



## **ENVIRONMENTAL IMPACT ASSESSMENT & MANAGEMENT PLAN**

**South West Region**

**Perth Bunbury Highway H002**

**Roadside Vegetation Hazard Reduction Works  
131.35 - 136.93 SLK (between Taranto and Springhill Roads)  
Perth Bunbury Highway, Shire of Harvey**

**Clearing to meet minimum vegetation lateral clearance requirements**



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Project Development Officer - Environment**

**Date: July 2004**

# **ENVIRONMENTAL IMPACT ASSESSMENT AND ENVIRONMENTAL MANAGEMENT PLAN**

## **Roadside Vegetation Hazard Reduction Works**

**131.35 - 136.93 SLK lanes 3 & 4 Perth Bunbury Highway, Shire of Harvey**

### **Clearing to meet minimum vegetation lateral clearance requirements**

#### **1. PROJECT DESCRIPTION**

Main Roads South West Region requires the preparation of an Environmental Impact Assessment (EIA) and an Environmental Management Plan (EMP) for the removal of roadside vegetation from along Perth Bunbury Highway between 131.35 and 136.93 SLK on the east and west side of the northbound carriageway. This assessment was determined as being required, once the Low Impact Environmental Screening Checklist was completed (Refer Appendix 1).

This proposal is located approximately 21 km north of the Bunbury townsite and extends for 5.6 km, between Taranto and Springhill Roads located within the Shire of Harvey (Refer Figure 1). It requires the removal of trees that occur in the road verge located 6 - 9 m from the painted edge line for the median strip and road verge (RHS) respectively.

The works will involve the removal of approximately 559 trees from the road verge or approximately 1 ha of roadside vegetation in total.

Roadside vegetation - consisting of a Parkland Cleared Community, Peppermint and Jarrah-Banksia woodland vegetation types, will have to be removed from the lateral clearance zone along this section of highway that has received black spot funding.

Parkland/clump planting of 4080 seedlings have taken place in the areas of this section of road reserve that do not contain vegetation in winter 2004.

#### **2. BACKGROUND**

As per Main Roads' Environmental Assessment and Approvals process, the Low Impact Screen Checklist has been completed for the proposal, refer Appendix A. As the proposed works requires clearing outside of the maintenance zone, the preparation of a project Environment Impact Assessment (EIA) and Environmental Management Plan (EMP) is required. This report fulfils this requirement.

Main Roads South West Region in conjunction with the WA Police Force databases have recorded along this section of Perth Bunbury Highway between the years 1998-2002 the following crash statistics:

<b>Northbound carriageway</b>	<b>Southbound carriageway</b>
1 fatal crash	2 non-serious crashes
4 serious crashes	

It is to be noted that the southbound carriageway was constructed in 1995, to standard, in terms of adequate lateral clearance of vegetation from the painted/traveling edge line. The vegetation clearing on the original/existing northbound carriageway is not to standard. The crash statistics reflect this, as the crashes are a result of vehicles hitting trees. There have also been a number of other crashes including hospitalizations and near misses where vehicles have run off the road and narrowly missed hitting a tree.

The most common type of serious crash on rural roads in the South West Region is where single vehicles run off the road and hit obstacles near the side of the road. Trees are the most common roadside obstacles that are hit.

The proposed clearing of trees alongside the highway within the lateral clearance and maintenance zone, will provide the drivers of errant vehicles the opportunity to gain control before colliding with roadside vegetation

To off-set the impact of the works Main Roads proposes to revegetate the western road verge of the northbound carriageway to enable the creation of a strip of vegetation approximately 10 m wide, that is currently without vegetation.

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

The Roadside Vegetation Hazard Reduction Works are planned to improve road safety by creating a 6m and 9m 'clear zone' from the edge of the road seal or painted edge line, to the closest road verge vegetation to the east and west side of northbound carriageway respectively. The works include removal of vegetation with a stem diameter greater than 100 mm. The development of the 'clear zone' will require the removal of some 559 trees. For location of the study area refer to Figure 1.

The project is described in the key characteristics table below:

#### **Description**

<b>Road</b>	Perth Bunbury Highway (H2)
<b>Project Length</b>	131.35 - 136.93 SLK - RHS & LHS
<b>Tree removal</b>	approx. 559 trees (1 ha vegetation)
<b>Road Verge Revegetation</b>	Create approx. 10 m wide vegetated strip along the western side of the northbound carriageway.

#### **Perth Bunbury Highway Vegetation Removal Key Characteristics Table**

The Roadside Vegetation Hazard Reduction Works are currently programmed to commence in 2004.

### **3.1 Methodology**

#### **3.1.1 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.

##### **Threatened Flora, Fauna and Communities**

The Department of Conservation and Land Management (CALM's) database for Threatened Ecological Communities (TECs), the Main Roads Special Environmental Areas Database and the local CALM (Bunbury) office were contacted and checked which confirmed that there are no known occurrences of TECs or threatened flora between Taranto and Springhill Roads.

Also CALM's Fauna database was checked - refer to Appendix B and some threatened species that could occur in the area were identified.

##### **European Heritage**

European heritage was examined utilising the Australian Heritage Places Inventory (<http://www.heritage.gov.au/ahpi/index.html>), Heritage Council of Western Australia and the Shire/Town/City of Harvey's Municipal Heritage Inventory (<http://register.heritage.wa.gov.au/index.html>), refer Appendix C. No heritage places were identified within the project area.

##### **Aboriginal Heritage**

Searches of the Department of Indigenous Affairs' (DIA's) (<http://www.dia.wa.gov.au/gis/asp/qistheme.asp>) revealed that there were no Registered Sites present in the project area - refer Appendix D. Also an Aboriginal Heritage Survey encompassing the project area was done ("Report of an Archaeological and Ethnographic Survey for Aboriginal Sites Highway H2 (Old Coast Road) Lake Clifton to the Australind Bypass, McDonald, Hales & Associates, July 1991) which has affirmed that there are no Aboriginal Heritage Sites within the project area.

##### **Public Drinking Water Areas**

DoE's database (<http://www.wrc.wa.gov.au/protect/watersupply/index.htm>) was checked for Public Drinking Water Supply Areas, and the project area does not occur in such an area. Refer Appendix F.

##### **Wetland Areas**

A search of the Main Roads wetland database (*taken from the Water & Rivers Geomorphic Wetland Dataset 2003*) was undertaken to determine whether the project area supported, or was adjacent to, any wetlands, refer Appendix G.

##### **Contaminated Sites**

This section of the road reserve consists of remnant bushland and some revegetated areas from the duplication of the carriageway in 1995 so is unlikely to contain contaminated sites.

##### **Protected Fauna (CALM's database)**

The fauna species listed under the *Wildlife Conservation (Specially Protected*

*Fauna*) Notice 2002 as having been recorded within, or in the vicinity of the project area are listed in Appendix B.

#### **Commonwealth protected matters**

A search of the department of Environment and Heritage's Protected Areas database for places considered under the *Environmental Protection and Biodiversity Conservation Act (1999)* (EPBC) to be of national environmental significance was conducted and the results are contained within Appendix D. Six Threatened species and one listed Marine species were identified as EPBC protected matters likely to occur in the project area.

## **4. EXISTING ENVIRONMENT**

Project Manager Peter Bromley and Environmental Officers Nigel Rowe and Jeanette Della-Bona carried out a site inspection on 11th December 2004 to examine the plant species present in the road verge.

Approximately 54% of the project area (from Binningup to Springhill Road) is a Parkland Cleared Community consisting of scattered trees among exotic pastures. These trees are principally eucalypt species (*E. gomphocephala*, *E. marginata*, *E. calophylla*) and *Agonis flexuosa*. The remaining 46% (from Taranto to Binningup Road) of the vegetation consists of Peppermint and Jarrah-Banksia Woodland. Refer Appendix H for typical photographic record of the project site.

#### **Jarrah-Banksia Woodland**

In sites where soils are less limey, *Eucalyptus marginata* with a midstorey of *Banksia attenuata*, *B. ilicifolia* and *B. grandis* occurs. Common understorey species include *Macrozamia riedlei*, *Xanthorrhoea preissi*, *Bossiaea pulchella*, *Lepidosperma angustum* and *Hibbertia hypericoides*. This vegetation unit tends to be in moderate to good condition and weed invasion less obvious.

#### **Peppermint Woodland**

Where tuart is absent (possibly logged), a woodland of *Agonis flexuosa* occurs to about 10 m tall. Other overstorey species include *Dyandra sessilis* and *Melaleuca huegellii*. Understorey species are typical of those occurring in Tuart woodland and include *Hakea prostrata*, *Acacia saligna* and *Phyllanthus calycinus*. Ground flora species include *Macrozamia riedlei*, *Lepidosperma* sp. and *Hibbertia hypericoides*.

In total 559 trees on both sides of this 5.58 km section of highway are required to be removed to allow for a lateral clearance of 6 m and 9 m on the east and west sides of the north bound carriageway, respectively. This approximates to 1 ha of vegetation.

#### **Vegetation Condition**

The vegetation communities present were given a condition rating based on the Keighery Vegetation Condition Rating Scale (Keighery, 1994). The ratings in this scale are described as follows:

1. Pristine or nearly so.
2. Vegetation structure intact, disturbance affecting individual species, and

- weeds are non-aggressive species.
3. Vegetation structure altered, obvious signs of disturbance.
  4. Vegetation structure significantly altered by very obvious signs of multiple disturbance, retains basic vegetation structure or ability to regenerate it.
  5. Basic vegetation structure severely impacted by disturbance. Scope for regeneration, but not to a state approaching good condition without intensive management.
  6. The structure of the vegetation is no longer intact and the area is completely or almost without native species.

The section of road verge (from Binningup Rd to Springhill Road: 133.91 - 136.93 SLK) was given a vegetation condition rating of 5 and the section (from Taranto Road to Binningup Road: 131.35 - 133.91 SLK) was given a vegetation condition rating of 3/4 as most of the understorey species were no longer present, just single and/or small clumps of marri/jarrah/peppermint vegetation remaining.

### Weeds

RoadCare's Environmental Officer undertook a site inspection for Declared Weeds on 23rd June 2004 and none were identified.

A number of common pasture weeds were identified within the project area. The predominantly weedy understorey of vegetation within the project area consists of the following species:

Couch	<i>Cynodon dactylon</i>
Wild oat	<i>Avena sp.</i>
Primrose	<i>Oenothera sp.</i>
Geranium	<i>Pelargonium sp.</i>

### Fauna

Commonwealth and state database fauna searches for threatened fauna species that may occur in the project area resulted in the following fauna being identified:

- Baudin's Black-Cockatoo (*Calyptorhynchus baudinii*) - Vulnerable
- Carnaby's Black-Cockatoo (*Calyptorhynchus latirostris*) - Endangered
- Chuditch (*Dasyurus geoffroii*) - Vulnerable
- Western Ringtail Possum (*Pseudocheirus occidentalis*) - Vulnerable
- Quokka (*Setonix brachyurus*) - Vulnerable
- White bellied-sea eagle (*Haliaeetus leucogaster*) - Migratory/Listed

A site inspection by a zoologist was undertaken 30th June 2004, looking for evidence of nesting sites for Baudin's Black-Cockatoo, Carnaby's Black-Cockatoo and the Western Ringtail Possum. No evidence of the presence of these species (or their nests/dreys) was found to be in the project area.

Clearing is not considered to pose a threat to local populations of Quokka, Chuditch and the White Bellied Sea-eagle due to the presence of nearby alternative habitat, the location and poor quality of the vegetation within the project area.

The tree removal works may have an effect on those avifauna species reliant

upon it for habitat and will result in their displacement. Revegetation of the widened road reserve however will provide an alternative fauna habitat for displaced species in the longer term.

After consideration of the fauna habitat to be impacted by the project, fauna species mobility and habitat preferences it is considered unlikely that local populations of fauna in the project area are likely to suffer major impact or have their populations put at threat by the proposed Roadside Vegetation Hazard Reduction Works.

## 5. ASSESSMENT OF ASPECTS AND IMPACTS

**Table 1: Aspects and Impacts – Roadside Vegetation Hazard Reduction Works 131.35 - 136.93 SLK lanes 3 & 4 Perth Bunbury Highway, Shire of Harvey**

Aspect	Evaluation of Potential Impacts
Air quality	<i>Not relevant to the proposed works.</i>
Dust	<i>No major sensitive receivers adjacent to the proposed works, but excessive dust could impact vegetation and adjacent farmland. 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.</i>
Fauna	<i>No significant fauna issues associated with the proposed clearing. With the generally degraded and exposed nature of the works areas, no significant impacts would be expected on native fauna as a result of the proposed roadside hazard reduction works.</i>
Vegetation clearing	<i>– In total 559 trees on both sides of this 5.58 km section of highway are required to be removed to allow for a lateral clearance of 6 m and 9 m along the east and west sides of the northbound carriageway, respectively. This approximates to 1 ha of vegetation. This will be accurately pegged on site prior to works commencing.</i>
Vegetation TECs/DRF	<i>– None present in the proposed works areas. No significant vegetation types nor threatened flora have not been recorded within in road reserve. Areas outside the project area must not be disturbed as part of the proposed works.</i>  <i>Consultation with CALM confirms that the proposal is not going to have a significant impact upon any DRF or TECs.</i>
Vegetation – weeds / dieback	<i>The project area occurs in Quindalup/Spearwood sands - that are well drained sandy soils with a high pH (ie from limestone), and not favourable to sustaining <i>Phytophthora cinnamomi</i>. Numerous pasture weed species occur throughout the proposed works area. These species are widespread in the general area. The risk of spreading these weed 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.</i>  <i>No Declared Weeds occur in the project area.</i>
European heritage	<i>A search of the Heritage Council's database on-line has indicated that there are no heritage-listed sites present in the currently proposed works areas.</i>
Aboriginal heritage	<i>A search of the DIA database identified no known sites of significance within the vicinity of the project area. Also an Aboriginal Heritage Survey conducted in 1991 by Main Roads also confirm that there no known sites within the project area.</i>
Surface waters/drainage	<i>Not applicable as there are no surface drainage lines within the project area.</i>
Wetlands	<i>There are no wetlands within the vicinity of the project area.</i>

**Table 1: Aspects and Impacts – Roadside Vegetation Hazard Reduction Works 131.35 - 136.93 SLK lanes 3 & 4 Perth Bunbury Highway, Shire of Harvey**

<b>Aspect</b>	<b>Evaluation of Potential Impacts</b>
Groundwater	<i>No dewatering nor drainage modifications are required, hence no change to groundwater level or quality.</i>
Noise and vibration	<i>No major sensitive local receivers. Clearing works would not be 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 Harvey must be met in respect of noise management and working hours.</i>
Visual amenity	<i>The proposed works will result in medium-term visual impact. Landscape planting of 4080 seedlings this winter (2004), will in time result in an improvement in local visual amenity.</i>
Public safety and risk	<i>Standard traffic management and signage to Main Roads standards will be employed, so none of the proposed works will present any significant hazards to public safety. The proposed works will serve to enhance public safety by improving local road conditions.</i>
Hazardous substances	<i>Not relevant to the proposed works.</i>
Reserves / Conservation areas	<i>Not relevant to the proposed works.</i>
Contamination	<i>Given the relatively superficial nature of the required earthworks, there appears to be a low risk of any significant contamination issues.</i>
Statutory Land Use Planning	<i>As the proposed works is entirely within the existing road reserve, no further amendments would be required to the Local Government Planning Scheme or Region Scheme.</i>



## **7. ENVIRONMENTAL MANAGEMENT PLAN**

The following section details actions and environmental management strategies to provide for the Roadside Vegetation Hazard Reduction Works and revegetation of the widened road verge.

### **7.1 Vegetation Removal**

It is expected that to create the 6 m and 9 m 'clear zone' between the east and west sides of the northbound carriageway respectively, that is from the travelling/painted edge line, trees within these zones with a stem diameter greater than 100 mm, a total of 559 trees will be removed. To provide for the effective management of tree removal operations and re-use of cleared timber the following management measures should be adopted during the works.

#### **Recommendation 1**

During tree removal operations, understorey species (for example *Xanthorrhoea* sp, and *Macrozamia* sp.) will not be removed from the project area.

***Action/Responsibility: Main Roads Project Manager / Main Roads Project Development Officer Environment***

#### **Recommendation 2**

Prior to the commencement of any vegetation removal operations RoadCare should certify to Main Roads Superintendent that clearing area is correctly defined.

***Action/Responsibility: Main Roads Superintendent / RoadCare***

#### **Recommendation 3**

Trees to be removed should be felled in such a manner that they fall within the approved clearing area.

***Action/Responsibility: Main Roads Superintendent / RoadCare***

#### **Recommendation 4**

Cleared timber suitable for milling or re-use should be stockpiled at the site, or nearby site, and the stockpiled timber be either forwarded to local mills for processing, or made available to the local community.

***Action/Responsibility: Main Roads Superintendent / RoadCare***

#### **Recommendation 5**

Burning of cleared timber or burning within the road reserve should not be permitted under any circumstances.

***Action/Responsibility: Main Roads Superintendent / RoadCare***

#### **Recommendation 6**

All cleared vegetation unsuitable for re-use should be reduced in size by chipping, splitting, cutting, mowing, slashing, grinding, etc and the resulting chipped material spread evenly over the source area. The average grade size should be between 15mm - 50 mm, with no individual pieces greater than 100

mm. No woody and herbaceous weed species should be included into the chipped material. Chipping of vegetation should be carried out within seven days of cutting.

***Action/Responsibility: Main Roads Superintendent / RoadCare***

#### **Recommendation 7**

RoadCare should take all precautions necessary to prevent damage to growing trees and shrubs outside the clearing area.

***Action/Responsibility: Main Roads Superintendent / RoadCare***

#### **Recommendation 8**

Should the clearing works potentially impact any birds/nests, the local CALM (Harvey) office shall be contacted for fauna care/translocation.

***Action/Responsibility: Main Roads Superintendent / RoadCare***

#### **Recommendation 9**

All natural habitat features, including tall trees, dead trees, logs, all structural layers of the vegetation, rocks and ground leaf litter, should be retained and left undisturbed as far as possible for their ecological value to flora and fauna, provided that they do not occur in the clear zone.

***Action/Responsibility: Main Roads Superintendent / RoadCare***

#### **Recommendation 10**

Any damage caused by RoadCare to vegetation, landforms, or fauna habitat outside the clearing area, should be rehabilitated at their cost.

Rehabilitation work should be carried out under the direction of an approved professionally qualified environmental consultant engaged by RoadCare. Alternatively, an environmental officer employed by Main Roads may be available to direct the work at RoadCare's cost.

***Action/Responsibility: Main Roads Superintendent / RoadCare***

### **7.2 Visual Amenity and Revegetation**

The loss of road verge vegetation to create a 6 m and 9 m wide 'clear zone' along the east and west sides of the northbound carriageway respectively will have a moderate impact on the visual aspect along this section of the Perth-Bunbury Highway. The removal of the vegetation will 'open up' the view shed from the road to adjacent farmland, and from the adjacent private properties the northbound carriageway, where areas of narrow roadside vegetation currently exist.

The eastern side of the highway will be less impacted, as the width of the vegetation width is greater. The visual impact of the works will be ameliorated in the medium to long term by the proposed revegetation on the western side of the highway.

Landscaping of the area of road reserve behind the vegetation to be removed (on the western side) is required to replace the vegetation that has been removed

and to improve the visual amenity of the area. This will provide a net increase in area of native vegetation at the site (ie 559 trees removed, to be planted by 4080 seedlings - 3245 trees and 835 shrubs).

Preparation and implementation of a Revegetation and Landscape Plan (RLP) is considered to be essential for this project. The RLP should take account of planting local indigenous species with understorey species planted closer to the road and the trees planted closer to the fence.

#### **Recommendation 11**

Main Roads prepare and initiate a Revegetation and Landscape Plan for the Roadside Vegetation Hazard Reduction Works. The Revegetation and Landscape Plan should consider such issues as topsoil scalping, species selection, planting density, intersection sight distance requirements and constraints from other services.

***Action/Responsibility: Main Roads Project Manager/ Environmental Officer / RoadCare***

#### **7.3 Weeds**

No weed species listed on the Department of Agriculture's Declared Plants List (2002) regulated under the provisions of the *WA Agriculture and Related Resources Control Act (1960)* were found to be within the project area. Numerous pasture weed species occur throughout the proposed works area however. These species are also widespread in the general area. The risk of spreading these weed species as part of the proposed works should be minimised.

Hygiene measures will reduce the risk of introducing additional weeds to the site, or transporting weeds from the site to other locations.

#### **Recommendation 12**

All earth moving machinery should be cleaned of soil and vegetation prior to entering and leaving the site. Clean down should consist of brushing, gouging and/or scraping to remove any compacted soils or plant material, accompanied and followed by jetting with compressed air such that all soil and plant residue is removed.

***Action/Responsibility: Main Roads Superintendent / RoadCare***

#### **Recommendation 13**

Longer-term management of weeds within the project area should be conducted during the annual herbicide and weed management program conducted by RoadCare on behalf of Main Roads.

***Action/Responsibility: RoadCare***

### **8. Aboriginal Heritage**

To ensure that there is no unauthorised disturbance to Aboriginal heritage sites during earthworks, the following actions will be implemented, if required:

**Recommendation 14**

If any materials of significance to Aboriginal people are discovered, works will immediately cease within 100m of the material and a qualified archaeologist will examine the site.

**Recommendation 15**

The Department of Indigenous Affairs will be notified in the event of any significant Aboriginal Heritage discovery.

**Recommendation 16**

If skeletal material is uncovered during works then the WA Police Service will also be advised immediately.

**Action/Responsibility: Main Roads Superintendent / RoadCare**

**9. Site Management**

To ensure that the site is managed so that the earthworks will have minimal impact upon the surrounding environment the following actions will be implemented:

**Recommendation 17**

A formal induction program will be conducted for all personnel prior to their commencing work on the site. The program will aim to make personnel fully aware of all management strategies.

**10. Consultation**

No formal public consultation program has been conducted for the proposed works by Main Roads.

**11. Monitoring**

Main Roads South West Region, and its Term Network Contractor – RoadCare are responsible for the Roadside Vegetation Hazard Reduction Works on the Perth-Bunbury Highway (131.35 - 136.93 SLK) in line with the environmental management measures detailed in this Environmental Impact Assessment and Environmental Management Plan.

**Recommendation 18**

Main Roads South West Region and its Term Network Contractor - RoadCare are responsible for the Roadside Vegetation Hazard Reduction Works on the Perth-Bunbury Highway in line with the environmental management measures detailed in this document.

**Action/Responsibility: Main Roads Project Manager / RoadCare**

**Recommendation 19**

A copy of this EIA & EMP should be provided to RoadCare prior to the commencement of roadworks. Similarly all relevant environmental management

measures should be included in any technical or other specifications prepared for the project and provided to RoadCare.

**Action/Responsibility: Main Roads Project Manager / Main Roads Superintendent**

#### **Recommendation 17**

During the tree removal works compliance with environmental management measures should be monitored. Any non-conformances should be addressed at the first opportunity with non-conformances and the corrective actions implemented detailed in appropriate superintendence documentation.

**Action/Responsibility: Main Roads Project Manager / Main Roads Superintendent**

#### **Recommendation 18**

Monitoring the success of the revegetation works should be conducted for a minimum period of three years from the time of implementation. Additional works and/or remedial action should be taken to ensure the success of the landscaping works.

**Action/Responsibility: Main Roads Project Development Officer Environment**

### **7. CONCLUSION / DECISION TO REFER**

This Environmental Impact Assessment and Management Plan (EIA and EMP) has been prepared for Main Roads proposed Roadside Vegetation Hazard Reduction Works on a 5.6 km section of the Perth Bunbury Highway 21 km north of Bunbury.

The EIA and EMP have identified the likely environmental impacts of the proposed works and recommends management strategies and actions to both manage the works and off-set the identified impacts.

Given the minor scale of the project, the low significance of its impacts to the surrounding environment and the management measures proposed, it is concluded that the project does not require referral to the WA EPA or the Commonwealth Department of Environment and Heritage.

## **8. REFERENCES**

1. Highway H2 (Perth-Bunbury) Lake Clifton to Australind Bypass Section "Environmental Impact Assessment" for Main Roads, Dames & Moore, Oct 1991.
2. Main Roads Bunbury Division Highway H2 (Perth-Bunbury) Binningup Section Environmental Assessment and Management Plan, June 1994.
3. Brunswick Catchment Area Water Source Protection Plan, Water and Rivers Commission - Policy and Planning Division, Report Number WRP 39, 2001.
4. Leaf and Branch - Trees and Tall Shrubs of Perth, Robert Powell, CALM, 1990.

## **Figure 1**

### **Locality Map**





**Appendix A**  
**Low Impact Screening Checklist**

### Appendix H Checklist - Low Impact Environmental Screening

The Low Impact Environmental Screening Checklist is part of the environmental assessment and approval process, explained in Figure 2 and in the procedures (Sections 3.1 and 4.1).

All projects are to be screened to identify those that are Low Impact, ie that will have a low impact on the environment and that can be adequately managed through standard contract clauses.

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. Circle the relevant part of the item.

Project Name Perth - Bunbury Highway 130 - 137 SLK.

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	Existing road, works require clearing more than 1ha of native vegetation.	<input type="checkbox"/>	<input checked="" type="checkbox"/>
3	Existing road, works require clearing and there is: declared rare flora or priority flora or other significant stand of vegetation.	<input type="checkbox"/>	<input checked="" type="checkbox"/>
4	Existing road, works require ground disturbance outside maintenance clearance zone.	<input checked="" type="checkbox"/>	<input type="checkbox"/>
5	New, or expansion of existing, pits or quarries required. (non-commercial sources)	<input type="checkbox"/>	<input checked="" type="checkbox"/>
6	Adjoining sensitive land use. eg residential or hospital or education centre	<input type="checkbox"/>	<input checked="" type="checkbox"/>
7	Passes over, adjoins or drains directly into a wetland or watercourse.	<input type="checkbox"/>	<input checked="" type="checkbox"/>
8	Local natural drainage regime / hydrology will be affected.	<input type="checkbox"/>	<input checked="" type="checkbox"/>
9	Within/immediately adjacent to surface/underground Public Drinking Water Source Area.	<input type="checkbox"/>	<input checked="" type="checkbox"/>
10	Dewatering, or water bore use required.	<input type="checkbox"/>	<input checked="" type="checkbox"/>
11	Known potential source of hazardous materials within or adjoining the road reserve. Former / existing: petrol station or industrial site or waste disposal site (landfill)	<input type="checkbox"/>	<input checked="" type="checkbox"/>
12	Buildings will require demolition.	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Completed By: Signature P. Bromley Date 17/5/2004  
 Name PETER BROMLEY Title ASSIST MANAGER S.W.

Reviewed By: Signature Jeanette Della Gona Date 19/5/2004  
 Name JEANETTE DELLA GONA Title PROJECT DEVELOPMENT OFFICER  
- ENVIRONMENT S.W.

## **Appendix B**

### **Department of Conservation and Land Management's Fauna Database Search**

## **Appendix C**

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

# AUSTRALIAN HERITAGE PLACES INVENTORY

[New Search](#) ]

- 
- |    |   |  |
|----|---|--|
| 1. | <a href="#">Australind</a> <a href="#">Memorial</a><br>Old Coast Rd, Australind,<br>WA                    | <b>LGA:</b> Harvey Shire<br>(Current)<br><b>Source:</b> Register of<br>the National Estate |
| 2. | <a href="#">Crampton</a> <a href="#">Nature</a><br><a href="#">Reserve</a><br>Old Coast Rd, Myalup,<br>WA | <b>LGA:</b> Harvey Shire<br>(Current)<br><b>Source:</b> Register of<br>the National Estate |

Query matched 2 records.

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Report produced : 25/5/2004  
AHPI URL : <http://www.heritage.gov.au/ahpi/search.html>



HERITAGE COUNCIL OF WESTERN AUSTRALIA

There are no Places matching your search criteria

## **Appendix D**

### **Department of Environment and Heritage Protected Matters Database Search**

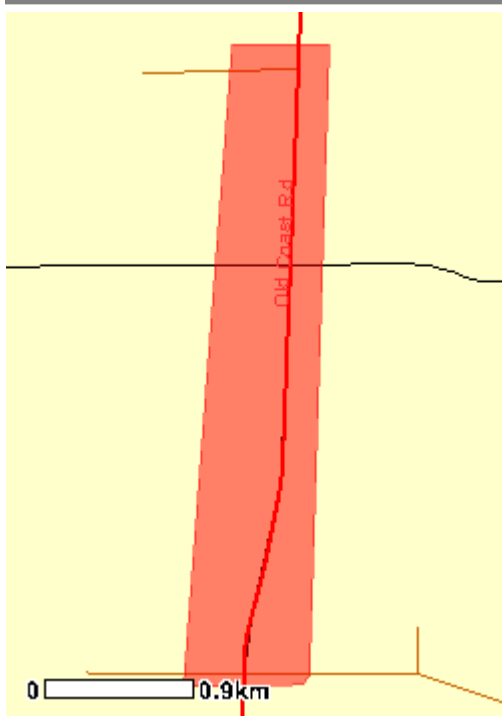
# EPBC ACT PROTECTED MATTERS REPORT

25 June 2004 12:49

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.

You may wish to print this report for reference before moving to other pages or websites.

The Australian Natural Resources Atlas at <http://www.environment.gov.au/atlas> may provide further environmental information relevant to your selected area. Information about the EPBC Act including significance guidelines, forms and application process details can be found at <http://www.deh.gov.au/epbc/assessmentsapprovals/index.html>



**Search Type:** Area

**Buffer:** 0 km

**Coordinates:** -33.13392,115.71618, -33.13392,115.72263, -33.17587,115.72131, -33.17646,115.72087, -33.17666,115.71295



World Heritage Properties:	None
National Heritage Places:	None
<a href="#">Wetlands of International Significance:</a> (Ramsar Sites)	1
Commonwealth Marine Areas:	None
Threatened Ecological Communities:	None
<a href="#">Threatened Species:</a>	6
<a href="#">Migratory Species:</a>	1

## Other Matters Protected by the EPBC Act

Commonwealth Lands:	None
Commonwealth Heritage Places:	None
Places on the RNE:	None
<a href="#">Listed Marine Species:</a>	1
Whales and Other Cetaceans:	None
Critical Habitats:	None
Commonwealth Reserves:	None

## Details

## Matters of National Environmental Significance

Wetlands of International Significance [ [Dataset Information](#) ]  
(Ramsar Sites)

[PEEL-YALGORUP SYSTEM](#)

Within 10 km of Ramsar site

Threatened Species [ [Dataset Information](#) ]

Status

Type of Presence

### Birds

[Calyptrorhynchus baudinii](#)

Baudin's Black-Cockatoo, Long-billed Black-Cockatoo

Vulnerable

Species or species habitat likely to occur within area



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

<a href="#"><i>Dasyurus geoffroii</i></a> Chuditch, Western Quoll	Vulnerable	Species or species habitat likely to occur within area
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<a href="#"><i>Pseudocheirus occidentalis</i></a> Western Ringtail Possum	Vulnerable	Species or species habitat may occur within area
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<a href="#"><i>Setonix brachyurus</i></a> Quokka	Vulnerable	Species or species habitat may occur within area
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## Plants

<a href="#"><i>Caladenia</i> sp. Jarrah forest (S.D. Hopper 3990)</a>	Vulnerable	Species or species habitat likely to occur within area
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Migratory Species [ <a href="#">Dataset Information</a> ]	Status	Type of Presence
---	--------	------------------

## 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
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## Other Matters Protected by the EPBC Act

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

### Birds

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

## Caveat

report.

This report is designed to assist in identifying the locations of places which may be relevant in determining obligations under the *Environment Protection and Biodiversity Conservation Act 1999*. It holds mapped locations of World Heritage and Register of National Estate properties, Wetlands of International Importance, Commonwealth and State/Territory reserves, listed threatened, migratory and marine species and listed threatened ecological communities. Mapping of Commonwealth land is not complete at this stage. Maps have been collated from a range of sources at various resolutions.

Not all species listed under the EPBC Act have been mapped (see below) and therefore a report is a general guide only. Where available data supports mapping, the type of presence that can be determined from the data is indicated in general terms. People using this information in making a referral may need to consider the qualifications below and may need to seek and consider other information sources.

For threatened ecological communities where the distribution is well known, maps are derived from recovery plans, State vegetation maps, remote sensing imagery and other sources. Where threatened ecological community distributions are less well known, existing vegetation maps and point location data are used to produce indicative distribution maps.

For species where the distributions are well known, maps are digitised from sources such as recovery plans and detailed habitat studies. Where appropriate, core breeding, foraging and roosting areas are indicated under "type of presence". For species whose distributions are less well known, point locations are collated from government wildlife authorities, museums, and non-government organisations; bioclimatic distribution models are generated and these validated by experts. In some cases, the distribution maps are based solely on expert knowledge.

Only selected species covered by the [migratory](#) and [marine](#) provisions of the Act have been mapped.

The following species and ecological communities have not been mapped and do not appear in reports produced from this database:

- threatened species listed as [extinct or considered as vagrants](#)
- some species and ecological communities that have only recently been listed
- [some terrestrial species](#) that overfly the Commonwealth marine area
- migratory species that are very [widespread, vagrant, or only occur in small numbers](#).

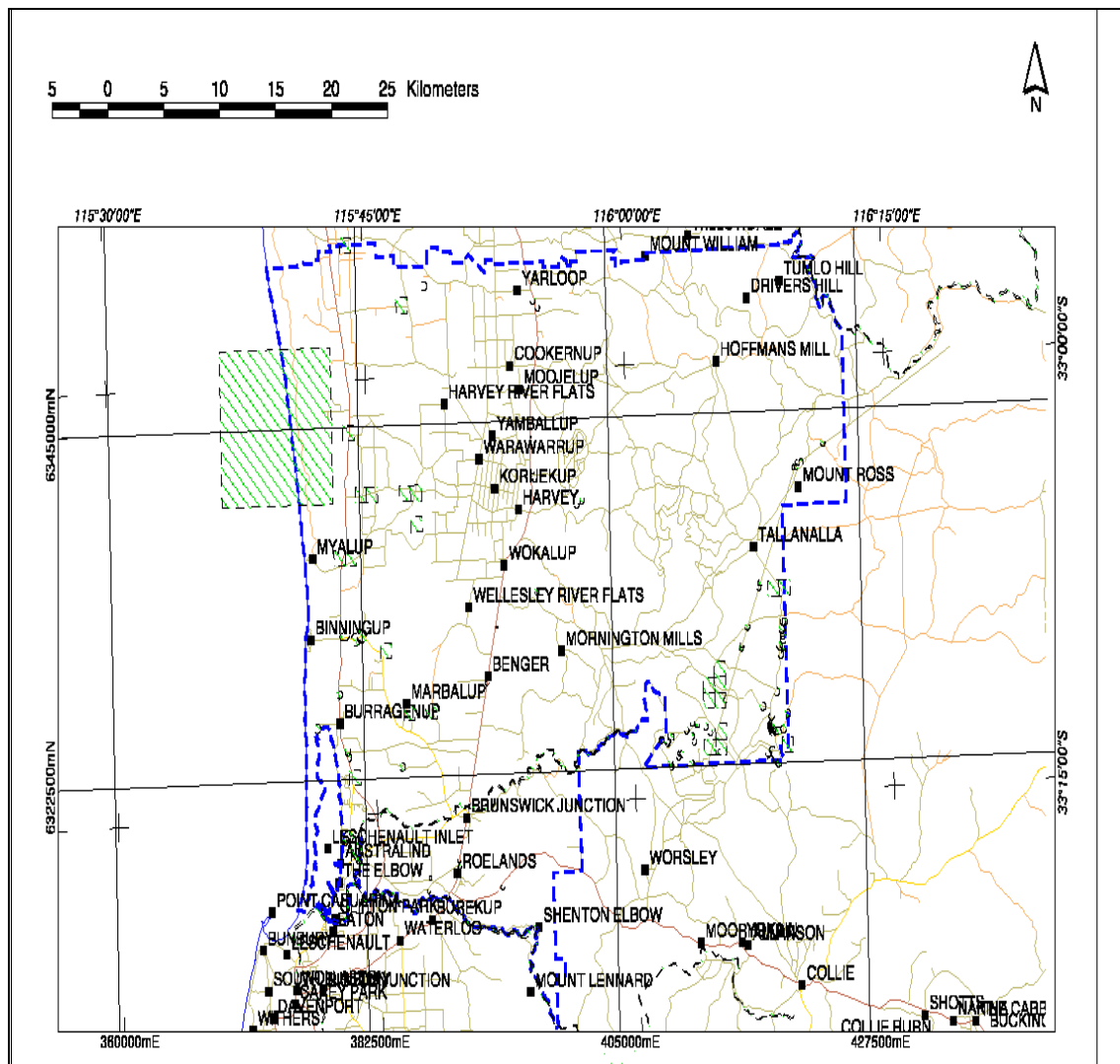
The following groups have been mapped, but may not cover the complete distribution of the species:

- non-threatened seabirds which have only been mapped for recorded breeding sites;
- seals which have only been mapped for breeding sites near the Australian continent.

Such breeding sites may be important for the protection of the Commonwealth Marine environment.

**Appendix E**

**Department of Indigenous Affairs  
Registered Aboriginal Heritage Sites Database Search**



## **Appendix F**

### **DoE's Public Drinking Water Supply Areas Database Search**

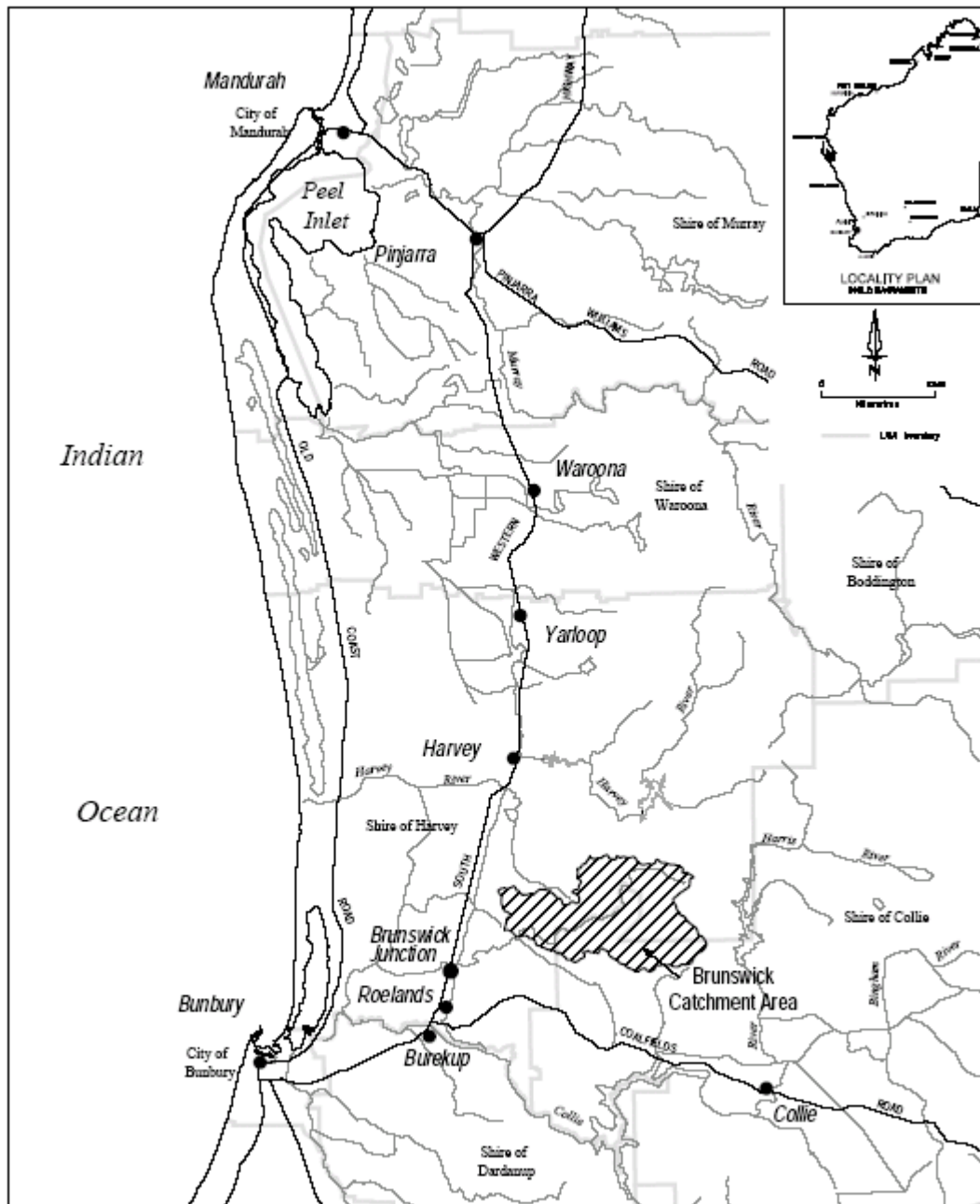
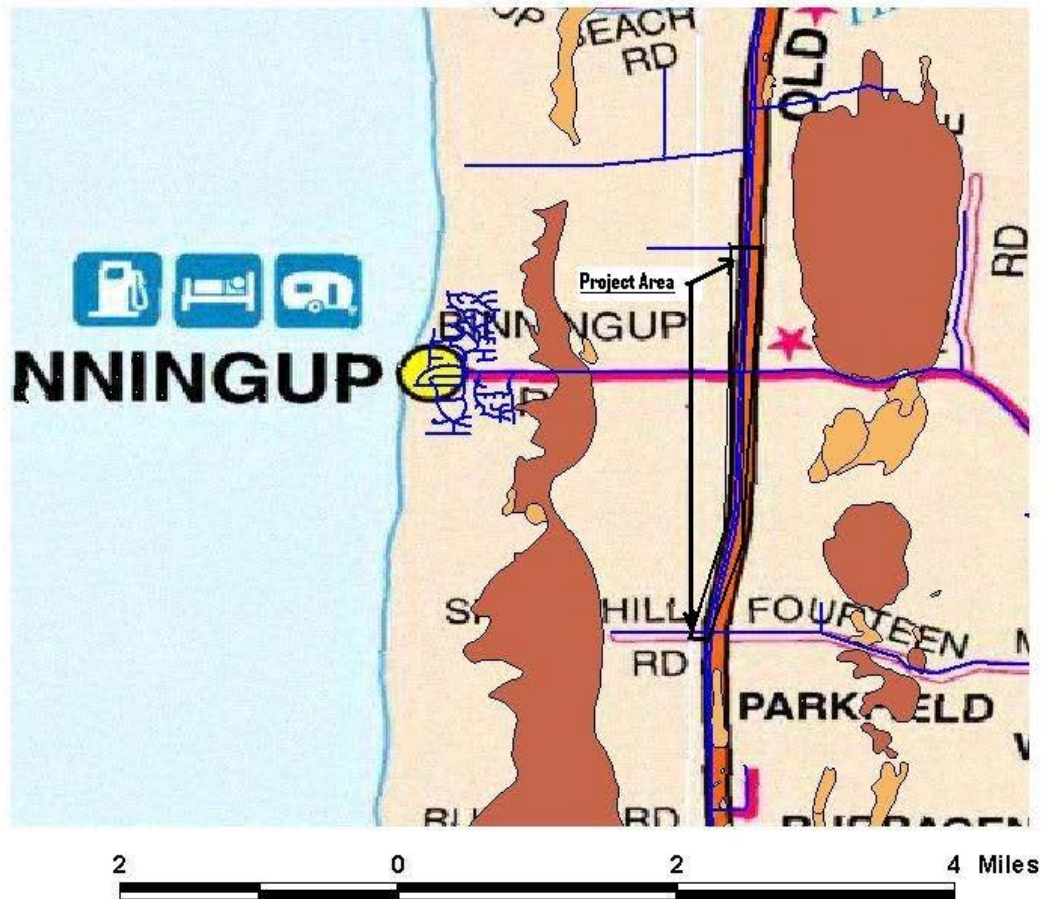


Figure 1. Brunswick Catchment Area locality map

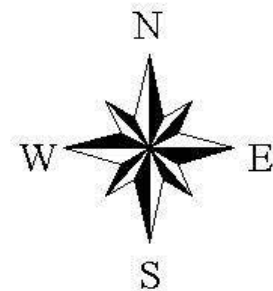
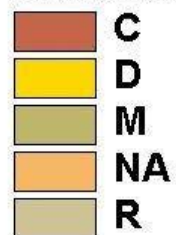
## **Appendix G**

### **Department of Environment Geomorphic Wetland Dataset (2003)**

# IRIS



Network (sde)  
WetlandsII.shp





## **Appendix H**

### **Typical photographic record of the project site**



**Photo 1:** 136.43 SLK looking south. Peppermint and Banksia trees located 6 m from painted edge line, requiring to be cleared.



**Photo 2:** Typical example of vegetation requiring to be cleared, located approximately 6m from painted edge line; looking north at 136.43 SLK.





**Photo 3:** Example of an area to be planted winter 2004 behind roadside vegetation to be cleared at 136.43 SLK (facing north).



**Photo 4:** Example of Peppermint trees in the median strip looking south at 135.03 SLK Vegetation within 6 metres of the painted edge line along the median strip to go.





**Photo 5:** Direct seeding/revegetation from previous construction of carriageway in 1995 at 135.03 SLK RHS Lane 4.



**Photo 6:** Roadside vegetation Lane 4 facing north at 133.33 SLK first row of trees at 6m from the painted edgeline.





**Photo 7:** 133.33 SLK Lane 3 RHS Note trees are located 5.5 m from the painted/travelling edgeline.



**Photo 8:** Cross at jarrah tree, Lane 3 RHS. The jarrah tree is 4 m from the painted/travelling edgeline.