

# **Greater Bunbury Region Scheme**

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**Western Australian Planning Commission**

**Report and recommendations  
of the Environmental Protection Authority**

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## **Summary and recommendations**

The Western Australian Planning Commission (WAPC) has prepared a Region Scheme for the Greater Bunbury Region, known as the Greater Bunbury Region Scheme (GBRS), pursuant to the *Western Australian Planning Commission Act 1985*. The WAPC, the Responsible Authority, proposes to recommend to the Minister for Planning and Infrastructure that the GBRS be submitted to Parliament for final approval. This report provides the Environmental Protection Authority's (EPA's) advice and recommendations to the Minister for the Environment on the environmental factors relevant to the proposed Scheme as required under section 48D of the *Environmental Protection Act 1986*.

The GBRS was referred to the EPA by the WAPC in August 1996. The EPA decided that the GBRS should be formally assessed due to potential impacts of the new zones and reserves in the Scheme. The new zones and reserves are those that differ from the zone or reserve shown in an existing town planning scheme for the subject land.

### **Environmental submissions received during the public consultation period**

The public consultation period (3mths standard + 3 mths extension) closed on 16 February during which time 272 written submissions were received; 169 (62%) of these were concerned with environmental matters. Only those submissions raising environmental issues are considered by the EPA. The other submissions and issues are being considered by the WAPC separately.

Close to half of the environmental issues raised in the submissions relate to Regional Open Space (ROS). These issues were raised by either landowners with properties affected by proposed ROS or people requesting additional land to be included in ROS reserves.

### **Strategy for the EPA to identify regionally significant natural areas in its consideration of the Greater Bunbury Region Scheme portion of the Swan Coastal Plain**

As part of its assessment of the GBRS the EPA has prepared a *Strategy for the EPA to identify regionally significant natural areas in its consideration of the Greater Bunbury Region Scheme portion of the Swan Coastal Plain* (hereinafter referred to as the Natural Areas Strategy) to assist in evaluating the natural values of the new zones and new infrastructure and Regional Open Space reserves in the GBRS against set criteria. As part of its assessment of the GBRS, the EPA has also undertaken biological surveys of a number of sites consistent with the criteria set out in the Natural Areas Strategy.

To encompass current recognised levels of remnant native vegetation retention the objective of the Natural Area Strategy is to achieve a standard level of native vegetation retention of at least 30% of the pre-clearing extent of the ecological communities on the Swan Coastal Plain.

For the Greater Bunbury Region (except for lands identified in the 'GBR Constrained Area' ) this means the objective is to seek to:

- retain at least 30% of the pre-clearing extent of the ecological communities in the GBR, where greater than 30% of an ecological community remains on the Swan Coastal Plain
- preferentially locate developments in cleared areas, where 30% or less of the pre-clearing extent of the ecological community remains on the Swan Coastal Plain.

It has been found that much of the Swan Coastal Plain has been altered to such an extent that 12 of the 15 vegetation complexes within the Greater Bunbury Region have 30% or less of their area remaining on the Plain. As a consequence, for the targets to be met by the EPA all remaining vegetation in these complexes is in need of retention and some level of protection.

Within the 'Greater Bunbury Region Constrained Area' of the Swan Coastal Plain the EPA's objective is to to:

- retain at least 10% of the pre-clearing extent of the ecological community in the 'Constrained Area' of the Greater Bunbury Region where greater than 10% of the ecological community remains on the Swan Coastal Plain (the natural region); or
- retain all remaining areas of each ecological community in the 'Constrained Area' of the GBR where 10% or less than 10% of this ecological community remains on the Swan Coastal Plain.

The application of the criteria and the specific policy statements within the terms of the Natural Areas Strategy required the further identification of the regionally significant sequences of ecological communities within and between the major landform elements. While the EPA recognises that the systematic identification of regionally significant natural areas, and the mechanisms to protect these areas, is proposed to be achieved through the update of the remainder of the System 6 and part System 1 area in a similar co-ordinated program to *Bush Forever*, the EPA is of the opinion that sufficient information has been gathered to broadly identify a series of regionally important ecological linkages as depicted in Appendix 4.

### **Sites assessed by the EPA**

After considering the potential environmental impacts of the new zones and reserves and the issues raised in the submissions the EPA determined that the following sites were likely to have significant environmental impacts and should be assessed in detail:

- Reserve 35061 Paris Road, Australind - Decommissioned Waste Water Treatment Plant (Urban Deferred), Lots 27, 28, 150, 151, 1 and 21 Paris Road (north), Australind (Urban Deferred) and Lot 3 Paris Road (south), Australind (Urban zone)
- Lots 313-317 south of Harewoods Road, South Dalyellup (Urban Deferred)
- Reserve 31012 Harewoods Road, Dalyellup (Urban Deferred zone)
- Part Lot 201 Gray Road, Part Lot 4402, Part Lot 97, Lot 139 Armstrong Street, Lots 1a, 4a, 66 and Part Lot 138 Timperley Road, Boyanup (Urban Deferred zone)
- Lot 871 Prowse Road, Capel (south) (Urban zone)
- Lot 2 Harvey (Urban zone)

- Kemerton Industrial Area Expansion
- Port Installation reserve and adequacy of the adjacent ROS reserve boundary alignment
- Raymond Road
- South Western Highway (northern section between the northern boundary of the GBRS and the Preston River)
- Port Access Road
- Boyanup Bypass Road
- Lot 310 and Part of lots 23, 35 and 205 Marriot Road, Kemerton (Public Purpose Reserve)
- Locations 7 and 14 Buffalo Road, Binningup
- Twin Rivers - Pt Lot 211 Barnes Avenue, Australind
- Picton Waters - EPP Lake on portion of Lots 40-44 Jeffery Road, Picton
- College Grove - Lot 1000 Bussell Highway
- Muddy Lakes – Minninup Road, Capel
- Pt Loc 632 Parade Road, Glen Padden
- Reserve 670 North Boyanup Road, Davenport (Industrial zone)
- Lot 15 North Boyanup Road
- Bunbury Outer Ring Road
- Glen Iris Service Corridor
- Lot 35 Spurr Street, Capel (Urban Deferred)
- Lots 8 and 10 Ferguson River Foreshore, Picton
- Lots 1 and Pt Lot 5 North Boyanup Road, Davenport
- Dalyellup Beach Estate Tourist Precinct– Pt Loc 497 Dalyellup Road

In addition to the the above sites the EPA has also assessed or provided advice in relation to the following matters:

- Special Control Area No. 1 - Water Catchments
- Special Control Area No. 2 - Kemerton Industrial Zone Buffer
- Special Control Area No. 3 - North Capel
- Public Water Supply Catchment Policy
- Floodplain Management Policy
- Strategic Agricultural Resource Policy
- Strategic Minerals and Basic Raw Materials Resource Policy
- Wetland Management
- Waterway Management
- Acid sulfate soils
- Alcoa Wagerup

### **Strategy to conserve regionally significant natural areas on the Swan Coastal Plain**

The EPA recognises the need to update the conservation recommendations on the Swan Coastal Plain portion of the GBRS as a priority. It considers that this work should be undertaken as part of a wider coordinated program to update conservation

recommendations across the non-metropolitan portions of the southern Swan Coastal Plain, and the Darling and Whicher Scarps. The review of conservation recommendations on the country portions of the Swan Coastal Plain is needed to complete an update of the EPA System 6 and System 1 recommendations that was initiated in 1995, but deferred pending completion of recommendations for the metropolitan area through Bush Forever.

The EPA supports the completion of the System 6 and System 1 update on the Swan Coastal Plain and adjacent Scarps as a 'whole of government' program through a similar co-ordinated approach, as used for Bush Forever. It considers that an adaptation of the criteria developed for the Natural Area Strategy would provide an appropriate basis for this review. Consideration of the ecological linkage requirements and mechanisms promoting re-establishment of ecological linkage, including hydrological and wetland function, should be an important component of the program.

### **Right of appeal and condition setting**

Section 100 (2) of the *Environmental Protection Act 1986* states that the responsible authority (WAPC), any decision making authority or any other person which or who disagrees with the content of, or any recommendations in this report, may lodge with the Minister for the Environment an appeal in writing setting out the grounds of that appeal.

Section 101 (2a) of the *Environmental Protection Act 1986* states that the Minister for the Environment shall consult, and attempt to reach agreement with, the responsible Minister (Minister for Planning and Infrastructure) on deciding the outcome of appeals.

Once any appeals lodged under Section 100 (2) have been determined the Minister for the Environment shall consult the Minister for Planning and Infrastructure and, if possible agree on conditions to which the GBRS should be subject if the Scheme is to be implemented.

### **Relevant environmental factors**

Although a number of environmental factors were considered by the EPA in the assessment, it is the EPA's opinion that the following are the environmental factors relevant to the proposed GBRS, which required evaluation in this report.

- (a) Protection and management of regionally significant remnant vegetation;
- (b) Protection and management of regionally significant watercourses and wetlands;  
and
- (c) Separation of incompatible land uses - buffer requirements for noise and air quality.

### **Conclusion**

The EPA has considered the GBRS and has concluded that the Scheme can be implemented to meet the EPA's objectives provided the following recommendations and conditions are implemented.

### **Recommendations**

The EPA submits the following recommendations to the Minister for the Environment:

1. That the Minister notes that the scheme being assessed is the Greater Bunbury Region Scheme.
2. That the Minister considers the report on the following issues and associated relevant environmental factors as set out in [Section 2](#):
  - a) Issues raised in the environmental submissions received during the public consultation period;
  - b) Assessment of new urban zones with potentially significant environmental impacts;
  - c) Assessment of the potentially significant environmental impacts of the new Kemerton Public Purpose Reserve;
  - d) Assessment of the potentially significant environmental impacts of the new Port Installation zone;
  - e) Assessment of new road and rail reserves with potentially significant environmental impacts;
  - f) Assessment of other zones and reserves with potentially significant environmental impacts;
  - g) Assessment of the adequacy of Regional Open Space reserves;
  - h) Assessment of Special Control Areas;
  - i) Assessment of policies linked to the Greater Bunbury Region Scheme; and
  - j) Regionally significant environmental issues of concern to the EPA.
3. The Minister notes that the EPA has concluded that the EPA's objectives can be met, provided the recommended conditions summarised in [Section 14](#) and set out in detail in [Appendix 14](#) are incorporated by the Responsible Authority into the GBRS and implemented at the appropriate level of planning.
4. That the Minister in consultation with the Minister for Planning and Infrastructure imposes the conditions recommended in [Appendix 14](#) of this report.
5. The Minister notes the EPA's advice in [Appendix 15](#) of this report.
6. That the Minister notes that the EPA has deferred the assessment of a number of environmental factors, as shown in [Section 15](#), so that the EPA would have the opportunity to assess proposals impacting on these environmental factors in more detail at the appropriate stage of the planning process.
7. That the Minister notes that where any development proposal complies with the Greater Bunbury Region Scheme and raises no additional environmental factors and does not impact on the deferred factors, the development proposal will not normally be subject to further assessment under Part IV of the *Environmental Protection Act 1986*. However, future development proposals may still require

works approval, licensing and pollution control conditions under the Environmental Protection Act 1986 where applicable.

## **Conditions**

Having considered the Responsible Authority's proposed environmental conditions and the information provided in the report, the EPA has developed a set of conditions which the EPA recommends be imposed if the Scheme is approved.

Matters addressed in the conditions include:

### **1 Management Plans**

The following Environmental Management Plans may be required and shall be implemented in accordance with the provisions of the Management Plans, to the satisfaction of the Western Australian Planning Commission:

- 1) Environmental Management Plans for schemes, subdivisions and developments;
- 2) Environmental Management Plans for industrial development with the Kemerton Industrial Area and Special Control Area No. 2;
- 3) Drainage, Nutrient and Water Management Plan; and
- 4) Acid Sulfate Soil Management Plan.

### **2 Biological Survey**

As part of a scheme amendment or application to subdivide or develop land which has the potential to impact on regionally significant native remnant vegetation or native fauna, a biological survey may be required, including a search for Declared Rare Flora and Fauna, Priority Flora, Threatened Flora Communities and Threatened Fauna, to be undertaken.

### **3 Connection to Reticulated Sewerage**

Subdivisions and developments shall be connected to reticulated sewerage where:

- 1) the Average Annual Maximum Groundwater Level is less than 1.2 metres below the natural ground surface; or
- 2) subsoil drainage is proposed or will be required as a part of development, unless the responsible authority and the EPA agree that there are special circumstances applying to a particular subdivision or development.

### **4 Land to be reserved**

All or portions of the following sites shall be reserved for conservation:

- 1) Reserve 35061 Paris Road, Australind - Decommissioned Waste Water Treatment Plant
- 2) Reserve 31012 Harewoods Road, Dalyellup
- 3) Port Installation Reserve

- 4) Lots 0, 7 and 9 Brunswick River (east of Australind Bypass)
- 5) Twin Rivers - Pt Lot 211 Barnes Avenue, Australind
- 6) College Grove - Lot 1000 Bussell Highway
- 7) Pt Loc 632 Parade Road, Glen Padden
- 8) Reserve 670 North Boyanup Road, Davenport
- 9) Picton Waters - EPP Lake on portion of Lots 40-44 Jeffery Road, Picton
- 10) Lot 10 Ferguson River foreshore, Picton
- 11) Pt Lot 1 North Boyanup Road, Davenport

## **5 Realignment of Primary Regional Road Reserves**

Portions of the following Primary Regional Road Reserves shall be realigned:

- 1) Port Access Road
- 2) Bunbury Outer Ring Road

### **Other Advice**

In addition to the above environmental conditions the EPA provides advice and comment on the following matters:

#### **1. Deferred factors**

A number of environmental factors have not been included in the EPA's assessment due to the broad scale of the assessment or because insufficient information is available at this stage of the planning process. The EPA has decided that these factors should be "deferred" to ensure that the EPA has the opportunity to assess future local government scheme amendments, subdivisions or development proposals, whichever comes first, so that a more detailed consideration of the potential environmental impacts can be undertaken by the EPA pursuant to Part IV of the *Environmental Protection Act 1986*.

The deferred factors are:

- 1) All Rural zoned land in the GBRS  
Deferred factors – remnant vegetation and wetlands
- 2) All land in the Greater Bunbury Region Scheme  
Deferred factor – site contamination
- 3) Reserve 35061 Paris Road, Australind - Decommissioned Waste Water Treatment Plant  
Deferred factors – remnant vegetation, fauna and ecological linkage
- 4) Lots 27, 28, 150, 151, 1 and 21 Paris Road (north), Australind  
Deferred factors— remnant vegetation, fauna and ecological linkage
- 5) Lots 313-317 south of Harewoods Road, South Dalyellup  
Deferred factors — remnant vegetation, fauna and ecological linkage

- 6) Reserve 31012 Harewoods Road, Dalyellup  
Deferred factors — contamination.
- 7) Part Lot 201 Gray Road, Part Lot 4402, Part Lot 97, Lot 139 Armstrong Street, Lots 1a, 4a, 66 and Part Lot 138 Timperley Road, Boyanup  
Deferred factor — remnant vegetation
- 8) Lot 871 Prowse Road, Capel (south)  
Deferred factors — remnant vegetation, fauna and ecological linkage
- 9) Lot 2 Harvey (Urban zone)  
Deferred factors — remnant vegetation, fauna and ecological linkage
- 10) Kemerton Industrial Expansion Area  
Deferred factors — noise, air quality, remnant vegetation, groundwater quality, surface water quality and solid/liquid waste disposal
- 11) Port Installation reserve  
Deferred factors — noise, air quality and marine water quality
- 12) Raymond Road  
Deferred factors — wetlands, remnant vegetation and the impacts from road users on surrounding noise sensitive landuses
- 13) South Western Highway (northern section between the northern boundary of the GBRS and the Preston River)  
Deferred factors — remnant vegetation, watercourses and the impacts from road users on surrounding noise sensitive landuses
- 14) Port Access Road  
Deferred factors - the remnant vegetation, wetland, watercourses, fauna and noise.
- 15) Boyanup Bypass  
Deferred factors — remnant vegetation, wetlands and the impacts from road users on surrounding noise sensitive landuses
- 16) Public Purpose Reserve, Lot 310 and Part of lots 23, 35 and 205 Marriot Road, Kemerton  
Deferred factors — remnant vegetation, fauna and odour emissions
- 17) Picton Waters - EPP Lake on portion of Lots 40-44 Jeffery Road, Picton  
Deferred factors — remnant vegetation, wetlands and fauna
- 18) Muddy Lakes – Minninup Road, Capel

- Deferred factors — remnant vegetation, wetlands and fauna
- 19) Reserve 670 North Boyanup Road, Davenport  
Deferred factors — remnant vegetation, fauna and ecological linkage
  - 20) Lot 15 North Boyanup Road  
Deferred factors — remnant vegetation and fauna
  - 21) Bunbury Outer Ring Road  
Deferred factors - the remnant vegetation, wetland, watercourses, fauna and noise.
  - 22) Glen Iris Service Corridor  
Deferred factors— noise, vibration, remnant vegetation and wetlands
  - 23) Lot 35 Spurr Street, Capel  
Deferred factors — remnant vegetation, wetlands and fauna

## **2. Primary Regional Road Reserves**

The alignments of the following Primary Regional Road reserves in the GBRS meet the EPA's environmental objectives provided Environmental and Noise/Vibration Management Plans and Vegetation and Waterway Mitigation Strategies are prepared and implemented, when appropriate, to the satisfaction of the EPA:

- 1) South Western Highway;
- 2) Raymond Road;
- 3) Boyanup Bypass Road;
- 4) Bussell Highway;

Proposals to construct these roads should be referred to the EPA pursuant to Part IV of the *Environmental Protection Act 1986* to ensure that the management plans are prepared to the satisfaction of the EPA.

The Environmental Management Plans should include:

- 1) mapping of vegetation units and the condition of the vegetation units;
- 2) plot based descriptions and flora lists for each of the mapped vegetation units;
- 3) mapping of populations of priority species; and
- 4) the identification of fauna values of the remnants.
- 5) a description of existing environmental values, and the identification of the environmental outcome to be achieved through the implementation of this plan;
- 6) clear delineation of significant areas to be protected;
- 7) vegetation and/or wetland mitigation strategies
- 8) allocation of responsibilities and identification of timing and duration of implementation;
- 9) provision for routine monitoring of environmental values; and

- 10) provision of details of contingency plans in the event that the monitoring surveys indicate that the road is having or has had an adverse impact upon environmental values.

The Noise Management Plan should include:

- 1) detailed noise modeling for the whole proposal taking into account topography, cadastral information, dwelling locations, road design (including elevation), road surfaces and traffic volumes;
- 2) acceptable noise and vibration levels, as agreed between the Main Roads Western Australia and the Department of Environmental Protection, to protect the amenity of adjacent residences; and
- 3) measures to manage the impact of traffic noise and vibration on adjacent residences and residential areas.

The Vegetation Mitigation Strategy should off-set the impacts on particular vegetation complexes and should include:

- 1) the biological and environmental values of any vegetation to be impacted by the design and construction of the road;
- 2) a review of the design of the road, to avoid or minimize impacts on the vegetation; and
- 3) measures including the possible acquisition of other vegetated land, to mitigate for the loss of any biological and environmental values caused by the construction of the road.

In considering the suitability of other vegetated land to mitigate the loss of any biological and environmental values caused by the construction of the proposed road the following matters will be considered by the EPA:

- 1) specific vegetation communities affected by the proposal;
- 2) specific vegetation communities on land proposed for acquisition to mitigate the loss of biological and environmental values caused by the proposal;
- 3) vesting and proposed management of the vegetation proposed for acquisition to mitigate against the loss of any biological and environmental values caused by the road construction; and
- 4) values and roles of this vegetation in maintaining conservation in the Greater Bunbury Region.

A Vegetation Mitigation Strategy should off-set the impacts on particular wetlands and should include:

- 1) the biological and environmental values of any wetlands to be impacted by the design and construction of the road;
- 2) a review of the design of the road, to avoid or minimise impacts on wetlands; and

- 3) measures including the possible acquisition of other or wetlands, to mitigate for the loss of any biological and environmental values caused by the construction of the road.

In considering the suitability of other vegetated land and wetlands to mitigate the loss of any biological and environmental values caused by the construction of the road the following matters will be considered by the EPA:

- 1) specific category, or categories, of wetlands to be affected by the road construction;
- 2) vesting and proposed management of wetland areas proposed for acquisition to mitigate against the loss of any biological and environmental values caused by the road construction; and
- 3) values and roles of the wetlands in maintaining conservation in the Greater Bunbury Region.

**3. Reserve 35061 Paris Road, Australind - Decommissioned Waste Water Treatment Plant, Lots 27, 28, 150, 151, 1 and 21 Paris Road (north), Australind and Lot 3 Paris Road (south), Australind**

It is the EPA's opinion that:

- 1) the remnant vegetation on the northern and western portions of Reserve 35061 should be reserved in the GBRS and appropriately managed;
- 2) the bushland on part Lots 27, 28 and 150 to the north of Paris Road should be conserved and managed as part of any future subdivision and development, whichever comes first; and

**4. Lots 313-317 south of Harewoods Road, South Dalyellup**

It is the EPA's opinion that:

- 1) remnant vegetation on Lots 315, 316 and 317 should be conserved and appropriately managed either as a ROS reserve in the GBRS or as part of future zoning, subdivision and/or development on the lots;
- 2) the extraction of sand and limestone from Lots 315, 316 and 317 is incompatible with the need to protect vegetation in this area;
- 3) immediate planning measures be implemented by the WAPC to manage and prevent any further development or change of land use on Lots 315, 316 and 317, until the GBRS has been proclaimed.

**5. Reserve 31012 Harewoods Road, Dalyellup**

It is the EPA's opinion that:

- 1) remnant vegetation on Reserve 31012 is regionally significant and should be reserved and appropriately managed;
- 2) appropriate land uses need to be determined for that portion of the site used as a municipal waste disposal site;
- 3) a site investigation be undertaken prior to any ground disturbing activities, to determine the extent and severity of contamination on that part of Reserve 31012 used as a waste disposal site. If the site is found to be contaminated as a result of

this investigation, then a Site Remediation and Validation Report should be produced to the satisfaction of the Department of Environmental Protection.

**6. Part Lot 201 Gray Road, Part Lot 4402, Part Lot 97, Lot 139 Armstrong Street, Lots 1a, 4a, 66 and Part Lot 138 Timperley Road, Boyanup**

It is the EPA's opinion that there is regionally significant remnant vegetation on the land proposed to be zoned Urban Deferred which should be conserved and appropriately managed as part of any future zoning, subdivision and/or development on the site.

**7. Lot 871 Prowse Road, Capel (south)**

It is the EPA's opinion that the Urban zoning on Lot 871 is environmentally acceptable subject to the remnant vegetation being conserved and protected as part of any future subdivision or development on the land.

**8. Lot 2 Harvey (Urban zone)**

It is the EPA's opinion that the Urban zoning on Lot 2 is environmentally acceptable subject to as much of the remnant vegetation being conserved and protected as possible (at least 60%), as part of any future subdivision or development on the land.

**9. Kemerton Industrial Area Expansion**

It is the EPA's opinion that:

- 1) areas of regionally significant bushland within SCA No. 2 should be reserved as ROS as a future amendment to the GBRS; and
- 2) Special Control Area No. 2 provides adequate separation between proposed industrial development and surrounding land uses to accommodate the impacts of noise and air quality in accordance with the EPA's environmental objectives and criteria for these environmental factors.

**10. Port Access Road**

It is the EPA's opinion that it would be preferable for the Port Access Road to follow existing road alignments between Harris Road and Moore Road. Although a re-alignment to the west of the currently alignment shown in the GBRS, designed and constructed to minimise impact on bushland, would be environmentally acceptable subject to Environmental and Noise/Vibration Management Plans, and Vegetation and Wetland Mitigation Strategies being prepared.

**11. Boyanup Bypass Road**

It is the EPA's opinion that:

- 1) the road be designed and constructed to minimise impact on bushland and avoid any direct or indirect impacts on the Boyanup Billabong; and
- 2) Subject to point (1) the alignment of the Primary Regional Road reserve for the Boyanup Bypass is environmentally acceptable subject to Environmental and Noise/Vibration Management Plans, and Vegetation and Wetland Mitigation Strategies being prepared.

**12. Public Purpose Reserve, Lot 310 and Part of lots 23, 35 and 205 Marriot Road, Kemerton**

It is the EPA's opinion that:

- 1) the proposal to establish waste water treatment plants on the Public Purpose reserve is environmentally acceptable subject to further investigation to select development sites with minimal potential environmental impacts on remnant vegetation and fauna; and
- 2) Special Control Area No. 2 provides adequate separation between the Public Purpose reserve and surrounding land uses to accommodate the impacts of odour emissions from waste water treatment plants in accordance with the EPA's environmental objectives and criteria for this environmental factor.

**13. Locations 7 and 14 Buffalo Road, Binningup**

It is the EPA's opinion that:

- 1) the proposed modification to the alignment of the ROS reserve boundary alignment on Location 14 is acceptable; and
- 2) the alignment of the ROS reserve boundary on Location 7 should be reviewed prior to any future zoning or subdivision on the subject land, whichever comes first, and amended where necessary.

**14. Twin Rivers - Pt Lot 211 Barnes Avenue, Australind**

It is the EPA's opinion that:

- 1) the current alignment of the ROS reserve does not adequately protect the regional natural values of the Pt Lot 211 Barnes Avenue;
- 2) in view of the regional natural values of Pt Lot 211 Barnes Avenue all of the site should be reserved;
- 3) if the Government decides not to preserve the whole of the area as a regional park, the EPA is of the view that the modified ROS alignment identified by the WAPC on 31 July 2003 should be adopted; and
- 4) arrangements be included in the Greater Bunbury Region Scheme to ensure that adequate funds are available for the WAPC to purchase areas of regional conservation value.

**15. College Grove – Lot 1000 Bussell Highway**

It is the EPA's opinion that:

- 1) a corridor between 300 and 500m be reserved in the GBRS and appropriately managed; and
- 2) some degree of flexibility (20 metres) be allowed in determining the final alignment of the northern ROS boundary to facilitate the final structure plan with no nett loss of ROS.

**16. Muddy Lakes – Minninup Road, Capel**

It is the EPA's opinion that:

- 1) the alignment of the ROS reserve boundary around Muddy Lakes should remain as shown in the advertised GBRS;

- 2) the alignment of the ROS reserve boundary should be amended to include the full extent of the wetland at the earliest opportunity;
- 3) Priority be given to implementing management arrangements (ie Government acquisition) in the Dalyellup/Minninup Lake Natural Area to prevent further degradation by current land use activities;
- 4) Interim planning mechanisms be put in place to ensure that conservation values in the Dalyellup/Minninup Lake Natural Area are protected from any further development or change of land use until suitable protection measures under the Greater Bunbury Region Scheme are provided; and
- 5) Further biological and hydrological studies be undertaken to ensure that the Dalyellup/Minninup Lake Natural Area is appropriately managed.

#### **17. Reserve 670 North Boyanup Road, Davenport**

It is the EPA's opinion that:

- 1) the southern portion on Reserve 670 should be reserved and appropriately managed because of its regional significance;
- 2) the remnant vegetation on the northern portion of Reserve 670 should be conserved primarily because of its faunal habitat values and value as an additional ecological linkage to Preston River; and
- 3) a portion of the remnant vegetation to the north of Reserve 670 should be conserved to provide a consolidated ecological linkage between Reserve 670 and the Preston River.

#### **18. Lot 15 North Boyanup Road**

It is the EPA's opinion that the remnant vegetation on Lot 15 is a significant fauna habitat and effort should be made to conserve a consolidated area of remnant vegetation and appropriately manage the remnant vegetation as part of any future zoning, subdivision and/or development on the site.

#### **19. Bunbury Outer Ring Road**

It is the EPA's opinion that subject to the Bunbury Outer Ring Road being realigned, designed and constructed to minimise impact on:

- 1) a wetland near the intersection with the Australind Bypass;
- 2) wetlands to the north of Lillydale Road; and
- 3) bushland at the intersection with Bussell Highway

the alignment would be environmentally acceptable subject to Environmental and Noise/Vibration Management Plans, and Vegetation and Wetland Mitigation Strategies being prepared.

#### **20. Glen Iris Service Corridor**

It is the EPA's opinion that:

- 1) the proposal to rezone a portion of the Glen Iris Service Corridor buffer to Urban is environmentally acceptable subject to adoption of a Special Control Area to prevent incompatible land uses being located in the buffer;
- 2) the alignment of the Glen Iris Service Corridor (Public Purpose Reserve, Rail Reserve and Regional Road Reserve) and the width of the Special Control Area

- are environmentally acceptable subject to Noise and Vibration Management Plans being prepared in accordance with the specifications in Section 2, above, prior to any additional infrastructure being constructed within the corridor;
- 3) the proposal to rezone a portion of the Glen Iris Service Corridor buffer to Urban is environmentally acceptable subject to the preparation and implementation of a drainage and nutrient management plan, wetland rehabilitation/management plan and fauna management plan; and
  - 4) any proposal to construct infrastructure within the Glen Iris Service Corridor should be referred to the EPA pursuant to Part IV of the *Environmental Protection Act 1986*.

**21. Lot 35 Spurr Street, Capel**

It is the EPA's opinion that the remnant vegetation on Lot 35 is a significant fauna habitat and effort should be made to conserve a consolidated area of remnant vegetation and appropriately manage the remnant vegetation as part of any future zoning, subdivision and/or development on the site.

**22. Special Control Area No. 2 - Kemerton Industrial Zone Buffer**

It is the EPA's opinion that Special Control Area No. 2 provides adequate separation between the proposed industry and surrounding land uses to accommodate the impacts of noise and air quality in accordance with the EPA's environmental objectives and criteria for these environmental factors.

**23. Special Control Area No. 3 - North Capel**

It is the EPA's opinion that SCA No. 3 will provide adequate separation between current and future industrial operations and surrounding land uses to accommodate the impacts of noise and air quality in accordance with the EPA's environmental objectives and criteria for these environmental factors.

**24. Public Water Supply Catchment Policy**

The EPA supports the Public Water Supply Catchment Policy subject to the land use permissibility table being deleted and inclusion of reference to the WRC guidelines which determine land use permissibility

**25. Floodplain Management Policy**

The EPA supports the Floodplain Management Policy subject to the environmental values of floodplains being described in further detail consistent with the WRC's Western Australian Draft Floodplain Management Strategy.

**26. Strategic Agricultural Resource Policy**

The EPA recommends that the Strategic Agricultural Resource Policy should be modified to include the following statements:

- 1) There is a general presumption against clearing of native vegetation including within the Strategic Agricultural Resource Policy Areas where 30% or less of the Vegetation Complex remains;

- 2) Where native vegetation and/or habitat areas (natural areas) are present it should be assumed that the proposed clearing will be assessed by the EPA in accordance with EPA's Guidance 10 (EPA, 2003); and
- 3) Native vegetation clearance is also proposed to be addressed through amendments to the *Environmental Protection Act 1986*. The *Environmental Protection Amendment Bill 2002* is currently before Parliament. This Bill contains new legislation to control clearing of native vegetation in Western Australia, through a coordinated assessment process run by the Department of Environmental Protection. Under the proposed laws most instances of clearing will require a permit.

#### **27. Strategic Minerals and Basic Raw Materials Resource Policy**

The EPA recommends that the Strategic Minerals and Basic Raw Materials Resource Policy should be modified to include the following statements:

- 1) There is a general presumption against clearing of native vegetation including within the Strategic Minerals and Basic Raw Materials Resource Policy Areas where 30% or less of the Vegetation Complex remains;
- 2) Where native vegetation and/or habitat areas (natural areas) are present it should be assumed that the proposal will be assessed by the EPA in accordance with Guidance 10 (EPA, 2003);
- 3) After the resource has been recovered from a Strategic Minerals and Basic Raw Materials Resource Policy Area located within a cleared portion of an Ecological Linkage, the linkage should be restored using previously occurring native species of local provenance; and
- 4) Native vegetation clearance is also proposed to be addressed through amendments to the *Environmental Protection Act 1986*. The *Environmental Protection Amendment Bill 2002* is currently before Parliament. This Bill contains new legislation to control clearing of native vegetation in Western Australia, through a coordinated assessment process run by the Department of Environmental Protection. Under the proposed laws most instances of clearing will require a permit.

#### **28. Strategy to conserve regionally significant natural areas on the Swan Coastal Plain**

The EPA recognises the need to update the conservation recommendations on the Swan Coastal Plain portion of the GBRS as a priority. It considers that this work should be undertaken as part of a wider coordinated program to update conservation recommendations across the non-metropolitan portions of the southern Swan Coastal Plain, and the Darling and Whicher Scarps. The review of conservation recommendations on the country portions of the Swan Coastal Plain is needed to complete an update of the EPA System 6 and System 1 recommendations that was initiated in 1995, but deferred pending completion of recommendations for the metropolitan area through Bush Forever.

The EPA supports the completion of the System 6 and System 1 update on the Swan Coastal Plain and adjacent Scarps as a 'whole of government' program through a similar

co-ordinated approach, as used for Bush Forever. It considers that an adaptation of the criteria developed for the Natural Area Strategy would provide an appropriate basis for this review. Consideration of the ecological linkage requirements and mechanisms promoting re-establishment of ecological linkage, including hydrological and wetland function, should be an important component of the program.

**29. Alcoa Wagerup**

It is the EPA's view that measures be put in place by the Shires of Harvey and Waroona or the WAPC to provided an adequate buffer around the Alcoa refinery as a matter of priority.

**30. Environmental Protection Amendment Bill 2002**

The *Environmental Protection Amendment Bill 2002* is currently before Parliament. This Bill proposes new legislation to control clearing of native vegetation in Western Australia, through a coordinated assessment process administered by the Department of Environmental Protection. Under the proposed laws most instances of clearing will require a permit. Permit applications will be assessed against criteria designed to assess impacts on:

- representation of ecological communities;
- biodiversity;
- rare species and communities;
- watercourses and wetlands;
- salinisation of land and water;
- land degradation;
- surface and ground water quality, and
- potential for flooding.

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**(Please note all appendices are contained on the compact disc in the plastic sleeve on the inside of the rear cover.)**

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## **1. Introduction**

The Greater Bunbury Region Scheme (GBRS) defines the broad pattern of land use for the City of Bunbury and the Shires of Harvey, Dardanup and Capel. The main purpose of the GBRS is to provide the statutory basis for implementing region plans such as the *Bunbury - Wellington Region Plan* (WAPC, 1995) and *Greater Bunbury Structure Plan* (WAPC, 1995) to ensure that regional facilities such as regional open space and regional roads are provided. The GBRS includes regional reservations and broad land use zones ([Appendix 1](#)).

The *Western Australian Planning Commission Act 1985* (section 18) allows for statutory region schemes (similar to the Metropolitan Region Scheme) to be prepared for areas outside of Perth metropolitan region. The GBRS will enable land reserved for purposes such as Regional Open Space (ROS) to be purchased.

The GBRS was referred to the Environmental Protection Authority (EPA) by the Western Australian Planning Commission (WAPC) in August 1996. The EPA decided that the GBRS should be formally assessed due to potential impacts of the new zones and reserves. The new zones and reserves are those that differ from the zone or reserve shown in an existing town planning scheme for the subject land. The new zones and reserves assessed by the EPA are shown in [Appendix 2](#).

In compiling this report, the EPA has considered the WAPC's Environmental Review, issues raised in public submissions, specialist advice from the Department of Environmental Protection (DEP), Water and Rivers Commission (WRC) and other government agencies, the WAPC's response to submissions and the EPA's own research and expertise.

The relevant environmental factors raised in the GBRS are identified in [Section 2.3](#). A Strategy prepared by the EPA to assist in evaluating the natural values of new zones, infrastructure and ROS reserves in the GBRS against set criteria is described in [Section 2.4](#). The issues raised by the GBRS requiring consideration and assessment by the EPA are identified in [Section 3](#). The new zones and reserves requiring assessment by the EPA are identified in [Section 3.2](#).

The conditions and procedures to which the Region Scheme should be subject, if the Minister determines that it may be implemented, are set out in [Section 14](#). [Section 15](#) provides the EPA's Other Advice, [Section 16](#) presents the EPA's Conclusions and [Section 17](#), the EPA's Recommendations.

A list of people and organisations that made submissions is included in [Appendix 6](#). References are listed in [Appendix 16](#) and recommended conditions are provided in [Appendix 14](#). The EPA's advice is provided in [Appendix 15](#).

[Appendix 7](#) contains a summary of the public submissions and the Responsible Authority's responses. The EPA has considered issues raised in public submissions when identifying and assessing relevant environmental factors.

### 1.1 Right of appeal and condition setting

Section 100 (2) of the *Environmental Protection Act 1986* states that the responsible authority (being the WAPC), any decision making authority or any other person which or who disagrees with the content of, or any recommendations in this report, may lodge with the Minister for the Environment an appeal in writing setting out the grounds of that appeal.

Section 101 (2a) of the *Environmental Protection Act 1986* states that the Minister for the Environment shall consult, and attempt to reach agreement with, the responsible Minister (Minister for Planning and Infrastructure) on deciding the outcome of appeals.

Once any appeals lodged under Section 100 (2) have been determined the Minister for the Environment shall consult the Minister for Planning and Infrastructure and, if possible agree on conditions to which the GBRS should be subject if the Scheme is to be implemented.

### 1.2 Summary of the key characteristics of the Greater Bunbury Region Scheme

A summary of the key characteristics of the proposed GBRS is presented in [Table 1](#). A description of the GBRS is provided in [Section 1](#) of the Environmental Review document (WAPC, 1999d).

**Table 1 - Key characteristics of proposed Greater Bunbury Region Scheme**

Element	Description
Local Government Authorities included in Region Scheme:	City of Bunbury Shire of Harvey Shire of Dardanup Shire of Capel
Total area of new Urban zones:	124 hectares
Total area of new Urban Deferred zones:	838 hectares
Total area of new Industrial zones:	1051 hectares
Total area of Regional Open Space reserves:	16 850 hectares

## 2. Background

### 2.1 Scope of the EPA's assessment

The Instructions for the preparation of the Environmental Review were issued by the EPA in November 1996. The scope of the EPA's assessment as outlined in the Instructions was to focus on the "new zones" where the zoning shown in the GBRS differs from that shown in the existing local government district zoning scheme and

represents a real change in proposed land use that has the potential for adverse environmental impacts.

The EPA has not assessed in detail the existing zones and reserves in local town planning schemes. Future subdivision or development in these areas may still require referral to the EPA pursuant to section 38 of the *Environmental Protection Act 1986*.

A number of environmental factors relating to particular zones or areas of land have not been included in the EPA's assessment due to the broad scale of the assessment or because insufficient information is available at this stage of the planning process. The EPA has decided that these factors should be deferred to ensure that the EPA has the opportunity to assess the potential impact of future proposals on these particular factors. The 'deferred factors' are listed in detail in [Section 15](#).

## **2.2 Preliminary environmental factors**

The preliminary environmental factors and issues raised by the GBRS as identified in the Instructions were:

- vegetation in existing and proposed conservation estate;
- regionally significant vegetation;
- fauna and habitat in existing and proposed conservation estate;
- regionally significant fauna and habitat;
- regionally significant wetlands;
- Leschenault Estuary - water quality;
- foreshore stability and dune protection;
- groundwater quality for future public water supply area;
- surface water quality existing water supply catchment areas;
- surface water quality;
- odour;
- gaseous emissions;
- solid waste disposal;
- noise and vibration;
- urban bushland; and
- regionally significant vegetation and wetlands in the rural areas.

These issues were addressed in the Environmental Review document.

## **2.3 Relevant environmental factors**

Section 48D of the *Environmental Protection Act 1986* requires the EPA to report to the Minister for the Environment on the environmental factors relevant to the proposed Scheme and on the conditions and procedures to which the proposed Scheme should be subject, if implemented. In addition, the EPA may make recommendations as considered necessary.

A number of relevant factors were identified from the EPA's consideration and review of all preliminary environmental factors generated from:

- a) the Environmental Review document;
- b) the EPA’s advice to the WAPC on the *Bunbury – Wellington Region Plan* (EPA, 1993c) and *Industry 2030* (EPA, 1998c, 1999c); and
- c) the public and government submissions and the WAPC’s response to these submissions ([Appendix 7](#)).

The EPA also considered:

- a) that there were alternative approvals processes which could ensure that a number of preliminary factors will be appropriately managed; and
- b) a number of preliminary factors could not be assessed at the broad scale of the GBRS and should be deferred until a later stage of the planning process ([Section 15](#)).

Based on the above it is the EPA’s opinion that the environmental issues and relevant environmental factors in [Table 2](#) are relevant to the proposed scheme and require detailed evaluation in this report. The EPA’s objective in relation to each issue and associated factor is also summarised in [Table 2](#).

**Table 2: Environmental issues and relevant environmental factors raised by the Greater Bunbury Region Scheme**

ISSUE	FACTOR	EPA OBJECTIVE
<b>Biophysical</b>		
Protection of biodiversity	Regionally significant wetlands and watercourses	To maintain the integrity, functions and environmental values of regionally significant wetlands.
	Regionally significant vegetation	To maintain the abundance, diversity, geographical distribution and productivity of regionally significant vegetation complexes.
	Regionally significant fauna	To maintain the abundance, diversity, geographical distribution and productivity of regionally significant fauna.
<b>Pollution</b>		
Separation of conflicting land uses. (Buffer requirements for air quality, odour and noise).	Air quality	To ensure that there is adequate separation between industry/facilities and incompatible land uses to enable the health, welfare and amenity of surrounding residences to meet statutory requirements and acceptable standards.
	Odour	To ensure that there is adequate separation between odorous industries/facilities and incompatible land uses to enable acceptable criteria for individual exposures to be met.
	Noise	To ensure that there is adequate separation between industry/facilities and incompatible land uses to ensure that noise levels meet statutory requirements and acceptable standards.
Protecting surface water quality	Water quality in Leschenault Inlet, wetlands and watercourses	To ensure that land uses that may pollute surface water catchments are not situated within public water supply surface water catchment areas.

#### **2.4 A Strategy for the EPA to identify regionally significant natural areas in its consideration of the Greater Bunbury Region Scheme portion of the Swan Coastal Plain**

The EPA has prepared a Strategy to identify regionally significant natural areas in its consideration of the Greater Bunbury Region Scheme portion of the Swan Coastal Plain

([Appendix 3](#)), hereinafter referred to as the Natural Areas Strategy, to assist in evaluating the natural values of new zones, infrastructure and ROS reserves in the GBRS against set criteria. The Natural Areas Strategy was adapted from the approach developed for Perth's Bushplan/Bush Forever to ensure a consistent application of the same regional data sets used in Perth's Bushplan/Bush Forever, and a common framework for further progression of the System 6 and Part System 1 Update process.

In August 2000 the EPA provided the draft Natural Areas Strategy to key stakeholders inviting comment on errors and omissions. A number of comments were received. The final strategy ([Appendix 3](#)) is different from the draft in that it has been altered to reflect the noted errors and omissions and includes additional information on the extent and nature of the remaining native vegetation in the Greater Bunbury Region.

The Natural Areas Strategy measures a particular area's natural values against the selection criteria for the identification of regionally significant natural areas developed for System 6 and Part System 1 Update and the Bushplan Project. Six criteria, updated to current policy standards and adapted to a largely rural environment, are used in the Natural Areas Strategy. These are listed below.

- Representation of ecological communities - Areas selected to represent the range of ecological communities and the places in which these communities merge.
- Diversity - Areas with a high diversity of landforms, flora and/or fauna species or communities in close association.
- Rarity - Areas containing rare or threatened communities or species, or species of restricted distribution.
- Maintaining ecological processes or natural systems - Maintenance of ecological processes or natural systems at a regional or national scale.
- Scientific or evolutionary importance - Areas containing evidence of evolutionary processes either as fossilised material or as relict species and areas containing unusual or important geomorphological or geological sites; including areas of recognised scientific and educational interest as reference sites or as examples of the important environmental processes at work.
- Protection of wetland, streamline, and estuarine fringing vegetation and coastal vegetation - Conservation category wetland areas including fringing vegetation and associated upland vegetation, and coastal vegetation within the accepted coastal management zone.

The criteria, and their application to particular sites are described in more detail in [Appendix 5](#). These same criteria are used in the EPA's Guidance 10 (EPA, 2003).

To encompass current recognised levels of remnant native vegetation retention in the application of the first criterion, Representation of Ecological Communities, the Natural Areas Strategy uses a standard level of native vegetation retention of at least 30% of the pre-clearing extent of the ecological communities on the Swan Coastal Plain.

For the Greater Bunbury Region (except for lands identified in the 'GBR Constrained Area' ) this means the objective is to seek to:

- retain at least 30% of the pre-clearing extent of the ecological communities in the GBR, where greater than 30% of an ecological community remains on the Swan Coastal Plain
- preferentially locate developments in cleared areas, where 30% or less of the pre-clearing extent of the ecological community remains on the Swan Coastal Plain.

Within the terms of this criterion, vegetation complexes, which are mapped for the entire extent of the southern Swan Coastal Plain, are used as the base mapping of ecological communities. Much of the Swan Coastal Plain has been altered to such an extent that 12 of the 15 vegetation complexes have 30% or less of their area remaining on the Plain. As a consequence, for the targets to be met by the EPA all remaining vegetation in these complexes is in need of retention and some level of protection. In recognition of this situation the following specific policy statement is applied:

*The general protection of remnant native vegetation on the Swan Coastal Plain in the Greater Bunbury Region be achieved through the preferential location of developments in cleared areas.*

Within the 'GBR Constrained Area' of the Swan Coastal Plain these levels are modified. The 'GBR Constrained Area' includes the consolidated urban, urban deferred and industrial zones. Generally the modified objective in the 'Constrained Area' is to:

- retain at least 10% of the pre-clearing extent of the ecological community in the 'Constrained Area' of the GBR where greater than 10% of the ecological community remains on the Swan Coastal Plain (the natural region) OR
- retain all remaining areas of each ecological community in the 'Constrained Area' of the GBR where 10% or less than 10% of this ecological community remains on the Swan Coastal Plain.

However, this does not limit application of all the criteria, especially the 'Rarity' and 'Maintaining Ecological Processes or Natural Systems' criteria. That is, an area in the 'Constrained Area' can be considered regionally significant if selection of the natural area is:

- from an ecological community already below 10% pre-clearing extent;
- a threatened ecological community; and/or
- part of a regionally significant sequence of ecological communities (ecological linkage).

Two specific policy statements are also developed in the Natural Areas Strategy to address those ecological communities where less than 10% remains. Most communities in this category are communities typical of the eastern side of the Coastal Plain (principally the Pinjarra Plain). In keeping with *Bush Forever* these areas are not the subject of individual recommendations and are covered by the following specific EPA policy statement:

*There is a presumption that all areas of remnant native vegetation containing threatened ecological communities or vegetation of the major landform elements of which less than 10% currently remains on the Swan Coastal Plain will be retained and conserved in the Greater Bunbury Region.*

In these areas there is also a need to consider restoration of ecological function. This can be approached through the identification of a series of regionally significant ecological linkage opportunities. Within these 'linkage areas' the restoration of ecological communities and landscape rehabilitation between and around the small remaining remnants on the eastern side of the Plain will be a priority. This issue can be covered by the following specific EPA policy statement:

*There be proactive planning for the restoration of ecological communities and landscape rehabilitation between and around selected sequences of the small remaining remnants on the eastern side of the Swan Coastal Plain in the Greater Bunbury Region.*

The application of the criteria and the specific policy statements within the terms of the Natural Areas Strategy for the assessment of the GBRS required the further identification of the regionally significant sequences of ecological communities within and between the major landform elements (hereafter referred to as ecological linkages) as identified in the Ecological Linkages Plan ([Appendix 4](#)). While the EPA recognises that the systematic identification of regionally significant natural areas, and the mechanisms to protect these areas, is proposed to be achieved through the update of the remainder of the System 6 and part System 1 area in a similar co-ordinated program to *Bush Forever* ([Government of WA, 2000a](#)), the EPA is of the opinion that sufficient information has been gathered to broadly identify a series of regionally important ecological linkages.

In identifying these ecological linkages the EPA is mindful of the following:

- naturally vegetated areas (in particular the larger relatively intact remnants) in the area of the Linkages should be priorities for retention and protection, to meet the criteria for regional significance against at least two criteria, that is 'Representation of ecological communities' and 'Maintaining of ecological processes or natural systems';
- specific values of the natural areas in the vicinity of each Linkage have generally not been identified, the definition of these areas is dependent on a description of the areas' specific area values and a consideration of these against the criteria; and
- the area of the ecological linkages could provide a focus for the restoration of ecological communities and landscape rehabilitation between and around the small remaining remnants on the eastern side of the Swan Coastal Plain.

Two types of linked (or potentially linked) sequences of ecological communities were identified in the EPA's Strategy, vegetated sequences and river corridors. This same grouping is used here to list the 16 ecological linkages identified in the Greater Bunbury Region (see list below [and Appendix 4](#)). The vegetated sequences and river corridors identified in the Natural Areas Strategy are incorporated in this list. The name, or part name, from the EPA's Strategy is given in brackets after each named linkage.

### *Vegetated sequences*

- a) North/south Ecological Linkages
- Yalgorup/Myalup/Leschenault Coastal
  - McLarty/Kemerton/Twin Rivers/Preston River/Gwindinnup (Kemerton Buffer Link; Wellesley River, part Brunswick and Collie Rivers; part Dalyellup/Gelorup/Preston River/Plateau Link)
  - Maidens/Muddy Lake/Ludlow Coastal
- b) East/west Ecological Linkages (most of these are relatively short, only three go from the coast to the Plateau)
- Yalgorup/Riverdale Road/Yarloop (Riverdale Road Transect)
  - Myalup/Kemerton
  - Leschenault/Kemerton
  - Leschenault/Eaton
  - Maidens/Preston River (Ocean to Preston River Corridor or Region Park)
  - Dalyellup/Gelorup/Crooked Brook (part Dalyellup/Gelorup/Preston River/Plateau Link)
  - Capel/Boyanup
  - Wonnerup/Ludlow River/Gibson Forest

### *River Corridors or River Ecological Linkages*

- Brunswick River
- Collie River
- Ferguson River
- Capel River
- Preston River (portion of the Preston River in the City of Bunbury outside of the Mandurah/ Kemerton/ Twin Rivers/ Preston River/ Gwindinnup Ecological Linkage)

At this stage the location of the Corridors is shown in the 'Constrained' portion of the Greater Bunbury Region and indicated beyond this boundary. A final detailed identification of these Linkages, beyond the boundaries of the 'Constrained' portion of the Greater Bunbury Region, will be developed through the update of the remainder of the System 6 and part System 1 area in a similar co-ordinated program to *Bush Forever*.

### **3. Issues raised by the Greater Bunbury Region Scheme requiring consideration and assessment by the EPA**

There are a range of issues raised by the GBRs requiring consideration and assessment by the EPA. These issues include:

- environmental submissions received during the public consultation period ([Appendix 7](#));
- new Urban and Urban Deferred zones with potentially significant environmental impacts ([Section 4](#));
- assessment of Kemerton Industrial Area Expansion ([Section 5](#))
- the potentially significant environmental impacts of the new Port Installation zone and adequacy of the adjacent ROS reserve boundary alignment ([Section 6](#));
- new road and rail reserves with potentially significant environmental impacts ([Section 7](#));
- the new Public Purpose Reserve, Lot 310 and Part of lots 23, 35 and 205 Marriot Road, Kemerton ([Section 8](#));
- adequacy of new Regional Open Space reserves ([Section 9](#));
- Assessment of zones and reserves raised in submissions and other matters with potentially significant environmental impacts ([Section 10](#));
- Special Control Areas ([Section 11](#));
- policies linked to the Greater Bunbury Region Scheme ([Section 12](#)); and
- regionally significant environmental issues of concern to the EPA ([Section 13](#));

### **3.1 Environmental submissions received during the public consultation period**

There were 272 written submissions received on the GBRS during the public consultation period; 169 (62%) of these were concerned with environmental matters. The issues raised in the submissions not concerned with environmental issues do not need to be considered by the EPA and are being considered by the WAPC separately.

Close to half of the environmental issues raised in the submissions relate to ROS. These issues were raised by landowners with properties affected by proposed ROS or people requesting additional land to be included in ROS reserves.

In response to the concerns raised in the submissions the following work was undertaken by the Department for Planning and Infrastructure (DPI), on behalf of the WAPC:

- additional independent environmental investigations of particular sites proposed to be included in new zones or reserves and the subject of environmental submissions; and
- survey of specific boundaries to ensure they reflect the extent of regional values.

[Appendix 7](#) summarises the environmental issues raised in the environmental submissions and documents the WAPC's comments and the EPA's recommendation in relation to each issue.

### **3.2 Assessment of new zones and reserves with potentially significant environmental impacts**

One of the objectives of the EPA's assessment is to assess the "new zones and reserves" in the GBRS. These are the zones and reserves in the GBRS which differ from those in the existing local government district zoning scheme.

However, not all of the new zones and reserves in the GBRS have the potential to have significant environmental impacts requiring the EPA's assessment. [Table 3](#) below identifies the new zones and reserves that have the potential to cause significant impacts to the environment and require further assessment by the EPA.

**Table 3: Identification of the new zones and reserves in the Greater Bunbury Region Scheme**

New zones and reserves	Description of proposal and potentially significant environmental impacts	EPA comments
<b>Urban and Urban Deferred</b>		
Reserve 35061 Paris Road, Australind - Decommissioned Waste Water Treatment Plant (Urban Deferred), Lots 27, 150, 151, 1 and 21 Paris Road (north), Australind (Urban Deferred) and Lot 3 Paris Road (south), Australind (Urban zone)	Regionally significant remnant vegetation	Further EPA assessment required ( <a href="#">Section 4.1</a> ).
Lot 1 Australind Bypass, Eaton (Urban zone)	There is no regionally significant vegetation on the subject land. Therefore, the EPA is of the view that the proposed Urban Deferred zoning is environmentally acceptable because it is unlikely that future urban development on the subject land will cause any regionally significant environmental impacts.	No objections to the proposed Urban Deferred zoning.  No further EPA assessment required as part of the GBRS assessment.  It should be noted that future urban development on the subject land may be subject to any relevant environmental conditions imposed on the GBRS.
Lot 0 Ditchingham Place, Treendale (Urban and Urban Deferred zones)	There is no regionally significant vegetation on the subject land. Therefore, the EPA is of the view that the proposed Urban Deferred zoning is environmentally acceptable because it is unlikely that future urban development on the subject land will cause any regionally significant environmental impacts.	No objections to the proposed Urban Deferred and Urban zoning.  No further EPA assessment required as part of the GBRS assessment.  It should be noted that future urban development on the subject land may be subject to any relevant environmental conditions imposed on the GBRS.
Dalyellup (east) Bussell Highway (Urban Deferred zone)	The subject land is predominantly cleared. There is an EPP wetland on the subject land.  The EPA considers that the proposed Urban Deferment zoning is environmentally acceptable subject to the EPP wetland being appropriately conserved and managed to protect and maintain its values.  Any locally significant remnant vegetation on the subject land could be protected through the subdivision and development process.	No objections to the proposed Urban Deferred zoning.  No further EPA assessment required as part of the GBRS assessment.  It should be noted that future urban development on the subject land may be subject to any relevant environmental conditions imposed on the GBRS.
Lots 313-317 south of Harewoods Rd, South Dalyellup (Urban Deferred)	Regionally significant remnant vegetation	Further EPA assessment required ( <a href="#">Section 4.2</a> ).

zone)		
Reserve 31012 Harewoods Road, Dalyellup (Urban Deferred zone)	Regionally significant remnant vegetation	Further EPA assessment required ( <a href="#">Section 4.3</a> ).
Part Lot 201 Gray Road, Part Lot 4402, Part Lot 97, Lot 139 Armstrong Street, Lots 1a, 4a, 66 and Part Lot 138 Timperley Road, Boyanup (Urban Deferred zone)		Further EPA assessment required ( <a href="#">Section 4.4</a> ).
Burekup (Urban Deferred zone)	There is no regionally significant vegetation on the subject land. Therefore, the EPA is of the view that the proposed Urban Deferred zoning is environmentally acceptable because it is unlikely that future urban development on the subject land will cause any regionally significant environmental impacts.	No objections to the proposed Urban Deferred zoning.  No further EPA assessment required as part of the GBRS assessment.  It should be noted that future urban development on the subject land may be subject to any relevant environmental conditions imposed on the GBRS.
Maitland Road, Capel (north) (Urban Deferred zone)	There is no regionally significant vegetation on the subject land. Therefore, the EPA is of the view that the proposed Urban Deferred zoning is environmentally acceptable because it is unlikely that future urban development on the subject land will cause any regionally significant environmental impacts.  Locally significant stands of vegetation should be retained where possible as part of the future subdivision and/or development of the land.	No objections to the proposed Urban Deferred zoning.  No further EPA assessment required as part of the GBRS assessment.  It should be noted that future urban development on the subject land may be subject to relevant environmental conditions imposed on the GBRS.
Lot 871 Prowse Road, Capel (south) (Urban zone)	Potential impacts on remnant vegetation	Further EPA assessment required ( <a href="#">Section 4.5</a> ).
Lot 2 Harvey (east) (Urban zone)	Potential impacts on remnant vegetation	Further EPA assessment required ( <a href="#">Section 4.6</a> ).
<b>Industrial</b>		
Kemerton Industrial Area Expansion	The expansion of the Kemerton Industrial area has the potential to impact on regionally significant remnant vegetation, wetlands and watercourses. The expansion also has the potential to have impacts on sensitive landuses caused by noise and air quality.	Further EPA assessment required ( <a href="#">Section 5</a> ).
North Capel Industrial zone	It is proposed, under the GBRS, to include additional land (Wellington Loc 4130) that is already developed and operating as part of the North Capel industrial complex in the Industrial zone.  The adequacy of SCA No. 3 in providing an adequate buffer area around the North Capel Industrial Area is assessed in <a href="#">Section 4</a> .  The EPA advises that SCA No. 3 will provide adequate separation between current and future industrial operations and surrounding land uses to accommodate the impacts of noise and air quality in accordance with the EPA's environmental objectives and criteria for these environmental factors.	No objections to the proposed Industrial zoning.  No further EPA assessment required as part of the GBRS assessment.

<b>Port Installation</b>		
Port Installation zone and adequacy of the adjacent ROS reserve boundary alignment	<p>The remnant vegetation and wetlands within the proposed Port Installation zone do not have regionally significant conservation values. Remnant vegetation of local value could be maintained through subdivision and development processes.</p> <p>The area on the east side of the Collie River adjacent to the delta supports natural vegetated areas of Flooded Gum and Swamp Sheoak which adds a significant habitat component to the adjacent regional open space. The area also consolidates the size and shape of the regional open space and reduces the edge to area ratio.</p>	Further EPA assessment required ( <a href="#">Section 6</a> ).
<b>Primary Regional Road and Rail Reserves</b>		
Perth-Bunbury Highway	<p>The Primary Regional Road reserve for Perth-Bunbury Highway, between the northern boundary of the GBRS and Australind, has been widened to facilitate the upgrading of the highway. The proposed upgrading has been completed. No significant environmental issues were raised by the upgrading that has been constructed and or are raised by the upgrading still to be constructed.</p>	No further EPA assessment required as part of the GBRS assessment.
Raymond Road	<p>The road reserve for Raymond Road is proposed to be widened so that Raymond Road can be upgraded. The proposed widened road reserve passes near a Conservation category wetland and through areas of remnant vegetation.</p>	Further EPA assessment required ( <a href="#">Section 7.1</a> ).
South Western Highway (northern section between the northern boundary of the GBRS and Preston River)	<p>The road reserve for this portion of the South Western Highway is proposed to be widened so that the Highway can be duplicated. There is remnant vegetation within the widened road reserve.</p>	Further EPA assessment required ( <a href="#">Section 7.2</a> ).
South Western Highway (southern section between the Bunbury Outer Ring Road and the southern boundary of the GBRS, excluding the Boyanup Bypass)	<p>The Primary Regional Road reserve for South Western Highway (south), has been widened to facilitate the duplication of the highway. The proposed upgrading has been completed.</p>	No further EPA assessment required as part of the GBRS assessment.
Coalfields Highway (between the South Western Highway and the eastern boundary of the GBRS)	<p>The Primary Regional Road reserve for Coalfields Highway has been widened to facilitate the upgrading of the highway. Part of the proposed upgrading has been completed and further upgrading is still proposed. No significant environmental impacts were raised by the upgrading that has been constructed and no significant issues are raised by the upgrading still to be constructed.</p>	No further EPA assessment required as part of the GBRS assessment.
Port Access Road	<p>Potential impacts on regionally significant remnant vegetation and wetlands</p>	Further EPA assessment required ( <a href="#">Section 7.3</a> ).
Boyanup Bypass Road	<p>Potential impacts on regionally significant remnant vegetation and a wetland.</p>	Further EPA assessment required ( <a href="#">Section 7.4</a> ).
Bussell Highway	<p>The Primary Regional Road reserve for Bussell Highway, has been widened to facilitate the upgrading of the highway.</p>	No further EPA assessment required as part of the GBRS assessment.

	The dual carriageway has been constructed for the full length of the highway within the GBRS area.	
<b>Public Purpose Reserves</b>		
Lot 310 and Part of Lots 23, 35 and 205 Marriot Road, Kemerton	Odour emissions from the wastewater treatment plant have the potential to impact on sensitive landuses. The plant also has the potential to impact on remnant vegetation	Further EPA assessment required ( <a href="#">Section 8</a> ).
Glen Iris Relief Floodway	The land requirements for the floodway reserve were determined by the Water and River and Commission before being included in the GBRS.	No further EPA assessment required as part of the GBRS assessment.
<b>Regional Open Space Reserve</b>		
Lots 0, 7 and 9 Brunswick River (east of Australind Bypass)	Regionally significant remnant vegetation and watercourse	Further EPA assessment required ( <a href="#">Section 9.1</a> ).
Locations 7 and 14 Buffalo Rd, Binningup	Regionally significant remnant vegetation and wetlands	Further EPA assessment required ( <a href="#">Section 9.2</a> ).
Twin Rivers - Pt Lot 211 Barnes Avenue, Australind	Regionally significant remnant vegetation and regionally significant wetlands	Further EPA assessment required ( <a href="#">Section 9.3</a> ).
Picton Waters – EPP Lake on portion of Lots 40-44 Jeffery Road, Picton	Regionally significant wetlands	Further EPA assessment required ( <a href="#">Section 9.4</a> ).
College Grove - Lot 1000 Bussell Highway	Regionally significant remnant vegetation and wetlands	Further EPA assessment required ( <a href="#">Section 9.5</a> ).
Muddy Lakes- Minninup Rd, Capel	Regionally significant remnant vegetation and regionally significant wetland	Further EPA assessment required ( <a href="#">Section 9.6</a> ).

#### **4. Assessment of new Urban and Urban Deferred zones with potentially significant environmental impacts**

The new urban zones in the GBRS requiring further EPA assessment, as identified in [Table 3](#), are as follows:

##### **4.1 Reserve 35061 Paris Road, Australind - Decommissioned Waste Water Treatment Plant (Urban Deferred), Lots 27, 28, 150, 151, 1 and 21 Paris Road (north), Australind (Urban Deferred) and Lot 3 Paris Road (south), Australind (Urban zone)**

###### *Description*

Reserve 35061 is zoned Urban Deferred in the GBRS ([Appendix 1](#)). The land is currently zoned Public Utilities in the Shire of Harvey Town Planning Scheme No. 1. The waste water treatment plant on the site has been decommissioned

Lots 27, 150, 151, 1 and 21 to the north of Paris Road are proposed to be zoned Urban Deferred in the GBRS. Lot 3 to the south of Paris Road is proposed to be zoned Urban in the GBRS. Lot 27 and 3 are currently zoned Public Utilities and General Farming,

respectively, in the Shire of Harvey Town Planning Scheme No. 1 and are new zones for the purposes of the EPA's assessment of the GBRS.

An amendment to rezone Lot 28 from General Farming to Residential was referred to the EPA pursuant to section 7A1 of the *Town Planning and Development Act 1928* in November 1999. The EPA decided to "not assess" the proposed amendment.

In arriving at a decision to "not assess" the amendment and to provide publicly available environmental advice, the EPA was satisfied that a portion of the remnant vegetation on the site would be protected as part of the eventual residential development of the land.

Following the preparation of a Natural Area Strategy ([Appendix 3](#)) and a more comprehensive assessment of the regional natural values, which indicate that the site has regional natural values that should be conserved (as discussed below), the EPA recommends that a more significant portion of the bushland on Lot 28 be conserved.

#### *Submissions*

A number of submissions state that all or part of Reserve 35061 should be reserved as ROS.

#### *WAPC's response to submissions*

The WAPC advises that its environmental study (HGM, 2002) concludes that the northern and western portions of Reserve 35061 contain vegetation of regional conservation value, particularly in terms of providing for an extension to the adjacent Wardandi Reserve, but that the balance of the reserve either supports wastewater treatment infrastructure or is otherwise degraded. Based on this information, the WAPC has recommended that the northern and western portions of this site should be included in an ROS reserve ([Map7 – Appendix 8](#)).

#### *EPA Assessment*

The EPA considers that all of Reserve 35061 and part Lots 27, 28 and 150 are regionally significant because the sites meet four of the criteria being used to identify regionally significant natural areas in the EPA's assessment of the GBRS. These criteria are:

- Representation of Ecological Communities;
- Diversity;
- Maintaining Ecological Processes or Natural Systems; and
- General Criteria for the protection of wetland, streamline and estuarine fringing vegetation.

The natural attributes of the sites that contribute to meeting these criteria being met are listed below:

- Substantial representative area of upland and wetland natural vegetation of Bassendean Complex – Central and South;
- Contain a wetland likely to be included within the Conservation category classification;

- Relatively diverse containing a wide range of flora (estimated over 120 taxa in area), including four priority taxa being *Acacia flagelliformis* (P4), *Acacia semitrullata* (P3), *Caladenia speciosa* (P4), *Jacksonia sparsa* (P4);
- The remnant vegetation consolidates the Wardandi Reserve to form a significant stepping stone of bushland area in two Ecological Linkages; and
- It is part of the McLarty/Kemerton/Twin Rivers/Preston River/Gwindinup Ecological Linkage ([Appendix 4](#)) and the Brunswick River Ecological Linkage ([Appendix 4](#)), being contiguous with Brunswick River (System 6 area C67) to west and, together with bushland to the north, forms an important node in the ecological linkage across the river bend in the Brunswick River (System 6 area C67).

#### *Summary*

It is the EPA's opinion that:

- (a) the remnant vegetation on the northern and western portions of Reserve 35061, as shown on [Map 1 \(Appendix 9\)](#), should be reserved in the GBRS and appropriately managed;
- (b) the bushland on part Lots 27, 28 and 150 to the north of Paris Road should be conserved and managed as part of any future subdivision and development, whichever comes first; and
- (c) the environmental factors remnant vegetation, fauna and ecological linkage should be deferred until the subdivision or development stages, whichever comes first, so that a more detailed consideration of the potential environmental impacts of urban development can be undertaken by the EPA pursuant to Part IV of the *Environmental Protection Act 1986*.

#### **4.2 Lots 313-317 south of Harewoods Road, South Dalyellup (Urban Deferred)**

##### *Description*

Lots 313-317 are situated approximately 8.5km south of the Bunbury CBD and the eastern parts of these lots are designated as Urban Deferred in the GBRS ([Appendix 1](#)). The subject land is currently zoned Rural under the Shire of Capel Town Planning Scheme.

The landowner is seeking approval from the EPA for the extraction of sand and limestone at Lots 313-317, Gelorup. The EPA is currently formally assessing this proposal pursuant to Section 38 of the *Environmental Protection Act 1986* (EPA Assessment No. 1394), separately from its assessment of the GBRS.

The proponent has not submitted a draft Public Environmental Review for the proposed extraction of sand and limestone, so the timing of the EPA's assessment of the proposal is unknown. The S48A process requires the EPA to meet certain statutory timeframes in its assessment of the GBRS. The EPA will, therefore, consider the environmental values of Lots 313-317 and potential impacts of the proposed Urban Deferred zoning as part of its assessment of the GBRS, prior to assessing the proposal for extraction of sand and limestone.

### *Submissions*

A number of submissions objected to the eastern parts of Lots 313-317 being designated as Urban Deferred on the basis that it will result in clearing of Tuart woodland, destruction of habitat and EPP wetland, impact on adjacent conservation reserves and remove an important conservation link between System 6 area C71 and the coastal ROS south of Dalyellup.

The EPA and WAPC responses to the specific comments made in the submissions concerning Lot 313-317 are included in [Appendix 7](#) and the EPA's consideration of a number of the general issues raised in the submissions is described below.

### *WAPC response to submissions*

The WAPC advises that its environmental study concludes that the eastern parts of the southern three lots proposed to be zoned Urban Deferred (Lots 315, 316 and 317) have regionally significant conservation value due to the east-west link they provide between two conservation areas and the vegetation condition. The study notes that current activity on the property is degrading conservation values. Given the conservation values of the southern three lots the WAPC advises that it would be inappropriate to indicate their suitability for future urban development. However, these values may be retained with an appropriate rural use over the land. The WAPC further advises that the southern three lots should be zoned Rural and the EPA should note observations from the WAPC's environmental study.

### *EPA Assessment*

Lots 313-317 are part of an outstanding coastal regionally significant natural area (Dalyellup/Minninup Swamp Natural Area). The values of the regional coastal bushland block are:

- Landscape diversity (west-east catenary sequence): coastal foredune, coastal dune, wetland, upland and lowland;
- Geomorphological diversity (west-east catenary sequence): Quindalup Dunes-Quindalup Dune wetlands, Quindalup/Spearwood Dune interface wetlands-Spearwood Dunes;
- Vegetation structural unit diversity (west-east catenary sequence): Foredunes, Peppermint scrub, Peppermint/Tuart woodland, wetlands dominated by combinations of Peppermint, Tuart., Swamp Banksia, *Melaleuca* and sedges, Tuart/Peppermint forest, Marri, Tuart/Jarraah over Banksia woodland;
- Part of the Dalyellup/Gelorup/Crooked Brook Ecological Linkage ([Appendix 4](#)) and part of the Maidens/Muddy Lake/Ludlow Coastal Ecological Linkage ([Appendix 4](#));
- Species diversity; more than 225 flora; and
- Outstanding habitat values: diverse habitat types support a range of fauna, including species listed under State and Commonwealth legislation.

The eastern parts of Lots 315-317 are considered to be a regionally significant natural area of high value because the site meets two of the criteria being used to identify regionally significant natural areas in the EPA's assessment of the GBR. These criteria are:

- Representation of Ecological Communities; and
- Maintaining Ecological Processes and Natural Systems.

The natural attributes that contribute to these criteria being met and making them suitable for protection as part of the coastal bushland block are listed below and described in detail in Sheet 4 ([Appendix 5](#)):

- The vegetation on the site is representative of Spearwood Dune vegetation of the Karrakatta Complex Central and South Vegetation Complex) of which 29.5% remains of the original extent of this complex on the Swan Coastal Plain. Only 9% of what remains is currently secured on the Swan Coastal Plain in protected areas;
- Representative of the southern *Eucalyptus gomphocephala* - *Agonis flexuosa* woodlands (floristic community type 25) which is the largest representation of this floristic community type in the Dalyellup/Gelorup/Crooked Brook Ecological Linkage ([Appendix 4](#));
- The site contains the most southern high Spearwood Dune (25m) on the Swan Coastal Plain, alongside a Spearwood Dune flat which is a distinct landform/vegetation unit within the Karrakatta Central and South Vegetation Complex in the Dalyellup/Gelorup/Crooked Brook Ecological Linkage ([Appendix 4](#)). The dune supports significantly different vegetation (dominated by Tuart) to that in the Dalyellup Reserve (System 6 area C71) (which is dominated by scattered Marri, Tuart and Jarrah);
- The subject land contains a relatively large area of native vegetation (approx. 57ha) of compact shape, contiguous with other natural areas to east and west;
- The subject land provides the only opportunity to link the proposed Dalyellup ROS portion of the Dalyellup/Minninup Swamp Natural Area and adjacent bushland to the east (System 6 area C71 - Dalyellup Reserves). Other areas of its type in the linkage have already been developed for housing or have been approved for subdivision. Decreasing the extent of the linkage would reduce the habitat function;
- Contained an area of vegetation in Very Good condition which has been subject to recent degrading activities, however the vegetation on this site is considered to have the ability to recover from these activities; and
- The site contains Tuart and Peppermint Open Forest to Woodland which is significant breeding habitat for bird species utilising tall trees or hollows and species of wetland birds that feed in adjacent wetlands and significant habitat for animals moving between the different habitats of the Dalyellup/Gelorup/Crooked Brook Ecological Linkage and the Maidens/ Muddy Lakes/ Ludlow Coastal Ecological Linkage ([Appendix 4](#)).

The EPA is concerned that further degradation of the natural values of the site and recommends that planning measures be implemented by the WAPC to manage and

prevent any further development or change of land use on the eastern parts of Lots 315, 316 and 317.

The EPA notes that Bush Forever recognised that the 10% target is unlikely to be achieved for the Karrakatta Central and South complex in the Perth Metropolitan Region but that there are opportunities for conservation of this complex outside of the Perth Metropolitan Region and Lots 315, 316 and 317 represent such an opportunity.

#### *Summary*

It is the EPA's opinion that:

- (a) the remnant vegetation on Lots 315, 316 and 317 should be conserved and appropriately managed either as a ROS reserve in the GBRS or as part of future zoning, subdivision and/or development on the lots;
- (b) the extraction of sand and limestone from Lots 315, 316 and 317 is incompatible with the need to protect vegetation in this area;
- (c) the environmental factors remnant vegetation, fauna and ecological linkage should be deferred until the subdivision or development stages, whichever comes first, so that a more detailed consideration of the potential environmental impacts of urban development can be undertaken by the EPA pursuant to Part IV of the *Environmental Protection Act 1986*; and
- (d) immediate planning measures be implemented by the WAPC to manage and prevent any further development or change of land use on Lots 315, 316 and 317, until the GBRS has been proclaimed.

### **4.3 Reserve 31012 Harewoods Road, Dalyellup (Urban Deferred zone)**

#### *Description*

Reserve 31012 is situated approximately 8km south of the Bunbury CBD and proposed to be zoned Urban Deferred in the GBRS ([Appendix 1](#)). The subject land is currently reserved for Public Purposes in the Shire of Capel Town Planning Scheme No. 7.

A portion of the 13.2 ha site has been used by the Shire of Capel as a waste disposal site. There is remnant vegetation on the balance of the site ([Map 3 - Appendix 9](#)).

#### *EPA Assessment*

A portion of Reserve 31012 is considered by the EPA to be regionally significant because it meets four of the criteria being used to identify regionally significant natural areas in the EPA's assessment of the GBRS. These criteria are:

- Representation of Ecological Communities;
- Rarity;
- Maintaining Ecological Processes or Natural Systems; and
- General Criteria for the protection of wetland, streamline and estuarine fringing vegetation.

The natural attributes of Reserve 31012 that contribute to these criteria being met are listed below:

- Characteristic of damp Spearwood Dune flat vegetation of the Bunbury area Karrakatta Complex Central and South which is uncommon;
- Contains populations of at least one species listed under the *Environmental Protection and Biodiversity Conservation Act 1999* (Western Ringtail Possum);
- The naturally vegetated area of the Reserve is of a quality and type that makes it a significant contribution to the C71 conservation area and to the broader Dalyellup/Gelorup/Crooked Brook Ecological Linkage ([Appendix 4](#)); and
- The naturally vegetated area of the Reserve has some wetland characteristics and is of a quality and type that designates the wetland areas as Conservation category.

The WAPC has advised that the environmental qualities of the northern portion of the site are significant and on this basis the northern portion of the site should be reserved as ROS while the remainder of the site is to remain Urban Deferred as advertised ([Map 4 - Appendix 8](#)).

A portion of Reserve 31012 has been used in the past as a municipal waste disposal site and is considered to be potentially contaminated. Appropriate landuses need to be determined for the site. It is recommended that as a condition of subdivision or development, whichever comes first, a site investigation be undertaken prior to any ground disturbing activities, to determine the extent and severity of contamination on that part of the site used as a waste disposal site. If the site is found to be contaminated as a result of this investigation, then a Site Remediation and Validation Report should be produced to the satisfaction of the Department of Environmental Protection.

#### *Summary*

It is the EPA's opinion that:

- (a) the remnant vegetation on Reserve 31012, as shown on [Map 3 \(Appendix 9\)](#), is regionally significant and should be reserved and appropriately managed;
- (b) appropriate landuses need to be determined for that portion of the site used as a municipal waste disposal site;
- (c) a site investigation be undertaken prior to any ground disturbing activities, to determine the extent and severity of contamination on that part of Reserve 31012 used as a waste disposal site. If the site is found to be contaminated as a result of this investigation, then a Site Remediation and Validation Report should be produced to the satisfaction of the Department of Environmental Protection; and
- (d) the environmental factor contamination should be deferred until the subdivision or development stages of that part of the site used a municipal waste disposal site, whichever comes first, so that a more detailed consideration of the potential environmental impacts of urban development can be undertaken by the EPA pursuant to Part IV of the *Environmental Protection Act 1986*.

#### **4.4 Part Lot 201 Gray Road, Part Lot 4402, Part Lot 97, Lot 139 Armstrong Street, Lots 1, 4, 66 and Part Lot 138 Timperley Road, Boyanup (Urban Deferred zone)**

### *Description*

A number of lots on the east side of the Boyanup townsite are proposed to be zoned Urban Deferred ([Appendix 1](#)). The subject lots have an area of 234ha and are currently zoned Special Rural in the Shire of Capel Town Planning Scheme No. 7. There are 35ha of remnant vegetation on the subject lots ([Map 4 - Appendix 9](#)).

The WAPC has approved a structure plan over the subject land.

### *Submissions*

A submission objected to the Urban Deferred zone east of Boyanup due to the impact on a poorly represented vegetation complex and the adjacent State Forest.

### *WAPC's response to submissions*

The WAPC advises that its environmental study concludes that remnant vegetation on Lots 1, 4, 66, 97, 138 and 139 and along the southern boundary of Loc 4402 is of regionally significant conservation value and that this vegetation should be protected. The approved structure plan for this area includes the vegetation on Loc 4402 in a foreshore reserve but identifies the remainder for residential development. As this area is currently zoned Special Rural in Shire of Capel TPS No.7, protection of the remnant vegetation can be considered as part of future rezoning and/or subdivision proposals or as part of a structure plan review.

### *EPA Assessment*

The remnant vegetation on the subject lots proposed to be zoned Urban Deferred is considered to be regionally significant because it meets four criteria being used to identify regionally significant natural areas in the EPA's assessment of the GBRs. These criteria are:

- Representation of Ecological Communities;
- Rarity;
- Maintaining Ecological Processes and Natural Systems; and
- General Criteria for the protection of wetland, streamline and estuarine fringing vegetation.

The natural attributes of remnant vegetation on the lots proposed to be zoned Urban Deferred on the east side of Boyanup that contribute to meeting the criteria are listed below:

- Contains areas of vegetation representative of Kingia, Swan, Guildford and Cartis Complexes;
- All native vegetation in the Boyanup area is significant. Remnants 2, 3 and 4 would be much greater if the bushland area to the south/east of these remnants could be protected, particularly the vegetated creekline. Vegetated creeklines of this quality with contiguous upland area are rare on the Swan Coastal Plain/Foothills/Plateau interface;
- Diversity of flora and significant flora: *Acacia flagelliformis* (P4), *Acacia semitrullata* (P3), *Caladenia speciosa* (P4), *Drosera marchantii* subsp. *marchantii* (P4), *Jacksonia sparsa* (P3); *Acacia pulchella* var. *goadbyi*, *A.*

- urophylla*, *Johnsonia lupulina*, *Styphelia tenuiflora*, *Kennedia coccinea*, *Adiantum aethiopicum* and *Eucalyptus haematoxylon*;
- This area is significant in the McLarty/Kemerton/Twin Rivers/Preston River/Gwindinup Ecological Linkage ([Appendix 4](#)) and Capel/Boyanup Ecological Linkage ([Appendix 4](#)) containing the only area of its type known to occur in the linkage not already developed for housing or with subdivision approval;
  - Contains significant habitat for bird species which have declined elsewhere on the Swan Coastal Plain between Perth and Bunbury and are of regional conservation significance; and
  - Significant linkage value for species moving between the different habitats of the Capel/Boyanup Ecological Linkage ([Appendix 4](#)) and the McLarty/Kemerton/Twin Rivers/Preston River/Gwindinup Ecological Linkage ([Appendix 4](#)).

#### *Summary*

It is the EPA's opinion that:

- (a) the remnant vegetation on the land proposed to be zoned Urban Deferred, as shown on Map 4 ([Appendix 9](#)), is regionally significant and should be conserved and appropriately managed as part of any future zoning, subdivision and/or development on the site; and
- (b) the environmental factor remnant vegetation should be deferred until the subdivision or development stages, whichever comes first, so that a more detailed consideration of the potential environmental impacts of urban development can be undertaken by the EPA pursuant to Part IV of the *Environmental Protection Act 1986*.

#### **4.5 Lot 871 Prowse Road, Capel (south) (Urban zone)**

##### *Description*

Lot 871 is situated on the south side of the Capel townsite and proposed to be zoned Urban in the GBRS ([Appendix 1](#)). The 26ha lot is currently zoned Rural in the Shire of Capel Town Planning Scheme. The proposed Urban zone includes approximately 6ha of bushland.

##### *EPA Assessment*

The site supports remnant vegetation with significant fauna habitat and ecological linkage values. The drainage line on the east side of Lot 871 supports remnant riverine woodland of *Melaleuca raphiophylla*, *M. preissiana* and *Eucalyptus rudis* which is a significant fauna linkage as well as providing habitats for amphibians.

The west side of Lot 871 supports a combination of wetland and upland vegetation of *Melaleuca raphiophylla*, *M. preissiana*, *Regelia* sp., *Banksia attenuata*, *B. ilicifolia*, *Eucalyptus marginata* and *E. calopylla* which provide habitat for a number of bird species.

#### *Summary*

It is the EPA's opinion that:

- (a) the Urban zoning on Lot 871 is environmentally acceptable subject to the remnant vegetation being conserved and protected as part of any future subdivision or development on the land; and
- (b) the environmental factors remnant vegetation, fauna and ecological linkage should be deferred until the subdivision or development stages, whichever comes first, so that a more detailed consideration of the potential environmental impacts of urban development can be undertaken by the EPA pursuant to Part IV of the *Environmental Protection Act 1986*.

#### **4.6 Lot 2 Harvey (Urban zone)**

##### *Description*

Lot 2 is situated on the east side of the Harvey townsite and proposed to be zoned Urban in the GBRS ([Appendix 1](#)). The 15ha lot is currently zoned Rural and Residential in the Shire of Harvey Town Planning Scheme. The proposed Urban zone in the GBRS includes approximately 7 ha of bushland. The land to the south and east of the proposed Urban zone is included in the Korijekup Nature Reserve which is proposed to be reserved as ROS in the GBRS.

##### *Submissions*

The Wildflower Society of WA states that the proposed new Urban zone at Harvey should be included in an ROS reserve.

##### *WAPC's response to submission*

The WAPC has advised that the subject land contains existing pockets of Department of Conservation and Land Management (DCLM) infrastructure in a bushland setting. Only the pockets of infrastructure are zoned residential in Shire of Harvey TPS No.1. Any future subdivision or development proposal would be subject to separate assessment.

##### *EPA Assessment*

The 7ha of bushland within the proposed Urban zone is disturbed and the EPA considers that the vegetation is well represented in the Korijekup Nature Reserve. However, in recognition of the values of the native vegetation in the area proposed to be zoned Urban it is recommended that, when the area is subdivided or developed, as much of the native vegetation as possible (at least 60%) should be retained and the interface between the Nature Reserve and development should be managed to minimise the impact on the Nature Reserve. For example a strategic fire plan be developed for the urban lands (all fire access tracks being located in the urban land) and a road be situated between the urban lands and the Nature Reserve.

##### *Summary*

It is the EPA's opinion that:

- a) the Urban zoning on Lot 2 is environmentally acceptable subject to as much of the remnant vegetation being conserved and protected as possible (at least 60%), as part of any future subdivision or development on the land; and

- b) the environmental factors remnant vegetation, fauna and ecological linkage should be deferred until the subdivision or development stages ,whichever comes first, so that a more detailed consideration of the potential environmental impacts of urban development can be undertaken by the EPA pursuant to Part IV of the *Environmental Protection Act 1986*.

## **5. Assessment of Kemerton Industrial Area Expansion**

### *Description*

Kemerton Industrial Area is approximately 17km north-east of Bunbury. The industrial area was established with the primary purpose of accommodating heavy resource processing industries. The GBRs proposes to include an additional 955ha (taking the total industry core to 2106 ha) of land within the Kemerton Industrial zone, consistent with the *Kemerton Expansion Study Final Concept Plan* adopted by the WAPC as part of *Industry 2030 - Greater Bunbury Industrial Land and Port Access Planning (Industry 2030)* (WAPC, 2000b).

*Industry 2030* was released by the WAPC for comment in 1998. The EPA provided advice to the WAPC on the *Industry 2030* report under Section 16(j) of the *Environmental Protection Act 1986* (EPA, 1998c and 1999c). The majority of the EPA's advice is reflected in the *Kemerton Expansion Study Final Concept Plan* for the Kemerton Industrial Area.

Special Control Area No. 2 (SCA No. 2) is discussed in [Section 11.2](#).

### *Submissions*

A considerable number of submissions raised concerns about a wide range of potential environmental impacts from the expansion of the Kemerton Industrial area. The main issues raised in the submissions were concerned with:

- Noise and odour impacts impacts on surrounding land uses;
- impacts on remnant vegetation, wetlands, watercourses; and
- the impact that future industrial development within the Kemerton Industrial Area will have on visual amenity, particularly along the northwest ridge of the new industry core.

The EPA and WAPC responses to the specific comments made in the submissions concerning the Kemerton Industrial Area are included in [Appendix 7](#) and the EPA's consideration of a number of the general issues raised in the submissions is described below.

### *EPA Assessment*

The main environmental issues raised by the additional 955ha of additional Industrial zoned land in Kemerton can be summarised as:

- a) Protecting regionally significant vegetation

- b) Protecting wetlands and watercourses;
- c) Buffer requirements for noise and air quality;
- d) Maintaining a sustainable groundwater balance;
- e) Protecting water quality in Wellesley River and Leschenault Inlet;
- f) Solid and liquid waste disposal; and
- g) Protecting visual amenity.

As part of its assessment of the GBRS the EPA is able to assess the buffer requirements of the Kemerton Industrial Expansion Area and the potential impacts on significant wetlands, vegetation and water balance. However, due to the broad scale of the GBRS it is inappropriate for the EPA to assess the potential impacts of potential industrial developments. The EPA recommends that the assessment of groundwater quality, surface water quality and solid/liquid waste disposal be deferred to ensure that the EPA has the opportunity to assess future subdivisions and development proposal within the Kemerton area. Further information relating to these environmental factors will be required with applications to subdivide or develop the land, so that the proposal can be considered by the EPA pursuant to Part IV of the *Environmental Protection Act 1986*.

#### (a) Vegetation

In its submission to the WAPC on *Industry 2030* the EPA advised (EPA, 1998c) the WAPC that the:

- proposed expansion of the Kemerton Industrial Area could have a significant impact on regionally vegetation and conservation values;
- Draft Kemerton Structure Plan may require modification to protect vegetation of regional significance pending the outcome of a vegetation survey; and
- Draft Kemerton Structure Plan should not be finalised until the vegetation had been surveyed and assessed in terms of its regional significance and in accordance with criteria adopted by the EPA.

The then Department of Resource Development undertook vegetation surveys, following which the EPA provided additional advice to the WAPC (EPA, 1999c – [Appendix 10](#)). The EPA's advice identified areas of significant vegetation in the Draft Kemerton Structure Plan area. The EPA's recommendations resulted in the proposed expansion of the industrial core area being significantly reduced and large areas of regionally significant remnant vegetation are now included within the expanded buffer. The EPA recommended that these areas be provided with a high level of protection through the planning system (EPA, 1998c). The EPA notes that the SCA No. 2 does not highlight the need for regionally significant remnant vegetation to be protected.

The EPA also advised (EPA, 1999c) that some areas of remnant vegetation within the industrial core be shown as "Vegetation Management" to ensure these values are retained and protected within the industrial estate.

#### (b) Wetlands, watercourses and water balance

The main wetlands of regional conservation value are situated outside the new industrial land within the Kemerton Industrial Area. Due to the high watertable and the presence of significant wetlands adjacent to the proposed industrial core, the EPA advised the WAPC (EPA, 1998c) that a water and drainage management plan should be adopted by government which should aim to protect water levels in significant wetlands and water quality in these wetlands and the Wellesley River.

The WAPC has suggested an environmental management measure requiring the preparation of an environmental management plan demonstrating how vegetation, groundwater and wetlands at Kemerton will be protected from adverse impacts of development. The environmental management plan shall also include a detailed water management strategy dealing with drainage and nutrient management, water level and water quality criteria, a water monitoring program and details of contingency actions available.

The EPA recommends that a condition be imposed on the GBRS reflecting the environmental management measure suggested by the WAPC.

(c) Buffer requirement for noise and air quality

The SCA No. 2 in the GBRS is intended to identify the land which is likely to be subject to off-site impacts, such as noise, odour and dust from the current and future operations within the Kemerton Industrial Area and ensure that land uses incompatible with industry, including single dwellings, are not permitted within the buffer, thereby ensuring the long term operation of the industrial area.

The EPA provided detailed comments on the noise and air quality modeling used to determine the buffer requirements for the Kemerton Expansion Study in its advice to the WAPC on *Industry 2030* (EPA, 1998c). These comments are summarised below.

i. Noise

The modelling and assessments conducted for noise and air quality indicate that noise emissions are the most constraining factor, meaning that noise requires the largest buffer area in order to meet the EPA's criteria.

The *Kemerton Expansion Study Final Concept Plan* (WAPC, 2000b) divides the industrial core into categories for different industries. The "allowable noise levels" or "noise quotas" for individual industrial lots within the industrial expansion area have been modeled on the criteria outlined in the EPA's *Draft Guidance Statement for Environmental Noise* (EPA, 1998b) and will enable acceptable noise levels to be achieved within the buffer area (SCA No. 2) identified in the *Kemerton Expansion Study Final Concept Plan* (WAPC, 2000) pursuant to the *Noise Regulations 1997* (WA Government, 1997).

ii. Air quality

The EPA is satisfied that the appropriate modeling has been conducted and the proposed buffer identified in the *Kemerton Expansion Study Final Concept Plan*

(WAPC, 2000b) is adequate to ensure that air quality standards can be met outside the buffer area.

The EPA advises that new project proposals may still need to be assessed under Part IV of the *Environmental Protection Act 1986* and issued with a works approval and licence under Part V of the *Act*.

Overall the EPA considers that, for the assumed industry characteristics with respect to sound power levels and air emissions, the SCA No. 2 around the Kemerton Expansion area provides adequate separation between the proposed industry and surrounding landuses to accommodate the impacts of noise and air quality in accordance with the EPA's environmental objectives and criteria for these environmental factors.

(d) Visual Amenity

A submission suggested that ridgeline and vegetation management guidelines for the western and northern expansion areas of Kemerton need to be provided in the GBRS to address issues raised in *Industry 2030*.

The WAPC advises that the *Kemerton Expansion Study Final Concept Plan* designates the ridgeline as a Ridge Development Control Area where development will be subject to special planning controls to ensure visual impacts are minimised and suggests that these special planning controls be included as an environmental condition on the GBRS.

The special planning controls should require that an environmental management plan be prepared to manage potential impacts on a number of environment matters, including visual amenity, to ensure recommendations regarding development control along the ridgeline are implemented through future subdivision and development proposals.

In order to minimise impacts on visual amenity, consideration should be given to landscape protection in the form of building setbacks, re-contouring, screen planting requirements and other measures.

*Summary*

It is the EPA's opinion that:

- a) the Kemerton Industrial Expansion Area and SCA No. 2 can be managed to meet the EPA's objectives provided a condition is imposed on the GBRS requiring that prior to subdivision or development being approved, whichever comes first, within the Kemerton Industrial Area or the SCA No. 2 an Environmental Management Plan is to be prepared and implemented to manage the potential impacts of the subdivision or development on remnant vegetation, wetlands, fauna and visual amenity;
- b) areas of regionally significant bushland within SCA No. 2 should be reserved as ROS as a future amendment to the GBRS;

- c) Special Control Area No. 2 provides adequate separation between proposed industrial development and surrounding landuses to accommodate the impacts of noise and air quality in accordance with the EPA's environmental objectives and criteria for these environmental factors; and
- (d) The environmental factors noise, air quality, remnant vegetation, groundwater quality, surface water quality and solid/liquid waste disposal should be deferred until the land is subdivided and/or developed for industrial purposes so that the EPA can conduct a detailed environmental assessment pursuant to Part IV of the *Environmental Protection Act 1986*.

## **6. Assessment of the potentially significant environmental impacts of the new Port Installation reserve and adequacy of the adjacent ROS reserve boundary alignment**

### *Description*

An additional 40ha of land is proposed to be reserved as Port Installation in the GBRS for expansion to the existing Port of Bunbury ([Appendix 1](#)). The land is currently zoned Rural in the City of Bunbury Town Planning Scheme No. 6. The area to be rezoned Port installation is intended to be used as a dockyard area and for support industry. The Bunbury Port Authority plans to extend the Inner Harbour by dredging to the south east of the basin, to allow for two additional ship berths and associated onshore facilities. This proposal will require separate referral to the EPA for assessment pursuant to the *Environmental Protection Act 1986*

### *Submissions*

The Bunbury Port Authority lodged a submission stating that the ROS in the port area is excessive and will restrict the operations of the port.

### *WAPC response to submissions*

The WAPC advises that the WRC agrees that the block of ROS for the Preston River Oxbow can be reduced where the proposed ROS buffer exceeds 50m width. The Bunbury Port Authority, WRC and City of Bunbury also agree that there are high conservation values at the Preston River delta that need to be protected and that public access to and along the Leschenault Estuary foreshore needs to be accommodated, but that the ROS proposed by the GBRS is excessive between the western end of the waterbird habitat area and the man-made cove. There is an intention to construct a road between port industry and the estuary foreshore but the location and alignment of such a road has not been set. For these reasons, the WAPC has advised that the alignment of the ROS reserve boundary alignment, between the western end of the waterbird habitat area and the south-west corner of the proposed ROS around the man-made cove, should be modified to be at least 50m from the high water mark ([Map 9 – Appendix 8](#)). Further revisions to proposed ROS boundaries can be considered when more detailed planning for the port area is finalised.

The WAPC recommends that the ROS boundaries proposed for the Preston River Oxbow and the Leschenault Estuary foreshore between Turkey Point and Preston River be modified in accordance with [Map 9 \(Appendix 8\)](#).

#### *EPA Assessment*

The modification to the alignment of the ROS proposed by the WAPC is supported by the EPA because it will expand the ROS reserve to include a significant fauna area on the east side of the Collie River. The modification will also consolidate the size and shape of the ROS and reduce the boundary to area ratio.

The EPA considers that the proposed Port Installations reserve is not likely to have any regionally significant environmental impacts on remnant vegetation or wetlands. Any remnant vegetation or wetlands of local value could be conserved through subsequent subdivision and development processes and managed appropriately. However, the EPA recommends that future proposals on the subject land that may have significant impacts on adjoining land from emissions such as noise and air quality will require referral to EPA pursuant to Part IV of the *Environmental Protection Act 1986*.

#### *Summary*

It is the EPA's opinion that:

- (a) subject to the alignment of the ROS reserve being modified as proposed by the WAPC ([Map 9 - Appendix 8](#)) the Port Installation reserve can be managed to meet the EPA's objectives for remnant vegetation, fauna and foreshores; and
- (e) the environmental factors noise, air quality, marine water quality and should be deferred until the land is subdivided and/or developed for port installation purposes so that the EPA can conduct a detailed environmental assessment pursuant to Part IV of the *Environmental Protection Act 1986*.

## **7. Assessment of new road and rail reserves with potentially significant environmental impacts**

The new road and rail reserves identified in [Table 3](#) as requiring further EPA assessment, are as follows:

### **7.1 Raymond Road**

#### *Description*

The Primary Regional Road reserve for Raymond Road is proposed to be widened in the GBRS.

#### *EPA Assessment*

The Raymond Road Primary Regional Road Reserve crosses a tributary of the Collie River and there are small patches of remnant vegetation within the Primary Regional Road Reserve.

The EPA is of the view that because the land within the reserve is substantially cleared and the reserve is of sufficient width to enable the upgrade to be designed to avoid or

minimise impacts on remnant vegetation, the proposed Primary Regional Road Reserve alignment is environmentally acceptable subject to Environmental Management Plans, and Vegetation and Waterway Mitigation Strategies being prepared in accordance with the specifications in [Section 15](#).

Noise and Vibration Management Plans to ensure that potential impacts on surrounding residents are appropriately managed should also be prepared.

#### *Summary*

It is the EPA's opinion that:

- a) the alignment of the Primary Regional Road reserve for the Raymond Road is environmentally acceptable subject to Environmental and Noise/Vibration Management Plans, and Vegetation and Waterway Mitigation Strategies being prepared in accordance with the specifications in [Section 15](#); and
- b) the environmental factors wetlands, remnant vegetation and the impacts from road users on surrounding noise sensitive landuses should be deferred until the design phase of the Raymond Road upgrade so that a more detailed consideration of the potential environmental impacts of the project and its construction can be undertaken by the EPA pursuant to Part IV of the *Environmental Protection Act 1986*.

## **7.2 South Western Highway (northern section between the northern boundary of the GBRS and the Preston River)**

### *Description*

The Primary Regional Road reserve for that portion of the South Western Highway between the northern boundary of the GBRS and the Preston River is proposed to be widened so that the Highway can be duplicated.

### *Submissions*

A number of submissions received in relation to South Western Highway objected to the proposed widening of the Highway due to the potential impacts on remnant vegetation.

A number of submissions also objected to the proposed widening because of the potential noise and vibration impacts on nearby residents.

### *WAPC response to submissions*

The WAPC advises that the proposed South Western Highway widening alignment has largely been determined by the alignment of the existing Highway. The width of the proposed Primary Regional Road reserve for the South Western Highway is 90m. Only 30m of this is required for the actual road pavement, 15m of which already exists. There are few sections of the proposed South Western Highway widening that affect remnant vegetation and for those that do there is flexibility to avoid significant stands as part of the road design.

Potential noise and vibration impacts will be addressed by Main Roads WA (MRWA) during design and construction stages.

### *EPA Assessment*

MRWA commissioned a study (GHD, 2000) to identify the condition of roadside vegetation along the South Western Highway. The results of the study will be used by MRWA during the planning and design of the Highway upgrade.

The study did identify particular environmental issues that will require further consideration and should be considered as constraints during the planning and design phases of the upgrade program. These issues included protecting significant areas of remnant vegetation and noise and vibration impacts on sensitive land uses.

The EPA is of the view that because the land within the reserve is substantially cleared and the reserve is of sufficient width to enable the duplication to be designed to avoid or minimise impacts on areas of significant environmental value, the proposed Primary Regional Road reserve alignment is environmentally acceptable subject to Environmental Management Plans, and Vegetation and Waterway Mitigation Strategies being prepared in accordance with the specifications in [Section 15](#).

Noise and Vibration Management Plans should also be prepared to ensure that potential impacts on surrounding residents are appropriately managed.

### *Summary*

It is the EPA's opinion that:

- a) the alignment of the Primary Regional Road reserve for the South Western Highway is environmentally acceptable subject to Environmental and Noise/Vibration Management Plans, and Vegetation and Waterway Mitigation Strategies being prepared in accordance with the specifications in [Section 15](#); and
- b) the environmental factors remnant vegetation, watercourses and the impacts from road users on surrounding noise sensitive landuses should be deferred until the design phase of the South Western Highway upgrade so that a more detailed consideration of the potential environmental impacts of the project and its construction can be undertaken by the EPA pursuant to Part IV of the *Environmental Protection Act 1986*.

## **7.3 Port Access Road**

### ***Description***

For many years planning studies have identified the need for a new road to serve as a heavy haulage link between the Bunbury Port and the proposed Bunbury Outer Ring Road.

Currently around 60,000 trucks access the port each year. With the predicted growth of the Bunbury Port, this number is expected to increase to around 90,000 trucks each year by 2005/6.

Main Roads WA has advised that the proposed Port Access Road (PAR) will be constructed to carry traffic underneath the Australind Bypass and South Western

Highway and over the Preston River, Harris Road, Ferguson River and the Picton-Boyanup Road.

The PAR will ultimately be upgraded to dual carriageway standard between the Bunbury Outer Ring Road and Temple Road, and will remain as a single carriageway from this point to the Bunbury Port.

#### ***Submissions and WAPC response***

The Wildflower Society of WA lodged a submission objecting to the impact of the Port Access Road on remnant vegetation.

#### ***WAPC response to submissions***

The WAPC advises that the alignment of the southern end of the PAR is under review and subject to further assessment. The WAPC recommends that the current alignment be retained until after the alignment has been reviewed and changes to the alignment of the PAR be included as a future amendment to the GBRS.

The EPA's consideration of these issues is described in the Assessment section below and the EPA and WAPC responses to other more specific comments made in the submissions concerning the proposed PAR are included in [Appendix 7](#).

#### ***EPA Assessment***

Two issues are addressed in this section, noise impacts from the PAR on nearby sensitive land uses and impacts on regionally significant natural areas.

#### **Noise**

The EPA has concluded that noise from the PAR can be adequately managed at the time of construction to ensure the impact on noise sensitive premises meets levels acceptable to the Department of Environmental Protection. When considering applications to construct residential dwellings near the road alignment that may be lodged prior to construction, decision-making authorities should take account the potential noise impacts from the PAR.

#### **Regionally significant natural areas**

The impact of the PAR reserve on natural areas can be addressed at two levels, the general impact on broad natural values and impact on specific areas.

#### **7.3.1 General Impact on broad natural values**

The PAR traverses:

- a) two major landform elements;
- b) two rivers;
- c) several basin wetlands; and
- d) two Ecological Linkages.

The impacts of the PAR reserve are considered in relation to these broad natural values.

(a) Major landform elements

The PAR reserve traverses the interface between the Bassendean Dunes and Pinjarra Plain and a small section of the Spearwood Dunes. [Table 4](#) lists the two vegetation complexes from within these major landform elements traversed by the PAR reserve. A third major landform element is also included in the table as the vegetation on the Ferguson River is mapped as Southern River Complex, but is more typical of vegetation associated with the Swan Complex of the Pinjarra Plain.

**Table 4: Total remnant vegetation remaining on the southern Swan Coastal Plain (SCP) and the Greater Bunbury Region (GBR) within those vegetation complexes occurring in the alignment of the major roads proposed in the Draft GBRS. The vegetation complexes are grouped in the major landform elements.**

Major Landform Units/ Vegetation Complex	Original GBR (ha)	Remaining GBR (ha)	% of each remaining in GBR	% of each remaining on SCP
<b>Pinjarra Plain</b>				
Swan Complex	5646	906	16	16
<b>Combinations of Bassendean Dunes / Pinjarra Plain</b>				
Southern River Complex	16070	3320	21	20
<b>Spearwood Dunes</b>				
Yoongarillup Complex	13448	4437	33	45

(b) Rivers

The PAR reserve traverses two rivers, the Preston and Ferguson Rivers. Native vegetation is present where the road crosses the Ferguson River. This is significant as there are very few areas of intact riverine vegetation on the Swan Coastal Plain remaining.

The native vegetation on the Ferguson River has a canopy of native tree species and a relatively intact understorey ([Appendix 11](#) and specific values outlined below). As most riverine vegetation has very few native species in the understorey this vegetation is considered to have high natural value. As most of the vegetation along the Ferguson River appears to be less intact, the EPA recommends that the road crossing be relocated to lessen this impact.

(c) Wetlands

The PAR reserve traverses a series of wetlands. Most of these wetlands are areas of palusplain that have been allocated Multiple Use management categories (WRC, 2002) as they have been significantly impacted by agricultural use (both clearing and grazing). The larger, most intact wetlands impacted by the PAR reserve ([Areas 8, 9 and 10 - Appendix 11](#)) are considered in the section below on specific areas. The wetland in Area 8 is not mapped by WRC (2002).

(d) Ecological Linkages (EPA, 2003)

The PAR reserve traverses two ecological linkages the north-south McLarty/ Kemerton/ Twin Rivers/ Preston River/ Gwindinnup Ecological Linkage and the Ferguson River Ecological Linkage ([Appendix 4](#)).

There are only two large remnants within the Constrained portion of the GBR in the vicinity of the McLarty/ Kemerton/ Twin Rivers/ Preston River/ Gwindinnup Ecological Linkage. The PAR reserve impacts significantly on one of these, Area 9. This large, intact area of native vegetation impacted by the road is considered in the section on specific areas below. The proposed River crossings are located within Ecological Linkages ([Appendix 4](#)).

### 7.3.2 Area specific impacts

This section categorises four natural areas in relation to the potential impact of the proposed road on the natural values of the areas. The areas are identified on a plan in [Appendix 11](#).

a) Areas where the Port Access Road reserve should be realigned

The EPA recommends that the PAR reserve be realigned to avoid [three](#) natural areas because the road would impact on the entire area or a critical portion of the area and the information available identifies each area as being regionally significant. The natural areas impacted by the proposed alignment of the PAR reserve included in this category are described below.

#### *Area 9: Barbetti's/CSBP Lot 5 (north of Waldrot Road)*

Area 9 is the largest individual remnant affected by the proposed road. The native vegetation in this area is associated with a large wetland, principally palusplain, area to the west, a central upland sandy ridge and further palusplain to the east. The western wetlands and most of the sandy ridge are mapped within the Southern River vegetation complex and the eastern part of the ridge and eastern wetlands in the Guildford vegetation complex. Large portions of the wetlands have been cleared for pasture and much of the remaining natural vegetation is grazed. Area 9 is in predominantly Good to Degraded condition with patches in Very Good to Excellent condition. The best quality vegetation is in the two triangular remnants to the north of the area that appear to have not been subject to grazing. A study by Main Roads considered the area as being of “some value”.

Area 9 is considered to be a regionally significant natural area as it meets three criteria, being:

- Representation of Ecological Communities,
- Maintaining Ecological Processes and Natural Systems; and
- General Criteria for the Protection of Wetland, Streamline and Estuarine Fringing Vegetation and Coastal Vegetation.

The natural attributes that contribute to the area meeting these criteria are:

- The area contains a series of upland and wetland vegetation units typical of vegetation of the Southern River vegetation complex (and to a lesser extent the Guildford complex) in predominantly Good to Degraded condition with patches in Very Good to Excellent condition;
- The area contains a wetland area which supports a mosaic of vegetation units allied with Pinjarra Plain vegetation;
- The area contains a palusplain wetland area supporting patches of vegetation of a quality and type consistent with a Conservation category wetland and a population of the priority species *Acacia flagelliformis*;
- It is one of only two large remnants within the Constrained portion of the GBR in the McLarty/ Kemerton/ Twin Rivers/ Preston River/ Gwindinnup Ecological Linkage ([Appendix 4](#)) (the other remnant is contiguous with Area 7 on the Bunbury Outer Ring Road reserve);
- The upland and wetland habitats are likely to maintain a diverse bird assemblage with significant feeding and breeding area; and
- Together with Area 10, forms a consolidated bushland area with a diversity of vegetation units and flora, which provides a variety of habitats for fauna.

The road is proposed to be located on the western side of Area 9, within the wetland/upland transition area. Realignment of the reserve in the cleared area of the wetland, marginally further to the west, would limit impact on this remnant.

*Area 10: Bushland between Boyanup/Picton road and railway*

The native vegetation in this area contains part of a wetland area (palusplain, not mapped by WRC 2002) and an associated upland. Four vegetation units can be distinguished in this location: *Melaleuca preissiana* Low Open Woodland over a mosaic of shrub, sedge and herb dominated units, *Pericalymma ellipticum* and *Hakea varia* Closed Heath, *Eucalyptus calophylla* Open Low Forest and an upland area of *Eucalyptus marginata* and *Banksia attenuata* Open Low Forest to Woodland.. A study by Main Roads WA considered the wetland area as being 'locally and regionally significant' and a second study advised that the area should be realigned to avoid all of Area 10 and the remainder of this reserve (here placed in Area 9). Taking into account all the values of the area it is considered to be a regionally significant natural area as it meets four criteria, being:

- Representation of Ecological Communities;
- Rarity;
- Maintaining Ecological Processes and Natural Systems; and
- General Criteria for the Protection of Wetland, Streamline and Estuarine Fringing Vegetation and Coastal Vegetation.

The natural attributes that contribute to the area meeting these criteria are:

- Contains a series of upland and wetland vegetation units typical of vegetation of the Southern River vegetation complex in predominantly excellent to good condition;

- Contains a wetland area which supports a mosaic of vegetation units allied with Pinjarra Plain vegetation;
- Contains a wetland area supporting vegetation of a quality and type consistent with a Conservation category wetland;
- It is the location of a series of significant species associated with wetlands of the Pinjarra Plain including, *Schoenus brevisetis* and *Acacia flagelliformis* which are both priority species;
- It is the location of *Caladenia speciosa* and *Verticordia attenuata*, two priority species;
- Is located in the south McLarty/ Kemerton/ Twin Rivers/ Preston River/ Gwindinnup Ecological Linkage ([Appendix 4](#));
- The area has some level of protection, being a DCLM miscellaneous reserve; and
- With Area 9 forms a consolidated bushland area with a diversity of vegetation units and flora which provides a variety of habitats for fauna.

The EPA recommends that PAR reserve should be realigned to avoid impacting on Area 10.

#### *Area 11: Ferguson River*

Three vegetation units are distinguished in Area 11. These units are *Eucalyptus calophylla*, *E. rudis* and *Melaleuca raphiophylla* Forest in the river bed, *Eucalyptus calophylla* Open Forest to Woodland on the banks and *Banksia attenuata* and *Kunzea glabrescens* Low Woodland on the highest locations. While the understorey is significantly weed invaded nearly 40 native plant species are present in the understorey. This vegetation is considered to be a regionally significant natural area as it meets five criteria, being:

- Representation of Ecological Communities;
- Diversity;
- Rarity;
- Maintaining Ecological Processes and Natural Systems; and
- General Criteria for the Protection of Wetland, Streamline and Estuarine Fringing Vegetation and Coastal Vegetation.

The natural attributes that contribute to the area meeting these criteria are:

- Contains a series of vegetation units typical of vegetation of the Swan vegetation complex in good to degraded condition;
- Contains nearly 40 native species, a high diversity of plant species for its type;
- It is the location of a series of significant species associated with riverine remnants on the SCP including, *Darwinia citriodora*, *Trymalium floribundum* and *Acacia urophylla*;
- It is located in the Preston/Ferguson River Ecological Linkage ([Appendix 4](#));

- It is likely to contain populations of at least one species listed under the EPBC Act 1999, Western Ringtail Possum; and
- The area has some level of protection, being a reserve for Park, Recreation and Drainage.

While the area is in need of restoration work, road works in the area of the reserve will further degrade the area and destroy many of the remaining natural values. A study for Main Roads WA also considered Area 11 had significant values and that the location of the proposed crossing be reconsidered.

The EPA recommends that PAR reserve should be realigned to avoid impacting on Area 11.

b) Impact appears to be minor

*Area 8: Just north of the junction of BORR and PAR (south of Waldrodt Road)*

The native vegetation in this area is associated with a sumpland within the Southern River vegetation complex and is in degraded condition. As the vegetation is significantly impacted and is in the 'Constrained' portion of the GBR (Map 1 – [Appendix 3](#)) it is not considered a priority for protection.

The EPA considers that the potential impacts of the PAR reserve on Area 8 appear to be minor and no offsets or changes to the reserve or road alignment are required.

### *Summary*

Having particular regard to the:

- a) WAPC's response to submissions concerning environmental issues raised in relation to the PAR Primary Regional Road reserve; and
- b) studies commissioned by Main Roads WA to identify potential environmental impacts of the PAR Primary Regional Road Reserve;
- c) alternative alignment for the PAR provided by Main Roads WA as shown in [Appendix 12](#).

it is the EPA's opinion that:

- a) The PAR Primary Regional Road Reserve should be realigned to avoid impacting on:
  - Area 9: Barbetti's/CSBP Lot 5;
  - Area 10: Bushland between Boyanup/Picton road and railway; and
  - Area 11: Ferguson River.
- b) It would be preferable for the Port Access Road to follow existing road alignments between Harris Road and Moore Road although Option 2 shown on the map of Port Access Road Realignment Options between Moore Road and Harris Road ([Appendix 11](#)) is acceptable;
- c) Environmental and Noise/Vibration Management Plans, and Vegetation and Waterway Mitigation Strategies be prepared prior to construction in accordance with the specifications in [Section 15](#)

- d) As a consequence of the limitations of the flora and fauna survey done for this assessment the following need to be included in the Management Plans to clearly identify the specific impacts of the roads on natural values:
- mapping of vegetation units and the condition of the vegetation units;
  - plot based descriptions and flora lists for each of the mapped vegetation units;
  - mapping of populations of priority species; and
  - the identification of fauna values of the remnants.
- e) the environmental factors remnant vegetation, wetland, watercourses, fauna and the impacts from road users on surrounding noise sensitive landuses should be deferred until the design phase of the Port Access Road upgrade so that a more detailed consideration of the potential environmental impacts of the project and its construction can be undertaken by the EPA pursuant to Part IV of the *Environmental Protection Act 1986*.

#### **7.4 Boyanup Bypass Road**

##### *Description*

The Primary Regional Road reserve for the Boyanup Bypass is part of the long term planning by Main Roads WA.

The road reserve is situated near an EPP Lake (also referred to as Boyanup Billabong) and the southern end of the alignment traverses through an area of remnant vegetation.

##### *Submissions*

One submission received in relation to the Boyanup Bypass objected to the proposal due to the potential impacts on Boyanup Billabong.

The EPA's consideration of this issue is described in the Assessment section below and the EPA and WAPC responses to other more specific comments made in the submissions concerning the proposed Boyanup Bypass are included in [Appendix 7](#).

##### *WAPC response to submissions*

The WAPC advises that its environmental study concludes that Boyanup Billabong is not regionally significant. Accordingly, the proposed alignment does not need to be modified at this point. However, the study recommends the southern extremity of the proposed alignment be modified to avoid regionally significant remnant vegetation. The WAPC advises that DPI and Main Roads WA should investigate the possibility of modifying this section of the proposed reserve prior to finalisation of the GBRS.

##### *EPA Assessment*

The EPA notes that the WAPC's environmental study concludes that Boyanup Billabong is not regionally significant and is aware that the landowner did not give permission for access during field survey. Therefore, the mapping in the environmental study is inferred. However the unusual location of the wetland and local information that describes the Billabong as being associated with an impeding quartzite layer suggests that the wetland has significant natural value. The EPA also noted that the road reserve does not directly

impact on the wetland, although drainage from the road has the potential to indirectly affect the wetland.

The EPA is of the view that, because the road reserve does not directly impact on the Boyanup Billabong and the reserve is of sufficient width to enable the road to be designed to further avoid or minimise impacts on the wetland, the proposed alignment near the wetland is environmentally acceptable subject to Environmental Management Plans and Vegetation and Wetland Mitigation Strategies being prepared in accordance with the specifications in [Section 15](#).

The southern extremity of the Boyanup Bypass passes through bushland that is considered to be a regionally significant natural area that meets three of the criteria being used to identify regionally significant natural areas in the EPA's assessment of the GBRS. These criteria are:

- Representation of ecological communities;
- Rarity; and
- Maintaining Ecological Processes and Natural Systems.

The natural attributes that contribute to meeting these criteria are listed below:

- A very good representation of foothills vegetation of the Cartis Complex containing a diversity of species and two priority flora species (*Caladenia speciosa* and *Acacia flagelliformis*);
- Contains a population of Western Ringtail Possum which is declared Threatened under the *Wildlife Conservation Act* and is listed under the *Environmental Protection and Biodiversity Conservation Act 1999*.
- Contiguous with a significant area of vegetation of the Cartis Complex; and
- Located in the McLarty/ Kemerton/ Twin Rivers/ Gwindinup Ecological Linkage ([Appendix 4](#)).

It would be preferable for the Boyanup Bypass to be realigned to avoid the bushland. However, Main Roads WA has advised that to avoid the bushland the Bypass would need to be realigned to the east creating a new rail crossing and then deviate back across the rail reserve to meet up with the existing road to the south. Main Roads WA consider that this would be impractical.

Main Roads WA has indicated that to minimise the impacts on the bushland the road could be designed within the reserve in such a way that it is offset towards the railway line, with a wider vegetated verge to the west. This would ensure that a proportion of the existing remnant vegetation would be retained within the proposed road reserve, not withstanding that some will need to be cleared to accommodate the future road.

Acknowledging the constraints on realigning the Boyanup Bypass, the EPA is of the view that the proposed alignment of the Primary Regional Road reserve is acceptable subject to:

- the road being designed in such a maner as to minimise impacts on the bushland; and

- Environmental Management Plans and Vegetation and Wetland Mitigation Strategies being prepared in accordance with the specifications in [Section 15](#).

#### *Summary*

It is the EPA's opinion that:

- 1) the road be designed and constructed to minimise impact on bushland and avoid any direct or indirect impacts on the Boyanup Billabong;
- 2) Subject to point (1) the alignment of the Primary Regional Road reserve for the Boyanup Bypass is environmentally acceptable subject to Environmental and Noise/Vibration Management Plans, and Vegetation and Wetland Mitigation Strategies being prepared in accordance with the specifications in [Section 15](#); and
- 3) the environmental factors wetlands, remnant vegetation and the impacts from road users on surrounding noise sensitive landuses should be deferred until the design phase of the Boyanup Bypass so that a more detailed consideration of the potential environmental impacts of the project and its construction can be undertaken by the EPA pursuant to Part IV of the *Environmental Protection Act 1986*.

### **8. Assessment of the potentially significant environmental impacts of the new Public Purpose Reserve, Lot 310 and Part of lots 23, 35 and 205 Marriot Road, Kemerton**

#### *Description*

There is an existing domestic waste water treatment plant (WWTP) on the proposed Public Purpose reserve north of Marriot Road. It is proposed that the Public Purpose Reserve may accommodate an expanded domestic WWTP to service the Eaton/Australind area and a WWTP for the Kemerton Industrial Area.

#### *EPA Assessment*

The EPA has previously advised the WAPC (EPA, 1999c) that there would be less impact on ecological values if wastewater treatment plant facilities in the Kemerton area were restricted to the north, or immediately south, of Marriott Road on Lot 310 and Part of lots 23, 35 and 205.

Odour emissions from WWTP's have the potential to impact on sensitive landuses and remnant vegetation. The EPA's generic buffer requirement for WWTP is 500m. Special Control Area No. 2 (SCA No. 2) around the Kemerton Industrial area provides a buffer width in excess of 1000m which will more than adequately separate the proposed WWTP's from any incompatible land uses.

#### *Summary*

It is the EPA's opinion that:

- (a) the proposal to establish waste water treatment plants on the Public Purpose reserve is environmentally acceptable subject to further investigation to select development sites with minimal potential environmental impacts on remnant vegetation and fauna;

- (b) Special Control Area No. 2 provides adequate separation between the Public Purpose reserve and surrounding land uses to accommodate the impacts of odour emissions from the proposed waste water treatment plants in accordance with the EPA's environmental objectives and criteria for this environmental factor; and
- (c) the environmental factors remnant vegetation, fauna and odour emissions should be deferred until the development stage so that a more detailed consideration of the potential environmental impacts of the waste water treatment plant and its construction can be undertaken by the EPA pursuant to Part IV of the *Environmental Protection Act 1986*.

## **9. Assessment of the adequacy of new Regional Open Space reserves**

The areas of ROS requiring further EPA assessment, as identified in [Table 3](#), are as follows:

### **9.1 Lots 0, 7 and 9 Brunswick River (east of Australind Bypass)**

#### *Description*

Portions of Lots 0, 7 and 9 abutting the Brunswick River are proposed to be reserved as ROS in the GBRS ([Appendix 1](#)).

#### *Submissions*

A submission objected to the ROS reserve over the southern foreshore of Brunswick River east of Australind Bypass.

#### *WAPC's response to submissions*

In response to the submission the WAPC advises that the subject land had been identified as under consideration for conservation, protection and reservation in the *Greater Bunbury Structure Plan* (WAPC, 1995). However, the WAPC's environmental study concludes that apart from Lot 61, only the riparian corridor should be retained in ROS. A revised ROS boundary has been surveyed in consultation with the WRC, DEP and the landowner. Vegetation along the southern boundary of the proposed ROS has been identified in the WAPC's environmental study as having conservation value, and Eucalyptus woodlands further south as providing a conservation linkage. An environmental management measure provides for preparation of an environmental management plan as part of any future GBRS rezoning proposal for these lots.

#### *EPA Assessment*

The EPA supports the proposed modification to the alignment of the ROS reserve as shown on [Map 6](#) ([Appendix 9](#)).

#### *Summary*

It is the EPA's opinion that the ROS reserve over portion of Lots 0, 7 and 9 is environmentally acceptable subject to the alignment being modified as shown on [Map 6](#) ([Appendix 9](#)) to consolidate the size and shape of the Brunswick River foreshore reserve.

### **9.2 Locations 7 and 14 Buffalo Road, Binningup**

### *Description*

Portions of Locations 7 and 14 are proposed to be reserved as ROS in the GBRS as shown in [Appendix 1](#).

### *Submissions*

A number of submissions suggested that most of Location 7 should be reserved as ROS. Other submissions suggested that the ROS reserve on Location 7 should be reviewed or removed.

A submission also suggested that the ROS reserve over Location 14 should only cover the remaining area of wetland.

The EPA's consideration of these issues is described in the Assessment section below and the EPA and WAPC responses to other more specific comments made in the submissions concerning the proposed alignment of the ROS reserve on Lot 7 and 14 are included in [Appendix ?](#).

### *WAPC response to submissions*

The WAPC advises that Location 7 is identified for future urban development in the *Greater Bunbury Structure Plan (1995)* and *Coastal and Lakelands Planning Strategy (1999)* subject to environmental assessment.

The WAPC's environmental study concludes the proposed ROS reserve over the degraded areas of Location 7 and 14 should remain because these areas are part of System 6 area C66 and represent the previous extent of the Leschenault Estuary. The WAPC concedes that the alignment of the ROS reserve boundary could be modified on Loc 14 to exclude two areas from the ROS reserve as shown on Map 8 ([Appendix 8](#)).

### *EPA Assessment*

The EPA notes that the two areas on Location 14 proposed to be excluded from the ROS reserve as a result of the boundary realignment, appear to have low environmental value in their own right but act as a buffer to the wetland. The EPA agree that it is not necessary that the two sites be retained as ROS, although they should be maintained as part of the buffer to the wetland.

The alignment of the ROS reserve boundary over Location 7 has not been ground truthed to determine if it is aligned with the areas of regional value. The ROS boundary alignment should be reviewed and amended, if necessary, prior to any change in the Rural zoning on Loc 7, or any subdivision of the property.

Issues to be considered as part of the review of the ROS alignment should include the extent of the Leschenault Estuary and Conservation Category wetlands outside the current ROS reserve boundary alignment and regional values of the western Quindalup Dune area.

### *Summary*

It is the EPA's opinion that:

- (a) the proposed modification to the alignment of the ROS reserve boundary alignment on Location 14 is acceptable; and
- (b) the alignment of the ROS reserve boundary on Location 7 should be reviewed prior to any future zoning or subdivision on the subject land, whichever comes first, and amended where necessary.

### **9.3 Twin Rivers - Pt Lot 211 Barnes Avenue, Australind**

#### *Description*

Pt Lot 211 Barnes Avenue, Australind is situated at the confluence of the Collie and Brunswick Rivers and is locally known as Twin Rivers ([Map 8 – Appendix 9](#))

The site is 37 hectares in area and is partly zoned Residential and partly reserved for Recreation in the Shire of Harvey District Planning Scheme No. 1 (DPS No. 1). Prior to being released for public comment in August 2000 the WAPC reviewed the foreshore reserve shown in Shire of Harvey TPS No.1. As a consequence the GBRS was modified by the WAPC to provide a wider river foreshore ROS reserve in response to community and government agency concerns and based on technical assessment of conservation and recreation values and recognition of the current Residential zoning. The wider foreshore reserve recognises the significance of the foreshore as a wildlife corridor, the conservation value of other remnant vegetation on Lot 211 and the strategic importance of this site for recreation. The original GBRS ROS reserve boundary was similar to the Recreation boundary in the Shire of Harvey DPS No. 1.

A proposal to subdivide the Twin Rivers site was referred to the EPA by the WAPC for consideration under the *Environmental Protection Act* on the 28 September, 1999. The landowners, Marist Brothers Community, proposed to create 248 lots on the site, ranging in size from 600m<sup>2</sup> to 4,000m<sup>2</sup>. The subdivision proposal was based on the Urban zone boundaries shown in the Shire of Harvey DPS No. 1.

The Chairmen of the EPA and WAPC met to discuss an appropriate way of dealing with the subdivision ahead of the finalisation of the GBRS, because it was thought that determination of the subdivision may pre-empt the WAPC and EPA assessments of the GBRS in terms of the subject land.

Following this meeting the DPI advised the proponent that it was unlikely the WAPC would approve a subdivision unless it was consistent with the modified ROS reserve boundaries in the GBRS. The Chairman of the EPA advised that, prior to it completing its assessment of the GBRS, a subdivision proposal would only likely be considered environmentally acceptable if it was unlikely to cause a significant environmental impact and was set well back from the GBRS ROS reserve boundary so as to not pre-empt any changes to the ROS boundary that the EPA may recommend as an outcome of its formal assessment of the GBRS.

In response to the changes to the GBRS and discussions with the Chairman of the EPA, the applicant submitted to the WAPC a revised subdivision design for Stage One of the Twin Rivers Estate ([Map 8 - Appendix 9](#)). Stage One was referred to the EPA by the

WAPC on the 6 September 2001 and the EPA subsequently decided to “not assess” Stage One of the Twin Rivers subdivision.

In arriving at a decision to “not assess” the proposed Stage One subdivision and to provide publicly available environmental advice, the EPA acknowledged that the proposal was associated with potentially significant environmental impacts but considered that there was an adequate area of land being reserved to represent the environmental values and that conditions could be imposed on the subdivision by the WAPC to protect the environmental values of the site.

A number of appeals were received on the recommended level of assessment set by the EPA. The Minister for the Environment subsequently upheld a number of these appeals. The Minister remitted the proposal to the EPA pursuant to section 101(1)(b)(i) of the *Environmental Protection Act 1986* and recommended that the EPA consider making a decision on the level of assessment for the proposal following completion of the EPA’s assessment of the GBRS.

#### *Submissions*

A significant number of submissions supported the inclusion of all of Lot 211 within an ROS reserve for the following reasons:

- provides a valuable range of vegetation types and habitats that are now limited in the area;
- provides a passive recreation and education resource;
- contains threatened fauna species such as Western Ringtail Possum, Baudins Cockatoo and possibly Quenda; and
- is recognized in LIMA’s Waterways Protection Precinct and EPA System 6 report.

A number of submissions stated that the ROS boundary over Lot 211 should be reduced to reflect the Shire of Harvey Town Planning Scheme and that there is no justification for the ROS boundary shown in the GBRS.

The EPA and WAPC responses to the specific comments made in the submissions concerning the Twin Rivers site are included in [Appendix 7](#) and the EPA’s consideration of a number of the general issues raised in the submissions is described below.

#### *WAPC response to submissions*

The WAPC has recommended further modifications to the ROS reserve boundary on the Twin Rivers site as shown on [Map 1 \(Appendix 8\)](#).

This modification is based on recommendations in the environmental study commissioned by the WAPC to review the adequacy of the proposed ROS. The study concluded that the entire Twin Rivers site has conservation value, although it conceded that the reserve proposed in the GBRS is acceptable given the current zoning, subject to minor modifications to the boundary alignment as shown on [Map 1 \(Appendix 8\)](#) to better protect regionally significant natural values and provide a practical boundary with

the Urban land. The modification recommended by the DPI is intended to increase the corridor width along the foreshore and include more upland vegetation at the west of the site.

The WAPC has further advised, that, should it be decided by the Government that virtually the whole of the site is to be reserved, it is recommended that the subdivision boundary as shown on Map 1 be permitted. This boundary allows a practical rounding off of development at a road, separating residential use from ROS which is consistent with WAPC policy.

#### *EPA Assessment*

The Twin River site is considered by the EPA to be a regionally significant natural area of high value because it meets five of the criteria being used to identify regionally significant natural areas in the EPA's assessment of the GBRS. These criteria are:

- Representation of Ecological Communities;
- Diversity;
- Rarity;
- Maintaining Ecological Processes or Natural Systems; and
- General Criteria for the protection of wetland, streamline and estuarine fringing vegetation.

The natural attributes of the Twin Rivers site that contribute to these criteria being met are listed below and described in detail in [Sheet 12 \(Appendix 5\)](#):

- The vegetation on the site is in Very Good to Good condition and representative of the Swan and Karrakatta Complex Central and South Vegetation Complexes. There is in excess of 10% of Karrakatta Complex Central and South Vegetation Complex remaining within the constrained area which meets the requirements of the criteria. However, there is close to only 10% of the Swan Vegetation Complex remaining, the majority of which is generally significantly altered from its natural condition. The area of Swan Complex on the Twin River site is one of the best examples of its type;
- The site contains a Conservation category wetland with intact floodplain vegetation;
- The site is diverse for its type in respect to landforms, flora and fauna;
- The site is the the largest consolidated naturally vegetated remnant on the Collie and Brunswick Rivers with contiguous protected bushland areas to the north and south;
- The site is part of the McLarty/ Kemerton/ Twin Rivers/ Preston River/ Gwindinup Ecological Linkage and the Brunswick River and Collie River Ecological Linkage ([Appendix 4](#));
- Location for two rare fauna species, Western Ringtail Possum, Baudin's Black Cockatoo and one plant species, *Diuris drummondii*. These species are recognised by the State and are subject to protection under the Commonwealth *Environmental Protection and Biodiversity Conservation Act 1999*;
- There is significant flora and fauna present on the site:

- Flora - *Lasiopetalum membranaceum* (Priority 3); *Caladenia speciosa* (Priority 4); and
- Fauna - two species protected under JAMBA/CAMBA treaties (Common Greenshank, Great Egret), one Priority 1 species (Square-tailed Kite), one Priority 4 species (Quenda) recorded. Of the fauna known to be present in the region, 9 other priority species utilise habitats similar to those present in the study area and are likely to be present also.

In addition to its particular natural values the EPA believes that the site also has regional value for its iconic status, similar to Kings Park and Mount Henry within the Perth Metropolitan area. The EPA believes that the GBRS provides an opportunity to protect these values and that there is a strong environmental case for recommending that the total site be conserved. Moreover, the area, although already zoned for urban purposes in the Shire of Harvey Town Planning Scheme, could contribute to the State/national conservation estate over the long term in the way that Kings Park does. The EPA recognises that this could involve a financial outlay to Government.

The EPA acknowledges that this recommendation is contrary to its earlier advice in relation to the Stage One subdivision which indicated that Stage One could be managed to protect the natural values of the Twin Rivers site. This change in opinion has occurred because the EPA has reassessed the regional natural values of the site using the criteria being used to identify regionally significant natural areas within GBRS and has found that the whole site has values higher than previously indicated.

If the Government decides not to preserve the whole of the area as a regional park, the EPA is of the view that the modified ROS alignment identified by the WAPC in July 2003 should be adopted ([Map 1 – Appendix 8](#)).

#### *Summary*

It is the EPA's opinion that:

- (a) the current alignment of the ROS reserve does not adequately protect the regional natural values of the Pt Lot 211 Barnes Avenue;
- (b) in view of the regional natural values of Pt Lot 211 Barnes Avenue all of the site should be reserved;
- (c) if the Government decides not to preserve the whole of the area as a regional park, the EPA is of the view that the modified ROS alignment identified by the WAPC in 31 July 2003 should be adopted; and
- (d) arrangements be included in the Greater Bunbury Region Scheme to ensure that adequate funds are available for the WAPC to purchase areas of regional conservation value.

#### **9.4 Picton Waters - EPP Lake on portion of Lots 40-44 Jeffery Road, Picton**

##### *Description*

Picton Waters is a proposed residential subdivision on Lot 40-44 Jeffery Road. The Picton Waters Structure Plan for the 73 ha site was referred to the EPA by the WAPC in 2001.

The ROS reserve shown in the GBRS over portion of Lots 40-44 Jeffrey Road, Picton ([Map 15 - Appendix 8](#)) is intended to provide protection to a lake identified in the *Environmental Protection (Swan Coastal Plain Lakes) Policy* (Lakes EPP)(EPA, 1992a). However, the ROS boundary alignment shown in the GBRS does not correspond with the gazetted EPP boundary alignment and a modification to the GBRS map is necessary to align the boundaries.

Documentation (BBG, 2002) was submitted to the EPA Service Unit, describing the environmental values of the wetland, to provide justification for the realignment of the wetland buffer boundary. The EPA Service Unit subsequently inspected the site and advised the landowner's consultants that it supports the realignment of the wetland buffer and ROS reserve alignment as shown on [Map 15 \(Appendix 8\)](#). The Picton Waters Structure Plan identifies the wetland buffer boundary that more accurately reflects the buffer around the EPP lake boundary.

#### *Submissions*

The landowner lodged a submission requesting that the ROS boundary be modified in accordance with the Picton Waters Structure Plan.

#### *WAPC's response to submissions*

In response to the submission the WAPC recommends that the proposed ROS boundary should be modified to accord with the revised wetland buffer alignment shown on [Map 15 \(Appendix 8\)](#).

#### *EPA Assessment*

The EPA Service Unit's primary objective in relation to reviewing the Structure Plan was to ensure that an adequate buffer was provided around the EPP Lake and the abattoir on the adjacent land.

#### Remnant vegetation

The development of the Picton Waters Structure Plan will require approximately 55 hectares of remnant vegetation to be cleared. This clearing is being off-set by the rehabilitation of the EPP wetland which will provide a net environmental benefit.

#### Wetland

The EPA Service Unit considers that the Picton Waters Structure Plan provides an adequate wetland buffer boundary around the EPP Lake subject to the preparation and implementation of a drainage and nutrient management plan, wetland rehabilitation/management plan and fauna management plan. These plans should also include that part of the wetland on the adjoining land holdings to the east.

#### Abattoir buffer

An abattoir is located to the west of the Picton Waters Structure Plan. The EPA's Guidance No. 3 for Industrial Residential Buffer Areas requires a 500m separation distance between a residential area and an abattoir.

The 500m buffer corresponds with the ROS reserve over the EPP Lake and therefore no incompatible development will take place, within the buffer, on the subject.

#### *Summary*

It is the EPA's opinion that the:

- (a) the alignment of the ROS reserve boundary is environmentally acceptable subject to the preparation and implementation of a drainage and nutrient management plan, wetland rehabilitation/management plan and fauna management plan; and
- (b) the environmental factors remnant vegetation, wetlands and fauna should be deferred until the land is subdivided or development, whichever comes first, so that a more detailed consideration of the potential environmental impacts of the subdivision can be undertaken by the EPA pursuant to Part IV of the *Environmental Protection Act 1986*.

### **9.5 College Grove - Lot 1000 Bussell Highway**

#### *Description*

College Grove is a proposed residential estate situated on Lot 1000 corner of Bussell Highway and Somerville Drive, about 7km south of Bunbury. The development is a joint venture between the City of Bunbury (the land owner), Western Australian Land Authority (Landcorp) and the Department of Land Administration. One stage of the residential estate has been completed.

Lot 1000 is partly zoned Residential and partly reserved for Parks and Recreation under the City of Bunbury Town Planning Scheme No. 7. The GBRS reflects Town Planning Scheme No. 7 ([Appendix 1](#)).

#### *Structure Planning*

Structure planning for the College Grove Estate commenced in 1992. A structure plan was referred to the DEP for comment in 1998. The DEP advised the City of Bunbury (DEP, 1998) that the bushland corridor in the College Grove Structure Plan should be between 300-500 metres wide if the objectives of protecting the vegetation and ecological functions present in this part of the corridor are to be achieved. The structure plan was endorsed by the WAPC in 1998 with a 100m wide bushland corridor. The zoning and alignment of the ROS reserve boundary, in the GBRS, is consistent with the 1998 structure plan.

The 1998 structure plan has, again, been reviewed by the joint venture developer. The City of Bunbury forwarded the 1998 structure plan to the EPA Service Unit for review in June 2001. The EPA Service Unit's primary objective in relation to reviewing the 1998 Structure Plan was to ensure that a wider bushland corridor is provided along the southern boundary of Lot 1000 as part of the Ocean to Preston River Corridor.

Taking into account the site's natural values, the current urban zoning and planning, the EPA Service Unit renegotiated the alignment of the structure plan to provide a wider corridor, varying between 200-300 metre wide, along the southern boundary of the Lot

1000 ([Map 9 - Appendix 9](#)). The landowner modified the structure plan and the EPA Service Unit advised the landowners ([EPA, 2002b](#)) that the width of the bushland corridor shown in the modified structure plan was adequate and that the alignment of the ROS reserve boundary in the GBRS should be consistent with the modified structure plan. The modified structure plan has since been endorsed by the City of Bunbury. The WAPC has advised that it has not yet considered the modified structure plan but has recommended that the GBRS be modified in accordance with the ROS boundary alignment agreed with the EPA Service Unit.

#### *Submissions*

A number of submissions were received stating that further consideration should be given to including additional areas of remnant bushland in the Ocean to Preston River Park Corridor. There is local support for protecting the bushland on Lot 1000.

Members of the Bunbury community have formed an *Ocean to Preston Regional Park Advisory Group*. Various agencies are also represented on the advisory group.

#### *WAPC response to submissions*

The WAPC recommends that the GBRS should be modified in accordance with [Map 2 \(Appendix 8\)](#) with flexibility being given in determining the final alignment of the northern ROS boundary to facilitate the final structure plan.

The WAPC advises that in determining the final boundary between Urban and ROS, the following factors should be taken into account:

- the possible closure of Centenary Road and its inclusion in ROS;
- the development lot yield should be sufficient to accommodate a community which will provide facilities such as schools; and
- recognising that the City of Bunbury has not opposed additional ROS over the Ocean to Preston River corridor at Loc 632 Parade Road.

The WAPC further advises that once the GBRS is operational, the WAPC will undertake a study to identify other areas for protection and/or inclusion in the Ocean to Preston River Park. The WAPC will also consider whether the Park can be enhanced by local open space through the consideration of adjoining structure plans.

#### *EPA Assessment*

Lot 1000 is a significant part of the Ocean to Preston River Corridor (Maidens/ Preston River Ecological Linkage) which is a unique bushland link between the coastal Maidens area and the Preston River ([Appendix 4](#)). The Ocean to Preston River Corridor was endorsed by the EPA in its advice to the WAPC on the *Bunbury-Wellington Region Plan* (EPA, 1993c) on the basis that it connects areas of regional and local importance, as well as providing a cross section of the vegetation, habitats and landforms from the coast to the Preston River.

The ecological linkage contains a sequence of vegetated landform elements typical of the Swan Coastal Plain in an atypical combination close to the Bunbury urban area. East-

west transects are now rare on the Swan Coastal Plain south of the Perth Metropolitan Area.

Lot 1000 is considered by the EPA to be regionally significant because it meets four of the criteria being used to identify regionally significant natural areas in the EPA's assessment of the GBRS. These criteria are:

- Representation of Ecological Communities;
- Rarity;
- Maintaining Ecological Processes or Natural Systems; and
- General Criteria for the protection of wetland, streamline and estuarine fringing vegetation.

The natural attributes of the site that contribute to meeting these criteria being met are listed below:

- It is the only prominent Spearwood Dune in the ecological linkage and includes the interface between Bassendean and Spearwood Dunes systems. It is a compact shape and contiguous with other natural areas to the east and west;
- It contains a substantial representation of the Karrakatta Central and South vegetation complex and includes southern *Eucalyptus gomphocephala* – *Agonis flexuosa* woodlands (floristic community type 25 which is a significant representation of this unit in the Maidens/Preston River Ecological Linkage;
- Contains vegetation in Good to Very Good condition with significant tall habitat trees (Tuart);
- It supports a Western Ring-tailed Possum population which is listed under the EPBC Act (1999) and WA Wildlife Conservation Act 1950 and subsequent amendments. This population is best conserved by maintaining a large area of suitable habitat;
- It contains significant fauna habitat supporting a number of bird species of regional conservation significance which have declined elsewhere on the Swan Coastal Plain because of habitat fragmentation including Yellow Robin, Scarlet Robin, Weebill, Broad-tailed Thornbill. This assemblage will be maintained in the long term by the retention of a significant bushland area; and
- Lot 1000 provides a key consolidated part of the corridor of sufficient size to maintain long term retention of the significant faunal assemblage. It has an important role in facilitating movement in both directions within the regional ecological linkage.

Lot 1000 is located within the 'constrained' portion of the GBRS, where the criterion for representation is greater than 10% retention. The constrained area of the GBRS is likely to currently protect more than 10% of the Karrakatta Central and South complex. However, the site is considered to meet the criterion of 'Representation of Ecological Communities' as it contains substantial representation of the naturally vegetated interface between the Karrakatta Central and South vegetation complex and Southern River vegetation complex. This interface of upland vegetation is not known south of Lot 1000 and is part of the only substantive occurrence of this interface on the 'constrained' portion of the GBRS.

As indicated by the environmental values described above, the majority of Lot 1000 is regionally significant and it would be desirable to reserve all of the site. However, the EPA considers that these values could be adequately represented in a lesser area of bushland.

The EPA recognises that the EPA Service Unit has agreed to a corridor width along the southern boundary of Lot 1000 varying between 200m and 300m wide. However, given the values of the site the EPA considers that a corridor of this width on Lot 1000 is inadequate and recommends that the corridor be increased in width to between 300m to 500m as shown on [Map 9 \(Appendix 9\)](#).

### *Summary*

Having particular regard to the:

- a) regional natural values of Lot 1000 and the opportunity the site presents in conserving a consolidated area of bushland within the Ocean to Preston River Corridor (Maidens/Preston River Ecological Linkage);
- b) past history of the site, particularly the approved 1998 structure plan;
- c) commitments to provide community infrastructure on Lot 1000 for the developed stages of College Grove; and
- d) potential impacts that the proposed Urban zoning will have on the regionally significant natural values of Lot 1000;

it is the EPA's opinion that:

- 1) a corridor between 300 and 500m, as indicated on [Map 9 \(Appendix 9\)](#), be reserved in the GBRS and appropriately managed; and
- 2) some degree of flexibility (20 metres) be allowed in determining the final alignment of the northern ROS boundary to facilitate the final structure plan with no nett loss of ROS.

## **9.6 Muddy Lakes – Minninup Road, Capel**

### *Description*

Muddy Lakes (also known as Minninup Swamp) is situated approximately 13km south of the Bunbury CBD and 800m from the Indian Ocean.

Muddy Lakes and its fringes are contained within a number of properties which are currently zoned Rural in the Shire of Capel's Town Planning Scheme. The GBRS proposes to reserve part of the properties as ROS ([Appendix 1](#)). The ROS reserve boundary generally aligns with the boundary of the wetland.

Parts of the wetland provides valuable summer grazing for horses and livestock. The landowners are opposed to their land being reserved as ROS because of concern that it will restrict the availability of the areas for summer grazing.

### *Submissions*

Submissions received in relation to Muddy Lakes were predominantly objecting to the ROS reserve set aside to protect Muddy Lakes because it will affect existing rural activities and businesses.

The EPA and WAPC responses to the specific comments made in the submissions concerning the Muddy Lake are included in [Appendix 7](#) and the EPA's consideration of a number of the general issues raised in the submissions is described in the Assessment section below.

#### *WAPC response to submissions*

The WAPC advises that its environmental study concludes that, on their own, this wetland area has regionally significant natural values but that they also form part of a larger conservation area that supports natural values of outstanding regional significance that should be protected. The small portions of subject wetland that do not have regionally significant conservation value, form part of the consolidated area that would be compromised if these areas were excluded.

On this basis, the ROS reserve boundary should remain as indicated in the GBRS. There is no doubt that preventing stock access to the ROS, some of which is used for summer pasture, would have a significant impact on the agricultural productivity of some affected properties. However, stock would not be prevented over this area by the GBRS until it is in Crown ownership. Even then there may be an option to lease some of the land back for grazing until restoration works commence. Notwithstanding these considerations, at some point in the future the GBRS will impact on the suitability of some properties for grazing. It is also likely that this area will be subject to pressure for closer subdivision in the future. For these reasons, a structure plan should be prepared to determine appropriate land use and management guidelines for the protection and enhancement of coastal and wetland resources in this general area. This could be undertaken in the context of the coastal management plan that will be prepared for this section of the coastline to provide management and landuse guidelines specific to particular sections.

#### *EPA Assessment*

The Muddy Lakes ROS reserve is part of a larger natural area of outstanding regional significance, the Dalyellup/Minninup Swamp Natural Area (part of the south Maidens/Muddy Lake/Ludlow Coastal Ecological Linkage)([Appendix 4](#)). This area contains a very large consolidated vegetated area of Quindalup Dunes uplands and wetlands and the eastern predominantly vegetated sumplands and lake of the Minninup Swamp. Two areas of proposed ROS are located in the Dalyellup/Minninup Swamp Natural Area, Muddy Lakes ROS and the Dalyellup ROS. These areas of proposed ROS are centred on two EPP Lakes - Dalyellup and Muddy Lakes. The central area of the Dalyellup/Minninup Swamp Natural Area is not included in ROS ([Map 10 - Appendix 9](#)).

The Muddy Lake ROS reserve is considered to be a regionally significant natural area of outstanding value because it meets all six of the criteria being used to identify regionally significant natural areas in the EPA's assessment of the GBRS. These criteria are:

- Representation of ecological communities;
- Diversity;
- Rarity;
- Maintaining Ecological Processes or Natural Systems;
- Scientific or evolutionary importance; and
- General criteria for the protection of wetland and streamline and estuarine fringing vegetation and coastal vegetation.

The natural attributes of the Muddy Lakes ROS that contribute to meeting the criteria are listed below and described in detail in [Sheet 14 \(Appendix 5\)](#). Some of these natural attributes are shared with the Dalyellup/Minninup Swamp Natural Area.

- The largest and most southern area of vegetated parabolic Quindalup Dunes remaining on the Swan Coastal Plain;
- One of the few areas of Quindalup Dunes on the Plain with substantial wetland and upland areas.
- Substantial representative area of natural vegetation in Excellent to Good condition of the Quindalup and Vasse Vegetation Complexes. Less than 30% of the Vasse Complex remains vegetated on the Plain;
- The wetlands of the Vasse Vegetation Complex are highly variable and the sumplands of the Muddy Lake area (part of Minninup Swamp) are one of the few examples of its type, the most similar known being the sumpland/lakes of Yanchep National Park;
- A highly diverse area with respect to diversity of Quindalup Dunes, wetlands, upland and wetland vegetation units, habitat and vertebrate diversity (100 vertebrate species recorded). The wetland and vertebrate diversity of the Dalyellup/Minninup Swamp Natural Area are considered unique on the southern Swan Coastal Plain;
- The communities of the Quindalup Dune damplands are considered to be either a threatened ecological community (floristic community type 19) or a rarer closely related ecological community. Floristic community type 19 is recognised by the State and is subject to protection under the Commonwealth *Environmental Protection and Biodiversity Conservation Act 1999*;
- The area has a rich and diverse bird assemblage. This distinctiveness is further emphasised by the number of species present which have declined elsewhere on the Swan Coastal Plain between Perth and Bunbury, and the number of species that are of regional conservation significance. Species of conservation significance in the area include Splendid Fairy-wren, Southern Emu-wren, White-browed Scrubwren, Weebill, Broad-tailed Thornbill, Yellow-rumped Thornbill;
- Location for three rare species of fauna - Western Ringtail Possum, Quokka and Baudin's Black Cockatoo. These species are recognised by the State and are subject to protection under the Commonwealth Environmental Protection and Biodiversity Conservation Act 1999;
- Only remaining Quokka population on the Swan Coastal Plain;
- High number of other significant vertebrate species: one species protected under JAMBA/CAMBA treaties (Great Egret), two Priority 4 species (Quenda and

Water-rat) recorded, and 17 conservation significant species recognised as declining species on the Swan Coastal Plain (Government of Western Australia, 2000);

- Contains wetlands, Conservation category damplands, sumplands and lake areas of regional significance;
- Contains the area of the EPP Lake - Muddy Lake; and
- Part of two regional ecological linkages: the north-south Maidens/Muddy Lake/Ludlow Ecological Linkage and Dalyellup/Gelorup/Crooked Brook Ecological Linkage ([Appendix 4](#)).

The WRC has advised that grazing activities that occur adjacent to, or directly within the wetland, are likely to have a further impact on the wetland system and vice versa. These activities may impact on either the ecology, hydrology or both of this system and hence lead to a decline in the conservation values currently noted by the V&C Semeniuk Research Group (1998), Keighery *et al.* (2002) and HGM (2002).

A number of impacts arising from current land uses have degraded the conservation value of parts of the wetland. The cause of this degradation can be directly linked with the current land use practice, principally horse grazing. Grazing has led to extensive weed invasion from pasture species, principally *Pennisetum clandestinum* (Kikuyu), as well as the destruction of wetland plants and the disturbance of wetland sediment.

In order to support the high conservation values of the entire wetland system, the EPA considers that, although degraded, these areas should not be excluded from the proposed ROS. In fact, the EPA recommends that the full extent of the wetland boundary be included in the ROS reserve, to limit the likely impacts on the hydrology and ecology of this system by future land uses.

However, the DPI has advised that the ROS reserve boundary can not be modified without re-advertising the GBRS, therefore, the EPA recommends that the boundary be amended as a priority once the GBRS has been proclaimed.

In the meantime the EPA recommends that Muddy Lakes should be managed and protected for conservation purposes as a matter of priority. Short term management arrangements are required to prevent further degradation by the current land use activities. Further biological and hydrological studies will be required to ensure that the wetland is appropriately managed.

Contiguous regionally significant natural areas to the north of the proposed Muddy Lakes ROS reserve should also be managed in the short term and included in the ROS reserve once the GBRS has been promulgated.

### *Summary*

Having particular regard to the:

- a) Outstanding regional values of the Muddy Lakes Regional Open Space and the Dalyellup/Minninup Swamp Natural Area in general;

- b) potential impacts that the continued operation of the current land uses within the wetland areas may have on the hydrology and ecology of the Dalyellup/Minninup Swamp Natural Area; and
- c) the WAPC's advice that a structure plan should be prepared to determine appropriate land use and management guidelines for the protection and enhancement of coastal and wetland resources in this general area. This could be undertaken in the context of the coastal management plan that will be prepared for this section of the coastline to provide management and landuse guidelines specific to particular sections.

it is the EPA's opinion that:

- a) the alignment of the ROS reserve boundary around Muddy Lakes should remain as shown in the advertised GBRS;
- b) the alignment of the ROS reserve boundary should be amended to include the full extent of the wetland at the earliest opportunity;
- c) Priority be given to implementing management arrangements (ie Government acquisition) in the Dalyellup/Minninup Lake Natural Area to prevent further degradation by current land use activities;
- d) Interim planning mechanisms be put in place to ensure that conservation values in the Dalyellup/Minninup Lake Natural Area are protected from any further development or change of land use until suitable protection measures under the Greater Bunbury Region Scheme are provided;
- e) Further biological and hydrological studies be undertaken to ensure that the Dalyellup/Minninup Lake Natural Area is appropriately managed; and
- f) the environmental factors remnant vegetation, wetlands and fauna should be deferred until the land is subdivided or development, whichever comes first, so that a more detailed consideration of the potential environmental impacts of the subdivision can be undertaken by the EPA pursuant to Part IV of the *Environmental Protection Act 1986*.

## **10. Assessment of zones and reserves raised in submissions and other matters with potentially significant environmental impacts**

There are a number of zones and reserves in the GBRS which were raised in submissions or raise significant environmental issues. Although these zones and reserves are not new, the EPA considers that they should be assessed to identify and prevent significant environmental impacts from occurring during future subdivision and development.

### **10.1 Pt Loc 632 Parade Road, Glen Padden**

#### *Description*

Pt Location 632 is situated approximately 6km south of the Bunbury CBD and proposed to be zoned Urban in the GBRS ([Appendix 1](#)). The 32 hectare site is currently zoned Commercial in the City of Bunbury Town Planning Scheme No. 7. The land is owned by the City of Bunbury.

### *Submissions*

A number of submissions were received stating that further consideration should be given to including additional areas of remnant bushland in the Ocean to Preston River Corridor. Pt Loc 632 is part of this corridor.

### *WAPC response to submissions*

The WAPC has advised that Location 632 should be reserved as ROS based on the environmental values identified in its environmental study and the community's involvement in the management of the land.

The WAPC also recommends a small corner of Pt Loc 632 east of Parade Road be reserved as ROS. A submission on behalf of the main landowner in this area supports this modification. The WAPC recommends that the GBRS should be modified in accordance with [Map 5 \(Appendix 8\)](#).

The WAPC further advises that once the GBRS is operational, the WAPC will undertake a study to identify other areas for protection and/or inclusion in the Ocean to Preston River Corridor. The WAPC will also consider whether the Corridor can be enhanced by local open space through the consideration of adjoining structure plans.

### *EPA Assessment*

There is remnant vegetation situated on the majority of the land proposed to be zoned for urban purposes ([Map 11 - Appendix](#)).

Pt Loc 632 is considered to be a regionally significant natural area of high value because it meets four criteria being used to identify regionally significant natural areas in the EPA's assessment of the GBRS. These criteria are:

- Representation of Ecological Communities;
- Diversity;
- Rarity; and
- Maintaining Ecological Processes and Natural Systems.

The natural attributes of Pt Loc 632 that contribute to meeting the criteria are listed below:

- Substantial representative area of bushland of Spearwood Dune vegetation of Karrakatta Complex Central and South Vegetation;
- Representative of the southern *Eucalyptus gomphocephala* – *Agonis flexuosa* woodlands;
- Contains vegetation in Very Good condition with significant tall habitat trees (Tuart);
- Includes fauna listed under the *Environmental Protection and Biodiversity Conservation Act 1999* and *WA Wildlife Conservation Act 1950* and subsequent amendments;
- Area of native vegetation (greater than 20ha) is of compact shape and is contiguous with other natural areas to west, south, north and east ;

- The Maidens/ Preston River Ecological Linkage ([Appendix 4](#)) is the only known sequence of this type on the Swan Coastal Plain; and
- This area is critical in the Ecological Linkage containing significant areas of its type

#### *Summary*

It is the EPA's opinion that all of the remnant vegetation on Pt Loc 632, as shown on [Map 11 \(Appendix 9\)](#), is regionally significant and should be reserved and appropriately managed.

### **10.2 Reserve 670 North Boyanup Road, Davenport (Industrial zone)**

#### *Description*

Reserve 670 is situated approximately 6km south-east of the Bunbury CBD and proposed to be zoned Industrial in the GBRS ([Appendix 1](#)). The 16 hectare site is currently zoned Industrial Development in the City of Bunbury Town Planning Scheme No. 7.

#### *Submissions*

A number of submissions were received stating that further consideration should be given to including additional areas of remnant bushland in the Ocean to Preston River Regional Park. Reserve 670 is part of this corridor. A submission was also received objecting to proposed Industrial zone on Reserve 670 due to the impact on remnant vegetation.

#### *WAPC response to submissions*

The WAPC advises that its environmental study concludes that this site is part of a regionally significant vegetation corridor extending north to the Preston River and recommends that it should be protected. The WAPC recommends that the southern portion of Lot 670 be reserved as ROS.

Further environmental assessment of the northern portion of the site should be undertaken at the structure planning, subdivision or development stage. The WAPC has advised that once the GBRS is operational, the WAPC will undertake a study to identify other areas for protection and/or inclusion in the Ocean to Preston River Regional Park. The WAPC will also consider whether the Park can be enhanced by local open space through the consideration of adjoining structure plans.

#### *EPA Assessment*

The EPA considers that all of the remnant vegetation on Reserve 670 is regionally significant because the site meets three of the criteria being used to identify regionally significant natural areas in the EPA's assessment of the GBRS. These criteria are:

- Representation of Ecological Communities,
- Maintaining Ecological Processes and Natural Systems; and
- General Criteria for the Protection of Wetland, Streamline and Estuarine Fringing Vegetation and Coastal Vegetation.

Reserve 670 is considered to be a regionally significant natural area of high value because there is remnant vegetation situated on Reserve 670 which would contribute to this site forming part of the Ocean to Preston River Corridor ([Map 12 – Appendix 9](#)).

Although the Reserve 670 is considered to be regionally significant natural area, the EPA acknowledges that parts of the northern portion of the reserve may be suitable for development. The EPA considers that the southern portion of the reserve should be reserved and the remnant vegetation on the northern portion of Reserve 670 should be conserved to provide an alternative ecological linkage to Preston River ([Map 12 – Appendix 9](#)).

The EPA also considers that a portion of the remnant vegetation to the north of Reserve 670 should be conserved to provide a consolidated ecological linkage between Reserve 670 and the Preston River.

#### *Summary*

It is the EPA's opinion that:

- a) the southern portion on Reserve 670 should be reserved and appropriately managed because of its regional significance;
- b) the remnant vegetation on the northern portion of Reserve 670 should be conserved primarily because of its faunal habitat values and value as an additional ecological linkage to Preston River;
- c) a portion of the remnant vegetation to the north of Reserve 670 should be conserved to provide a consolidated ecological linkage between Reserve 670 and the Preston River; and
- d) the environmental factors remnant vegetation, fauna and ecological linkage should be deferred until the northern of Reserve 670 and the land north of Reserve 670 is subdivided or development, whichever comes first, so that a more detailed consideration of the potential environmental impacts of the subdivision can be undertaken by the EPA pursuant to Part IV of the *Environmental Protection Act 1986*.

### **10.3 Lot 15 North Boyanup Road**

#### *Description*

Lot 15 North Boyanup Road is situated approximately 8km south-east of the Bunbury CBD and proposed to be zoned Industrial in the GBRS ([Appendix 1](#)). The 72 hectare site is currently zoned Industrial Development in the City of Bunbury Town Planning Scheme No. 7.

Lot 15 is included within the *Bunbury Industrial Park Structure Plan* which was endorsed by the WAPC on 25 October 2000. An application to subdivide the property was approved on the 6 November 2000 subject to a number of conditions requiring the protection of vegetation worthy of retention.

#### *Submissions*

Two submissions were received concerning Lot 15. One of the submissions stated that Lot 15 should be included in the Ocean to Preston River Regional Park and the other stated that Lot 15 should not require a detailed vegetation survey as it is subject to an approved structure plan.

#### *WAPC response to submissions*

The WAPC advises that because the site is already zoned for Industry in the City of Bunbury TPS No.7 and there is an approved structure plan for the area, further assessment should be undertaken at the subdivision stage, or should an amendment to the town planning scheme be required.

#### *EPA Assessment*

The EPA considers that the remnant vegetation on Lot 15 is regionally significant because the site meets two of the criteria being used to identify regionally significant natural areas in the EPA's assessment of the GBRS. These criteria are:

- Rarity; and
- Maintaining Ecological Processes and Natural Systems.

The natural attributes of the site that contribute to these criteria being met are listed below:

- Characteristic of upland vegetation of the Bunbury area Southern River vegetation complex in Good to Degraded condition providing significant fauna habitat;
- Contains populations of at least one species listed under the *Environmental Protection and Biodiversity Conservation Act 1999* (Western Ringtail Possum); and
- Forms part of the Ocean to Preston River Ecological Linkage and part of McLarty/Kemerton/Twin Rivers/Preston River/Gwindinup Ecological Linkage ([Appendix 4](#)).

The EPA considers that the bushland on Lot 15 is a significant fauna habitat and a consolidated portion should be conserved to ensure that the regionally significant natural values of the site are protected and appropriately managed.

#### *Summary*

It is the EPA's opinion that:

- a) the remnant vegetation on Lot 15, shown on [Map 13 \(Appendix 9\)](#), is a significant fauna habitat and effort should be made to conserve a consolidated area of remnant vegetation and appropriately manage the remnant vegetation as part of any future zoning, subdivision and/or development on the site; and
- b) the environmental factors remnant vegetation and fauna should be deferred until the land is subdivided or development, whichever comes first, so that a more detailed consideration of the potential environmental impacts of the subdivision can be undertaken by the EPA pursuant to Part IV of the *Environmental Protection Act 1986*.

## **10.4 Bunbury Outer Ring Road**

### ***Description***

The concept for the Bunbury Outer Ring Road (BORR) was originally developed by Main Roads WA in the 1970's in conjunction with the preparation of the Bunbury Region Plan.

The BORR concept has been recognised in regional planning studies and forms a major component of the planned regional road network for the Greater Bunbury Region. The alignment of the Primary Regional Road reserve for the BORR links the Australind Bypass, north of Bunbury, to Bussell Highway, south of Bunbury, over a distance of approximately 19km ([Appendix 1](#)).

The reserve for the BORR is included in the City of Bunbury Town Planning Scheme No. 6, Shire of Dardanup Town Planning Scheme No. 3 and Shire of Capel Town Planning Scheme No. 7. The Primary Regional Road reserve is not a new reserve in the GBRS, however, the road was the subject of an environmental submission and presents a number of potentially significant environmental impacts which require the EPA's assessment.

### ***Submissions***

The Wildflower Society of WA stated in its submission that more investigations are required to determine the alignment of the BORR.

#### *WAPC response to submissions*

The WAPC advises that the current alignment be retained until all other alternative alignments have been investigated. Changes to the alignment of the road will be included as a future amendment to the GBRS.

### ***EPA Assessment***

Two issues are addressed in the EPA's assessment of the BORR - noise and regionally significant natural areas.

#### Noise

The EPA has concluded that noise from the BORR can be adequately managed during the design and construction phases to ensure the impact on noise sensitive premises meets acceptable levels. Proposals to construct residential dwellings near the road alignment should take account of the potential noise impacts from the BORR

#### Regionally significant natural areas

The impact of the BORR Primary Regional Road Reserve on natural areas can be addressed at two levels, the general impact on broad natural values and the impact on specific areas.

#### **10.4.1 General Impacts on broad natural values**

The BORR Primary Regional Road Reserve traverses:

- a) three major landform elements;
- b) two rivers;
- c) a series of basin wetlands; and

d) two Ecological Linkages.

The impacts of the BORR Primary Regional Road reserve are considered in relation to these broad natural values.

a) Major landform elements

The BORR reserve traverses the Spearwood Dunes, Pinjarra Plain and the Pinjarra Plain/Bassendean Dunes interface. [Table 5](#) lists the vegetation complexes from within these major landform elements traversed by the BORR.

One vegetation complex, the Guildford Complex, has less than 10% of its original area remaining on the Swan Coastal Plain. As a consequence all of the areas of remaining native vegetation in this complex are regionally significant. Aerial photography and some ground truthing indicate that the BORR reserve traverses little remaining native vegetation in this major landform element. The few areas that appear to be impacted are small and have not been considered to be of a type and quality that required individual descriptions.

**Table 5: Total remnant vegetation remaining on the southern Swan Coastal Plain (SCP) and the Greater Bunbury Region (GBR) within those vegetation complexes occurring in the alignment of the major roads proposed in the Draft GBRS. The vegetation complexes are grouped in the major landform elements.**

Major Landform Units/ Vegetation Complex	Original GBR ha	Remaining GBR ha	% of each remaining in GBR	% of each remaining on SCP
<b>Pinjarra Plain</b>				
<i>Guildford Complex</i>	33294	1470	4.4	5.0
Swan Complex	5646	906	16.0	15.6
<b>Bassendean Dunes</b>				
Bassendean Complex-Central and South	23969	9430	39.3	27.0
<b>Combinations of Bassendean Dunes / Pinjarra Plain</b>				
Southern River Complex	16070	3320	20.7	19.8
<b>Spearwood Dunes</b>				
Karrakatta Complex-Central and South	11686	6091	52.1	28.7

b) Rivers

The BORR reserve traverses the Preston and Ferguson Rivers. Very few areas of intact riverine vegetation on the Swan Coastal Plain remain. The native vegetation on the Preston River has an intact canopy of native tree species and provides significant fauna habitat. The understorey is predominantly non-native species. Most of the Preston River vegetation in the area of the road is in this condition and relocation of the crossing would not lessen any impact.

c) Wetlands

The BORR reserve traverses a series of wetlands. Most of these wetlands have been allocated Resource Enhancement and Multiple Use management categories as they have been significantly impacted by agricultural use (both clearing and grazing). One of these wetlands contains an area of EPP Lake (Area 4)([Appendix 11](#)). The larger, most intact wetlands impacted by the BORR reserve is considered in the section on specific areas.

d) Ecological Linkages

The BORR reserve traverses three ecological linkages, the west-east Dalyellup/Gelorup/Crooked Brook Ecological Linkage, the north-south McLarty/Kemerton/Twin Rivers/Preston River/Gwindinnup Ecological Linkage and the Ferguson River Ecological Linkage ([Appendix 4](#)) (EPA, 2003).

There are only two large remnants within the Constrained portion of the GBR in the vicinity of the McLarty/Kemerton/Twin Rivers/Preston River/Gwindinnup Ecological Linkage. Portions of each of these remnants, Areas 7 and 9 ([Appendix 11](#)), appear to be within the BORR reserve. The BORR reserve also impacts one large remnant, Area 1 ([Appendix 11](#)), in the east Dalyellup/Gelorup/Crooked Brook Ecological Linkage. These larger, intact areas of native vegetation impacted by the road are considered in the section on specific areas. Both proposed River crossings are located within Ecological Linkages.

#### 10.4.2 Area specific impacts

This section categorises nine natural areas in relation to the potential impact of the proposed roads on the natural values of the areas. The areas are identified on a plan in [Appendix 11](#).

a) Areas where the BORR reserve should be realigned

The BORR reserve impacts significantly on four areas of native vegetation with significant natural value. The EPA recommends that the BORR be realigned to avoid these natural areas as the available information identifies the area as being regionally significant.

***Area 1: Dalyellup Reserve (System 6 Area C71)***

The area of *Eucalyptus marginata*, *E. calophylla* and *Banksia attenuata* Open Low Forest impacted by the road is a regionally significant natural area meeting two criteria, being:

- Representation of Ecological Communities and Maintaining Ecological Processes; and
- Natural Systems.

The values of the area that contribute to it meeting these criteria are that it:

- contains vegetation of the Karrakatta Central and South vegetation complex in Excellent condition;

- is part of a protected area;
- is managed for its conservation values; and
- is located in the Dalyellup/Gelorup/Crooked Brook Ecological Linkage ([Appendix 4](#)).

Previous roadworks for the Bunbury to Busselton road (construction of a dual carriageway) significantly impacted the Dalyellup Reserve through clearing and inappropriate revegetation. Further road works in the area that impact on the reserve are unacceptable.

The EPA recommends that the BORR reserve should be realigned to avoid impacting on Area 1.

***Area 3B: Wetland north of Lilydale Road and Area 4: Lot 2 Miles Property (and adjacent lot to the west) Bunbury Outer Ring Road***

Area 3B contains vegetation worthy of retention and restoration. The native vegetation in Area 3B is associated with a sumpland and contains both upland and wetland vegetation of the Southern River vegetation complex. The vegetation has been significantly disturbed by grazing but is generally in Good condition. The most significant feature of this area is that the entire sumpland and associated wetland is a single compact unit. The study for Main Roads WA considered Area 3B to be 'locally and regionally significant' in recognition of the intactness of the wetland/upland unit.

The EPA recommends that the BORR reserve should be realigned to avoid impacting on Area 3B.

***Area 4: Lot 2 Miles Property (and adjacent lot to the west) Bunbury Outer Ring Road***

Area 4 covers an extensive area of wetland with vegetated upland being limited to the north western corner (adjacent to Lot 2). The wetland vegetation is in variable condition but, mostly in a Degraded to Completely Degraded condition, the entire area of Lot 2 being grazed in summer (inundated in winter/spring). Pasture species have been introduced to this area. The only portion of intact wetland vegetation (Excellent condition) is located on the south-eastern corner of the upland area (adjacent to Lot 2). This intact area is a small portion of the wetland. However, overall, the wetland has considerable cover of *Melaleuca raphiophylla* and, being inundated in winter/spring, would provide significant habitat for fauna.

The EPA recommends that the BORR reserve should be realigned to avoid impacting on Area 4.

***Area 7: Hines Road/Australind Bypass***

The native vegetation in this area (south of the Australind Bypass) contains the remains of a diverse wetland area and some associated upland. To the south west of the intersection there is a large naturally vegetated area. In the vicinity of the

BORR there are areas of upland supporting *Banksia attenuata* Low Open Woodland and *Eucalyptus calophylla* and *Agonis flexuosa* Woodland. The later unit is adjacent to the wetland which contains areas of *Melaleuca rhapsiophylla* Low Woodland and *Melaleuca lateritia* Shrubland. To the south east is an area of *Melaleuca lateritia* Shrubland which has been significantly impacted by past roadworks. Clearing and changes to the hydrology of the wetlands have resulted in significant weed invasion throughout the remaining vegetation, especially to the south east. However the vegetation in this area is considered to be a regionally significant natural area meeting four criteria, being:

- Representation of Ecological Communities,
- Rarity;
- Maintaining Ecological Processes and Natural Systems; and
- General Criteria for the Protection of Wetland, Streamline and Estuarine Fringing Vegetation and Coastal Vegetation.

The values that contribute to meeting these criteria are that the area:

- Contains a series of vegetation units typical of vegetation of the Southern River vegetation complex in good to degraded condition;
- Contains a wetland supporting Pinjarra Plain vegetation;
- Is the location of a priority species, *Aponogeton hexatepalus*, which is becoming increasingly rare on the Swan Coastal Plain and should be considered for listing as Declared Rare Flora (was DRF until recently); and
- Is located in the north-south McLarty/Kemerton/Twin Rivers/Preston River/Gwindinnup Ecological Linkage ([Appendix 4](#)) and is part of one of the two large remnants within the Constrained portion of the GBR in the Ecological Linkage (the other remnant is Area 9).

While this area is in need of urgent restoration work, further road works in the area of the reserve will further degrade the area and destroy the remaining natural values. Two studies for Main Roads WA have considered the wetland area in the south-west corner of the intersection to be 'locally and regionally significant'.

The EPA recommends that the BORR reserve should be realigned to avoid impacting on the south western part of Area 7.

b) Impact considered to be able to be modified to be acceptable

The EPA considers that there are two areas where road could be aligned within the Primary Regional Road reserve to avoid impacting on bushland. In general the information available on these areas is not sufficient to adequately address regional significance.

***Area 3A: Wetland adjacent to Pioneer Quarry, immediately north of Lilydale Road***

The native vegetation in this area is associated with a sumpland although the western half has been cleared. This wetland is significant as it contains the only

known remnant (with underlying basalt) in the vicinity of the basalt mine area. The wetland vegetation has been significantly disturbed by grazing and soil disturbance but continues to support a diversity of species on the eastern half. This area is worthy of retention and restoration and the road should be aligned to avoid impacting on the native vegetation in this area.

***Area 5: Open Woodland on South Western Highway***

This area of native vegetation has previously been identified as being a regionally significant natural area recommended for protection ([Section 10.3](#)) This area is worthy of retention and restoration and the road should be aligned to avoid impacting on the native vegetation in this area.

- c) Areas where offsets should be provided to compensate for impacts on bushland

The EPA recommends that there is one area of bushland where an offset package should be provided to compensate for the loss of bushland caused by the alignment of the BORR. Bushland has been included in this category when the impact of the proposed roads appears to be unavoidable and the area of native vegetation is relatively large in proportion to the area of impact. In general the information available on these areas was not sufficient to fully address regional significance and identify the boundaries of the area that should be protected.

If the roads impact areas of native vegetation within the Guildford Complex it is expected that the impacts will be offset in this category.

***Area 6: Preston River***

While Area 6 contains vegetation worthy of retention and restoration, the road cannot be located to avoid crossing the river and similar vegetation occurs along most of the River. As a result the EPA expects vegetation impacts to be offset.

The EPA recommends that an offset package should be provided to compensate for the loss of bushland caused by the alignment of the BORR in Areas 6.

- d) Impact appears to be minor

The EPA considers that there are two areas where the potential impacts of the BORR appear to be minor and no offsets or changes to the reserve or road alignment are required.

***Area 2A: Property at the corner of Marchetti and Ducane Road***

The native vegetation in this area is an isolated remnant of the Bassendean Central and South vegetation complex. The area contains a completely degraded area of wetland and associated upland of *Banksia ilicifolia* and *B. attenuata* Low Woodland. As the vegetation is significantly impacted by past grazing (Good condition) and is principally in the 'Constrained' portion of the GBR it is not considered a priority for protection.

***Area 2B: Bushland at the intersection of Ducane Road with the PBOR, north-east of 2A***

The native vegetation in this area is an isolated remnant of the Bassendean Central and South vegetation complex. From the aerial photographs the area appears to contain upland of *Banksia* Low Woodland. As the vegetation is apparently impacted by past grazing (Good to Degraded condition) and is principally in the 'Constrained' portion of the GBR it is not considered a priority for protection.

***Summary***

Having particular regard to the:

- a) studies commissioned by Main Roads WA (MRWA) to identify potential environmental impacts of the BORR Primary Regional Road Reserve; and
- b) WAPC's response to submissions concerning environmental issues raised in relation to the BORR Primary Regional Road reserve.

it is the EPA's opinion that:

- a) The BORR Primary Regional Road Reserve should be realigned to avoid impacting on:
  - Area 1: Dalyellup Reserve (System 6 Area C71);
  - Area 3B: Wetland north of Lilydale Road;
  - Area 4: Lot 2 Miles Property;
  - Area 7: Hines Road/Australind Bypass;
- b) The BORR should be aligned within the Primary Regional Road Reserve to avoid impacting on:
  - Area 3A: Wetland adjacent to Pioneer Quarry, immediately north of Lilydale Road; and
  - Area 5: Open Woodland on South Western Highway
- c) An offset package should be provided to compensate for the loss of bushland cause by the alignment of the BORR on:
  - Area 6: Preston River; and
  - Guildford Complex remnants
- d) Environmental and Noise/Vibration Management Plans, and Vegetation and Waterway Mitigation Strategies being prepared prior to construction in accordance with the specifications in [Section 15](#).
- e) As a consequence of the limitations of the flora and fauna survey done for this assessment and possible relocation of the Road reserve the following need to be included in the Management Plans to clearly identify the specific impacts of the roads on natural values:
  - mapping of vegetation units and the condition of the vegetation units;
  - plot based descriptions and flora lists for each of the mapped vegetation units;
  - mapping of populations of priority species; and
  - the identification of fauna values of the remnants.
- f) the environmental factors remnant vegetation, wetland, watercourses, fauna and the impacts from road users on surrounding noise sensitive land uses should be

deferred until the design phase of the BORR so that a more detailed consideration of the potential environmental impacts of the project and its construction can be undertaken by the EPA pursuant to Part IV of the *Environmental Protection Act 1986*.

## **10.5 Glen Iris Service Corridor**

### *Description*

The Glen Iris Service Corridor is a proposed multiple-use service corridor for long term access to the Port of Bunbury from the Kemerton and Preston Industrial Estates and the South West region. The Service Corridor may accommodate a heavy haulage road, rail line, high pressure natural gas transmission line, fuel oil pipeline, power transmission lines and possibly conveyor services. The Service Corridor consists of a Public Purpose reserve and a Rail reserve in the GBRS (Appendix 1). The Port Access Road Regional Road reserve is also situated within the Service Corridor for part of its alignment. The potential environmental impacts of the Port Access Road are discussed separately in [Section 7.3](#).

The Service Corridor extends from the South Western Highway in Picton, to Estuary Drive, near the Bunbury Inner Harbour. The corridor has a nominal width south of the Australind Bypass of 345m and currently includes a rail line.

The proposed corridor has the potential to impact on surrounding land uses due to noise and vibration emissions from road traffic, trains and the conveyor.

### *Submissions*

A submission was received objecting to the industrial land adjacent to the Service Corridor being reserved as ROS.

Another submission also objected to the impact of the proposed reserve corridor on remnant vegetation.

The EPA's consideration of these issues is described in the Assessment section below and the EPA and WAPC responses to other more specific comments made in the submissions concerning the proposed Service Corridor are included in [Appendix 7](#).

### *WAPC response to submissions*

The WAPC advises that although it was proposed to include all but the southern portion of the recommended buffer on the western side of the Service Corridor in an ROS reserve it is now believed that reserving all of the buffer as ROS would sterilise the land. The long-term planning objective is to make the land to the east of Picton Waters available for uses compatible with the Service Corridor. The WAPC has recommended that the GBRS be modified to zone this land Urban, with a Special Control Area (SCA) over the buffer ([Map 1 – Appendix 8](#)).

The SCA is intended to provide the necessary control to prevent incompatible land uses from locating within the buffer. The WAPC recommends that the buffer on both sides of

the Glen Iris Service Corridor should be included in a SCA and the GBRS should be modified in accordance with [Appendix 7](#).

#### *EPA Assessment*

a) Buffer for noise and vibration

There have been two studies on the buffer requirements of the Service Corridor (Herring Storer Acoustics, 1999 & BSD, 1999). These studies both conclude that the width of the buffer along the western side of the Service Corridor is sufficient to ensure that surrounding sensitive land uses will not be exposed to unacceptable noise levels from road, rail and conveyor. The EPA Service Unit has also advised that noise emission levels at the edge of the buffer can meet the *Environmental Protection Noise Regulations 1997* provided a barrier is provided as close as possible to the proposed conveyor to reduce noise emissions.

b) Wetland

There is a Multiple Use category wetland on the land to the east of Picton Waters ([Map 15 – Appendix 8](#)). This wetland appears to be part of the same wetland that is within the ROS to the west. The EPA recommends that a drainage and nutrient management plan, wetland rehabilitation/management plan and fauna management plan be prepared for this wetland, including that part of the wetland on the adjoining land holdings to the west.

#### *Summary*

It is the EPA's opinion that:

- a) the alignment of the Glen Iris Service Corridor (Public Purpose Reserve, Rail Reserve and Regional Road Reserve) and the width of the Special Control Area are environmentally acceptable subject to Noise and Vibration Management Plans being prepared in accordance with the specifications in [Section 15](#) prior to any additional infrastructure being constructed within the corridor;
- b) the proposal to rezone a portion of the Glen Iris Service Corridor buffer to Urban is environmentally acceptable subject to adoption of a Special Control Area to prevent incompatible land uses being located in the buffer;
- c) the proposal to rezone a portion of the Glen Iris Service Corridor buffer to Urban is environmentally acceptable subject to the preparation and implementation of a drainage and nutrient management plan, wetland rehabilitation/management plan and fauna management plan;
- d) the environmental factors noise, vibration, remnant vegetation and wetlands should be deferred until the land within the buffer is subdivided or development, whichever comes first, so that a more detailed consideration of the potential environmental impacts of the subdivision can be undertaken by the EPA pursuant to Part IV of the *Environmental Protection Act 1986*; and
- e) any proposal to construct infrastructure within the Glen Iris Service Corridor should be referred to the EPA pursuant to Part IV of the *Environmental Protection Act 1986*.

## **10.6 Lot 35 Spurr Street, Capel (Urban Deferred)**

### *Description*

Lot 35 Spurr Street is situated on west side of the Capel townsite, adjacent to Bussell Highway (Map 14 – Appendix 9). The site is currently zoned Rural in the Shire of Capel Town Planning Scheme and proposed to be zoned Urban Deferred in the GBRs ([Appendix 1](#)).

#### *Submissions*

A submission stated that the remnant vegetation on Lot 35 is within the Southern River complex and contains an EPP wetland and possibly DRF and Priority Flora and should be protected.

#### *WAPC's response to submissions*

The WAPC advises that remnant vegetation on Lot 35 represents 16.8% of the total site area. More detailed site investigations could be required at the local rezoning stage to determine the amount of this remnant vegetation that should be retained in a local recreation reserve.

#### *EPA Assessment*

Lot 35 is considered to be a regionally significant natural area of high value because it meets four criteria being used to identify regionally significant natural areas in the EPA's assessment of the GBRs. These criteria are:

- Representation of Ecological Communities;
- Rarity;
- Maintaining Ecological Processes and Natural; and
- General Criteria for the protection of wetland, streamline and estuarine fringing vegetation.

The natural attributes of Lot 35 that contribute to meeting the criteria are listed below:

- Representative area of natural vegetation of the Southern River Vegetation Complex (on the Bassendean Dune /Pinjarra Plain interface);
- Containing upland and wetland vegetation units, the wetland area being of a quality and type consistent with a Conservation Category wetland;
- Contains populations of at least one species listed under the EPBC Act 1999, Western Ringtail Possum;
- Contains populations of three significant flora (*Jacksonia sparsa* (P3), *Hypocalymma ericifolium*, *Astartea* sp "Brixton"); and
- A natural area in the Capel/Boyanup ([Appendix 4](#)) and Capel River Ecological Linkage.

The bushland on Lot 35 is part of the Capel/Boyanup Ecological Linkage and Capel River Ecological Linkage and consideration should be given in any future subdivision design to enhance ecological linkage values and protect the Conservation Category wetland.

#### *Summary*

It is the EPA's opinion that:

- a) the bushland on Lot 35, shown on [Map 14 \(Appendix 9\)](#), is part of the Capel/Boyanup Ecological Linkage and Capel River Ecological Linkage and consideration should be given in any future subdivision design and/or development to enhance ecological linkage values and protect the Conservation Category wetland; and
- b) the environmental factors remnant vegetation, wetlands and fauna should be deferred until the land is subdivided or development, whichever comes first, so that a more detailed consideration of the potential environmental impacts of the subdivision can be undertaken by the EPA pursuant to Part IV of the *Environmental Protection Act 1986*.

### **10.7 Lots 8 and 10 Ferguson River Foreshore, Picton**

#### *Background*

Lots 8 and 10 are situated approximately 8 km south-east of the Bunbury CBD. Portions of the lots were identified as ROS reserve in the advertised GBRS. The lots are currently reserved as Parks and Recreation in the City of Bunbury Town Planning Scheme.

#### *Submissions*

A submission stated that the proposed ROS for Ferguson River in Picton includes an existing residence and substantial property, including part of a nursery, and it should be reduced.

#### *WAPC's response to submissions*

The WAPC has advised in its response to submissions that the proposed ROS for Ferguson River in Picton does not include an existing residence but it has been reviewed in consultation with the WRC and some modifications have been recommended as acceptable as shown in the recommended modification plan ([Map 13 - Appendix 8](#)).

#### *EPA Assessment*

The EPA supports the proposed modification to the alignment of the ROS reserve on the eastern side of Lot 8 ([Map 15 - Appendix 9](#)). The proposed modification to the alignment of the ROS reserve on the eastern side of Lot 10 is not supported. The proposed ROS reserve should be retained to consolidate the size and shape of the foreshore reserve and to facilitate re-establishment of the ecological linkage between the Ferguson River and Reserve 5545 to the south-west.

#### *Summary*

It is the EPA's opinion that the portion of Lot 10, shown on [Map 15 \(Appendix 9\)](#), should be reserved to consolidate the size and shape of the Ferguson River foreshore reserve.

### **10.8 Lots 1 and Pt Lot 5 North Boyanup Road, Davenport**

#### *Background*

Lots 1 and Pt Lot 5 are situated approximately 6km south-east of the Bunbury CBD. Portions of the lots were identified as ROS reserve in the advertised GBRS. The site is

currently zoned Special Use Abattoir and Parks and Recreation in the City of Bunbury Town Planning Scheme.

#### *Submissions*

A submission was received stating that ROS over southern portions of Lot 5 and Pt Lot 1 North Boyanup Rd, Davenport should be deleted because it will have a detrimental impact on an area of irrigated pasture as part of the existing abattoir operation.

#### *WAPC's response to submissions*

The WAPC has advised that its environmental study concludes that the proposed ROS over the southern portion of Lot 5 should be retained because it contains a Priority flora species and forms an integral part of the Ocean to Preston River Regional Park. However, the WAPC advises that the proposed Preston River foreshore ROS over Pt Lot 1 can be reduced ([Map 3 - Appendix 8](#)), although, the ROS corridor width should not be reduced below the 1 in 100 year flood line to ensure the recreation values of the river foreshore are not compromised.

Further assessment should be undertaken at the structure planning, subdivision or development stage, or through provisions should an amendment to the town planning scheme be submitted.

#### *EPA Assessment*

The EPA recommends that the remnant vegetation on Lot 1, shown on [Map 12 \(Appendix 9\)](#), be reserved and appropriately managed to consolidate the size and shape of the foreshore reserve.

#### *Summary*

It is the EPA's opinion that:

- (a) the remnant vegetation on Lot 1, shown on [Map 12 \(Appendix 9\)](#), should be reserved to consolidate the size and shape of the Preston River foreshore reserve.

### **10.9 Dalyellup Beach Estate Tourist Precinct – Pt Loc 497 Dalyellup Road.**

#### ***Background***

Dalyellup Beach Estate is a proposed residential estate situated to the west of Bussell Highway, about 6 km south of the Bunbury CBD. A substantial portion of the residential estate has been subdivided and developed.

The Shire of Capel initiated Amendment No. 2 to Town Planning Scheme No. 7 to rezone the Dalyellup Beach Estate to "Development zone" to facilitate the subdivision and development of the Estate in accordance with the Dalyellup Beach Estate Local Structure. The amendment was subsequently referred to the EPA pursuant to Section 7A1 of the *Town Planning and Development Act 1928*. The EPA decided to not formally assess the amendment and provided advice to the Shire of Capel (EPA, 1998). The EPA's advice is outlined below.

The Urban/ROS boundary shown in the GBRS around the Dalyellup Beach Estate does not align with the boundary shown in the Structure Plan in several locations. A submission to the GBRS, lodged on behalf of the owner of Dalyellup Beach Estate, stated that the tourist precinct identified in the Structure Plan should be zoned as Urban in the GBRS until determination of an appropriate setback in this location following further investigation and the provision of sufficient justification.

The WAPC has advised that the alignment of the ROS and Urban boundary should remain as shown in the advertised GBRS.

The EPA's consideration of these issues is described below and the EPA and WAPC responses to other more specific comments made in the submissions concerning the proposed zoning of the Dalyellup Beach Estate are included in [Appendix 7](#).

### ***EPA Assessment***

The land within the proposed tourist precinct, on a portion of Pt Loc 497 is part of an outstanding regionally significant natural area (Dalyellup/Minninup Swamp Natural Area). The values of the regional coastal bushland block are:

- Landscape diversity (west-east catenary sequence): coastal foredune, coastal dune, wetland, upland and lowland;
- Geomorphological diversity (west-east catenary sequence): Quindalup Dunes-Quindalup Dune wetlands, Quindalup/Spearwood Dune interface wetlands-Spearwood Dunes;
- Vegetation structural unit diversity (west-east catenary sequence): Foredunes, Peppermint scrub, Peppermint/Tuart woodland, wetlands dominated by combinations of Peppermint, Tuart, Swamp Banksia, *Melaleuca* and sedges, Tuart/Peppermint forest, Marri, Tuart/Jarraah over Banksia woodland;
- Part of the Dalyellup/Gelorup/Crooked Brook Ecological Linkage and part of the Maidens/Muddy Lake/Ludlow Ecological Linkage ([Appendix 4](#));
- Species diversity; more than 225 flora; and
- Outstanding habitat values: diverse habitat types support a range of fauna, including species listed under State and Commonwealth legislation.

The site meets three criteria, being:

- Representation of Ecological Communities, Diversity; and
- Rarity.

The natural attributes of the site that contribute to meeting the criteria are listed below. Some of these natural attributes are shared with the Dalyellup/Minninup Swamp Natural Area.

- Contains an area of vegetated Quindalup Dunes which is part of the largest most southern area of vegetated parabolic Quindalup Dunes remaining on the Swan Coastal Plain, and including Tuart/Peppermint forests in the eastern components of the dunes;

- Representative area of natural vegetation in Excellent to Good condition of the Quindalup Complex;
- The area has a rich and diverse bird assemblage. This distinctiveness is further emphasised by the number of species present which have declined elsewhere on the Swan Coastal Plain between Perth and Bunbury, and the number of species that are of regional conservation significance. Species of conservation significance in the area include Splendid Fairy-wren, White-browed Scrubwren, Weebill, Broad-tailed Thornbill, Golden Whistler, Painted Button-quail;
- High number of other significant vertebrate species;
- Significant reptile species Bardick (*Echiopsis curta*) found on coastal dune site;
- One Schedule 1 species (Western Ringtail Possum), one Priority 4 species (Quenda) recorded; and
- Part of two ecological linkages: Dalyellup/Gelorup/Crooked Brook and Maidens/Muddy Lakes/Ludlow Ecological Linkages ([Appendix 4](#)).

Protecting the remnant vegetation on the proposed tourist precinct site will consolidate the ROS and enable better management with a hard edge. The eastern portion of the area is a high ridge and is a significant visible area for migrating birds from ROS areas to the south and south-east. It also has significant old habitat trees which provide nesting sites for bird species that feed in adjacent areas.

This view is consistent with the advice that the EPA provided to the Shire of Capel in relation to Amendment No. 2 in 1998, which noted that in earlier planning studies this land had been identified as part of a future conservation reserve. The EPA advised that due to the environmental values of the site it should be conserved.

### ***Summary***

It is the EPA's opinion that the remnant vegetation within the tourist precinct site on Pt Loc 497, south of Dalyellup Road Road, as shown on [Map 6 \(Appendix 9\)](#), is part of regionally significant bushland and ecological linkage and should remain the ROS reserve and be appropriately managed.

## **11. Assessment of Special Control Areas**

The potential environmental impacts and submissions received in relation to the Special Control Areas are described and assessed below.

### **11.1 Special Control Area No. 1 - Water Catchments**

#### ***Description***

Special Control Area No. 1 (SCA No. 1) includes all, or part of, the proclaimed surface water catchment areas which are managed as Priority 1 and 2 Source Protection Areas by the WRC ([Appendix 1](#)).

Under the GBRS, the WAPC and local governments, in considering development applications within the SCA's, will be required to have due regard to the purpose of the SCA and the objectives of the associated proposed *Public Water Supply Catchment*

*Policy (refer Section 12.1)*, which principally are to prevent land uses or development which would prejudice the quality of water supplies for public use. SCA No. 1 provisions and associated policy also specifies the need for the WAPC to consult with the WRC regarding rezoning proposals, subdivision and development.

#### *Submissions*

A number of submissions were received from landowners objecting to the inclusion of their property within SCA No. 1 on the basis that it will restrict future development and impact on land values.

Another submission also suggested that Lot 1 Honeymoon Road, Harvey should not be included in the SCA No. 1 as it is not in the Harvey Dam catchment. The WAPC has advised that Lot 1 should not be included in SCA No. 1 and that the boundary be modified to exclude the land from the SCA.

#### *EPA Assessment*

Each of the property owners objecting to being included in the SCA No. 1 are located in declared Priority 2 water source protection areas. Existing approved uses and development in these areas would not be affected by SCA No.1. Restrictions would only apply to new land use and development proposals whether an SCA is created or not. Priority 2 classification does not prevent selling or leasing of property and there are a range of agricultural uses that are compatible with this classification. In many cases, land use and development typical of rural areas would be permitted subject to suitable controls and conditions to prevent pollution of public drinking water source areas. WRC will provide advice on these matters in considering future rezoning, subdivision and development proposals.

#### *Summary*

The EPA supports the re-alignment of the SCA No.1 to exclude Lot 1 Honeymoon Road, Harvey from SCA No. 1.

## **11.2 Special Control Area No. 2 - Kemerton Industrial Zone Buffer**

### *Description*

Special Control Area No. 2 (SCA No. 2) has been included in the GBRS to provide a buffer to the land currently zoned Industrial within the Shire of Harvey Town Planning Scheme No 1, as well as land to be zoned Industrial in the GBRS. The purpose of the SCA No. 2 is to identify the land likely to be subject to unacceptable emission levels, such as noise, odour and dust from the current and future operations within the Kemerton industrial area and ensure that land uses incompatible with industry, including single dwellings, are not permitted within the buffer, thereby ensuring the long term operation of the industrial area..

The SCA No. 2 provisions for the buffer area also specify the need for the WAPC or local government to refer any amendments to the GBRS or town planning scheme, and any subdivision or development applications within the SCA, to the EPA for assessment.

### *Submissions*

A considerable number of submissions raised a range of concerns about the adequacy of the buffer SCA No. 2 around the Kemerton Industrial Area or questioned the need for the SCA over particular lots.

The EPA and WAPC responses to detailed and specific comments made in the submissions concerning SCA No. 2 are included in [Appendix 7](#) and the EPA's assessment of whether the SCA provides adequate separation between the proposed industry and surrounding land uses is described in [Section 5](#).

### *EPA Assessment*

The EPA's assessment of the adequacy of SCA No. 2 as a separation buffer between the Kemerton Industrial Area and incompatible landuses has previously been described in detail in [Section 5](#).

### *Summary*

Having particular regard to the:

- a) Noise and air quality conducted to determine the boundary of the SCA No. 2 (EPA, 1998c)
- b) EPA's advice to the WAPC on Industry 2030 (EPA 1998c, 1999c) in relation to the remnant vegetation; and
- c) Provisions for SCA No. 2 contained in the GBRS text;

it is the EPA's opinion that Special Control Area No. 2 provides adequate separation between the proposed industry and surrounding land uses to accommodate the impacts of noise and air quality in accordance with the EPA's environmental objectives and criteria for these environmental factors;

## **11.3 Special Control Area No. 3 - North Capel**

### *Description*

Special Control Area No. 3 (SCA No. 3) has been included in the GBRS to provide a buffer around the North Capel Industrial Area to ensure that incompatible land uses, including single dwellings, are not permitted near the industrial area.

The purpose of the SCA No. 3 is to identify the area surrounding the North Capel Industrial Area that is likely to be subject to unacceptable noise and odour emission levels from current and future industrial operations and ensure that land uses and development incompatible with the existing and proposed activities within the North Capel Industrial Area, including single residential dwellings, are not permitted within the buffer. The provisions for the SCA also require the WAPC or local government to refer any amendments to the GBRS or town planning scheme, and any subdivision or development applications affecting land within SCA No. 3, to the EPA.

### *Submissions*

A submission was received stating that SCA No. 3 should be reduced and be based on better industrial practices.

In response, the EPA advises that the boundary of SCA No. 3 has been calculated based on noise emissions modelling for current and future industrial activities. Reducing the width of the buffer may expose sensitive land uses to unacceptable noise levels.

The WAPC has advised that Westralia Sands is negotiating with land owners affected by SCA No. 3 regarding compensation for loss of development rights.

The EPA and WAPC responses to other more detailed and specific comments made in the submissions concerning Special Control Area No. 3 are included in [Appendix 7](#).

### *EPA Assessment*

The EPA assessed the proposal by Westralia Sands Ltd to duplicate the synthetic rutile plant within the North Capel Industrial Area (EPA, 1992b). The EPA's assessment indicates that odour emissions from the plant could meet acceptable levels at the site boundary, although, there is potential for noise emissions from the industrial area to impact sensitive land uses off-site. A buffer is required to prevent noise emissions from the plant impacting on noise sensitive land uses.

The boundary of SCA No. 3 closely follows the projected 35dB(A) noise level contour identified in the noise modelling exercise conducted by Vipac Engineers & Scientists Pty Ltd on behalf of Westralian Sands Ltd (Vipac, 1998). The noise modeling took into account current and proposed industrial operations.

The EPA is satisfied that the:

- a) SCA No. 3 will adequately buffer incompatible land uses from current and future industrial activities;
- b) modelling to identify the SCA No. 3 boundary was conducted in accordance with the EPA's Guideline for the assessment of environmental noise (EPA, 1998b); and
- c) 35dB(A) contour represents the lowest assigned level under the *Environmental Protection (Noise) Regulations 1997* and is the most appropriate contour to define the alignment of the SCA No. 3 boundary.

### *Summary*

It is the EPA's opinion that:

- (a) SCA No. 3 will provide adequate separation between current and future industrial operations and surrounding land uses to accommodate the impacts of noise and air quality in accordance with the EPA's environmental objectives and criteria for these environmental factors.

## **12. Assessment of policies linked to the Greater Bunbury Region Scheme**

In recognition of the need to provide guidance for the protection of key natural resources and planning controls for surface water catchments and major river floodplains within the Greater Bunbury region, the WAPC prepared the following draft planning policies:

- Public Water Supply Catchment Policy;
- Floodplain Management Policy;
- Strategic Agricultural Resource Policy; and
- Strategic Minerals and Basic Raw Materials Resource Policy.

The GBRs text will provide the mechanisms for relevant planning strategies and policies to be linked to the Scheme by reference.

The submissions and potential environmental impacts of the policies are described and assessed by the EPA below. Advice is provided on a number of matters where the EPA believes the policies could be modified to avoid potential environmental impacts and or improve environmental management.

### **12.1 Public Water Supply Catchment Policy**

#### *Description*

The Draft Public Water Supply Catchment Policy identifies public drinking water supply areas that have been proclaimed under the *Country Areas Water Supply Act 1947* within the GBRs area, which are currently used or have the potential to be used in the future as public drinking water supply sources. The policy aims to guide land uses or development that would have adverse impacts on the quality of the water supply sources. The policy must be taken into account by local governments in preparing town planning schemes and amendments, and in land use planning decisions affecting land within the Policy Areas.

The policy applies to the Special Control Area No. 1 (SCA No. 1) – Water Catchments as depicted in the GBRs. The EPA’s recommendations in relation to SCA No. 1 are outlined in [Section 1.1](#) above

#### *Submissions*

The Shire of Dardanup suggested in its submission that the land use permissibility table in the Public Water Supply Catchment Policy should be deleted. The WAPC has agreed that the table should be deleted and reference made instead to the WRC guidelines which determine land use permissibility. This would avoid the need to amend the policy each time the guidelines are modified.

#### *Summary*

The EPA supports the Public Water Supply Catchment Policy subject to the land use permissibility table being deleted and inclusion of reference to the WRC guidelines which determine land use permissibility

## **12.2 Floodplain Management Policy**

### *Description*

The Floodplain Management Policy has been prepared by the WAPC to formalise the consideration of floodplain management requirements by the responsible authorities within the Greater Bunbury Region, when preparing town planning schemes and considering subdivision and development applications within floodplains for rivers and the Leschenault Estuary.

The principal areas to which the draft policy applies are the defined floodplains for the Brunswick, Collie, Preston and Capel Rivers. The policy reflects the current presumption against more intensive development within floodways of major rivers and the need for minimum habitable floor levels for development within the flood fringe areas.

### *Submissions*

The EPA and WAPC responses to comments in the submissions concerning the Draft Floodplain Management are included in [Appendix 7](#).

### *EPA Assessment*

While the Floodplain Management Policy focuses on providing guidance on appropriate land use and development within floodplains to mitigate flood damage as a result of a 1 in 100 year river flood event, it should be recognised that floodplains also have important environmental values. The Floodplain Management Policy should be modified to include the following description of the environmental values of floodplains.

*"Flooding is a natural phenomenon upon which a number of environmental benefits depend. Floodplains, waterways and their associated wetlands, have a fundamental role in supporting flora and fauna habitats of special significance. Floods replenish wetlands, exchange nutrients and organisms and trigger stages in the life cycles of many plants and animals."* Western Australian Draft Floodplain Management Strategy (Sinclair Knight Merz, 2002)

Floodplains provide natural overland flow paths and storage areas where floodwaters remain for slow release as stream levels recede, thereby reducing the potential for channel erosion from high energy flows. Nutrients, debris and sediment settle out during this process, controlling high sediments and nutrient loads in waterways and contributing to floodplain productivity.

Riparian vegetation plays an important role in conserving the aquatic environment, providing shading, shelter and transport corridors for terrestrial and avian species.

### *Summary*

The EPA supports the Floodplain Management Policy subject to the environmental values of floodplains being described in further detail consistent with the WRC's Western Australian Draft Floodplain Management Strategy.

## **12.3 Strategic Agricultural Resource Policy**

### *Description*

The main objectives of the Strategic Agricultural Resource Policy, prepared by the WAPC, are to:

- protect agricultural areas identified as being of State or regional significance from inappropriate development and land uses; and
- ensure the WAPC and local governments in preparing and reviewing town planning schemes and amendments, as well as when determining subdivision and development proposals have due regard to the protection of the strategic agricultural areas.

### *Submissions*

It was noted in one submission that the Strategic Agricultural Resource Policy covers areas of remnant vegetation and that these areas should be identified and excluded from agriculture. This matter is discussed in detail in the EPA's assessment below.

The EPA and WAPC responses to other more detailed and specific comments made in the submissions concerning the Draft Strategic Agricultural Resource Policy are included in [Appendix 7](#).

### *EPA Assessment*

The EPA supports the introduction of strategic initiatives to facilitate integrated planning for the wise and sustainable use of agricultural resources in the Greater Bunbury Region and acknowledges that the Policy is primarily concerned with protecting agricultural land from inappropriate development and land uses.

However, there are a number of areas of potential conflict between the Strategic Agricultural Resource Policy areas and regional ecological linkages ([Appendix 4](#)). The EPA considers that in addition to considering the appropriate land uses within strategic agricultural areas, the policy should also recognise that there are other potential environmental impacts that should be considered when determining the location and acceptability of new agricultural proposals.

### *Summary*

Having particular regard to the impact that a number of identified strategic agricultural areas may have on natural areas, bushland and ecological linkages the EPA recommends that the Strategic Agricultural Resource Policy should be modified to include the following statements:

- a) There is a general presumption against clearing of native vegetation including within the Strategic Agricultural Resource Policy Areas where 30% or less of the Vegetation Complex remains;
- b) Where native vegetation and/or habitat areas (natural areas) are present it should be assumed that the proposed clearing will be assessed by the EPA in accordance with Guidance 10 (EPA, 2003); and
- c) Native vegetation clearance is also proposed to be addressed through the *Environmental Protection Amendment Bill 2002* which is currently before Parliament. This Bill contains new legislation to control clearing of native

vegetation in Western Australia, through a coordinated assessment process run by the Department of Environmental Protection. Under the proposed laws most instances of clearing will require a permit.

## **12.4 Strategic Minerals and Basic Raw Materials Resource Policy**

### *Description*

The main objectives of the Strategic Minerals and Basic Raw Materials Resource Policy is to identify land containing mineral resources and basic raw materials of State or regional significance and to prevent such resources being sterilised by incompatible development and land uses.

The policy principally relates to important mineral sands, silica sand and basalt resource areas.

### *Submissions*

A number of submissions state that the Policy areas have been delineated with no regard to remnant vegetation. In particular, it is noted that there is a substantial amount of good vegetation in the Strategic Minerals and Basic Raw Materials Resource Policy Area south of Capel and a Threatened Ecological Community and EPP wetlands nearby.

The EPA and WAPC responses to other more detailed and specific comments made in the submissions concerning the Strategic Minerals and Basic Raw Materials Resource Policy are included in [Appendix 7](#).

### *EPA Assessment*

The EPA supports the introduction of strategic initiatives to facilitate integrated planning for the wise use of basic raw materials and mineral resources in the Greater Bunbury Region and acknowledges that the Policy is primarily concerned with ensuring that there is adequate separation between basic raw materials and mineral deposits and incompatible land uses to protect the resources.

However, there are a number of areas of potential conflict between the Strategic Minerals and Basic Raw Materials Resource Policy areas and regional ecological linkages ([Appendix 4](#)). The EPA considers that in addition to considering the appropriate width of buffer areas between these incompatible land uses, the policy should also recognise that there are other potential environmental impacts that should be considered when determining the location and acceptability of new extractive or mining operation proposals.

### *Summary*

Having particular regard to the impact that a number of identified resource deposits may have on natural areas, bushland and ecological linkages the EPA recommends that the Strategic Minerals and Basic Raw Materials Resource Policy should be modified to include the following statements:

- a) There is a general presumption against clearing of native vegetation including within the Strategic Minerals and Basic Raw Materials Resource Policy Areas where 30% or less of the Vegetation Complex remains;
- b) Where native vegetation and/or habitat areas (natural areas) are present it should be assumed that the proposal will be assessed by the EPA in accordance with Guidance 10 (EPA, 2003);
- c) After the resource has been recovered from a Strategic Minerals and Basic Raw Materials Resource Policy Area located within a cleared portion of an Ecological Linkage, the linkage should be restored using previously occurring native species of local provenance; and
- d) Native vegetation clearance is also proposed to be addressed through the *Environmental Protection Amendment Bill 2002* which is currently before Parliament. This Bill contains new legislation to control clearing of native vegetation in Western Australia, through a coordinated assessment process run by the Department of Environmental Protection. Under the proposed laws most instances of clearing will require a permit.

### **13. Regionally significant environmental issues of concern to the EPA**

The intention of the EPA's assessment of the GBRs is to focus on the regionally significant environmental issues raised by the "new zones". However, the EPA considers that it should also consider a number of other relevant and regionally significant environmental issues.

Advice is provided below in relation to some significant environmental issues. The WAPC should consider the best means of achieving the EPA's recommendations in relation to these issues in the Greater Bunbury Region.

#### **13.1 Strategy to conserve regionally significant natural areas on the Swan Coastal Plain**

The EPA recognises the need to update the conservation recommendations on the Swan Coastal Plain portion of the GBRs as a priority. It considers that this work should be undertaken as part of a wider coordinated program to update conservation recommendations across the non-metropolitan portions of the southern Swan Coastal Plain, and the Darling and Whicher Scarps. The review of conservation recommendations on the country portions of the Swan Coastal Plain is needed to complete an update of the EPA System 6 and System 1 recommendations that was initiated in 1995, but deferred pending completion of recommendations for the metropolitan area through Bush Forever.

The EPA supports the completion of the System 6 and System 1 update on the Swan Coastal Plain and adjacent Scarps as a 'whole of government' program through a similar co-ordinated approach, as used for Bush Forever. It considers that an adaptation of the criteria developed for the Natural Area Strategy ([Appendix 3](#)) would provide an appropriate basis for this review. Consideration of the ecological linkage requirements and mechanisms promoting re-establishment of ecological linkage, including hydrological and wetland function, should be an important component of the program.

Maintenance of ecological linkages is also a significant consideration on the Darling Plateau and between the Darling and Blackwood Plateaux, where the main blocks of State Forest are separated by substantial areas of private land developed for agriculture. The EPA notes that the Forest Management Plan is the primary mechanism addressing the conservation management issues on the Darling and Blackwood Plateaux.

### **13.2 Wetland Management**

#### *Discussion*

Within the area of the southwest encompassing the Greater Bunbury Region Scheme, there is a great diversity of wetland types ranging from tidal mangroves, sand and mudflats, through to coastal lakes, swamps and marshes. Under the *Wetlands Conservation Policy for Western Australia* wetlands are defined as “*areas of marsh, fen, peatland or water, whether natural or artificial, permanent or temporary, with water that is static or flowing, fresh, brackish or salt, including areas of marine water at a depth of which at low tide does not exceed six metres*” (Government of Western Australia, 1997). These systems support a rich diversity of plant and animal life and have varying hydrological regimes. Some of these systems are also valued for activities including recreation, tourism, fisheries, water supply and flood mitigation.

The Western Australian Government has formally recognised the importance of wetlands through the *Wetlands Conservation Policy for Western Australia* and ‘*is committed to identifying, maintaining and managing the State’s wetland resources*’ (Government of Western Australia, 1997). A specific objective of this Policy is ‘*to prevent the further loss or degradation of valuable wetlands and wetland types, and to promote wetland conservation, creation and restoration*’ (Government. of WA, 1997).

The EPA has recognised and endorsed the wetland mapping, classification and evaluation undertaken and maintained by the WRC. The EPA considers Conservation Category Wetlands (CCW) to be valuable and of sufficient significance to seek to avoid further loss and degradation of these wetlands. This has been formalised through the release of the EPA Guidance Statement No. 10. This document outlines that proposals that would result in direct loss of wetlands or have significant impacts on key conservation values are likely to undergo formal assessment by the EPA unless proposals can be redesigned to avoid the direct loss or significant impacts on wetlands. The wetlands that are covered by this criteria include Ramsar wetlands, wetlands of national significance (ANCA, 1996) and those wetlands currently identified by the Environmental Protection (Swan Coastal Plain Lakes) Policy, 1992.

In broad terms, the EPA’s position on wetlands is as follows:

- (a) Wetlands are valuable and must be recognised in all land use planning processes. Wetlands and wetland values should be identified as a part of planning, and managed according to values, state national and international policy.
- (b) In early planning stages, proponents will be required to identify wetlands and wetland values, and ensure appropriate protection and management measures are in place to minimise impacts.

- (c) Where a proposal or plan may impact upon wetland areas including their buffers, further studies may be required to be undertaken by a qualified consultant to demonstrate that impacts will either be minimised or the proposal amended to protect higher value wetlands and their buffer.
- (d) Wetlands within Conservation policy areas, or listed on any relevant EPP, should be given the highest priority for protection within reserves or public open space.
- (e) If a proposal likely to impact a CCW is unable to be modified then the EPA may require formal EPA assessment of the proposal.

The whole of Government position statement on wetlands and recognition for Government to protect high value wetlands (which now includes Conservation Category Wetlands), is summarised in the Wetlands Conservation Policy for Western Australia, 1997 (Government of Western Australia, 1997).

#### *Summary*

To ensure that wetlands are adequately protected and managed it is the EPA's opinion that a condition should be imposed on the GBRs requiring that prior to amending the GBRs or local town planning scheme, or approving a subdivision or development, the WAPC or local governments may require an Environmental Management Plan to be prepared and implemented to manage the potential impacts of the proposed subdivision or development on any wetlands that may be impacted.

The Environmental Management Plan should address issues including, but not limited to:

- determination of the wetland boundary;
- drainage and nutrient management from land uses surrounding the wetland;
- demarcation of the wetland buffer area;
- determination of land uses proposed for wetland buffer areas;
- revegetation of deep rooted perennial vegetation and landscape management; and
- management of access and rehabilitation of the wetland area.

The EPA also advises that Swan Coastal Plain Wetlands Environmental Protection Policy is still being developed and is expected to be finalised in late 2003/ early 2004. The aim of this Policy is to declare and protect the environmental values of important wetlands on the Swan Coastal Plain by controlling activities that can degrade or destroy those environmental values. In summary, the Policy will prohibit filling, draining, mining, discharges or clearing of wetlands protected under the Policy without authorisation under the *Environmental Protection Act 1986*.

### **13.3 Waterway Management**

#### *Discussion*

Waterways have important ecological functions and provide important links between landforms, are home to a wide range of plants, animals and micro-organisms, and many are unique to a particular region. They are an integral part of our heritage, places of spiritual and cultural significance and their amenity, social and economic values are enjoyed by all. Healthy waterways that provide for a range of environmental and human needs is the objective for Government's management of the State's waterways.

In the context of the GBRS, a waterway consists of a stream system, connected wetlands and the receiving lake, estuary or inlet at the base of the system, including floodplains and lake systems that overflow into rivers, as well as lakes and swamps that are predominantly stream fed. The form and extent of a waterway will vary according to the characteristics of the catchment. Boundary definition to reserves or management areas must be governed by these biophysical characteristics as well as the waterways services and values to be protected.

Catchment characteristics including geology, geomorphology, hydrology, vegetation, cultural uses and others, heavily influence the form and extent of waterways. These factors also influence the physical and chemical characteristics of the water that is conveyed to receiving water bodies. The strong linkage between waterways and catchment means it is impossible to effectively manage waterways in isolation of land use planning and management.

The values and functions of waterways should be a core consideration in the development of regional and local planning schemes. The beneficial uses and environmental values of important river systems, defined through water resource planning and Environmental Protection Authority decisions, should be recognised in Statutory Region Schemes and other planning schemes or processes developed from them.

In broad terms, the EPA's position on waterways is as follows:

- (a) Waterways and waterway values should be identified as a part of planning, managed according to values, and reflect state, national and international policy.
- (b) Waterways within Conservation policy areas, or listed on any relevant EPP, should be given the highest priority for protection within reserves or public open space.

#### *Summary*

To ensure that wetlands are adequately protected and managed it is the EPA's opinion that a condition should be imposed on the GBRS requiring that prior to amending the GBRS or local town planning scheme, or approving subdivisions or developments, the WAPC or local governments may require an Environmental Management Plan to be prepared and implemented to manage the potential impacts of the proposed subdivision or development on any waterway that may be impacted.

The Environmental Management Plan should address issues including, but not limited to:

- determination of the waterway boundary;
- drainage and nutrient management from land uses surrounding the waterway;
- demarcation of the waterway buffer area;
- determination of land uses proposed for waterway buffer areas;
- revegetation of deep rooted perennial vegetation and landscape management; and
- management of access to waterway area.

### **13.4 Acid sulfate soils**

#### *Discussion*

Acid sulfate soils (ASS) is the common name for soils containing iron sulfides or their oxidation products. Where ASS are exposed to air the iron sulfides oxidise producing sulfuric acid and toxic concentrations of dissolved metals such as aluminium, iron and arsenic. The acid and metals have often been responsible for environmental damage.

While the eastern coastline of Australia has had to deal with the problems from ASS for some time, Western Australia is more recently becoming aware that ASS problems can arise here from a wide range of developments in different parts of the State, particularly along the coast. Initial studies indicate that ASS do occur in seasonally waterlogged areas on the Coastal Plains between Perth and Busselton, including areas within the Greater Bunbury Region.

[Appendix 13](#) gives an indication of the likely areas and probability of occurrence of coastal ASS, based on criteria from coastal survey work in Queensland and New South Wales, and information available from Land System and Soil-landscape system mapping conducted by the Department of Agriculture Western Australia. No detailed survey work has been conducted in the Greater Bunbury Region to clearly determine the actual extent of ASS, and hence the map is indicative only.

A High rating indicates that ASS are very likely to occur within 3 metres of the soil surface. A Moderate rating indicates that ASS could occur in some parts of the area, but are not common. A Low rating indicates that ASS are uncommon, and if they occur are expected to be localised. However, disturbance of localised areas of ASS within the low rating has the potential to lead to significant localised problems.

The disturbance of coastal ASS is most likely to be associated with urban, tourism and recreational developments.

The EPA's objective for acid sulfate soils is that development that potentially may impact on acid sulfate soils is planned and managed to avoid adverse effects of the natural and built environment, human activities and health.

In broad terms the EPA's position is as follows:

- (a) It is preferable that soils and sediments exhibiting ASS characteristics are not disturbed. Disturbances of concern include excavation works; lowering of the groundwater table by dewatering or drainage works; and in some cases, filling;
- (b) In the early stages of a project or plan, the possibility of the existence of acid sulfate soils on or near the site is investigated, with a view to avoiding disturbance to ASS; and
- (c) When a project or plan may impact on an area where there is potential for acid sulfate soils, investigation by qualified people to the satisfaction of the relevant authorities should be carried out to demonstrate that there will be no disturbance caused to ASS.

The DEP and EPA positions in relation to ASS and recommended procedures for consideration of the issues through the planning framework is outline in the *Draft Guidance on Acid Sulfate Soils* (DEP, 2002).

#### *Summary*

Having particular regard to the potential impacts of acid sulfate soils it is the EPA's opinion that prior to amending the Greater Bunbury Region Scheme or local town planning schemes or approving subdivisions or developments, the Western Australian Planning Commission or local governments may require:

- (a) a Preliminary Acid Sulfate Soils Assessment to be prepared where there is likely to be a significant risk of disturbing acid sulfate soils; or
- (b) an Acid Sulfate Soil Management Plan to be prepared and implemented where the presence of an acid sulfate soils has been confirmed.

### **13.5 Alcoa Wagerup**

#### *Discussion*

Alcoa operates an alumina refinery at Wagerup which commenced operations in 1984 and is currently licensed by the Department of Environmental Protection to produce 2.35 million tonnes per annum (mtpa) of alumina.

The refinery is located in the Shire of Waroona, within the Peel Region. However, noise and odour emissions from the refinery are reported to affect portions of the township of Yarloop and nearby rural areas within the Shire of Harvey which are situated within the Greater Bunbury Region.

When the plant was established, Alcoa acquired land around the refinery to provide a buffer between the refinery and incompatible land uses . The extent of the buffer was based on Alcoa's appreciation of the need at the time; and was primarily concerned with visual amenity and noise.

In 1996, the company commissioned a liquor burner, to improve efficiency by removing organics which build up in the process liquor. This resulted in increased odour and noise emissions. Alcoa has stated that improvements by way of pollution control equipment in 1998 and 2001 have reduced this to about 3% of the 1996 odour emission levels.

Until recently, Alcoa had plans to increase production to 3.3mtpa. Conditions set by the Minister for the Environment required buffer distances and amenity provisions to be implemented, to manage impacts of the proposed production expansion.

To meet the Minister's requirements, proposals under consideration include a buffer to be implemented through the Peel and Greater Bunbury Region Schemes or through the Shire of Waroona and Shire of Harvey local town planning schemes. Agreement has not been reached between the Department of Planning and Infrastructure, Shire of Waroona and Shire of Harvey on which type of Scheme would be most appropriate.

Community concerns, which initially emerged when the liquor burner was commissioned, have come to the fore following Alcoa's incremental expansion. Significant levels of community complaints have been received by Alcoa and DEP regarding noise, odour and health concerns.

Investigations so far have been unable to identify a causal agent. Accordingly, there is no clear scientific evidence of a link between the refinery and these community complaints, although a connection between refinery emissions and community health issues has been accepted by the Medical Practitioners' Forum established by the Government to advise it on this matter. Emission levels and ambient air quality have been measured and found to be many times lower than accepted health guidelines. Notwithstanding this, the DEP has been requiring Alcoa to progressively reduce all emissions from the refinery. Capital works completed in June 2002 contributed considerably to reducing emissions. Whilst community complaints since these works have reduced, considerable numbers of complaints continue to be received by the DEP.

#### *Procedure for providing a buffer*

For noise impacts an area of influence has been defined in accordance with the *Environmental Protection (Noise) Regulations 1997* at the 35dB(A) contour. A high proportion of all the complaints received against the refinery come from residences within the 35dB(A) noise contour. This suggests that the 35dB(A) contour maybe a suitable method to define the overall area of influence for the refinery, in the absence of further technical analysis. Alcoa has sought a variation to the assigned noise levels under Regulation 17 of the *Environmental Protection (Noise) Regulations 1997* to address the noise issue as well as undertaking an extensive noise reduction program.

The Government has set up a committee to investigate community concerns and buffer requirements.

#### *Summary*

It is the EPA's view that measures be put in place by the Shires of Harvey and Waroona or the WAPC to provided an adequate buffer around the Alcoa refinery as a matter of priority.

## **14. Conditions**

Section 48D of the *Environmental Protection Act 1986* requires the EPA to report to the Minister for the Environment on the environmental factors relevant to the GBRS and on the conditions to which the GBRS should be subject. In addition, the EPA may make recommendations as it sees fit.

### **14.1 Recommended conditions**

Having considered the Responsible Authority's proposed environmental conditions (environmental management measures) and the information provided in this report, the EPA has developed a set of conditions. A number of the conditions are generally consistent with the management measures originally proposed in the Environmental

Review, although a number of new conditions has been added during the assessment process. The conditions are presented in detail in Appendix .

Matters addressed in the conditions include:

### **1 Management Plans**

The following Environmental Management Plans may be required and shall be implemented in accordance with the provisions of the Management Plans, to the satisfaction of the Western Australian Planning Commission:

- 1) Environmental Management Plans for schemes, subdivisions and developments;
- 2) Environmental Management Plans for industrial development with the Kemerton Industrial Area and Special Control Area No. 2;
- 3) Drainage, Nutrient and Water Management Plan; and
- 4) Acid Sulfate Soil Management Plan.

### **2 Biological Survey**

As part of a scheme amendment or application to subdivide or develop land which has the potential to impact on regionally significant native remnant vegetation or native fauna, a biological survey may be required, including a search for Declared Rare Flora and Fauna, Priority Flora, Threatened Flora Communities and Threatened Fauna, to be undertaken.

### **3 Connection to Reticulated Sewerage**

Subdivisions and developments shall be connected to reticulated sewerage where:

- 1) the Average Annual Maximum Groundwater Level is less than 1.2 metres below the natural ground surface; or
- 2) subsoil drainage is proposed or will be required as a part of development, unless the responsible authority and the EPA agree that there are special circumstances applying to a particular subdivision or development.

### **5 Land to be reserved**

All or portions of the following sites shall be reserved for conservation:

- 1) Reserve 35061 Paris Road, Australind - Decommissioned Wastewater Treatment Plant
- 2) Reserve 31012 Harewoods Road, Dalyellup
- 3) Port Installation Reserve
- 4) Lots 0, 7 and 9 Brunswick River (east of Australind Bypass)
- 5) Twin Rivers - Pt Lot 211 Barnes Avenue, Australind
- 6) College Grove - Lot 1000 Bussell Highway
- 7) Pt Loc 632 Parade Road, Glen Padden
- 8) Reserve 670 North Boyanup Road, Davenport
- 9) Picton Waters - EPP Lake on portion of Lots 40-44 Jeffery Road, Picton
- 10) Lot 10 Ferguson River foreshore, Picton

- 11) Pt Lot 1 North Boyanup Road, Davenport

## **6 Realignment of Primary Regional Road Reserves**

Portions of the following Primary Regional Road Reserves shall be realigned:

- 1) Port Access Road
- 2) Bunbury Outer Ring Road

## **15. Other advice**

In addition to the recommended environmental conditions ([Section 14](#)) the EPA wishes to provide advice on a range of environmental matters related to the GBRS.

Matters addressed in the advice include:

### **1. Deferred factors**

A number of environmental factors have not been included in the EPA's assessment due to the broad scale of the assessment or because insufficient information is available at this stage of the planning process. The EPA has decided that these factors should be "deferred" to ensure that the EPA has the opportunity to assess future local government scheme amendments, subdivisions or development proposals, whichever comes first, so that a more detailed consideration of the potential environmental impacts can be undertaken by the EPA pursuant to Part IV of the *Environmental Protection Act 1986*.

The deferred factors are:

- 1) All Rural zoned land in the GBRS  
Deferred factors – remnant vegetation and wetlands
- 2) All land in the Greater Bunbury Region Scheme  
Deferred factor – site contamination
- 3) Reserve 35061 Paris Road, Australind - Decommissioned Waste Water Treatment Plant  
Deferred factors – remnant vegetation, fauna and ecological linkage
- 4) Lots 27, 28, 150, 151, 1 and 21 Paris Road (north), Australind  
Deferred factors— remnant vegetation, fauna and ecological linkage
- 5) Lots 313-317 south of Harewoods Road, South Dalyellup  
Deferred factors — remnant vegetation, fauna and ecological linkage
- 6) Reserve 31012 Harewoods Road, Dalyellup  
Deferred factors — contamination.
- 7) Part Lot 201 Gray Road, Part Lot 4402, Part Lot 97, Lot 139 Armstrong Street, Lots 1a, 4a, 66 and Part Lot 138 Timperley Road, Boyanup

- Deferred factor — remnant vegetation
- 8) Lot 871 Prowse Road, Capel (south)  
Deferred factors — remnant vegetation, fauna and ecological linkage
  - 9) Lot 2 Harvey (Urban zone)  
Deferred factors — remnant vegetation, fauna and ecological linkage
  - 10) Kemerton Industrial Expansion Area  
Deferred factors — noise, air quality, remnant vegetation, groundwater quality, surface water quality and solid/liquid waste disposal
  - 11) Port Installation reserve  
Deferred factors — noise, air quality and marine water quality
  - 12) Raymond Road  
Deferred factors — wetlands, remnant vegetation and the impacts from road users on surrounding noise sensitive landuses
  - 13) South Western Highway (northern section between the northern boundary of the GBRS and the Preston River)  
Deferred factors — remnant vegetation, watercourses and the impacts from road users on surrounding noise sensitive landuses
  - 14) Port Access Road  
Deferred factors - the remnant vegetation, wetland, watercourses, fauna and noise.
  - 15) Boyanup Bypass  
Deferred factors — remnant vegetation, wetlands and the impacts from road users on surrounding noise sensitive landuses
  - 16) Public Purpose Reserve, Lot 310 and Part of lots 23, 35 and 205 Marriot Road, Kemerton  
Deferred factors — remnant vegetation, fauna and odour emissions
  - 17) Picton Waters - EPP Lake on portion of Lots 40-44 Jeffery Road, Picton  
Deferred factors — remnant vegetation, wetlands and fauna
  - 18) Muddy Lakes – Minninup Road, Capel  
Deferred factors — remnant vegetation, wetlands and fauna
  - 19) Reserve 670 North Boyanup Road, Davenport  
Deferred factors — remnant vegetation, fauna and ecological linkage
  - 20) Lot 15 North Boyanup Road

Deferred factors — remnant vegetation and fauna

- 21) Bunbury Outer Ring Road  
Deferred factors - the remnant vegetation, wetland, watercourses, fauna and noise.
- 22) Glen Iris Service Corridor  
Deferred factors— noise, vibration, remnant vegetation and wetlands
- 23) Lot 35 Spurr Street, Capel  
Deferred factors — remnant vegetation, wetlands and fauna

## **2 Primary Regional Road Reserves**

The alignments of the following Primary Regional Road reserves in the GBRS meet the EPA's environmental objectives provided Environmental and Noise/Vibration Management Plans and Vegetation and Waterway Mitigation Strategies are prepared and implemented, when appropriate, to the satisfaction of the EPA:

- 1) South Western Highway;
- 2) Raymond Road;
- 3) Boyanup Bypass Road;
- 4) Bussell Highway;

Proposals to construct these roads should be referred to the EPA pursuant to Part IV of the *Environmental Protection Act 1986* to ensure that the management plans are prepared to the satisfaction of the EPA.

The Environmental Management Plans should include:

- 1) mapping of vegetation units and the condition of the vegetation units;
- 2) plot based descriptions and flora lists for each of the mapped vegetation units;
- 3) mapping of populations of priority species; and
- 4) the identification of fauna values of the remnants.
- 5) a description of existing environmental values, and the identification of the environmental outcome to be achieved through the implementation of this plan;
- 6) clear delineation of significant areas to be protected;
- 7) vegetation and/or wetland mitigation strategies
- 8) allocation of responsibilities and identification of timing and duration of implementation;
- 9) provision for routine monitoring of environmental values; and
- 10) provision of details of contingency plans in the event that the monitoring surveys indicate that the road is having or has had an adverse impact upon environmental values.

The Noise Management Plan should include:

- 1) detailed noise modeling for the whole proposal taking into account topography, cadastral information, dwelling locations, road design (including elevation), road surfaces and traffic volumes;
- 2) acceptable noise and vibration levels, as agreed between the Main Roads Western Australia and the Department of Environmental Protection, to protect the amenity of adjacent residences; and
- 3) measures to manage the impact of traffic noise and vibration on adjacent residences and residential areas.

The Vegetation Mitigation Strategy should off set the impacts on particular vegetation complexes and should include:

- 1) the biological and environmental values of any vegetation to be impacted by the design and construction of the road;
- 2) a review of the design of the road, to avoid or minimize impacts on the vegetation; and
- 3) measures including the possible acquisition of other vegetated land, to mitigate for the loss of any biological and environmental values caused by the construction of the road.

In considering the suitability of other vegetated land to mitigate the loss of any biological and environmental values caused by the construction of the proposed road the following matters will be considered by the EPA:

- 1) specific vegetation communities affected by the proposal;
- 2) specific vegetation communities on land proposed for acquisition to mitigate the loss of biological and environmental values caused by the proposal;
- 3) vesting and proposed management of the vegetation proposed for acquisition to mitigate against the loss of any biological and environmental values caused by the road construction; and
- 4) values and roles of this vegetation in maintaining conservation in the Greater Bunbury Region.

A Vegetation Mitigation Strategy should off set the impacts on particular wetlands and should include:

- 1) the biological and environmental values of any wetlands to be impacted by the design and construction of the road;
- 2) a review of the design of the road, to avoid or minimise impacts on wetlands; and
- 3) measures including the possible acquisition of other or wetlands, to mitigate for the loss of any biological and environmental values caused by the construction of the road.

In considering the suitability of other vegetated land and wetlands to mitigate the loss of any biological and environmental values caused by the construction of the road the following matters will be considered by the EPA:

- 1) specific category, or categories, of wetlands to be affected by the road construction;
- 2) vesting and proposed management of wetland areas proposed for acquisition to mitigate against the loss of any biological and environmental values caused by the road construction; and
- 3) values and roles of the wetlands in maintaining conservation in the Greater Bunbury Region.

**3 Reserve 35061 Paris Road, Australind - Decommissioned Waste Water Treatment Plant, Lots 27, 28, 150, 151, 1 and 21 Paris Road (north), Australind and Lot 3 Paris Road (south), Australind**

It is the EPA's opinion that:

- 1) the remnant vegetation on the northern and western portions of Reserve 35061 should be reserved in the GBRS and appropriately managed;
- 2) the bushland on part Lots 27, 28 and 150 to the north of Paris Road should be conserved and managed as part of any future subdivision and development, whichever comes first; and

**4 Lots 313-317 south of Harewoods Road, South Dalyellup**

It is the EPA's opinion that:

- 1) remnant vegetation on Lots 315, 316 and 317 should be conserved and appropriately managed either as a ROS reserve in the GBRS or as part of future zoning, subdivision and/or development on the lots;
- 2) the extraction of sand and limestone from Lots 315, 316 and 317 is incompatible with the need to protect vegetation in this area;
- 3) immediate planning measures be implemented by the WAPC to manage and prevent any further development or change of land use on Lots 315, 316 and 317, until the GBRS has been proclaimed.

**5 Reserve 31012 Harewoods Road, Dalyellup**

It is the EPA's opinion that:

- 1) remnant vegetation on Reserve 31012 is regionally significant and should be reserved and appropriately managed;
- 2) appropriate landuses need to be determined for that portion of the site used a municipal waste disposal site;
- 3) a site investigation be undertaken prior to any ground disturbing activities, to determine the extent and severity of contamination on that part of Reserve 31012 used as a waste disposal site. If the site is found to be contaminated as a result of this investigation, then a Site Remediation and Validation Report should be produced to the satisfaction of the Department of Environmental Protection; and

**6 Part Lot 201 Gray Road, Part Lot 4402, Part Lot 97, Lot 139 Armstrong Street, Lots 1a, 4a, 66 and Part Lot 138 Timperley Road, Boyanup**

It is the EPA's opinion that there is regionally significant remnant vegetation on the land proposed to be zoned Urban Deferred which should be conserved and appropriately managed as part of any future zoning, subdivision and/or development on the site.

**7 Lot 871 Prowse Road, Capel (south)**

It is the EPA's opinion that the Urban zoning on Lot 871 is environmentally acceptable subject to the remnant vegetation being conserved and protected as part of any future subdivision or development on the land.

**8 Lot 2 Harvey (Urban zone)**

It is the EPA's opinion that the Urban zoning on Lot 2 is environmentally acceptable subject to as much of the remnant vegetation being conserved and protected as possible (at least 60%), as part of any future subdivision or development on the land.

**9 Kemerton Industrial Area Expansion**

It is the EPA's opinion that:

- 1) areas of regionally significant bushland within SCA No. 2 should be reserved as ROS as a future amendment to the GBRS; and
- 2) Special Control Area No. 2 provides adequate separation between proposed industrial development and surrounding landuses to accommodate the impacts of noise and air quality in accordance with the EPA's environmental objectives and criteria for these environmental factors.

**10 Port Access Road**

It is the EPA's opinion that it would be preferable for the Port Access Road to follow existing road alignments between Harris Road and Moore Road. Although a re-alignment to the west of the currently alignment shown in the GBRS, designed and constructed to minimise impact on bushland, would be environmentally acceptable subject to Environmental and Noise/Vibration Management Plans, and Vegetation and Wetland Mitigation Strategies being prepared.

**11 Boyanup Bypass Road**

It is the EPA's opinion that:

- 1) the road be designed and constructed to minimise impact on bushland and avoid any direct or indirect impacts on the Boyanup Billabong; and
- 2) Subject to point (1) the alignment of the Primary Regional Road reserve for the Boyanup Bypass is environmentally acceptable subject to Environmental and Noise/Vibration Management Plans, and Vegetation and Wetland Mitigation Strategies being prepared.

**12 Public Purpose Reserve, Lot 310 and Part of lots 23, 35 and 205 Marriot Road, Kemerton**

It is the EPA's opinion that:

- 1) the proposal to establish waste water treatment plants on the Public Purpose reserve is environmentally acceptable subject to further investigation to select

- development sites with minimal potential environmental impacts on remnant vegetation and fauna; and
- 2) Special Control Area No. 2 provides adequate separation between the Public Purpose reserve and surrounding landuses to accommodate the impacts of odour emissions from waste water treatment plants in accordance with the EPA's environmental objectives and criteria for this environmental factor.

### **13 Locations 7 and 14 Buffalo Road, Binningup**

It is the EPA's opinion that:

- 1) the proposed modification to the alignment of the ROS reserve boundary alignment on Location 14 is acceptable; and
- 2) the alignment of the ROS reserve boundary on Location 7 should be reviewed prior to any future zoning or subdivision on the subject land, whichever comes first, and amended where necessary.

### **14 Twin Rivers - Pt Lot 211 Barnes Avenue, Australind**

It is the EPA's opinion that:

- 1) the current alignment of the ROS reserve does not adequately protect the regional natural values of the Pt Lot 211 Barnes Avenue;
- 2) in view of the regional natural values of Pt Lot 211 Barnes Avenue all of the site should be reserved;
- 3) if the Government decides not to preserve the whole of the area as a regional park, the EPA is of the view that the modified ROS alignment identified by the WAPC in 31 July 2003 should be adopted; and
- 4) arrangements be included in the Greater Bunbury Region Scheme to ensure that adequate funds are available for the WAPC to purchase areas of regional conservation value.

### **15 College Grove – Lot 1000 Bussell Highway**

It is the EPA's opinion that:

- 1) a corridor between 300 and 500m be reserved in the GBRS and appropriately managed; and
- 2) some degree of flexibility (20 metres) be allowed in determining the final alignment of the northern ROS boundary to facilitate the final structure plan with no nett loss of ROS.

### **16 Muddy Lakes – Minninup Road, Capel**

It is the EPA's opinion that:

- 1) the alignment of the ROS reserve boundary around Muddy Lakes should remain as shown in the advertised GBRS;
- 2) the alignment of the ROS reserve boundary should be amended to include the full extent of the wetland at the earliest opportunity;
- 3) Priority be given to implementing management arrangements (ie Government acquisition) in the Dalyellup/Minninup Lake Natural Area to prevent further degradation by current land use activities;

- 4) Interim planning mechanisms be put in place to ensure that conservation values in the Dalyellup/Minninup Lake Natural Area are protected from any further development or change of land use until suitable protection measures under the Greater Bunbury Region Scheme are provided; and
- 5) Further biological and hydrological studies be undertaken to ensure that the Dalyellup/Minninup Lake Natural Area is appropriately managed.

#### **17 Reserve 670 North Boyanup Road, Davenport**

It is the EPA's opinion that:

- 1) the southern portion on Reserve 670 should be reserved and appropriately managed because of its regional significance;
- 2) the remnant vegetation on the northern portion of Reserve 670 should be conserved primarily because of its faunal habitat values and value as an additional ecological linkage to Preston River; and
- 3) a portion of the remnant vegetation to the north of Reserve 670 should be conserved to provide a consolidated ecological linkage between Reserve 670 and the Preston River.

#### **18 Lot 15 North Boyanup Road**

It is the EPA's opinion that the remnant vegetation on Lot 15 is a significant fauna habitat and effort should be made to conserve a consolidated area of remnant vegetation and appropriately manage the remnant vegetation as part of any future zoning, subdivision and/or development on the site.

#### **19 Bunbury Outer Ring Road**

It is the EPA's opinion that subject to the Bunbury Outer Ring Road being realigned, designed and constructed to minimise impact on:

- 1) a wetland near the intersection with the Australind Bypass;
- 2) wetlands to the north of Lillydale Road; and
- 3) bushland at the intersection with Bussell Highway

the alignment would be environmentally acceptable subject to Environmental and Noise/Vibration Management Plans, and Vegetation and Wetland Mitigation Strategies being prepared.

#### **20 Glen Iris Service Corridor**

It is the EPA's opinion that:

- 1) the proposal to rezone a portion of the Glen Iris Service Corridor buffer to Urban is environmentally acceptable subject to adoption of a Special Control Area to prevent incompatible land uses being located in the buffer;
- 2) the alignment of the Glen Iris Service Corridor (Public Purpose Reserve, Rail Reserve and Regional Road Reserve) and the width of the Special Control Area are environmentally acceptable subject to Noise and Vibration Management Plans being prepared in accordance with the specifications in Section 2, above, prior to any additional infrastructure being constructed within the corridor;
- 3) the proposal to rezone a portion of the Glen Iris Service Corridor buffer to Urban is environmentally acceptable subject to the preparation and implementation of a

- drainage and nutrient management plan, wetland rehabilitation/management plan and fauna management plan; and
- 4) any proposal to construct infrastructure within the Glen Iris Service Corridor should be referred to the EPA pursuant to Part IV of the *Environmental Protection Act 1986*.

**21 Lot 35 Spurr Street, Capel**

It is the EPA's opinion that the remnant vegetation on Lot 35 is a significant fauna habitat and effort should be made to conserve a consolidated area of remnant vegetation and appropriately manage the remnant vegetation as part of any future zoning, subdivision and/or development on the site.

**22 Special Control Area No. 2 - Kemerton Industrial Zone Buffer**

It is the EPA's opinion that Special Control Area No. 2 provides adequate separation between the proposed industry and surrounding land uses to accommodate the impacts of noise and air quality in accordance with the EPA's environmental objectives and criteria for these environmental factors.

**23 Special Control Area No. 3 - North Capel**

It is the EPA's opinion that SCA No. 3 will provide adequate separation between current and future industrial operations and surrounding land uses to accommodate the impacts of noise and air quality in accordance with the EPA's environmental objectives and criteria for these environmental factors.

**24 Public Water Supply Catchment Policy**

The EPA supports the Public Water Supply Catchment Policy subject to the land use permissibility table being deleted and inclusion of reference to the WRC guidelines which determine land use permissibility

**25 Floodplain Management Policy**

The EPA supports the Floodplain Management Policy subject to the environmental values of floodplains being described in further detail consistent with the WRC's Western Australian Draft Floodplain Management Strategy.

**26 Strategic Agricultural Resource Policy**

The EPA recommends that the Strategic Agricultural Resource Policy should be modified to include the following statements:

- 1) There is a general presumption against clearing of native vegetation including within the Strategic Agricultural Resource Policy Areas where 30% or less of the Vegetation Complex remains;
- 2) Where native vegetation and/or habitat areas (natural areas) are present it should be assumed that the proposed clearing will be assessed by the EPA in accordance with EPA's Guidance 10 (EPA, 2003); and
- 3) Native vegetation clearance is also proposed to be addressed through amendments to the *Environmental Protection Act 1986*. The *Environmental Protection*

*Amendment Bill 2002* is currently before Parliament. This Bill contains new legislation to control clearing of native vegetation in Western Australia, through a coordinated assessment process run by the Department of Environmental Protection. Under the proposed laws most instances of clearing will require a permit.

## **27 Strategic Minerals and Basic Raw Materials Resource Policy**

The EPA recommends that the Strategic Minerals and Basic Raw Materials Resource Policy should be modified to include the following statements:

- 1) There is a general presumption against clearing of native vegetation including within the Strategic Minerals and Basic Raw Materials Resource Policy Areas where 30% or less of the Vegetation Complex remains;
- 2) Where native vegetation and/or habitat areas (natural areas) are present it should be assumed that the proposal will be assessed by the EPA in accordance with Guidance 10 (EPA, 2003);
- 3) After the resource has been recovered from a Strategic Minerals and Basic Raw Materials Resource Policy Area located within a cleared portion of an Ecological Linkage, the linkage should be restored using previously occurring native species of local provenance; and
- 4) Native vegetation clearance is also proposed to be addressed through amendments to the *Environmental Protection Act 1986*. The *Environmental Protection Amendment Bill 2002* is currently before Parliament. This Bill contains new legislation to control clearing of native vegetation in Western Australia, through a coordinated assessment process run by the Department of Environmental Protection. Under the proposed laws most instances of clearing will require a permit.

## **28 Strategy to conserve regionally significant natural areas on the Swan Coastal Plain**

The EPA recognises the need to update the conservation recommendations on the Swan Coastal Plain portion of the GBRS as a priority. It considers that this work should be undertaken as part of a wider coordinated program to update conservation recommendations across the non-metropolitan portions of the southern Swan Coastal Plain, and the Darling and Whicher Scarps. The review of conservation recommendations on the country portions of the Swan Coastal Plain is needed to complete an update of the EPA System 6 and System 1 recommendations that was initiated in 1995, but deferred pending completion of recommendations for the metropolitan area through Bush Forever.

The EPA supports the completion of the System 6 and System 1 update on the Swan Coastal Plain and adjacent Scarps as a 'whole of government' program through a similar co-ordinated approach, as used for Bush Forever. It considers that an adaptation of the criteria developed for the Natural Area Strategy would provide an appropriate basis for this review. Consideration of the ecological linkage requirements and mechanisms promoting re-establishment of ecological linkage, including hydrological and wetland function, should be an important component of the program.

## **29 Alcoa Wagerup**

It is the EPA's view that measures be put in place by the Shires of Harvey and Waroona or the WAPC to provide an adequate buffer around the Alcoa refinery as a matter of priority.

## **30 Environmental Protection Amendment Bill 2002**

The *Environmental Protection Amendment Bill 2002* is currently before Parliament. This Bill proposes new legislation to control clearing of native vegetation in Western Australia, through a coordinated assessment process administered by the Department of Environmental Protection. Under the proposed laws most instances of clearing will require a permit. Permit applications will be assessed against criteria designed to assess impacts on:

- representation of ecological communities;
- biodiversity;
- rare species and communities;
- watercourses and wetlands;
- salinisation of land and water;
- land degradation;
- surface and ground water quality, and
- potential for flooding.

## **16. Conclusions**

The EPA has concluded that the GBRS can be implemented to meet the EPA's objectives provided the conditions set out in [Appendix 15](#) are imposed and enforced.

In addition to the environmental conditions the EPA has provided advice in [Appendix 16](#) in relation to a number of issues where an environmental condition would not be appropriate at this stage of the planning process.

## **17. Recommendations**

The EPA submits the following recommendations to the Minister for the Environment:

8. That the Minister notes that the scheme being assessed is the Greater Bunbury Region Scheme.
9. That the Minister considers the report on the following issues and associated relevant environmental factors as set out in [Section 2](#):
  - k) Issues raised in the environmental submissions received during the public consultation period;
  - l) Assessment of new urban zones with potentially significant environmental impacts;

- m) Assessment of the potentially significant environmental impacts of the new Kemerton Public Purpose Reserve;
  - n) Assessment of the potentially significant environmental impacts of the new Port Installation zone;
  - o) Assessment of new road and rail reserves with potentially significant environmental impacts;
  - p) Assessment of other zones and reserves with potentially significant environmental impacts;
  - q) Assessment of the adequacy of Regional Open Space reserves;
  - r) Assessment of Special Control Areas;
  - s) Assessment of policies linked to the Greater Bunbury Region Scheme; and
  - t) Regionally significant environmental issues of concern to the EPA.
10. The Minister notes that the EPA has concluded that the EPA's objectives can be met, provided the recommended conditions summarised in Section and set out in detail in [Appendix 14](#) are incorporated by the Responsible Authority into the GBRS and implemented at the appropriate level of planning.
11. That the Minister in consultation with the Minister for Planning and Infrastructure imposes the conditions recommended in [Appendix 14](#) of this report.
12. The Minister notes the EPA's advice in [Appendix 15](#) of this report.
13. That the Minister notes that the EPA has deferred the assessment of a number of environmental factors, as shown in [Section 15](#), so that the EPA would have the opportunity to assess proposals impacting on these environmental factors in more detail at the appropriate stage of the planning process.
14. That the Minister notes that where any development proposal complies with the Greater Bunbury Region Scheme and raises no additional environmental factors and does not impact on the deferred factors, the development proposal will not normally be subject to further assessment under Part IV of the *Environmental Protection Act 1986*. However, future development proposals may still require works approval, licensing and pollution control conditions under the Environmental Protection Act 1986 where applicable.

**Please note all appendices are contained on the compact disc  
in the plastic sleeve on the inside of the rear cover.**