

# **Rural residential development, Peel-Harvey**

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**Swan Coastal Plain Catchment of the Peel-Harvey Estuary**

**Various proponents**

**Position statement and  
report and recommendations of the  
Environmental Protection Authority**

**Environmental Protection Authority  
Bulletin 482  
December 1990**

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## Foreword

The Peel-Harvey estuarine system is badly degraded. The system shows signs of severe eutrophication (nutrient enrichment), which results in excessive algal growth. The algae live on the nutrients, and multiply rapidly, stifling life in the Estuary in warmer weather. The algae accumulate on the shores of the Estuary and rot, causing odour problems, polluting the shore, and killing wildlife and fish. This results in a significant reduction in the recreational, environmental, social and economic values of the area.

The cause of the eutrophication is an inflow of nutrients (mainly phosphorus and nitrogen) from the coastal plain catchment into the Estuary. The nutrient inflow is currently far above the Estuary's ability to cope - hence the huge production of algae.

The primary source of the nutrients is agricultural runoff from the sandy soils of the catchment which have been extensively cleared and drained. The sandy soils of the coastal plain are naturally infertile and require inputs of nutrients to be productive. The sandy soils, however, have little capacity to retain nutrients that are applied and a large proportion of that which is applied is lost through leaching and runoff.

The problems that exist in the estuarine system today are largely the result of relatively small applications of nutrients, for example 10-15 kg of phosphorus per hectare per year for passive agricultural activities such as annual pasture growth for stock grazing. These are known as diffuse sources of nutrients, however, point sources (sources concentrated at one small location) also contribute to the problems in the estuarine system. Point sources include intensive animal industries, stock holding yards and horticultural developments.

Some years ago the Government embarked on a rescue programme for the Estuary. A two-part plan was developed. One part was the Dawesville Channel, to improve flushing in the Estuary to help increase its ability to cope with the nutrients it receives. The other part was to control the activities taking place in the catchment to reduce the amount of nutrients flowing in to the Estuary.

Owners of existing broadacre agricultural holdings have, by and large, accepted the recommended constraints by making a significant reduction in the rates of phosphorus fertilisers applied to their properties, and by the planting of large numbers of trees. The approval of new rural developments involving excessive applications of nutrients to the soil or large scale clearing or drainage would raise concerns over equity, and may jeopardise the progress already made.

Implementing plans for the coastal catchment of the Estuary takes time, and in the meantime the Environmental Protection Authority is still receiving proposals for development. Some of these proposals are contrary to the plans to save the Estuary, and the Authority will recommend against these. Some others can be environmentally acceptable, provided the appropriate controls are in place to protect the environment and especially the Estuary. The Authority will assess these proposals as they arise.

However, it is important that land holders in the Estuary catchment are given a clear picture of the sorts of development which are acceptable. That way unacceptable proposals should not be put forward, and anyone who buys land in the catchment can know in advance which things they will and wont be able to do on the land.

This Report is about rural residential development. This form of development can involve clearing, drainage, on-site sewage disposal, market gardening and the keeping of livestock, all of which can be environmentally unacceptable in the coastal plain catchment of the Estuary. However, in some situations it is possible to plan a rural residential development with appropriate controls on these activities, given the co-operation of the Local Authority, so as to make the development environmentally acceptable. This Report is both an assessment of a number of proposals recently referred to the Authority, and a statement of the Authority's position to guide future proponents until an overall strategy for development in the Peel-Harvey catchment has been prepared.

With regard to existing rural residential development in the catchment, the plans being developed for the catchment will among other things provide a means of reducing the nutrient loss to the Estuary from all existing activities. The Authority urges that the development of these documents be expedited.



# **Position statement**

## **Rural residential development in the Swan Coastal Plain catchment of the Peel/Harvey estuary**

### **Definition**

Rural residential development is the rezoning, subdivision and development of rural land to create small, non-commercial rural lots (greater than 1 hectare), primarily used for residential purposes.

The lots created are too small to be used as individual broadacre farms, but larger than normal residential lots, and are generally not serviced by reticulated sewerage or water supply.

### **Consideration**

In examining the environmental implications of rural residential development in the Peel/Harvey coastal plain catchment (as shown on the attached map) the Environmental Protection Authority has given consideration to the following:

- **The Problems in 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) from the coastal catchment into the Estuary. The nutrient inflow is currently far above the Estuary's ability to cope - hence the huge accumulations of rotting algae.

- **The Ministerial conditions and their implications**

The Government has taken specific action to rescue the Estuary. Ministerial Conditions were set on 3 January 1989 under Section 45 of the Environmental Protection Act for the Peel Inlet - Harvey Estuary Management Strategy (Stage 2). A copy of the conditions is reproduced in Appendix 1. These conditions imposed constraints on developments in the catchment with the objective of reducing the flow of nutrients into the Estuary to about half their present level.

The Stage 2 proposal by the Ministers for Transport, Agriculture and Waterways sought to improve flushing of the Estuary by constructing the Dawesville Channel and to reduce the flow of nutrients by controlling developments in the catchment. The proposal included a commitment to a moratorium on further clearing and drainage in the catchment. In approving the proposal, the Minister for Environment imposed the condition that the moratorium should continue "until the Minister for Environment is satisfied that these activities would be environmentally acceptable."

The interpretation of this condition has been that a proposal which involves some additional clearing and/or drainage may proceed provided that the proponent can demonstrate that the proposal incorporates sufficient ameliorative measures to ensure that the overall impact is consistent with the objective of reducing nutrient inflows to the estuarine system by about half.

Condition 2 specifies interim target levels for the quantity of phosphorus flowing into the estuary. In operational terms these targets mean that on average phosphorus losses to the estuary should not exceed 0.375 kg of phosphorus per hectare per year. Conditions 3 and 4 require the proponents to prepare an Environmental Protection Policy and a Catchment Management Plan designed to meet the targets in Condition 2. These documents are currently in preparation.

Further, Condition 9 states that, for the present, decisions on developments which may release phosphorus or nitrogen to the environment in the Peel-Harvey Estuary area and coastal plain catchment should be conservative.



These conditions which impose constraints on existing and proposed developments in the catchment with the objective of reducing the flow of nutrients into the Estuary to about half their present level can be summarised as follows:

- a moratorium on further clearing and drainage in the catchment until the Minister for the Environment is satisfied that these activities would be environmentally acceptable;
- the specification of interim target levels for the quantity of phosphorus flowing into the estuary;
- a requirement for the proponents of the Management Strategy to prepare an Environmental Protection Policy and a Catchment Management Plan designed to meet the targets; and
- a requirement that, for the present, decisions on developments which may release phosphorus or nitrogen to the environment in the Peel-Harvey Estuary area and coastal plain catchment should be conservative.

Under the Environmental Protection Act these Ministerial Conditions have the force of law, and are binding on the proponents of the Management Strategy.

In view of the substantial Government commitment to restoring the Peel Harvey estuarine system, the Environmental Protection Authority has adopted an interim strategy for dealing with development proposals in the Peel-Harvey catchment which may conflict with the Ministerial Conditions. Until such time as an Environmental Protection Policy and a Catchment Management Plan are prepared, and while the moratorium on clearing and drainage is in place, the Environmental Protection Authority must assess all significant development proposals.

#### • **The nature and impact of rural residential development**

The sandy soils of the coastal plain have very little ability to retain nutrients and water. Water (including rain) tends to wash the nutrients straight through the soil, into the groundwater, and the rivers and creeks which flow into the Estuary. Much of the land is also low lying. The winter groundwater table is often less than two metres from the surface, and some properties are partially inundated in winter.

The Authority has considered the basic nature of rural residential development on the coastal plain as it now exists and the potential for ameliorating its undesirable environmental impacts.

*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. For these systems to work effectively, the Authority considers it is necessary for the bottom of the leach drain to be a minimum of 2 metres above the highest water table, and for the system to be at least 100 metres from the nearest watercourse or drain. In many cases this requires the creation of a mound to accommodate the leach drains.

Domestic septic tanks typically release about 3.5kg of phosphorus and 35kg of nitrogen into the soil each year, and because it is confined and concentrated, a significant portion of this reaches the groundwater.

*Landuse controls* - Rural residential lots are larger than normal residential lots (greater than 1 hectare) and some developments have, in the past, permitted market gardening and irrigated horticulture as 'hobby farming' activities. Because of the very high fertiliser and water applications associated with these activities the Authority has determined that they are environmentally unacceptable in the Peel-Harvey coastal plain catchment (Bulletin 449).

The keeping of livestock may be possible on larger lots but as one horse can contribute the equivalent of 12-14 kg of phosphorus per year, the keeping of a horse on every rural residential block would not be desirable. However, it should be pointed out that, in regard to nutrients, one horse can have less of an impact than a septic tank system because disposal of the wastes is dispersed and spread over the soil surface and grasses. Acceptable stocking rates need to be determined on a case by case basis, taking soil type, feed source and cumulative impacts in the subcatchment into consideration.

The average domestic garden can contribute a comparable amount in nutrients to a septic tank system, although the actual impact can obviously vary greatly with the nature of the garden and its management.

The acceptability of ancillary landuses within the rural residential development would be dependent upon their potential contribution to the nutrient balance of the development

*Clearing controls* - The clearing of substantial areas of the little remaining remnant vegetation for the establishment of 'hobby farms' is inconsistent with the moratorium on clearing in the catchment. However, the rural residential concept can be consistent with revegetation of the catchment. Since almost all forms of intensive agriculture are ruled out because of their high nutrient impact, it is possible for the whole lot, apart from the building envelope, to be fully revegetated. This is beneficial in reducing the nutrient impact from that of broadacre agriculture and increasing the uptake of water and nutrients. Revegetation can also improve the landscape amenity and aesthetics of an area.

*Drainage* - The moratorium on drainage in the catchment means that it is necessary for drainage associated with developments to be retained on-site. This will be facilitated by the revegetation mentioned above, but it is highly likely that significant areas of land in the catchment will not be suitable for rural residential development because they are lowlying, and off-site disposal of drainage would not be permitted.

*Ongoing management* - The success of rural residential developments in terms of their environmental impact is dependent upon ongoing management and, where appropriate, enforcement. There must be a clear commitment by the relevant Local Authority, and the appropriate financial and staffing arrangements, to ensure the satisfactory implementation of the measures specified by the Environmental Protection Authority as necessary for the proposals to be environmentally acceptable. The statutory controls required to protect the environment are available through the planning process.

*Planning* - In response to the Government's rescue plan which aims to reduce the flow of nutrients to the Estuary by half, farmers have, in the main, significantly cut back their fertiliser application. They have also been prohibited from significant additional clearing. In the interests of equity it is important that the controls necessary to ensure the environmental acceptability of rural residential developments in the catchment are also consistently applied. The problems in the Estuary developed as a result of mainly dryland agriculture, covering less of the catchment than is now developed. The extra development over the last few years, and the move to more intensive agricultural and residential development have made the problems more difficult to solve and increased the need for stricter development controls.

It is therefore important that rural residential developments are appropriately located and managed. The preparation of Rural Strategies for local authorities offers the opportunity for promoting environmentally sensitive land use in rural areas of the Peel-Harvey coastal catchment, and in particular identifying areas suitable for more intensive subdivision and development. The Authority supports the preparation of Rural Strategies.

The Environmental Protection Policy and Integrated Catchment Management Plan required by the Ministerial conditions are currently being prepared. A Draft Environmental Protection Policy (EPP) has been prepared by the Department of Agriculture. The objective is to ensure that new rural developments and land use zoning changes will be evaluated on a catchment basis, with regard to the net effect of such changes on the phosphorus loads of surface flows to the Estuary. Rural Strategies and Town Planning Schemes in the Policy area should reflect the principles adopted in the Environmental Protection Policy and Catchment Management Plan.

# Position

In view of the above considerations the Environmental Protection Authority has determined that, until an Environmental Protection Policy and a Catchment Management Plan have been prepared for the Peel-Harvey catchment, the environmental acceptability of rural residential development in the Swan coastal plain catchment of the Peel/Harvey Estuary must be determined individually based on the Position outlined in this Report.

The Authority's determination of the environmental acceptability of proposed rural residential developments in no way suggests planning approval. It is the Authority's expectation that, once the environmental acceptability of a proposed development has been determined, the relevant planning agencies will then determine the suitability of the site for the proposed landuse from the planning perspective.

The Authority has adopted the general principle that rural residential development in the Swan coastal plain catchment of the Peel/Harvey Estuary can be environmentally acceptable providing the proponent can demonstrate the environmental capability of the site to support the proposed landuse, and appropriate design constraints and management provisions are imposed.

An assessment of the site's environmental capability is undertaken to determine whether the site is capable of sustaining rural residential development without resulting in an unacceptable environmental impact. This assessment includes the Department of Agriculture's Land Capability Assessment for the site, along with other considerations such as vegetation cover, and impact of the proposed development on adjacent environments.

In regard to the Department of Agriculture's Land Capability Assessment, if the site is classed 'Fair', 'High' or 'Very High' for the use 'Rural Retreats' (ie environmentally capable of supporting conventional rural residential development), the following design constraints and management provisions must be applied. These fall into two categories: those which apply to the developer and are implemented prior to the issuing of titles for the proposed lots; and those which apply to the local authority and must be reflected in the local authority's town planning scheme.

To be applied to the developer:

1. Lot sizes must be no less than 2 hectares, and contain a building envelope no greater than 10 per cent of the total lot area.
2. With the exception of minimal clearing necessary for the building envelopes, fences, firebreaks, access and servicing, there is to be no removal of vegetation, and areas already cleared are to be revegetated with appropriate trees and perennial shrubs to either a density of 800 stems per hectare or in accordance with an acceptable tree planting programme. The developer shall be responsible for replacing losses of plants in the first three years.
3. Stormwater must be contained on-site to the extent that a 1 in 10 year storm event will be contained for three to four days before leaving the property.

To be imposed through the Local Authority's Town Planning Scheme:

1. Outside the area cleared for the building envelopes, fences, firebreaks, access and servicing, the existing vegetation and the revegetation established under 2 above shall be maintained.
2. The only permissible primary land use is residential, and no more than one residence shall be permitted on each lot unless it can be demonstrated that an additional residence would not result in excessive nutrient application. Ancillary land uses may be permitted provided they do not involve excessive nutrient application or the clearing of land contrary to 1 and 2 above (developer).

Vegetation shall be protected from damage by grazing livestock. The type and numbers of livestock shall be controlled in order to prevent excessive nutrient input. Fertiliser application shall be minimised and limited to the building envelope.

3. Public open space associated with the development shall be managed so that stormwater is contained on-site to the extent that a 1 in 10 year storm event will be contained for three to four days before leaving the site.
4. Conventional on-site effluent disposal systems must be located and installed such that there is at least a 2 metre vertical separation between the base of the leach drain and the highest recorded groundwater level or bedrock, and at least a 100 metre horizontal separation between the disposal system and the nearest water body.

If the site is classed 'Low' or 'Very Low' in the Department of Agriculture's Land Capability assessment for the use Rural Retreats, rural residential development would only be considered environmentally acceptable if building envelopes are located on land with at least 2 metres depth to the highest recorded water table and an alternative method of effluent disposal involving nutrient stripping was utilised. Acceptable alternatives may include package treatment plants (eg Envirocycle), or soil amendment around the leach drains. However, the acceptability of an alternative would need to be determined through liaison with the Health Department, Local Government Authority and Environmental Protection Authority. Of course, the design constraints and management provisions listed above would also apply, with the exception of 4.

## Advice

The Authority therefore **advises** proponents and all relevant decision making authorities that:

- The proposed Peel-Harvey Environmental Protection Policy and Catchment Management Plan, along with local authority Rural Strategies, offer the opportunity for promoting **environmentally sustainable** development in rural areas of the Peel-Harvey Swan coastal catchment;
- However, until these documents have been finalised and are satisfactory to all relevant government agencies, and while the Peel-Harvey Ministerial Condition regarding clearing and drainage remains effective, all rural residential proposals in the Swan coastal plain catchment of the Peel-Harvey Estuary which proceed beyond initial investigation **must be referred** to the Authority for assessment;
- The environmental acceptability of the rural residential proposals will be determined individually based on the Position outlined in this Report. The assessment of proposals consistent with the Position outlined can be expected to be substantially expedited. Subject to the Authority's assessment of the environmental capability of the site to support rural residential development, the Authority would expect to recommend that the proposal could be environmentally acceptable if the conditions listed above were imposed; and
- However, during this assessment the proponent will have the opportunity of satisfying the Authority that the proposal is sufficiently different from rural residential development in the Peel-Harvey coastal plain catchment as defined here to warrant separate assessment, and different conditions of development.

## The proposals

The Environmental Protection Authority has received a number of proposals for rural residential development in the Peel-Harvey coastal plain catchment. Developments in the catchment are constrained by the Ministerial conditions set for the Peel Harvey Stage 2 proposal because of the need to reduce by about half the quantity of nutrients flowing from the catchment into the Estuary. The Authority therefore determined that formal assessment of the proposals was required, and set the level of assessment of each proposal at Consultative Environmental Review (CER).

Several of the proposals received by the Environmental Protection Authority involve the rezoning of land, and each involves the subdivision of the land for rural residential development. The proposals were referred to the Environmental Protection Authority by the proponent, the consultant, the Local Authority or the Department of Planning and Urban Development, and each property is located within the Peel/Harvey Coastal Plain Catchment.

The proposals are located within the Shires of Serpentine-Jarrahdale and Murray, and the Town of Kwinana, none of which have a Rural Strategy endorsed by the Department of Planning and Urban Development (although preparation has commenced in Serpentine-Jarrahdale and Murray).

The Shire of Serpentine-Jarrahdale has an Interim Rural Strategy prepared several years ago, but which is now considered to be outdated. The Department of Planning and Urban Development has advised the Authority that, in regard to the rural residential rezonings recently initiated by the Shire, certain of these are to be progressed (subject to environmental assessment) while the remainder will be deferred until a Rural Strategy has been prepared and endorsed.

The proposals for rural residential development in the coastal catchment of the Peel-Harvey Estuary assessed by the Authority are listed in Schedule 1, and their location shown on Figure 1.

## Environmental assessment

The Authority has assessed the proposals on the basis of:

- the information provided in the referral documents;
- meetings and discussions with the proponents;
- submissions received from government agencies and 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; and
- and in the context of the Ministerial Conditions for the Peel Inlet-Harvey Estuary Management Strategy (Stage 2), and the Position Statement outlined in the front of this report.

In each case the proponent was approached to see if there was further information which might lead the Authority to conclude that the proposal was significantly different from rural residential development as defined in that Statement and therefore justifying individual assessment. In no case was such information forthcoming.

The Department of Agriculture's land capability assessment for rural retreat development on each site, is summarised in Schedule 1.

***Schedule 1: Summary of proponents, property location and land capability, nature of proposal and the area to be subdivided, average lot size and the number of lots.***

<b>No</b>	<b>Proponent</b>	<b>Property location Land capability for Rural Retreats</b>	<b>Planning proposal</b>	<b>Area , Min lot size No. of lots</b>
1	Mr R W Armstrong	Lot 13 Wungong South Rd Byford Shire of Serpentine- Jarrahdale  Capability fair, but very low along Wungong Brook	Town Planning Scheme No 2 Amendment No 5 - rezoning from Rural to Special Rural	85 ha 2 ha 39 lots
2	Messers Franconi and Mr J Yates	Lots Part 1 and AA, Lot 116 Soldiers Road, Cardup Shire of Serpentine-Jarrahdale  Capability half fair and half low	Town Planning Scheme No 2 Amendment No 11 - rezoning from Rural to Special Rural	18 ha 2 ha 8 lots
3	Mr & Mrs R & DP Ayres	Lots 208 and 209 Lymon Road Mandurah Shire of Murray  Capability high, but very low along the Serpentine River	Town Planning Scheme No 4 Amendment No 13 - rezoning from Rural to Special Rural	77ha 2 ha 32 lots
4	Mr & Mrs WK & MAL Olsen	Lots 1, 2, 3 & 4 Paterson Road and Lot 5 Lakes Road Stakehill Shire of Murray  Capability low	Town Planning Scheme No 4 Amendment No 15 - rezoning from Rural to Special Rural	87 ha 2ha 39 lots
5	Kintyre Holdings	Lot 56 Banksia Road Wellard Town of Kwinana  Capability low	Town Planning Scheme No 1 Amendment No 62 - rezoning from Rural to Special Rural	17 ha 2 ha 8 lots
6	Mr & Mrs KJ & KL Peek	Lot 825 Utley Road Serpentine Shire of Serpentine-Jarrahdale  Capability fair, but low in small area in north west	Town Planning Scheme No 2 Amendment No 12 - rezoning from Rural to Special Rural	27 ha 2ha 12 lots
7	Mr M Congdon	Lot 20 Lakes Road Stakehill Shire of Murray  Capability low	Town Planning Scheme No 4 Amendment No 19 - rezoning from Rural to Special Rural	18 ha 2 ha 8 lots
8	Kintyre Holdings	Lot 153 Woolcoot Road Wellard Town of Kwinana  Capability low), and very low in the north	Town Planning Scheme No 1 Amendment No 63 - rezoning from Rural to Special Rural	16 ha 2 ha 6 lots
9	SP LA & MM Bierwirth	Pt Co Sd Loc 16 Furnissdale Road Pinjarra, Shire of Murray  Capability very low, but low in the north and west	Subdivision of land zoned Special Rural	8 ha 2 ha 3 lots
10	Kintyre Holdings	Lot 42 Craighill Way Oakford Shire of Serpentine-Jarrahdale  Capability low	Subdivision of land zoned Special Rural	26 ha 2 ha 12 lots
11	Mr & Mrs PR & GM Bodenham	Pt SAA 66 College Court Serpentine Shire of Serpentine-Jarrahdale  Capability fair	Subdivision of land zoned Special Rural	4.5ha 1.7 ha 2 lots

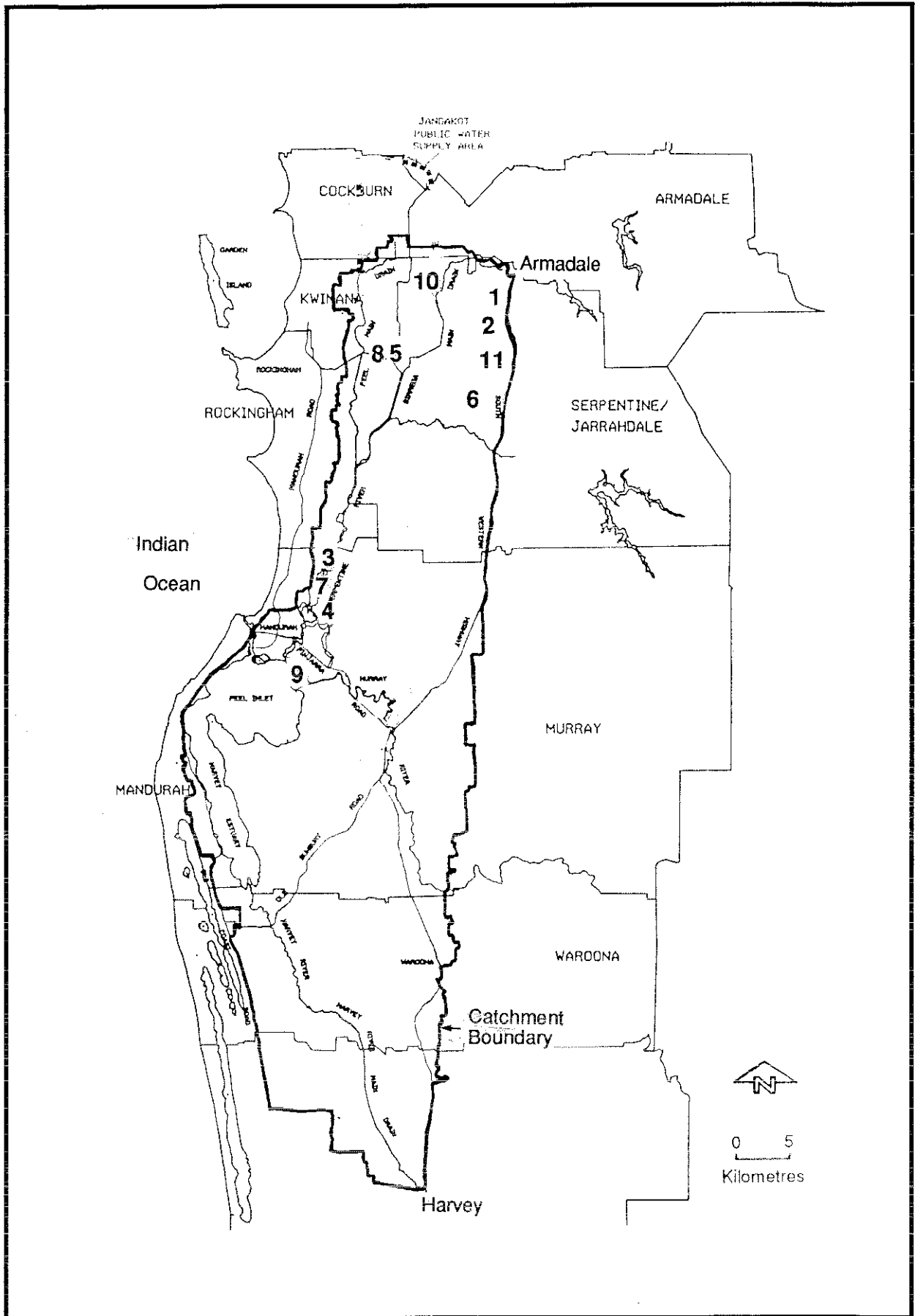


Figure 1: Map of the catchment showing location of proposals

# Recommendations

The following proposals affect land generally **capable** of supporting rural residential development.

No.	Proponent	Property Location Land Capabilit for Rural Retreats	Proposed landuse	Area (ha) Min lot size No. of lots
1	Mr R W Armstrong	Lot 13 Wungong South Rd Byford Shire of Serpentine-Jarrahdale Capability fair), but very low along Wungong Brook	Town Planning Scheme No 2 Amendment No 5 - rezoning from Rural to Special Rural	85 ha 2 ha 39 lots
2	Messers Franconi and Mr J Yates	Lots Part 1 and AA, Lot 116 Soldiers Road, Cardup Shire of Serpentine-Jarrahdale Capability half fair, half low	Town Planning Scheme No 2 Amendment No 11 - rezoning from Rural to Special Rural Land class IV & V B1 & B3	18 ha 2 ha 8 lots
3	Mr & Mrs R & DP Ayres	Lots 208 and 209 Lymon Road Mandurah Shire of Murray Capability high, but very low along the Serpentine River	Town Planning Scheme No 4 Amendment No 13 - rezoning from Rural to Special Rural	77ha 2 ha 32 lots
6	Mr & Mrs KJ & KL Peek	Lot 825 Utley Road Serpentine Shire of Serpentine-Jarrahdale Capability fair, but low in small area in north west	Town Planning Scheme No 2 Amendment No 12 - rezoning from Rural to Special Rural	27 ha 2ha 12 lots
11	Mr & Mrs PR & GM Bodenham	Pt SAA 66 College Court Serpentine Shire of Serpentine-Jarrahdale Capability fair	Subdivision of land zoned Special Rural	4.5ha 1.7 ha 2 lots

The Authority concludes that these proposals have satisfied the environmental capability assessment, and recommends that they would be environmentally acceptable providing:

- a) all land classified in the Department of Agriculture's capability assessment as low (IV) or very low (V) is either excluded from rural residential development or, if the building envelopes are located on land with at least 2 metres depth to the highest known water table, an alternative method of effluent disposal acceptable to the Environmental Protection Authority is utilised; and
- b) the following design constraints and management provisions are applied:

On the developer

1. Lot sizes must be no less than 2 hectares, and contain a building envelope no greater than 10 per cent of the total lot area.
2. With the exception of minimal clearing necessary for the building envelopes, fences, firebreaks, access and servicing, there is to be no removal of vegetation, and areas already cleared are to be revegetated with appropriate trees and perennial shrubs either to a density of 800 stems per hectare or in accordance with a tree planting programme acceptable to the Environmental Protection Authority. The developer shall be responsible for replacing losses of plants in the first three years.
3. Stormwater must be contained on-site to the extent that a 1 in 10 year storm event will be contained for three to four days before leaving the property.

Through the Local Authority's Town Planning Scheme

1. Outside the area cleared for the building envelopes, fences, firebreaks, access and servicing, the existing vegetation and the revegetation established under 2 above shall be maintained.
2. The only permissible primary land use is residential, and no more than one residence shall be permitted on each lot unless it can be demonstrated that an additional residence would not result in excessive nutrient application. Ancilliary land uses may be permitted provided they do not involve excessive nutrient



application or the clearing of land contrary to 1 and 2 above (developer). Vegetation shall be protected from damage by grazing livestock. The type and numbers of livestock should be controlled in order to prevent excessive nutrient input. Fertiliser application shall be minimised and limited to the building envelope.

3. Public open space associated with the development shall be managed so that stormwater is contained on-site to the extent that a 1 in 10 year storm event will be contained for three to four days before leaving the site.
4. Conventional on-site effluent disposal systems must be located and installed such that there is at least a 2 metre vertical separation between the base of the leach drain and the highest recorded groundwater level or bedrock, and at least a 100 metre horizontal separation between the disposal system and the nearest water body.

In view of the above, the suitability of these proposals could now be determined through the planning process, and the Authority recommends that the Minister for the Environment advise the Minister for Planning accordingly. It is essential however that, if these proposals are approved by the relevant planning agencies, the appropriate planning controls are in place to ensure adequate implementation of the necessary conditions.

The following proposals affect land generally **not capable** of supporting rural residential development:

No.	Proponent	Property Location Land Capability for Rural Retreats	Proposed landuse	Area Min lot size (hectares) Number of lots
4	Mr & Mrs WK & MAL Olsen	Lots 1, 2, 3 & 4 Paterson Road and Lot 5 Lakes Road Stakehill Shire of Murray Capability low	Town Planning Scheme No 4 Amendment No 15 - rezoning from Rural to Special Rural	87 ha 2ha 39 lots
5	Kintyre Holdings	Lot 56 Banksia Road Wellard Town of Kwinana Capability low	Town Planning Scheme No 1 Amendment No 62 - rezoning from Rural to Special Rural	17 ha 2 ha 8 lots
7	Mr M Congdon	Lot 20 Lakes Road Stakehill Shire of Murray Capability low	Town Planning Scheme No 4 Amendment No 19 - rezoning from Rural to Special Rural	18 ha 2 ha 8 lots
8	Kintyre Holdings	Lot 153 Woolcoot Road Wellard Town of Kwinana Capability low, but very low in the north	Town Planning Scheme No 1 Amendment No 63 - rezoning from Rural to Special Rural	16 ha 2 ha 6 lots
9	SP LA & MM Bierwirth	Pt Co Sd Loc 16 Furnissdale Road Pinjarra, Shire of Murray Capability very low, but low in the north and west	Subdivision of land zoned Special Rural	8 ha 2 ha 3 lots
10	Kintyre Holdings	Lot 42 Craighill Way Oakford Shire of Serpentine-Jarrahdale Capability low	Subdivision of land zoned Special Rural	26 ha 2 ha 12 lots

The Authority concludes that these proposals do not satisfy the environmental capability assessment, and recommends that they would be environmentally unacceptable. The Authority considers the proposals would be in contravention of the Ministerial Conditions, and it is therefore recommended that they should not proceed.

However, the proponent and planning agencies intend to pursue these rural residential development proposals, the Authority would be prepared to further assess revised proposals for those with adequate depth to the highest known water table (at least 2 metres within the building envelopes) and which propose an alternative method of effluent disposal incorporating nutrient removal. The acceptability of the alternative method of effluent disposal should be determined in consultation with the Health Department, Local Government Authority and the Environmental Protection Authority.

## **Conclusion**

The Authority has assessed the rural residential proposals on the basis of the information provided in the proposal applications, meetings and discussions with the proponents and other interested groups, its knowledge of the nature and impacts of rural residential development and of the state of the Estuary and its catchment and, in the context of the Ministerial Conditions and the Authority's Position Statement on Rural Residential Developments in the catchment.

The Environmental Protection Authority has concluded that the rural residential proposals which satisfy the environmental capability assessment would be environmentally acceptable provided that appropriate development conditions were imposed and implemented. The suitability of these proposals could now be determined through the planning process. It is essential however that, if these proposals are approved by the relevant planning agencies, the appropriate planning controls are in place to ensure adequate implementation of the necessary conditions.

The Authority concludes that a number of the rural residential proposals do not satisfy the environmental capability assessment and would be environmentally unacceptable. These proposals would be in contravention of the Ministerial Conditions, and it is therefore recommended that they should not proceed.

## **References**

Wells M R, 1989 Land Capability study for the Shires of Mandurah and Murray; Land Resources Series No 2. Perth, Western Australian Department of Agriculture.



## **Appendix 1**

### **Ministerial Conditions for the Peel Inlet - Harvey Estuary Management Strategy (Stage 2)**





## MINISTER FOR ENVIRONMENT

### STATEMENT THAT A PROPOSAL MAY BE IMPLEMENTED (PURSUANT TO THE PROVISIONS OF THE ENVIRONMENTAL PROTECTION ACT 1986)

#### PEEL INLET-HARVEY ESTUARY MANAGEMENT STRATEGY - STAGE 2

MINISTER FOR TRANSPORT  
MINISTER FOR AGRICULTURE  
MINISTER FOR WATERWAYS

This proposal may be implemented subject to the following conditions:

1. The proponents shall adhere to the proposal as assessed by the Environmental Protection Authority and shall fulfil the commitments made and listed in Appendix 2 of Environmental Protection Authority Bulletin 363, as amended (copy of commitments attached).
2. The proponents shall develop proposals for control of phosphorus through catchment management, to the satisfaction of the Environmental Protection Authority, and shall implement them as rapidly as possible so that, in conjunction with the Dawesville Channel, the following objective is met:

. the Peel-Harvey System becomes clean, healthy and resilient.

To achieve this objective, the following interim targets should be used:

- (1) annual phosphorus input to the system shall not exceed 85 tonnes in more than four years out of ten (on average) and shall not exceed 165 tonnes in more than one year out of ten (on average). [These are based on 60 and 90 percentile loads]; and
- (2) average phosphorus concentration in estuary water shall not exceed 0.2 milligrams per litre in nine years out of ten (on average).

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These target figures shall be reviewed by the Environmental Protection Authority after 3 years or sooner if environmental conditions dictate, in the light of measured performance of the System and may subsequently be varied by the Environmental Protection Authority.

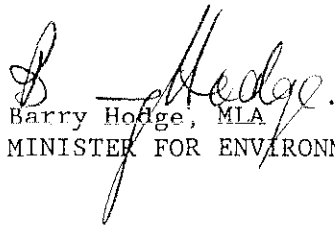
3. The proponents shall jointly prepare an Environmental Protection Policy for the Peel-Harvey catchment in consultation with such persons and agencies as Government may specify, to the satisfaction of the Environmental Protection Authority, in accordance with the objective and targets specified in Condition 2 above. The target date for the Draft Policy (under Section 26 of the Environmental Protection Act 1986) is 31 December 1989.
4. The proponents shall develop in consultation with such persons and agencies as Government may specify, an integrated catchment management plan designed to meet the objective and targets specified in Condition 2 above, to the satisfaction of the Environmental Protection Authority, and which shall be in accordance with the principles to be developed in the Environmental Protection Policy for the area pursuant to Condition 3. The target date for the implementation of the integrated catchment management plan shall be 31 December 1990.
5. The proponents shall ensure that the moratorium on clearing and drainage in the Peel-Harvey coastal plain catchment proposed in the Stage 2 Environmental Review and Management Programme (Commitment 3.6) continues until the Minister for Environment is satisfied that these activities would be environmentally acceptable.
6. Relevant decision-making authorities shall ensure that all developments within 2 kilometres of the Peel-Harvey Estuary System (as defined in the Estuarine and Marine Advisory Committee Report to the Environmental Protection Authority, Department of Conservation and Environment Bulletin 88, March 1981.) include appropriate nutrient-attenuating waste disposal systems and management practices, to the satisfaction of the Environmental Protection Authority.
7. Prior to construction, a dredging and spoil disposal management plan for the Dawesville Channel shall be prepared by the proponents, to the satisfaction of the Environmental Protection Authority. Dredging not already forming part of the proposals in the Stage 2 Environmental Review and Management Programme shall be the subject of separate assessment by the Environmental Protection Authority.
8. The proponents shall ensure that weed harvesting and control is continued and increased as necessary to manage the expected initial increase in the occurrence of nuisance macroalgae.

9. Decisions on developments which may release phosphorus or nitrogen to the environment in the Peel-Harvey Estuary area and coastal plain catchment area should be conservative until the new assimilative capacity of the Peel-Harvey Estuary System is determined and the effects of the management elements have been measured or are being managed. To this end, such proposals for development in these areas shall be referred to the Environmental Protection Authority for assessment. These developments include new and expansion of existing intensive horticultural and intensive animal industries.
10. The Peel-Harvey regional park concept, as originally proposed in the System 6 Redbook report (Conservation Reserves for Western Australia: The Darling System - System 6, Department of Conservation and Environment Report 13, Parts I and II, October 1983.) shall be implemented within such time as to be determined by the Minister for Environment.
11. If the Dawesville Channel is constructed, the proponents shall be responsible for ensuring that mosquito management is effective and is carried out in an environmentally acceptable manner, to the satisfaction of the Minister for Environment and the Minister for Health.
12. The proponents shall be jointly responsible for the environmental aspects of:
  - (1) the construction, operation, monitoring and maintenance of the Dawesville Channel and its impacts within the estuaries and within the immediate marine environment;
  - (2) the management and required monitoring of the catchment, and collection of data necessary for the development of the integrated catchment management plan for the Peel-Harvey catchment; and
  - (3) all in-estuary monitoring and management, including weed harvesting.All of the above shall be carried out to the satisfaction of the Environmental Protection Authority.
13. Prior to the construction of the Dawesville Channel, the proponents shall prepare in stages, a monitoring and management programme, to the satisfaction of the Environmental Protection Authority. This programme shall include:
  - (1) essential additional baseline monitoring required to be in place as soon as possible and prior to construction commencing;



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- (2) construction stage impacts and monitoring, prior to construction; and
- (3) operational and long-term monitoring, in stages, to be determined by the Environmental Protection Authority.

  
Barry Hodge, MLA  
MINISTER FOR ENVIRONMENT

- 3 - 1989

## MANAGEMENT COMMITMENTS MADE BY THE PROPONENTS

The following list has been amended by the EPA and accepted by the proponents to reflect the 'whole of Government approach' which is essential for management of this proposal.

### 1. DAWESVILLE CHANNEL

- 1.1 The proponents will conduct a detailed survey to locate, assess and offer protection to Aboriginal sites and heritage.
- 1.2 During construction of the Dawesville Channel, the proponents will ensure the continuity of road access, power supply, communications, and water and sewerage services that require relocation, and will minimize dust and noise impacts upon nearby residential areas.
- 1.3 Spoil from the excavated channel will be used in redeveloping the fill areas as a stable and varied landscape, reflecting naturally occurring topography elsewhere on the coastal strip.
- 1.4 The proponents will manage spoil disposal to minimize disturbance to important land elements, including coastal dunes, tree belts along Old Coast Road and near the estuary foreshore. Spoil disposed of adjacent to the undisturbed coastal dunes will be contoured to co-ordinate with natural dune topography in order to minimize the potential for erosion.
- 1.5 The land area used to dispose of excavated material will be contoured to facilitate possible future development into a prime residential and holiday area. Views from existing residences near the estuary will be retained, taking into consideration that these views may have been ultimately reduced by foreshore development and landscaping, irrespective of the proposed channel development.
- 1.6 Littoral sand drift northwards along the ocean coast will be mechanically bypassed beyond the channel entrance, to minimize siltation within the channel and to avoid adverse effects on beaches to the north and south.
- 1.7 The Dawesville Channel will be maintained as a navigable waterway, although, as with the existing Mandurah Channel, sea conditions at the ocean entrance may frequently preclude its use by small boats.
- 1.8 The estuary will be closely monitored to evaluate the management strategy's success in reducing the algal nuisance and to enable the development of appropriate management strategies to mitigate any deleterious effects that may occur. Current and proposed future monitoring studies in the estuary are described in Section 13 of the ERMP and Section 11 of the EPA assessment report.

### 2. CONTROL OF WEED ACCUMULATIONS

- 2.1 Weed harvesting will be continued most likely at an increased rate, until the weed nuisance in the estuary is successfully reduced.
- 2.2 Possible methods of improving the efficiency of harvesting operations, and the possible use of algicides to control weed growth, will be evaluated by the proponents and implemented if shown to be practicable.

2.3 The Peel Inlet Management Authority will continue the existing programme of shoreline management and will rehabilitate areas where weed accumulations or harvesting operations cause excessive retreat of the shoreline.

### 3. CATCHMENT MANAGEMENT

3.1 The proponents will continue to provide advice to farmers on fertilizer requirements, based on accurate assessment by paddock-specific soil tests.

3.2 The proponents will encourage further development and use of individual-nutrient fertilizers, and will undertake detailed investigations of ways to overcome existing economic constraints to their production and use.

3.3 The proponents will ensure that large-scale field trials are carried out to ascertain the technical and economic feasibility of converting use of sandy soils from agriculture to forestry. Private enterprise involvement in these studies will be encouraged.

3.4 The EPA and the Department of Agriculture will continue to provide advice to producers to define and implement practicable and cost-effective waste management strategies for control of point sources of phosphorus.

3.5 The Department of Agriculture will coordinate the preparation and implementation of a detailed catchment management plan aimed at reducing phosphorus losses to the estuary to less than 85 t/a in a 60 percentile year with minimal economic or social disruption to the catchment community.

3.6 The proponents will implement a moratorium on further clearing and drainage in the catchment, pending determination of the success of the catchment management plan in reducing phosphorus losses from existing cleared land.

3.7 The success of catchment management measures in reducing phosphorus losses to the estuary will be monitored by the proponents and audited by the EPA. The social and economic effects of catchment management measures upon the catchment community will be closely monitored by the proponents. Current and proposed future monitoring studies are described in Section 13 of the ERMP and in Section 11 of the EPA assessment report. The catchment management plan will be regularly reviewed by the EPA.