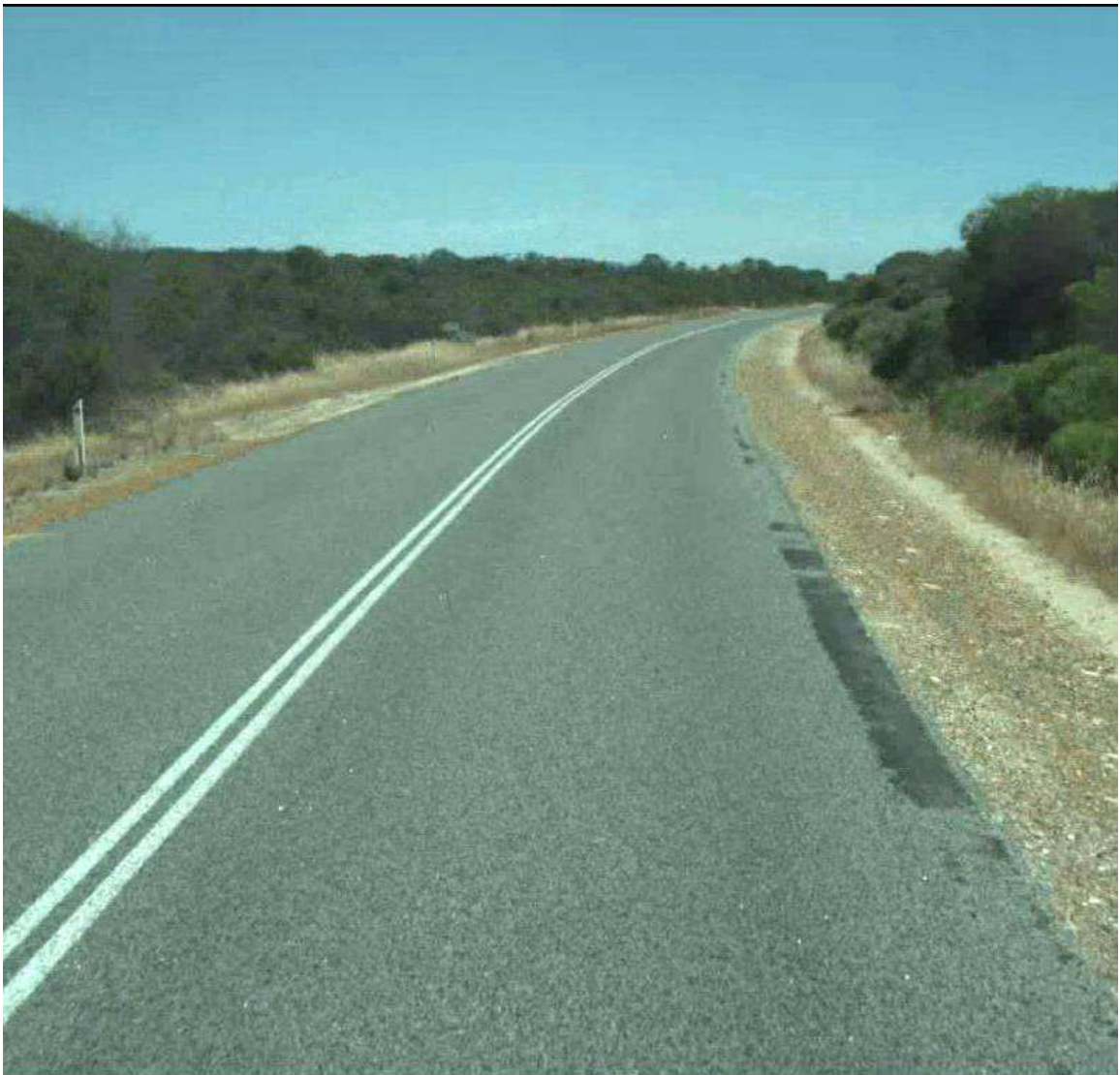




**PRELIMINARY ENVIRONMENTAL IMPACT ASSESSMENT AND  
ENVIRONMENTAL MANAGEMENT PLAN**

**Indian Ocean Drive**

**March 2012**



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Revision	Prepared by	Date	Reviewed by	Date
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Rev 0				
Rev 1.1				

## CONTENTS

<b>SUMMARY .....</b>	<b>4</b>
<b>1. BACKGROUND.....</b>	<b>5</b>
<b>2. DESCRIPTION OF THE PROJECT.....</b>	<b>6</b>
2.1 PROJECT LOCATION.....	6
<b>3. METHODOLOGY .....</b>	<b>11</b>
3.1 PRELIMINARY DESKTOP STUDY .....	11
3.2 COMMONWEALTH REFERRAL.....	12
3.3 STATE REFERRAL.....	12
<b>4. EXISTING ENVIRONMENT .....</b>	<b>13</b>
4.1 DESCRIPTION .....	13
4.2 SITE INVESTIGATION .....	13
<b>5. CLEARING OF NATIVE VEGETATION .....</b>	<b>17</b>
5.1 DETAILS OF VEGETATION ASSOCIATIONS TO BE CLEARED .....	17
5.2 ASSESSMENT AGAINST CLEARING PRINCIPLES.....	17
5.3 SUMMARY OF MANAGEMENT ACTIONS .....	19
<b>6. ASSESSMENT OF ASPECTS AND IMPACTS .....</b>	<b>21</b>
<b>7. DECISION TO REFER.....</b>	<b>24</b>
7.1 REFERRAL TO THE DEPARTMENT OF SUSTAINABILITY, ENVIRONMENT, WATER, POPULATION AND COMMUNITIES .....	24
7.2 REFERRAL TO THE ENVIRONMENTAL PROTECTION AUTHORITY .....	24
<b>8. STAKEHOLDER CONSULTATION.....</b>	<b>24</b>
<b>9. OTHER APPROVALS/PERMITS/LICENCES.....</b>	<b>28</b>
<b>10. REFERENCES.....</b>	<b>28</b>
<b>APPENDIX A LOW IMPACT ENVIRONMENTAL SCREENING CHECKLIST .....</b>	<b>29</b>
<b>APPENDIX B DEC THREATENED FLORA AND FAUNA DATABASE SEARCHES ...</b>	<b>31</b>
<b>APPENDIX C AUSTRALIAN HERITAGE PLACES INVENTORY, HERITAGE COUNCIL OF WESTERN AUSTRALIA AND THE MUNICIPAL HERITAGE INVENTORY DATABASE SEARCHES .....</b>	<b>33</b>
<b>APPENDIX D DEPARTMENT OF INDIGENOUS AFFAIRS DATABASE SEARCH.....</b>	<b>37</b>
<b>APPENDIX E DOW GEOGRAPHIC DATA ATLAS DATABASE SEARCH .....</b>	<b>47</b>
<b>APPENDIX F DEC NATIVE VEGETATION MAP VIEWER DATABASE SEARCH.....</b>	<b>49</b>
<b>APPENDIX G DSEWPC DATABASE SEARCH.....</b>	<b>51</b>
<b>APPENDIX H DEPARTMENT OF AGRICULTURE &amp; FOOD ADVICE ON DECLARED WEEDS.....</b>	<b>61</b>
<b>APPENDIX I DIEBACK CONSULTANT / DEC ADVICE ON DIEBACK .....</b>	<b>63</b>
<b>APPENDIX J DEC CONTAMINATED SITES DATABASE SEARCH.....</b>	<b>65</b>
<b>APPENDIX K ACID SULFATE SOILS MAPPING .....</b>	<b>67</b>
<b>APPENDIX L SITE PHOTOS.....</b>	<b>69</b>
<b>APPENDIX M ENVIRONMENTAL MANAGEMENT PLAN.....</b>	<b>76</b>
<b>ENVIRONMENTAL MANAGEMENT PLAN .....</b>	<b>77</b>
INTRODUCTION .....	77
COMMUNICATION PLAN .....	77
MONITORING .....	78
CONTINGENCY MEASURES .....	78
AUDITING .....	78

## SUMMARY

The proposed project within the Shire of Carnamah, involves the widening of seal on substandard and problematic sections of M045 Indian Ocean Drive to 9 m as part of an ongoing improvements program and, the upgrading of the Indian Ocean Drive / Eneabba – Coolimba intersection at SLK 219.88 to cater for the 27.5 m permitted RAV vehicles.

A Biological Survey was conducted by GHD in Spring of 2010 to the North and South of the proposed project area (refer to figures 4 & 5)

The project will require minimal clearing as there is currently quite a wide recovery zone. Where clearing is required (for example in Figure 3), it is estimated that only 1m of the existing vegetation will be required to be cleared. At this stage the final design drawings have not been received, however it is estimated that a maximum of 3.1 hectares will be required to be cleared.

The Vegetation Association that is to be cleared is 1026 - Mosaic: Shrublands; *Acacia rostellifera*, *A. cyclops* (in the south) & *Melaleuca cardiophylla* (in the north) thicket / Shrublands; *Acacia lasiocarpa* & *Melaleuca acerosa* heath. This association has current extents of 92.39% (65 318 ha) statewide and 93.14 % (4 964.22 ha) in the Shire of Carnamah.

The proposed works area is also adjacent to the Beekeepers Nature Reserve (which will not be impacted upon), which also contains Vegetation Association 1026.

The Biological Survey conducted to the North and South of the proposed works area did not identify any Declared Rare Flora or Priority Flora, and is not within a Threatened Ecological Community.

This proposed works has been assessed in accordance with the Department of Environment and Conservation's *Guide to Assessment Clearing of Native Vegetation under the Environmental Protection Act 1986*.

The assessments have indicated that the project is *maybe* to be at variance with the following Clearing Principle due to the half of the project being within proximity (approximately 80m) to the Beekeepers Nature Reserve:

- (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.

A stakeholder letter will need to be sent to the required stakeholders to seek their opinions on the proposed works.

# PRELIMINARY ENVIRONMENTAL IMPACT ASSESSMENT AND ENVIRONMENTAL MANAGEMENT PLAN

## INDIAN OCEAN DRIVE WIDENING SLK 214.72 TO 220

### 1. BACKGROUND

Indian Ocean Drive was originally developed as a local access route to coastal fishing communities but is now below standard to safely cater for future traffic growth generated by the completion of the Lancelin-Cervantes Road link.

Traffic modelling predicts more than a trebling increase in tourist and through traffic and indicates more than doubling crash rates on this link. There will be an increase in the proportion of tourist driven vehicles, caravans and busses. With this predicted increase in traffic flow it is also anticipated that tourist facilities will develop and thereby attract additional traffic above normal growth rates. This combination of factors highlights the necessity to generally improve the road width and shoulders.

The section of the road from SLK 214.72 to 220.00 currently has narrow shoulders. Because of limited gravel supplies rubble limestone has been used. The properties of this material can be disconcerting for motorist to traverse and contribute to poor recoverability. Narrow shoulders provide very limited second chance opportunities for motorist involved in critical manoeuvres, should they lose control, or be forced to move to the side of the road to allow for passing larger vehicles.

Currently 27.5 m heavy vehicles use the Eneabba – Coolimba intersection to cart lime sand from the coast inland. The intersection is not designed to cater for these sized vehicles forcing the trucks to cut the corner. To improve safety and function of this intersection, upgrading the intersection to cater for 27.5 m heavy vehicles is required. Maintenance activities relating to this cutting of the corner e.g. edge wear and drop off will be significantly reduced.

Fatigue is a significant factor in single vehicle run offs, and is prominent for north bound traffic travelling H004 Brand Highway, at about three hours drive from Perth. This pattern has the potential to switch and become prevalent on Indian Ocean Drive as the road becomes more popular and carries more traffic. An increase in seal width provides fatigued drivers more opportunity to recover their vehicle if they find they have strayed from their travelling path.

This project is to improve road user safety by widening the seal and addressing the types of materials used on the shoulders. These improvements will bring the road up to acceptable safety standard, which will allow for more manoeuvrability in all types of incidents or emergencies, thereby increasing the chance of alleviating serious accidents. The proposed project and its associated gains in road safety are directly in line with the goals of the Safer Roads Program.

Following Main Roads' corporate Environmental Assessment and Approval process, an initial 'Low Impact Environmental Screening Checklist' was completed for the proposal. The checklist determined the project required further environmental assessment as the project requires clearing outside of the maintenance zone. Therefore the preparation of a project specific Preliminary Environmental Impact Assessment (PEIA) and Environmental Management Plan (EMP) are required.

The preliminary environmental assessment will involve a desktop analysis of environmental aspects and impacts, a site investigation, an assessment of native vegetation clearing, stakeholder consultation and consideration of necessary environmental management. The preliminary assessment will determine whether an

Environmental Impact Assessment (EIA) is necessary and if referral to State and/or Commonwealth authorities is required.

## **2. DESCRIPTION OF THE PROJECT**

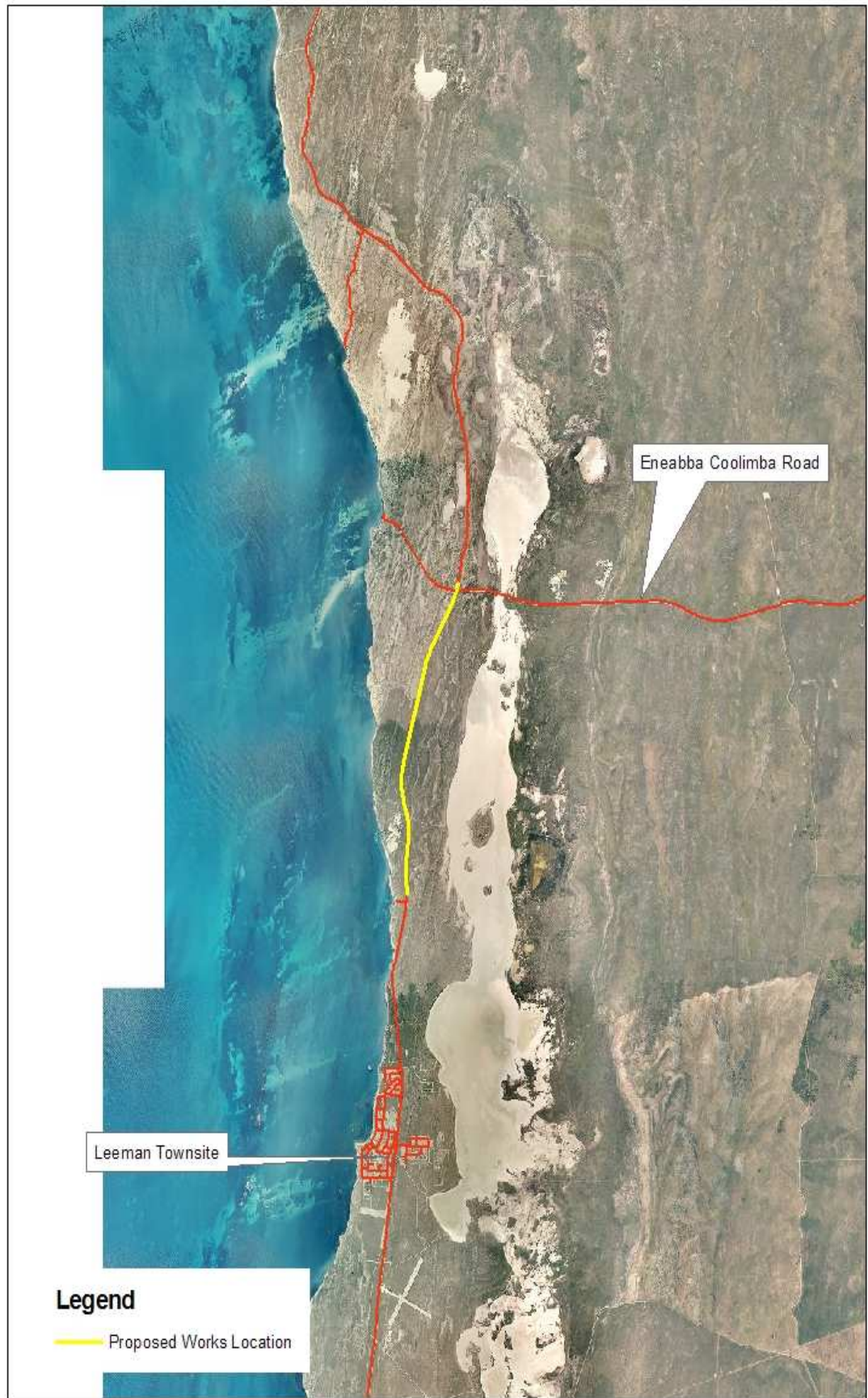
The scope of this project is to widen 5.28 km of road as part of an ongoing upgrade of Indian Ocean Drive and upgrade the Eneabba – Coolimba intersection with Indian Ocean Drive to Main Roads standards.

Increasing the seal width from 6.5 m to 9 m will assist in reducing the likeliness of accidents. Excessive shoulder wear is a definite sign of “corner cutting.” Widening will prevent the need to cut corners and the associated risks of that particular manoeuvre, leading to an improvement in road safety.

### **2.1 Project Location**

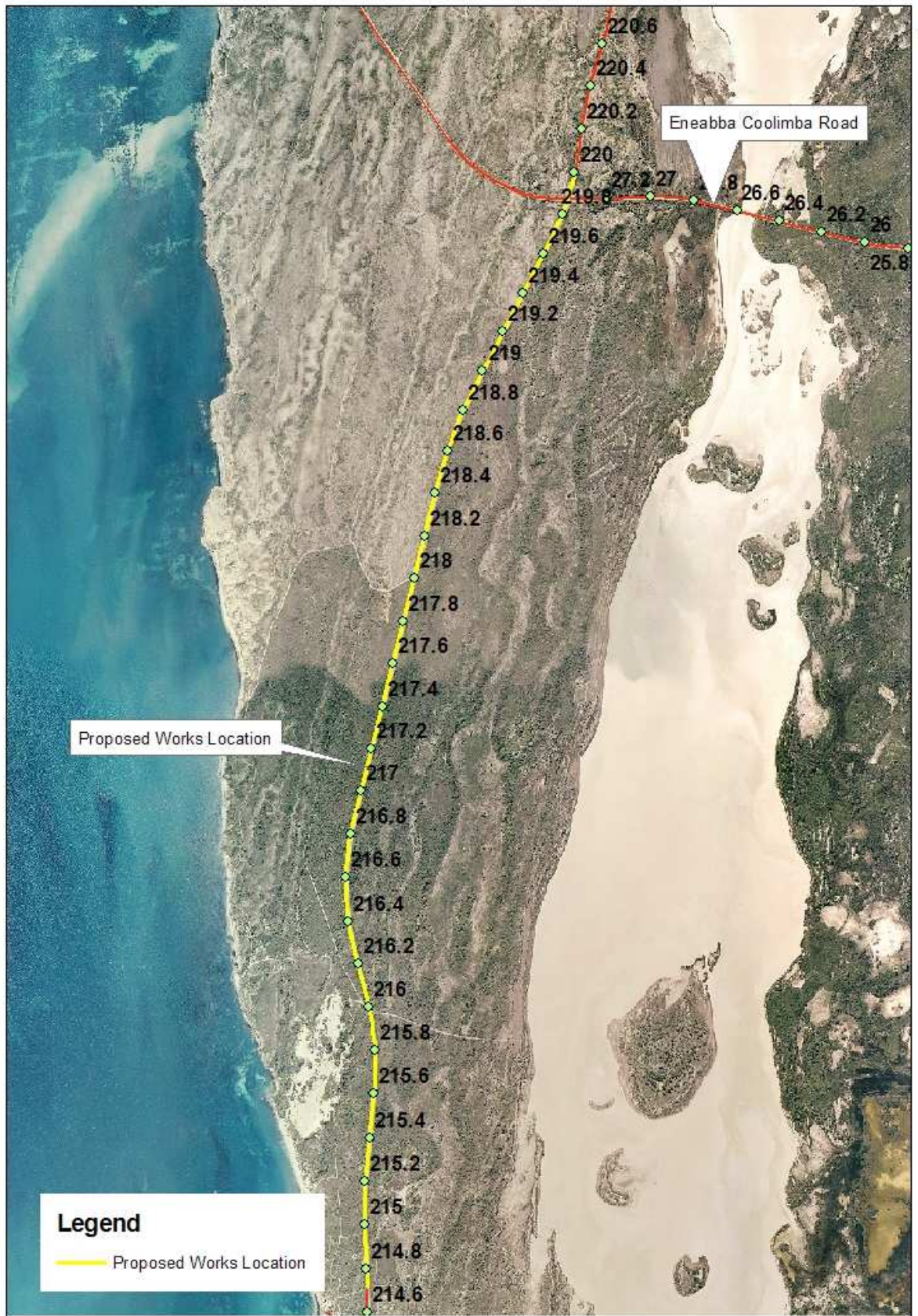
The location and boundaries of the study area for the project are shown in Figures 1 to 4.

# Indian Ocean Drive SLK 214.72 to 220



**Figure 1 – Project Location**

# Indian Ocean Drive SLK 214.72 to 220

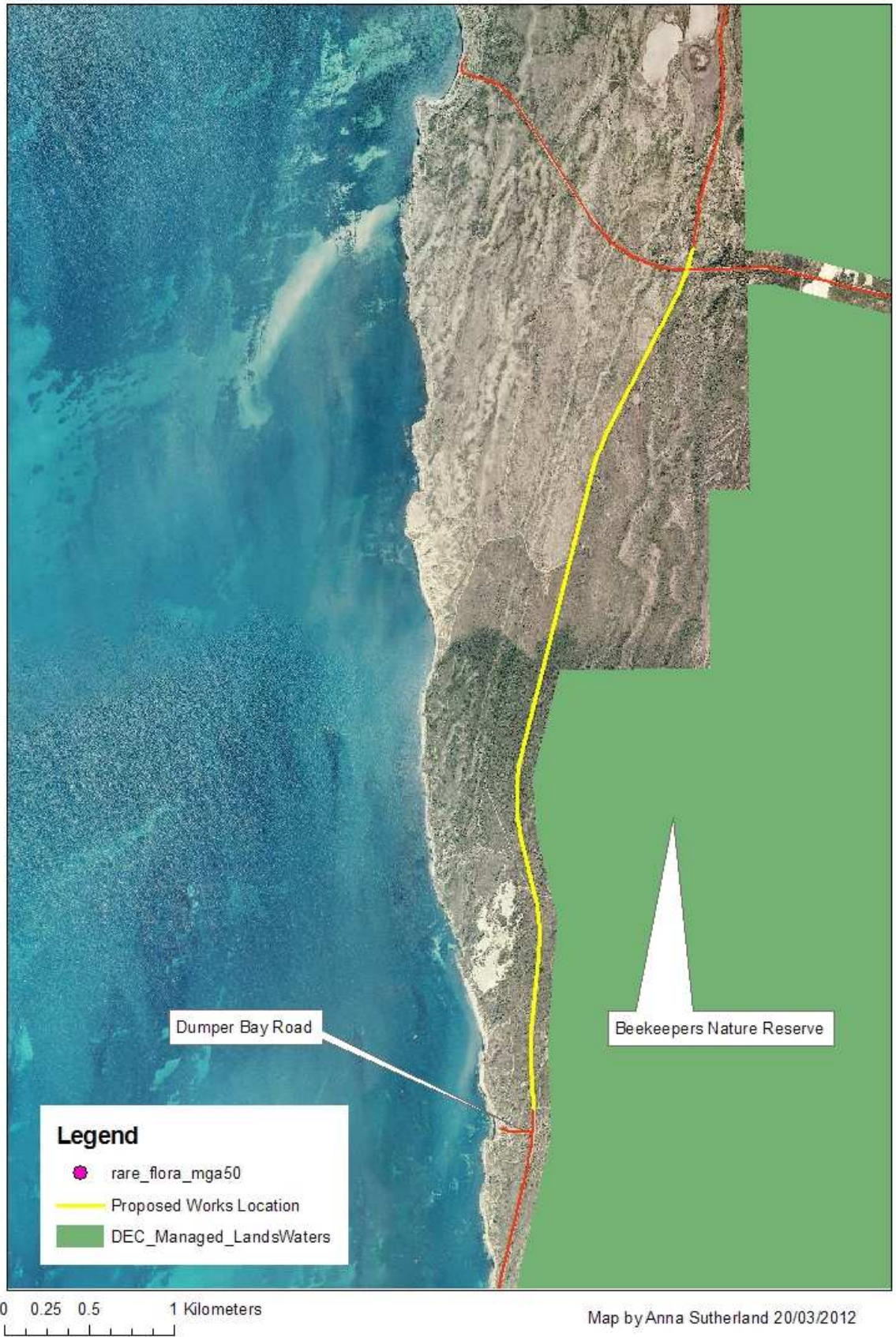


Map by Anna Sutherland 20/03/2012

Figure 2 – Project Location



# Indian Ocean Drive SLK 214.72 to 220



**Figure 3 – Project Location**

# Indian Ocean Drive SLK 214.72 to 220



**Figure 4: Location of Works**

### **3. METHODOLOGY**

#### **3.1 Preliminary Desktop Study**

A preliminary assessment of the project area and the potential constraints of the proposal was undertaken by reviewing a number of government agency managed databases, viewing GIS shapefiles and consulting with relevant stakeholders where necessary.

##### **3.1.1 Threatened Flora, Fauna & Communities, Conservation Reserves and ESAs**

Current GIS shapefiles provided to Main Roads by the DEC were examined for known populations of threatened flora, fauna, Threatened Ecological Communities (TECs) or conservation areas located within the vicinity of the works, refer to Appendix B.

##### **3.1.2 Heritage**

Non-indigenous heritage was examined utilising the Australian Heritage Places Inventory (<http://www.environment.gov.au/heritage/places/wa/index.html>), Heritage Council of Western Australia Places Database (<http://register.heritage.wa.gov.au/>) refer to Appendix C.

##### **3.1.3 Aboriginal Heritage**

A search of the Department of Indigenous Affairs' (DIA's) (<http://dia.wa.gov.au/AHIS/>) database was undertaken to determine whether the project area contains any sites of Aboriginal Heritage, refer to Appendix D.

##### **3.1.4 Sensitive Water Resources**

A search of the Department of Water's (DoW's) database was undertaken (<http://www.water.wa.gov.au/idelve/dowdataext/index.jsp>) to determine whether the project area contains any sensitive water resources (including Public Drinking Water Source Areas or Water Pollution Control Areas) or was adjacent to any significant lakes, rivers, wetlands or proclaimed areas, refer to Appendix E.

##### **3.1.5 Wetlands**

The locations of any wetlands within the project area was determined using the Commonwealth Department of Sustainability, Environment, Water, Population and Communities (DSEWPC) mapping tool, the Department of Environment and Conservation (DEC) "Native Vegetation Map Viewer" mapping tool, viewing current GIS shapefiles.

##### **3.1.6 Weeds**

A Biological Survey was conducted by GHD to the North and South of the project area, several weed species were identified, these are listed in Appendix H.

##### **3.1.7 Dieback**

GHD have conducted a Biological Survey in Spring 2010 and assessed Dieback Risk, the results of this survey are listed in Appendix I.

### 3.1.8 Contaminated Sites

A search of the DEC's contaminated sites database was undertaken (<https://secure.dec.wa.gov.au/idelve/css/>) to determine whether the project area contains or is adjacent to any contaminated sites, refer Appendix J.

### 3.1.9 Acid Sulfate Soils

The CSRIOs acid sulfate soils maps were reviewed on <http://www.asris.csiro.au/mapping/viewer.htm> to determine the level of risk the project is exposed to, refer to Appendix K.

### 3.1.10 Air Quality

The need for a local air quality assessment was determined using the criteria outlined in the MRWA Environmental Guideline, Air Quality.

## 3.2 Commonwealth Referral

The decision whether to refer the project to the Commonwealth DSEWPC was based upon whether the project would impact Commonwealth land, or may have a significant impact upon matters of national significance, which are protected under the EPBC Act. These are; World Heritage properties, National Heritage places, wetlands of international importance (listed under the Ramsar convention), Commonwealth Marine Areas, migratory species protected under international agreements, nuclear actions, nationally threatened species and ecological communities.

The DSEWPC protected matters search tool was used to determine if the project will impact upon any matters of national significance: (<http://www.environment.gov.au/erin/ert/epbc/index.html>) refer to Appendix G for the results of this search and Section 7 for a discussion on the findings.

## 3.3 State Referral

The decision whether to refer the project to the State's EPA was based on whether the project would impact on environmental factors significantly enough to require referral under section 38 of the *Environmental Protection Act 1986* .

## 4. EXISTING ENVIRONMENT

### 4.1 Description

The State Land Information Platform (SLIP) interface states that the proposed project area is within the Vegetation Association 1026 Mosaic: *Shrublands; Acacia rostellifera*, *A. cyclops* (in the south) & *Melaleuca cardiophylla* (in the north) thicket / Shrublands; *Acacia lasiocarpa* & *Melaleuca acerosa* heath.

Stratum	Minimum % Crown Cover	Maximum % Crown Cover	Maximum Height (m)	Species	Growth Form
Mid 1	0	10	2.5	<i>Acacia rostellifera</i>	Shrub
Mid 1	0	10	2.5	<i>Allocasuarina baxteriana</i>	Shrub
Mid 1	0	10	2.5	<i>Melaleuca cardiophylla</i>	Shrub
Mid 1	0	10	2.5	<i>Acacia xanthina</i>	Shrub
Mid 1	0	10	2.5	<i>Melaleuca huegelii</i>	Shrub
Mid 1	0	10	2.5	<i>Santalum acuminatum</i>	Shrub
Mid 2	30	70	1.5	<i>Acacia lasiocarpa</i>	Shrub
Mid 2	30	70	1.5	<i>Melaleuca acerosa</i>	Shrub
Mid 2	30	70	1.5	<i>Adriana quadripartita</i>	Shrub
Mid 2	30	70	1.5	<i>Conostylis sp.</i>	Shrub
Mid 2	30	70	1.5	<i>Cuscuta australis</i>	Shrub
Mid 2	30	70	1.5	<i>Hemiandra pungens</i>	Shrub
Mid 2	30	70	1.5	<i>Podolepis canescens</i>	Shrub
Mid 2	30	70	1.5	<i>Scaevola sp.</i>	Shrub
Mid 2	30	70	1.5	<i>Scaevola thesioides</i>	Shrub

**Source:**

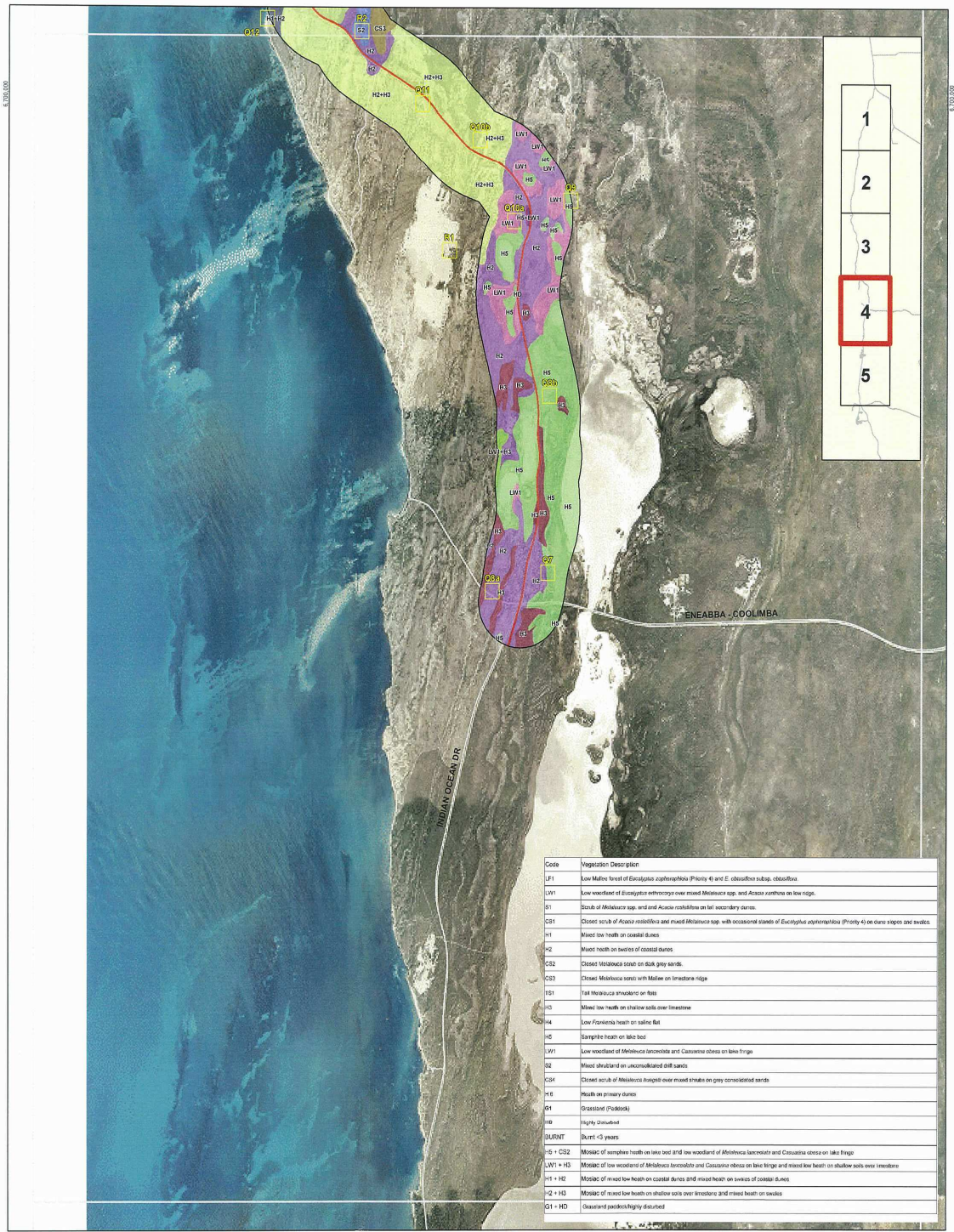
[http://spatial.agric.wa.gov.au/slip/custom/showvegetation\\_species.asp?keyvalue=80101379&type=1590](http://spatial.agric.wa.gov.au/slip/custom/showvegetation_species.asp?keyvalue=80101379&type=1590) (20/03/2012)

### 4.2 Site Investigation

A site visit was carried out by GHD in Spring 2010 to the North and South of the proposed project area to examine the general features of the area.

GHD's Biological Survey report stated that the actual road structure and maintenance zone was a level 6, completely degraded, while the remaining vegetation was a category 2, in excellent condition.

IRIS video images have been captured in Appendix L



**LEGEND**

**Declared Rare & Priority Species**

- ▲ (R) Declared Rare Flora - Extant Taxa
- ▲ Priority 1 - Poorly Known Taxa
- ▲ Priority 2 - Poorly Known Taxa
- ▲ Priority 3 - Poorly Known Taxa
- ▲ Priority 4 - Rare Taxa
- Quadrate Location

**Vegetation Condition**

- BURNT
- CS1
- CS2
- CS3
- CS4
- G1
- G1+HD
- G2
- G3
- G4
- G5
- G6
- H1
- H1+H2
- H2
- H2+H3
- H3
- H4
- H5
- H5+LW1
- H6
- HD
- LF1
- LW1
- LW1+H3
- S1
- S2
- TS1

— Road  
— Map Index  
□ Vegetation Association Outline

Scale: 1:40,000 (at A3)  
0 0.2 0.4 0.8 1.2 1.6 2 Kilometres

Map Projection: Transverse Mercator  
Horizontal Datum: Geocentric Datum of Australia (GDA)  
Grid: Map Grid of Australia 1994, Zone 50

Logos: GHD, mainroads WESTERN AUSTRALIA

Main Road Indian Ocean Drive Biological Survey

Vegetation Associations 4 OF 5 Figure 3

Job Number: 61-25890  
Revision: A  
Date: 5/04/2011

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Data Sources: GHD, Vegetation Associations - 20110318; Landgate; Arrowsmith 2006 Mosaic; Beagle Island 2005 Mosaic; Dongara 2006 Mosaic; Hill River Arrowsmith 2006 Mosaic; Mingenew 1939 2006 Mosaic; 20100921; GHD, Mapindex, 20100921. Created by: Jochen

**Figure 5: Location of Biological Survey Area Spring 2010**



**LEGEND**

**Declared Rare & Priority Species**

- (R) Declared Rare Flora - Extant Taxa
- Priority 1 - Poorly Known Taxa
- Priority 2 - Poorly Known Taxa
- Priority 3 - Poorly Known Taxa
- Priority 4 - Rare Taxa
- Quadrat Location

**Vegetation Condition**

- BURNT
- CS3
- CS3+LF1
- G1+HD
- G1
- H1+H2
- H3
- H5+LW1
- LF1
- S1
- CS1
- CS2
- CS4
- H1
- H2+H3
- H4
- H6
- LW1
- S2
- TS1
- Road
- Map Index
- Vegetation Association Outline

1:40,000 (at A3)

0 0.2 0.4 0.8 1.2 1.6 2 Kilometres

Map Projection: Transverse Mercator  
Horizontal Datum: Geocentric Datum of Australia (GDA)  
Grid: Map Grid of Australia 1984, Zone 50

**GHD** CLIENTS/PEOPLE/PERFORMANCE

**mainroads** WESTERN AUSTRALIA

Main Road  
Indian Ocean Drive Biological Survey

Job Number: 61-25890  
Revision: A  
Date: 5/04/2011

Vegetation Associations 5 OF 5 Figure 3

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Data Source: GHD Vegetation Associations - 20110318; Landgate; Arrowmorth 2006 Mosaic; Beagle Island 2006 Mosaic; Dongara 2006 Mosaic; Hill River Arrowmorth 2006 Mosaic; Mingenew 1939 2006 Mosaic; 20100921; GHD; MapIndex; 20100921. Created by: Jochen

**Figure 6: Location of Biological Survey Area Spring 2010**



## 5. CLEARING OF NATIVE VEGETATION

Native vegetation describes all indigenous aquatic and terrestrial vegetation (living or dead). The term does not include vegetation that was intentionally sown, planted or propagated unless it was required under a statutory condition.

Apart from activities that are exempt under the clearing regulation (Section 5 – Prescribed Clearing), typically all Main Roads clearing will be undertaken using a permit.

The clearing undertaken for this project will be undertaken using CPS818.

### 5.1 Details of Vegetation Associations to be Cleared

In order to assess the significance of the vegetation proposed to be cleared for Indian Ocean Drive widening SLK 214.72 to 220 the vegetation type, condition and percent of pre-European Extent remaining has been identified. Table 1 describes the location and condition of vegetation associations within the project area and at road building material extraction sites while Table 2 provides further information regarding each vegetation association's representativeness.

**Table 1: Vegetation Description, Condition and Percent Remaining**

No.	Description	Start & End SLK	Side of Road (L- left, R - right, RBM -road building materials)	Condition (Keighery 1994)*	Pre-European Extent Remaining (%) **	Area (ha)
1026	Mosaic: Shrublands; <i>Acacia rostellifera</i> , <i>A. cyclops</i> (in the south) & <i>Melaleuca cardiophylla</i> (in the north) thicket / Shrublands; <i>Acacia lasiocarpa</i> & <i>Melaleuca acerosa</i> heath	214.72 to 220	B	Excellent to completely degraded	92.39	65 318
<b>Total Area (ha)</b>						65318

**Table 2: Vegetation Percent Remaining**

Pre-European Extent Remaining: Vegetation Association No. 1026		
Regional Context	Location	Pre-European Extent Remaining (%)
State-wide	N/A	92.39
Bioregional (IBRA Region)	Geraldton Sandplain	92.80
Bioregional (IBRA Sub-Region)	Leseur Sandplain	92.80
LGA	Shire of Carnamah	93.14

### 5.2 Assessment Against Clearing Principles

In assessing whether the project is likely to have a significant impact on the environment, the project was assessed against the ten clearing principles (EP Act 1986 Schedule 5).

The project may be at variance with one or more of the 10 clearing principles.

<b>(a) Native vegetation should not be cleared if it comprises a high level of biological diversity.</b>	
ASSESSMENT	<p>GHD Biological Survey stated that:</p> <ul style="list-style-type: none"> <li>A total of 215 flora taxa from 60 families were recorded from the project area, representing a moderate level of diversity, with 25 weed species.</li> <li>Diversity in the Project area is considered to be comparable to that found in similar habitats in the local area.</li> </ul>

METHODOLOGY & REFERENCES	GHD Biological Survey 2010 and DEC rare flora data (GIS)
Proposal is not likely at variance to this Principle.	

**(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.**

ASSESSMENT	The project area contains potential habitat for Threatened and Priority fauna species. No Threatened or Priority Fauna species were recorded from the Project area. The Project is considered unlikely to be at variance with this clearing principle.
METHODOLOGY & REFERENCES	GHD Biological Survey 2010
Proposal is not likely at variance to this Principle.	

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

ASSESSMENT	No Declared Rare Flora (DRF) taxon were indicated to occur within the vicinity of the of the Project area as a result of database searches. No Declared Rare Flora taxa were recorded in the Project area during the field survey. <input type="checkbox"/> Habitat – No habitat considered to be required for the continued existence of DRF is considered to be present in the Project area.
METHODOLOGY & REFERENCES	GHD Biological Survey 2010 and DEC rare flora database (GIS)
Proposal is not likely at variance to this Principle.	

**(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.**

ASSESSMENT	No Threatened or Priority Ecological Communities were recorded from the Project area.
METHODOLOGY & REFERENCES	GHD Biological Survey (2010) and DEC TEC GIS database
Proposal is not likely at variance to this Principle.	

**(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.**

ASSESSMENT	Project area contains Vegetation Association 1026 which has a current extent of 92.39 %
METHODOLOGY & REFERENCES	State Land Information Platform (SLIP)
Proposal is not likely at variance to this Principle.	

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

ASSESSMENT	No watercourses through proposed project area.
METHODOLOGY & REFERENCES	Department of Water watercourse mapping GIS data
Proposal is not likely at variance to this Principle.	

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

ASSESSMENT	The Project proposes to clear vegetation for road construction and upgrade activities. Degradation will occur at the site during construction and earth moving activities; however, this is not expected to alter the land capability of the surrounding area.
METHODOLOGY & REFERENCES	GHD Biological Survey
Proposal is not likely at variance to this Principle.	

<b>(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>	
ASSESSMENT	Half of the proposed project is occurring adjacent to the Beekeepers Nature Reserve, however is 86m away from the boundary of this reserve.
METHODOLOGY & REFERENCES	Arc GIS Mapping/
Proposal is may be at variance to this Principle.	

<b>(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>	
ASSESSMENT	The project area does not occur within a proclaimed Public Drinking Water Supply Catchment. The clearing of vegetation is not considered to cause an alteration to the quality of groundwater in or adjacent to the project area. The clearing of vegetation is not considered to cause an alteration to the quality of surface waters in or adjacent to the Project area.
METHODOLOGY & REFERENCES	GHD Biological Survey 2010
Proposal is not likely at variance to this Principle.	

<b>(j) Native vegetation should not be cleared if the clearing of the vegetation is likely to cause, or exacerbate, the incidence or intensity of flooding.</b>	
ASSESSMENT	The clearing of vegetation in the project area is not considered to alter the frequency or intensity of flood events. Runoff coefficients in the project area are not likely to be significantly altered by the clearing of native vegetation.
METHODOLOGY & REFERENCES	GHD Biological Survey 2010
Proposal is not likely at variance to this Principle.	

### 5.3 Summary of Management Actions

Main Roads attempts to avoid clearing vegetation if possible, where clearing cannot be avoided then this clearing is kept to a minimum. The following actions are proposed to manage and minimise vegetation clearing for the Indian Ocean Drive Widening SLK 214.72 to 220

- Select design/locations that minimise adverse impacts on the biological environment,
- Site office and materials storage areas will be located on previously disturbed/ designated area,
- Construction works to be undertaken in summer to reduce the potential for soil erosion impacting adjoining vegetation during heavy rains,
- Control/spray weeds species within the project area prior to construction to limit the amount of propagative material that may be spread during disturbance,
- Any stockpiled vegetation from clearing works shall not be burnt. This vegetation shall be used during any rehabilitation works and either mulched or respread according to the TDP/Revegetation Plan,
- Implement the Project Revegetation Management Plan and monitor effectiveness of revegetation works and weed control.
- Vehicle hygiene measures be implemented and adhered to.

The following table summarizes what further assessment and management is required in accordance with MRWA State-wide vegetation Clearing Permit (CPS 818).

**Table 3: Summary of Additional Management Actions**

Impact of Clearing	Yes/No or NA	Further Action Required
1. Does the assessment indicate that the clearing may be at variance or is at variance with one or more of the principles for clearing?	<b>Yes</b>	An EIA must be undertaken and submissions must be sought from stakeholders. All submissions received must be addressed within the final EIA.
2. Does the assessment indicate that the clearing is at variance with one or more of the principles for clearing?	<b>NA</b>	Await Stakeholder Submission feedback.
3. Does the assessment indicate that the clearing is at variance with clearing principle (g) land degradation, (i) surface or underground water quality or (j) the incidence of flooding?		No further action required.
4. Will the project involve clearing for purposes considered temporary in nature under Condition 13 of CPS818?		No further action required.

## 6. ASSESSMENT OF ASPECTS AND IMPACTS

**Table 4: Aspects and Impacts – Indian Ocean Drive Widening SLK 214.72 to 220**

Aspect	Evaluation of Potential Impacts
Vegetation – clearing	<p><b>3.1 hectares</b> of native vegetation is proposed to be cleared, the vegetation is described as 1026 Mosaic: Shrublands; <i>Acacia rostellifera</i>, <i>A. cyclops</i> (in the south) &amp; <i>Melaleuca cardiophylla</i> (in the north) thicket / Shrublands; <i>Acacia lasiocarpa</i> &amp; <i>Melaleuca acerosa</i> heath this Vegetation Association has <b>92.39 %</b> remaining.</p> <p>The native vegetation proposed to be cleared <b>is</b> well represented regionally as it possesses <b>more</b> than 30% of its pre-European extent.</p> <p>According to Keighery, (1994) the condition of the native vegetation to be cleared is described as <b>Completely Degraded (road structure) and Excellent (road reserve)</b>.</p> <p>Of the <b>3.1 hectare</b> of native vegetation proposed to be cleared <b>none</b> is temporary clearing.</p>
Vegetation – TECs/DRF	<p>None present in the proposed works areas. No significant vegetation types or threatened flora have been recorded within the road reserve.</p> <p>Consultation with DEC confirms that the proposal is not going to have a significant impact upon any DRF or TECs.</p> <p>No Matters of National Environmental Significance as protected under EPBC Act (1999) will be impacted (see Table 5).</p>
Vegetation – weeds	<p>There are numerous common weed species that occur throughout the proposed works areas. These species are likely to be widespread within the reserve and general area.</p>
Vegetation – dieback	<p>Advice from <b>DEC/Dieback survey</b> indicates that the area should be treated as dieback <b>uninterpretable</b>.</p>
Fauna	<p>No significant fauna issues associated with any of the proposed upgrade works. With the minor clearing and exposed nature of the works areas, no significant impacts would be expected on native fauna generally as a result of the proposed works.</p> <p>No Matters of National Environmental Significance as protected under the EPBC Act (1999) will be impacted (see Table 5).</p>
Heritage (non-indigenous)	<p>A search of the Australian Heritage Places Inventory, Heritage Council of Western Australia (which includes the <b>Shire of Carnamah's</b> Municipal Heritage Inventory on-line databases has indicated that there <b>are no</b> known site(s) of heritage significance within the vicinity of the project area.</p> <p>No Matters of National Environmental Significance as protected under EPBC Act (1999) will be impacted (see Table 5).</p>

**Table 4: Aspects and Impacts – Indian Ocean Drive Widening SLK 214.72 to 220**

Aspect	Evaluation of Potential Impacts
Aboriginal heritage	<p>A desktop survey was conducted by Rory O'Connor in September 2010 as well as a recent search of the DIA site website.</p> <p>The site identified within the project area is listed as Eneabba West (15297, which is listed as 'Stored Data' and is therefore not covered by the provisions of the Aboriginal Heritage Act 1972.</p> <p>No further investigations are required for all aspects of the project.</p>
Wetlands	<p>According to all the GIS databases there are no wetlands within the vicinity of the project area.</p> <p>No Matters of National Environmental Significance as protected under EPBC Act (1999) will be impacted (see Table 5).</p>
Surface water/drainage	<p>A search of the DoW's database has confirmed that the proposed works will not disturb or interrupt any natural drainage and surface run-off patterns.</p>
Groundwater	<p>No dewatering nor drainage modifications are required, hence no change to groundwater level or quality.</p>
Reserves / Conservation areas	<p>The project is located adjacent (86m) to sensitive conservation areas (Beekeepers reserve) see assessment to Clearing Principle 'h' in Section 5.2.</p>
Air quality	<p>Not relevant to the proposed works. Local air quality assessment is not required for the project since:</p> <ul style="list-style-type: none"> <li>• the predicted traffic flow is less than 10,000 vehicles per day (in urban areas) or 15,000 vehicles per day in rural areas;</li> </ul>
Dust	<p>Likely to be a minor issue during earthworks. No major sensitive receivers adjacent to the proposed works, but excessive dust could impact vegetation. This is likely to be easily managed by standard construction dust management techniques.</p>
Noise and vibration	<p>No major sensitive local receivers. Construction works is not expected to significantly contribute to noise levels at the nearest sensitive receivers, provided works are limited to normal working hours. The requirements of the Shire of Carnamah must be met in respect of noise management and construction working hours.</p>
Visual amenity	<p>The proposed works will result in minor and short-term visual impacts during construction.</p>
Public safety and risk	<p>Provided traffic management and signage to Main Roads standards is employed, none of the proposed works present any significant hazards to public safety. The proposed works will serve to enhance public safety by improving local road and pedestrian conditions.</p>
Hazardous substances	<p>Not relevant to the proposed works, the project requires no hazardous substances to be used.</p>
Contamination	<p>The works are within the road reserve and no known previous land use activities on or adjacent to the project area have had the potential to create contamination, e.g. petrol station. A search of the DEC's contaminated sites database indicates there are no identified contaminated sites within the project area.</p>
Salinity	<p>There were no visual signs of salinity observed in the project area. Given the nature and scale of the project the impact is considered not relevant.</p>

**Table 4: Aspects and Impacts – Indian Ocean Drive Widening SLK 214.72 to 220**

<b>Aspect</b>	<b>Evaluation of Potential Impacts</b>
Acid Sulfate Soils	This project does not require dewatering or excavation below the water table planned no further investigations are required.  The CSIRO database stated that this site is Extremely Low Probability of Occurrence of Acid Sulfate Soils. (
Statutory Land Use Planning	As the proposed works are entirely within the existing road reserve no planning scheme amendments are required.

**Table 5: Commonwealth Aspects and Impacts – Indian Ocean Drive SLK 214.72 to 220**

<b>Aspect</b>	<b>Evaluation of Potential Impacts</b>
World Heritage properties	The project will not impact any World Heritage properties i.e. <u>Shark Bay</u>
National Heritage places	A search of the Australian Heritage Places Inventory Database located <b>1</b> nominated site within the vicinity of the project. <b>This site is 86m</b> from the works and will not be impacted by the project.
Wetlands of international importance (Ramsar)	A search of the Department of Sustainability, Environment, Water, Population and Communities Protected Matters Search Tool located <b>no</b> Ramsar Wetland(s) within the vicinity of the project.
Nationally threatened species or ecological communities	A search of the Department of Sustainability, Environment, Water, Population and Communities Protected Matters Search Tool located <b>no</b> threatened ecological communities, <b>16</b> threatened species and <b>42</b> listed marine species within the vicinity of the project. The project activities are unlikely to have a significant impact on <b>these</b> species and the marine species are listed as “over fly” with the vegetation present unlikely to be habitat for <b>these</b> species.
Migratory species protected under international agreements	A search of the Department of Sustainability, Environment, Water, Population and Communities Protected Matters Search Tool located <b>23</b> migratory species within the vicinity of the project. The project activities are unlikely to have a significant impact on <b>these</b> species as the vegetation present is unlikely to be habitat for <b>these</b> species.
Commonwealth marine areas	The project will not impact any Commonwealth marine area or marine protected area i.e. <u>Ningaloo Marine Park</u>
Commonwealth lands	The project is not located on and will not impact any Commonwealth lands.
Nuclear Actions	Not relevant to the proposed works.

## 7. DECISION TO REFER

### 7.1 Referral to the Department of Sustainability, Environment, Water, Population and Communities

The preliminary impact assessment determined the project does not, will not, or is not likely to have a significant impact on Matters of National Environmental Significance or impact Commonwealth land as outlined in Table 5 of the report. For this reason the project does not require referral to the Commonwealth Department of Sustainability, Environment, Water, Population and Communities.

### 7.2 Referral to the Environmental Protection Authority

Due to the small scale of the project, the low significance of its impacts to the surrounding environment and that it is unlikely the project will generate significant public interest, the project does not require referral to the WA Environmental Protection Authority.

## 8. STAKEHOLDER CONSULTATION

Table 6: Project Consultation

Name	Agency	Date	Comments
Native Vegetation Conservation Branch	Department of Environment & Conservation	21/03/2012	
Manager	Department of Water	21/03/2012	
Commissioner	Soil and Land Conservation Branch	21/03/2012	
CEO	Shire of Carnamah	21/03/2012	
Roadside Conservation Committee Officer			
Director	Conservation Council WA	21/03/2012	



07/5508-03



Government of Western Australia  
Department of Environment and Conservation

Your ref: 07/5508-03  
Our ref: CPS 818/6  
Enquiries: Clare Ryan  
Phone: 9219 8726  
Fax: 9219 8701  
Email: nvp@dec.wa.gov.au

Mr Tim Glenister  
Regional Manager  
Midwest Region  
Main Roads Western Australia  
PO Box 165  
GERALDTON WA 6531

Attn: Anna Sutherland



Dear Mr Glenister

**CPS 818/6 – SUBMISSION – PROPOSED CLEARING ON THE INDIAN OCEAN DRIVE  
SLK 214.72 TO 220**

Thank you for your letter dated 23 March 2012, inviting the Department of Environment and Conservation's (DEC) Native Vegetation Conservation Branch to provide comment on Main Roads Western Australia's (MRWA) proposal to upgrade Indian Ocean Drive between SLK's 214.72 and 220.00 to widening the seal. I understand that MRWA is currently undertaking the design for development and has estimated that it will involve clearing approximately 1 hectare of native vegetation.

Submissions are invited in accordance with condition 8 of Clearing Permit CPS 818/6 for any clearing that 'may be at variance', 'is at variance' or 'is seriously at variance' with the clearing principles contained within Schedule 5 of the *Environmental Protection Act 1986*.

In relation to the 1 hectare of native vegetation in 'degraded' to 'good' condition, DEC has undertaken a desktop survey of the proposal against the clearing principles in Schedule 5 of the EP Act.

In relation to clearing principle (h), you advise that the proposal 'may be at variance', however I consider the proposal is 'not likely to be at variance'. I note that the proposed clearing is situated approximately 80 m from the Beekeepers Nature Reserve, and no clearing is being undertaken within the reserve. Given the size of the area to be cleared and the condition of the vegetation, it is considered unlikely that this clearing as proposed will have a significant impact on the Beekeepers Nature Reserve.

Given the above, MRWA are not required to develop an offset proposal or revegetation plan for the proposed clearing as DEC considers that the proposal is not likely to be at variance with any of the clearing principles contained within Schedule 5 of the EP Act.

Native Vegetation Conservation Branch  
Phone: (08) 9219 8700 or (08) 9219 8744 Fax: (08) 9219 8701 Email: nvp@dec.wa.gov.au  
Postal Address: Locked Bag 104, Bentley Delivery Centre, BENTLEY WA 6983  
www.dec.wa.gov.au/nvc  
wa.gov.au

2012/06/19

If you have any queries regarding the matters raised above, please contact Clare Ryan at DEC's Native Vegetation Conservation Branch on (08) 9219 8726.

Yours sincerely



Kelly Faulkner  
MANAGER  
NATIVE VEGETATION CONSERVATION BRANCH

*Officer delegated under Section 20  
of the Environmental Protection Act 1986*

12 June 2012

Cc: *Mr Murray Limb, Manager, Main Roads WA, PO Box 6202, East Perth 6892*

07/5508-03.



Government of Western Australia  
Department of Water



Looking after all our water needs

Your Ref: 07/5508-03

Our Ref: WRD158080RF0229

Enquiries: Katrina Wheeler

Phone: (08) 9965 7400

MAIN ROADS WA  
INWARD 3  
8 MAY 2012  
MIDWEST  
REGION

MR TR GLENISTER - REGIONAL MANAGER  
MAIN ROADS - MIDWEST  
PO BOX 165  
GERALDTON WA 650

Dear Mr Glenister

**Response - CPS 818/6 Proposed Clearing on the Indian Ocean Drive SLK 214.72 to 220**

Thank you for the referral of the above proposal dated 23 March 2012. The Department of Water (DoW) has assessed the proposal and offers the following advice.

- The subject land is located within the Arrowsmith Groundwater Area as proclaimed under the *Rights in Water and Irrigation Act 1914*. Any groundwater abstraction in this proclaimed area is subject to licensing by the Department of Water. The issuing of a groundwater license is not guaranteed but if issued will contain a number of conditions that are binding upon the licensee.
- The subject land is located in an area identified as an Aboriginal site of significance. Please contact the Department of Indigenous Affairs for further information on your responsibilities regarding this matter.

If you wish to discuss this issue further please contact the Midwest Gascoyne office on (08)99657400.

Yours sincerely

Fleur Coaker  
Program Manager  
Midwest Gascoyne Region

Date: 1/5/2012

94 Sanford Street Geraldton Western Australia 6530  
PO Box 73 Geraldton Western Australia 6531  
Telephone (08) 9965 7400 Facsimile (08) 9964 5983  
www.water.wa.gov.au  
wa.gov.au

00000000

## **9. OTHER APPROVALS/PERMITS/LICENCES**

No further approvals, permits or licences are required for the Indian Ocean Drive Widening 214.72 to 220.

## **10. REFERENCES**

Beeston, G.R., Hopkins, A.J.M. and Shepherd, D.P. (2002). Land-use and vegetation in Western Australia. Department of Agriculture, Western Australia, Resource Management Technical Report 250.

Keighery, B. J. 1994. *Bushland Plant Survey: A Guide to Plant Community Survey for the Community*. Wildflower Society of WA (Inc). Nedlands, Western Australia.

## Appendix A

### **Low Impact Environmental Screening Checklist**

**Checklist - Low Impact Screening Checklist**

The Low Impact Screening Checklist is part of the environmental assessment and approval process, refer to in Figure 2 in the Main Roads environmental guideline Environment Assessment and Approvals. It should be noted that the checklist does not address Aboriginal heritage issues. Please refer to Main Roads guideline *Aboriginal Heritage* for the heritage assessment process.

All projects are to be screened to identify those that are Low Impact.

Projects that have "No" to **all** items are classed as Low Impact and should be implemented using standard contract clauses in the Tender Document Process.

Projects that have "Yes" to **any** item will require further environmental assessment and will be implemented using an Environmental Management Plan.

Tick "Yes" or "No" for every item.

Project Name Indian Ocean Drive Widening SLK 214.72 to SLK 220.

ITEM NO.	ITEM	Y	N
1	New road or road reserve to be created or expansion of existing road reserve.	<input type="checkbox"/>	<input checked="" type="checkbox"/>
2	Works require clearing of native vegetation outside the maintenance zone.	<input checked="" type="checkbox"/>	<input type="checkbox"/>
3	Works require clearing of native vegetation that is older than 10 years old within the maintenance zone.	<input type="checkbox"/>	<input checked="" type="checkbox"/>
4	Works to occur outside normal working hours.	<input type="checkbox"/>	<input checked="" type="checkbox"/>
5	Passes over, adjoins or drains directly into a wetland or sensitive watercourse.	<input type="checkbox"/>	<input checked="" type="checkbox"/>
6	Local natural drainage regime / hydrology will be changed.	<input type="checkbox"/>	<input checked="" type="checkbox"/>
7	Dewatering, or a new water bore required.	<input type="checkbox"/>	<input checked="" type="checkbox"/>
8	Known potential source of hazardous materials within or adjoining project area. e.g. Acid Sulphate Soils, existing petrol station, industrial site or waste disposal site (landfill)	<input type="checkbox"/>	<input checked="" type="checkbox"/>
9	Buildings will require demolition.	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Completed By: Signature Nasima Date 21/3/2012  
 Name NASIMA AKTER Title PROJECT MANAGER

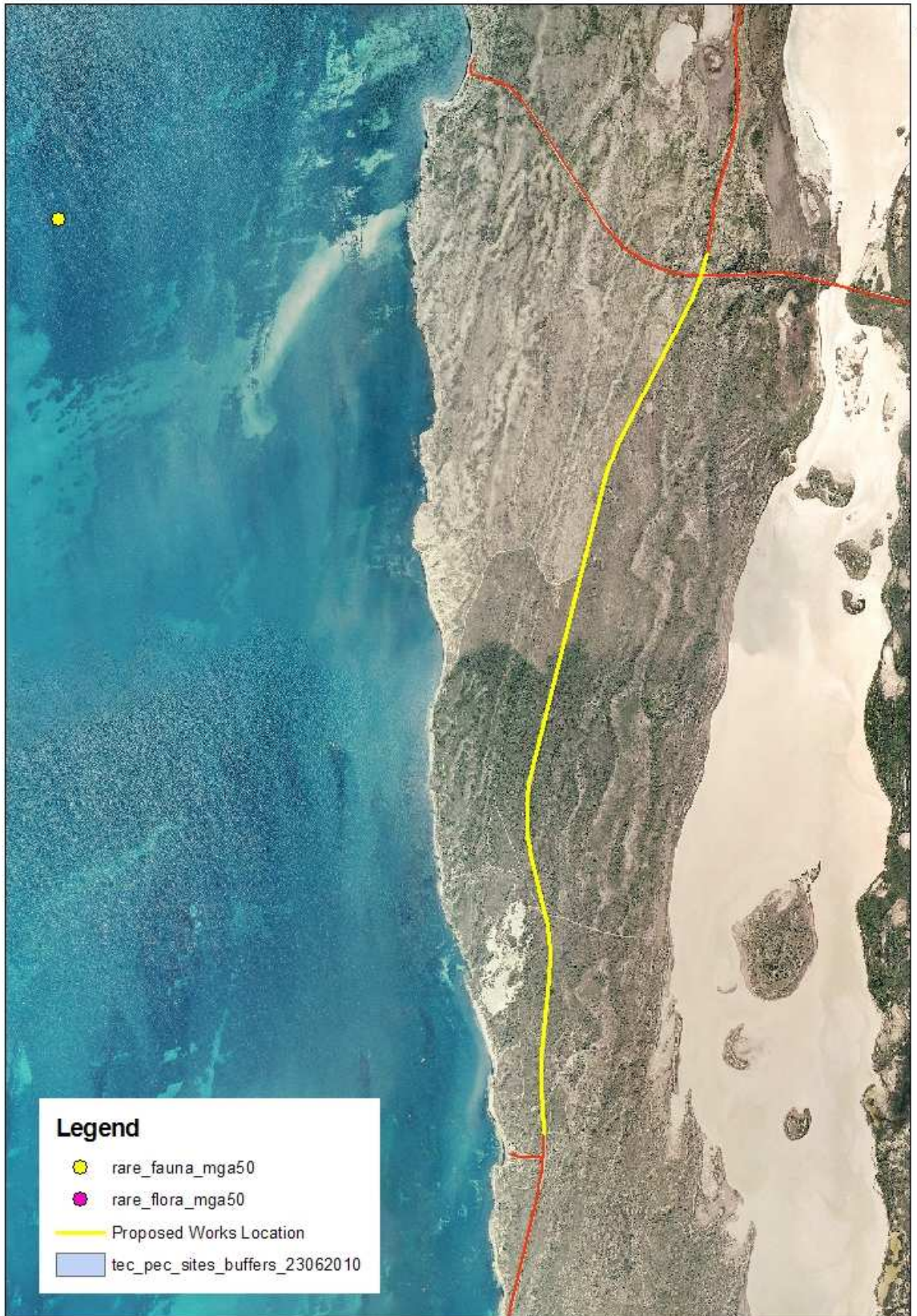
To be reviewed by a Main Roads Environment Officer: Signature Auna Jusmahan Date 21/3/2012  
 Name Auna Jusmahan Title environmental officer

Comments: PEIA Required, Stakeholder letter to be sent to the DEC (21/3/2012)

## Appendix B

### **DEC Threatened Flora and Fauna Database Searches**

# Indian Ocean Drive SLK 214.72 to 220



0 0.25 0.5 1 Kilometers  
[Scale bar with tick marks]

Map by Anna Sutherland 20/03/2012



## Appendix C

### **Australian Heritage Places Inventory, Heritage Council of Western Australia and the Municipal Heritage Inventory Database Searches**

WA Atlas - Microsoft Internet Explorer provided by MRWA . . .

https://www2.landgate.wa.gov.au/bmvf/app/waatlas/

File Edit View Favorites Tools Help

WA Atlas

Home Feeds (3) Print Page Tools

# WA Atlas

Shared Land Information Platform

Home Search Layer Selector

**Layer**

- Coastline
- Metro Central 2006 Mosaic
- Metro North 2006 Mosaic
- Metro South 2006 Mosaic
- Overview Roads (LGATE-052)
- Overview Rivers (LGATE-053)
- Overview Towns (LGATE-054)
- Hydro (Polygon) (LGATE-016) (09-08-2011 09:14:51)
- Cadastre (Address) (LGATE-002)
- Roads (LGATE-012)
- Railway Lines (LGATE-036) (06-10-2010 15:48:10)
- Local Government Authority (LGA) Boundaries (LGATE-006)
- Localities (LGATE-008)
- Points of Interest (LGATE-028)
- Heritage Council WA - Interim Heritage Places (DOP-032)
- Heritage Council WA - Permanent Heritage Places (DOP-034)

Add Layers Information

Zoom in tool. Click and drag a rectangle.

Done Trusted sites 100%

start 2 Microso... HP TRIM - [...] G:\Environ... 738SRevA... Indian Oce... PEIA&EMP ... http://regis... NRM Info - ... SLIP Portal ... WA Atlas - ... 10:47 AM

Source: <https://www2.landgate.wa.gov.au/bmvf/app/waatlas/> (20/03/2012)

Heritage Council of WA - Places Database : Search Results - Microsoft Internet Explorer provided by MRWA . . .

http://register.heritage.wa.gov.au/search\_results.html

Heritage Council of WA - Places Database : Search Re...

Home » Places Database » Search Results

Places Database

Displaying results: [1-5] of 5

hide selected hide unselected

<input type="checkbox"/>	<a href="#">Browse Island (East) Wreck</a> (18601)	Indian Ocean, Derby
<input type="checkbox"/>	<a href="#">Bushbelt - The Maidens Reserve &amp; Tuart Valley</a> (5741)	Ocean Dr bounded by Indian Ocean & Washington Av, Parkdale
<input type="checkbox"/>	<a href="#">Cockburn Sound Anti-Submarine Boom Remnant</a> (17789)	in the Indian Ocean on the land side of Garden Island, Cockburn
<input type="checkbox"/>	<a href="#">Houtman Abrolhos Islands</a> (3387)	Indian Ocean, West of Geraldton, Houtman Abrolhos Islands
<input type="checkbox"/>	<a href="#">YNP Recreation Hall Site</a> (2685)	1 Indian Ocean Drive, Yanchep

hide selected hide unselected

Perform a new: [QUICK PLACES DATABASE SEARCH](#) | [ADVANCED PLACES DATABASE](#)

wa.gov.au

Home | Site Map | Privacy | Disclaimer | Copyright | FAQs | Links | Contact Us | Places Database

Copyright © 2012 All contents copyright Government of Western Australia. All Rights Reserved.  
Last updated: 19/01/2010

Error on page.

start | Internet | 100%

Inbox - Microsoft ... | RE: Indian Ocean ... | HP TRIM - [Offline... | G:\Environment]... | 7385RevA.pdf - A... | Indian Ocean Driv... | PEIA&EMP Indian ... | Heritage Council o... | 10:49 AM

Source: [http://register.heritage.wa.gov.au/search\\_results.html](http://register.heritage.wa.gov.au/search_results.html) (20/03/2012)

Heritage places in Western Australia map - Microsoft Internet Explorer provided by MRWA . . .

http://www.environment.gov.au/heritage/places/wa/index.html

File Edit View Favorites Tools Help

Heritage Council of WA - Plac... Heritage places in Wester... X

Home

About us Contact us

Type keywords here search

You are here: Home > Heritage > Heritage places > Heritage in Western Australia

## Heritage places in WA

Australian heritage places are included on different heritage lists. On this page you can use a map to find places on the World and National heritage lists; or you can search for places on World, National, State & Territory lists.

### Map: World and National heritage places

The map below shows places in WA that are on the World and National heritage lists. If you can't use the interactive map below, see the [list of world and national heritage places in WA](#).

-- Zoom to a Heritage place on the map --

Map Satellite Hybrid

POWERED BY Google

Map data ©2012 Google, Whereis(R), Sensis Pty Ltd - Terms of Use

### Search for heritage in Western Australia

You can use the search below to find places on the World, National, State and Territory heritage lists (via the Australian Heritage Places Inventory) by name, location and list. You can also find shipwrecks and places near a particular location.

places shipwrecks

Search by name of location (insert the AUST...)

Done

start

Inbox - Microsoft ... RE: Indian Ocean ... HP TRIM - [Offline... G:\Environment]... 7385RevA.pdf - A... Indian Ocean Driv... PEIA&EMP Indian ... Heritage places in ... 10:51 AM

Source: <http://www.environment.gov.au/heritage/places/wa/index.html> (20/03/2012)

## Appendix D

### **Department of Indigenous Affairs Database Search**





## Search Criteria

1 sites in a search box. The box is formed by these diagonally opposed corner points:

MGA Zone 50	
Northing	Easting
6685428	305047
6695878	305294



## Disclaimer

Aboriginal sites exist that are not recorded on the Register of Aboriginal Sites, and some registered sites may no longer exist. Consultation with Aboriginal communities is on-going to identify additional sites. The AHA protects all Aboriginal sites in Western Australia whether or not they are registered.

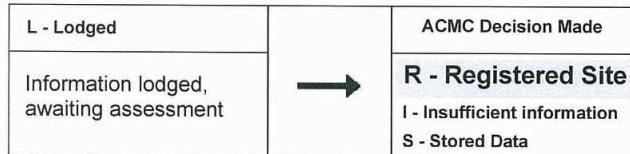
## Copyright

Copyright in the information contained herein is and shall remain the property of the State of Western Australia. All rights reserved. This includes, but is not limited to, information from the Register of Aboriginal Sites established and maintained under the Aboriginal Heritage Act 1972 (AHA).

## Legend

Restriction	Access	Coordinate Accuracy
<b>N</b> No restriction	<b>C</b> Closed	Accuracy is shown as a code in brackets following the site coordinates.
<b>M</b> Male access only	<b>O</b> Open	<b>[Reliable]</b> The spatial information recorded in the site file is deemed to be reliable, due to methods of capture.
<b>F</b> Female access	<b>V</b> Vulnerable	<b>[Unreliable]</b> The spatial information recorded in the site file is deemed to be unreliable due to errors of spatial data capture and/or quality of spatial information reported.

## Status



## Spatial Accuracy

Index coordinates are indicative locations and may not necessarily represent the centre of sites, especially for sites with an access code "closed" or "vulnerable". Map coordinates (Lat/Long) and (Easting/Northing) are based on the GDA 94 datum. The Easting / Northing map grid can be across one or more zones. The zone is indicated for each Easting on the map, i.e. '5000000:Z50' means Easting=5000000, Zone=50.

## Sites Shown on Maps

Site boundaries may not appear on maps at low zoom levels





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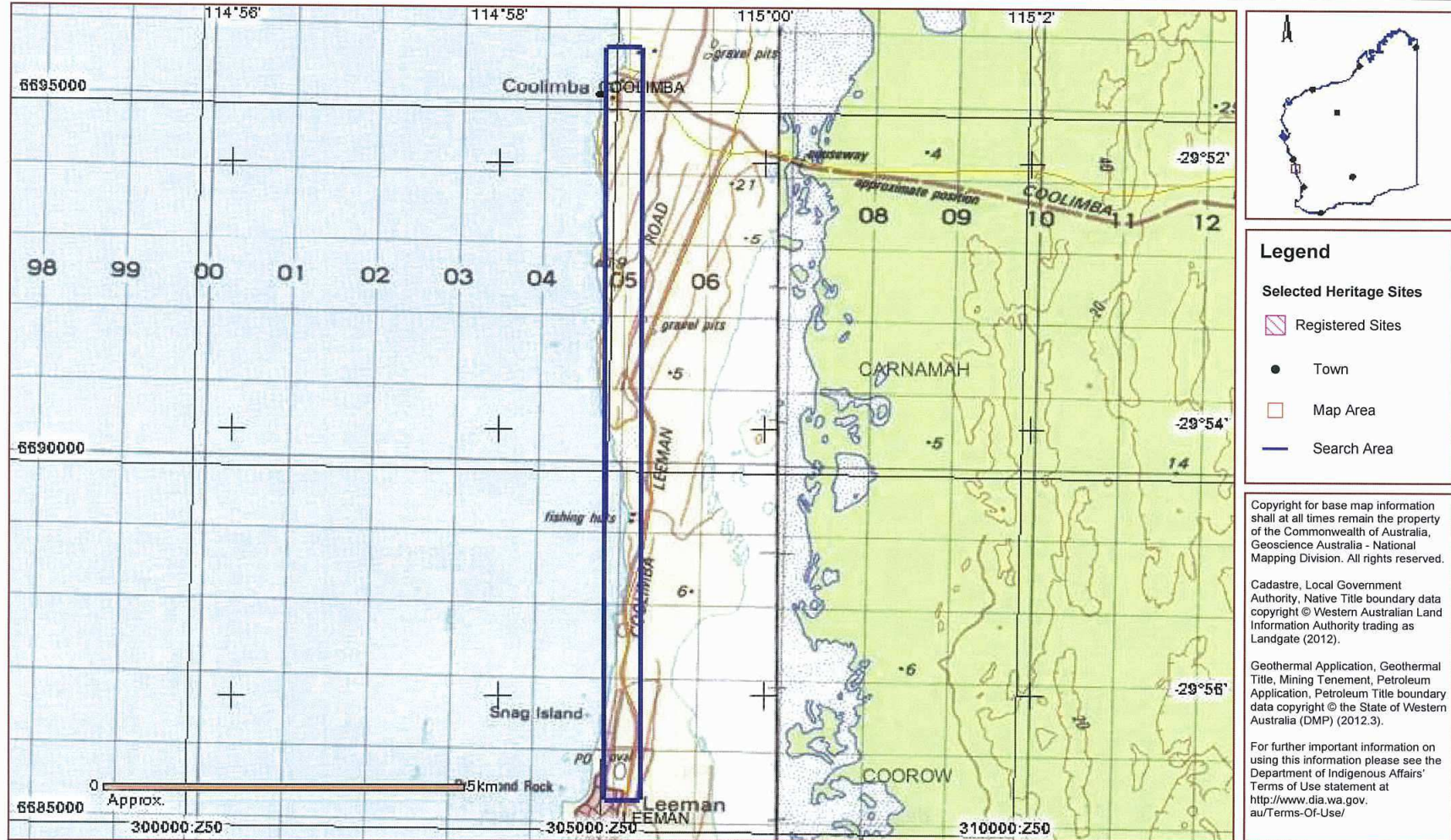
List of Registered Aboriginal Sites with Map

No results



# Aboriginal Heritage Inquiry System

Aboriginal Sites Database





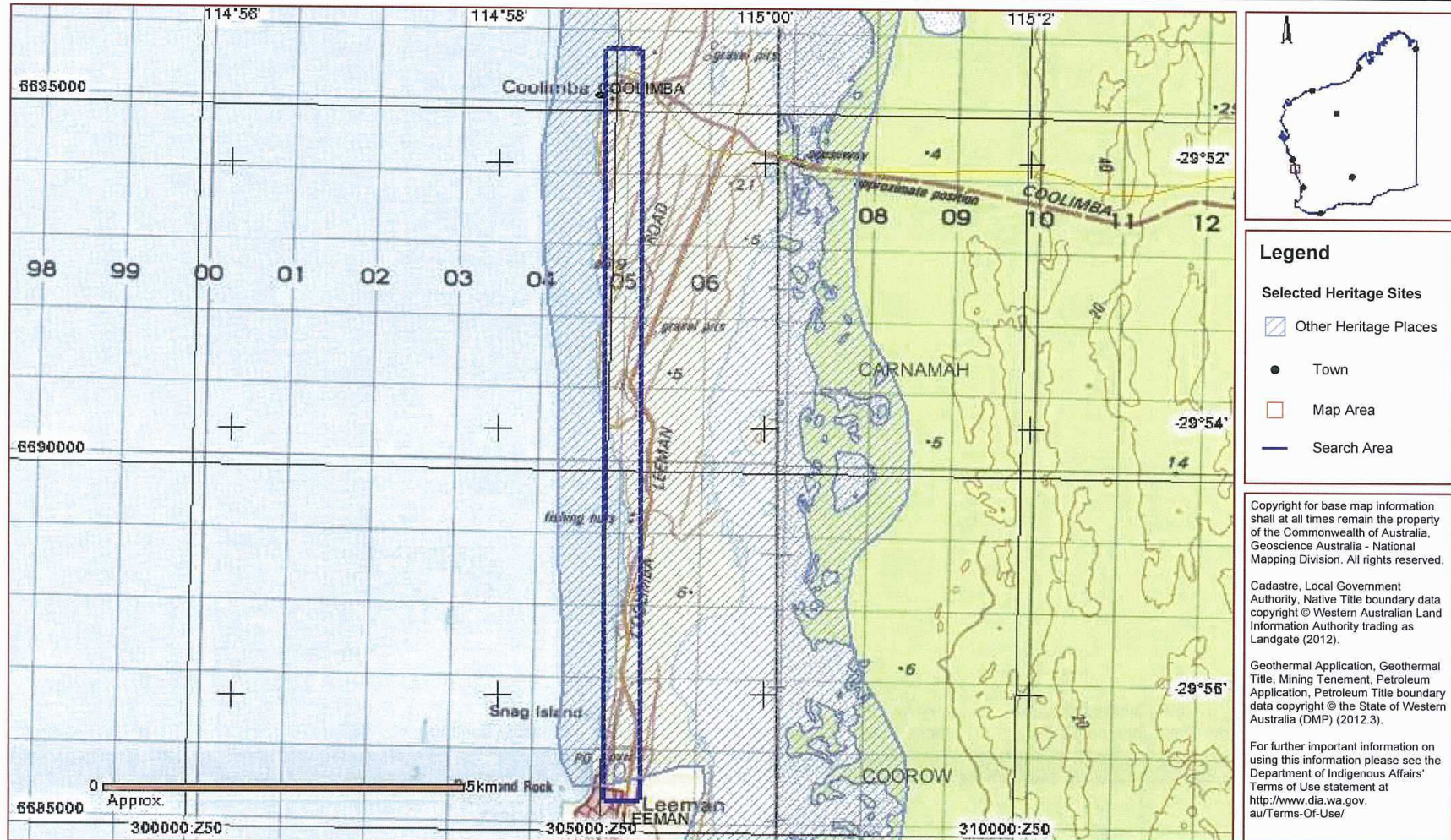
## List of 1 Other Heritage Places with Map

Site ID	Status	Access	Restriction	Site Name	Site Type	Additional Info	Informants	Coordinates	Site No.
15297	S	O	N	Eneabba West.	Ceremonial, Fish Trap	Camp, Water Source, [Other: TRACK]	*Registered Informant names available from DIA.	305214mE 6704425mN Zone 50 [Reliable]	S03045



# Aboriginal Heritage Inquiry System

Aboriginal Sites Database





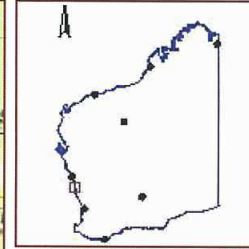
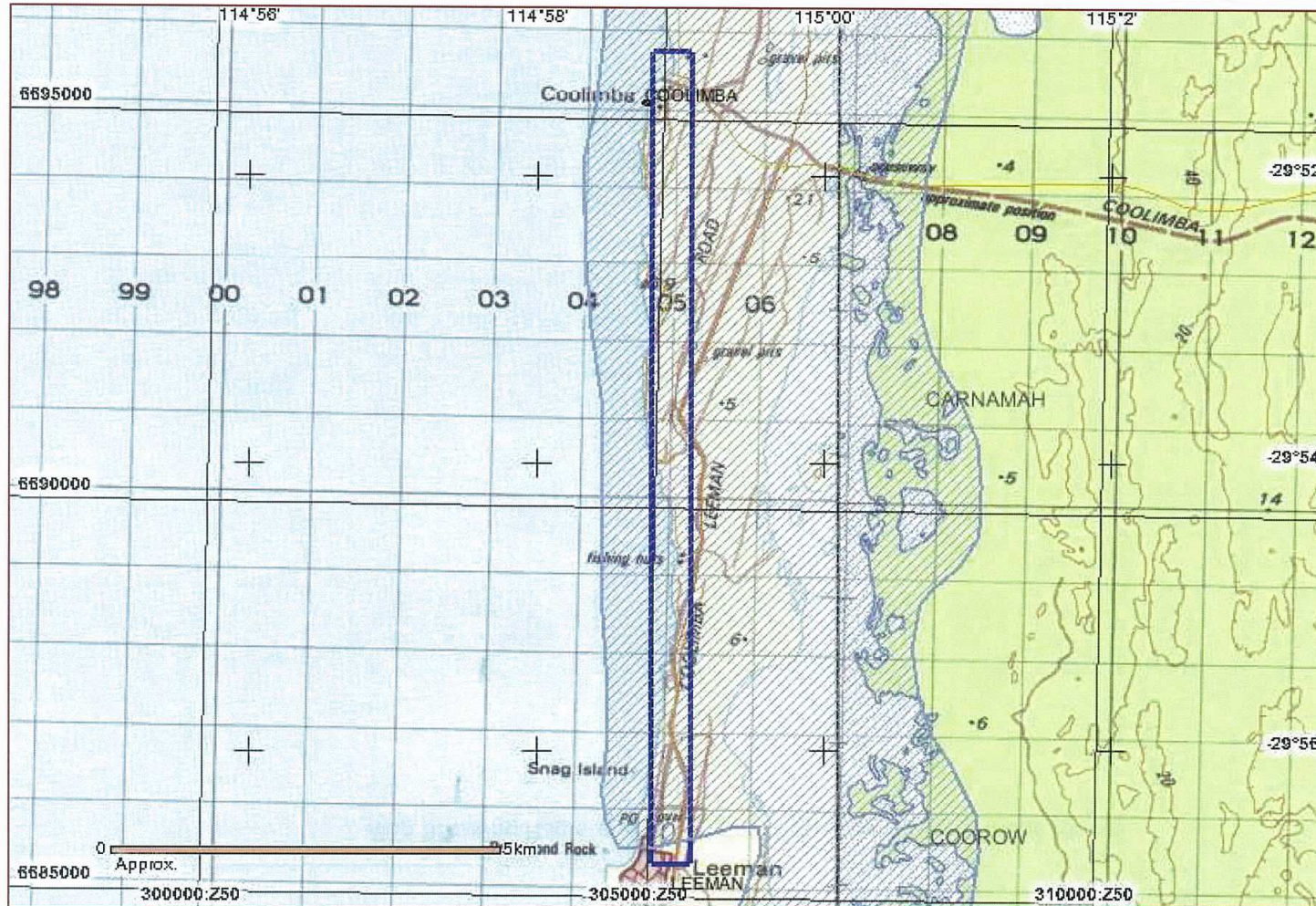
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**Map Showing Registered Aboriginal Sites and Other Heritage Places**



# Aboriginal Heritage Inquiry System

Aboriginal Sites Database



**Legend**

- Selected Heritage Sites
- Registered Sites
- Other Heritage Places
- Town
- Map Area
- Search Area

Copyright for base map information shall at all times remain the property of the Commonwealth of Australia, Geoscience Australia - National Mapping Division. All rights reserved.

Cadastral, Local Government Authority, Native Title boundary data copyright © Western Australian Land Information Authority trading as Landgate (2012).

Geothermal Application, Geothermal Title, Mining Tenement, Petroleum Application, Petroleum Title boundary data copyright © the State of Western Australia (DMP) (2012.3).

For further important information on using this information please see the Department of Indigenous Affairs' Terms of Use statement at <http://www.dia.wa.gov.au/Terms-Of-Use/>

## Appendix E

### **DoW Geographic Data Atlas Database Search**

Department of Water - Geographic Data Atlas - Microsoft Internet Explorer provided by MRWA ...

http://www.water.wa.gov.au/idelve/dowdataext/index.jsp

File Edit View Favorites Tools Help

Department of Water - Geographic Data Atlas

Government of Western Australia  
Department of Water

## Geographic Data Atlas

Welcome Search Download Metadata Map Help

**Welcome**

The Geographic Data Atlas is an interactive web mapping tool that allows you to freely view and download DoW geographic data.

Note that some datasets belong to other government agencies and are provided for viewing purposes only. These are identified in the theme selector by an agency acronym (eg: DLI).

All downloads of geographic data are subject to a standard licence agreement for data transfer. Data downloaded is in ESRI shapefile format with symbology and metadata bundled together in a zip file.

Click [here](#) for a quick introduction to using the Geographic Data Atlas mapping interface.

Click [here](#) to contact us or provide feedback on the site.

0 10km 1:51,799

Zoom in tool. Click and drag a rectangle.

Done

DoW Home | Copyright | Disclaimer

Internet 100%

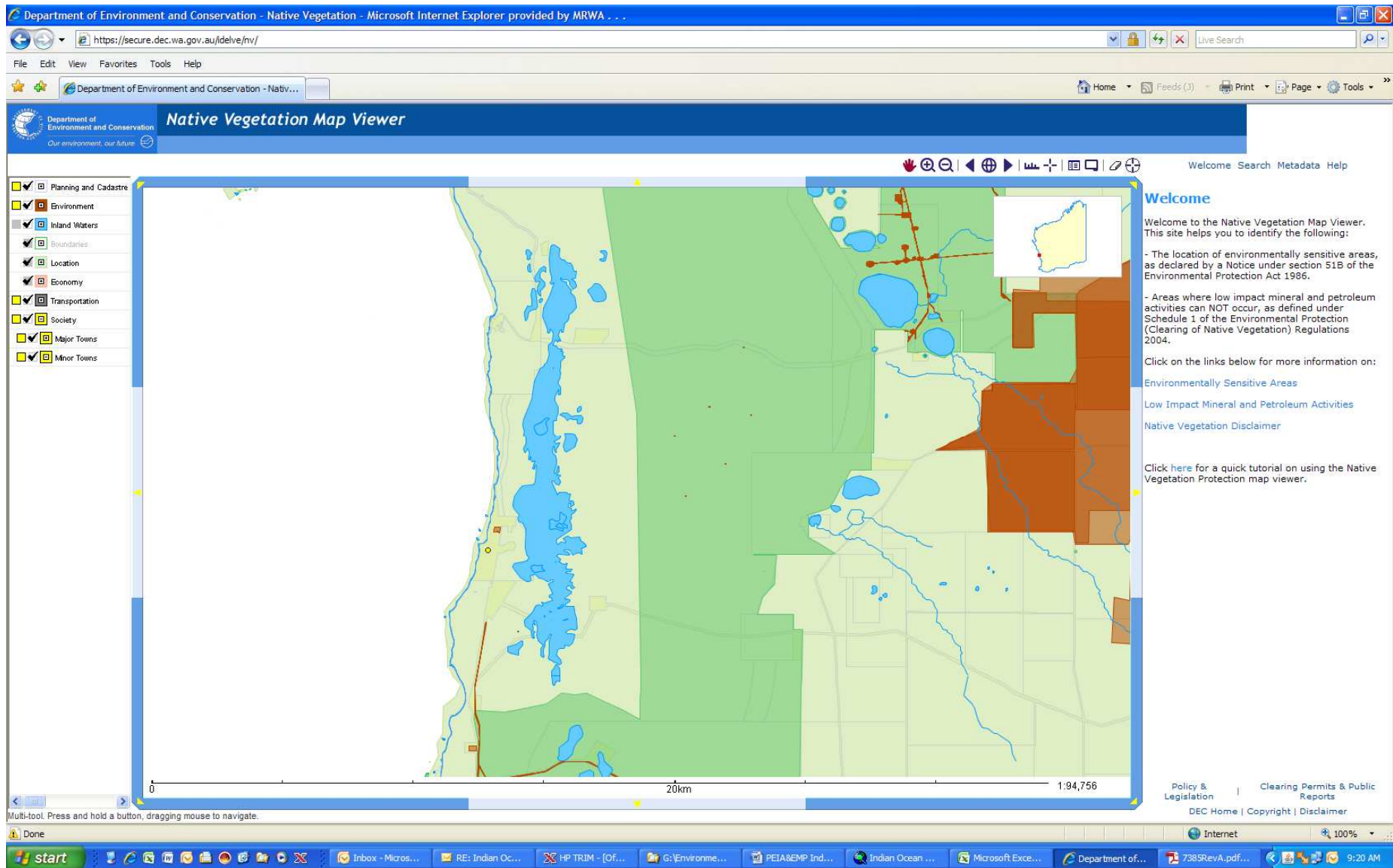
start Deleted Items - Mi... RE: Indian Ocean ... HP TRIM - [Offline... G:\Mike PEIA&EMP Indian ... Department of W... 7389RevA.pdf - A... Indian Ocean Driv... 10:00 AM

Source: <http://www.water.wa.gov.au/idelve/dowdataext/index.jsp> (20/03/2012)



## Appendix F

### **DEC Native Vegetation Map Viewer Database Search**



**Source: <https://secure.dec.wa.gov.au/idelve/nv/> (20/03/2012)**

## Appendix G

### **DSEWPC Database Search**

Protected Matters Search Tool: Interactive Map - Microsoft Internet Explorer provided by MRWA . . .

http://www.environment.gov.au/arcgis-framework/apps/pmst/pmst.jsf

Protected Matters Search Tool

Australian Government  
Department of Sustainability, Environment, Water, Population and Communities

Layers

- Protected Areas
- Ramsar Wetlands
- Nationally Important Wetlands
- Commonwealth Heritage Places
- World Heritage Properties
- National Heritage Places
- Regional Forest Agreements
- Property Boundaries
- Local Government Areas
- Natural Resource Management Regions
- Great Barrier Reef Marine Park
- Commonwealth Marine Reserves
- Commonwealth Marine Area

Search Options

Address Search | Geographic Search | Zoom To Coordinate

Street Line:

Suburb/Town:

State: ACT

Postcode:

Search Clear

PMST Map

Scale - 1:125,000

-29.886, 114.94571

Please feel free to provide feedback via the [Contact Us](#) page.

start | Internet | 100%

Inbox - Microsoft ... | RE: Indian Ocean ... | HP TRIM - [Offline... | G:\Environment]... | 7385RevA.pdf - A... | Indian Ocean Driv... | PEIA&EMP Indian ... | Protected Matters... | 11:03 AM

Source: <http://www.environment.gov.au/arcgis-framework/apps/pmst/pmst.jsf> (20/03/2012)



## EPBC Act Protected Matters Report

This report provides general guidance on matters of national environmental significance and other matters protected by the EPBC Act in the area you have selected.

Information on the coverage of this report and qualifications on data supporting this report are contained in the caveat at the end of the report.

Information about the EPBC Act including significance guidelines, forms and application process details can be found at <http://www.environment.gov.au/epbc/assessmentsapprovals/index.html>

Report created: 20/03/12 14:07:12

### [Summary](#)

### [Details](#)

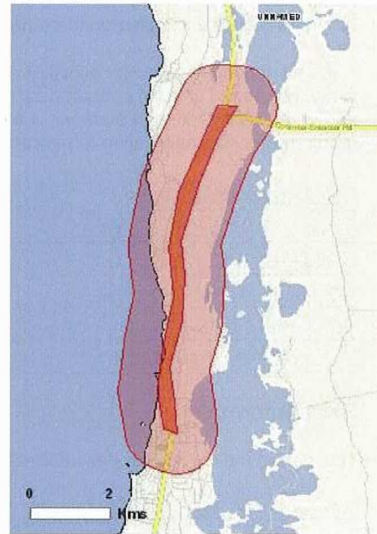
[Matters of NES](#)

[Other Matters Protected by the EPBC Act](#)

[Extra Information](#)

### [Caveat](#)

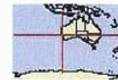
### [Acknowledgements](#)



This map may contain data which are ©Commonwealth of Australia (Geoscience Australia), ©PSMA 2010

[Coordinates](#)

[Buffer: 1.0Km](#)



## Summary

### Matters of National Environment Significance

This part of the report summarises the matters of national environmental significance that may occur in, or may relate to, the area you nominated. Further information is available in the detail part of the report, which can be accessed by scrolling or following the links below. If you are proposing to undertake an activity that may have a significant impact on one or more matters of national environmental significance then you should consider the Administrative Guidelines on Significance - see <http://www.environment.gov.au/epbc/assessmentsapprovals/guidelines/index.html>

<a href="#">World Heritage Properties:</a>	None
<a href="#">National Heritage Places:</a>	1
<a href="#">Wetlands of International</a>	None
<a href="#">Great Barrier Reef Marine Park:</a>	None
<a href="#">Commonwealth Marine Areas:</a>	None
<a href="#">Threatened Ecological Communities:</a>	None
<a href="#">Threatened Species:</a>	16
<a href="#">Migratory Species:</a>	23

## Other Matters Protected by the EPBC Act

This part of the report summarises other matters protected under the Act that may relate to the area you nominated. Approval may be required for a proposed activity that significantly affects the environment on Commonwealth land, when the action is outside the Commonwealth land, or the environment anywhere when the action is taken on Commonwealth land. Approval may also be required for the Commonwealth or Commonwealth agencies proposing to take an action that is likely to have a significant impact on the environment anywhere.

The EPBC Act protects the environment on Commonwealth land, the environment from the actions taken on Commonwealth land, and the environment from actions taken by Commonwealth agencies. As heritage values of a place are part of the 'environment', these aspects of the EPBC Act protect the Commonwealth Heritage values of a Commonwealth Heritage place and the heritage values of a place on the Register of the National Estate. Information on the new heritage laws can be found at <http://www.environment.gov.au/heritage/index.html>

This part of the report summarises other matters protected under the Act that may relate to the area you nominated. Approval may be required for a proposed activity that significantly affects the environment on Commonwealth land, when the action is outside the Commonwealth land, or the environment anywhere when the action is taken on Commonwealth land. Approval may also be required for the Commonwealth or Commonwealth agencies proposing to take an action that is likely to have a significant impact on the environment anywhere.

A permit may be required for activities in or on a Commonwealth area that may affect a member of a listed threatened species or ecological community, a member of a listed migratory species, whales and other cetaceans, or a member of a listed marine species. Information on EPBC Act permit requirements and application forms can be found at <http://www.environment.gov>.

<u>Commonwealth Lands:</u>	None
<u>Commonwealth Heritage Places:</u>	None
<u>Listed Marine Species:</u>	42
<u>Whales and Other Cetaceans:</u>	11
<u>Critical Habitats:</u>	None
<u>Commonwealth Reserves:</u>	None

## Extra Information

This part of the report provides information that may also be relevant to the area you have

<u>Place on the RNE:</u>	1
<u>State and Territory Reserves:</u>	2
<u>Regional Forest Agreements:</u>	None
<u>Invasive Species:</u>	9
<u>Nationally Important Wetlands:</u>	None

## Details

### Matters of National Environmental Significance

National Heritage Properties		[ Resource Information ]
Name	State	Status
Natural		
<a href="#">Beekeepers-Lesueur-Coomallo Area and Nambung National Park</a>	WA	Nominated place
Threatened Species		[ Resource Information ]
Name	Status	Type of Presence
BIRDS		

Name	Status	Type of Presence
<a href="#">Calyptorhynchus latirostris</a> Carnaby's Black-Cockatoo, Short-billed Black-Cockatoo [59523]	Endangered	Species or species habitat likely to occur within area
<a href="#">Leipoa ocellata</a> Malleefowl [934]	Vulnerable	Species or species habitat may occur within area
<a href="#">Macronectes giganteus</a> Southern Giant-Petrel [1060]	Endangered	Species or species habitat may occur within area
<a href="#">Macronectes halli</a> Northern Giant-Petrel [1061]	Vulnerable	Species or species habitat may occur within area
<a href="#">Thalassarche cauta_cauta</a> Shy Albatross, Tasmanian Shy Albatross [82345]	Vulnerable	Species or species habitat may occur within area
<b>MAMMALS</b>		
<a href="#">Eubalaena australis</a> Southern Right Whale [40]	Endangered	Species or species habitat likely to occur within area
<a href="#">Megaptera novaeangliae</a> Humpback Whale [38]	Vulnerable	Species or species habitat known to occur within area
<a href="#">Neophoca cinerea</a> Australian Sea-lion [22]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area
<b>PLANTS</b>		
<a href="#">Centrolepis caespitosa</a> [6393]	Endangered	Species or species habitat may occur within area
<a href="#">Isopogon uncinatus</a> Hook-leaf Isopogon [20871]	Endangered	Species or species habitat may occur within area
<b>REPTILES</b>		
<a href="#">Caretta caretta</a> Loggerhead Turtle [1763]	Endangered	Species or species habitat likely to occur within area
<a href="#">Chelonia mydas</a> Green Turtle [1765]	Vulnerable	Species or species habitat likely to occur within area
<a href="#">Dermochelys coriacea</a> Leatherback Turtle, Leathery Turtle, Luth [1768]	Endangered	Species or species habitat likely to occur within area
<b>SHARKS</b>		
<a href="#">Carcharias taurus (west coast population)</a> Grey Nurse Shark (west coast population) [68752]	Vulnerable	Species or species habitat may occur within area
<a href="#">Carcharodon carcharias</a> Great White Shark [64470]	Vulnerable	Species or species habitat likely to occur within area
<a href="#">Rhincodon typus</a> Whale Shark [66680]	Vulnerable	Species or species habitat may occur within area
Migratory Species		[ Resource Information ]
* Species is listed under a different scientific name on the EPBC Act - Threatened Species list.		
Name	Threatened	Type of Presence

Name	Threatened	Type of Presence
<b>Migratory Marine Birds</b>		
<a href="#">Apus pacificus</a> Fork-tailed Swift [678]		Species or species habitat may occur within area
<a href="#">Ardea alba</a> Great Egret, White Egret [59541]		Species or species habitat may occur within area
<a href="#">Ardea ibis</a> Cattle Egret [59542]		Species or species habitat may occur within area
<a href="#">Macronectes giganteus</a> Southern Giant-Petrel [1060]	Endangered	Species or species habitat may occur within area
<a href="#">Macronectes halli</a> Northern Giant-Petrel [1061]	Vulnerable	Species or species habitat may occur within area
<a href="#">Sterna caspia</a> Caspian Tern [59467]		Foraging, feeding or related behaviour known to occur within area
<a href="#">Thalassarche cauta (sensu stricto)</a> Shy Albatross, Tasmanian Shy Albatross [64697]	Vulnerable*	Species or species habitat may occur within area
<b>Migratory Marine Species</b>		
<a href="#">Balaenoptera edeni</a> Bryde's Whale [35]		Species or species habitat may occur within area
<a href="#">Carcharodon carcharias</a> Great White Shark [64470]	Vulnerable	Species or species habitat likely to occur within area
<a href="#">Caretta caretta</a> Loggerhead Turtle [1763]	Endangered	Species or species habitat likely to occur within area
<a href="#">Chelonia mydas</a> Green Turtle [1765]	Vulnerable	Species or species habitat likely to occur within area
<a href="#">Dermochelys coriacea</a> Leatherback Turtle, Leathery Turtle, Luth [1768]	Endangered	Species or species habitat likely to occur within area
<a href="#">Eubalaena australis</a> Southern Right Whale [40]	Endangered	Species or species habitat likely to occur within area
<a href="#">Lagenorhynchus obscurus</a> Dusky Dolphin [43]		Species or species habitat may occur within area
<a href="#">Lamna nasus</a> Porbeagle, Mackerel Shark [83288]		Species or species habitat may occur within area
<a href="#">Megaptera novaeangliae</a> Humpback Whale [38]	Vulnerable	Species or species habitat known to occur within area
<a href="#">Orcinus orca</a> Killer Whale, Orca [46]		Species or species habitat may occur within area
<a href="#">Rhincodon typus</a> Whale Shark [66680]	Vulnerable	Species or species habitat may occur within



Name	Threatened	Type of Presence area
<b>Migratory Terrestrial Species</b>		
<a href="#">Haliaeetus leucogaster</a> White-bellied Sea-Eagle [943]		Species or species habitat likely to occur within area
<a href="#">Leipoa ocellata</a> Malleefowl [934]	Vulnerable	Species or species habitat may occur within area
<a href="#">Merops ornatus</a> Rainbow Bee-eater [670]		Species or species habitat may occur within area
<b>Migratory Wetlands Species</b>		
<a href="#">Ardea alba</a> Great Egret, White Egret [59541]		Species or species habitat may occur within area
<a href="#">Ardea ibis</a> Cattle Egret [59542]		Species or species habitat may occur within area

#### Other Matters Protected by the EPBC Act

Listed Marine Species	[ Resource Information ]	
* Species is listed under a different scientific name on the EPBC Act - Threatened Species list.		
Name	Threatened	Type of Presence
<b>Birds</b>		
<a href="#">Apus pacificus</a> Fork-tailed Swift [678]		Species or species habitat may occur within area
<a href="#">Ardea alba</a> Great Egret, White Egret [59541]		Species or species habitat may occur within area
<a href="#">Ardea ibis</a> Cattle Egret [59542]		Species or species habitat may occur within area
<a href="#">Haliaeetus leucogaster</a> White-bellied Sea-Eagle [943]		Species or species habitat likely to occur within area
<a href="#">Larus novaehollandiae</a> Silver Gull [810]		Breeding known to occur within area
<a href="#">Larus pacificus</a> Pacific Gull [811]		Foraging, feeding or related behaviour known to occur within area
<a href="#">Macronectes giganteus</a> Southern Giant-Petrel [1060]	Endangered	Species or species habitat may occur within area
<a href="#">Macronectes halli</a> Northern Giant-Petrel [1061]	Vulnerable	Species or species habitat may occur within area
<a href="#">Merops ornatus</a> Rainbow Bee-eater [670]		Species or species habitat may occur within area
<a href="#">Pandion haliaetus</a> Osprey [952]		Breeding known to occur within area

Name	Threatened	Type of Presence
<a href="#">Puffinus assimilis</a> Little Shearwater [59363]		Foraging, feeding or related behaviour known to occur within area
<a href="#">Sterna caspia</a> Caspian Tern [59467]		Foraging, feeding or related behaviour known to occur within area
<a href="#">Sterna dougallii</a> Roseate Tern [817]		Foraging, feeding or related behaviour likely to occur within area
<a href="#">Thalassarche cauta (sensu stricto)</a> Shy Albatross, Tasmanian Shy Albatross [64697]	Vulnerable*	Species or species habitat may occur within area
<b>Fish</b>		
<a href="#">Acentronura australe</a> Southern Pygmy Pipehorse [66185]		Species or species habitat may occur within area
<a href="#">Campichthys galei</a> Gale's Pipefish [66191]		Species or species habitat may occur within area
<a href="#">Choeroichthys suillus</a> Pig-snouted Pipefish [66198]		Species or species habitat may occur within area
<a href="#">Halicampus brocki</a> Brock's Pipefish [66219]		Species or species habitat may occur within area
<a href="#">Hippocampus angustus</a> Western Spiny Seahorse, Narrow-bellied Seahorse [66234]		Species or species habitat may occur within area
<a href="#">Hippocampus breviceps</a> Short-head Seahorse, Short-snouted Seahorse [66235]		Species or species habitat may occur within area
<a href="#">Hippocampus subelongatus</a> West Australian Seahorse [66722]		Species or species habitat may occur within area
<a href="#">Lissocampus fatiloquus</a> Prophet's Pipefish [66250]		Species or species habitat may occur within area
<a href="#">Maroubra perserrata</a> Sawtooth Pipefish [66252]		Species or species habitat may occur within area
<a href="#">Mitotichthys meraculus</a> Western Crested Pipefish [66259]		Species or species habitat may occur within area
<a href="#">Nannocampus subosseus</a> Bonyhead Pipefish, Bony-headed Pipefish [66264]		Species or species habitat may occur within area
<a href="#">Phycodurus eques</a> Leafy Seadragon [66267]		Species or species habitat may occur within area
<a href="#">Phyllopteryx taeniolatus</a> Common Seadragon, Weedy Seadragon [66268]		Species or species habitat may occur within area
<a href="#">Pugnaso curtirostris</a> Pugnose Pipefish, Pug-nosed Pipefish [66269]		Species or species habitat may occur within area

Name	Threatened	Type of Presence
<a href="#">Solegnathus lettiensis</a> Gunther's Pipehorse, Indonesian Pipefish [66273]		Species or species habitat may occur within area
<a href="#">Stigmatopora argus</a> Spotted Pipefish, Gulf Pipefish [66276]		Species or species habitat may occur within area
<a href="#">Stigmatopora nigra</a> Widebody Pipefish, Wide-bodied Pipefish, Black Pipefish [66277]		Species or species habitat may occur within area
<a href="#">Syngnathoides biaculeatus</a> Double-end Pipehorse, Double-ended Pipehorse, Alligator Pipefish [66279]		Species or species habitat may occur within area
<a href="#">Urocampus carinirostris</a> Hairy Pipefish [66282]		Species or species habitat may occur within area
<a href="#">Vanacampus margaritifer</a> Mother-of-pearl Pipefish [66283]		Species or species habitat may occur within area
<b>Mammals</b>		
<a href="#">Arctocephalus forsteri</a> New Zealand Fur-seal [20]		Species or species habitat may occur within area
<a href="#">Neophoca cinerea</a> Australian Sea-lion [22]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area
<b>Reptiles</b>		
<a href="#">Aipysurus pooleorum</a> Shark Bay Seasnake [66061]		Species or species habitat may occur within area
<a href="#">Caretta caretta</a> Loggerhead Turtle [1763]	Endangered	Species or species habitat likely to occur within area
<a href="#">Chelonia mydas</a> Green Turtle [1765]	Vulnerable	Species or species habitat likely to occur within area
<a href="#">Dermochelys coriacea</a> Leatherback Turtle, Leathery Turtle, Luth [1768]	Endangered	Species or species habitat likely to occur within area
<a href="#">Disteira kingii</a> Spectacled Seasnake [1123]		Species or species habitat may occur within area
<a href="#">Pelamis platurus</a> Yellow-bellied Seasnake [1091]		Species or species habitat may occur within area
<b>Whales and other Cetaceans</b>		
		[ Resource Information ]
Name	Status	Type of Presence
<b>Mammals</b>		
<a href="#">Balaenoptera acutorostrata</a> Minke Whale [33]		Species or species habitat may occur within area
<a href="#">Balaenoptera edeni</a> Bryde's Whale [35]		Species or species habitat may occur within area
<a href="#">Delphinus delphis</a> Common Dolphin, Short-beaked Common Dolphin [60]		Species or species habitat may occur within area

Name	Status	Type of Presence area
<a href="#">Eubalaena australis</a> Southern Right Whale [40]	Endangered	Species or species habitat likely to occur within area
<a href="#">Grampus griseus</a> Risso's Dolphin, Grampus [64]		Species or species habitat may occur within area
<a href="#">Lagenorhynchus obscurus</a> Dusky Dolphin [43]		Species or species habitat may occur within area
<a href="#">Megaptera novaeangliae</a> Humpback Whale [38]	Vulnerable	Species or species habitat known to occur within area
<a href="#">Orcinus orca</a> Killer Whale, Orca [46]		Species or species habitat may occur within area
<a href="#">Stenella attenuata</a> Spotted Dolphin, Pantropical Spotted Dolphin [51]		Species or species habitat may occur within area
<a href="#">Tursiops aduncus</a> Indian Ocean Bottlenose Dolphin, Spotted Bottlenose Dolphin [68418]		Species or species habitat likely to occur within area
<a href="#">Tursiops truncatus s. str.</a> Bottlenose Dolphin [68417]		Species or species habitat may occur within area

#### Extra Information

##### Places on the RNE [ [Resource Information](#) ]

Note that not all Indigenous sites may be listed.

Name	State	Status
<b>Natural</b>		
<a href="#">Moore River to Murchison River Area</a>	WA	Indicative Place

##### State and Territory Reserves [ [Resource Information](#) ]

Name	State
Beekeepers	WA
Lipfert, Milligan, Etc Islands	WA

##### Invasive Species [ [Resource Information](#) ]

Weeds reported here are the 20 species of national significance (WoNS), along with other introduced plants that are considered by the States and Territories to pose a particularly significant threat to biodiversity. The following feral animals are reported: Goat, Red Fox, Cat, Rabbit, Pig, Water Buffalo and Cane Toad. Maps from Landscape Health Project, National Land and Water Resources Audit,

Name	Status	Type of Presence
<b>Mammals</b>		
<a href="#">Capra hircus</a> Goat [2]		Species or species habitat likely to occur within area
<a href="#">Felis catus</a> Cat, House Cat, Domestic Cat [19]		Species or species habitat likely to occur within area
<a href="#">Oryctolagus cuniculus</a> Rabbit, European Rabbit [128]		Species or species

## Appendix H

### **GHD advice on Declared Weeds (Spring 2010 – areas to the North and South of proposed project)**

### **Weed and Introduced Species**

A total of 25 introduced and/or planted flora species were recorded within the project area. Eight of these species belonged to the Poaceae family (grasses). Weeds were present throughout much of the project area, particularly towards the coast. The most widespread species recorded included

- \**Avena barbata* (Bearded Oat),
- \**Bromus diandrus* (Brome Grass),
- \**Lolium rigidum* (Wimmera Ryegrass),
- \**Lysimachia arvensis* var. *caerulea* (Pimpernel); and
- \**Brassica tournefortii* (Mediterranean Turnip).

These species were more prevalent in disturbed areas, particularly along roads and tracks, the former farm paddocks and other previously cleared areas.

### **Weeds of National Significance**

Within the project area, one species is recognised as having status as a Weed of National Significance (WONS):

- \**Tamarix aphylla* (Athel Pine).

*Tamarix aphylla* has the potential to form dense monocultures in riverine areas, displacing native vegetation and reducing valuable wildlife habitat (Australian Government, 2008). It occurs as a weedy tree within the project area, growing adjacent to the Freshwater Point refuelling facility.

## Appendix I

### **GHD Advice on Dieback**

*Phytophthora cinnamomi* (“Dieback”) disease is generally restricted to the south west of the State, in areas receiving an average annual rainfall of greater than 400 mm (Dieback Consultative Council, 2001).

Indigenous species most affected by *Phytophthora cinnamomi* belong to four families: Proteaceae, Epacridaceae, Papilionaceae, and Myrtaceae. Not all genera within a family or all species within a genus are necessarily susceptible.

Since the vegetation associations identified by Beard (1976) are known to have a large percentage of species from the Proteaceae and Myrtaceae families, and the Eneabba area receives a mean annual rainfall of 498 mm (Bureau of Meteorology, 2010), the location of the project area may be considered to be susceptible to the impact of the *Phytophthora cinnamomi* pathogen.

No evidence of Dieback was observed within the project area.



## Appendix J

### **DEC Contaminated Sites Database Search**

Department of Environment and Conservation - Contaminated Sites Database - Microsoft Internet Explorer provided by MRWA ...

https://secure.dec.wa.gov.au/idelve/css/

Department of Environment and Conservation  
Our environment, our future

### Contaminated Sites Database

Coastline  
Boundaries  
Contaminated Sites  
Transportation  
State Roads  
Roads major  
Roads local  
Society  
Major Towns  
Minor Towns

New Search Find Suburb/Town Metadata Map Help

#### Search for Known Contaminated Sites

Search Criteria [Switch to Advanced Search](#)

Street/Lot No.:

Street Name:

Suburb/Town:

Title (Volume/Folio):

Crown Land Reserve No.:

Please enter *at least one* of the following:  
Street Name, Suburb/Town, Title or Crown Land Reserve Number.

0 10km 1:55,568

Zoom in tool. Click and drag a rectangle.

Done

Disclaimer

Internet 100%

start

Inbox - Microsoft ... RE: Indian Ocean ... HP TRIM - [Offline... G:\Mike PEIA&EMP Indian ... 7385RevA.pdf - A... Indian Ocean Driv... Department of En... 10:10 AM

**Source: <https://secure.dec.wa.gov.au/idelve/css/> (20/03/2012)**

## Appendix K

### **Acid Sulfate Soils Mapping**

A S R I S - Maps - Microsoft Internet Explorer provided by MRWA . . .  
 http://www.asris.csiro.au/mapping/viewer.htm

# ASRIS

Australian Soil Resource Information System

Home About **Maps** Methods Themes Help Collaborators Contacts

Maps - Identify

Layers Legend

- Locations
- Roads (1:250K)
  - Highway
  - Other Roads
- Streams
  - Major
  - Minor
- Builtup Areas
- Inland Water Bodies
- ASS Reference Sites
  - National ASS Atlas
  - A1 High Probability/High Confidence
  - A2 High Probability/Moderate Confidence
  - A3 High Probability/Low Confidence
  - A4 High Probability/Very Low Confidence
  - B1 Low Probability/High Confidence
  - B2 Low Probability/Moderate Confidence
  - B3 Low Probability/Low Confidence
  - B4 Low Probability/Very Low Confidence
  - C1 Extremely Low Probability/High Confidence
  - C2 Extremely Low Probability/Moderate Confidence
  - C3 Extremely Low Probability/Low Confidence
  - C4 Extremely Low Probability/Very Low Confidence
  - Base-Map

Data delivered by CSIRO Land and Water

National ASS Atlas, 1 feature found

Rec	Acid Sulfate Soil Class	Acid Sulfate Soil Probability	Confidence	Scale of source map
1	C <sub>4</sub> (p4)	Extremely Low Probability of Occurrence	4	1:2M

Base-Map, 1 feature found

Rec	Feature Type

GDA94 Longitude: 115.0846 Latitude: -29.9341 Bookmark: select Approx Scale: 1: 70,754

start | Internet | 100% | 9:35 AM

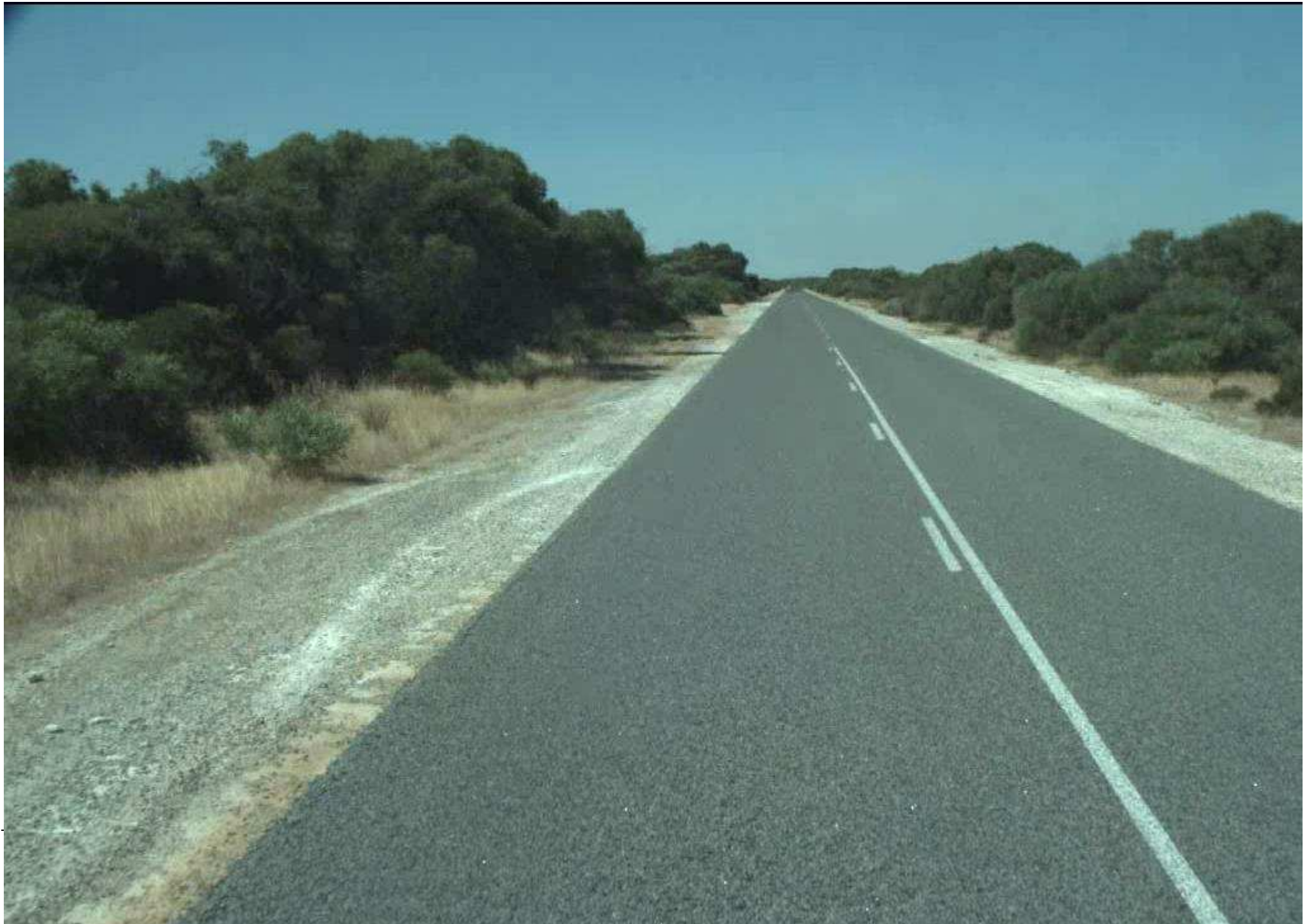
Source: <http://www.asris.csiro.au/mapping/viewer.htm> (21/03/2012)

## Appendix L

### **Site Photos**













Some Embankment Hiding  
Recently Here For Shoulder & Drain Formation  
(Approx 3 Locations For This Work)

To see all the details that are visible on the screen, use the Print link next to the map.



Feederstone Hide Enough  
Here For Verge & Drain  
(TYPICAL THROUGH JOB LENGTH)

## Appendix M

# Environmental Management Plan

## ENVIRONMENTAL MANAGEMENT PLAN

### INDIAN OCEAN DRIVE WIDENING SLK 214.72 TO 220

#### Introduction

This Environmental Management Plan (EMP) has been developed for the project area following the completion of the Preliminary Environmental Impact Assessment (PEIA) report. The aim of this EMP is to minimise the environmental impacts associated with the proposed works as well as to identify areas of responsibilities required for the implementation of management strategies.

This EMP addresses specific issues that were identified during the PEIA. The project management measures identified within this EMP are in addition to the standard environmental management contract specifications used for Category 2 projects. Main Roads' standard environmental contract specifications (Specifications 203, 204, 301, 302 and 304) are to be adhered to where appropriate.

The areas that require special management will be addressed in terms of:

- the timing of the various management actions;
- the topic (e.g. vegetation);
- the objectives for each area;
- the actions that are necessary to minimise the impact;
- the responsible party for implementing the action; and
- whether the action arose from external advice or is a Main Roads requirement.

#### Communication Plan

Environmental issues specific to the project will be communicated as follows:

Method	Frequency	Participants	Reference	Record
<b>Project Site</b>				
Induction	Prior to Work	All personnel and subcontractors	EMP and Contractor Environmental Policy	Induction Meeting
Toolbox Meetings	Weekly	Project Personnel	Contractor Safety Plan	Minutes of Meeting
Contract Meetings	Weekly	Main Roads' Project Manager and Contractor Project Manager	EMP	Minutes of Meeting
<b>Authority Consultation</b>				
Department of Environment and Conservation	As required	Main Roads' Project Manager and Contractor Project Manager	-	Minutes of meeting

#### External Communication and Complaints

A complaints register shall be maintained by the contractor. All complaints received shall be forwarded to the Main Roads' Project Manager for action. Serious complaints shall be investigated within 24 hours of the complaint being received.

## **Monitoring**

After project completion and project handover, the Asset manager should develop a monitoring program to monitor for those aspects that have been identified as requiring monitoring.

## **Contingency Measures**

Due to the scale and nature of the project, no contingency measures are identified as the inherent environmental risks are small.

## **Auditing**

Due to the scale and nature of the project, there is no requirement for auditing the implementation of the EMP as the environmental risks are small.

ENVIRONMENTAL MANAGEMENT PLAN					
Timing	Topic	Objective	Action	Responsible Party	Advice
All phases of Construction	Vegetation Clearing - Record-keeping	All projects should maintain the required records relating to clearing native vegetation under the purpose permit.	Clearing: <ul style="list-style-type: none"> <li>a copy of the PEIA &amp; EMP (Minor projects) for small projects;</li> <li>a map showing the location where the clearing occurred, recorded in an ESRI Shapefile</li> <li>the size of the area cleared (in hectares); and</li> <li>the dates on which the clearing was done.</li> </ul>	Project Manager	DEC
Pre - Construction	Visual Amenity	Ensure that road blends into environment.	Develop design documentation to meet project requirements as identified in the visual impact assessment.	Project Manager	Main Roads
Pre-Construction	Vegetation Clearing	Ensure that the overall objectives of the alignment and construction works are compatible with maintaining and, where possible, enhancing the biological integrity of the surrounding environment and minimising vegetation loss and degradation; and Ensure the retention of as many habitat trees, shrubs and vegetated corridors for fauna as possible, particularly where associated with riparian zones.	Selection of designs/locations that minimise adverse impacts on the biological environment.	Project Manager	Main Roads
			Construction works to be undertaken in summer to reduce the potential for soil erosion and drainage line siltation due to vegetation removal and heavy rains.	Project Manager	Main Roads
			Control/spray weeds species within the project area prior to construction to limit the amount of propagative material that may be spread during disturbance.	Contractor	Main Roads
			Any stockpiled vegetation from clearing works shall not be burnt. This vegetation shall be used during any rehabilitation works and either mulched or respread according to the TDP/Revegetation Plan.	Contractor	Main Roads
Pre - Construction	Vegetation Clearing - CPS 818/4 management requirements	Compliance with management conditions of purpose permit.	If clearing is pursuant to Main Purpose Permit (CPS818) ensure compliance with Section 14 of the permit relating to Dieback, other pathogen and weed control.	Contractor/Project Manager	DEC
Pre-Construction	Surface Drainage	Maintain the hydrological regime that exists prior to the construction of the proposal.	Stormwater drainage shall be treated and disposed of in accordance with DEC requirements.	Project Manager	DEC
Construction	Noise, Vibration and Dust	Ensure that the construction of the proposal does not become a nuisance to the public.	Access to private property and appropriate traffic management measures should be planned and implemented prior to the construction of works.	Contractor	Main Roads
			Pedestrian public access should be should be planned and implemented prior to the construction of works.	Contractor	Main Roads
			Any complaints regarding dust will be attended to as soon as possible.	Contractor/Project Manager	Main Roads
			Where it is found that trucks leaving the site are carrying excessive material onto sealed surfaces, these areas will be swept to reduce dust generation and maintain traffic safety.	Contractor	Main Roads

ENVIRONMENTAL MANAGEMENT PLAN					
Timing	Topic	Objective	Action	Responsible Party	Advice
			Watering, the use of hydromulch or other forms of mulching to protect loose surfaces shall be used as mitigation measures.	Contractor	Main Roads
Construction	Pollution and Litter	Ensure that the construction of the proposal is managed to a standard that minimises any adverse impacts on the environment.	The designated servicing area will be bunded to contain any spills or leaks and shall not be located in an area adjacent to any drainage areas or watercourses or will drain into a temporary sump.	Contractor	Main Roads
			Temporary storage of bitumen, asphalt, concrete or aggregate should only occur at designated depots or controlled hardstands. Precoating of aggregate will only occur in approved areas.	Contractor	Main Roads
			Emergency cleanup procedures shall be implemented in the case of any spillage. These will include control of spilled material and removal of contaminated soil to an approved site. The contractor shall ensure appropriate equipment is available at all times and shall notify the Superintendent's Representative of a spill.	Contractor	Main Roads
			All waste oil will be collected for recycling and any empty fuel/oil containers, used filters and waste hydraulic parts to be collected and stored in an allocated area then removed to an approved site.	Contractor	Main Roads
			The project areas, including hardstand areas, will be kept in a tidy manner at all times.	Contractor	Main Roads
Construction	Fire	Ensure that the fire risk associated with the construction of the proposal is minimised.	No fires shall be lit within the project area.	Contractor	Main Roads
			Machinery will be fitted with approved spark arresting mufflers.	Contractor	Main Roads
			A water tanker/fire fighter unit will be on site at all times.	Contractor	Main Roads
Construction	Fauna	Avoid unnecessary impacts to fauna and damage to fauna habitat.	Fauna are not to be fed or intentionally harmed.	Contractor	Main Roads
			No pets or firearms permitted on site.	Contractor	Main Roads
			The WILDCARE Helpline is to be contacted, 9474 9055, in the event of sick, injured or orphaned native wildlife on the site.	Contractor	Main Roads
Construction	Site Management	Ensure that the site is managed to ensure that construction of the proposal will have minimal impact upon the surrounding environment.	Site office and materials storage areas will be located on previously disturbed/ designated area.	Contractor	Main Roads
Construction	Rehabilitation	Rehabilitate the project area to meet project commitments.	Implement the contract specifications for rehabilitation of the site.	Contractor	Main Roads
			All waste materials from the development are to be completely removed from the site upon completion of the project. Final clean-up shall be to the satisfaction of the Project Manager and the Site Superintendent.	Contractor	Main Roads





Government of **Western Australia**  
Department of **Environment and Conservation**

Your ref: 07/5508-03  
Our ref: CPS 818/6  
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Mr Tim Glenister  
Regional Manager  
Midwest Region  
Main Roads Western Australia  
PO Box 165  
GERALDTON WA 6531

Attn: Anna Sutherland



Dear Mr Glenister

**CPS 818/6 – SUBMISSION – PROPOSED CLEARING ON THE INDIAN OCEAN DRIVE  
SLK 214.72 TO 220**

Thank you for your letter dated 9 August 2012, notifying the Department of Environment and Conservation (DEC) of the amendment to Main Roads Western Australia's (MRWA) proposal to upgrade Indian Ocean Drive between SLK's 214.72 and 220.00 to widen the seal. I understand that MRWA has finalized the design for development and can now confirm that the project will involve the proposed clearing of 3.1 hectares of native vegetation, an increase of 2.1 hectares from the previous submission.

Submissions are invited in accordance with condition 8 of Clearing Permit CPS 818/6 for any clearing that 'may be at variance', 'is at variance' or 'is seriously at variance' with the clearing principles contained within Schedule 5 of the *Environmental Protection Act 1986* (EP Act).

In relation to the 3.1 hectares of native vegetation in 'degraded' to 'good' condition, DEC has undertaken a desktop survey of the proposal against the clearing principles in Schedule 5 of the EP Act. DEC considers that the proposal is not likely to be at variance with any of the clearing principles contained within Schedule 5 of the EP Act. Therefore, MRWA are not required to develop an offset proposal for the proposed clearing.

If you have any queries regarding the matters raised above, please contact Clare Ryan at DEC's Native Vegetation Conservation Branch on (08) 9219 8726.

Yours sincerely

Roxane Shadbolt  
A/MANAGER  
NATIVE VEGETATION CONSERVATION BRANCH

*Officer delegated under Section 20  
of the Environmental Protection Act 1986*

2 October 2012

Cc: Mr Murray Limb, Manager, Main Roads WA, PO Box 6202, East Perth 6892

**Native Vegetation Conservation Branch**

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ENCLOSURE