

**PRELIMINARY ENVIRONMENTAL IMPACT ASSESSMENT AND  
ENVIRONMENTAL MANAGEMENT PLAN (MINOR PROJECTS)  
Removal of Burnt Vegetation & Drain Reinstatement  
Brand Highway  
SLK 248-262 & 264-265.40**



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## CONTENTS

<b>1</b>	<b>PROJECT DESCRIPTION</b> .....	<b>3</b>
<b>2</b>	<b>BACKGROUND</b> .....	<b>3</b>
<b>3</b>	<b>DESCRIPTION OF THE PROJECT</b> .....	<b>3</b>
3.1	PROJECT LOCATION.....	3
<b>4</b>	<b>METHODOLOGY</b> .....	<b>6</b>
4.1	PRELIMINARY DESKTOP STUDY .....	6
4.2	COMMONWEALTH REFERRAL.....	7
4.3	SITE INVESTIGATION .....	7
<b>5</b>	<b>EXISTING ENVIRONMENT</b> .....	<b>7</b>
5.1	DESCRIPTION .....	7
5.2	SITE INVESTIGATION .....	7
<b>6</b>	<b>CLEARING OF NATIVE VEGETATION</b> .....	<b>8</b>
6.1	ASSESSMENT AGAINST CLEARING PRINCIPLES .....	8
6.2	ENVIRONMENTALLY SENSITIVE AREA (ESA) .....	8
<b>7</b>	<b>ASSESSMENT OF ASPECTS AND IMPACTS</b> .....	<b>9</b>
<b>8</b>	<b>DECISION TO REFER</b> .....	<b>10</b>
<b>9</b>	<b>STAKEHOLDER CONSULTATION</b> .....	<b>10</b>
<b>10</b>	<b>ENVIRONMENTAL MANAGEMENT PLAN</b> .....	<b>11</b>
10.1	COMMUNICATION PLAN.....	11
<b>11</b>	<b>MONITORING</b> .....	<b>14</b>
<b>12</b>	<b>CONTINGENCY MEASURES</b> .....	<b>14</b>
<b>13</b>	<b>AUDITING</b> .....	<b>14</b>
	APPENDIX A LOW IMPACT ENVIRONMENTAL SCREENING CHECKLIST .....	15
	APPENDIX B DEC'S THREATENED FLORA AND FAUNA DATABASE SEARCHES .....	17
	APPENDIX C AUSTRALIAN HERITAGE PLACES INVENTORY, HERITAGE COUNCIL OF WESTERN AUSTRALIA AND THE MUNICIPAL HERITAGE INVENTORY DATABASE SEARCHES .....	20
	APPENDIX D DEPARTMENT OF INDIGENOUS AFFAIRS DATABASE SEARCH .....	23
	APPENDIX E DEC'S SENSITIVE WATER RESOURCES DATABASE SEARCH .....	25
	APPENDIX F WAPC'S ACID SULFATE SOILS MAPPING .....	27
	APPENDIX G DEPARTMENT OF THE ENVIRONMENT AND HERITAGE DATABASE SEARCH ....	29
	APPENDIX H SITE PHOTOS .....	33
	APPENDIX I VEGETATION CLEARING ASSESSMENT REPORT .....	38

# **PRELIMINARY ENVIRONMENTAL IMPACT ASSESSMENT AND ENVIRONMENTAL MANAGEMENT PLAN (MINOR PROJECTS)**

## **REMOVAL OF BURNT VEGETATION IN DRAINAGE SYSTEM BRAND HIGHWAY SLK 248-262 & 264-265.40**

### **1 PROJECT DESCRIPTION**

In February 2010 the Brand Highway encountered a fire event that burnt alongside the Brand Highway. This has caused a section of the Brand Highways roadside vegetation to become unstable, particularly in areas where the maintenance zone has not been properly maintained. This lack of maintenance has allowed vegetation to grow in the drainage system, affecting the efficiency of the system, and grow dangerously close to the highway.

### **2 BACKGROUND**

Due to an inadequate maintenance regime, the vegetation has been allowed to grow into the existing drainage system. In February 2010 a massive fire event swept through the area causing this vegetation to become burnt and unstable. The proposed works will remove the unstable vegetation and allow the drainage system to function at full capacity.

As per Main Roads' Environmental Assessment and Approval process, the Low Impact Environmental Screening Checklist has been completed for the proposal, refer to Appendix A. As the proposed works involves requires clearing of native vegetation that is older than 10 years outside the maintenance zone, the preparation of a project specific Preliminary Environmental Impact Assessment (PEIA) and Environmental Management Plan (EMP) are required. This report fulfils this requirement.

### **3 DESCRIPTION OF THE PROJECT**

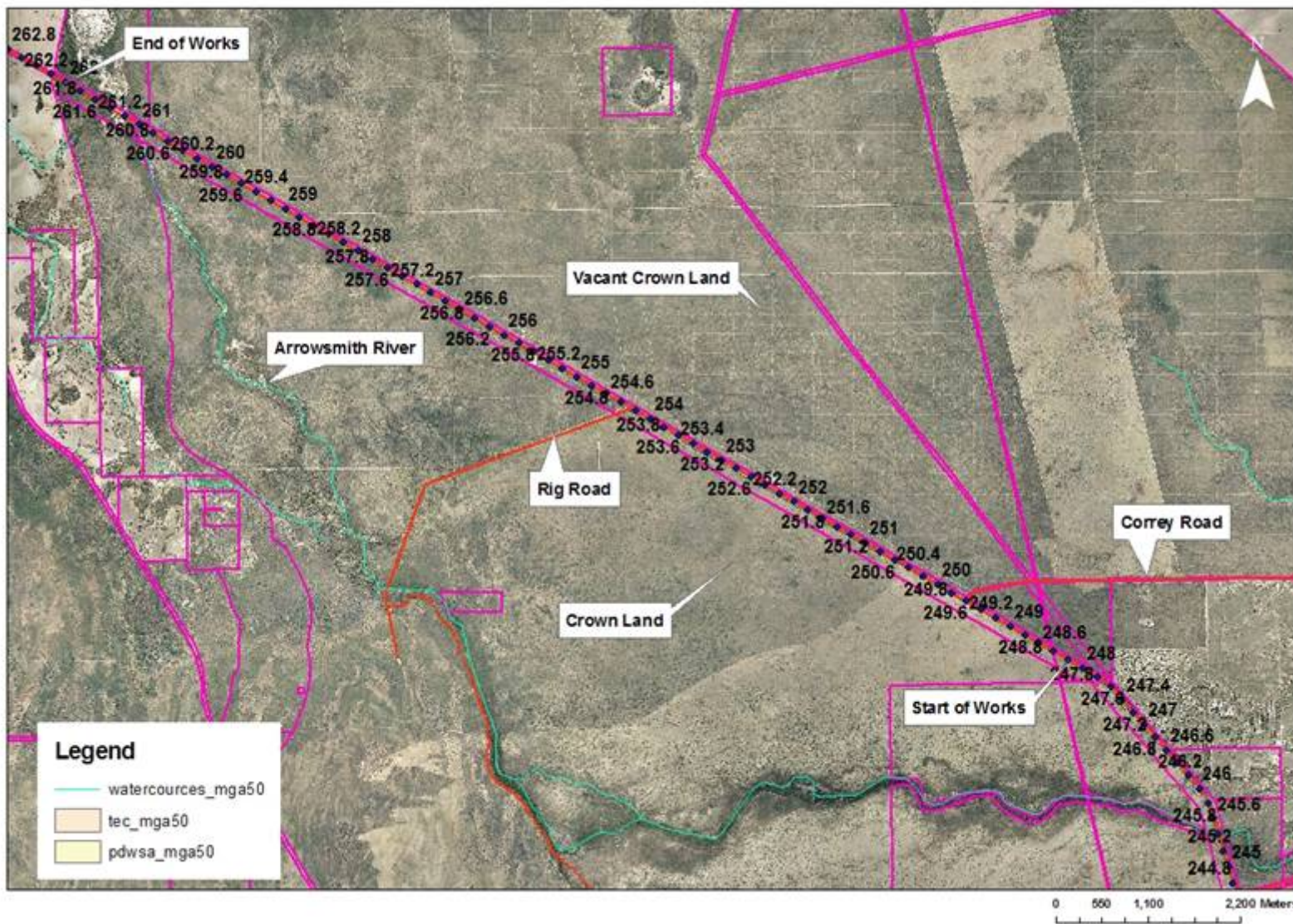
The proposed works on the Brand Highway, in the Shire of Irwin, between SLKS's 248-262 and 264-265.40 include:

- Clearing of vegetation 7m from the edge of seal (the top of the backslope); and
- Reinstatement of drainage system.

#### **3.1 Project Location**

The location and boundaries of the study area are shown on Figures 1 and 2:

**Brand Highway Proposed Removal of Dead Vegetation - Part 1**



**Figure 1: Location of Part 1 of the works**

### Brand Highway Proposed Removal of Dead Vegetation - Part 2

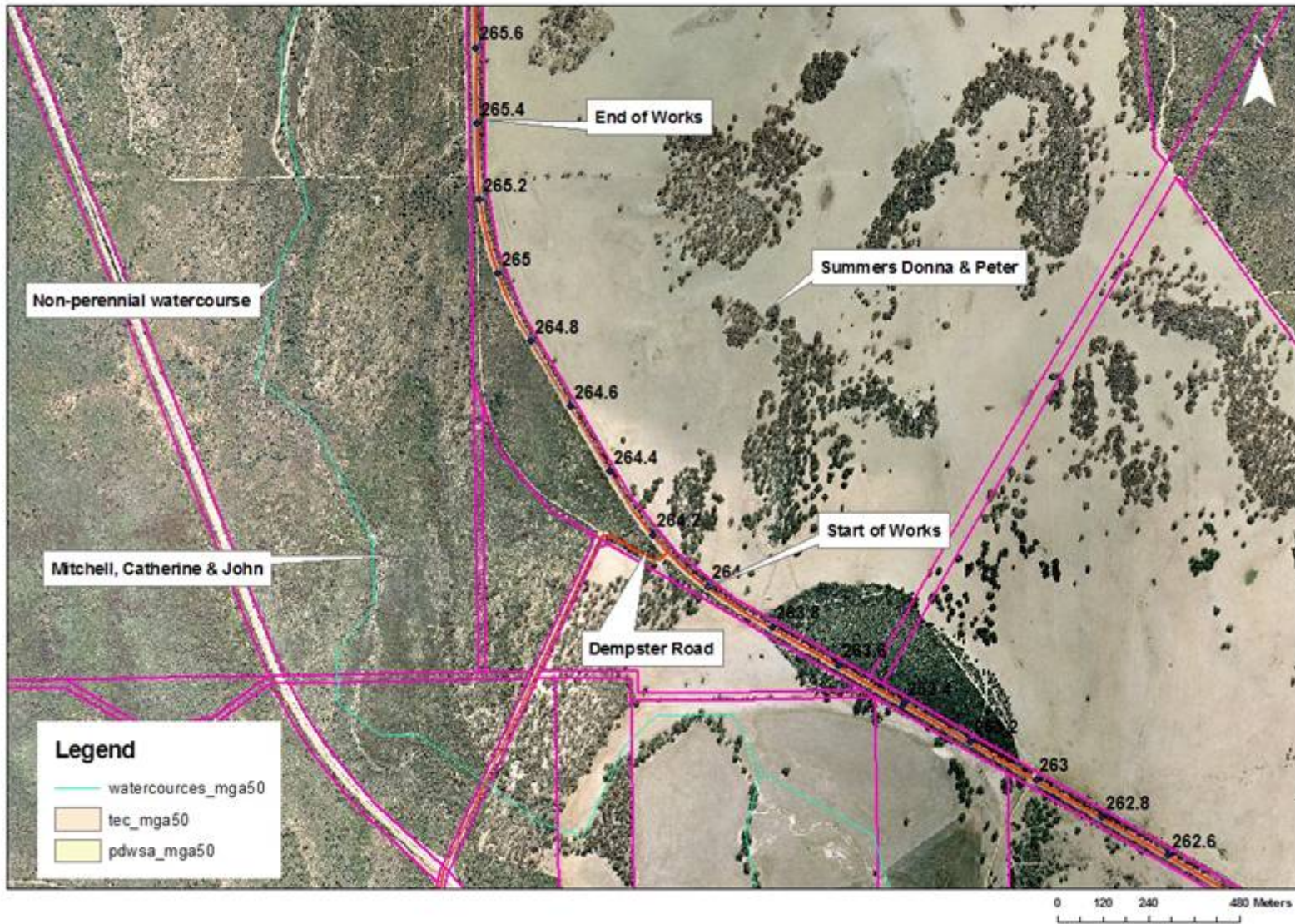


Figure 2: Location of Part 2 of the works

## 4 METHODOLOGY

### 4.1 Preliminary Desktop Study

A preliminary assessment of the project area and its potential constraints was undertaken by reviewing a number of government agency managed databases (and consulting where necessary).

#### 4.1.1 Wetlands

The locations of wetlands within the project area was determined using the Commonwealth Department of the Environmental and Heritage (DEH) mapping tool, Department of Environment and Conservation (DEC) Geographic Data Atlas mapping.

#### 4.1.2 Threatened Flora, Fauna and Communities, Conservation Reserves and ESAs

DEC's database (DEC will need to be contacted directly in this case) was searched for known populations of threatened flora, fauna and Threatened Ecological Communities (TECs) and conservation reserves, refer to Appendix B.

#### 4.1.3 Air Quality

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

#### 4.1.4 Heritage

Non-indigenous heritage was examined utilising the Australian Heritage Places Inventory (<http://www.heritage.gov.au>), Heritage Council of Western Australia (<http://register.heritage.wa.gov.au/>) and the Shire/Town/City of <Name>'s Municipal Heritage Inventory, refer to Appendix C.

#### 4.1.5 Aboriginal Heritage

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

#### 4.1.6 Sensitive Water Resources

The Water Information Officer of the Department of Water's regional office was consulted on sensitive water resources (including Public Drinking Water Source Areas) to determine whether the project area supported, or was adjacent to, any significant lakes, rivers or wetlands or proclaimed areas, refer to Appendix E.

#### 4.1.7 Contaminated Sites

The reserve has been in Main Roads continual control, therefore no further work will be necessary/required.

#### 4.1.8 Acid Sulfate Soils

The Western Australian Planning Commission's (WAPC's) acid sulfate soils maps were reviewed and the self assessment done (<http://www.wapc.wa.gov.au/Publications/213.aspx>) to determine what level of risk the project area is exposed to, refer to Appendix F.

#### 4.1.9 Weeds

A site visit was conducted to determine whether there are any known populations of declared plants or significant weeds in or adjacent to the project area.

#### 4.1.10 Dieback

As the project area receives >400 mm of average annual rainfall, advice regarding the broad dieback status of the project area was sought from the District Manager at the regional office of DEC.

## 4.2 Commonwealth Referral

The decision whether to refer the project to the Commonwealth's DEH was based upon whether the project would impact upon matters of national significance, e.g. World Heritage properties, protected wetlands and migratory species, Commonwealth marine areas, threatened species or communities or nuclear actions (refer to the Commonwealth webpage [www.deh.gov.au/epbc/assessmentsapprovals/index.html](http://www.deh.gov.au/epbc/assessmentsapprovals/index.html) for further information and the search tool page at <http://www.deh.gov.au/erin/ert/epbc/imap/map.html>), refer to Appendix I.

## 4.3 Site Investigation

A site visit was carried out by Ian Hamilton on 15/03/2010 to examine the general features of the area. The broad vegetation types in the vicinity of the project area were identified. Other issues that were considered included topography, the impacts on creek lines, property access and the potential for noise and vibration impacts (dilapidation).

Site photos were taken and are included in Appendix J.

## 5 EXISTING ENVIRONMENT

### 5.1 Description

The proposed works area in Part 1 (248-262) contains Vegetation Association 378, which is described as:

- *Shrublands; scrub-heath with scattered Banksia spp, Eucalyptus todtiana & Xylomelum angustifolium on deep sandy flats in the Geraldton Sandplain Region – 61.7% remaining.*

The proposed works area in Part 2 (264-265.40) contains Vegetation Association 433, which is described as

- *Mosaic: Shrublands; Acacia rostellifera & Melaleuca cardiophylla thicket / Sparse low woodland; illyarrie – 40.2% remaining.*

The current condition of the vegetation is severely burnt, as a result of the bush fire that went through the area in February 2010.

### 5.2 Site Investigation

Site Investigation	Description/Comment
Total area (ha) of <u>native vegetation</u> to be cleared	10.9 ha
Total area (ha) of other vegetation, including regrowth, landscape areas, to be cleared	Nil
Weeds present	Wild Oats
Drainage areas or wetlands present	Arrowsmith River to the south of the works
Adjacent land uses	Conservation Estate (part 1) Agricultural (part 2)

## 6 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 regulations, such as clearing vegetation that is less than 10 years old for maintenance, typically all Main Roads clearing will be undertaken using its Statewide Project Purpose Permit.

### 6.1 Assessment against Clearing Principles

In assessing whether the project is likely to have a significant impact on the environment, the project has been assessed against the DEC's 10 principles of clearing, refer to Appendix K.

The project is not likely to be at variance with the DEC's 10 clearing principles.

### 6.2 Environmentally Sensitive Area (ESA)

Clearing within an Environmentally Sensitive Area (ESA)	Yes/No	Comments
Does the area to be cleared occur within an ESA where the vegetation is in good or better condition?	N	The proposed works are within road reserve.



## 7 ASSESSMENT OF ASPECTS AND IMPACTS

**Table 1: Aspects and Impacts – Removal of burnt vegetation Brand Highway**

<b>Aspect</b>	<b>Evaluation of Potential Impacts</b>
Air quality	Not relevant to the proposed works. Local air quality assessment is not required for the project since: <ul style="list-style-type: none"> <li>the predicted traffic flow is less than 15,000 vehicles per day in rural areas; and</li> <li>residential and other sensitive receptors are not within 200 meters of the road centre.</li> </ul>
Dust	Likely to be a minor issue during earthworks. No major sensitive receivers adjacent to the proposed works, but excessive dust could impact vegetation. Activities will need to be subject to dust suppression to control short-term dust generation. Likely to be easily managed by standard construction dust management techniques.
Fauna	No significant fauna issues associated with any of the proposed upgrade works, as they are within the existing maintenance area. Recommendations to minimise clearing (see below) will also serve to reduce impacts to fauna and remnant fauna habitat at the sites.
Vegetation – clearing	<ul style="list-style-type: none"> <li>10.9 ha of native vegetation will be cleared.</li> <li>The condition of the native vegetation to be cleared ranges from Very Good to Completely Degraded.</li> <li>The native vegetation will be cleared is well represented regionally (i.e. it possesses more/less than 30% of its pre-European extent).</li> <li>The native vegetation to be cleared does not occur within an ESA.</li> <li>The native vegetation to be cleared will be done so using the purpose permit.</li> </ul>
Vegetation – TECs/DRF	<p>There is a location of <i>STAWELLIA DIMORPHANTHA</i> (Priority 4) at SLK 258.94 – 260.85 on both sides of the road. This area should be avoided.</p> <p>There is a location of <i>Banksia elegans</i> at SLK 263.7 (Priority 4), which is before the proposed works.</p> <p>Areas outside the project area must not be disturbed as part of the proposed works.</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.</p>
Vegetation – weeds	Numerous common weed species occur throughout the proposed works areas. These species are likely to be widespread within the reserve and general area. The risk of spreading these weeds species as part of the proposed work should be minimised. Standard weed hygiene measures should be applied for all earthworks in the area, including ensuring that plant and equipment brought on to the site are clean of soil.
Vegetation – dieback	Advice from DEC indicates that the area should be treated as dieback uninterpretable. Vehicles should be clean upon entry and exit.
Reserves / Conservation areas	<p>There is a conservation reserves (Bee Keepers) to the West of the project area.</p> <p>Provided clearing of the more intact vegetation is minimised, and that the works do not intrude into intact vegetation areas beyond the project area, there will be minimal impacts to this site.</p>
Heritage (non-indigenous)	A search of the Australian Heritage Places Inventory, Heritage Council of Western Australia and the Shire of Irwin’s Municipal Heritage Inventory on-line databases has indicated that there are no heritage significance listed sites present in the currently proposed works areas.
Aboriginal heritage	A search of DIA database identified no known sites of Aboriginal heritage significance within the vicinity of the project area.
Surface water/drainage	The proposed works will not disturb or interrupt any natural drainage and surface run-off patterns.
Wetlands	There are no wetlands within the vicinity of the project area.

**Table 1: Aspects and Impacts – Removal of burnt vegetation Brand Highway**

Aspect	Evaluation of Potential Impacts
Groundwater	No dewatering nor drainage modifications are required, hence no change to groundwater level or quality.
Noise and vibration	No major sensitive local receivers. The requirements of the Shire of Irwin must be met in respect of noise management and construction working hours.
Visual amenity	The proposed works will result in minor and short-term visual impacts during construction.
Public safety and risk	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.
Hazardous substances	Not relevant to the proposed works.
Contamination	Given the relatively superficial nature of the required earthworks, there appears to be a low risk of any significant contamination issues.  The works is 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.
Salinity	Given the nature and scale of the project the impact is not relevant.  There were no visual signs of salinity observed in the project area.
Acid Sulfate Soils	The WAPC's self-assessment (Planning Bulletin 64) indicates that no further soil investigation is required for the project.  No further investigations are necessary as there is no dewatering or excavation below the water table is planned.
Statutory Land Use Planning	As the proposed works are entirely within the existing road reserve, no further amendments would be required to the Local Government Planning Scheme or Region Scheme.

## 8 DECISION TO REFER

Given the scale of the project, the low significance of its impacts to the surrounding environment and the environmental management measures proposed, the project does not require referral to the WA Environmental Protection Authority or the Commonwealth Department of the Environment and Heritage.

## 9 STAKEHOLDER CONSULTATION

Name	Agency	Date	Comments
Benson Todd	DEC	14/04/2010	As long the proposed works are consistent with the Clearing Regulations and Main Roads/Downer EDI's 'Permit to Take' for rare flora, in that works are confined to the maintenance zone, I can see no issues.  Vegetation maintenance along the Brand Highway should be conducted in manner consistent with the Clearing Regulations, in that works should be confined to the 'maintenance zone' and should not impact upon ESA's.

## 10 ENVIRONMENTAL MANAGEMENT PLAN

This section of the report (the EMP) has been developed for the project area following the completion of the above sections. The main aim of this EMP is to provide a management plan to assist in minimising the environmental impacts of the activities associated with the proposed works and identify who is responsible for the implementation of the management strategies.

This EMP will only address the actions already listed as well as any site-specific issues that were identified during the PEIA. The project specific management measures identified within this EMP are in addition to the standard specifications used for Category 2 projects. The environmental management measures/conditions in Main Road's Specifications 203, 204, 301, 302 and 304 are still to be followed where applicable.

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.

### 10.1 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	XXX	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

#### 10.1.1 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.

**ENVIRONMENTAL MANAGEMENT PLAN**

<b>Timing</b>	<b>Topic</b>	<b>Objective</b>	<b>Action</b>	<b>Responsible Party</b>	<b>Advice</b>
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	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 chipped or replaced according to the EMP.	Contractor	Main Roads
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
Pre-Construction	Visual Amenity	Ensure that the road blends in with the surrounding environment.	Ensure that the road blends in with the surrounding environment.	Project Manager	Main Roads
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
			Works associated with the construction of the development should not prevent public access along the adjacent reserve. Public access should be maintained along the reserve at all times.	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
			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

**ENVIRONMENTAL MANAGEMENT PLAN**

Timing	Topic	Objective	Action	Responsible Party	Advice
			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
			Dumping or temporary storage of bitumen, asphalt, concrete or aggregate should only occur at designated depots or controlled hardstands.	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 will be on site at all times.	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
Post-Construction	Rehabilitation	Leave the project area free from debris; and Rehabilitate the project area so that the revegetated area provides a net increase in area of native vegetation at the site.	Replace the cleared trees with locally occurring natives.	Contractor	Main Roads
			All waste materials from the development are to be completely removed from the site upon completion of the development. Final clean-up shall be to the satisfaction of the Project Manager and the Site Superintendent.	Contractor	Main Roads

## **11 MONITORING**

Not applicable.

## **12 CONTINGENCY MEASURES**

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

## **13 AUDITING**

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

## **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 Removal of Burnt Road Verges

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 type="checkbox"/>	<input checked="" type="checkbox"/>
3	Works require clearing of native vegetation that is older than 10 years old within the maintenance zone.	<input checked="" type="checkbox"/>	<input 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 [Signature] Date 13/4/10  
 Name I. HARRISON Title 1435 SCC

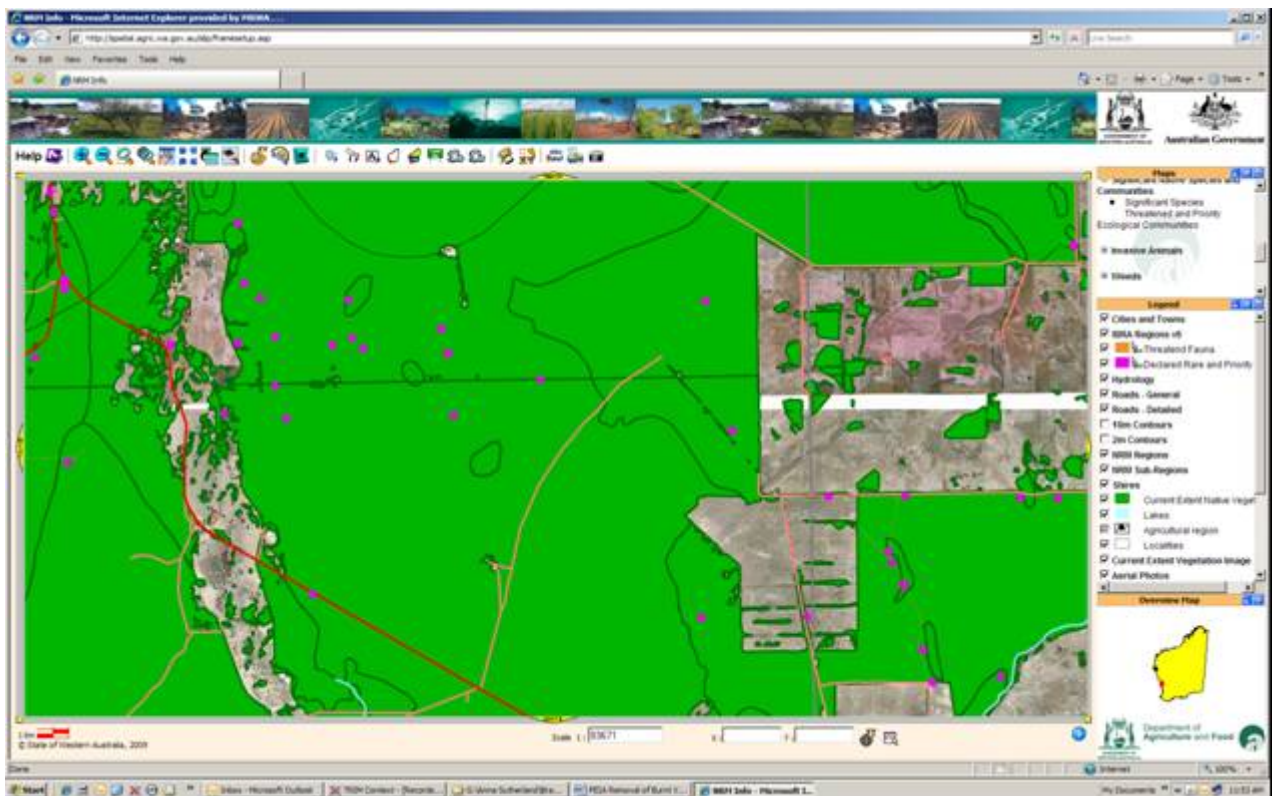
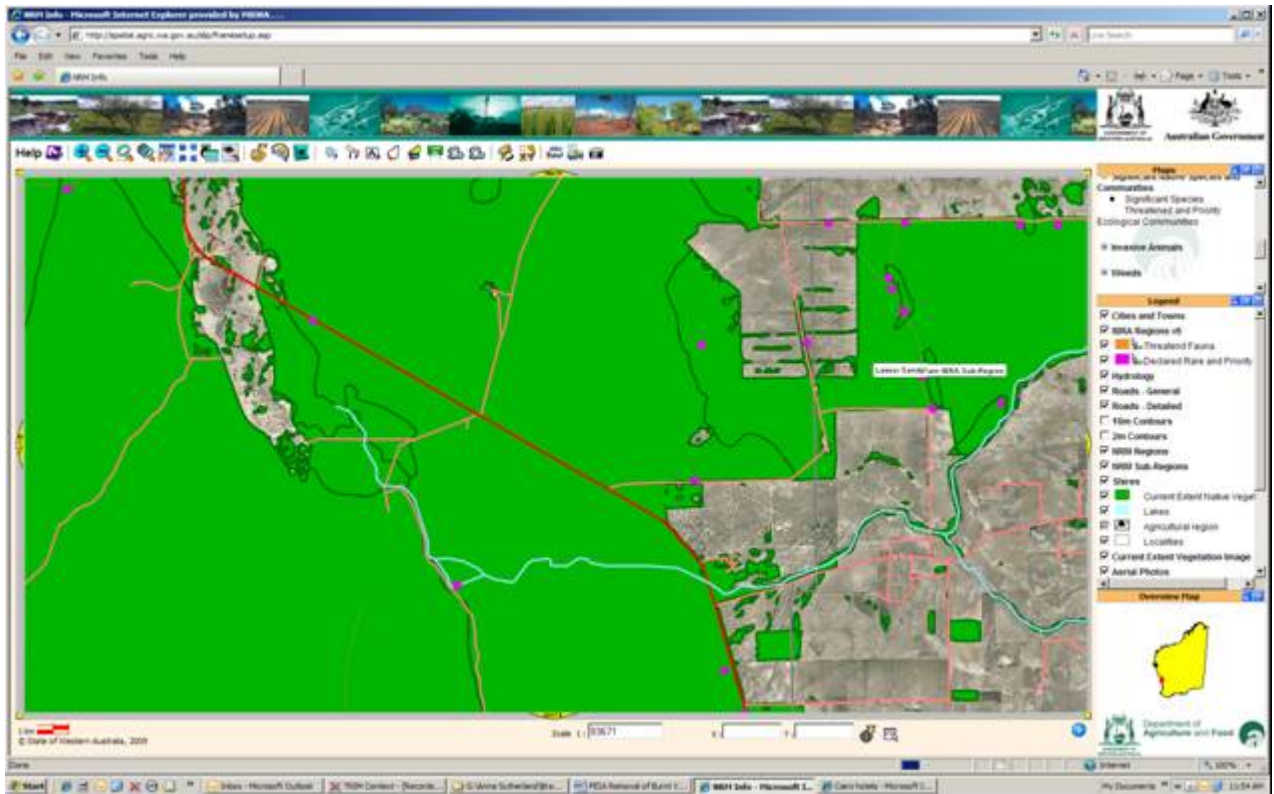
To be reviewed by a Main Roads Environment Officer: Signature [Signature] Date 14/4/10  
 Name Anna Sutherland Title Environment Officer

Comments: Area for clearing = SLK's 248.00 - 262.00 GIS  
7m from edge of kerbside  
SLK'S 264.00 - 265.40 GIS  
7m from edge of kerbside  
Area for clearing = 10.7m by  
263.7 - Banksia regalis on Right Side of Road.

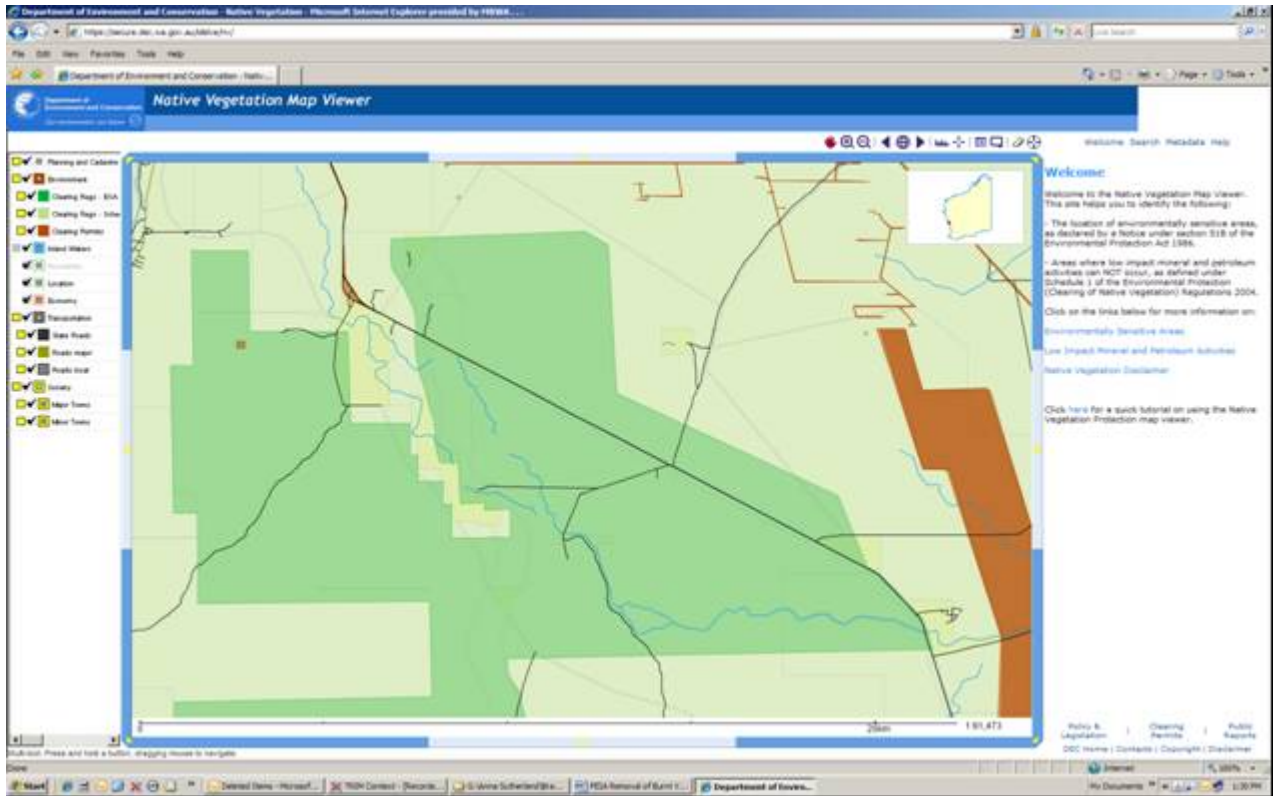


## **Appendix B**

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



Source: <http://spatial.agric.wa.gov.au/slip/framesetup.asp> (14/04/2010 @ 11:54am)



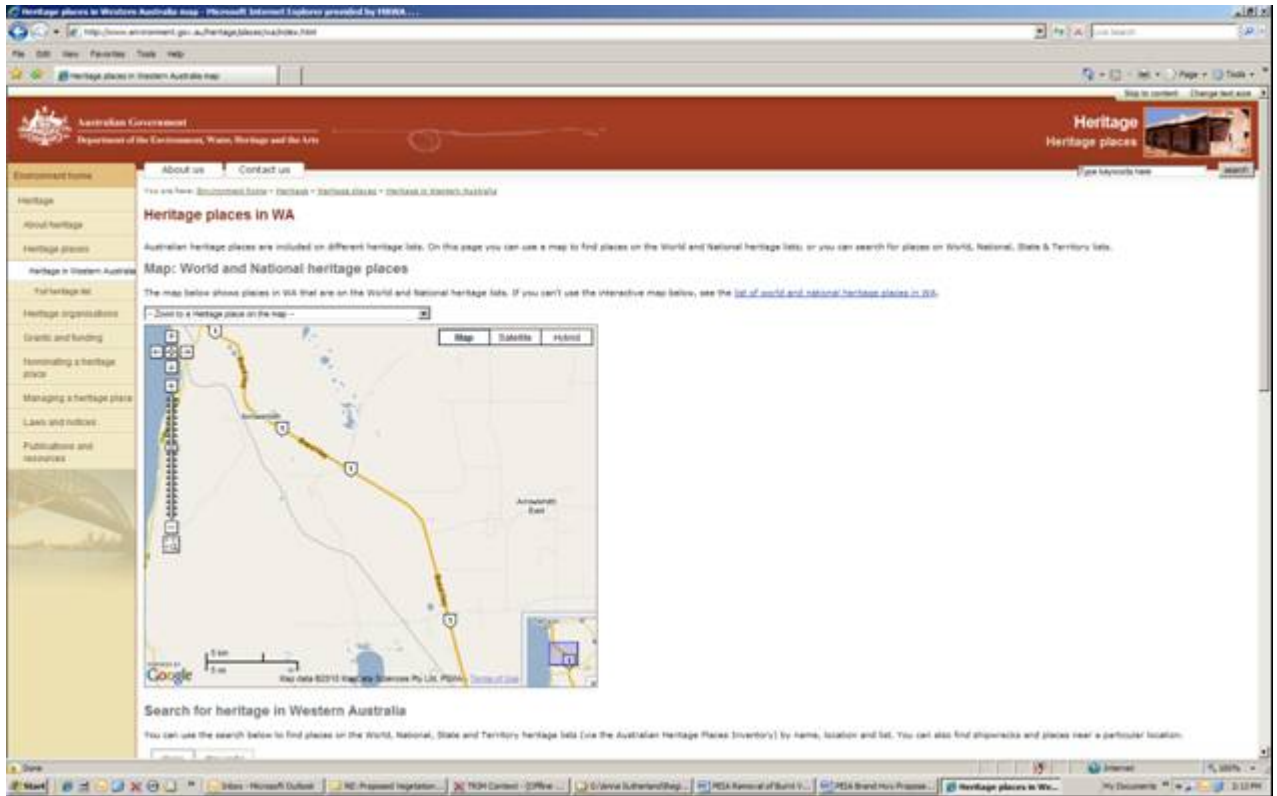
Source: <https://secure.dec.wa.gov.au/idelve/nv/> (14/04/10 @1.31 pm)

## **Appendix C**

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

<input type="checkbox"/>	<a href="#">Ampol Service Station</a> (12285)	Loc318 Brand Highway, Dongara	
<input type="checkbox"/>	<a href="#">Arrowsmith &amp; Government Wells</a> (18112)	off Brand Highway, Arrowsmith	
<input type="checkbox"/>	<a href="#">Arrowsmith Lake</a> (18113)	sand track east off Brand Highway, Arrowsmith	
<input type="checkbox"/>	<a href="#">Cypress Holme</a> (12447)	East side Brand Highway, Dongara	
<input type="checkbox"/>	<a href="#">Dongara Railway Station (fmr)</a> (11830)	Loc 539 Brand Highway, Dongara	
<input type="checkbox"/>	<a href="#">Downe's Cottage</a> (11880)	Lot 1 Brand Highway, Dongara	
<input type="checkbox"/>	<a href="#">Edwards House</a> (11810)	off West side of Brand Highway, Bookara	
<input type="checkbox"/>	<a href="#">Farm Building, Grave and Historic Site</a> (1214)	Brand Hwy, Dongara	
<input type="checkbox"/>	<a href="#">Gordon's Cottage</a> (11882)	Lot 15 Brand Highway, Dongara	
<input type="checkbox"/>	<a href="#">Green Grove Farmhouse Ruins</a> (12314)	Brand Highway, Arrowsmith	
<input type="checkbox"/>	<a href="#">Moorelands, Orchard Walls, Stable Ruins and Shop Site</a> (11878)	Brand Highway, Dongara	
<input type="checkbox"/>	<a href="#">Nhargo Farmhouse (ruin)</a> (1220)	west side off Brand Highway, Bonniefield	
<input type="checkbox"/>	<a href="#">Obawarra Farmhouse</a> (1216)	Brand Highway, Yardarino	
<input type="checkbox"/>	<a href="#">Old East End</a> (1217)	Brand Hwy 3 km E of townsite, Dongara	 [REG]  [A]
<input type="checkbox"/>	<a href="#">Pell Bridge, Quarry &amp; Lime Kiln Sites</a> (12291)	Brand Highway, Yardarino	
<input type="checkbox"/>	<a href="#">Pell's Cottage</a> (12182)	Lot 7 Brand Highway, Yardarino	
<input type="checkbox"/>	<a href="#">Peppercorn Cottage</a> (11883)	Lot 5 Brand Highway, Dongara	
<input type="checkbox"/>	<a href="#">RC Cemetery &amp; First Church (fmr) - site</a> (12179)	Loc1867 Brand Highway, Yardarino	
<input type="checkbox"/>	<a href="#">River Crossing - site</a> (11879)	Lot 11 Brand Highway, Dongara	
<input type="checkbox"/>	<a href="#">Rowlands Cottage</a> (12031)	Loc 795 Brand Highway, Dongara	
<input type="checkbox"/>	<a href="#">Royal Steam Roller Flour Mill</a> (1210)	Waldeck Street, cnr. Brand Highway, Dongara	 [REG]
<input type="checkbox"/>	<a href="#">Seventh Day Adventist Church (fmr)</a> (1240)	Cnr Brand Hwy & Bookara East Rd, Bookara	 [REG]  [A]
<input type="checkbox"/>	<a href="#">Six Chimneys House and Cottage</a> (1218)	Brand Highway, Dongara	
<input type="checkbox"/>	<a href="#">Travellers' Rest Inn (fmr) (ruin)</a> (1239)	Brand Highway, Bookara	
<input type="checkbox"/>	<a href="#">Tyford Blacksmith Shop</a> (18094)	Off Brand Highway, Dongara	
<input type="checkbox"/>	<a href="#">Tyford Farm Complex</a> (1219)	Brand Highway, Dongara	

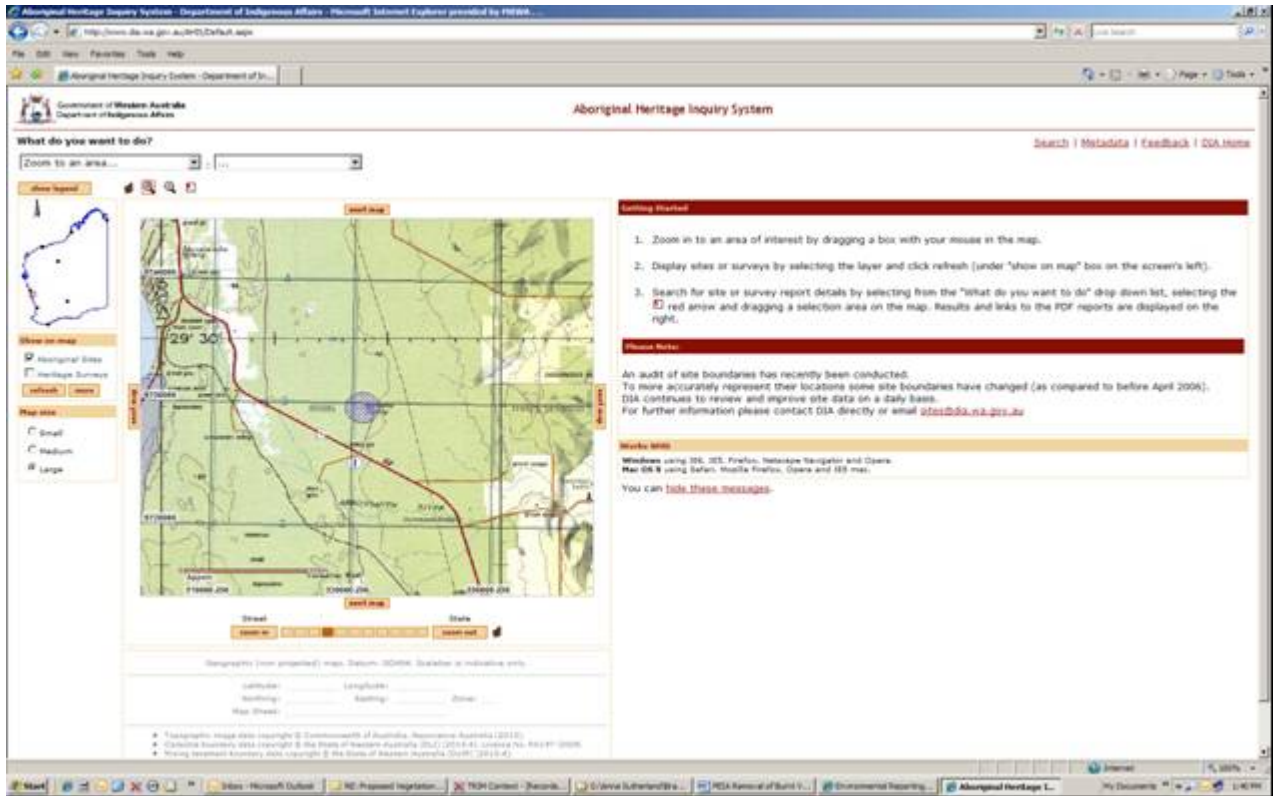
Source: [http://register.heritage.wa.gov.au/search\\_results.html](http://register.heritage.wa.gov.au/search_results.html) (14/04/2010 @2.08pm)



Source: <http://www.environment.gov.au/heritage/places/wa/index.html> (14/04/2010 @ 2.14pm)

## **Appendix D**

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

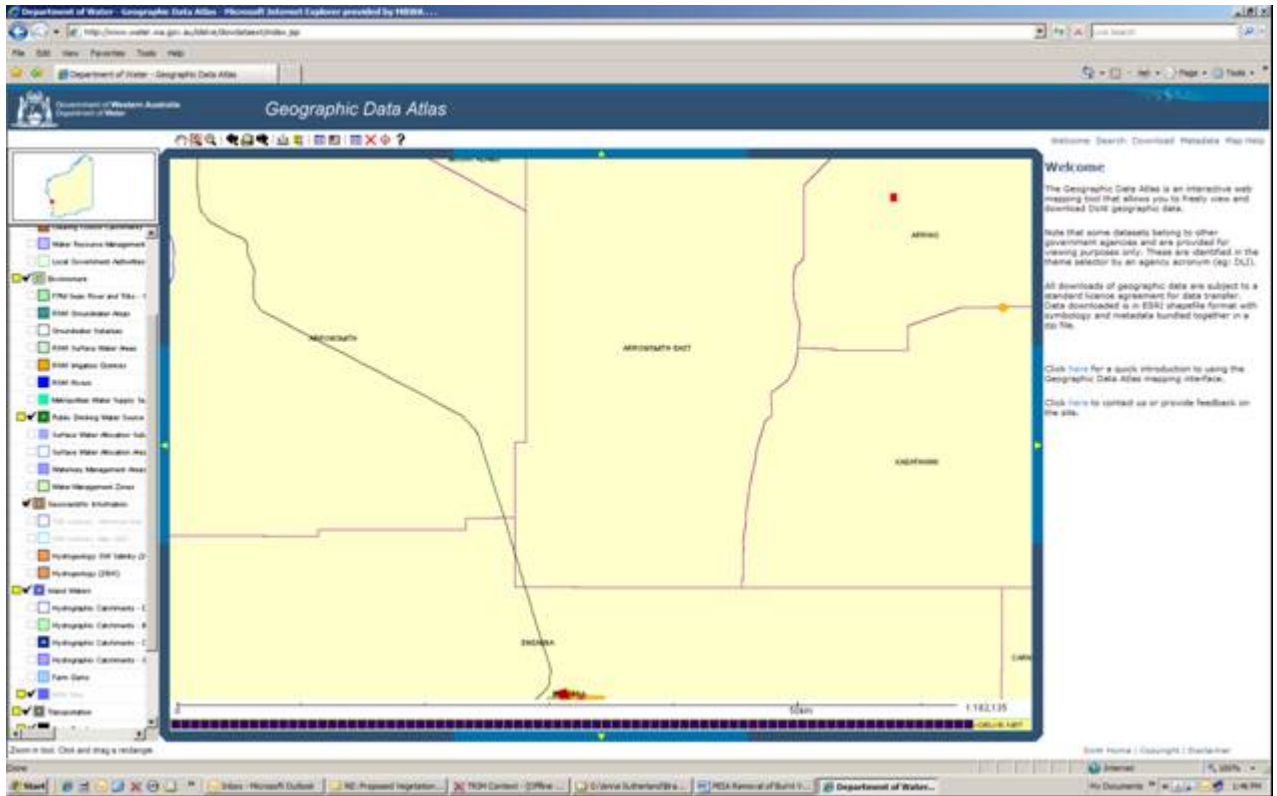


Source: <http://www.dia.wa.gov.au/AHIS/Default.aspx> (14/04/2010 @ 1.40pm)



## **Appendix E**

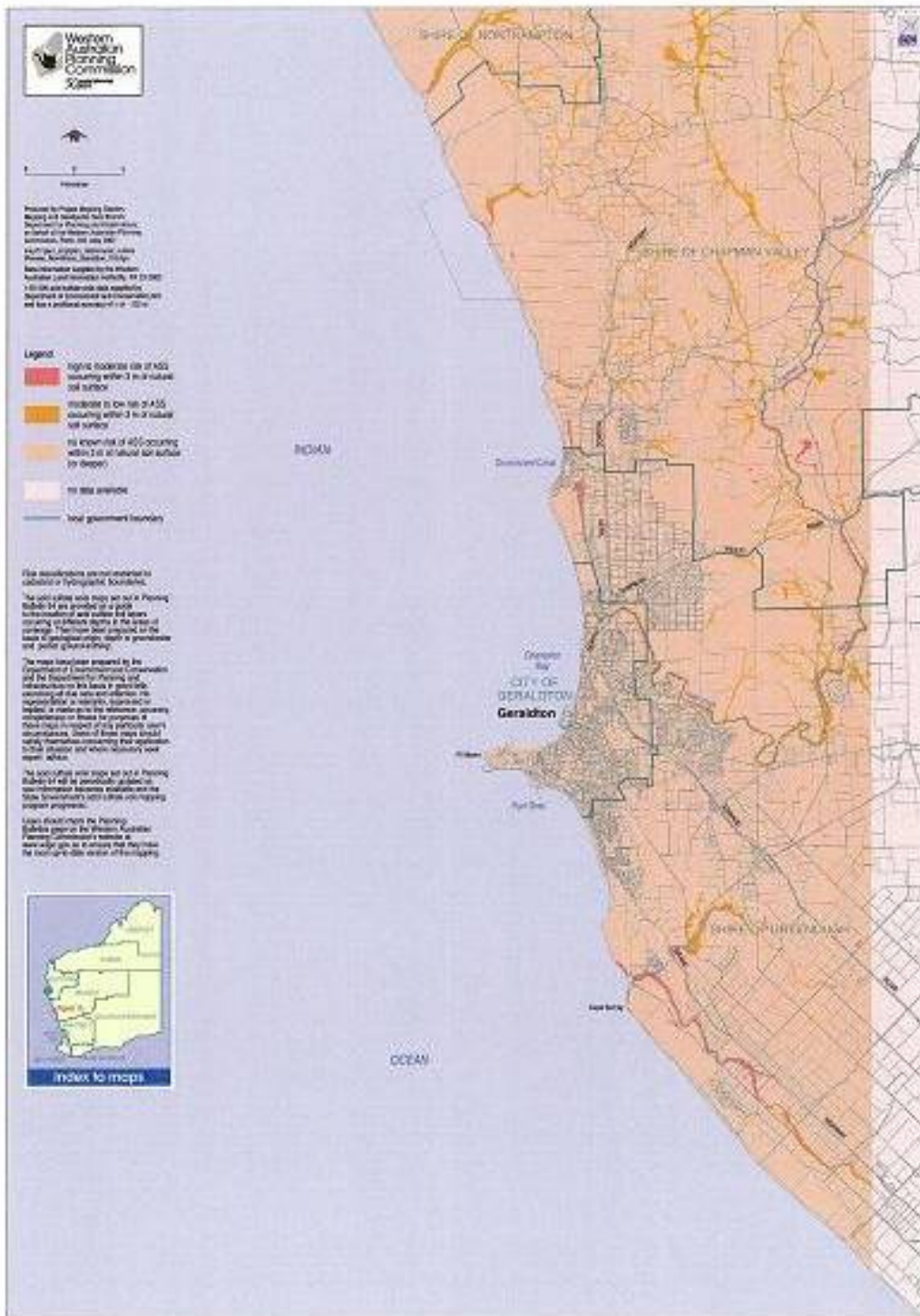
### **DEC's Sensitive Water Resources Database Search**



Source: <http://www.water.wa.gov.au/ideve/dowdataext/index.jsp> (14/04/2010)

# **Appendix F**

## **WAPC's Acid Sulfate Soils Mapping**



Planning Bulletin 64  
**Geraldton enlarge acid sulfate soils**

Figure 16

## **Appendix G**

### **Department of the Environment and Heritage Database Search**

**DATABASE REPORT**

16 April 2010 12:22

This report includes places of national environmental significance that are registered in the Department of the Environment and Water Resources' databases, for the selected area. The information presented here has been provided by a range of groups across Australia, and the accuracy and resolution varies.

**Search Type:** Area  
**Buffer:** 0 km  
**Coordinates:** -29.53339,115.05587, -29.53205,115.05732, -29.53741,115.06100, -29.54746,115.07942, -29.56130,115.10711, -29.56331,115.10510, -29.53953,115.06089



**Report Contents:** [Summary](#) >> [Details](#) >> [Caveat](#) >> [Acknowledgment](#)



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

**Biodiversity**

- Threatened Species:** 4
- Migratory Species:** 7
- Listed Marine Species:** 5
- Invasive Species:** 7

**Whales and Other Cetaceans:** None

**Threatened Ecological Communities:** None

**Heritage**

**World Heritage Properties:** None

**Australian Heritage Sites:** 1

Wetlands

**Ramsar sites:  
(Internationally important)** None

**Nationally Important Wetlands:** None

National Pollutant Inventory

**Reporting Facilities:** None

**Airsheds:** None

**Catchments:** None

Protected Areas

**Reserves and Conservation Areas:** None

**Regional Forest Agreements:** None

Biodiversity

Threatened Species [ <a href="#">Dataset Information</a> ]	Status	Comments
--	--------	----------

**Birds**

<a href="#"><i>Calyptorhynchus latirostris</i></a> Carnaby's Black-Cockatoo, Short-billed Black-Cockatoo	Endangered	Species or species habitat likely to occur within area
---	------------	--

**Plants**

<a href="#"><i>Hypocalymma longifolium</i></a>	Endangered	Species or species habitat likely to occur within area
--	------------	--

<a href="#"><i>Paracaleana dixonii</i> Hopper &amp; A.P.Br. nom. inval.</a> Sandplain Duck Orchid	Endangered	Species or species habitat likely to occur within area
--	------------	--

<a href="#"><i>Stawellia dimorphantha</i></a> Arrowsmith Stilt-lily	Vulnerable	Species or species habitat likely to occur within area
--	------------	--

Migratory Species [ <a href="#">Dataset Information</a> ]	Status	Comments
---	--------	----------

**Migratory Terrestrial Species**

**Birds**

<a href="#"><i>Haliaeetus leucogaster</i></a> White-bellied Sea-Eagle	Migratory	Species or species habitat likely to occur within area
--	-----------	--

<a href="#"><i>Merops ornatus</i></a> Rainbow Bee-eater	Migratory	Species or species habitat may occur within area
--	-----------	--

**Migratory Wetland Species**

**Birds**

<a href="#"><i>Ardea alba</i></a> Great Egret, White Egret	Migratory	Species or species habitat may occur within area
---	-----------	--

<a href="#"><i>Ardea ibis</i></a> Cattle Egret	Migratory	Species or species habitat may occur within area
---	-----------	--

**Migratory Marine Birds**

<a href="#"><i>Apus pacificus</i></a> Fork-tailed Swift	Migratory	Species or species habitat may occur within area
--	-----------	--

<a href="#"><i>Ardea alba</i></a> Great Egret, White Egret	Migratory	Species or species habitat may occur within area
---	-----------	--

<a href="#"><u>Ardea ibis</u></a> Cattle Egret	Migratory	Species or species habitat may occur within area
---	-----------	--

Listed Marine Species [ <a href="#">Dataset Information</a> ]	Status	Comments
---	--------	----------

**Birds**

<a href="#"><u>Apus pacificus</u></a> Fork-tailed Swift	Listed - overfly marine area	Species or species habitat may occur within area
--	------------------------------	--

<a href="#"><u>Ardea alba</u></a> Great Egret, White Egret	Listed - overfly marine area	Species or species habitat may occur within area
---	------------------------------	--

<a href="#"><u>Ardea ibis</u></a> Cattle Egret	Listed - overfly marine area	Species or species habitat may occur within area
---	------------------------------	--

<a href="#"><u>Haliaeetus leucogaster</u></a> White-bellied Sea-Eagle	Listed	Species or species habitat likely to occur within area
--	--------	--

<a href="#"><u>Merops ornatus</u></a> Rainbow Bee-eater	Listed - overfly marine area	Species or species habitat may occur within area
--	------------------------------	--

Invasive Species [ <a href="#">Dataset Information</a> ]	Status	Comments
--	--------	----------

**Mammals**

<a href="#"><u>Capra hircus</u></a> Goat	Feral	Species or species habitat may occur within area
---	-------	--

<a href="#"><u>Felis catus</u></a> Cat, House Cat, Domestic Cat	Feral	Species or species habitat likely to occur within area
--	-------	--

<a href="#"><u>Oryctolagus cuniculus</u></a> Rabbit, European Rabbit	Feral	Species or species habitat likely to occur within area
---	-------	--

<a href="#"><u>Vulpes vulpes</u></a> Red Fox, Fox	Feral	Species or species habitat likely to occur within area
--	-------	--

**Plants**

<a href="#"><u>Asparagus asparagoides</u></a> Bridal Creeper, Bridal Veil Creeper, Smilax, Florist's Smilax, Smilax Asparagus	WoNS	Species or species habitat may occur within area
--	------	--

<a href="#"><u>Cenchrus ciliaris</u></a> Buffel-grass, Black Buffel-grass	Invasive	Species or species habitat may occur within area
--	----------	--

<a href="#"><u>Lycium ferocissimum</u></a> African Boxthorn, Boxthorn	Invasive	Species or species habitat may occur within area
--	----------	--

Heritage

**Natural**

[Arrowsmith Lake Area WA](#)

Source: [http://www.environment.gov.au/cgi-bin/erin/ert/ert\\_report.pl](http://www.environment.gov.au/cgi-bin/erin/ert/ert_report.pl)  
(16/04/2010 @10.35am)



# Appendix H

## Site Photos

## Site Photos 15/03/2010









## **Appendix I**

# **Vegetation Clearing Assessment Report**

# MRWA Vegetation Clearing Assessment Report

This report has been prepared to assist MRWA in addressing condition 7 "Assessment of Clearing Impacts" under Clearing Permit CPS 818/3.

For guidance on how to complete the form, refer to DEC completed reports (active permits) at [http://203.20.251.100/cps\\_reports/](http://203.20.251.100/cps_reports/).

## AREA UNDER ASSESSMENT DETAILS

### Proponent details

Proponent's name:

MRWA

Contacts:

Name: Anna Sutherland  
Phone: 08 99 56 1207  
Fax: 08 99 56 1240  
Email: [anna.sutherland@mainroads.wa.gov.au](mailto:anna.sutherland@mainroads.wa.gov.au)

### Property details

Property:

Brand Highway SLK 248-262 & 264-265.40

Colloquial name:

### Area under assessment

Clearing Area (ha)

No. Trees

Method of Clearing

For the purpose of:

Site Plan Attached

10.9ha

Mechanical

Verge & drain  
maintenance

Yes

### Avoidance/Minimise clearing

How have the clearing impacts been minimised?

Mechanical Clearing

## BACKGROUND

### Existing environment and information

Description of the native vegetation under application

(suggestion: To determine Vegetation Condition use - Keighery, B.J. (1994) *Bushland Plant Survey: A Guide to Plant Community Survey for the Community. Wildflower Society of WA (Inc). Nedlands, Western Australia.*)

Site Visit Undertaken  Yes

Fauna / Flora Survey Undertaken  Yes  No

Site Report Attached  Yes

Fauna / Flora Survey Report Attached  Yes  No

Site Photos Attached  No

Other Relevant References Attached  No

#### Vegetation Complex

Part 1 (248-262) contains  
Vegetation Association 378, which  
is described as:

- *Shrublands; scrub-heath with scattered Banksia spp, Eucalyptus tottiana & Xylomelum angustifolium on deep sandy flats in the Geraldton Sandplain Region – 61.7% remaining.*

#### Clearing Description

Mechanical

#### Vegetation Condition

Good condition

#### Comment

Part 2 (264-265.40) contains  
Vegetation Association 433, which  
is described as

- *Mosaic: Shrublands; Acacia rostellifera & Melaleuca cardiophylla thicket / Sparse low woodland; illyarrie – 40.2% remaining.*

## ASSESSMENT OF APPLICATION AGAINST CLEARING PRINCIPLES

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

**Comments** Proposal is not at variance to this Principle

**Methodology** Vegetation to be cleared is within an existing maintenance area. Biological Surveys conducted in 2008 surrounding these areas stated the following, "The number of flora taxa recorded in these Project Sites ranged from 25 to 95, which represents low species diversity. The vegetation does not contain a higher diversity of species than native vegetation in good or better condition in the bioregion.

### **(b) Native vegetation should not be cleared if it comprises the whole or a part of, or is necessary for the maintenance of, a significant habitat for fauna indigenous to Western Australia.**

**Comments** Proposal is not at variance to this Principle

**Methodology** Vegetation to be cleared is within an existing maintenance area and the surrounding vegetation is a reserve, which is more significant than a habitat for fauna.

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

**Comments** Proposal is not at variance to this Principle

**Methodology** Confirmation received from DEC Jurien and areas to be avoided (priority 4 species) have been included in the PEIA

### **(d) Native vegetation should not be cleared if it comprises the whole or a part of, or is necessary for the maintenance of a threatened ecological community.**

**Comments** Proposal is not at variance to this Principle

**Methodology** Desktop survey of DEC database.

### **(e) Native vegetation should not be cleared if it is significant as a remnant of native vegetation in an area that has been extensively cleared.**

**Comments** Proposal is not at variance to this Principle

**Methodology** Part 1 has a current extent of 61.7%, while part 2 has a current extent of 40.2%, both are above the 30% level.

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

**Comments** Proposal is not at variance to this Principle

**Methodology** Site visit and desktop survey of DEC database.

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

**Comments** Proposal is not at variance to this Principle

**Methodology** Proposed works are within existing maintenance zone.



**(h) Native vegetation should not be cleared if the clearing of the vegetation is likely to have an impact on the environmental values of any adjacent or nearby conservation area.**  
Comments **Proposal is not at variance to this Principle**

**Methodology** Proposed works are within existing maintenance zone and will not impact upon the adjacent conservation reserve.

**(i) Native vegetation should not be cleared if the clearing of the vegetation is likely to cause deterioration in the quality of surface or underground water.**  
Comments **Proposal is not at variance to this Principle**

**Methodology** Proposed works are within existing maintenance zone.

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

**Methodology** Proposed works are within existing maintenance zone.

**Planning instrument, Native Title, RIWI Act Licence, EP Act Licence, Works Approval, Previous EPA decision or other matter.**  
Comments Not Applicable

**Methodology** Proposed works are within existing maintenance zone.

**SUBMISSIONS**  
If required have submissions been requested and addressed

Submission Requested from	Request Sent (Date)	Submission Received (Date)	Issues Raised / Comments Made
---------------------------	---------------------	----------------------------	-------------------------------

**ASSESSOR'S RECOMMENDATIONS**

List of Principles seriously at variance, at variance or maybe at variance Recommendation Environmental Management Plan.

**References**

**OFFICER PREPARING REPORT**

Position: Environmental Officer  
Geraldton Regional Office  
MRWA  
Phone: 08 99 56 1207  
  
Date: 15/04/2010

For each Clearing Principle, please choose a statement from one of the five provided:

**CLEARING NOT AT VARIANCE:**

- **Proposal is not at variance to this Principle non-biological data where we are sure** e.g. there are NO wetlands or watercourses & where vegetation complexes are clearly well represented, etc.
- **Proposal is not likely to be at variance to this Principle biological data where there is always an element of uncertainty** e.g. surveys have not indicated DRF, TEC, protected fauna, but the surveys may not be fully comprehensive.

**INSUFFICIENT INFORMATION TO ASSESS WHETHER CLEARING IS AT VARIANCE**

- **Proposal may be at variance to this Principle where there could be an effect but we don't have the tools or information to adequately address the issue** e.g. DRF or priority fauna are known from the local area but not necessarily in the same vegetation type.

**CLEARING AT VARIANCE:**

- **Proposal is at variance to this Principle where the balance of probability is that there will be an effect** e.g. Consultant advise that there is a high risk and likelihood of land degradation through erosion and eutrophication, or flora surveys identified DRF in the area under application .

- **Proposal is seriously at variance to this Principle where we are sure that there will be a substantial effect. Please consider the scale and cumulative effect of the proposed clearing.**

and then state **why**

**Where we are not 100% sure, we use the PRECAUTIONARY PRINCIPLE in determining potential effects of the clearing.**

**Directions Associated with Assessor's Recommendations**

Revegetation and Rehabilitation

- The permit holder must *revegetate* and *rehabilitate* the following areas once those areas are no longer required for the following purpose for which they were cleared under this Permit:
  - (i) *temporary works*;
  - (ii) *extraction sites*;
  - (iii) *camps*;
  - (iv) *project surveys*;
  - (v) *pre-construction activities*; or
  - (vi) other *project activities* where part or all of the area cleared is no longer required to be used for the purpose for which it was cleared.

The permit holder need not *revegetate* and *rehabilitate* an area specified above if the permit holder intends to use that cleared area for another *project activity* within 12 months of that area no longer being required for the purpose for which it was originally cleared under the Permit.

The *revegetation* and *rehabilitation* of an area must be carried out as soon as possible once the permit holder no longer requires that area for a *project activity* and must be undertaken according to a *Revegetation Plan*

- Any area of *native vegetation* that does not form part of the area to be cleared for the *project activity* and that has been damaged as a result of the *clearing* by the permit holder must be *revegetated* and *rehabilitated*.
- The permit holder is not required to *revegetated* and *rehabilitated* if the area is:
  - (ii) less than 0.5 hectares;
  - (iii) not located in an *ESA*; and
  - (iv) an area where the proposed clearing that triggers the obligation to *revegetate* and *rehabilitate* is not at variance with one or more of the *clearing principles*.

Environmental Management Plan

- Where the results of the *EIA* indicate that *clearing* for the *project activity* will have impacts the permit holder must prepare, implement and adhere to an *EMP* to address the *impacts* of the clearing.

### New Application Required

- Where the results of the *EIA* indicate that *clearing* for the *project activity* may be seriously at variance with the *clearing principles*, the permit holder must apply to the *CEO* for a *clearing permit* in respect of that *clearing*.

### Offset

- The permit holder must determine whether all or part of the *native vegetation* in an area to be cleared is in *good or better condition* and whether part or all of the area to be cleared is:
  - (i) a *World Heritage property*;
  - (ii) a *Bush Forever site*;
  - (iii) a *defined wetland*, or within 50 metres of a *defined wetland*;
  - (iv) an area covered by the *Environmental Protection (Gnangara Mound Crown Land) Policy 1992* or the *Environmental Protection (Western Swamp Tortoise) Policy 2002*;
  - (v) an area covered by the lakes to which the *Environmental Protection (Swan Coastal Plain Lakes) Policy 1992* applies;**
  - (vi) a protected wetland as defined in the *Environmental Protection (South West Agricultural Zone Wetlands) Policy 1998*;**
  - (vii) an area of fringing *native vegetation* in the policy area as defined in the *Environmental Protection (Swan and Canning Rivers) Policy 1998*; or
  - (viii) An area that is included on the Register of the National Estate because of its natural heritage value, under the *Australian Heritage Council Act 2003*; and the *clearing* is likely to have an adverse impact on one or more of the natural heritage values for which the area is included on the Register of the National Estate.

If part or all of the *native vegetation* in an area to be cleared is described in the list above, the permit holder must implement an *offset* with respect to that *native vegetation*.

**Note:** Good or better condition means that the vegetation is in either pristine, excellent, very good or good condition according to *Keighery scale*, being the vegetation condition scale described in *Bushland Plant Survey: A Guide to Plant Community Survey for the Community (1994)* as developed by B.J. Keighery and published by the Wildflower Society of WA (Inc). Nedlands, Western Australia.

- If part or all of the *clearing* to be done is or is likely to be at variance with one or more of the *clearing principles*, then the permit holder must implement an offset proposal.

### Management Strategy

- If part or all of the clearing to be done is or is likely to be at variance with *clearing principle (g), (i) or (j)*, the permit holder must implement a *management strategy*.