

Port Geographe Harbour development, Busselton: Change to environmental conditions

Taliwood Nominees Pty Ltd

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

**Environmental Protection Authority
Perth, Western Australia
Bulletin 783
June 1995**

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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 report.

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 contents of the assessment report or 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
12th Floor, Dumas House
2 Havelock Street
WEST PERTH WA 6005

CLOSING DATE

Your appeal (with the \$10 fee) must reach the Minister's office no later than 5.00 pm on 6 July 1995.

Environmental Impact Assessment Process Timelines

Date	Timeline commences from receipt of full details of proposal from proponent for public review	Time (weeks)
20.03.95	Proponent Document Released for Public Comment	4
17.04.95	Public Comment Period Closed	
01.05.95	Issues Raised During Public Comment Period Summarised by EPA and Forwarded to the Proponent	2
16.05.95	Proponent response to the issues raised	2.5
22.06.95	EPA reported to the Minister for the Environment	5

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2. Summary of submissions
3. Proponent's response to submissions
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Summary

The Environmental Protection Authority (EPA) has been requested by the Minister for the Environment under Section 46 of the *Environmental Protection Act 1986*, to report on the proposed modifications to the Port Geographe Harbour Development.

The Port Geographe Harbour Development Project was assessed by the EPA and approved by the Minister for the Environment on 16 January 1990 (Appendix 1).

The major environmental issues relating to these changes to the development which have been identified through the environmental impact assessment process are:

- canal water quality;
- Vasse Estuary water quality (including saltwater intrusion and nutrient pollution into the Vasse Estuary);
- loss of identifiable boundary between conservation area and southern edge of development due to the realignment of Layman Road; and
- impacts on fauna and flora (including deletion of winery complex).

In relation to canal water quality, it has been concluded that the water quality of the harbour and waterway system can be maintained at acceptable levels given the predicted flushing time and circulation of Port Geographe. Similarly with regard to the Vasse Estuary water quality it has been concluded that as seepage from the canals will be monitored and remedied if seepage is detected, the water quality of the Vasse Estuary can be maintained at acceptable levels.

The EPA considers that any potential impacts arising from the change in boundary definition distinguishing the conservation area and development can be effectively managed and that the deletion of the winery complex will reduce the impact on flora and fauna.

The Authority has also reviewed the existing conditions and commitments for the Port Geographe Harbour Development project, and has consolidated the conditions and commitments in a single environmental statement.

Following the assessment of this proposal, and the modifications and management commitments made by the proponent, the Environmental Protection Authority finds the project to be environmentally acceptable.

Recommendation No.	Summary of recommendations
1	The amended proposal could proceed subject to the proponent's environmental management commitments.

1. Introduction

1.1 Background

The Environmental Protection Authority (EPA) has been requested by the Minister for the Environment under Section 46 of the *Environmental Protection Act 1986*, to report on the proposed modifications to the Port Geographe Harbour Development Project. This report (Bulletin 783) contains the EPA's advice and recommendations to the Minister for the Environment, who will decide on any changes to the environmental conditions set on 16 January 1990.

In 1989 the EPA assessed the proposal by Interstruct Pty Ltd and Naturaliste Developments Pty Ltd (the then proponent) to develop a 300 hectare site on the eastern edge of Busselton, lying between the ocean and the Vasse Estuary (Figure 1). The approved proposal (Figure 2) included the development of:

- a main harbour incorporating mooring facilities and associated infrastructure (including a public boat launching facility with trailer parking);
- a harbour entrance and beach incorporating two breakwaters adjacent to the entrance and two smaller groynes to the east for foreshore protection and sand trapping;
- waterway residential subdivisions containing canal and ordinary residential blocks;
- conventional dry-lot subdivision on the west side of the harbour (Stage 1);
- beach front and harbour entrance holiday accommodation, incorporating a 120 room beach front resort and a 250 room international hotel;
- chalet, retirement village and winery complex located to the east side of the village centre;
- public open space incorporating gardens, squares and artificial wetlands plus parking areas throughout the development as required; and
- an estuary conservation zone and waterfowl centre.

Following Ministerial approval for the proposal, the proponent entered into negotiations with the Shire of Busselton, Department of Marine and Harbours (now Department of Transport), and the Department of Conservation and Land Management (CALM). As a result of these negotiations, a revised development plan (Figure 3) was produced which addressed issues of relevance to those parties and at the same time a number of issues which were identified in the Minister's conditions (for example, canal design) (LeProvost Dames & Moore, 1995).

The project, however, failed to proceed to construction and was subsequently sold to the current proponent, Tallwood Nominees Pty Ltd, in 1994. Upon acquisition, Tallwood proceeded under existing environmental and planning approvals with the initial phase of development. This comprised a conventional dry-lot subdivision of 71 residential lots shown as Stage 1 on Figure 4 (LeProvost Dames & Moore, 1995).

Tallwood Nominees Pty Ltd then proposed changes to the project which lead to the reassessment of the project under Section 46.

2. Proposal

2.1 Description of proposal

The proposed changes to the proposal are shown on Figure 5 and involve the following elements:

1. completing the project in a series of stages over six to eight years rather than a single stage;

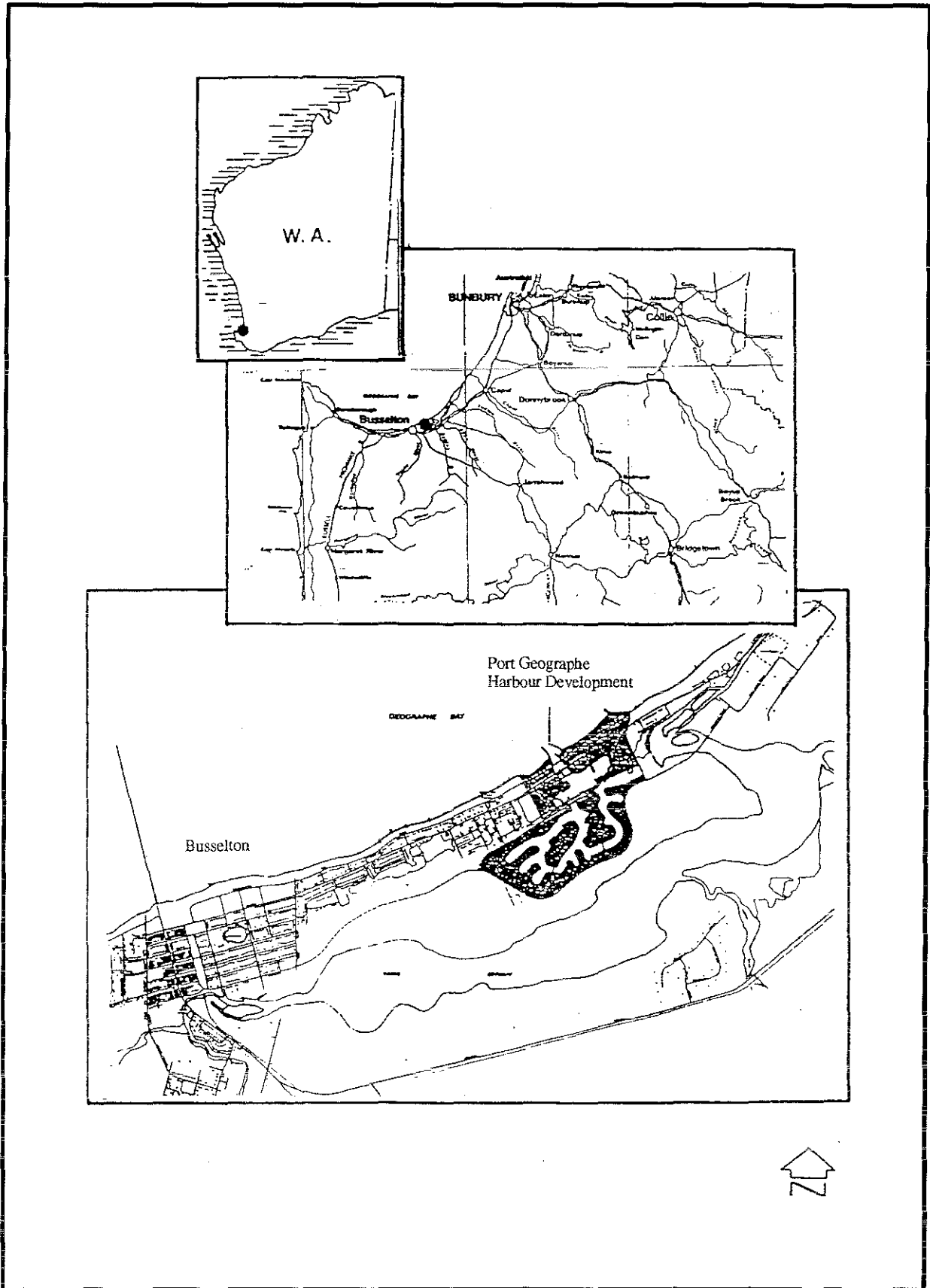


Figure 1. Project Location (Department of Environmental Protection, Bulletin 386). (Not to scale)

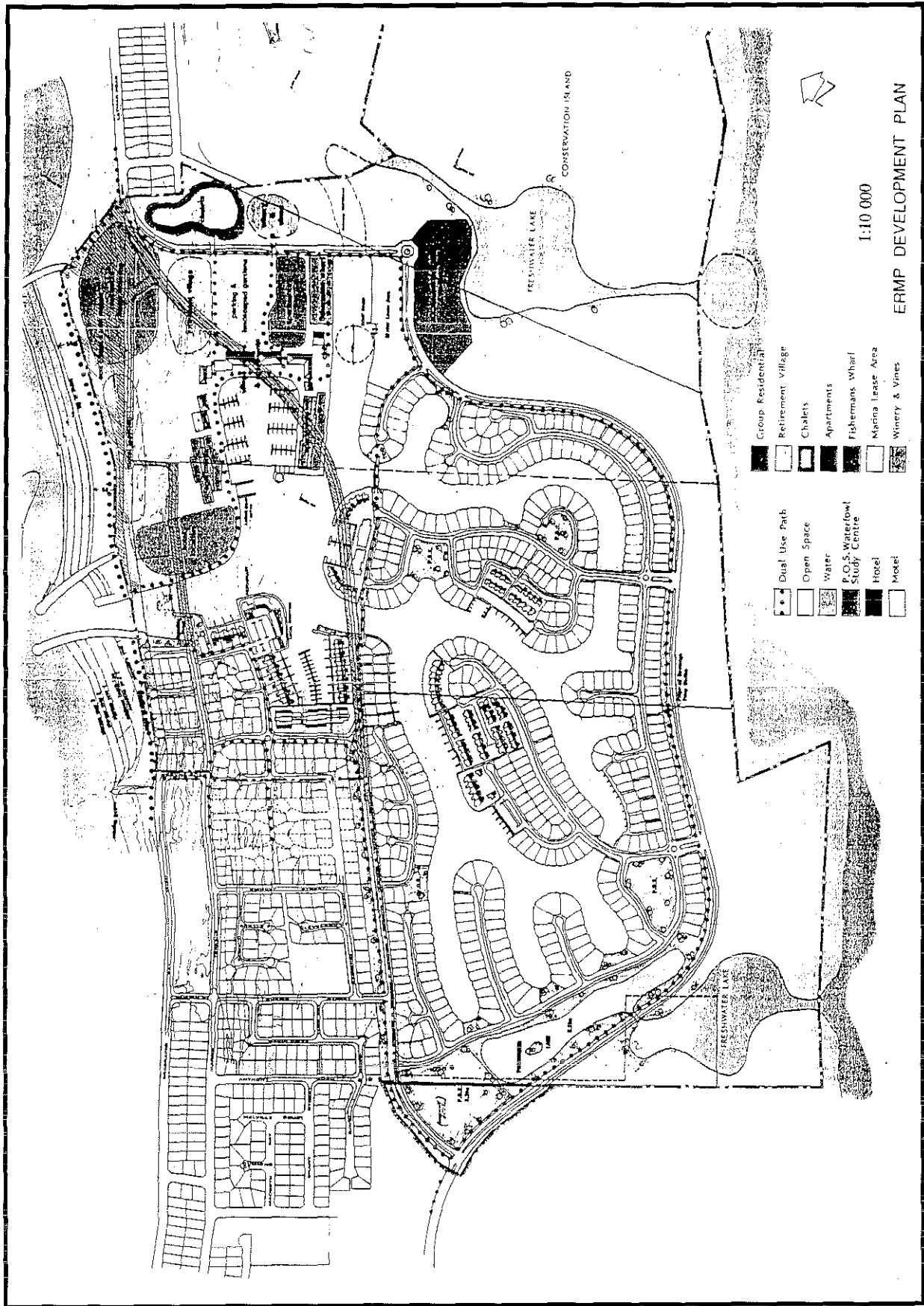


Figure 2. ERMP Development Plan (1989) (LeProvost Dames & Moore, 1995).

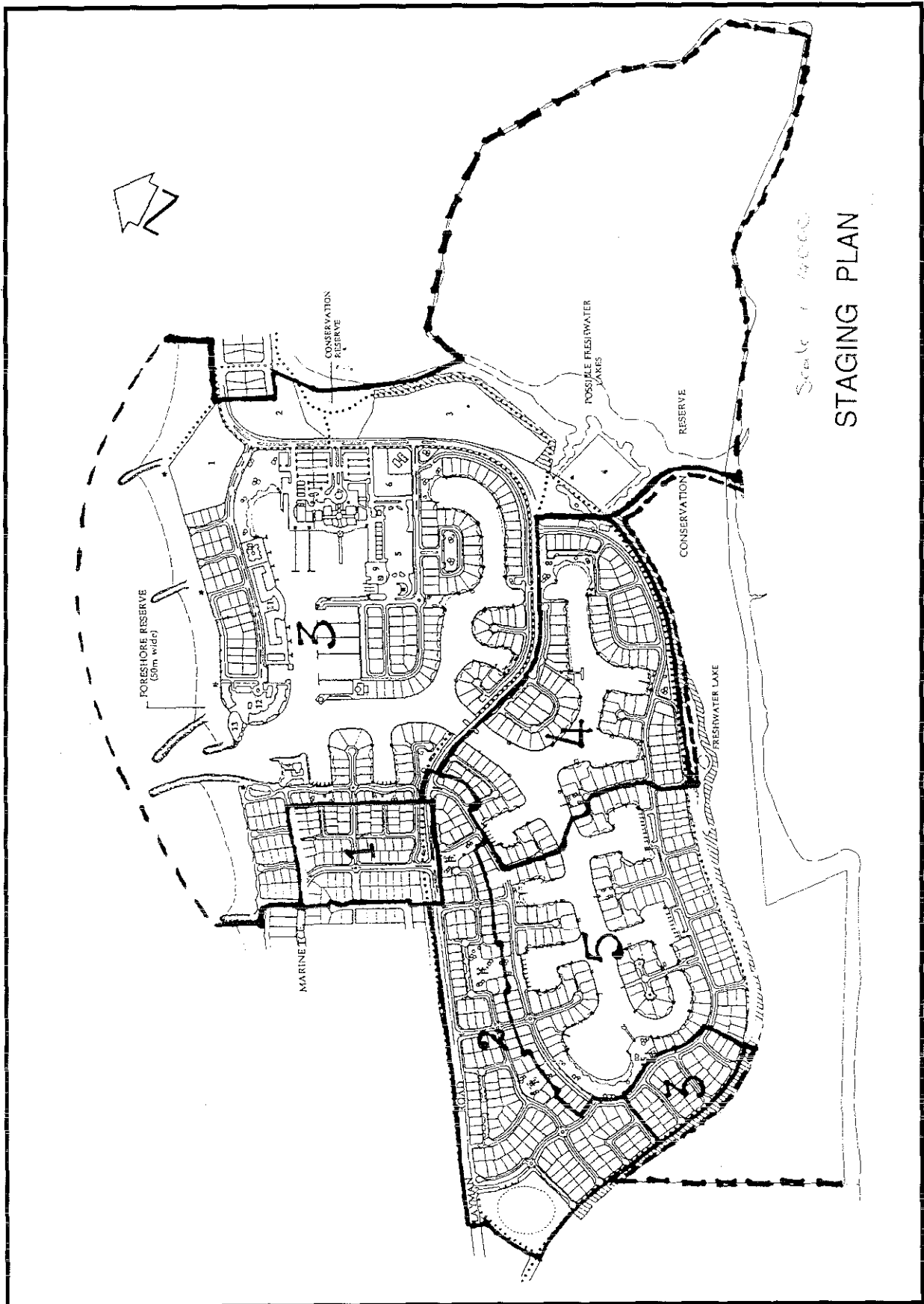


Figure 4. Staging Plan (1995) (LeProvost Dames & Moore, 1995).

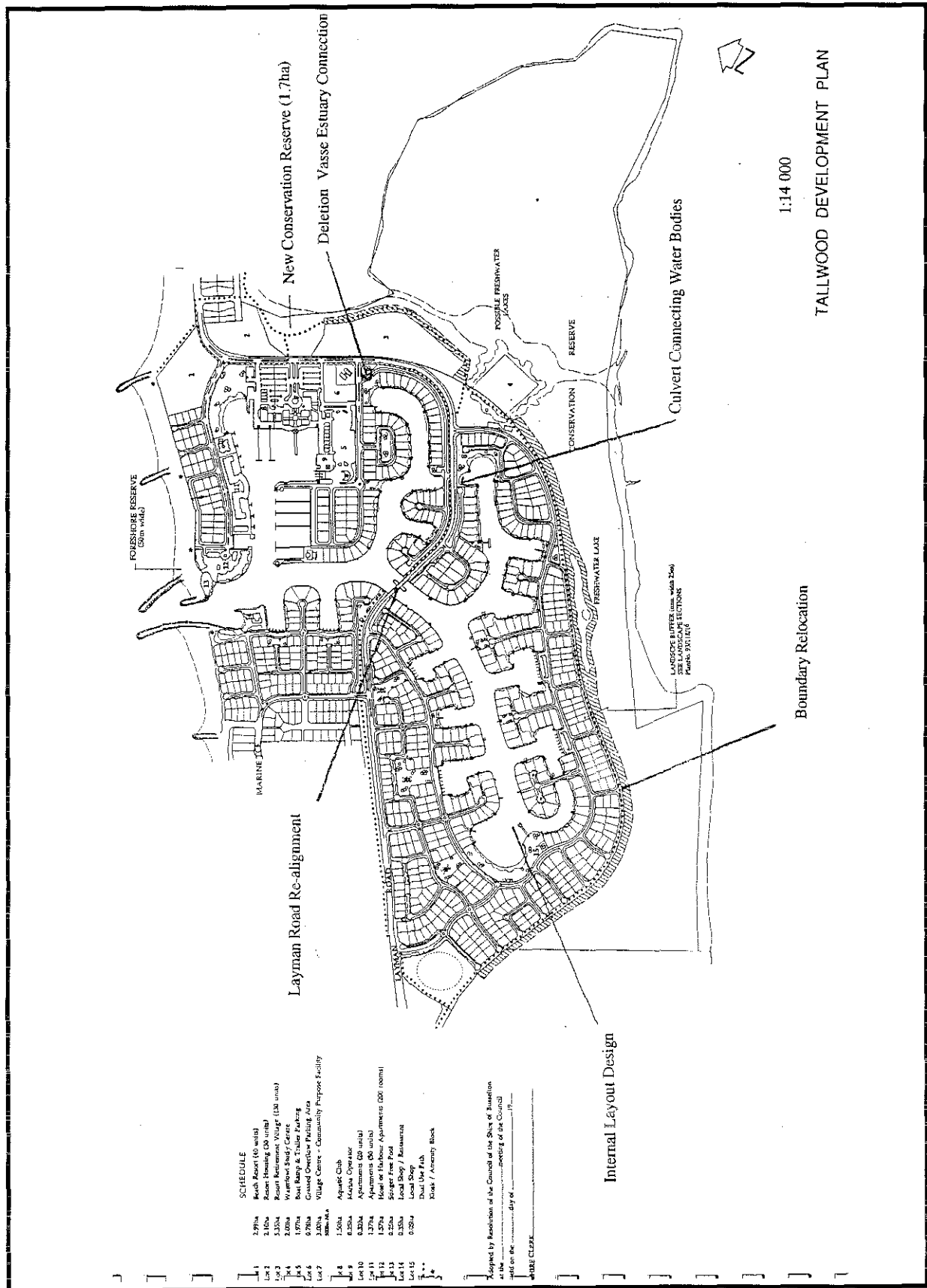


Figure 5. Tallwood Development Plan (LeProvost Dames & Moore, 1995).

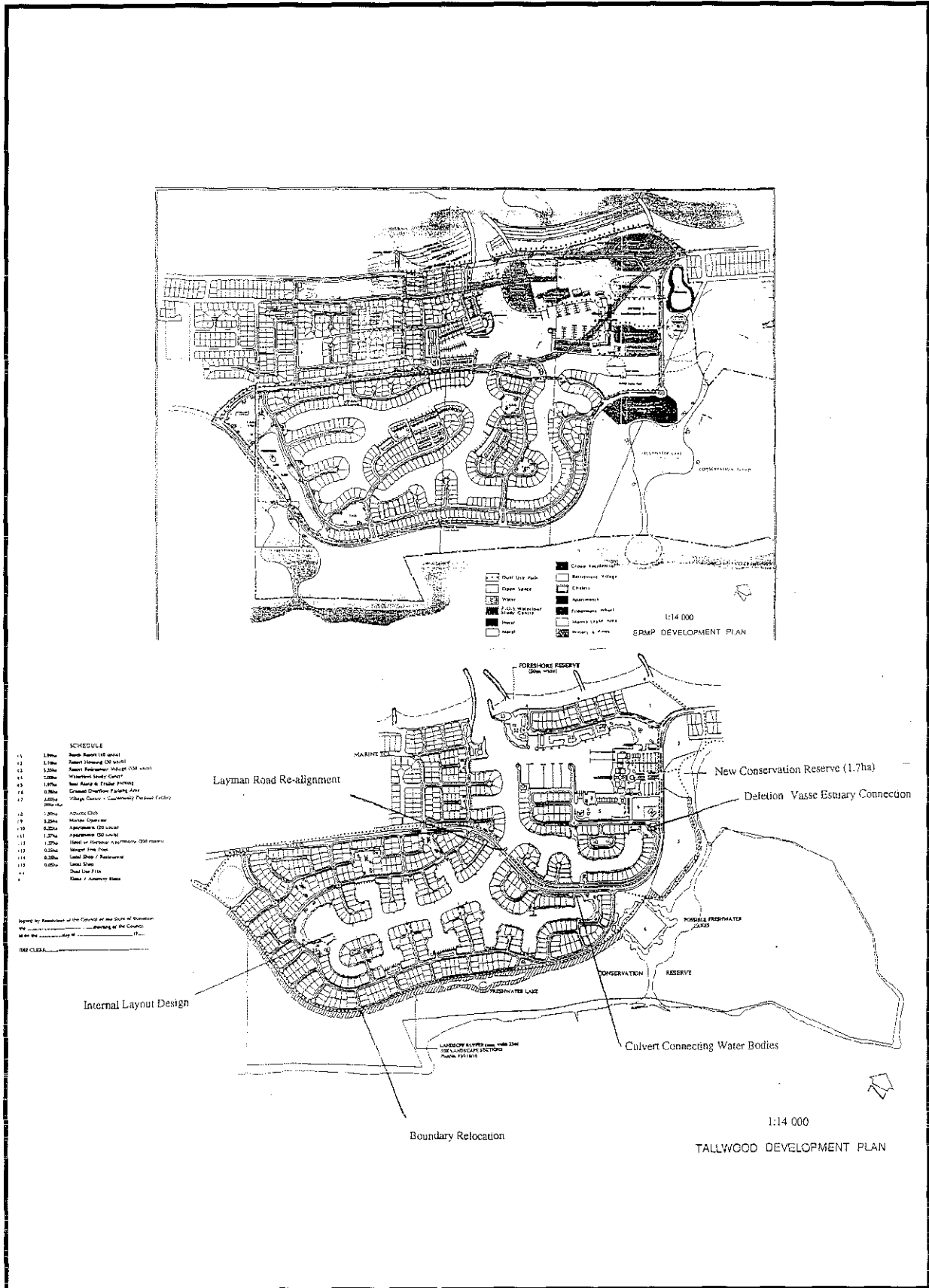


Figure 6. The ERMP (Original Plan, 1989) in Comparison With the Tallwood Development Plan (Revised Plan, 1995).

2. re-alignment of Layman Road from the periphery of the development to a central location within the development;
3. deletion of the proposed winery complex (2.14 ha) on the eastern side of the development and setting aside this area for conservation purposes together with some additional land to the north and south (1.7 ha) ;
4. providing additional buffer (up to 90 m) to areas of high conservation value by pulling back the south-eastern edge of the development;
5. redesigning the internal layout of the development, resulting in changes to the canal and marina design, the addition of a culvert connection, and increasing the number of dry lots;
6. replacing parts of the canal walling, originally proposed to be pre-cast reinforced concrete walling units, with a more natural edging comprising small headlands and sloping beaches; and
7. deletion of the possible Vasse Estuary canal connection.

The proponent has already commenced pre-stripping of the site in accordance with the existing conditions. The proponent has also sought approval to excavate areas within Stages 3 and 5 according to the revised plan which is subject to this Section 46 review. This approval was sought because of the requirement to superload the land to allow for pre-construction compaction. However as only some portions of the revised plan were consistent with the already approved plan, approval for excavation has to await the outcome of this Section 46 review.

3. Environmental impact assessment process

3.1 General

The environmental impact assessment process for this proposal followed the Environmental impact assessment administrative procedures 1993 for this Section 46 review.

In undertaking this assessment the following approach was taken:

- identification of significant environmental issues;
- setting of objectives of assessment for each issue;
- assessment of the potential for impact; and
- formulation of recommendations to manage identified impacts.

Limitation

This evaluation has been undertaken using information currently available. The information has been provided by the proponent through preparation of the Environmental Review document, by DEP officers utilising their own expertise and reference material, by utilising expertise and information from other State government agencies, and by contributions from EPA members.

The environmental impact assessment for this proposal followed the *Environmental impact assessment administrative procedures 1993*. In addition to following the administrative procedures, DEP officers undertook discussions with the proponent and site visits.

The EPA notes that the five year time period given to this proposal in the Environmental Statement of 16 January 1990, has now lapsed. The environment, however, has not changed substantially, and the EPA's original advice remains. The EPA considers that an additional two years is sufficient to allow the proponent to substantially implement the project.

The EPA recognises that further studies and research may affect the conclusions. The EPA considers that if the proposal has not been substantially commenced within two years of the date of this report, then such approval should lapse. After that time, further consideration of the proposal should occur only following a new referral to the EPA.

3.2 Public submissions

Comments were sought from the public, community groups and local and State Government authorities. The proponent's Section 46 review document was available for public comment for a period of four weeks between 20 March 1995 and 17 April 1995. A summary of issues raised in submissions is given in Appendix 2 and the proponent's detailed responses are presented in Appendix 3. The proponent's consolidated list of environmental management commitments, appears in Appendix 4. A summary of the main points in submissions and the proponent's response is given in Table 1.

Table 1. Main points in submissions relating to the modified proposal and proponent's response.

Main points in submissions	Proponent's response
<p><u>Water Based Issues</u></p> <p>1. Canal design</p> <ul style="list-style-type: none"> • saltwater intrusion from the canals into the Vasse Estuary <ul style="list-style-type: none"> • pollution of the Vasse Estuary by nutrients from the canals 	<ul style="list-style-type: none"> • A monitoring programme has been developed to detect any potential seepage from the canals. As with the original proposal if such seepage is detected an impermeable bund will be constructed of estuarine silt to hydrologically isolate the canals from the estuary. • Nutrient levels in any seepage from the canals will be much less in volume and concentration than those entering the estuary from other sources and would have little effect. • Conditions and commitments made in relation to monitoring and management will continue to apply.
<p><u>Land Based Issues</u></p> <p>1. Staging of development. An interim barrier should be constructed to define the conservation area, provide protection for the waterbirds, and prevent uncontrolled access to the Vasse Estuary given the revised staging and practicality of developing the entire landscaped buffer before the development of all stages.</p>	<ul style="list-style-type: none"> • Preliminary discussions have been held between the proponent and CALM with regard to making arrangements which are satisfactory to CALM for the protection of the future conservation reserve

Main points in submissions	Proponent's response
<p>2. Development east of Layman Road. Bulletin 386 shows the area to the east of Layman Road as being a desirable area to include in the conservation reserve. This area contains Peppermint trees and wetland depressions. The project design contained in the EMMP, however, does not reflect the proposal in Figure 6 as it includes development in this area near the estuary and east of Layman Road (although the Peppermint trees are to be included in the conservation reserve). Will this area be included in the conservation reserve to be vested with the NPNCA?</p>	<p>The area to be developed is essentially the same as shown in Figure 2 of the Section 46 Report. This plan was agreed to by all relevant authorities including CALM, during the approval of the ERMP and EMMP, and is the basis of the current Town Planning Scheme. In preparing the revised development plan, the proponent has taken great care to minimise changes to the developed area and has maintained the area of land to be vested as a Conservation Reserve.</p>
<p>3. Relocation of Layman Road. Will the relocation of the road lead to pollution of the canal system by oil and refuse?</p>	<p>Layman Road will cross the canal in two places, one of which is a culvert crossing. The bridges will be designed to prevent surface runoff entering the canals.</p>
<p>4. Winery complex. Will the land that was proposed for the winery complex be added to the conservation reserve and consequently be managed by CALM?</p>	<p>The land that was originally proposed for the winery complex will be added to the conservation reserve.</p>
<p>5. Area to the north of the waterfowl centre. The original proposal for a parking area to the north of the waterfowl study centre site (Figure 2 of the EMMP) has been removed. Some provision is now indicated in the area immediately to the northwest of the waterfowl study centre. As the area is isolated from the urban development by the perimeter road, would it not be logical for this land to be incorporated into the area managed by CALM? Can the proponent clarify details of parking provision, landscape design and provision of sewerage connection and toilet facilities?</p>	<p>The area shown in Figure 2 as parking area and recreation was primarily for the purpose of overflow parking for the boat ramps. This facility has now been provided nearer the marina. The proponent is prepared to negotiate with CALM over how the area adjacent to the waterfowl study centre is developed so that it satisfies CALM's reasonable requirements. Services to be provided to the waterfowl study centre and adjacent areas will be decided in conjunction with CALM. A sewerage connection will be available if required.</p>

Main points in submissions	Proponent's response
<p>6. Landscape Buffer</p> <p>(a) Has the boundary between the estuary and Layman Road been altered?</p> <p>(b) Will houses be located closer to the wetland than was originally proposed?</p> <p>(c) What measures will be taken to mitigate against expected midge/ mosquito nuisance problems?</p>	<p>The boundary between the development and the estuary, previously defined as the southern side of Layman Road, is not affected by the design change.</p> <p>There will be no change to the previously agreed area of buffer within the conservation area. The road and pathway replacing Layman Road will only have a 3 metre carriageway and the remainder of the road reserve will be available for use as additional buffer development.</p> <p>The distance between the private lots and the boundary of the Conservation Reserve has been reduced in places from 33m to 15m although the boundary between the development and the estuary will remain in the location previously agreed. The change from major to minor access road and pedestrian access on the boundary reduces much of the need for noise and light protection measures within the development area.</p> <p>The measures to be taken to mitigate the midge and mosquito nuisance are described in the ERMP and EMMP.</p>

4. Evaluation

Environmental aspects of the modified Port Geographe Harbour Development project which require evaluation by the EPA include:

- canal water quality;
- Vasse Estuary water quality;
- loss of identifiable boundary between conservation area and southern edge of development;
- impact on fauna and flora; and
- evaluation of existing environmental conditions and commitments for the Port Geographe Harbour Development project.

4.1 Canal water quality

4.1.1 Objective

To ensure that water quality in the revised canal and harbour system is maintained such that there are no unacceptable environmental impacts on the marine environment and on recreational water quality and aesthetics.

4.1.2 Evaluation framework

Policy framework

The evaluation of water quality within the canal system should meet water quality criteria guidelines as described in the Environmental Protection Authority's Bulletin 711 titled "*Draft Western Australian Water Quality Guidelines for Fresh and Marine Waters*". This document was published in 1993 and outlines environmental values of fresh and marine waters, and sets chemical, physical and biological guidelines which, if not exceeded, should result in the environmental value being maintained. Water quality criteria that should be met are those relating to the protection of marine aquatic systems and recreational water quality and aesthetics.

Technical information

Water circulation

Water quality is mainly governed by contaminant inputs and the flushing characteristics of the system. There are a number of mechanisms that cause a body of water to circulate and exchange with adjacent connected open bodies of water. The main water exchange mechanisms for the canal system at Port Geographe are:

- tidal exchange with source waters in Geographe Bay; and
- wind induced currents over the canal waterways (Kinhill Riedel & Byrne, 1994).

Kinhill Riedel & Byrne (1994) investigated the circulation of the proposed modified canal shape. Their calculations indicated a slightly longer flushing time, 10.7 days as compared to eight days for the plan put forward in the ERMP. However, given the high quality of the source water (Geographe Bay) it is considered to be sufficient to maintain adequate water quality within the canals.

Kinhill Riedel & Byrne (1994) previously calculated that waterway flushing times of the order of 20 - 30 days would still be required to maintain acceptable water quality standards in the canals and in ocean waters surrounding the development. This is two to three times longer than predicted for the revised canal layout.

The main canal is orientated in a north-south direction to optimise exchange due to wind induced currents. To further improve the circulation efficiency in the 'dead ends' of the two eastern branches, a culvert connecting the branches beneath Layman Road has been proposed by the proponent.

Comments from key government agencies

The Department of Transport has commented that with regard to canal flushing and circulation the conclusions of acceptable water quality are supported, provided culverts are installed at the eastern end of the residential canals in Stage 4. The DEP has taken a similar view.

The Department of Transport also suggested that the design vessel for the canals should be nominated at this time and a mooring plan be developed. The Department of Transport considers this issue to be important in determining funding streams for the defined maintenance commitments.

4.1.3 Public submissions

Issues raised in public submissions focussed on:

- how the proponent would prevent urban stormwater and wastewater from entering the canals;

- whether the proponent would prepare a detailed analysis of work necessary to maintain safe navigation at the entrance; and
- whether costings would be prepared and made available to the Waterways Manager for consideration.

4.1.4 Proponent's response

The proponent indicated that stormwater would be disposed of on-site and that stormwater will be passed through oil and silt traps before being discharged into the canals. No wastewater will be discharged into the canals and the development will be serviced by a reticulated sewerage system.

With regard to navigation the proponent has indicated that these issues are being addressed under existing conditions of approval (Ministerial Conditions 3, 4 & 5) by the proponent and that it is proposed to have plans showing the design vessels and mooring envelopes available before any further subdivision plans are approved.

4.1.5 Evaluation

The EPA has reviewed the information contained within the proponent's Section 46 Report and notes that the work undertaken by Kinhill Riedel & Byrne (1994) indicates an adequate flushing period.

The Authority notes that issues of navigation and costings are being addressed by the proponent under existing Ministerial Conditions 3, 4 and 5, and that preliminary discussions have been held with the Department of Transport and the Shire of Busselton with respect to their requirements. The Authority also notes that the proponent has started addressing these issues and includes estimates of the work required to maintain entrance and adjacent coastline and the costings for these works.

The EPA concludes that on the basis of predicted flushing of Port Geographe together with the proponents commitments and Condition 7 of the environmental conditions set on 16 January 1990, that the water quality of the harbour and waterway system can be maintained at acceptable levels (See Recommendation 1). Condition 7 requires the proponent to prepare and implement a programme, within six months of construction, to verify the flushing time and efficiency of water circulation within and from the canal and harbour system.

4.2 Vasse Estuary water quality

4.2.1 Objective

To ensure that there is no unacceptable impact on the water quality and vegetation of the Vasse Estuary, resulting from the development.

4.2.2 Evaluation framework

Technical information

Surface water

The provision for a possible future link between the canals and the Vasse Estuary was made at a time when further stages of development on the eastern side of the Vasse Estuary were being considered (LeProvost Dames & Moore, 1995). The connection was dependent on a decision being made by the authorities to either permanently open the Vasse Estuary to the ocean or to move the floodgates upstream of the point where the connecting channel would have entered the

estuary. As the desirability of a connection is dependent on water quality in the estuary being adequate when it would have exchanged with the canals, and as the Vasse Estuary has poor water quality (EPA, 1989), this option was not favoured by the authorities. Consequently Tallwood deleted the canal connection option from the proposal (LeProvost Dames & Moore, 1995).

In the study conducted by Kinhill Riedel & Byrne (1994), it is indicated that tidal exchange should be sufficient to maintain nutrient levels (phosphorus and nitrogen) in the canal and harbour system below those levels experienced in other Western Australian canal estates.

Groundwater

As documented in LeProvost Dames & Moore (1995), there will be a greater separation between the canals and the estuary as a result of the increased width of residential development. The closest part of the canal system will be located 260m from the estuary which is 25m further from the estuary than shown in the ERMP and 15m further than that shown in the EMP.

The canal walls will be constructed as a series of small beaches separated by rip-rap headlands or groynes, rather than pre-cast reinforced concrete segments as described in the ERMP. According to calculations by Dames & Moore (1994), water from the canals would take several years to reach the estuary through groundwater, displacing the existing groundwater in the sand each summer, then reversing in flow towards the canals when the winter water level in the estuary is higher than that in the canals. In the worst case summer scenario, the estimated throughflow is 60m³/day distributed over 2000m. A similar calculation for the development plan presented in the ERMP indicates that between 15 and 20m³ of throughflow may have occurred through the beaches located at the ends of the canals. The amount of throughflow is small and, as it would occur during the summer months, it is predicted that the water would evaporate as it reached the surface of the ground, restricting its area of potential influence (LeProvost Dames & Moore, 1995)

Comments from key government agencies

The Department of Transport has commented that with regards to permeability of the canal system, "*the analysis assumes a vertical salt/ water interface. In reality, the fresh water will ride over the salt water. Nevertheless, the conclusions as to there being little through flow and hence, minor vegetation impact are supported*".

4.2.3 Public submissions

The main issues raised in public submissions focussed on whether changes to the layout of the design of the canals could lead to an adverse impact of the Vasse Estuary by salt water intrusion and nutrients from the canals, and whether the change to permeable canal edges would have an adverse impact on the fringing wetland vegetation and the water quality of the Vasse Estuary.

4.2.4 Proponent's response

In response the proponent indicated that all canal edges are permeable and that a monitoring programme has been developed to detect any potential seepage from the canals. The proponent also indicated that as with the original proposal if seepage is detected, an impermeable bund will be constructed of estuarine silt to hydrologically isolate the canals from the estuary.

The proponent commented that the position relating to salt water intrusion into the Vasse Estuary remained unchanged from the original proposal which also had beaches and walls through which water could infiltrate. The proponent also stated that a monitoring programme had been developed to detect potential seepage from the canals, and as with the original proposal if such seepage was detected an impermeable bund would be constructed of estuarine silt to hydrologically isolate the canals from the estuary.

With regard to nutrients, the proponent indicated that nutrient levels from the canals in any seepage from the canals would be much less in volume and concentration than those entering the estuary from other sources and would have little effect. The proponent also indicated that the conditions and commitments which have been made in relation to monitoring and management will continue to apply and that this includes negotiating with CALM over the form and content of the monitoring programme.

4.2.5 Evaluation

The EPA concludes that based on the above information, and Proponent's Commitment 3 (of 1989), which refers to the construction of an impermeable seal between the development and the estuary should a hydraulic connection be detected, and Conditions 14 and 15 (which relate to the monitoring of seepage from the canals) already placed on the project, that the water quality of the Vasse Estuary would not be adversely affected by the canal development (See Recommendation 1).

4.3 Loss of identifiable boundary between conservation area and southern edge of development

4.3.1 Objective

To ensure the boundary distinguishing between the conservation area and development remains clearly defined.

4.3.2 Evaluation framework

Technical information

In previous development plans, Layman Road was shown as being located on the southern perimeter of the development. In this location the road provided a clear boundary between the development site and the estuary conservation area. Following negotiations after the release of the Ministerial approval for the ERMP, Layman Road was re-aligned to provide increased buffer to areas of higher conservation value and additional measures, including fencing, light/sound bunds and landscaped buffers were designed to reduce the potentially adverse effects of road traffic. (LeProvost Dames & Moore, 1995).

In this revised proposal plan, the boundary between the conservation and development areas remains the same but Layman Road has been realigned to pass through the development instead of around it. The development boundary will now comprise minor access roads linked by a dual use path system to provide a continuous pedestrian/ cycle link around the perimeter of the development.

The proponent has indicated that although the standard of the road would be reduced, the provision for buffer planting's between the development and conservation areas would be retained at previously agreed widths. The commitment to provide a 1.5m high dog proof fence along the southern edge of the road reserve would also be retained.

Comments from key government agencies

In its submission, CALM indicated that the construction of Layman Road and the landscaped buffer, as approved in the original development plan, would clearly define the conservation area and provide important protection for waterbirds against disturbance resulting from subsequent construction work and the increasing population in the area.

CALM also commented that, given the revised staging of the development, it would not be practical to develop the entire landscaped buffer and that it is important that an interim fence or suitable barrier be installed to prevent uncontrolled access to the Vasse Estuary.

4.3.3 Public Submissions

Issues raised in public submissions focussed on:

- the revision of the boundary between private lots and the conservation reserve ; and
- whether houses will be located closer to the wetland than was originally proposed.

4.3.4 Proponent's Response

In response the proponent indicated that the boundary between the development and the estuary, previously defined by the southern side of Layman Road, is not affected by the design change. The proponent also indicated that although detailed design is subject to further discussion with CALM, there will be no change to the previously agreed area of buffer within the conservation area.

The proponent also indicated that the road and pathway replacing Layman Road will have a three metre carriageway and the remainder of the road reserve (15m in width) will be available for use as additional buffer development.

In relation to houses being located closer to the wetland, the proponent responded by saying that the distance between the private lots and the boundary of the Conservation Reserve had been reduced in places from 33m to 15m, although the boundary between the development and the estuary will remain in the location previously agreed. The proponent also indicated that the change from major to minor access road and pedestrian access on the boundary reduces much of the need for noise and light protection measures within the development.

In response to the staging issue raised by CALM, the proponent indicated that they were prepared to make arrangements which are satisfactory to CALM for the protection of the future conservation reserve from access and that preliminary discussions had already taken place with CALM on this issue.

4.3.5 Evaluation

The EPA notes that Layman Road will be replaced as the southern boundary of the development by a service road which will only carry local traffic linked by a dual use path, fencing and a landscaped buffer.

The EPA also notes that the proposed downgrading of the perimeter road system will result in a substantial reduction in the frequency of vehicles and consequently a reduction in traffic noise and light disturbance adjacent to the estuary conservation zone. The requirement for street lighting is expected to be of a lower intensity than for the major road.

It is also noted that the proponent has indicated that the commitment to orientate public lighting to the north, away from the estuary (commitment 7.2 (12)) will be applied to the streets which replace Layman Road.

On the basis of the above information, the EPA concludes that any potential impacts arising from the change in boundary definition can be effectively managed and hence are environmentally acceptable.

4.4 Impact on flora and fauna

4.4.1 Objective

To ensure the protection of fauna and flora, notably the Western Ringtail Possum and their habitat.

4.4.2 Evaluation framework

Technical information

The proposed winery complex as shown in the ERMP was relocated, and the original site, together with some adjoining land to the north and south, shown as a conservation area in the EMP (LeProvost, Dames & Moore, 1995).

The proponent has indicated that this change in proposed land use was designed to protect the dense grove of Native Peppermint, *Agonis flexuosa*, found in this area. The then proponent, agreed, following negotiation with CALM, that this course of action most effectively met the objectives of the existing Ministerial Condition 10. Tallwood Nominees has retained this area as a conservation zone (LeProvost, Dames & Moore, 1995).

As indicated in LeProvost Dames & Moore (1995), as part of the re-planning associated with the deletion of the winery complex, the proposed land use for the two adjacent areas shown in the EMP as 'Recreation and Parking Reserve' and 'Waterways and Conservation Reserve' has been altered as follows:

- the area shown as 'Waterways and Conservation Reserve', which was set aside to provide for the proposed deletion of the future waterway connection to the Vasse Estuary, will be divided between conservation purposes (Vasse Estuary foreshore) and retirement village; and
- the Recreation and Parking reserve will be largely set aside for conservation purposes with a small portion included in the retirement village site. A grassed overflow of the parking area will be provided closer to the boat ramps to compensate for the removal of the recreation and parking reserve.

Comments from key governmental agencies

CALM in its submission indicated that it would prefer the area east of Layman Road containing Peppermint trees (*Agonis flexuosa*) and wetland depressions which were fed throughout the summer by freshwater soaks, be included in the conservation reserve to be vested with the National Parks and Nature Conservation Authority (NPNCA). This is to ensure the protection of the Western Ringtail Possum, waterbird conservation values, landscape values and to improve management.

4.4.3 Public submissions

Issues raised in public submissions focussed on whether the land that was proposed for the winery complex will be added to the conservation estate and consequently be managed by CALM.

4.4.4 Proponent's response

In response the proponent confirmed that the area of the winery complex would be added to the conservation estate.

4.4.5 Evaluation

The EPA notes that the deletion of the winery complex is primarily to protect the dense grove of native Peppermint tree found in the area and that there will be no net loss of land to either the conservation estate or the development.

The EPA concludes that existing Commitment 7.4 and Condition 8, relating to the protection of the Western Ringtail possum and their habitat, to reduce the impact on flora and fauna from the development of the project to be environmentally acceptable (See Recommendation 1).

4.5 Other

4.5.1 Objectives

To ensure that issues relating to mosquito and midge control and remnant vegetation can be adequately managed.

Background

There were also a number of other issues raised which relate to the previous environmental approval of the development. The proponent has prepared a written reply to these (Appendix 3). These issues include:

- mosquito/ midge control; and
- remnant vegetation.

4.5.2 Evaluation framework

4.5.3 Public Submissions

Issues raised in public submissions focussed on what measures would be taken to mitigate against midge and mosquito nuisance and whether there would be a re-assessment of construction techniques in an attempt to retain remnant roadside vegetation.

4.5.4 Proponent's Response

The proponent has indicated that the measures to be taken to mitigate against the midge and mosquito nuisance are described in the ERMP and Environmental Monitoring and Management Programme as being:

- (i) creation of a dense tree buffer between the development and the estuary designed to provide a barrier to midges (existing Environmental Condition 9);
- (ii) provision to residents of a public education park on living with mosquitos and the limitations placed on mosquito and midge control (existing Environmental Condition 12); and
- (iii) fogging with adulticides within the development (existing Environmental Condition 11).

With regard to remnant vegetation, the proponent indicated that the requirement to compact the soil by supercharging is such that it would not be practical to retain the remnant vegetation along Layman Road. The proponent however re-iterates its commitment to replant the road reserve using existing local species as part of the overall landscaping of the project.

4.5.5 Evaluation

The EPA concludes that the proponent's commitment to replant the road reserve using existing local species and existing Condition 11 which relates to mosquito and midge control, to be environmentally acceptable (See Recommendation 1).

4.6 Assessment of existing environmental conditions and commitments

The Port Geographe Harbour Development Project is currently subject to environmental conditions and commitments set as a result of the environmental impact assessment of the proposal in 1989.

4.6.1 Objective

The objective of reviewing existing conditions and commitments is to achieve a single environmental statement and one list of proponent commitments that provides for adequate protection of the environment and for efficient and effective environmental auditing of compliance criteria. It is also considered that this objective will assist the public, the proponent and relevant agencies to easily identify the environmental requirements associated with the Port Geographe Harbour Development Project and the subsequent modifications to the proposal.

4.6.2 Changes to environmental conditions

Existing environmental conditions have been reviewed, revised and consolidated. The status of conditions are summarised in Table 2. Table 2 should be examined in conjunction with the original statement of environmental conditions contained in Appendix 1. The revised statement containing the recommended environmental conditions arising from this assessment is included in Section 6 of this report.

Table 2. Summary and evaluation of changes to environmental conditions.

Original Condition No.	Issue	Evaluation	New Condition No.
1	Adhere to proposal	This is a standard condition - now updated.	1-1
2 (1-6)	Vasse -Wonnerup estuary	Condition has been updated.	3-1 (1-6)
3 (1 -2)	Construction of groynes and a new foreshore beach profile. Preparation of a beach monitoring programme.	Condition 3(2) has been met to the satisfaction of the Minister for the Environment (21/01/91) with regard to the preparation of a beach monitoring programme. Condition has been updated.	4-1
4	Shoreline restoration	Condition has been updated.	4-2

Original Condition No.	Issue	Evaluation	New Condition No.
5 (1-3)	<ul style="list-style-type: none"> • Preparation of final details for the proposed sand trap and bypass system. • Preparation and implementation of a sand dune stabilisation and management programme. • Preparation and implementation of a seagrass wrack management programme. 	<p>Condition 5(1) has been met to the satisfaction of the Minister (21/01/91) with regard to the preliminary sand trap and bypass system. Design details however need to be finalised prior to construction commencing and will have to be implemented when the system is constructed.</p> <p>Condition 5(2) has been met to the satisfaction of the Minister (21/01/91) with regard to the preliminary sand dune stabilisation management programme. The final details of the SDMP will need to be submitted prior to construction and implemented as identified during construction and operation.</p> <p>Condition has been updated.</p>	5-1, 5-2 5-3, 5-4 & 5-5
6	Preparation of a monitoring and management programme for potential impact on seagrass meadows from possible sediment plumes.	This condition has been met to the satisfaction of the Minister (21/01/91).	6-1
7	Flushing of waterways and harbour.	<p>On 21/01/91 the EPA advised that Condition 7 had been met regarding the programme to study the flushing characteristics of the waterway system.</p> <p>The programme has yet to be implemented and therefore the condition has been updated.</p>	7-1, 7-2 & 7-3
8	Western Ringtail Possums.	<p>Condition 8 has been met to the satisfaction of the Minister (21/01/91) with regard to the preparation of a management programme for the relocation and conservation of the Western Ringtail Possum.</p> <p>The programme has yet to be fully implemented.</p> <p>Condition has been updated.</p>	8-1, 8-2, 8-3, 8-4 8-5, & 8-6
9	Layout and landscape treatment of all lands to be included in the conservation area.	Condition has been updated.	9-1, 9-2 & 9-3

Original Condition No.	Issue	Evaluation	New Condition No.
10	Winery Complex.	This condition has been removed as the winery complex has been deleted from the proposal.	Removed
11	Mosquito and midge control.	Condition has been updated.	10-1
12	Public education on mosquito and midge control.	Condition has been updated.	11-1
13	Construction techniques of harbour/ canals.	On 21/01/91 the EPA advised that Condition 13 had been met with regard to the preparation of a groundwater monitoring programme. Programme has yet to be implemented. Condition has been updated.	12-1, 12-2, 12-3, & 12-4
14	Seepage monitoring from canals.	Condition 14 has been met to the satisfaction of the Minister (21/01/91) with regard to the preparation of a programme to monitor seepage from the waterways. Programme has yet to be implemented. Condition has been updated.	13-1, 13-2 & 13-3
15	Groundwater seepage between estuarine and canal system.	Condition has been updated.	14-1
16	Land Transfer for conservation purposes.	Condition has been updated.	15-1 & 15-2
17	Finalisation of a legal agreement before construction of canals, waterways, harbour and entrance breakwaters and groynes.	Condition has been updated.	16-1
18	Transfer of ownership.	Condition has been updated.	18-1

New standard conditions have also been included in the recommended environmental conditions and these relate to non substantial changes to the project (recommended condition 2) transfer of ownership, (recommended condition 18) time limit on approval (recommended condition 17) and compliance auditing (recommended condition 19).

It should be noted that there has been a modification to conditions 1, 2, 3, 4, 5, 6, 7, 8, 9, 11, 12, 13, 14, 15, 16 and 17 of the Environmental Statement for the proposal of 16 January 1990, to reflect the EPA's review of conditions. It should also be noted that some conditions have changed in structure, but the content remains the same.

4.6.3 Changes to proponent commitments

In the proposal documentation submitted by Tallwood Nominees Pty Ltd, a revised list of environmental management commitments was included. These have been rationalised with the initial commitments attached to the current Ministerial Statement of approval. Previous commitments have been amalgamated, and commitments which duplicate existing statutory requirements or have already been satisfied have been removed. The proposed new consolidated and updated list of environmental commitments, which will be included as part of the DEP's compliance auditing programme, is included as a schedule of the recommended environmental conditions in Section 6. Table 3 summarises the changes to the proponent's environmental commitments.

Table 3. Summary and evaluation of changes to proponent's environmental commitments as attached to the original Statement of Approval.

Original proponent commitment No.	Issue	Evaluation	No. in audit schedule of proponent's commitment
1.0	Construction Phase	Commitments	
1.1	Existing section of Layman Road will not be closed until the alternative route is completed.	Repeated in 1995 Environmental Commitment 1.1.	Not subject to audit by the DEP
1.2	Construction traffic will be limited to 7.00am and 6.00pm.	Repeated in 1995 Environmental Commitment 1.2.	Not subject to audit by the DEP
1.3	Construction noise will be minimised.	Commitment has been deleted due to revision of staging.	Not subject to audit by the DEP
1.4	Dewatering and groundwater - any private bore users who suffer water shortages will be compensated.	Repeated in 1995 Environmental Commitment 1.3.	Not subject to audit by the DEP
1.5	Sand stabilisation - soil surfaces will be revegetated.	Repeated in 1995 Environmental Commitment 1.4.	Not subject to audit by the DEP
1.6	Fertiliser application will be limited.	Repeated in 1995 Environmental Commitment 1.5.	Not subject to audit by the DEP
1.7	Fulfil requirements under Aboriginal Heritage Act 1972, will be met.	Repeated in 1995 Environmental Commitment 1.6.	Not subject to audit by the DEP
2.0	Operation Phase	Commitments.	

Original proponent commitment No.	Issue	Evaluation	No. in audit schedule of proponent's commitment
2.1	Public open space will be landscaped.	Repeated in 1995 Environmental Commitment 2.1.	Not subject to audit by the DEP
2.2	Harbour manager to remove floating litter.	Repeated in 1995 Environmental Commitment 2.2.	Not subject to audit by the DEP
2.3	Removal of seagrass wrack	Repeated in 1995 Environmental Commitment 2.3.	Not subject to audit by the DEP
2.4	Manage fuel spills.	Repeated in 1995 Environmental Commitment 2.4.	Not subject to audit by the DEP
2.5	Drainage management.	Repeated in 1995 Environmental Commitment 2.5.	Not subject to audit by the DEP
2.6	Maintenance of navigable water depth and provision of navigation aids.	Commitment 2.6.1 has been modified as the proposed "State agreement" has been replaced by the executed "Development Deed or Management Deed as appropriate". Commitment 2.6.2 has been updated as the "Department of Marine and Harbours" is now the Department of Transport.	Not subject to audit by the DEP
2.7	Public information - fertiliser use.	Repeated in 1995 Environmental Commitment 2.7.	Not subject to audit by the DEP
3.0	Monitoring		
3.1	Monitoring salinity of estuary water.	Repeated in 1995 Environmental Commitment 3.1. Commitment 3.1 has been met to the satisfaction of the EPA (21/01/91) with regard to the preparation of a salinity monitoring programme for the estuary.	1

Original proponent commitment No.	Issue	Evaluation	No. in audit schedule of proponent's commitment
3.2	Monitoring the effects of groundwater quality and levels in coastal dunes.	Repeated in 1995 Environmental Commitment 3.2. Commitment 3.2 has been met to the satisfaction of the EPA (21/01/91) with regard to preparation of a groundwater monitoring programme.	2
3.3	Monitoring water quality in the harbour and waterways.	Repeated in 1995 Environmental Commitment 3.3. Commitment 3.3 has been met to the satisfaction of the EPA (21/01/91) with regard to preparation of a the harbour water quality monitoring programme.	3
3.4	Monitoring sediment quality in the harbour.	Repeated in 1995 Environmental Commitment 3.4. Commitment 3.4 (1) has been met to the satisfaction of the EPA (21/01/91) with regard to the monitoring programme for heavy metals in sediments of the harbour. Commitment 3.4 (2) has been met to the satisfaction of the EPA (21/01/91) with regard to the monitoring programme for nutrients in the sediments of the harbour.	4
3.5	Monitoring metals in harbour biota.	Repeated in 1995 Environmental Commitment 3.5. Commitment 3.5 has been met to the satisfaction of the EPA (21/01/91) with regard to the monitoring programme for heavy metals in the harbour biota.	5
3.6	Surveying navigable depth after construction.	Repeated in 1995 Environmental Commitment 3.6.	Not subject to audit by the DEP

Original proponent commitment No.	Issue	Evaluation	No. in audit schedule of proponent's commitment
3.7	Surveying structural integrity of walls.	Repeated in 1995 Environmental Commitment 3.7.	Not subject to audit by the DEP
4.0	Commitments.		
4.1	Annual Report.	Repeated in 1995 Environmental Commitment 4.1.	6
4.2	Final reporting.	Repeated in 1995 Environmental Commitment 4.2.	17
5.0	Coastal Management Commitments		
5.1	Dewatering stilling basins.	Repeated in 1995 Environmental Commitment 5.1.	7
5.2	Beach renourishment.	Repeated in 1995 Environmental Commitment 5.2.	8
5.3	Foredune stabilisation.	Repeated in 1995 Environmental Commitment 5.3.	9
5.4	Public access and foreshore reserve.	Repeated in 1995 Environmental Commitment 5.4.	Not subject to audit by the DEP
6.0	Coastal Monitoring Commitments		
6.1	Monitoring of coastal stability.	Repeated in 1995 Environmental Commitment 6.1. Commitment 6.1 has been met to the satisfaction of the Minister (21/01/91) with regard to the preparation of a beach monitoring programme. Commitment is also re-iterated in Condition 3(2).	10
6.2	Surveying foreshore structures.	Repeated in 1995 Environmental Commitment 6.2.	Not subject to audit by the DEP
6.3	Coastal reporting.	Repeated in 1995 Environmental Commitment 6.3. This commitment is incorporated in commitment 4.2.	17

Original proponent commitment No.	Issue	Evaluation	No. in audit schedule of proponent's commitment
6.4	Authority responsible and funding for coastal monitoring.	Repeated in 1995 Environmental Commitment 6.4. The commitment has been modified.	Not subject to audit by the DEP
7.0	Conservation.	Commitments	
7.1	Securing conservation and education values.	Repeated in 1995 Environmental Commitment 7.1.	11
7.2	Minimising disturbance to waterfowl.	Repeated in 1995 Environmental Commitment 7.2. This commitment has been modified to reflect the new plan and proposed modifications.	12
7.3	Waterfowl study centre.	Repeated in 1995 Environmental Commitment 7.3.	13
7.4	Other commitments.	Repeated in 1995 Environmental Commitment 7.4. Commitment 7.4.2 (original) has been deleted as the proponent has met the commitment to make a contribution of \$3000 towards a broader traffic study.	14 & 15
7.5	Project agreement.	Repeated in 1995 Environmental Commitment 7.5. This commitment however has been updated.	16

A number of the proponent's commitments repeat the intent of existing commitments summarised in the table above. Where this is the case, the wording of the most recent commitment has been retained. The proponent's full list of 1995 commitments is included in Appendix 4.

Although the proponent is legally bound by all commitments made for the project, and reported in the Minister's Statement, not all of these will be subject to audit. A schedule of these auditable environmental management commitments is provided in Section 6.

New commitments to be introduced (see Appendix 4)

New commitments made by the proponent relate to the contribution of \$40, 000 per year for two years for estuary research (Commitment 7.4.2), and conservation reserve access restrictions (Commitment 7.4.3).

5. Conclusions and recommendations

The Authority has examined environmental issues associated with the proposal and has taken the opportunity to review and revise the existing environmental conditions and commitments. The issues which have been appropriately identified and addressed by the proponent are:

- maintenance of water quality within the canal system and the Vasse Estuary;
- ensuring protection of flora and fauna;
- the boundary between the conservation area and the southern edge of development; and
- evaluation of existing environmental conditions and commitments for the Port Geographe Harbour Development project.

The EPA concludes that the modifications to the Port Geographe Harbour Development project can be adequately managed and that the modifications to the Port Geographe Harbour Development project are environmentally acceptable. The EPA recommends that the Environmental Statement for the proposal of 16 January 1990 should be updated to reflect changes and to include standard conditions to more effective project management, as reported in EPA Bulletin 386.

The proponent should fulfil the commitments made and implement the environmental management measures as updated through this re-assessment of the proposal.

Recommendation 1:

The Environmental Protection Authority concludes that the modified proposal by Tallwood Nominees Pty Ltd for the Port Geographe Harbour Development is environmentally acceptable subject to the satisfactory completion of proponent's environmental management commitments.

In reaching this conclusion the Environmental Protection Authority identified the main environmental factors requiring detailed consideration as:

- Canal water quality;
- Vasse Estuary water quality;
- Loss of identifiable boundary between the conservation area and southern edge of development;
- Impact on flora and fauna; and
- Evaluation of existing environmental conditions and commitments for the Port Geographe Harbour Development project.

The Environmental Protection Authority concludes that the environmental factors mentioned above have been addressed adequately 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 Environmental Protection Authority's recommendations in this Assessment Report;
- the revised recommended conditions which consolidate and update the conditions for this project; and
- the proponent's commitments (See Appendix 4).

6. Recommended environmental conditions

The following recommended environmental conditions would amend the Minister for the Environment's previous Statement for the Port Geographe Harbour Development project as reported in Bulletin 386 and apply additional conditions to reflect the recommendations in this report and ensure a continued review of the environmental performance and development.

Based on its assessment of this proposal and recommendations in this report, the Environmental Protection Authority considers that the following Recommended Environmental Conditions are appropriate.

STATEMENT TO AMEND CONDITIONS APPLYING TO A PROPOSAL (PURSUANT TO THE PROVISIONS OF SECTION 46 OF THE ENVIRONMENTAL PROTECTION ACT 1986)

PROPOSAL: PORT GEOGRAPHE (006/936)
CURRENT PROPONENT: TALLWOOD NOMINEES PTY LTD
CONDITIONS SET ON: 16 JANUARY 1990

The implementation of this proposal is now subject to the following conditions which replace all previous conditions:

1 Proponent Commitments

The proponent has made a number of environmental management commitments in order to protect the environment.

- 1-1 In implementing the proposal, including the documented modifications of March 1995 described in "Port Geographe Section 46 Report", the proponent shall fulfil the relevant environmental management commitments made in the Environmental Review and Management Programme (as subsequently revised) and reported on in Environmental Protection Authority Bulletin 386, in documentation on the modifications to the proposal (March 1995), and those made in response to issues raised following public submissions; provided that the commitments are not inconsistent with the conditions or procedures contained in this statement.

A schedule of environmental management commitments (May 1995) which will be audited by the Department of Environmental Protection is published in EPA Bulletin 783 and a copy is attached.

2 Implementation

Changes to the proposal which are not substantial may be carried out with the approval of the Minister for the Environment.

- 2-1 Subject to these conditions, the manner of detailed implementation of the proposal shall conform in substance with that set out in any designs, specifications, plans or other technical material submitted by the proponent to the Environmental Protection Authority with the proposal. Where, in the course of that detailed implementation, the proponent seeks to change those designs, specifications, plans or other technical material in any way that the Minister for the Environment determines, on the advice of the Environmental Protection Authority, is not substantial, those changes may be effected.

3 Vasse-Wonnerup Estuary

- 3-1 The Vasse-Wonnerup Estuary and adjacent Crown land shall be protected and managed for conservation purposes. To achieve this, the following shall be undertaken at times to be determined by, and to the requirements of the Minister for the Environment:
- (1) the application of appropriate mechanisms by the Ministry for Planning and the Shire of Busselton to avoid development (of land areas adjacent to the estuary) which is likely to have a detrimental effect on the estuary;
 - (2) the nomination by the Minister for the Environment of the Vasse-Wonnerup System for inclusion under the RAMSAR Convention so as to recognise and acknowledge the waterbird habitat value of the estuary system;
 - (3) the development and implementation by the Integrated Catchment Management Policy Group of an Integrated Catchment Management Plan which will include practical means of encouraging appropriate management practices on privately owned agricultural land adjacent to the estuary, and within the overall estuary catchment;
 - (4) the implementation of an overall Vasse-Wonnerup Conservation Plan prepared and co-ordinated by the Department of Conservation and Land Management in consultation with other appropriate agencies and groups and the proponent;
 - (5) further studies of the Vasse-Wonnerup wetland system conducted by the relevant agencies as recommended in the Vasse-Wonnerup Conservation Plan to determine the most appropriate method of management of the waterways and adjacent land areas; and
 - (6) the referral of proposals of environmental significance in the locality of the estuary to the Environmental Protection Authority.

4 Foreshore

- 4-1 Prior to construction of the groynes and establishment of new foreshore beach profiles, the proponent shall provide:
- (1) final design details of their construction with adequate supporting data to the requirements of the Department of Environmental Protection on advice of the Department of Transport, Fisheries Department and the Shire of Busselton; and
 - (2) a suitable beach monitoring programme with adequate provision for reporting to the Shire of Busselton, the Department Of Transport and the Ministry for Planning.
- 4-2 The proponent shall not cause any long-term loss or erosion of the existing beaches east or west of the foreshore works as a consequence of this project.
- 4-3 The proponent shall make adequate provision for any possible shoreline restoration as part of the legal agreement to be concluded with the State Government (Department of Transport) and the Shire of Busselton

5 Sand Trap and Sand Bypass

- 5-1 Prior to construction of the breakwater and harbour entrance, the proponent shall provide final details of the sand trap and sand bypass system, including details of adequate sand budget, timing of the operation, an accurate estimate of costs and details of funding.

- 5-2 Prior to construction of the development area north of Layman Road, the proponent shall prepare a sand dune stabilisation and management programme to the requirements of the Department of Environmental Protection on advice of the Department of Transport, the Department of Agriculture and the Shire of Busselton.
- 5-3 The proponent shall implement the sand dune stabilisation and management programme required by Condition 5-2 to the requirements of the Department of Environmental Protection on advice of the Department of Transport, the Department of Agriculture and the Shire of Busselton.
- 5-4 Prior to construction of the breakwater and harbour entrance, the proponent shall prepare a seagrass wrack management programme to the requirements of the Department of Environmental Protection on advice of the Department of Transport, the Department of Agriculture and the Shire of Busselton.
- 5-5 The proponent shall implement the seagrass wrack management programme required by Condition 5-4 to the requirements of the Department of Environmental Protection on advice of the Department of Transport, the Department of Agriculture and the Shire of Busselton.

6 Sediment Plume Monitoring

- 6-1 Prior to construction, the proponent shall provide details of a sediment plume monitoring and management programme to be undertaken at the time of construction and during subsequent dredging programmes, to monitor the effect on the seagrass meadows and to provide for effective action should a potential problem be detected, to the requirements of the Minister for the Environment on advice of the Department of Transport and the Fisheries Department.

7 Flushing of Canal and Harbour

- 7-1 Within six months following construction of each stage of the canal and harbour development, the proponent shall prepare a programme for an investigation (eg dye trace or similar) to verify the flushing time and efficiency of water circulation within and from the canal and harbour system to the requirements of the Department of Environmental Protection and the Department of Transport.
- 7-2 The proponent shall implement the programme required by Condition 7-1.
- 7-3 If appropriate, the proponent shall ensure adequate flushing through artificial means to the requirements of the Department of Environmental Protection and the Department of Transport.

8 Western Ringtail Possums

- 8-1 Prior to commencement of siteworks, the proponent shall implement the programme submitted to the Department of Environmental Protection for the protection of the population of Western Ringtail Possums in the project area, to the requirements of the Minister for the Environment on advice of the Department of Environmental Protection and the Department of Conservation and Land Management.
- 8-2 Prior to the commencement of site works, the proponent shall conduct a short term study of the Western Ringtail Possums utilising the project area, to the requirements of the Minister for the Environment on advice of the Department of Environmental Protection and the Department of Conservation and Land Management.

- 8-3 Prior to clearing of the *Agonis flexuosa* woodlands, the proponent shall ensure the capture of as many as possible Western Ringtail Possums occupying the site and their translocation to an approved zoo or other site, under the supervision of the Department of Conservation and Land Management, to the requirements of the Minister for the Environment on advice from the Department of Environmental Protection and the Department of Conservation and Land Management.
- 8-4 Prior to the commencement of site works, the proponent shall make provision for contribution to a fund for the maintenance of the captured Western Ringtail Possums to the requirements of the Minister for the Environment on advice of the Department of Environmental Protection and the Department of Conservation and Land Management.
- 8-5 Prior to commencement of siteworks, the proponent shall make provision for contribution to fund for a three year study of the conservation requirements of the local Western Ringtail Possum population with a view to the re-establishment of Western Ringtail Possums in the project area, to the requirements of the Minister for the Environment on advice of the Department of Environmental Protection and the Department of Conservation and Land Management.
- 8-6 Prior to commencement of siteworks, the proponent shall retain and plant *Agonis flexuosa* as recommended in Section 5.4 of the Environmental Protection Bulletin 386 to the requirements of the Minister for the Environment on advice of the Department of Environmental Protection and the Department of Conservation and Land Management.

9 Conservation Area

- 9-1 Prior to construction, the proponent shall revise the layout and landscape treatment of all lands to be included in the conservation area to retain the maximum possible area and range of habitats for waterbirds, to the requirements of the Department of Environmental Protection on advice of the Department of Conservation and Land Management.
- 9-2 Prior to construction, the proponent shall revise the layout and landscape treatment of all lands to be included in the conservation area to provide high waterbird habitat value in all artificial lakes and moats, to the requirements of the Department of Environmental Protection on advice of the Department of Conservation and Land Management.
- 9-3 Prior to construction, the proponent shall revise the layout and landscape treatment of all lands to be included in the conservation area to establish a buffer between the development and the estuary (to be continuous along the Vasse Estuary boundary of the development, and of sufficient height, width and density) to achieve the following:
- (i) minimisation of all forms of disturbance to waterbirds;
 - (ii) maintenance of the habitat value of the estuary; and
 - (iii) control of midges and mosquitos,

to the requirements of the Department of Environmental Protection, on advice of the Department of Conservation and Land Management.

10 Mosquito and Midge Control

- 10-1 Mosquito and midge control on the site shall specifically exclude larvicides and be limited to fogging of commercial and residential areas with adulticides. These controls shall be carried out in co-operation with the Department of Conservation and Land Management, giving consideration to the water level in the lagoon and the suitability of weather conditions, and shall be accompanied by monitoring of the waterbird population to ensure that no detrimental effects are occurring. The controls and monitoring shall be carried out

to the requirements of the Department of Conservation and Land Management. Any other control methods proposed shall be referred to the Environmental Protection Authority.

11 Public Education

- 11-1 The proponent shall provide to residents a suitable public education package concerning the midge and mosquito control programme, to explain and inform future residents and owners of the purpose and extent of limitations placed on midge and mosquito control, to the requirements of the Department of Environmental Protection on advice of the Department of Conservation and Land Management.

12 Groundwater

- 12-1 The proponent shall not cause any unacceptable impacts on the groundwater to occur outside the project area as a result of dewatering operations.
- 12-2 The proponent shall remedy any adverse impacts to the groundwater in the locality to the requirements of the Minister for the Environment on advice of the Department of the Environmental Protection.
- 12-3 Prior to and during construction, the proponent shall monitor groundwater quality and levels in and adjacent to the site.
- 12-4 If any changes are found, in groundwater quality and levels, the proponent shall immediately notify the Department of Environmental Protection and the Water Authority of Western Australia.

13 Seepage from Canals

- 13-1 The proponent shall prepare a programme to monitor seepage from the canals to the requirements of the Department of Environmental Protection.
- 13-2 The proponent shall implement the programme to monitor seepage from the canals as required in Condition 13-1, to the requirements of the Department of Environmental Protection.
- 13-3 The proponent shall regularly report monitoring results of the seepage from the canals to the Department of Environmental Protection.

14 Groundwater Seepage

- 14-1 In the event of seepage of groundwater in either direction between the estuarine and canal systems resulting in adverse impacts on water quality or quantity of the estuary, the proponent shall undertake to seal by appropriate means as much of the canal waterway system as is considered necessary by the Department of Environmental Protection. Adequate financial provision for such action shall be included in the legal agreement between the proponent, the State Government (Department of Transport) and the Shire of Busselton.

15 Land Transfers

- 15-1 The land areas to be transferred to the Crown for conservation purposes, including the estuary foreshore east of the development and the area identified in the Environmental Review and Management Programme as 'Reserve for Recreation 190', should be amalgamated into one reserve and gazetted for the purpose of "Conservation of Flora and Fauna" with vesting in the National Parks and Nature Conservation Authority as an A class Reserve.

- 15-2 The Waterfowl Study Centre and its associated site should be gazetted for the purpose of "Waterfowl Study Centre" with vesting in the Executive Director of the Department of Conservation and Land Management.

16 Short and Long-Term Management

- 16-1 The proponent shall not commence construction of the canal waterways, harbour and entrance breakwaters and groynes prior to the finalisation of a suitable legal agreement between the State Government (Department of Transport), the Shire of Busselton and the proponent, to cover short and long-term waterways management and sand bypassing, to the requirements of the Minister for the Environment on the advice of the Department of Transport, the Fisheries Department and the Ministry for Planning.

17 Time Limit on Approval

The environmental approval for the proposal is limited.

- 17-1 If the proponent has not substantially commenced the modified project within two years of the date of this statement, then approval to implement the proposal shall lapse and be void. The Minister for the Environment shall determine any question as to whether the modified project has been substantially commenced.

Any application to extend the period of two years referred to in this condition shall be made before the expiration of that period, to the Minister for the Environment by way of a request for a change in the condition under Section 46 of the Environmental Protection Act. (On expiration of the two year period, further consideration of the proposal can only occur following a new referral to the Environmental Protection Authority).

18 Proponent

These conditions legally apply to the nominated proponent.

- 18-1 No transfer of ownership, control or management of the project which would give rise to a need for the replacement of the proponent shall take place until the Minister for the Environment has advised the proponent that approval has been given for the nomination of a replacement proponent. Any request for the exercise of that power of the Minister shall be accompanied by a copy of this statement endorsed with an undertaking by the proposed replacement proponent to carry out the project in accordance with the conditions and procedures set out in the statement.

19 Compliance Auditing

To help determine environmental performance, periodic reports on progress in implementation of the proposal are required.

- 11-1 The proponent shall submit periodic Progress and Compliance Reports, in accordance with an audit programme prepared by the Department of Environmental Protection in consultation with the proponent.

Procedure

- 1 Unless otherwise specified, the Department of Environmental Protection is responsible for assessing compliance with the conditions contained in this statement and for issuing formal clearance of conditions.
- 2 Where compliance with any condition is in dispute, the matter will be determined by the Minister for the Environment.

Schedule of Proponent's Environmental Management Commitments to be audited by the Department of Environmental Protection

During Construction

1. Salinity of Estuary water

- 1.1 The salinity of estuary water at a number of selected sites will be monitored both prior to, during and subsequent to completion of construction of the waterways to confirm that the waterways have not contaminated the freshwater resource utilised by the waterfowl.
- 1.2 Loss of water to the estuary could occur only if a hydraulic connection is found to exist between the development and the estuary. This situation is covered by the proponent's commitment to construct an impermeable seal between the development and the estuary should a hydraulic connection be detected in the course of proposed monitoring.

2. Groundwater Quality and Levels in Coastal Dunes

A series of piezometers will be installed at selected locations emanating away from the development and extending into nearby residential areas. These bores will be used to monitor the effects of the dewatering operation and provide warning to construction management of potential inconvenience to domestic users of the resource.

3 Water Quality in the Harbour and Waterways

- 3.1 Water quality in the harbour and waterways will be monitored at selected sites on a semi annual basis during the first four years of operation and on a quarterly basis on the fifth year. The parameters to be monitored will include:
 - aesthetics (by visual observation);
 - salinity (throughout water column to check for stratification);
 - dissolved oxygen (surface and 0.5m from bottom of waterways);
 - total suspended solids (midway between top and bottom of water);
 - total nitrogen (midway between top and bottom of water);
 - total phosphorus (midway between top and bottom of water); and
 - chlorophyll 'a' (midway between top and bottom of water).
- 3.2 In addition bacterial levels will be monitored five times over a 30 day period during the summer holiday period each year.

4. Sediment Quality in the Harbour

- 4.1 Contamination of the sediments by antifouling metals will be monitored once during the first year of operation and subsequently in year five to determine whether or not metal
- 4.2 Nutrient concentrations will also be monitored at the same frequency to determine if accumulation of nutrients is taking place.

5. Metals in Harbour Biota

Concentration of antifouling metals in filter feeder organisms (mussels) within the harbour will be monitored at the same frequency as for sediments.

6. Annual Report

An annual report containing the results of each years monitoring programme will be submitted to the EPA and other State Government agencies as specified.

7. Dewatering Stilling basins

Notwithstanding the available evidence that the impact of construction would have negligible impact, the proponent has undertaken to discharge dewatering liquids into stilling basins if necessary to settle out any silt before the water is discharged to the ocean.

8. Beach Nourishment

During the construction period the proponent will place sufficient volumes of sand from the development site to the east of the development to ensure that no scouring of the adjacent coastline occurs in the period before sand bypassing is undertaken.

9. Foredune stabilisation

Following reconstruction of the beaches in front of the development site, the reconstituted foredune will be established with plant species appropriate for the coast and similar to species occurring in adjacent areas of coastline. Brush matting may be required for a period until the plants establish themselves. Public access to these areas will be restricted by appropriately located fencing.

10. Coastal Stability

10.1 Subsequent to completion of beach nourishment works, a series of transects normal to the beach will be established to monitor beach profiles and sediment volumes accumulated or lost. The transects will be established in front of the development site and extend for 0.5km on either side. Monitoring surveys will be undertaken on a semi annual basis toward the end of summer and the end of winter every year.

10.2 Additional monitoring will be conducted after significant storm events.

11. Securing Conservation and Education Values

The conservation value will be secured by:

- donation of prime waterfowl habitat to the State for reservation as a Waterfowl Conservation Area;
- provision of additional drought refuge areas and source of fresh water;
- construction of a channel to form a conservation island; and
- construction and donation to the State of a waterfowl study centre.

12. Minimising Disturbance to Waterfowl

Disturbance to the waterfowl will be minimised by:

- removing all stock animals and horses from the land donated as reserve;
- providing a buffer zone of 50m width between the development and the landward edge of the wetlands fringing the edge of the estuary;
- constructing a dog proof 1.5m high wire link fence around the border of the Waterfowl Conservation Area and the development. The fence will basically be constructed along the southern border of the development;
- providing appropriate landscaping and revegetation of the estuary edge of the development;
- controlling public access to the Waterfowl Conservation Area via defined pathways and viewing areas;
- The development/ conservation reserve boundary will be a carefully designed interface meeting the following criteria:
 1. A dual use path bordering the development of the Vasse Estuary landscape along most of its length.

2. An alignment which, together with its edge treatment, minimises the noise and light intrusion into the estuary environment;
3. A construction standard which ensures that all surface runoff from the urban development and the road and dual use path will be entrapped as far as possible on site.
4. Bunding, landscaping and fencing along the estuary edge will be sufficient to deter human and prevent animal access into the Vasse Estuary system.

The proponent accepts CALM's requests for:

- A vegetated buffer zone between the development and the estuary.
- The orientation of all public lighting to north away from the estuary.
- The use of adulticides to control nuisance level of insects as necessary and as currently practised by the Busselton Shire Council.

13. Waterfowl Study Centre

The Proponent is happy to accept that:

- The area adjacent to the Study Centre will be developed so that it satisfies CALM's reasonable requirements;
- Final siting, design, operations etc will be assessed in conjunction with CALM; and
- The amount of money spent on the Study Centre and Support Facilities can be at a greater level than \$100, 000 if the development is programmed further in to the project. This programming would result in a better facility being established and one which would more quickly be self-supporting and a revenue earner.

14. Western Ringtail Possums

The proponent will work with CALM, local groups, museums and wildlife parks to arrive at the best solution and timing of action to ensure the safety of ringtailed possums in the Development area.

15. Estuary Research

The proponent will contribute \$40, 000 per year for two years of estuary research.

16. Project Agreements

Deeds of Agreement have been finalised between the State (Department of Transport), the Busselton Shire and the proponent to cover waterways management and sand bypassing.

Commitments made in the Deeds are:

- the proponent accepts total responsibility for waterways management and sand bypassing for a period of five years subsequent to completion of construction of Stage 3;
- revenue created from within the project will be paid into a trust fund (or similar) to pay for waterways management and sand bypassing after the five year period; and
- the proponent will provide a bank guarantee in support of the trust fund until such time that the fund has reached its operating minimum level.

After construction

17. Reporting

A final report presenting the results and an analysis of all monitoring undertaken will be submitted to the EPA and other State Government agencies as specified in the agreement before the hand over of management responsibility to the State.

7. References

- Dames & Moore 1994, *Effect of Permeable Canal Edges on Groundwater Flow*, Dames & Moore, Perth.
- Environmental Protection Authority 1989, *Port Geographe - Report and Recommendations of the Environmental Protection Authority*, Bulletin 386, Environmental Protection Authority, Perth.
- Environmental Protection Authority 1993, *Environmental Impact Assessment Administrative Procedures*, Environmental Protection Authority, Perth.
- Environmental Protection Authority 1993, *'Draft Western Australian Water Quality Guidelines for Fresh and Marine Waters'*, Bulletin 711, Environmental Protection Authority, Perth.
- LeProvost Dames & Moore 1995, *Port Geographe Section 46 Report*, Report for Tallwood Nominees Pty Ltd, LeProvost Dames & Moore, Perth.
- Kinhill Riedel & Byrne 1994, *Port Geographe Water Quality*, Kinhill Riedel & Byrne, Perth.

Appendix 1

**Environmental statement and commitments
16 January 1990**



WESTERN AUSTRALIA
MINISTER FOR ENVIRONMENT

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

PORT GEOGRAPHE - STAGE 1

This proposal may be implemented subject to the following conditions:

1. The proponent shall adhere to the proposal as assessed by the Environmental Protection Authority and shall fulfil the commitments made in the Environmental Review and Management Programme and as subsequently revised (copy of summary of commitments attached).
2. The Vasse-Wonnerup estuary and adjacent Crown land should be protected and managed for conservation purposes. To achieve this, the following shall be undertaken at times to be determined by, and to the satisfaction of the Minister for Environment:
 - (1) the application of appropriate mechanisms by the Department of Planning and Urban Development and the Shire of Busselton to avoid development (of land areas adjacent to the estuary) which is likely to have a detrimental effect on the estuary;
 - (2) the nomination by the Minister for Conservation and Land Management of the Vasse-Wonnerup System for inclusion under the Ramsar Convention so as to recognise and acknowledge the waterbird habitat value of the estuary system;
 - (3) the development and implementation by the Integrated Catchment Management Policy Group of an Integrated Catchment Management Plan which will include practical means of encouraging appropriate management practices on privately owned agricultural land adjacent to the estuary, and within the overall estuary catchment;

- (4) the implementation of an overall Vasse-Wonnerup Conservation Plan prepared and co-ordinated by the Department of Conservation and Land Management in consultation with other appropriate agencies and groups and the proponent;
 - (5) further studies of the Vasse-Wonnerup wetland system conducted by the relevant agencies as recommended in the above Conservation Plan to determine the most appropriate method of management for the waterways and adjacent land areas; and
 - (6) the referral of proposals of environmental significance in the locality of the estuary to the Environmental Protection Authority for assessment.
3. Construction of the groynes and establishment of new foreshore beach profiles shall not commence before the proponent has provided:
- (1) final design details with adequate supporting data; and
 - (2) a suitable beach monitoring programme with adequate provision for reporting to the Shire of Busselton, the Department of Marine and Harbours and the Department of Planning and Urban Development;

to the satisfaction of the Minister for Environment following advice from the Departments of Marine and Harbours and Fisheries and the Shire of Busselton.

4. As it is essential that there should not be any long-term loss or erosion of the existing beaches east or west of the proposed foreshore works as a consequence of this project, the proponent shall make adequate provision for any possible shoreline restoration as part of the legal agreement to be concluded with the State Government (Department of Marine and Harbours) and the Shire of Busselton.
5. Before construction commences, the proponent shall:
- (1) provide final details of the proposed sand trap and sand bypass system, including details of adequate sand budget, timing of the operation, an accurate estimate of costs and details of funding;
 - (2) prepare and implement a sand dune stabilisation and management programme; and
 - (3) prepare and implement a seagrass wrack management programme.

to the satisfaction of the Minister for Environment following advice from the Department of Marine and Harbours, the Department of Agriculture and the Shire of Busselton.

6. Prior to construction, the proponent shall provide details of a sediment plume monitoring and management programme to be undertaken at the time of construction and during subsequent dredging programmes, to monitor the effect on the seagrass meadows and to provide for effective action should a potential problem be detected, to the satisfaction of the Minister for Environment following advice from the Departments of Marine and Harbours and Fisheries.
7. The proponent shall submit and subsequently implement a programme for an investigation (eg dye trace or similar) within 6 months of construction, to verify the flushing time and efficiency of water circulation within and from the canal and harbour system, and shall ensure adequate flushing through artificial means, if required, to the satisfaction of the Environmental Protection Authority.
8. Before any siteworks commence, the proponent shall submit and subsequently implement a programme for the protection of the population of Western Ringtail Possums which uses the project area.

This programme shall include:

- (1) prior to the commencement of siteworks, a short term study of Western Ringtail Possums utilizing the project area;
- (2) prior to clearing of the Agonis flexuosa woodlands, the capture of as many as possible of the Western Ringtail Possums occupying the site and their translocation to an approved zoo or other site, under the supervision of the Department of Conservation and Land Management;
- (3) provision for contribution to a fund for the maintenance of the captured Western Ringtail Possums;
- (4) provision for contribution to a fund for a three year study of the conservation requirements of the local Western Ringtail Possum population with a view to the re-establishment of Western Ringtail Possums in the project area; and
- (5) retention and planting of Agonis flexuosa as recommended in Section 5.4 of Environmental Protection Authority Bulletin 386.

This programme shall be implemented to the satisfaction of the Minister for Environment following advice from the Environmental Protection Authority and the Department of Conservation and Land Management.

9. The proponent shall revise the layout and landscape treatment of all lands to be included in the conservation area to:
- (1) retain the maximum possible area and range of habitats for waterbirds;
 - (2) provide high waterbird habitat value in all artificial lakes and moats; and
 - (3) establish a buffer between the development and the estuary (to be continuous along the Layman Road frontage, and of sufficient height, width and density) to minimise all forms of disturbance to waterbirds; to maintain the habitat value of the estuary; and to assist in the control of midges and mosquitoes;
- to the satisfaction of the Environmental Protection Authority, following advice from the Department of Conservation and Land Management.
10. The proponent shall prepare final designs for development of the proposed winery complex site east of Layman Road to ensure maximum protection of the estuary, foreshore and Agonis flexuosa stands. These designs shall be to the satisfaction of the Minister for Environment, following advice from the Department of Conservation and Land Management and the Department of Planning and Urban Development.
11. Any mosquito and midge control measures undertaken by or on behalf of the proponent shall specifically exclude larvicides and shall be limited to the fogging of commercial and residential areas with adulticides. These controls shall be carried out in cooperation with the Department of Conservation and Land Management, giving consideration to the water level in the lagoon and the suitability of weather conditions, and shall be accompanied by monitoring of the waterbird population to ensure that no detrimental effects are occurring. The controls and monitoring shall be carried out to the satisfaction of the Department of Conservation and Land Management. Any other type of control subsequently proposed shall be subject to separate environmental assessment by the Environmental Protection Authority.
12. The proponent shall prepare and make available a suitable public education package concerning the midge and mosquito control programme to explain and inform future residents and owners of the purpose and extent of limitations placed on midge and mosquito control, to the satisfaction of the Environmental Protection Authority following advice from the Department of Conservation and Land Management.

13. The proponent shall not cause any unacceptable impacts to occur outside the project site as a result of dewatering operations. To ensure that this condition is met, the proponent shall consider alternative construction techniques which do not require dewatering. The proponent shall then advise the Environmental Protection Authority of the preferred option.

The proponent shall be liable for any adverse impacts to groundwater in the locality and shall undertake the required remedial action to correct the situation should such impacts occur, to the satisfaction of the Minister for Environment.

Before and during construction the proponent shall monitor groundwater quality and levels in and adjacent to the site, to the satisfaction of the Environmental Protection Authority. If any changes are found, the proponent shall immediately notify the Environmental Protection Authority.

14. The proponent's undertaking to monitor seepage from the canals shall include regular visual inspection of the samphire and estuary edge and reporting of the results to the Environmental Protection Authority.
15. In the event of seepage of groundwater in either direction between the estuarine and canal systems resulting in adverse impacts on water quality or quantity of the estuary, the proponent shall undertake to seal by appropriate means as much of the canal waterway system as is considered necessary by the Environmental Protection Authority, at no cost to the community. Adequate financial provision for such action shall be included in the proposed legal agreement between the proponent, the State Government (Department of Marine and Harbours) and the Shire of Busselton.
16. The land areas to be transferred to the Crown for conservation purposes, including the estuary foreshore east of Layman Road and the area identified in the Environmental Review and Management Programme as 'Reserve for Recreation 190', should be amalgamated into one reserve and gazetted for the purpose of "Conservation of Flora and Fauna" with vesting in the National Parks and Nature Conservation Authority as an A class Reserve. The Waterfowl Study Centre and its associated site should be gazetted for the purpose of "Waterfowl Study Centre" with vesting in the Executive Director of the Department of Conservation and Land Management.

- 17. Construction of the canal waterways, harbour and entrance breakwaters and groynes shall not commence prior to the finalisation of a suitable legal agreement between the State Government (Department of Marine and Harbours), the Shire of Busselton and the proponent, to cover short and long-term waterways management and sand bypassing, as referred to in Section 6.0 of the proponent's Environmental Review and Management Programme, to the satisfaction of the Minister for Environment on the advice of the Departments of Marine and Harbours, Planning and Urban Development, and Fisheries.

- 18. No transfer of ownership, control or management of the project which would give rise to a need for the replacement of the proponent shall take place until the Minister has advised the proponent that approval has been given for the nomination of a replacement proponent. Any request for the exercise of that power of the Minister shall be accompanied by a copy of this statement endorsed with an undertaking by the proposed replacement proponent to carry out the project in accordance with the conditions and procedures set out in the statement.



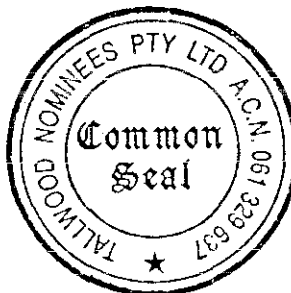
Bob Pearce, MLA
 MINISTER FOR ENVIRONMENT

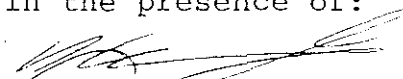
16 JAN 1990

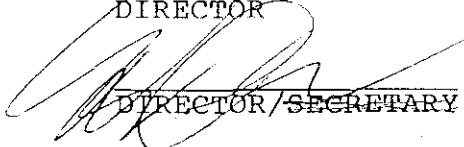
TALLWOOD NOMINEES PTY. LTD. (ACN 061 329 637) in its capacity as Trustee of The No. 59 Unit Trust hereby undertakes when appointed as the replacement proponent it will carry out the project in accordance with the conditions and procedures set out in the statement of the Minister for Environment dated the 16th January 1990 relating to the Port Geographe project.

DATED the 23 day of February 1994

THE COMMON SEAL OF TALLWOOD)
 NOMINEES PTY. LTD. was here-)
 unto duly affixed by)
 authority of the Directors)
 in the presence of:)




 DIRECTOR


 DIRECTOR/SECRETARY

PORT GEOGRAPHE

PROPONENT COMMITMENTS

(ORIGINAL)

1.0 CONSTRUCTION PHASE COMMITMENTS

1.1 Relocation of Layman Road

The existing section of Layman Road will not be closed until the alternative route is completed.

1.2 Construction Traffic

Limitation of working hours to between 7.00 am and 6.00 pm will help to minimise inconvenience to local residents.

1.3 Dewatering and Groundwater

1.3.1 A series of monitoring piezometers will be installed and any private bore users who suffer water shortages will be compensated. However every attempt will be made to ensure this does not happen.

1.3.2 The Proponent will accept full responsibility for claims by landowners whose groundwater supplies are deleteriously affected by the Project.

1.4 Sand Stabilisation

Soil surfaces will be revegetated to prevent erosion upon completion of filling and compaction.

1.5 Fertiliser Application

Fertiliser application required to promote the growth of the plant cover will be limited to the minimum application of a slow-release type fertiliser.

1.6 Aboriginal Sites

1.6.1 The appropriate authorities will be notified in the event that materials of Aboriginal origin are unearthed during the construction period.

1.6.2 The Proponent has made a commitment to fulfil all requirements of the Aboriginal Heritage Act, 1972 in the construction of this project. This commitment will be extended to include European sites of historical significance in addition to those of Aboriginal origins.

1.7 Aboriginal Sites

1.7.1 The appropriate authorities will be notified in the event that materials of Aboriginal origin are unearthed during the construction period.

1.7.2 The Proponent has made a commitment to fulfil all requirements of the Aboriginal Heritage Act, 1972 in the construction of this project. This commitment will be extended to include European sites of historical significance in addition to those of Aboriginal origins.

2.0 OPERATION PHASE COMMITMENTS

2.1 Public Open Space

Open space will be landscaped with low maintenance species, in order to minimise nutrient contribution to the waterways, before being transferred to the local authority.

2.2 Litter

Notwithstanding local authority litter regulations and policing by the harbour manager it is inevitable that litter will periodically enter the waterways. It will be the responsibility of the harbour manager to remove any floating litter from the harbour area.

2.3 Seagrass Wrack

Wrack collecting within the harbour area will be removed if necessary by the harbour manager and disposed of offsite, either by releasing it back into the ocean downdrift of the breakwaters or by using it for beach stabilisation works.

2.4 Fuel and Oil Spills

Minor fuel spills which occur during refuelling operations will be allowed to dissipate naturally. Drainage from all boat servicing areas will be passed through grease traps to prevent pollution of the harbour by oil. Management of any fuel or oil spill within the harbour will be the responsibility of the harbour manager. One of the harbour manager's responsibilities will be to develop an Emergency Procedure Manual, which will cover such matters as major oil spills and fires.

2.5 Drainage

- 2.5.1 Drainage from all road and other paved surfaces will be passed through grease/silt traps before the water is discharged to the harbour in order to maintain water quality. Runoff from boat storage and work areas will be trapped in sumps, where material from antifouling stripping can be trapped and periodically removed.
- 2.5.2 Boat maintenance facilities will be incorporated in the harbour as part of the Marina. Waste disposal from maintenance will be properly disposed of, other than into the harbour.

2.6 Navigable Water Depth and Navigation Aids

- 2.6.1 Navigable water depth within the development will be maintained as long as the sand bypassing/dredging programme is adhered to. In the event of unforeseen siltation of the waterways, maintenance dredging will be undertaken in accordance with the State agreement.
- 2.6.2 Navigation aids will be provided in accordance with the requirements of the Department of Marine and Harbours.

2.7 Public Education

Residents of the development will be encouraged to minimise use of fertilisers on private gardens. Information on landscaping with native plants and use of slow-release fertilisers will be distributed to all residents.

3.0 MONITORING

3.1 Salinity of Estuary Water

- 3.1.1 The salinity of estuary water at a number of selected sites will be monitored both prior to, during and subsequent to completion of construction of the waterways to confirm that the waterways have not contaminated the freshwater resource utilised by the waterfowl.
- 3.1.2 Loss of water to the estuary could occur only if a hydraulic connection is found to exist between the development and the estuary. This situation is covered by the Proponent's commitment to construct an impermeable seal between the development and the estuary should a hydraulic connection be detected in the course of proposed monitoring.

3.2 Groundwater Quality and Levels in Coastal Dunes

A series of piezometers will be installed at selected locations emanating away from the development and extending into nearby residential areas. These bores will be used to monitor the effects of the dewatering operation and provide warning to construction management of potential inconvenience to domestic users of the resource.

3.3 Water Quality in the Harbour and Waterways

3.3.1 Water quality in the harbour and waterways will be monitored at selected sites on a semi annual basis during the first four years of operation and on a quarterly basis on the fifth year. The parameters to be monitored will include:

- aesthetics (by visual observation),
- salinity (throughout water column to check for stratification),
- dissolved oxygen (surface and 0.5 m from bottom of waterways),
- total suspended solids (midway between top and bottom of water),
- total nitrogen (midway between top and bottom of water),
- total phosphorus (midway between top and bottom of the water),
- chlorophyll 'a' (midway between top and bottom of water).

3.3.2 In addition bacterial levels will be monitored five times over a 30-day period during the summer holiday period each year.

3.4 Sediment Quality in the Harbour

3.4.1 Contamination of the sediments by antifouling metals will be monitored once during the first year of operation and subsequently in year five to determine whether or not metal accumulation is occurring.

3.4.2 Nutrient concentrations will also be monitored at the same frequency to determine if accumulation of nutrients is taking place.

3.5 Metals in Harbour Biota

Concentration of antifouling metals in filter feeding organisms (mussels) within the harbour will be monitored at the same frequency as for sediments.

3.6 Navigable Depth

The harbour, waterways and entrance channel will be surveyed immediately after construction. The entrance channel will subsequently be resurveyed at appropriate intervals with a final survey being conducted prior to handover to the State after five years.

3.7 Structural Integrity of Walls

Harbour walls will be surveyed at the completion of construction. Regular surveys of the toe of the walling will be carried out to monitor for scouring and all surveys will be repeated after five years.

4.0 COMMITMENTS

4.1 Annual Report

An annual report containing the results of each years monitoring programme will be submitted to the EPA and other State Government agencies as specified.

4.2 Final Report

A final report presenting the results and an analysis of all monitoring undertaken will be submitted to the EPA and other State Government agencies as specified in the agreement before the hand over of management responsibility to the State.

5.0 COASTAL MANAGEMENT COMMITMENTS

5.1 Dewatering Stilling Basins

Notwithstanding the available evidence that the impact of construction would have negligible impact, the Proponent has undertaken to discharge dewatering liquids into stilling basins if necessary to settle out any silt before the water is discharged to the ocean.

5.2 Beach Nourishment

During the construction period the Proponent will place sufficient volumes of sand from the development site to the east of the development to ensure that no scouring of the adjacent coastline occurs in the period before sand bypassing is undertaken.

5.3 Foredune Stabilisation

Following reconstruction of the beaches in front of the development site, the reconstituted foredune will be established with plant species appropriate for the coast and similar to species occurring in adjacent areas of coastline. Brush matting may be required for a period until the plants establish themselves. Public access to these areas will be restricted by appropriately -located fencing.

5.4 Public Access and Foreshore Reserve

Public access will also be provided to the breakwaters and groynes for sightseeing and fishing.

6.0 COASTAL MONITORING COMMITMENTS

6.1 Coastal Stability

6.1.1 Subsequent to completion of beach nourishment works, a series of transects normal to the beach will be established to monitor beach profiles and sediment volumes accumulated or lost. The transects will be established in front of the development site and extend for 0.5 km on either side. Monitoring surveys will be undertaken on a semiannual basis toward the end of summer and the end of winter every year.

6.1.2 Additional monitoring will be conducted after significant storm events.

6.2 Integrity of Structures

The foreshore structures will be surveyed at the completion of construction and subsequently at yearly intervals to determine their stability.

6.3 Reporting

The results and analyses of the monitoring programme will be made available to the EPA, DMH and Shire of Busselton. Reporting will be on an annual basis with a final report submitted prior to the Handover of management responsibility to the State.

6.4 Authority Responsible and Funding

- 6.4.1 The Development will have a Waterways Management cost which conventional development does not have. The Development Deed and Management Deed referred to earlier cover all aspects of Waterways Management, including sand bypassing. These Deeds also cover the funding of this Waterways Management. The funding concept is one of "the user (the Project) pays" - and this concept will be produced by a Bank Guarantee put in place by the Proponent until such time as a Trust created within the Project has grown to a level where it can replace the Bank Guarantee.
- 6.4.2 The Project will be designed to cope with the coastal stability standards agreed with the Department of Transport and water quality standards agreed with EPA. Monitoring programme and management action will all be part of the final approval conditions with the Proponent being responsible. Normal Local Shire services will be available to the Project, as they would be for any conventional development. This service will be paid for through the normal rating system that everyone is familiar with.

7.0 CONSERVATION COMMITMENTS

7.1 Securing Conservation and Education Values

The conservation value will be secured by:

- donation of prime waterfowl habitat to the State for reservation as a Waterfowl Conservation Area;
- provision of additional drought refuge areas and source of fresh water;
- construction of a channel to form a conservation island;
- construction and donation to the State of a waterfowl study centre.

7.2 Minimising Disturbance to Waterfowl

Disturbance to the waterfowl will be minimised by:

- removing all stock animals and horses from the land donated as reserve;
- providing a buffer zone of 50 m width between Layman Road and the landward edge of the wetlands fringing the edge of the estuary;
- constructing a dog-proof 1.5 m high wire-link fence around the border of the Waterfowl Conservation Area and the development. The fence will basically be constructed along the southern border of the new Layman Road alignment;
- providing appropriate landscaping and revegetation of the estuary edge of Layman Road;
- controlling public access to the Waterfowl Conservation Area via defined pathways and viewing areas.
- Layman Road will be a carefully designed interface meeting the following criteria:
 1. A scenic drive addressing the waterway development at a number of entry points and the Vasse Estuary landscape along most of its length.
 2. An alignment which, together with its edge landscape treatment, minimises the noise and light intrusion to both urban and estuary environments.
 3. A construction standard which ensures that all surface runoff from the urban development and the road itself will be entrapped as far as possible on site and piped flow suitably silt trapped before final discharge into the waterways. No discharge will be allowed into the Vasse Estuary system.
 4. Bunding, landscaping and fencing along the estuary edge will be sufficient to deter human and prevent animal access into the Vasse Estuary system.

The Proponent accepts CALM's requests for:

- A vegetated buffer zone between the development and the estuary.
- The orientation of all public lighting to the north away from the estuary.
- The use of adulticides to control nuisance level of insects as necessary and as currently practised by the Busselton Shire Council.

7.3 Waterfowl Study Centre

The Proponent is happy to accept that:

- Final siting, design, operations etc. will be assessed in conjunction with CALM.
- The amount of money spent on the Study Centre and Support Facilities can be at a level greater than \$100,000 if the development is programmed further into the Project. This programming would result in a better facility being established and one which would more quickly be self-supporting and a revenue earner.

7.4 Other Commitments

7.4.1 Ring Tailed Possums - The Proponent will work with CALM, local groups, museums and wildlife parks to arrive at the best solution and timing of action to ensure the safety of ring tailed possums in the Development Area.

7.4.2 The Proponent will make a contribution of \$3,000 towards a broader traffic study, however it will require a voice in the selection of the Consultant, the Brief to be given and the timing. The contribution will be made at the time of the study being carried out.

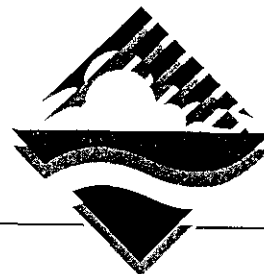
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Commitments made in the agreement will be:

- the Proponent will accept total responsibility for waterways management and sand bypassing for a period of five years subsequent to completion of construction;
- revenue created from within the project will be paid into a trust fund (or similar) to pay for waterways management and sand bypassing after the five year period;
- the Proponent will provide a bank guarantee in support of the trust fund until such time that the fund has reached its operating minimum level.

Appendix 2
Summary of submissions



Mr C Will
Tallwood Nominees Pty Ltd
c/- Pindan Constructions
14 Resolution Drive
BELMONT WA 6104

Your Ref
Our Ref 115/84 Vol 12
Enquiries Juliet Cole

Dear Mr Will

**PORT GEOGRAPHE HARBOUR DEVELOPMENT, BUSSELTON -
CHANGE TO ENVIRONMENTAL CONDITIONS (936)**

Further to recent discussions please find attached a list of questions raised in submissions for your response. The Authority now awaits your formal response to these issues.

A copy of these questions and your response will be attached as an appendix in the Environmental Protection Authority's assessment report. The Authority will, if necessary, include specific comments on issues with potential environmental impacts which are not adequately covered by your response.

Under the Environmental Protection Act, the Authority's report is subject to a 14 day appeal period. During this period the public may appeal the Authority's Report and Recommendations. An incomplete answer to any of the attached questions could cause the public to appeal and this would delay the setting of environmental conditions. Accordingly, please ensure that you give a full and reasoned answer to each question.

A copy of this letter and summary of issues has also been forwarded to Mr Peter Collins at LeProvost Dames & Moore.

For further discussion or clarification of these issues, please contact Juliet Cole on 222 7080.

Yours sincerely

RAD Sippe
DIRECTOR
EVALUATION DIVISION

1 May 1995

Enc
cc Peter Collins, LeProvost Dames & Moore
LCWRESPONSESUB010595jcol

PORT GEOGRAPHE HARBOUR DEVELOPMENT - CHANGE TO ENVIRONMENTAL CONDITIONS (936)

SUMMARY OF SUBMISSIONS

The public submission period for the change to environmental conditions on Port Geographe commenced on 20 March 1995 for a period of four weeks, ending on 17 April 1995.

Six submissions were received by the Environmental Protection Authority (EPA). The proponent is asked to address all issues.

In summary, the principle issues were identified as:

Water based issues
Land based issues; and
Other

1. Water Based Issues

1.1 Canal design

1.1.1 The changes to the layout of the design of the canals could lead to pollution of the Vasse Estuary by salt water and nutrients from the canals (page 12 of the proponents report). The proponent is asked to address the following questions:

- (i) Can the proponent outline the precautions that will be taken to prevent pollution of the Vasse Estuary by salt water and nutrients from the canals?
- (ii) How will the proponent prevent urban stormwater and wastewater from entering the canals?
- (iii) How does the proponent intend to control the use of pollutants such as fertilisers, pesticides and detergents in the estate?
- (iv) What remedial action will the proponent take if conditions in the canals indicate poor water quality?

1.2 Navigation

The proponent is asked to address the following questions:

- (i) Will the proponent be preparing a detailed analysis of the work necessary to maintain safe navigation at the entrance?
- (ii) Will the proponent be undertaking a detailed analysis of the work necessary to maintain agreed beach alignments both up-coast and down-coast ?
- (iii) Could the proponent comment on whether costings will be prepared and made available to the Waterways Manager for consideration?
- (iv) Will the design vessel for the canals be nominated prior to approval of the development and a mooring envelope plan be prepared?

1.3 Sea water seepage and monitoring

1.3.1 Similar to previous assurances and commitments to remedy unforeseen problems, the proponent needs to give an assurance that the change to permeable canal edges will have no adverse impact on the fringing wetland vegetation and the water quality of the Vasse Estuary as a consequence of effects on ground water.

Can the proponent comment on this?

1.3.2 With regard to commitments relating to the monitoring of salt water movement between the canals and the Estuary, the proponent included monitoring of groundwater to provide warning of sea water intrusion towards the estuary (pg 26, 11 ii c, Proponents Responses, EPA Bulletin 386). The proponent is asked to address the following questions:

- (i) Is it possible to show these additional monitoring sites on an update of Figure 6 of the EMMP document?
- (ii) Will the monitoring programme be referred to CALM for approval?
- (iii) Will the monitoring report include water sampling schedules and reporting arrangements?

1.4. Groundwater dewatering and monitoring

1.4.1 Condition 13

With regard to groundwater dewatering and monitoring it is suggested that the WAWA be notified of any changes found. It is suggested that Condition 13 (appendix 1, page 4, 3rd paragraph, final sentence) be changed to read:

"If any changes are found, the proponent shall immediately notify the DEP and the WAWA"

Can the proponent provide comment on this request/ suggestion?

1.4.2 Impact of groundwater depletion

The proponent is asked to address the following questions:

- (i) Will the proponent make a commitment to ensure that measures will be taken to ensure significant stands of WA Peppermint trees will not die as a result of sudden depletion of fresh groundwater?
- (ii) What impact will dewatering have upon the natural vegetation?

1.5 Sediment quality in the harbour

With regard to sediment quality, the proponent has made a commitment (3.4) to monitor contamination of the sediments for antifouling metals once during the first year of operation and subsequently in year five, to determine whether or not metal accumulation is occurring.

Can the proponent change their monitoring programme to include monitoring each year for the first 3 years and if found satisfactory , every 5th thereafter?

1.6 Water Quality in the Harbour and Waterways

The loss of seagrass in Geographe Bay has been a result of elevated nutrient levels. Despite the law that sewage should not be disposed of within 3 nautical miles of land the compliance rate is understood to be very low. To encourage adherence to legal requirements and reduce the amount of sewage being disposed of into the bay does the proponent intend providing pump-out facilities connected to the main sewage system to accommodate for increased boat usage?

1.7 Refuelling Operations

With regard to Proponent Commitment 2.4 it is suggested that refuelling operations be managed to prevent hydrocarbons entering the water and that the refuelling area be buffered with absorbent booms during refuelling operations to remove surface spillage.

Can the proponent provide comment on this management technique and whether this technology will be used for the marina at Port Geographe?

1.8 Waste Disposal

With regard to Proponent Commitment 2.5 (2), how will waste disposal from boat maintenance be disposed of and will boat slipping facilities servicing vessels be licensed as "prescribed premises" under the Environmental Protection Act 1986?

1.9 Public Education

Will information on litter, low impact antifouling paints and biodegradable chemicals for use in boat maintenance, and waste disposal from boats be distributed to residents as part of public education?

2. Land Based Issues

2.1 Staging of development

- 2.1.1 In the original approved development plan, Layman Road and the landscaped buffer were to be constructed prior to any other parts of the development. This would define the conservation area and provide important protection for waterbirds against disturbance resulting from subsequent construction work and increasing population in the vicinity.

The revised staging of the development means that it would not be practical to develop the entire landscaped buffer before all of the other stages. It is important that an interim fence or suitable barrier be installed to prevent uncontrolled access to the Vasse Estuary. Concerns relate to possible disturbance of waterbirds by activities such as trailbike riding and roaming pets. A firebreak around the outside perimeter of the development area would also be appropriate.

How is the proponent intending to address this issue?

2.2 Development East of Layman Road

Bulletin 386 (Port Geographe Report and Recommendations of the EPA, Figure 6, page 32) shows the area to the east of Layman Road as being a desirable area to include in the conservation reserve. This area contains a large stand of WA Peppermint trees and wetland depressions fed throughout the summer by freshwater soaks. The project design, however, contained in the EMMP does not reflect the proposal in Figure 6 as it includes development in this area near the Estuary and east of Layman Road (although the stand of WA Peppermint trees is to be included in the conservation reserve).

Will this area be included in the conservation reserve to be vested with the National Parks and Nature Conservation Authority?

2.3 Relocation of Layman Road

2.3.1 Road design

The relocation of Layman Road may lead to pollution of the Canal system by oil and refuse from this road as it crosses the canals in several places. Will the road system be designed to prevent such pollution from occurring?

2.3.2 Remnant vegetation

Will there be a re-assessment of "supercharging" techniques and the revised development plan in an attempt to retain remnant roadside vegetation that has been identified as having habitat and other values?

2.4 Winery complex

Will the land that was proposed for the winery complex be added to the conservation estate and consequently be managed by CALM?

2.5 Landscape and Management

2.5.1 Landscape design

There are a number of aspects of the development plan that impact upon the landscape design of the buffer, conservation values and management of the conservation reserve. These include:

- (a) design of the waterfowl study facility;
- (b) design of the lagoon and freshwater lake;
- (c) landfill and battering of banks for the retirement resort;
- (d) public access within lot 3 (and could be designed to occur on landfill batter); and
- (e) landscape impact of buildings on lot 2 (Resort Housing) and lot 3 (Resort Retirement Village).

Can the proponent comment briefly on the above points?

If development is to proceed on lot 2 and lot 3 will approval within the Town Planning Scheme be subject to agreement by CALM to ensure that impacts on conservation values and management of the conservation area are acceptable?

2.5.2 Area to the north of waterfowl centre

The original proposal for a parking area to the north of the waterfowl study centre site (Figures 2 and 7, EMMP) has been removed. Some provision is now indicated in the area immediately to the northwest of the waterfowl study centre (Section 46 Report) although the intent for this area is not clearly stated.

As the area is isolated from the urban development by the perimeter road, would it not be logical for this land to be incorporated into the area managed by CALM?

Can the proponent clarify details of parking provision, landscape design and provision of sewerage connection and toilet facilities?

2.5.3 Landscape buffer

On Page 29 (Section 8.21) of the Development Plan extracted from Scheme 19 Plan, as adopted by the Shire, it is stated " That Layman Road after field inspection with Government agencies has been aligned at least 100m from the edge of the Estuary at its closest point".

It also appears that the boundary between private lots and the conservation reserve has also been significantly revised. Under the adopted plan, there is a dual use path, Layman Road and public open space dividing private residential lots and the conservation reserve. Under the revised plan this is reduced to a dual use path and an access place in some areas and a dual use path only in other areas. It appears that the developer has now added a 15m road reserve, however even this alteration leaves the original plan with a much reduced area between the private lots and the conservation reserve.

The proponent is asked to address the following questions:

- (i) Can the proponent provide further information on the buffer as discussed above and state whether any buffers have been altered?

In relation to Figure 5 of the Section 46 report:

- (ii) Will houses be located closer to the wetland that was originally proposed (as indicated in the revised cross-section (Figure 5).
- (iii) The species proposed within the landscape buffer will be reliant on fill. How much fill is necessary in this area for those species to survive and what are the impacts?
- (iv) What measures will be taken to mitigate against expected midge/ mosquito nuisance problems?

2.5.4 Conservation reserve

If it is the proponents desire to establish 25 m of Peppermint and Melaleuca trees on the conservation reserve, has the proponent:

- (a) determined whether these species will grow in the flood prone area?;
- (b) undertaken surface water sampling at the end of summer to see if results differed from those obtained in winter as detailed in Appendix 2 of the ERMP?; and
- (c) conducted soil sampling to determine salinity levels?

2.6 Water fowl centre

2.6.1 Funding for Waterfowl facility

Existing commitments include funding by the proponent for "construction of the waterfowl study centre to a standard similar to that of the Herdsman Lake facility and to a value of \$100, 000 (EPA Bulletin 386, Appendix 6.3.4.1) and "The amount of money spent on the Study Centre and Support Facilities can be at a greater level than \$100, 000 if the development is programmed further into the Project" (7.3 (2), Appendix 1,

Environmental Monitoring and Management Programme, Dec. 1990 and Section 46 Report, 1995).

The cost of Herdsman Lake facility is estimated to be \$500, 000. If funding of this magnitude is not available then it is not practical to make such a commitment to a building of this type at this time. It is also problematic that there needs to be a commitment to staffing the facility. It is believed that a water fowl study facility that included an interpretive shelter, screened walktrails and birdhides would be more appropriate, though a rough preliminary estimate of cost for this type of facility is in the order of \$250, 000.

What level of funding will be contributed by the proponent ?

2.6.2 Minimising disturbance of waterfowl.

With regard to Commitment 7.2 (3) it is suggested the proponent incorporate measures to control cats. Such measures could include:

- (a) Making the fence cat - proof;
- (b) Not allowing cats in the development;
- (c) Ensuring all cats are registered and sterilised; and
- (d) using scent as a barrier, as is being trialed by CALM in the Shark Bay area.

What measures will the proponent take to control cats?

2.7 Fresh water lake

2.7.1 Groundwater extraction

As a partial compensation for the loss of wetland the Port Geographe Plan contains a commitment for the construction of a freshwater lake where the water level would be maintained using water from a groundwater bore.

Has the proponent obtained approval from the WAWA for the supply of groundwater that would be required?

2.7.2 Construction of lake

Is it possible to construct the freshwater lake during Stage 4 instead of Stage 5 to allow for settling of the banks and opportunity for subsequent adjustments, if necessary, while machinery is still working in the area?

2.8 Drainage

- 2.8.1 With regard to Proponent Commitment 2.5(1) the development design should incorporate features such as minimising hard surfaces to reduce run-off and directing what runoff is unavoidable to soakage's and/or areas of artificial wetlands to reduce the nutrient load and assist with groundwater recharge. The traps should also be designed to exclude litter.

Can the proponent provide comment on this suggestion?

2.9 Sewerage

As shown on Plan 1, the temporary sewerage treatment plant from Anthony Street is located just north of the Vasse Estuary and treated effluent is discharged finding its way to that water body.

Why has the issue of sewerage not been addressed in the Section 46 report?

3.0 Other

3.1 Changes to Town Planning Scheme

If Town Planning Scheme No. 19 is to be rescinded, will those sections referring to landscape and other references involving CALM be transferred to the new scheme text, particularly sections 3.1, 3.2.1, 4.1.1, 4.1.2 and 4.1.3?

3.2 Land Transfer Deed

Will CALM be included as one of the parties to the Land Transfer Deed (3.5 of Section 46 Report)?

3.3 Correction of Text

In Appendix 2, Conservation Commitment 7.2 (3) re rewording is required to refer to the development perimeter road instead of reference to the "new Layman Road alignment".

Can the proponent comment on this?

Appendix 3

Proponent's response to submissions

PINDAN

Homes

16 May 1995

Mr R Sippe
Director
Evaluation Division
Department of Environmental Protection
Westralia Square
141 St George's Terrace
PERTH WA 6000

DEPARTMENT
16 MAY 1995
115/84
304.6

Dear Mr Sippe

PORT GEOGRAPHE HARBOUR DEVELOPMENT, BUSSELTON
CHANGE TO ENVIRONMENTAL CONDITIONS (936)

Please find enclosed our response to your list of questions arising from our Section 46 Report and transmitted to us with your letter of the 1st May 1995.

The majority of the questions did not relate to changes in the development and our response has been set out accordingly.

If you require any more information please do not hesitate to contact me.

Yours faithfully



C J WILL
MANAGER - SPECIAL PROJECTS

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COMMENTS ON RESPONSES TO THE PORT GEOGRAPHE SECTION 46 REPORT - (936)

PREAMBLE

The section 46 report was designed to highlight the proposed design changes to the development, the environmental impact of these changes, and how these impacts should be managed. Many of the comments received relate to matters of the development in general and not to the changes proposed. To avoid confusion this response has been divided into two sections.

The first section is a formal response to the comments made relating to the changes from the currently approved plan. The Proponent believes the Environmental Protection Authority should base its recommendation to the Minister on these issues only.

The second section is an informal response to the EPA to help clarify the Proponent's position on matters which although common with the original approved plan, have been raised and are obviously of concern to some people. It is hoped this response will help the EPA monitor the Proponent's compliance with the existing conditions.

This approach has been taken to make a clear distinction between those matters the Proponent believes should result in changes to the current approval conditions and those where the Proponent is just clarifying the position relative to the existing approval.

SECTION ONE - FORMAL RESPONSE

1 Water Based Issues

1.1 Canal design

- 1.1.1 (i) The position relating to salt water intrusion into the Vasse Estuary is unchanged from the original proposal which also had beaches and walls which water could infiltrate. A monitoring programme has been developed to detect any potential seepage from the canals. As with the original proposal if such seepage be detected an impermeable bund will be constructed of estuarine silt to hydrologically isolate the canals from the estuary. Nutrient levels in any seepage from the canals will be much less in volume and concentration than those entering the estuary from other sources and would have little effect.
- (ii) Stormwater and wastewater discharges are not affected by the proposed design changes.
- (iii) Control of pollutants is not affected by the proposed design changes.
- (iv) Remedial action plans are not affected by the proposed design changes.

1.2 Navigation

All matters raised are general and not related to design changes.

1.3 Sea water seepage and monitoring

- 1.3.1 This is the same question as 1.1.1(i) as all canal edges are permeable and the response is the same.
- 1.3.2 The conditions and commitments which have been made in relation to monitoring and management will continue to apply. This includes negotiating with CALM over the form and content of the monitoring programme.

1.4 Groundwater dewatering and monitoring

1.4.1 Condition 13

The Proponent has no objection to the Water Authority being added to this condition.

1.4.2 Impact of groundwater depletion

Groundwater depletion is not affected by the proposed design changes.

1.5 Sediment quality in the harbour

Sediment quality is not affected by the proposed design changes.

1.6 Water quality in the harbour and waterways

The problem of boat sewage disposal is not affected by the proposed design changes.

1.7 Refuelling operations

The problem of fuel spillage is not affected by the proposed design changes.

1.8 Waste disposal

The problem of waste disposal from boat maintenance is not affected by the proposed design changes.

1.9 Public education

Comment not related to design changes.

2 Land Based Issues

2.1 Staging of development

2.1.1 The Proponent is prepared to make arrangements which are satisfactory to CALM for the protection of the future conservation reserve from ready access by motor vehicles and trail bikes during the staged construction programme.

Preliminary discussions have already been had with CALM on this issue.

2.2 Development east of Layman Road

The area to be developed is substantially the same as that shown in figure 2 of the Section 46 report. This plan was agreed to by all relevant authorities, including CALM, during the approval of the ERMP and EMMP and is the basis of the current Town Planning Scheme. In preparing the revised development plan shown in figure 4 of the Section 46 report the Proponent has taken great care to minimise changes to the developed area and has maintained the area of land to be vested as a Conservation Reserve. It is not the Proponent's intention to make any further changes to this area.

2.3 Relocation of Layman Road

2.3.1 Road design

In the present proposal Layman Road will cross the canals in two places one of which is a culvert crossing. This compares to the four minor road crossings shown on the previous plan.

The bridges will be designed to prevent surface runoff entering the canals.

2.3.2 Remnant vegetation

There is no change to the form of development adjacent to the retained portion of Layman Road therefore this comment is not related to the design changes.

2.4 Winery complex

Yes. As shown in figure 2, the land that was originally proposed for the winery complex was added to the conservation area as part of the previous negotiations. The future status of this area is not affected by the current proposal.

2.5 Landscape and management

2.5.1 Landscape design

(a) and (b) The waterfowl study centre, lagoon and freshwater lake are not affected by the proposed design changes.

(c) All landfill on lot 3 will be contained by a retaining wall within the lot boundary unless otherwise agreed by the authority in which the Conservation Reserve is vested.

(d) There will be no public access within lot 3 which is consistent with the previous proposal.

(e) The impact of future buildings on the landscape is not related to the design changes.

The development of lots 2 & 3 will be subject to the Town Planning Scheme amendment which is being initiated by the Shire of Busselton and processed by the Ministry for Planning. This amendment will shortly become available for public comment.

2.5.2 **Area to the north of waterfowl centre**

The area shown in figure 2 as parking area and recreation was primarily for the purpose of overflow parking for the boat ramps. In the new design this facility has now been provided nearer to the marina. The Proponent is prepared to negotiate with CALM over how the area adjacent to the waterfowl study centre is developed so that it satisfies CALM's reasonable requirements.

The provision of services to the waterfowl centre is not affected by the proposed design changes.

2.5.3 **Landscape buffer**

The boundary between the development and the estuary, previously defined by the southern side of Layman Road, is not affected by the design change.

(i) Although detailed design is subject to further discussion with CALM, there will be no change to the previously agreed area of buffer within the conservation area. The road and pathway replacing Layman Road will have only a three metre carriageway and the remainder of the road reserve will be available for use as additional buffer development.

(ii) The distance between the private lots and the boundary of the Conservation Reserve has been reduced in places from 33 metres to 15 metres although the boundary between the development and the estuary will remain in the location previously agreed. The change from major road to minor access road and pedestrian access on the boundary reduces much of the need for noise and light protection measures within the development area.

(iii) The amount of fill and the species of vegetation comprising the buffer are not affected by the proposed design changes.

(iv) The measures to be taken to mitigate the midge/ mosquito problem are not affected by the proposed design changes.

2.5.4 **Conservation reserve**

Again the matters raised are not affected by the proposed design changes.

2.6 Waterfowl centre

2.6.1 Funding for waterfowl facility

The Proponent is currently negotiating with CALM on the type of facilities to be provided.

The Proponent believes the Commitment is to provide \$100,000 indexed from the commencement of the development unless the centre is built significantly after the establishment of the development in the area of the centre, including road access. In this case a greater contribution would be made.

2.6.2 Minimising disturbance of waterfowl

Again the matters raised are not affected by the proposed design changes.

2.7 Fresh water lake

2.7.1 Groundwater extraction

The Proponent's groundwater consultants are currently liaising with the Water Authority of Western Australia regarding the extraction of groundwater for the maintenance of the freshwater lake.

2.7.2 Construction of lake

The timing of the freshwater lake is related to the construction of the adjacent canals and landscape buffer mound. By moving the lake further east it may be possible to create it as part of stage 4.

2.8 Drainage

2.8.1 Drainage systems are not affected by the proposed design changes.

2.9 Sewerage

Sewerage disposal has not been affected by the proposed design changes.

3 Other

3.1 Changes to Town Planning Scheme

Sections of TPS 19 which refer to CALM may be transferred to the new scheme text at the discretion of the Shire of Busselton and the Ministry for Planning. The new Town Planning Scheme amendment is expected to be available for public comment shortly.

3.2 Land Transfer Deed

The parties to the Land Transfer Deed are those who currently or will subsequently hold the titles to the land which is the subject of the transfers.

As such the parties to the Deed will be:

The Proponent;
The Shire of Busselton;
The Department of Land Administration; and
The Department of Transport.

The Department of Land Administration holds title to CALM reserves and will represent CALM's interests in the land transfers. CALM should liaise with DOLA in relation to timing of transfers, boundaries and vesting.

3.3 Correction of Text

As noted in the Section 46 report text, there are a number of conditions which refer to Layman Road and the Winery the wording of which needs to be changed to reflect the present development plan. Similar changes need to be made to the wording of the Proponent's Commitments.

Commitment 7.2 refers to the boundary shown in figure 2. The southern boundary interface between the development and the Waterfowl Conservation Area is unchanged in figure 4 and the reworded Commitment will relate to this common line.

SECTION TWO - PROPONENT'S COMMENTS ON MATTERS RAISED BUT NOT RELATED TO PROPOSED DEVELOPMENT CHANGES

Only submissions not answered in section one are covered in section two.

1 Water Based Issues

1.1 Canal design

- 1.1.1 (ii) Stormwater will be disposed of on site as far as possible. Other stormwater will be passed through both oil and silt traps before being discharged into the canals. This system recognises the practicalities of stormwater discharge within a canal development and is a system which has been found to work satisfactorily in other canal developments. No wastewater will be discharged into the canals.
- (iii) Once sold and in freehold ownership the Proponent is able to exercise no further control over activities carried out on private land. The limited available garden area within modern residential developments is, however, an effective means of limiting the use of fertilisers and pesticides.
- (iv) If poor water quality in the canals is detected the Proponent is committed (Ministerial Conditions 6 & 7) to maintaining, through artificial means if necessary, the quality of water within and discharged from the marina and canals.

1.2 Navigation

Yes to all points. The issues raised are presently being addressed under the existing conditions of approval (Ministerial Conditions 3, 4 and 5)

Preliminary discussions have already been held with The Department of Transport and the Shire of Busselton about their respective requirements and the Proponent has started work on addressing the issues raised. These include estimates of the work required to maintain the entrance and adjacent coastline, together with costings for these works. The Proponent will be responsible for maintenance of these items for a period of five years.

It is proposed to have plans showing the design vessels and mooring envelopes available before any further subdivision plans are approved.

1.4.2 Impact of groundwater depletion

Groundwater drawdown rates will be monitored and temporary irrigation supplied if required to maintain local stands of native vegetation.

1.5 Sediment quality in the harbour

The sediment quality monitoring agreed with the EPA subsequent to the ERMP being released calls for sediment testing to be carried out in years one, three and five.

Experience with similar developments elsewhere has shown that the rate of accumulation of metals is very slow, particularly in the early years of the development, and that additional testing is not warranted.

1.6 Water quality in the harbour and waterways

A pump-out facility will be provided within the development.

1.7 Refuelling operations

Spillages during refuelling generally occur due to 'blow-back' and amount to only a few ten of millilitres of fuel. Such volumes dissipate naturally with no apparent long term effect on water quality.

The use of auto shut off valves on fuel pumps and correct design of relief valves on boat fuel tanks significantly reduce the frequency and volumes of fuel lost as a result of filling accidents. As a result the deployment of absorbent booms during filling operations is not warranted. However, because there is always some likelihood for a larger spill to occur, there is a recognised need for an adequate supply of booms and absorbent materials on site to cater for such an emergency. The Proponent will ensure that these are available once the refuelling facility is operational.

1.8 Waste disposal

The slipping and boat maintenance area will be a small hardstand area. This will be designed to meet all the required standards and will be licensed as "prescribed premises" if required. Runoff will be controlled as undertaken in the Proponent's Commitment 2.5(1).

1.9 Public education

Boat owners using the marina or canals will be advised of their obligations with respect to maintenance and waste disposal as part of the conditions under which the mooring spaces are leased and jetty licences issued. The marina service area operator will ensure boat servicing contractors using the hardstand are similarly informed regarding antifouling paints and other products which could affect the waterways.

Land Based Issues

2.3.2 Remnant vegetation

The requirement for supercharging is such that it would not be practical to retain the remnant vegetation along Layman Road. This requirement would have occurred under each of the previous development schemes. The Proponent is committed to replant the road reserve using existing local species as part of the overall landscaping of the project.

2.5.1 Landscape design

(a) and (b) The design of the waterfowl study centre and lagoon and freshwater lake will be carried out in conjunction with CALM to ensure the aims of both CALM and the Proponent are met within the financial constraints of the funding available. The first of a series of meetings between the consultants for both parties has already been scheduled.

(e) Lot 2 is adjacent to existing residential development and the non urban landscape impact will relate mainly to the stand of peppermints, whereas lot 3's impact will relate to the water oriented conservation reserve. In both cases CALM will be consulted on the design of buildings on these lots.

2.5.2 Area to the north of waterfowl centre

Services to be provided to the waterfowl study centre and adjacent areas will be decided in conjunction with CALM. A sewerage connection will be available if required.

2.5.3 Landscape buffer

(iii) The amount of fill will vary on the species selected. High water level and salt tolerant species such as *Melaleuca cuticularis* will probably grow without fill but other species e.g. *Melaleuca raphiophylla* and *Agonis flexuosa* will require a minimum of 0.5 m of fill for satisfactory growth. This material will be drawn from spoil excavated from within the development area. The fill will form part of the barrier between the development and the estuary and will also assist in the development of a freshwater lens on the underlying saline groundwater which will be of benefit to the less salt tolerant plant species.

(iv) The measures to be taken to mitigate against the midge and mosquito nuisance are described in the ERMP and EMMP as being:

- creation of a dense tree buffer between the development and the estuary designed to provide a barrier to midges (Condition 9);
- provision to residents of a public education pack on living with mosquitos and the limitations placed on mosquito and midge control (Condition 12); and
- fogging with adulticides within the development (Condition 11).

2.5.4 Conservation reserve

(a) Species selection

The 25 m planting zone will be raised in level sufficiently to counter the effects of soil and groundwater salinity in order to maintain the growth of the selected tree species.

(b) Water sampling

Water sampling is currently in progress and will continue throughout the construction and beyond.

(c) Soil testing

Soil testing has been carried out to determine salinity levels.

2.6.2 Minimising disturbance of waterfowl

(a) Making the fence cat proof

The type of fencing to be provided has previously been agreed with CALM and the Proponent will keep this commitment. The scope of the commitment does not include the major barrier fencing and adjacent clearing necessary to prevent entry by cats. Given that only the Proponents section of the boundary to the estuary will be fenced, cat proof fencing would be of little benefit in keeping cats out of the conservation area and be aesthetically displeasing. Some areas within the conservation area will however be protected by the construction of moats.

(b) and (c) Cat control measures

The issues raised are ones over which the Proponent has no control. The Shire of Busselton could introduce some controls if it saw fit and was prepared to fund and enforce these controls.

(d) Scent barriers

Other measures to control cats within the conservation area will be the responsibility of CALM.

2.8 Drainage

Drainage management proposals are described in the currently approved documents. The Proponent is currently discussing with the Shire of Busselton methods to minimise the discharge of nutrients to the canals and marina and to maximise groundwater recharge.

2.9 Sewerage

The Proponent does not propose any changes in relation to sewerage provisions to those previously approved, i.e. that the whole of the development will be serviced by a reticulated sewerage system discharging into the Minister's sewer.

The temporary sewage treatment plant is managed by the Water Authority and consequently the Proponent has no control over its operation. It is understood however that the plant is proposed to be relocated this year.

Appendix 4

**Proponent's commitments
March 1995**

PORT GEOGRAPHE

PROPONENT COMMITMENTS

MAY 1995

1.0 CONSTRUCTION PHASE COMMITMENTS

1.1 Relocation of Layman Road

The existing section of Layman Road will not be closed until the alternative route is completed.

1.2 Construction Traffic

Limitation of working hours to between 7.00 am and 6.00 pm will help to minimise inconvenience to local residents.

1.3 Construction Noise

A buffer of trees will be left between the harbour site and nearby residents to further reduce noise levels.

1.4 Dewatering and Groundwater

1.4.1 A series of monitoring piezometers will be installed and any private bore users who suffer water shortages will be compensated. However every attempt will be made to ensure this does not happen.

1.4.2 The Proponent will accept full responsibility for claims by landowners whose groundwater supplies are deleteriously affected by the Project.

1.5 Sand Stabilisation

Soil surfaces will be revegetated to prevent erosion upon completion of filling and compaction.

1.6 Fertiliser Application

Fertiliser application required to promote the growth of the plant cover will be limited to the minimum application of a slow-release type fertiliser.

2.0 OPERATION PHASE COMMITMENTS

2.1 Public Open Space

Open space will be landscaped with low maintenance species, in order to minimise nutrient contribution to the waterways, before being transferred to the local authority.

2.2 Litter

Notwithstanding local authority litter regulations and policing by the harbour manager it is inevitable that litter will periodically enter the waterways. It will be the responsibility of the harbour manager to remove any floating litter from the harbour area.

2.3 Seagrass Wrack

Wrack collecting within the harbour area will be removed if necessary by the harbour manager and disposed of offsite, either by releasing it back into the ocean downdrift of the breakwaters or by using it for beach stabilisation works.

2.4 Fuel and Oil Spills

Minor fuel spills which occur during refuelling operations will be allowed to dissipate naturally. Drainage from all boat servicing areas will be passed through grease traps to prevent pollution of the harbour by oil. Management of any fuel or oil spill within the harbour will be the responsibility of the harbour manager. One of the harbour manager's responsibilities will be to develop an Emergency Procedure Manual, which will cover such matters as major oil spills and fires.

2.5 Drainage

2.5.1 Drainage from all road and other paved surfaces will be passed through grease/silt traps before the water is discharged to the harbour in order to maintain water quality. Runoff from boat storage and work areas will be trapped in sumps, where material from antifouling stripping can be trapped and periodically removed.

2.5.2 Boat maintenance facilities will be incorporated in the harbour as part of the Marina. Waste disposal from maintenance will be properly disposed of, other than into the harbour.

2.6 Navigable Water Depth and Navigation Aids

- 2.6.1 Navigable water depth within the development will be maintained as long as the sand bypassing/dredging programme is adhered to. In the event of unforeseen siltation of the waterways, maintenance dredging will be undertaken in accordance with the Development Deed or Management Deed as appropriate.
- 2.6.2 Navigation aids will be provided in accordance with the requirements of the Department of Transport.

2.7 Public Education

Residents of the development will be encouraged to minimise use of fertilisers on private gardens. Information on landscaping with native plants and use of slow-release fertilisers will be distributed to all residents.

3.0 MONITORING

3.1 Salinity of Estuary Water

- 3.1.1 The salinity of estuary water at a number of selected sites will be monitored both prior to, during and subsequent to completion of construction of the waterways to confirm that the waterways have not contaminated the freshwater resource utilised by the waterfowl.
- 3.1.2 Loss of water to the estuary could occur only if a hydraulic connection is found to exist between the development and the estuary. This situation is covered by the Proponent's commitment to construct an impermeable seal between the development and the estuary should a hydraulic connection be detected in the course of proposed monitoring.

3.2 Groundwater Quality and Levels in Coastal Dunes

A series of piezometers will be installed at selected locations emanating away from the development and extending into nearby residential areas. These bores will be used to monitor the effects of the dewatering operation and provide warning to construction management of potential inconvenience to domestic users of the resource.

3.3 Water Quality in the Harbour and Waterways

3.3.1 Water quality in the harbour and waterways will be monitored at selected sites on a semi annual basis during the first four years of operation and on a quarterly basis on the fifth year. The parameters to be monitored will include:

- aesthetics (by visual observation),
- salinity (throughout water column to check for stratification),
- dissolved oxygen (surface and 0.5 m from bottom of waterways),
- total suspended solids (midway between top and bottom of water),
- total nitrogen (midway between top and bottom of water),
- total phosphorus (midway between top and bottom of the water),
- chlorophyll 'a' (midway between top and bottom of water).

3.3.2 In addition bacterial levels will be monitored five times over a 30-day period during the summer holiday period each year.

3.4 Sediment Quality in the Harbour

3.4.1 Contamination of the sediments by antifouling metals will be monitored once during the first year of operation and subsequently in year five to determine whether or not metal accumulation is occurring.

3.4.2 Nutrient concentrations will also be monitored at the same frequency to determine if accumulation of nutrients is taking place.

3.5 Metals in Harbour Biota

Concentration of antifouling metals in filter feeding organisms (mussels) within the harbour will be monitored at the same frequency as for sediments.

3.6 Navigable Depth

The harbour, waterways and entrance channel will be surveyed immediately after construction. The entrance channel will subsequently be resurveyed at appropriate intervals with a final survey being conducted prior to handover to the State after five years.

3.7 Structural Integrity of Walls

Harbour walls will be surveyed at the completion of construction. Regular surveys of the toe of the walling will be carried out to monitor for scouring and all surveys will be repeated after five years.

4.0 COMMITMENTS

4.1 Annual Report

An annual report containing the results of each years monitoring programme will be submitted to the EPA and other State Government agencies as specified.

4.2 Final Report

A final report presenting the results and an analysis of all monitoring undertaken will be submitted to the EPA and other State Government agencies as specified in the agreement before the hand over of management responsibility to the State.

5.0 COASTAL MANAGEMENT COMMITMENTS

5.1 Dewatering Stilling Basins

Notwithstanding the available evidence that the impact of construction would have negligible impact, the Proponent has undertaken to discharge dewatering liquids into stilling basins if necessary to settle out any silt before the water is discharged to the ocean.

5.2 Beach Nourishment

During the construction period the Proponent will place sufficient volumes of sand from the development site to the east of the development to ensure that no scouring of the adjacent coastline occurs in the period before sand bypassing is undertaken.

5.3 Foredune Stabilisation

Following reconstruction of the beaches in front of the development site, the reconstituted foredune will be established with plant species appropriate for the coast and similar to species occurring in adjacent areas of coastline. Brush matting may be required for a period until the plants establish themselves. Public access to these areas will be restricted by appropriately located fencing.

5.4 Public Access and Foreshore Reserve

Public access will also be provided to the breakwaters and groynes for sightseeing and fishing.

6.0 COASTAL MONITORING COMMITMENTS

6.1 Coastal Stability

6.1.1 Subsequent to completion of beach nourishment works, a series of transects normal to the beach will be established to monitor beach profiles and sediment volumes accumulated or lost. The transects will be established in front of the development site and extend for 0.5 km on either side. Monitoring surveys will be undertaken on a semiannual basis toward the end of summer and the end of winter every year.

6.1.2 Additional monitoring will be conducted after significant storm events.

6.2 Integrity of Structures

The foreshore structures will be surveyed at the completion of construction and subsequently at yearly intervals to determine their stability.

6.3 Reporting

The results and analyses of the monitoring programme will be made available to the EPA, Department of Transport and Shire of Busselton. Reporting will be on an annual basis with a final report submitted prior to the handover of management responsibility to the State.

6.4 Authority Responsible and Funding

- 6.4.1 The Development will have a waterways Management cost which conventional development does not have. The Agreement referred to earlier will cover all aspects of Waterways Management, including sand bypassing. The Agreement will also cover the funding of this Waterways Management. The funding concept is one of "the user (the Project) pays" - and this concept will be produced by a Bank Guarantee put in place by the Proponent until such time as a Trust created within the Project has grown to a level where it can replace the Bank Guarantee.
- 6.4.2 The Project will be designed to cope with the coastal stability standards agreed with the Department of Marine and Harbours and water quality standards agreed with EPA. Monitoring programme and management action will all be part of the final approval conditions with the Proponent being responsible. Normal Local Shire services will be available to the Project, as they would be for any conventional development. This service will be paid for through the normal rating system that everyone is familiar with.

7.0 CONSERVATION COMMITMENTS

7.1 Securing Conservation and Education Values

The conservation value will be secured by:

- donation of prime waterfowl habitat to the State for reservation as a Waterfowl Conservation Area;
- provision of additional drought refuge areas and source of fresh water;
- construction of a channel to form a conservation island;
- construction and donation to the State of a waterfowl study centre.

7.2 Minimising Disturbance to Waterfowl

Disturbance to the waterfowl will be minimised by:

- removing all stock animals and horses from the land donated as reserve;
- providing a buffer zone of 50 m width between the development and the landward edge of the wetlands fringing the edge of the estuary;
- constructing a dog-proof 1.5 m high wire-link fence around the border of the Waterfowl Conservation Area and the development. The fence will basically be constructed along the southern border of the development;
- providing appropriate landscaping and revegetation of the estuary edge of the development;
- controlling public access to the Waterfowl Conservation Area via defined pathways and viewing areas.
- The development/conservation reserve boundary will be a carefully designed interface meeting the following criteria:
 1. A dual use path bordering the development and the Vasse Estuary landscape along most of its length.
 2. An alignment which, together with its edge landscape treatment, minimises the noise and light intrusion into the estuary environment.
 3. A construction standard which ensures that all surface runoff from the urban development and the road and dual use path will be entrapped as far as possible on site.
 4. Bunding, landscaping and fencing along the estuary edge will be sufficient to deter human and prevent animal access into the Vasse Estuary system.

The Proponent accepts CALM's requests for:

- A vegetated buffer zone between the development and the estuary.
- The orientation of all public lighting to the north away from the estuary.
- The use of adulticides to control nuisance level of insects as necessary and as currently practised by the Busselton Shire Council.

7.3 Waterfowl Study Centre

The Proponent is happy to accept that:

- Final siting, design, operations etc. will be assessed in conjunction with CALM.
- The area adjacent to the Study Centre will be developed so that it satisfies CALM's reasonable requirements.
- The amount of money spent on the Study Centre and Support Facilities can be at a level greater than \$100,000 if the development is programmed further into the Project. This programming would result in a better facility being established and one which would more quickly be self-supporting and a revenue earner.

7.4 Other Commitments

- 7.4.1 Ring Tailed Possums - The Proponent will work with CALM, local groups, museums and wildlife parks to arrive at the best solution and timing of action to ensure the safety of ring tailed possums in the Development Area.
- 7.4.2 Estuary Research - The Proponent will contribute \$40,000 per year for two years of estuary research.
- 7.4.3 Conservation Reserve Access Restriction - The Proponent will make arrangements which are satisfactory to CALM for the protection of the future conservation reserve from ready access by motor vehicles and trail bikes during the staged construction programme.

7.5 Project Agreements

Deeds of Agreement have been finalised between the State (Department of Transport), the Busselton Shire and the Proponent to cover waterways management and sand bypassing.

Commitments made in the Deeds are:

- the Proponent accepts total responsibility for waterways management and sand bypassing for a period of five years subsequent to completion of construction of Stage 3;
- revenue created from within the project will be paid into a trust fund (or similar) to pay for waterways management and sand bypassing after the five year period;
- the Proponent will provide a bank guarantee in support of the trust fund until such time that the fund has reached its operating minimum level.