



Statement No.

MINISTER FOR THE ENVIRONMENT;
EMPLOYMENT AND TRAINING

000473

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

RESIDENTIAL DEVELOPMENT AND DRAINAGE, AMARILLO FARM, KARNUP (940)

HOMESWEST

This proposal may be implemented subject to the following 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, the proponent shall fulfil the commitments made in the Public Environmental Review and subsequently during the environmental impact assessment process conducted by the Environmental Protection Authority, provided that the commitments are not inconsistent with the conditions or procedures contained in this statement.

In the event of any inconsistency, the conditions and procedures shall prevail to the extent of the inconsistency.

The attached environmental management commitments of April 1997 form the basis for consideration by the Chief Executive Officer of the Department of Environmental Protection for auditing of this proposal in conjunction with the conditions and procedures contained in this statement (Attachment 1).

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.

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- 2-2 Where, in the course of the detailed implementation referred to in condition 2-1, the proponent seeks to change the designs, specifications, plans or other technical material submitted to the Environmental Protection Authority 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 Proponent

These conditions legally apply to the nominated proponent.

- 3-1 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.

4 Environmental Management System

The proponent should exercise care and diligence in accordance with best practice environmental management principles.

- 4-1 In order to manage the environmental impacts of the project, and to fulfil the requirements of the conditions and procedures in this statement, prior to commencement of development works east of the Serpentine River, the proponent shall prepare environmental management system documentation with components such as those adopted in Australian Standards AS/NZS ISO 14000 series, in consultation with the Department of Environmental Protection.

- 4-2 The proponent shall implement the Environmental Management System referred to in condition 4-1.

5 Environmental Management Plans

- 5-1 The proponent shall minimise phosphorus and nitrogen export from the site into the Serpentine River.

- 5-2 To achieve the objectives of condition 5-1, prior to finalising plans of subdivision or commencing development works east of the Serpentine River and in consultation with the Technical Review Committee referred to in procedure 3, the proponent shall prepare Environmental Management Plans which may be staged and shall include, but not be limited to:

- 1 a numerical model or other suitable analysis and forecasting techniques developed to determine the drainage management requirements of the site following development;
- 2 an estimate of the existing nutrient mass balance of the site, based on detailed on-site measurements;
- 3 predicted post-development nutrient mass balance of the site, based on the monitoring results of existing nutrient stripping ponds on other sites and other nutrient management measures proposed by the proponent;
- 4 a comparison of the results of the predicted mass and water balances with water quality performance criteria for the development;
- 5 the matters raised in commitments 1 to 4, namely design and management planning (including mosquito control measures in the drainage system), monitoring and

reporting, contingency plans (including feasibility appraisals) and a construction management plan;

6 reference to the initial phosphorus water quality performance criteria, namely:

- (i) flow-weighted annual average total phosphorus concentration of discharge water less than 75 µg per litre; or
- (ii) total mass of phosphorus entering the Serpentine River less than 0.225 kilograms per hectare per annum; and

7 proposed initial nitrogen water quality criteria which would reduce the nitrogen load from the property as far as practicable;

to the requirements of the Environmental Protection.

5-3 Following the preparation of the Environmental Management Plans required by condition 5-2, the area that the proponent may develop on the east side of the Serpentine River shall be restricted to Stage B as defined on the plan at Attachment 2, until the proponent has complied with condition 5-5.

5-4 The proponent shall implement the Environmental Management Plans required by condition 5-2.

5-5 Prior to finalising plans of subdivision or commencing development works east of the Serpentine River outside Stage B as defined on the plan at Attachment 2, the proponent shall prepare a performance review as required by condition 7 and demonstrate that the water quality performance criteria in condition 5-2-6 have been met, to the requirements of the Minister for the Environment on advice of the Environmental Protection Authority following the receipt of advice from the Technical Review Committee referred to in procedure 3.

6 Mosquito Monitoring and Management

6-1 Prior to commencing any ground-disturbing activities east of the Serpentine River, the proponent shall prepare a mosquito and Ross River virus monitoring and management plan including criteria to meet the objectives of the Environmental Protection Authority for environmental factors on the subject of mosquitoes (page 17, Environmental Protection Authority Bulletin 862), to the requirements of the Minister for the Environment on advice of the Health Department of Western Australia.

6-2 The proponent shall implement the mosquito and Ross River virus monitoring and management plan required by condition 6-1.

6-3 Prior to subdividing or commencing development works east of the Serpentine River outside Stage B as defined on the plan at Attachment 2, the proponent shall demonstrate that the criteria referred to in condition 6-1 have been met to the requirements of the Minister for the Environment on advice of the Environmental Protection Authority and the Health Department of Western Australia.

6-4 The proponent shall review the mosquito and Ross River virus monitoring and management plan required by condition 6-1 each five years following commencement of development works for Stage B as part of the performance review required by condition 7, to the requirements of the Minister for the Environment on advice of the Environmental Protection Authority, the Health Department of Western Australia and the Technical Review Committee referred to in procedure 3.

Note: The Environmental Protection Authority will advise the Minister for the Environment on the need to continue the above-mentioned five-yearly performance reviews.

7 Performance Review

The proponent should review their environmental performance to ensure that environmental management meets the environmental objectives and allows for continuous improvement.

- 7-1 Each five years following commencement of development works for Stage B, and prior to finalising plans of subdivision or commencing development works east of the Serpentine River outside Stage B as defined on the plan at Attachment 2, the proponent shall carry out a performance review to evaluate environmental performance with respect to the environmental objectives, the performance indicators, and the environmental management system targets, to the requirements of the Minister for the Environment on advice of the Environmental Protection Authority, the Health Department of Western Australia and the Technical Review Committee referred to in procedure 3.

The performance review shall include, but not be limited to:

- 1 description of methods to achieve the objective of condition 5-1;
- 2 reports on the drainage management system with particular reference to nutrient exports and, if appropriate, description of the means of improving drainage system performance;
- 3 reports on the mosquito management measures in the drainage system and mosquito monitoring and management plan required by condition 6;
- 4 review of the matters considered in the Environmental Management Plans prepared under condition 5-2, as appropriate; and
- 5 other biophysical, pollution and social matters as considered appropriate.

Note 1: Where, in the course of preparing the performance review in accordance with this condition, the proponent considers that any of the above elements 2 to 5 inclusive are not appropriate, the proponent may request the Minister for the Environment to review the need to include those elements in that and subsequent performance reviews. The Minister for the Environment will determine the request on advice of the Environmental Protection Authority and the Technical Review Committee, and the Health Department of Western Australia in regard to element 3.

Note 2: The Environmental Protection Authority and the Technical Review Committee may recommend actions to the Minister for the Environment following consideration of the performance review.

Note 3: The Environmental Protection Authority will advise the Minister for the Environment on the need to continue the above-mentioned five-yearly performance reviews.

Note 4: At each performance review the proponent may seek the Minister for the Environment's agreement to modification of the phosphorus and nitrogen performance standards.

- 7-2 The proponent shall make each draft performance review available for public review and submissions.

- 7-3 The proponent shall include the copies of public submissions referred to in condition 7-2 in each performance review.
- 7-4 The proponent shall implement further actions identified as necessary to meet environmental objectives, the performance indicators, and the environmental management system targets which arise from performance reviews.

8 Compatibility of Land Uses

Only compatible land uses should occur near Serpentine Airfield, Murrayfield Airpark, Wandalup Farm Piggery, and the proposed Karnup-Dandalup groundwater scheme area, to ensure that sensitive land uses are not adversely affected by noise in the case of the airfields, and by noise and odour in the case of the piggery; and to ensure that the public water supply is protected for the proposed Karnup-Dandalup groundwater scheme area.

Note: For the purposes of condition 8, "sensitive land uses" include, but are not limited to all forms of residential development, hospitals, hotels, caravan parks, schools, aged care facilities, child care facilities and shopping centres.

Serpentine Airfield

- 8-1 Prior to undertaking actions (see note after condition 8-9) relating to the development or subdivision of land for uses which include sensitive land use in the area represented by the cross hatching on Attachment 2, the proponent shall determine the extent of the L_{Amax} 65 dB(A) and L_{dn} 60 dB(A) noise contours which take into account the various circuit patterns and different aircraft types using the Serpentine Airfield, in order to determine the worst case contours to the requirements of the Environmental Protection Authority on advice of the Department of Environmental Protection.
- 8-2 Prior to finalising plans of subdivision for any land where a Planning Scheme permits sensitive land use in the area represented by the cross hatching on Attachment 2, the proponent shall ensure that the subdivision design incorporates the outcomes of condition 8-1 to the requirements of the Environmental Protection Authority on advice of the Department of Environmental Protection.

Murrayfield Airpark

- 8-3 Prior to undertaking actions (see note after condition 8-9) relating to the development or subdivision of land for uses which include sensitive land use in the southern portion of the site, the proponent shall determine the extent of the L_{Amax} 65 dB(A) and L_{dn} 60 dB(A) noise contours, based on noise predictions, which take into account the anticipated circuit patterns and different aircraft types which will use the Murrayfield Airpark, in order to determine the worst case contours, to the requirements of the Environmental Protection Authority on advice of the Department of Environmental Protection.
- 8-4 Prior to finalising plans of subdivision for any land where a Planning Scheme permits sensitive land use in the southern portion of the site, the proponent shall ensure that the subdivision design incorporates the outcomes of the noise predictions referred to in condition 8-3, to the requirements of the Environmental Protection Authority on advice of the Department of Environmental Protection.

Wandalup Farm Piggery

- 8-5 Prior to undertaking actions (see note after condition 8-9) relating to the development or subdivision of land for uses which include sensitive land use in the area represented by the single hatching on Attachment 2, the proponent shall complete a study to determine the extent of odour and noise impacts from the Wandalup Farm Piggery, to the requirements of the Environmental Protection Authority on advice of the Department of Environmental Protection.
- 8-6 Prior to finalising plans of subdivision for any land where a Planning Scheme permits sensitive land use in the area south of Stage B as shown on Attachment 2, the proponent

shall ensure that the subdivision design incorporates the outcomes of the study required by condition 8-5 to the requirements of the Environmental Protection Authority on advice of the Department of Environmental Protection.

Karnup-Dandalup Groundwater Scheme

8-7 Prior to undertaking actions (see note after condition 8-9) relating to the development or subdivision of land for uses which include urban development or residences adjacent to the proposed Karnup-Dandalup groundwater scheme area, the proponent shall liaise with the Water and Rivers Commission to determine the extent of any proposed public water supply well capture zones on the site and land uses which could impact on the groundwater scheme, to the requirements of the Environmental Protection Authority on advice of the Water and Rivers Commission.

8-8 Prior to finalising plans of subdivision for any land where a Planning Scheme permits urban development or residences in the area adjacent to the proposed Karnup-Dandalup groundwater scheme area, the proponent shall ensure that the subdivision design incorporates the outcomes of the determinations required by condition 8-7 to the requirements of the Environmental Protection Authority on advice of the Water and Rivers Commission.

Advice

8-9 The proponent shall advise the Western Australian Planning Commission and the relevant responsible authorities for planning schemes of the outcomes resulting from conditions 8-1, 8-3, 8-5 and 8-7.

Note: The intention of conditions 8-1, 8-3, 8-5 and 8-7 is that the determinations referred to in those conditions shall be available early in the rezoning process in order to provide suitable environmental advice to planning authorities, or prior to the approval of subdivision plans in the event that subdivision approval procedures require environmental advice sooner.

9 Time Limit on Approval

The environmental approval for the substantial commencement of the proposal is limited.

9-1 If the proponent has not substantially commenced the project within seven years of the date of this statement, then the approval to implement the proposal as granted in this statement shall lapse and be void. The Minister for the Environment shall determine any question as to whether the project has been substantially commenced.

Any application to extend the period of seven years referred to in this condition shall be made before the expiration of that period to the Minister for the Environment.

Where the proponent demonstrates to the requirements of the Minister for the Environment on advice of the Environmental Protection Authority that the environmental parameters of the proposal have not changed significantly, then the Minister may grant an extension not exceeding five years.

10 Compliance Auditing

To help determine environmental performance and compliance with the conditions, periodic reports on the implementation of the proposal are required.

10-1 The proponent shall submit periodic Performance 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.
- 3 To assist in the execution of the requirements of conditions 5, 6 and 7, a Technical Review Committee will be established.

The terms of reference of the Technical Review Committee are:

- to advise the Environmental Protection Authority on the adequacy of Environmental Management Plans and performance reviews prepared by the proponent; and
- to advise the proponent in respect to the requirements for each Environmental Management Plan and performance reviews and to provide preliminary advice on the adequacy of the Environmental Management Plan and performance review documents.

Membership of the Technical Review Committee will include officers from core agencies, namely:

- 1 Department of Environmental Protection;
- 2 Water and Rivers Commission, representing the Commission and the Peel Inlet Management Authority;
- 3 Health Department of Western Australia;
- 4 Department of Conservation and Land Management;
and officers from other involved agencies on an "as needs" basis, namely:
- 5 Office of Water Regulation;
- 6 Agriculture Western Australia; and
- 7 Ministry for Planning.

The Technical Review Committee will be convened and chaired by the Department of Environmental Protection.

The proponent and drainage operators be invited to attend Technical Review Committee meetings to provide information to the Committee.

- 4 As soon as possible following completion of the first Environmental Management Plan required by condition 5-2, the proponent will facilitate identification of ongoing management bodies responsible for monitoring, managing and operating the drainage system to ensure that the relevant environmental criteria are met. This will be achieved through a consultative process between the Office of Water Regulation and local and regional drainage service providers, including the Water Corporation, the Shire of Rockingham and the Shire of Murray.

Note

- 1 The Environmental Protection Authority reported on the proposal in Environmental Protection Authority Bulletin 862 (June 1997).

CHERYL EDWARDES (Mrs) MLA
MINISTER FOR THE ENVIRONMENT

14 APR 1998

ATTACHMENT 1

Proponent's Environmental Management Commitments

April 1997

**RESIDENTIAL DEVELOPMENT &
DRAINAGE, AMARILLO FARM
KARNUP (940)**

HOMESWEST

RESIDENTIAL DEVELOPMENT AND DRAINAGE, AMARILLO FAUNA KARNUP (940)
SUMMARY OF PROPONENT COMMITMENTS (Revised April, 1997)

Issue	Commitment Action (What)	(How)	Objective (Why)	Timing (When)	Whose Advice	Measurement / Compliance Criteria
A: Management Framework						
Environmental Management Programme (EMP).	1. Prepare and implement an Environmental Management Programme (EMP), including design and management planning, management responsibilities and handover arrangements.	Determine those issues which require more detailed evaluation and technical design input and address each issue as and when required via a staged EMP process. The Proponent to consult with appropriate authorities to initiate the proposed Technical Review Committee.	To develop and implement a staged EMP as the basis for 'best management practice' environmental management of the project's construction and operation phases.	Components of the EMP to be prepared when appropriate and in accordance with the Staging Plan and review requirements of Regulatory Authorities. Design. Site Preparation. Development. Post Development.	WRC, DEP, MFP, Local Authorities and others as agreed and represented on the Technical Review Committee (either as regulators or with observer status only).	Agreement of initial scope, content and period of regulatory scrutiny of EMP with key Decision Making Authorities (DMA's). Subsequent compliance to be checked by Technical Review Committee.
EMP: Monitoring and Reporting.	2. Prepare monitoring and reporting (audit) programmes.	Selection of environmental factors which require monitoring; which parameters; how often; set periods of data review; report results to relevant authorities.	To ensure that the management practices are monitored and assessed.	As above.	As above.	As defined in the EMP.
EMP: Contingency Plan.	3. Prepare a contingency plan.	Selection of optional management techniques to implement if, and when, performance evaluation demonstrates that initial management techniques are unsatisfactory.	To ensure that management practices which are not working are upgraded or replaced.	As above.	As above.	Environmental objectives to be met.
EMP: Construction Management Plan.	4. Prepare a Construction Management Plan and ensure that all contractors involved in the project comply with the environmental management strategies and procedures described in the plan.	Through environmental induction and insertion of environmental specifications in construction contracts, including penalty clauses for non-compliance.	To ensure "best industry practices" are implemented.	Prepare plan prior to subdivision. Implement plan during Site Preparation and Development.	DEP.	Environmental Contract Specifications. Industry Standards.
B: Biophysical Impacts						
Serpentine Regional Park.	5. Facilitate implementation of the proposed Serpentine Regional Park.	By consultation with the future Regional Park Manager (or interim nominees) to reconcile the different boundaries and adjacent land uses which have been proposed. Also to provide assistance with the provision of managed access as the development proceeds.	To enable protection of regionally significant vegetation, flora and fauna habitat (Serpentine River) and to allow for managed recreational access.	Agree boundary during the Design phase. Survey boundary during Site Preparation.	CALM, MFP, WRC, PIMA, DEP.	Agreement of boundaries and recreational nodes in accordance with the Intent and objectives of the System Six Recommendation for the area.
Serpentine Regional Park.	6. Manage activities on the Amarillo site adjacent to the Serpentine Regional Park.	Contractor specifications (construction phase) and appropriate controls to limit vehicle/pedestrian access during development phase.	To protect the conservation values of the Serpentine Regional Park.	Site Preparation. Development. Post Development.	DEP.	Appropriate controls to prevent vehicle access.
Bridge Crossings.	7. Conduct environmental assessment of bridge crossings to optimise locations and design.	Flood modelling to optimise design and site assessments for route selection.	To minimise upstream flood risk as a result of bridge construction and minimise fringing vegetation and habitat disturbance.	Design.	WRC, DEP.	Statement from WRC.
1-in-100 Year Floodway.	8. Maintain development outside the originally-defined 1-in-100 year floodway until the potential requirement for a third bridge is finalised.	No filling or development to occur within the originally-defined floodway prior to absolute resolution of bridge requirements.	To ensure that the project conforms to the Floodplain Development Strategies prepared by the Water and Rivers Commission.	Design. Site Preparation.	WRC.	Modelling and mapping of floodways and floodplains as conducted by WRC.
Protection of remnant vegetation (locally significant) and wetlands, including EPP wetlands.	9. Incorporate the principal good condition vegetation and on-site wetlands into Public Open Space (POS) including the proposed multi-purpose drainage corridors.	Areas identified and incorporated into structure plan.	To minimise disturbance to good condition remnant vegetation and wetlands (on-site).	Design.	DEP, MFP.	Structure Plan and Subdivision Design.
Protection of groundwater-dependent environmental resources. Superficial Aquifer.	10. Ensure that the proposed drainage system does not alter the existing water table regime such that adverse hydrological impacts occur to groundwater-dependent resources.	Where necessary, by designing and implementing the proposed drainage system to maintain the 'average annual maximum groundwater level' (AAMGL).	To protect remnant vegetation and wetlands, both on-site and off-site, from adverse hydrological impacts.	Development. Post Development.	WRC, CALM, DEP.	Annual monitoring and reporting. Maintenance of vegetation and wetland condition at nominated locations on-site (inference is that protection of on-site elements, for example from adverse water table changes, will also protect off-site elements).

PROPONENT COMMITMENTS

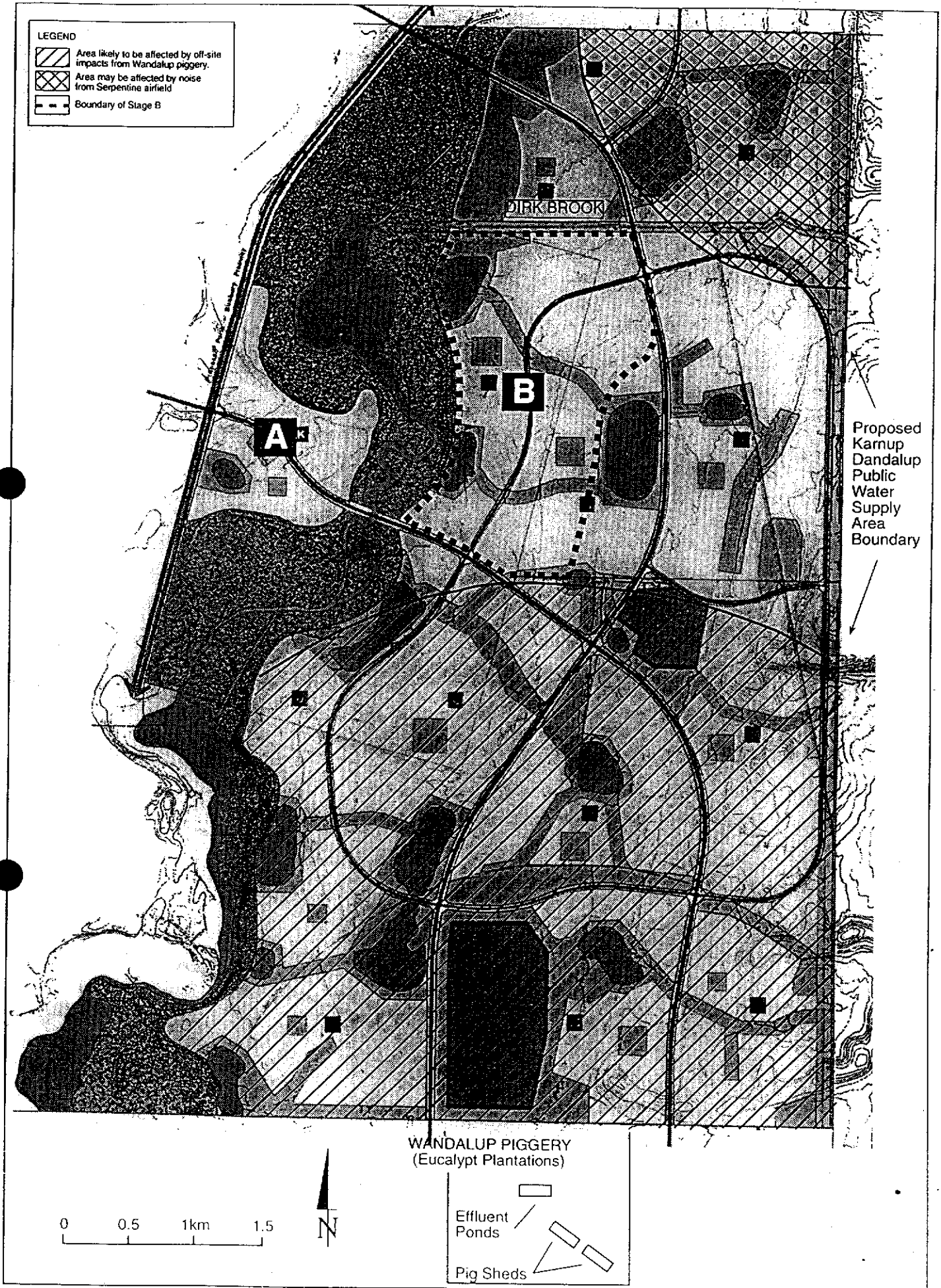
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Issue	Commitment Action (What)	(How)	Objective (Why)	Timing (When)	Whose Advice	Measurement / Compliance Criteria
Protection of groundwater quality.	19. Identify potential land use management requirements near the eastern boundary of Amarillo in order to protect groundwater quality for potable purposes.	Liaison with the Water and Rivers Commission to ascertain the potential capture zones of future bores and land use management requirements.	To ensure that the potential for groundwater abstraction for potable water supply from the proposed Public Water Supply Area on the eastern side of Amarillo is not adversely affected by the development.	Design (prior to final subdivision approval in the capture zones of future bores).	WRC.	Agreement with Water and Rivers Commission and EPA.
D: Social Surroundings						
Odour emissions from the Wandalup Piggery.	20. Resolve long term options for land use at the southern boundary with the owners of the piggery and relevant authorities.	By consultation and negotiation with the landowner and planning authorities.	To minimise land use conflicts and avoid potential nuisance odour effects on future residents.	Prior to development within the buffer zone.	MFP, DEP.	Agreement of stakeholders regarding long-term strategy for compatible land uses.
Odour.	21. Implement appropriate buffer zone requirements until the odour issue is resolved.	Interim buffer zone to be applied (3 km or in accordance with EPA recommendations). Modifications to the interim buffer zone to be considered on the basis of appropriate technical data (ie via the process of "Dynamic Olfactometry").	To ensure that no residential areas are subject to unacceptable odour levels.	Ongoing	MFP, DEP.	No odour nuisance ie no regular complaints.
Noise.	22. Ensure that future residential areas will not be exposed to nuisance noise levels from Wandalup Piggery or nearby airfields.	By locating residential areas outside appropriate noise buffer zones. Where necessary, establish noise buffer zones by conducting noise surveys at critical times. Where possible, reduce potential noise problems through consultation and negotiation with relevant landowners.	To ensure minimal noise impact as a result of adjoining land uses.	Design (Prior to subdivision approval in the noise affected areas).	MFP, Local Authorities.	Noise Abatement (Neighbourhood Annoyance) Regulations 1979 and Murrayfield CER (ANEF contours, etc).
Dust.	23. Implement appropriate dust mitigation measures.	In accordance with EPA Dust Management Guidelines.	To minimise dust generation as a result of construction phase activities and tree harvesting.	Site Preparation. Development.	Local Authorities.	Compliance with industry standards, EPA Dust Management Guidelines and no complaints of nuisance.
Potential mosquito/midge nuisance from constructed wetlands.	24. Minimise nuisance effects arising from potential increased mosquito and/or midge populations due to the proposed constructed wetlands.	By engaging the services of an entomologist and wetland ecologist to contribute to the design process for constructed wetlands and any other BMPs which could provide mosquito/midge habitat.	To ensure minimal mosquito and midge nuisance generated within the development as a result of drainage management techniques.	Design. Site Preparation.	Health Department, Local Authorities.	To be evaluated.
Location of the WANG natural gas pipeline.	25. Determine the levels of risk associated with the gas pipeline and plan adjoining land uses in accordance with that risk.	By consultation with appropriate authorities.	To ensure that future residential areas are not located within an unacceptable risk envelope relative to the gas pipeline.	Design (Prior to subdivision)	MFP, Department of Minerals and Energy (DME), DEP.	DME guidelines.

PROPONENT COMMITMENTS

(Cont'd)

Issue	Commitment Action (What)	(How)	Objective (Why)	Timing (When)	Whose Advice	Measurement / Compliance Criteria
Protection of groundwater resources: Leederville Aquifer.	11. Manage the drainage system passing through the Leederville aquifer discharge area (i.e. close to the Serpentine River).	So that piezometric levels in the Leederville aquifer are not adversely affected.	To ensure regional groundwater resources are not adversely impacted.	Design. Development. Post-Development.	WRC.	Width of the Leederville aquifer discharge zone to be defined and agreed prior to subdivision. Water level criteria to be evaluated.
Flooding.	12. Design and construct a drainage system to ensure that the peak rate of discharge following development is no greater than the peak rate of discharge when the site was operated as a pastoral property.	Drainage design and peak flow modelling, drain specifications, including compensation requirements.	To avoid excessive drainage discharges, which may cause flooding in low lying areas along the Serpentine River.	Design. Development. Post development.	WC, WRC, PIMA, and Local Authorities.	With respect to flood history, the development should not exacerbate flood problems in low lying areas along the Serpentine River.
Flooding.	13. Ensure that the drainage system includes appropriate erosion controls and traps for sediment so that sediment transport and siltation does not occur in the regional drainage systems.	By provision of erosion controls and sediment traps; verify effectiveness via monitoring.	To avoid siltation of natural watercourse habitat and obstructions which may cause flooding upstream of the Amarillo site.	Design. Development. Post development.	WC, WRC, PIMA, and Local Authorities.	The development should not contribute to sedimentation or exacerbate flood problems in low lying areas along the Serpentine River.
Groundwater recharge.	14. Develop and implement strategies and incentives to encourage future landowners and land managers to use groundwater in preference to imported scheme water for irrigation.	By encouraging the use of private bores to deliver on-site groundwater for irrigation on lawns, gardens and POS, for example via an Environmental Awareness Brochure or monetary incentive or pricing mechanisms.	To minimise the requirement to export drainage from the site by maximising the use of in-situ groundwater.	On-going during development phase.	WRC and Local Authorities.	Success of strategies to be measured by proportion of landowners with access to a groundwater bore.
C: Pollution Issues						
Export of Nutrients and other Urban Stormwater Contaminants.	15. Develop and implement Best Management Practices, consistent with water sensitive design, to minimise contaminant export from the site (including consultation with the Water Corporation to investigate the potential for incorporation of Dirk Brook Drain within the development).	By preparing a Staging Plan (ie to provide for orderly development of the drainage management scheme in the correct sequence) and by preparing Stormwater and Drainage Management Plans for individual urban precincts, on an integrated catchment management basis using accepted BMP technology.	To protect the water quality of the Serpentine River from further adverse changes as a result of the development.	Staging Plan - Design Phase. Stormwater and Drainage Management Plans - Prior to initial subdivision approval within each defined catchment.	WRC, PIMA, DEP (Technical Review Committee), with Local Authorities and WC as observers.	Conform with catchment target for phosphorus. Aim to achieve, to the greatest practicable extent, the relevant ANZECC guidelines for riverine systems.
Phosphorus Export.	16. Minimise export of existing on-site soil/groundwater "store" of phosphorus via the urban drainage system.	By the installation of a drainage system which maintains the average annual maximum groundwater level (AAMGL), until such time that confirmation (satisfactory to EPA) is available that phosphorus export can be controlled irrespective of the depth of the drainage system.	To avoid an increase in the existing export rate of phosphorus which has accumulated in the soil and superficial groundwater as a result of historical fertiliser practises.	Design. Site preparation.	EPA, as above.	Compliance with the AAMGL as the depth criterion for drains. Changes to AAMGL drainage condition can only be considered after achievement of phosphorus export target is demonstrated by monitoring of the initial phase of development on the eastern side of the river.
Phosphorus Export.	17. Design and implement a Phosphorus Management Plan to test the effectiveness of various phosphorus management techniques, including proposed contingency measures, for the initial phase of development on the eastern side of the Serpentine River. The initial phase of development is defined as an area not exceeding 10% of the land earmarked for development east of the Serpentine River.	By conducting strategic trials of various techniques or BMPs for phosphorus control, including fail safe phosphorus removal techniques, on the eastern side of the Serpentine River, i.e. on palusplain areas. Developable land on the western side of the Serpentine River (Area A) is not subject to this commitment.	To remove the uncertainty which currently exists regarding the performance of the Best Management Practice approach, notably constructed wetlands, for phosphorus management.	First phase of development on the eastern side of the Serpentine River in accordance with an agreed Staging Plan and subject to review every 5 years). Note: Development will most likely commence on the western side of the Serpentine River.	EPA, as above.	Achieve the catchment target for phosphorus load in the Serpentine River and apply the WRC performance standards to signal implementation of contingency management measures, i.e. if phosphorus: (i) mass load exceeds 0.225 kg-TP/ha/a, and (ii) flow-weighted annual average concentration exceeds 0.075 mg-TP/L.
Phosphorus Export.	18. Monitor the performance of phosphorus management strategies and, if not meeting the applicable standard, then defer subsequent phases of development until such time that it can be demonstrated that the catchment target will be met. The developed area will not exceed 10% of the available land on the eastern side of the Serpentine River until the management strategies are proven to be successful.	By implementing Best Management Practices, monitoring performance and implementing contingency management measures (such as chemical treatment) if and when required. Developable land on the western side of the Serpentine River (Area A) would only be subject to the catchment target if surface water discharge to the river is required.	To ensure that subsequent phases of development (ie after the initial trial phase) will meet the catchment target for phosphorus discharges to the Serpentine River.	First phase of development on the eastern side of the Serpentine River in accordance with an agreed Staging Plan and subject to review every 5 years). Note: Development will most likely commence on the western side of the Serpentine River.	EPA, as above.	Catchment target for phosphorus load in the Serpentine River as specified in the Peel-Harvey EPP (1992), to be met on an annual basis in four years out of five.



Amarillo Farm Residential Development - Location of Wandalup piggery and Serpentine airfield areas of influence and the proposed public water supply area boundary