

**Development proposal  
Lot 500 Rowley Road Banjup —  
Waterfowl reserve and special rural service centre**

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Samcon WA Pty Ltd

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

**Environmental Protection Authority  
Perth, Western Australia  
Bulletin 609  
February, 1992**

## THE PURPOSE OF THIS REPORT

This report contains the Environmental Protection Authority's environmental assessment and recommendations to the Minister for the Environment on the environmental acceptability of the proposal.

Immediately following the release of the report there is a 14-day period when anyone may appeal to the Minister against the Environmental Protection Authority's recommendations.

After the appeal period, and determination of any appeals, the Minister consults with the other relevant ministers and agencies and then issues his decision about whether the proposal may or may not proceed. The Minister also announces the legally binding environmental conditions which might apply to any approval.

## APPEALS

If you disagree with any of the assessment report recommendations you may appeal in writing to the Minister for the Environment outlining the environmental reasons for your concern and enclosing the appeal fee of \$10.

It is important that you clearly indicate the part of the report you disagree with and the reasons for your concern so that the grounds of your appeal can be properly considered by the Minister for the Environment.

## ADDRESS

Hon Minister for the Environment  
18th Floor, Allendale Square  
77 St George's Terrace  
PERTH WA 6000

## CLOSING DATE

Your appeal (with the \$10 fee) must reach the Minister's office no later than 5.00 p.m. on 6 March, 1991.

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## **1. Introduction**

This proposal which is the subject of this environmental evaluation, is for a nature reserve, bird sanctuary and breeding ground for waterfowl, on Lot 500 Rowley Road, in the City of Cockburn. It is intended to have a small 'rural service centre' with local shops and a kiosk to generate some income for park maintenance, and also to use the whole area as a research and educational venue, as well as providing a tourist attraction.

As the land in question is within the Peel-Harvey Catchment area for which special conditions apply, is in the Jandakot Underground Water Pollution Control Area and contains wetlands designated under the Draft Environmental Protection (Swan Coastal Plain Wetlands ) Policy, a level of assessment of Consultative Environmental Review (CER) was set by the Environmental Protection Authority.

## **2. The proposal**

The proposal involves the creation of a nature reserve and bird sanctuary and breeding ground for waterfowl, which would utilise existing wetlands as well as create additional wetland habitats. The area of the lot is approximately 5.6 hectares. The proponent seeks to retain existing vegetation, as well as planting additional native plant species and an area of eucalypts to assist both in the establishment/maintenance of wildlife habitats and with the reduction of nutrients.

It is intended to clay-line one existing wetland which is 'drying out' as well as a new wetland which it is intended to create as part of the overall programme of ensuring viable swamp land habitats for the birds. Clay shields on the boundary of the property will be installed to prevent nutrients from coming in from adjoining properties.

Some of the land was previously cleared, and there is currently four years of re-growth. It is intended to re-generate to as near 'natural' environment, with the provision of appropriate bird habitats such as reeds and logs.

Some of the lakes would be set up for specific bird habitats. A depressed area would be excavated and lined with peat to create a stable swamp-land 'damp environment'. It is also this area which is to be planted with eucalypts to assist with nutrient stripping.

A small development on higher ground at the corner of the property which adjoins two main roads has been proposed. This will be a 'rural service centre', including a kiosk to generate some income for park maintenance.

As the land is within the Jandakot Underground Water Pollution Control Area, the advice of the Water Authority of Western Australia was sought. The advice of the Health Department of Western Australia was sought with regard to effluent disposal.

The advice of the Health Department with regard to on-site effluent disposal was that providing it was not intended to exceed a residential equivalent of one household septic system per 2 hectares, and providing such an effluent disposal system could be sited at least 30 metres from open water, then that Department would raise no objections in principle. Whereas it was understood that the septic tanks would service the kiosk and not a domestic dwelling, the opinion of the Health Department of Western Australia was that the demand on the septic system would not exceed what were considered acceptable levels.

The proponent intends to build a kiosk, with the option of later extensions for educational or research purposes. However, the amount of land which could be developed in this way is very limited because of the high water table under most of the block. The Health Department requirements are that one normal household septic tank for each 2 hectares of land is acceptable. The land in question is 5.6 hectares, and although there may be times when use of the septic tanks may exceed 'normal household use', there is sufficient land to accommodate two toilets.

Major extensions, which do not seem practicable on this site, would require approval from both the local authority and the Health Department.

The Water Authority also noted that the estimated nutrient loading to groundwater from the use of on-site sewage treatment and disposal systems such as septic tanks was deemed to be acceptable for this locality. The Water Authority requirement is that there should be no septic tank within 100 metres of a current or proposed Water Authority bore site. The lot in question is at a considerably greater distance from any current or proposed bore-site.

Informal discussions between the proponent and officers of the Water Authority indicated the possibility of using the site as a pilot waste-water treatment area to assess and monitor the impacts of using vegetation for nutrient stripping. It is suggested that the proponent discuss the technical possibilities for such a pilot scheme with officers of the Water Authority of Western Australia.

The long-term intention is that this development be used as an educational and research centre, as well as providing a tourist facility. It is intended that the buildings be suitable to 're-create the texture and feel of Australian rural architecture...to enhance the surroundings' and that hides and elevated walkways be provided to permit bird watching with minimal disruption to the birds.

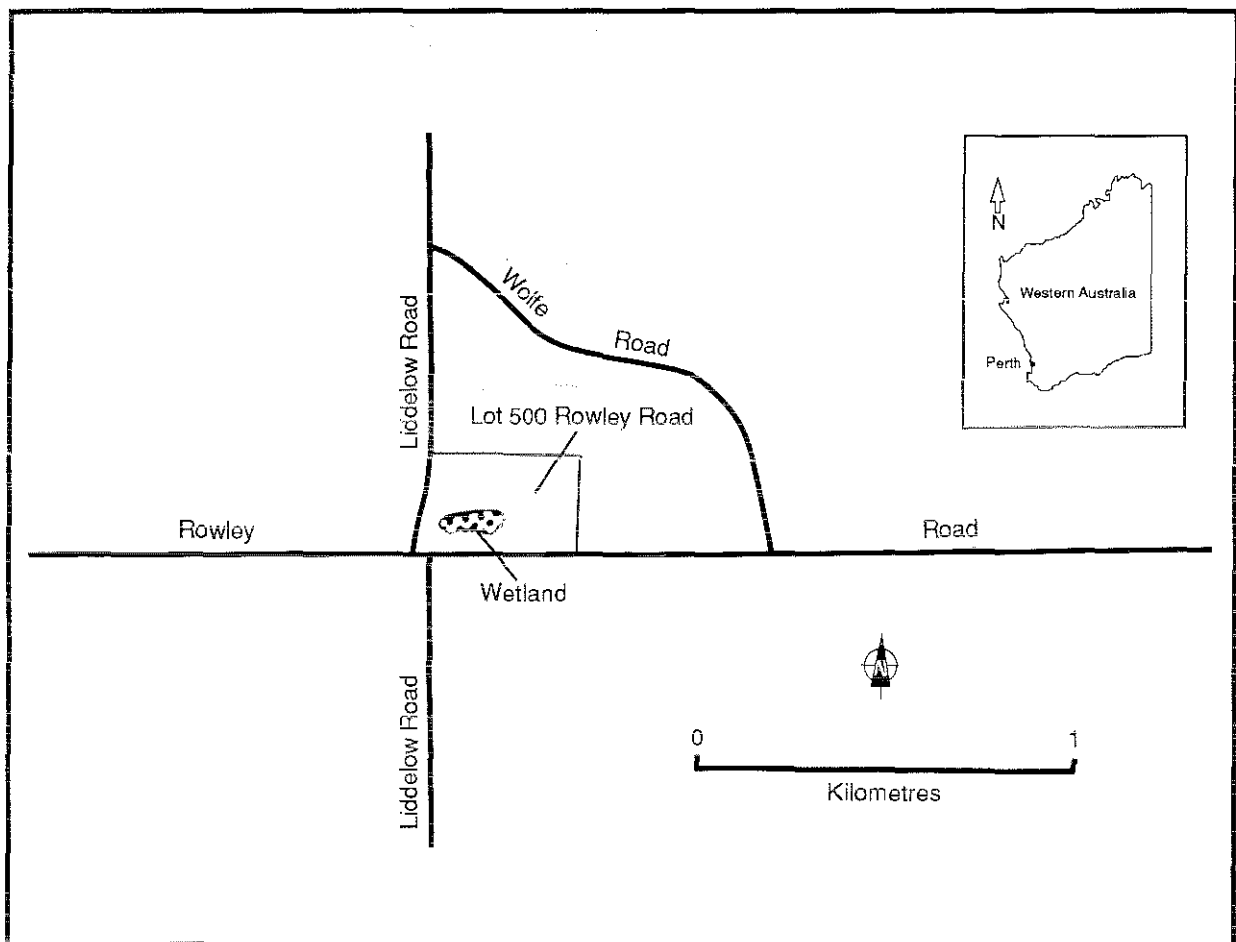


Figure 1: Location of the development proposal in the City of Cockburn

## **3. Environmental assessment and management considerations**

### **3.1 Introduction**

The Authority has assessed the proposal on the basis of:

- the information provided in meetings and discussion with the proponent and in his written submissions;
- submissions from government agencies, discussions, and specific written advice from them;
- submissions from the public;
- the Authority's knowledge of current rural residential developments and their environmental effects;
- the Authority's knowledge of the current status of the Peel-Harvey estuarine system and associated catchments;
- the Authority's knowledge and expertise in the management and protection of wetland systems; and
- the context of the environmental conditions for the Peel Inlet- Harvey Estuary Management Strategy (Stage 2), and the Position Statement outlined in the front of this report.

The proposed site, in some areas, is subject to flooding and therefore, the low-lying parts of the lot are considered to have a very low capability for any residential development. Wetlands, designated under the draft Environmental Protection Policy for wetlands on the Swan Coastal Plan exist on the site.

The Authority would consider the use of conventional septic tanks to be unacceptable on such low-lying land. However, the use of alternative wastewater treatment systems is appropriate for lots of this size, provided not more than one such alternate system is utilised for 2 hectares of land, provided the management issues can be resolved.

The filling or draining of wetlands is constrained by regulation and is not considered acceptable environmental practice. However, the rehabilitation of existing wetlands, and the creation of new wetland habitats, combined with extensive revegetation may be considered environmentally acceptable provided appropriate management controls and monitoring are put in place to enhance, rather than degrade this sensitive environment.

In examining the environmental implications of this proposed development, the Environmental Protection Authority has given consideration to the following issues.

### **3.2 Impact on the Peel-Harvey Estuary**

#### **3.2.1 The problems of the estuary**

The estuary shows signs of severe eutrophication, including large buildups of rotting algae which greatly reduce its recreational and environmental values. The cause of the eutrophication is an inflow of nutrients (mainly phosphorus and nitrogen) into the estuary from the coastal catchment which extends as far as Jandakot in the north and Harvey in the south. The nutrient inflow is currently far above the estuary's ability to cope; hence the accumulations of rotting algae. The dangers of allowing this situation to be exacerbated by further inflows has recently



been demonstrated with the toxic blooms of blue-green algae experienced in the Murray-Darling basin.

It was therefore considered important that the proposal to develop the wildlife sanctuary should not add to the nutrient 'load' in the catchment area.

### **3.2.2 The environmental conditions and their implications**

The Government has taken specific action to rescue the Estuary in the form of Environmental Conditions being set on 3 January 1989 under Section 45 of the Environmental Protection Act for the Peel Inlet-Harvey Estuary Management Strategy (Stage 2). These conditions imposed constraints on developments in the catchment with the objective of reducing the flow of nutrients into the estuary to about half the level current at the time. The conditions also impose a moratorium on clearing in the catchment area, until the Minister for the Environment is satisfied that such clearing would be environmentally acceptable. The objective of retaining remnant vegetation has been reiterated in the soon to be released Statement of Planning Policy for the Peel Harvey catchment.

The present proposal includes significant re-vegetation measures, and the amount of clearing for the small group of buildings on the corner of two major roads would be minimal, and would be followed by additional plantings of native species.

### **3.3 Jandakot Underground Water Pollution Control Area**

The present proposal falls within the Jandakot Underground Water Pollution Control Area, which places constraints on acceptable types of development in terms of their likely impact on the groundwater, and so this had to be a major consideration.

The Pollution Control Area has been defined to protect a major underground water source used for Perth's domestic supplies. With increasing developments south of Perth, the importance of the Underground Water Pollution Control Area will also increase.

At the present time a land-use study for the Jandakot Water Mound (Jandakot Land Use and Water Management Study) is being prepared by consultants to the Water Authority and the Department of Planning and Urban Development, and an Environmental Protection Policy is also being prepared under the Environmental Protection Act 1986. The Authority considers development over the water supply area needs to be carefully controlled to prevent pollution of this important water source. Pending the outcome of these studies and policy statements, it is the Authority's view that proposals which may impact on the groundwater need to be treated conservatively. Discussions were held with officers of the Water Authority of Western Australia regarding this proposal, and the advice received indicated that the prior approval of the Water Authority would be required if it was intended to use alternative sewage treatment and disposal facilities. These would also have to be to the satisfaction of the Health Department of Western Australia and the City of Cockburn. However, based on information from the proponent, the Water Authority indicated that it had no objection to the proposal.

### **3.4 The proposed Jandakot Botanic Park**

The Department for Planning and Urban Development is currently considering setting land aside for the Jandakot Botanic Park. The Park is for the protection of banksia ecosystems and to provide for recreation. Management proposals for the park range from reservation for core areas to land use and development controls over buffer areas to ensure private development is consistent with the park's objectives. Planning for the park is not yet finalised but it is anticipated that decisions will be made in the near future.

The present proposal does not fall within draft boundaries for the proposed park, but in any event the Environmental Protection Authority understands that it is likely that the development envisaged would be consistent with the objectives of a future park.

### **3.5 Wetlands policy**

In March 1991, the Environmental Protection Authority published the Draft Environmental Protection (Swan Coastal Plain Wetlands) Policy for public comment. Regulations were also published at the same time to ensure the wetlands in the Policy area were protected both during the submission period, and until the Policy was approved by Government. As a generality, any wetland of appropriate size and characteristics must not be filled, drained, polluted or mined. Development around designated wetlands is not prohibited provided the basic intention and general requirements of the Policy are accommodated.

The land in question contains a wetland as shown on the Draft Policy's accompanying maps, and so has the protection of the Regulations against draining, filling polluting or mining. The development proposes the rehabilitation of the existing wetland, which the owner of the land claims is drying out and has had rubbish dumped in it, as well as the creation of additional swamp and wetland habitats. As indicated, the wetlands on the property are protected from draining or filling by Regulation and the owner is re-vegetating other previously cleared areas. Consequently, the Environmental Protection Authority considers that the proposal is consistent with the Regulation.

### **3.6 Land uses and implications for developments**

The location for the proposal is a lot of roughly 5.6 hectares, and thus would be defined as a rural residential lot or perhaps a rural retreat. It is too small for any broadacre or intensive agricultural use, which, the Department of Agriculture advises should not generally be permitted for lots under 20 hectares. However, it is clearly larger than an urban or special residential block. The specific management issues which arise with the proposal are therefore similar to those relating to rural residential lots in this area, although no conventional 'residence' is contemplated under this proposal.

#### *Land capability*

As a generality, issues for rural residential developments in the Peel-Harvey Catchment would be expected to take into account such factors as land capability, sewage disposal, drainage, clearing controls, general landuse controls and questions of on-going management. In this particular case, the issue of land capability is less relevant, as it is not intended to build a house, or develop a domestic garden. Hobby farm activities such as running a horse or other domesticated livestock, or growing a home vegetable garden, both of which might be expected to be associated with land degradation and nutrient problems are not envisaged. On the contrary, it is intended to utilise those very characteristics which would make the land unsuitable for most rural residential pursuits, such as the low lying nature of the land, and its tendency to inundation

#### *Sewage disposal*

Because of the low density of development associated with rural residential development, connection to reticulated sewerage is not viable and conventional septic tanks with alternating leach drains are typically used for sewage disposal.

Domestic septic tanks typically release 3.5kg of phosphorus and 35kg of nitrogen into the soil each year, and because the release is confined and concentrated, a significant portion of this may reach the ground water unless additional measures are taken. In particular, on this low-lying land with a high water table, and close to open water, conventional septic systems would not be acceptable. The Environmental Protection Authority requires a clearance of 100m horizontally to open water and 2m vertically to the highest known water table for environmentally acceptable operation of conventional septic systems. Over a water mound and where there is an appropriately low intensity of development, the Authority may require a 5m vertical separation for conventional septic tanks, depending on land capability. It will therefore be necessary to utilise one of the alternative domestic treatment systems recently approved by the Health Department of Western Australia.

One of these utilises a dual leach drain system situated in amended soils with a high phosphorus retaining capacity contained in an impermeable membrane. When the effluent leaves this system, it is able to meet the Health Department's microbial requirements, and is low in nutrients. This system, while still needing to be above the highest known water table is considered appropriate for such an area. However, although cheapest to maintain, such a system does not allow for trees and other woody vegetation to be planted directly above the unit, nor is the option of recycling waste water available.

The alternative of an Aerated Treatment Unit (ATU) utilising a septic tank which feeds into a sealed aeration and chlorination unit is able to meet the Health Department's microbial standards, but the effluent is still high in nutrients. It requires a sufficient 'irrigating' area of the property to trickle or spray the effluent on a non-recreational vegetated area to allow for nutrient uptake. This system would have the advantage of providing additional water for tree plantings. Appropriate trees could assist in removing phosphorous. However, it is essential that consideration be given to which species are planted so that the water balance in wetland areas are not adversely affected by the moisture requirements of the trees. Due regard should be given to the possibility of adverse effects on the local water table during the peak of summer of those Eucalyptus species which draw considerable amounts of water.

#### *Drainage*

Drainage from low lying land with a high water table is of concern. The moratorium on drainage in the catchment means that it is necessary for drainage to be managed on-site so that unacceptable levels of nutrients are not exported from the site. While further detailed management guidelines are being developed, it is accepted, in the interim, that the Authority requires that drainage should be managed such that a 1 in 10 year storm event can be retained on-site for 3-4 days. This criterion is under review. The present proposal is consistent with this requirement in that it includes plans to collect and re-cycle water within the property in the maintenance of wetland habitats which may be aerated by mechanical fountains as well as using small sand-filtered water courses between wetland areas.

#### *Clearing controls*

The clearing of substantial areas of the little remaining vegetation for the establishment of 'hobby farms' is inconsistent with the moratorium on clearing in the catchment.

The revegetation of cleared or partly cleared land, especially with locally appropriate native species, will eventually lead to a lowering of the water table, a reduction of nutrient loss from the lot, and an improvement in the landscape amenity and general aesthetics of the area.

This proposal thus conforms to the intentions of the clearing control conditions.

### **3.7 Environmental maintenance and rehabilitation**

The proposal to maintain and rehabilitate the wetlands and bird and wildlife habitat on this block of land is commendable. The surrounding land has been cleared, and there is not a great deal of remaining vegetation. This block was partially cleared in the past, but now has four-year regrowth of vegetation. The proponent intends to retain all melaleucas on the property, plant indigenous species to provide improved wildlife habitats, provide breeding areas for waterfowl, and in addition, utilise an area in excess of 1 hectare of especially planted eucalypts in nutrient stripping.

The principal wetland on the land has had rubbish dumped in it, and has begun to dry out. The proponent intends to clay-line this wetland, create additional wetland and swampy areas, install clay shields on the boundaries to protect the wetland areas from imported nutrients from adjoining properties, and establish a monitoring programme for water quality.

A grassed and tree shaded picnic area will be provided and blackboys, kangaroo paws and banksias will be planted as a 'focal point' at the entrance. It is intended to plant a special exhibit of native wetland species for both the benefit of the local fauna, and the greater awareness of the general public.

The proponent has discussed the proposal with the Department of Conservation and Land Management, and expects to be allocated a sanctuary license once formal approvals have been finalised.

## **4. Consultation**

The Environmental Protection Authority received comments on the proposal from the Water Authority of Western Australia, the Health Department of Western Australia, and members of the public who participated in an 'open day'.

## **5. Conclusions and recommendations**

The Environmental Protection Authority concludes that this proposal is environmentally acceptable, under the recommendations as outlined below. However several decision making authorities including the Health Department of Western Australia, the Water Authority of Western Australia, and the City of Cockburn must provide approvals for a development such as this one to proceed.

This assessment does not address planning preference. Other planning issues like the relevance of other policies such as the Government's sewerage policy, or the impacts on adjacent landusers may also need to be addressed by the agencies with responsibility for planning approvals.

*Environmental approval granted through this process does not imply that planning approval will automatically follow.*

### **Recommendation 1**

**The Environmental Protection Authority concludes that the proposal to develop a nature reserve, bird sanctuary and rural service centre at 500 Rowley Road, Banjup, as described by the proponent and modified during interactions between the Environmental Protection Authority, the public and the government agencies that were consulted, is environmentally acceptable.**

**In reaching this conclusion, the Environmental Protection Authority identified the main issues requiring considerations as nutrient management, effluent disposal, drainage and wetland impacts, management and maintenance.**

**The Environmental Protection Authority considers that these and other issues have been addressed by either environmental management commitments given by the proponent or by the Environmental Protection Authority's recommendations in this report.**

**Accordingly, the Environmental Protection Authority recommends that the proposal could proceed, subject to:**

- the proponent's commitments; and
- the Environmental Protection Authority's recommendations in this report.

**Recommendation 2**

The Environmental Protection Authority recommends that the proponent should use low nutrient export alternative effluent disposal systems.

**Recommendation 3**

The Environmental Protection Authority recommends that the proponent should manage drainage on the land such that a 1 in 10 year flood event can be retained on-site for 3-4 days, to the satisfaction of the Environmental Protection Authority on advice from the City of Cockburn.

# **Appendix 1**

## **Proponent's commitments**



The proponent has made the following environmental commitments:

- 1 All existing melaleucas will remain.
- 2 Natural marsh wetlands to remain and be maintained to a high standard.
- 3 There will be a planting programme to re-vegetate previously cleared areas. Only native plant species already abundant to the area will be used and other complementary species of Australian origin.
- 4 Additional wetlands will be created. New wetland areas will be re-vegetated with local Australian wetland species.