

Beeliar Park Catholic school development

Catholic Education Office

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

Environmental Protection Authority
Perth, Western Australia
Bulletin 636
July 1992

THE PURPOSE OF THIS REPORT

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

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

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

APPEALS

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

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

ADDRESS

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

CLOSING DATE

Your appeal (with the \$10 fee) must reach the Minister's office no later than 5.00 pm on the 1 August, 1992

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Summary and recommendations

The Environmental Protection Authority has received a proposal to build a primary school, and church complex within System 6 M93, and within the newly announced Beeliar Regional Park. Following considerable public input on the Consultative Environmental Review and lengthy discussions with the proponent and Government agencies with a particular interest in the area, the Environmental Protection Authority has concluded that the proposal is environmentally acceptable, subject to the commitments made by the proponent, and the recommendations of this assessment report.

The proposal engendered considerable public interest, and the principal issues of environmental concern were those associated with the location of the proposal, rather than the proposal itself. Nevertheless, the Environmental Protection Authority believes that this proposal, managed according to the commitments made in the original CER document, and expanded subsequently, is environmentally acceptable, and recommends accordingly.

Recommendation 1

The Environmental Protection Authority concludes that the proposal to develop a primary school, church, parish building and presbytery on the northern portion of Lot 7 Yangebup Road is environmentally acceptable. In reaching this conclusion, the Environmental Protection Authority determined that the environmental issues requiring addressing were:

- whether the proposed development was consistent with the objectives of the System 6 recommendations for the area;
- what scale of development was consistent with that recommendation;
- the control of midges and mosquitoes; and
- protection of vegetation, habitat and visual amenity.

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

- the proponent's commitments in the Consultative Environmental Review and in Appendix 4 and 5; and
- the Environmental Protection Authority's recommendations in this report.

Recommendation 2

The Environmental Protection Authority recommends that any future proposal by the proponent for additional development on the site or adjacent Parks and Recreation land should be referred to the Environmental Protection Authority for consideration of its environmental impact.

Recommendation 3

The Environmental Protection Authority recommends that land on Lots 6 and 7 Yangebup Road, not being required for the presently proposed primary school, church and presbytery development should be managed for conservation purposes by the proponent, in conjunction with the Department of Conservation and Land Management.

Recommendation 4

The Environmental Protection Authority recommends that any programme by the proponent to reduce midge or mosquito nuisance shall meet the requirements of the Environmental Protection Authority, on advice from Health Department of Western Australia, the Department of Conservation and Land Management, and the City of Cockburn.

1. Introduction

The Catholic Education Office has a proposal to build a primary school for 500 students, a church for 600 people, a church building and presbytery on Lot 7 Yangebup Road in the City of Cockburn. The proposal also involves the establishment of an oval on Lot 8 Yangebup Road, for school and public use. All the land which is the subject of this proposal, lies within System 6 Recommendation M93, and forms a part of the Beeliar Regional Park. Because of the location of the proposed development, the matter was referred to the Environmental Protection Authority, which determined that the proposal should be assessed at the level of Consultative Environmental Review (CER).

2. The proposal

The proposal is for a primary school to be built in several stages, with the initial classrooms being built and ready for occupation for the 1993 school year. The land is owned by Homeswest, from whom it would be intended to purchase if approval is given for the development. The proponent has indicated that at a later date, neighbouring lots to the south and west may also be sought. Subsequent to the public review period for the CER document, the Department of Planning and Urban Development (DPUD) released the Final Proposals for Establishment, Administration and Use of the Beeliar Regional Park. Selected sections are included in Appendix 6, and indicate that DPUD envisaged that the land to the south and west would remain reserved for Parks and Recreation and form a part of the "concept of a school in the park" (Beeliar Report p 39. See Appendix 6)

The proposal includes the establishment of a school oval with associated parking and other facilities on Lot 8 which is set aside for Parks and Recreation. This oval would also provide a recreational amenity for the local residents, and would become, under the DPUD proposals, a part of a Recreation, Leisure and Sport Reserve, as against the previous proposals of Recreation and Leisure.

The proponent has indicated willingness to revegetate that part of Lot 8 between the oval and the road to the North as well as that part of Lot 9 (next to Lot 8) which has been cleared in the past. Lots 8 and 9 are owned by the State Planning Commission, and are zoned as Parks and Recreation Reserve at present.

In addition, the proponent has made additional commitments to the provision of an environmental resource centre, in conjunction with the Department of Planning and Urban Development, and to manage Part Lot 4 Yangebup Road, Yangebup, for conservation purposes, in conjunction with the Department of Conservation and Land Management. These additional commitments arose out of discussions with the proponent after the close of the submission period, and represent a clarification of the proponent's commitment to environmental management.

3. Environmental issues and their management

Several environmental issues have been raised by this proposal. The principal environmental concern relates to the location of the proposal, rather than to the proposal itself. The land is within the boundaries of the System 6 Recommendations for M93, that is, the Eastern Chain of the Cockburn Wetlands. The State Government has adopted the recommendations for System 6 areas, and the Environmental Protection Authority is committed to ensuring that the intentions of the recommendations with regard to these areas are met.

The land was also included in the draft recommendations for the Beeliar Regional Park as being suitable for Recreation and Leisure. The Land Use and Management Guidelines proposed for the whole area in question were for "Predominantly passive recreation pursuits, allowing for car parking and picnic facility development rehabilitation and landscaping of areas, and lookout points." The question of the appropriate land use was a major concern raised by

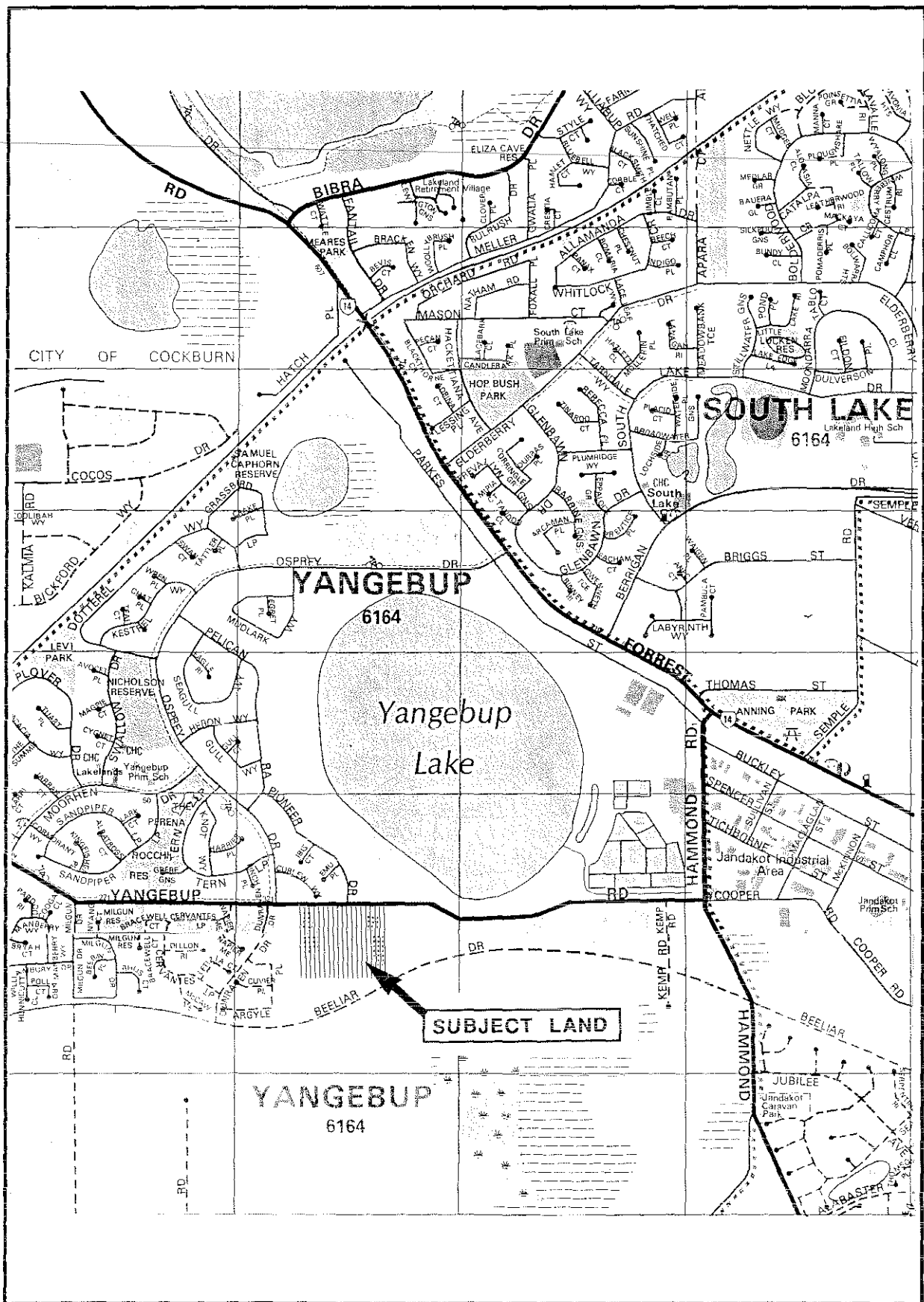


Figure 1. Location of proposal

submissions to the Authority. Submissions were received immediately prior to the release of the Beeliam Park final Report.

Another concern raised related to the need for a buffer from the wetlands, in this instance, Lakes Yangebup and, to a lesser extent, North Kogolup. This was seen as important for the protection of wetland ecosystems, and for visual amenity, but also because the area is known to present a midge problem, together with more recent concerns about Ross River virus.

Protection of flora and fauna, loss of habitat for threatened or endangered species, and the possibilities of jarrah dieback being introduced and spread were also raised as important issues to be considered.

Additional concerns related to the largely private use of public land (on the Parks and Recreation Reserve on Lot 8), the use of possibly contaminated groundwater, together with the dangers of fertilisers used on the oval providing nutrients to the Lakes, and increases in noise and traffic flows.

These issues were all raised with the proponent (see Appendix 2), whose response is in Appendix 3. When the release of the Beeliam Report was imminent, discussions were held with the Department of Planning and Urban Development to examine the suitability, from that Department's point of view, of the school proposal as had been presented, and to achieve protection for the well-vegetated areas within System 6/Beeliam which, in the opinion of the Authority, should be conserved. Subsequently, further information was sought from the proponent, regarding the school and its role within the Beeliam Regional Park. The proponent's response is included as Appendix 5 of this Report.

Recommendation 1

The Environmental Protection Authority concludes that the proposal to develop a primary school, church, parish building and presbytery on the northern portion of Lot 7 Yangebup Road is environmentally acceptable. In reaching this conclusion, the Environmental Protection Authority determined that the environmental issues requiring addressing were:

- **whether the proposed development was consistent with the objectives of the System 6 recommendations for the area;**
- **what scale of development was consistent with that recommendation;**
- **the control of midges and mosquitoes; and**
- **protection of vegetation, habitat and visual amenity.**

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

- **the proponent's commitments in the Consultative Environmental Review and in Appendix 4 and 5; and**
- **the Environmental Protection Authority's recommendations in this report.**

3.1 Land use within System 6 M93 and Beeliam Regional Park

Because of the location of the proposed development, the principal environmental concerns were those to do with appropriate land uses for the area, in view of its special environmental values. There were several considerations to be taken into account, and the views of a number of people and agencies were canvassed.

When the original draft proposal was brought to the Environmental Protection Authority, there were plans for a much more extensive development, to include a high school as well as a primary school, and not one, but several, ovals. The Authority advised the proponent that such an extensive development was unlikely to be found to be consistent with the intent of M93 and

the Beeliar Regional Park. It was suggested to the proponent that the development be reduced in scope. This was done.

The Authority's advice on the original proposal indicates its concern to avoid excessive development in M93, and has led to the recommendation that any future development proposed within M93 should be referred to the Authority for consideration of its environmental impact.

Recommendation 2

The Environmental Protection Authority recommends that any future proposal by the proponent for additional development on the site or adjacent Parks and Recreation land should be referred to the Environmental Protection Authority for consideration of its environmental impact.

The views of the Department of Conservation and Land Management (CALM) and the Department of Planning and Urban Development were also sought. Although under draft proposals for Beeliar Park the land in question would be vested in the City of Cockburn, CALM has been involved in both advising on Regional Parks, and in many instances, in their management. It was also envisaged that this Department would co-ordinate the management of the Park, although it would share with the City of Cockburn and the Town of Kwinana in joint management of this particular Park. The Department of Planning and Urban Development issued the Draft Beeliar Regional Park document for public comment, and is responsible for initiating any amendments to the Metropolitan Region Scheme which may be needed to allow the Park to be reserved under the final Report guidelines. The advice of these two agencies was therefore essential in assessing whether a school within the proposed Park boundaries could be seen to be appropriate. Both agencies have determined that the proposed school is compatible with their guidelines for the Park, subject to conditions on the way in which the development is implemented.

The Department of Planning and Urban Development has indicated that it is not intended to rezone Lots 6 and 7 Yangebup Road from Urban Deferred to Parks and Recreation because of the cost of acquisition. Part of Lot 6 is currently being developed by the Association for Christian Education for its Rehoboth Primary School. The Committee for Statutory Procedures of the Department of Planning and Urban Development recommended in a letter to the Environmental Protection Authority on 1 August 1991, that the 1.552 ha portion of Lot 6 not used for that development be amalgamated with Lot 7. The original Lot 7 is the proposed site for the Catholic Education Office's Beeliar Park primary school, church and presbytery.

The City of Cockburn has also indicated that it supports the establishment of the primary school on this site. The Council support, subject to a number of conditions, including approval and acceptance by the Environmental Protection Authority, was also for a future secondary school and church, and extended to part of Lot 4 to the south of the existing subject land.

It is the view of the Authority that the present proposal for a primary school as indicated in the CER document, together with church and presbytery is environmentally acceptable within the context of the urban deferred land on Lot 7, subject to a number of management conditions, which are outlined below. On the question of the proposed oval on Lot 8, which is zoned as Parks and Recreation reserve, and is thus 'public' land, the Authority is of the view that whereas it may be acceptable for the proponent to build and maintain the oval on this previously cleared land, with appropriate guarantees for public access, there should be some provision for setting aside good quality vegetation areas for inclusion in the conservation estate, and for their effective management.

Further, as the present building programme does not impact on the southern portion of Lots 6 and 7, these portions of land should be managed by the proponent for conservation purposes.

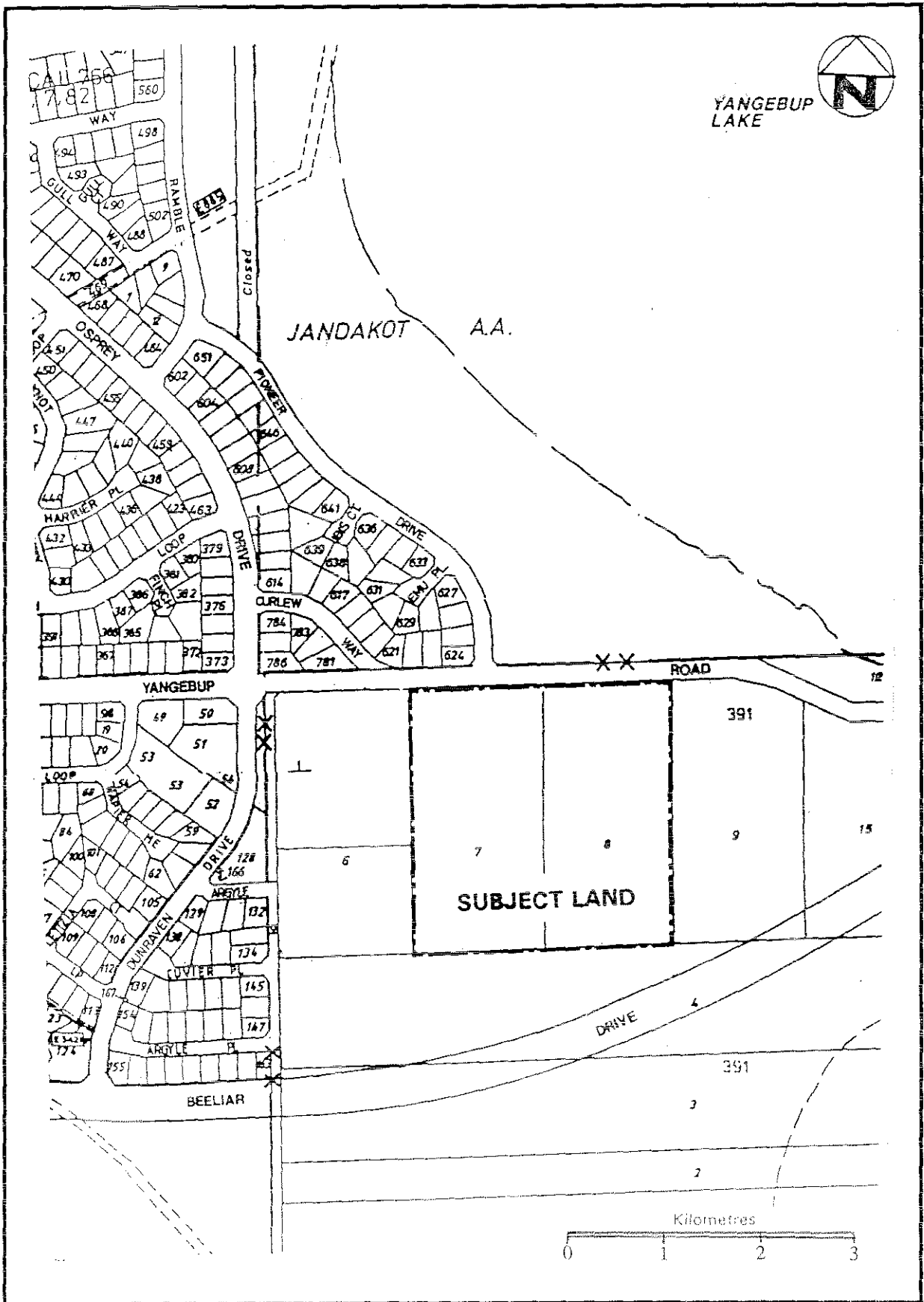


Figure 2. Site details

Recommendation 3

The Environmental Protection Authority recommends that land on Lots 6 and 7 Yangebup Road, not being required for the presently proposed primary school, church and presbytery development should be managed for conservation purposes by the proponent, in conjunction with the Department of Conservation and Land Management.

3.2 Lakes buffer and managing insect nuisance

One of the reasons for the inclusion of Lots 6 and 7 in the Regional Park proposals was because of known midge problems in the locality. In the 1989 draft proposals for the establishment, administration and use of the Beeliar Regional Park, it was noted that the City of Cockburn had recently adopted a policy opposing subdivision for residential development within 1 km of the edge of any wetland known to have a midge problem; however, that if new lot owners were made aware of the problem, Council may support developments to within 500 metres of such a midge nuisance source. Consultants for the proponent have indicated that not only are they aware of the potential midge problem, they are of the opinion that as the principal school and church use will not be at sunrise and sunset when the midge problems are greatest, any consequences for the proposal will be minimal. In this respect, buildings which are only used during daylight hours are likely to be less affected than residential housing where the midge nuisance could be expected to be greater.

On the related, and potentially more serious matter of Ross River virus, which is now known to occur in the area, the consultants have advised that they have been in contact with the Health Department of Western Australia, and will continue to liaise with that Department, which has responsibility for mosquito control. Advice they have received indicates that, given the hours of operation of the school and church, they expect minimal Ross River Virus bearing mosquito nuisance. It is important to note that both the proponent and the City of Cockburn are aware of the potential insect problems with this site. However, the Authority is of the view that there should not be recourse to chemical spraying to control the potential insect problems except as a last resort, and that any control programme should be based on adequate monitoring and an integrated management programme which will not further compromise the Lakes ecosystems.

Other factors in the maintenance of buffers around the Lakes in the wetland chain include the importance of fauna and flora protection, and visual amenity. The protection of wetland ecosystems as well as the conservation of the land based areas were cited by a number of submitters, and are significant matters to be considered in this assessment. These aspects will be discussed in 3.3 below.

Recommendation 4

The Environmental Protection Authority recommends that any programme by the proponent to reduce midge or mosquito nuisance shall be to the requirements of the Environmental Protection Authority, on advice from Health Department of Western Australia, the Department of Conservation and Land Management, and the City of Cockburn.

3.3 Ecosystem protection and visual amenity

The proponent has indicated an understanding of the environmental significance of the Lake ecosystems, and the importance of conserving and rehabilitation of degraded vegetation. The proponent has made commitments to minimise the removal of native trees and shrubs from the site; to replant and maintain parts of Lots 8 and 9 using indigenous species; to manage the earthworks associated with the construction of the oval to minimise the risk of spreading dieback; and to manage the construction and maintenance of the oval to include amendment with red mud and the use of minimal fertilisers to reduce the risks of nutrient export to the Lakes and

underground water. The Authority considers these measures to be appropriate. There was also a commitment to provide shielding bunds to reduce visibility of the oval from the rest of the Beeliar Park, however the Authority does not consider that this is necessary or appropriate. Plantings with indigenous species would appear to be of more benefit.

It has been acknowledged by a number of reports that the existing vegetation is degraded, especially on the northern portions of land. However there is little agreement as to how much regeneration has already taken place, and how much more needs to be done. The proponent and the consultants have indicated a willingness to undertake a comprehensive revegetation programme for that part of Lot 9 which has already been cleared, and for the northern part of Lot 8 between Yangebup Road and the proposed oval. Lots 8 and 9 are owned by the State Planning Commission, as Parks and Recreation Reserve, but significant portions were previously cleared of native vegetation. It is intended that this programme would be a school and community project.

The proponent has indicated that the revegetation programme would compensate for the loss of bird habitats through the clearing necessary for the development. On the question of threatened or endangered species the proponent suggested that such species as the Short-nosed Bandicoot and the Black-gloved Wallaby were unlikely to be found on the subject land because of the perceived poor condition of the understorey. This appears to be consistent with advice from the Department of Conservation and Land Management which does not consider that the proposed development would pose an unacceptable risk to the indigenous fauna. Some submissions indicated that such animals were to be found on the land in question. However, the consultants for the proponent have noted that vegetation on land to the south of the proposed development site is in good condition and "could contain the above-mentioned fauna species. The proponent considers that the retention of these areas of good quality vegetation within the park is important and is to be fully supported." The acknowledged good quality vegetation on the southern portions of the previous Lot 6 and Lot 7 add further to the recommendation that these areas should be retained for conservation purposes. The proponent's support for the retention of areas of good quality vegetation is endorsed.

Architects for the proponent have indicated that the design of the school and associated buildings and play areas should be dispersed through the natural vegetation. Single storey buildings using natural materials and colours would be designed to have natural bushland on three sides where possible, with internal spaces between the buildings being brick paved as playing areas. In addition, natural bush would be retained as a visual buffer between the proposed bus bay next to Yangebup Road and the primary school. Primary school buildings have been designed to maximise passive energy.

3.4 Use of groundwater

In the CER document the proponent indicated that it was proposed to tap the superficial aquifer beneath the site to provide bore water to irrigate the proposed oval. It was also suggested that no bore license would be required. However, the Water Authority of Western Australia has confirmed that a bore licence is needed for this site, and consultants for the proponent have indicated that such a licence would be sought.

It was also noted that there may be pollutants in the groundwater, including arsenic, which could render the water unsuitable for use. The consultants have indicated that they would liaise with the Water Authority of Western Australia on this matter to determine the suitability of the water, and, if it is considered suitable, to seek appropriate bore licence and other approvals prior to establishment.

The need for careful management of irrigation and fertilisation of the oval in order to prevent nutrients or other pollutants entering the groundwater, or the Lakes themselves has been acknowledged by the proponent and forms part of the commitments given.

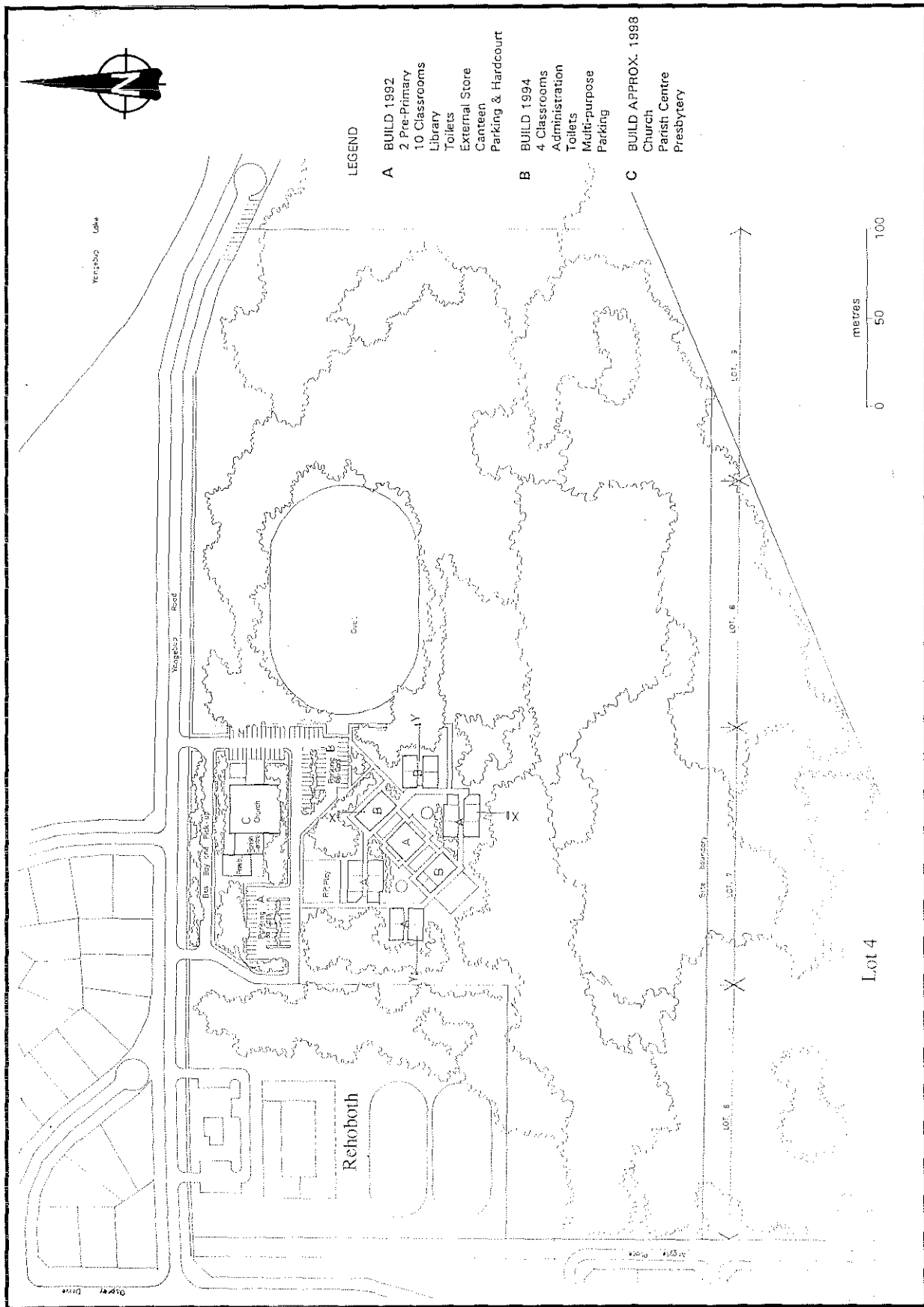


Figure 3. Layout of proposed development

3.5 Traffic and noise

Some submissions received suggested that increased traffic and increased noise levels would be unacceptable for local residents. It is inevitable that any developments will increase both noise and traffic levels in a previously less developed area. The consultants for the proponent carried out a traffic study which suggested that the expected additional traffic could be carried by those roads which would be affected.

Although there is expected to be some additional noise from the actual construction of this development, during operation the levels of noise should not be unacceptable, given that the land has been zoned 'Urban Deferred'. By setting the primary school back from the road, and using existing vegetation as well as plantings of indigenous vegetation as visual and sound buffers the design should minimise any problems from this source. There is expected to be some additional noise from the oval, but it is not expected that this would be at an unacceptable level.

3.6 Private use of public land

A number of submissions expressed concern that a private developer should have access to public land (on Lot 8) which would diminish public access. The proponent has acknowledged the potential disadvantages of this; however, the proponent has given an undertaking that the oval, which would be established and maintained by the proponent, would be readily accessible for the general community outside of school hours. Whereas the school would have prior right of access during school hours, it is expected that when it was not needed for the school, it could be made available as a community resource. In recognition of the situation, the proponent has committed to revegetating that part of Lot 9 which has been previously cleared, and the northern portion of Lot 8, between the proposed oval and Yangebup Road to the north.

An alternative site for the oval would be on the southern end of Lot 7, which would require the clearing of good quality vegetation which is likely to be of significant value to fauna. It is the opinion of the Authority that the best interests of the System 6 and proposed Beeliar Regional Park areas would be accommodated if the southern sections of the previous Lot 6, and the present Lot 7 were to be managed for conservation purposes, and the oval placed on the already degraded area on Lot 8.

3.7 Services including sewerage and drainage

The proponent has undertaken to have the development connected to the reticulated sewerage system, and to retain on-site all storm water. The intention is that gardens will be planted with native shrubs, and as far as possible existing trees will be retained. Roadways and sealed areas will not be curbed, and brick paving will be used to allow water to soak into the ground. Detention basins and soakwells will be installed. Watertable contours indicate that groundwater flows would be away from rather than towards the Lake chain.

As indicated previously, the management plan for the establishment and maintenance of the oval has incorporated measures such as red mud amendment and limited irrigation and fertiliser to minimise nutrient export.

4. Conclusions and recommendations

This project to build a primary school, church, and associated buildings on Lot 7 Yangebup Road has raised a number of environmental issues, the main ones being those associated with the appropriate land use for an area within System 6 M93, and the proposed Beeliar Regional Park. The zoning of Lots 6 and 7 as Urban Deferred land rather than for Parks and Recreation highlights some of the inherent difficulties in maintaining the proposed conservation estate in the context of pressures for increasing urban development. Thus the major considerations surrounding this proposal were the location of the proposal, and the implications that this might

have both in the specific instance, as it relates to recommendations for M93, and for the proposed Beeliar Park, and in more general terms, in the implicit messages as to how the Authority views the recommendations for Systems areas.

However, given the context and the commitments made by the proponent, the Environmental Protection Authority concludes that this proposal is environmentally acceptable, subject to the commitments made and the conditions specified in the recommendations below. This assessment does not preclude the need for the proponent to obtain necessary permits, licences and approvals from a range of other agencies, including the City of Cockburn, the Water Authority of Western Australia, and the Department of Planning and Urban Development.

Appendix 1

Guidelines for Consultative Environmental Review



Mr R Dullard
Catholic Education Office
50 Ruislip Street
LEEDERVILLE WA 6007

Your ref:
Our ref: 227/74/91.118
Enquiries: J Boyer

Dear Mr Dullard

**CONSULTATIVE ENVIRONMENTAL REVIEW FOR PROPOSED
BEELIAR PARK CATHOLIC SCHOOL DEVELOPMENT**

Please find attached the Environmental Protection Authority's guidelines for the preparation of the Consultative Environmental Review documentation required for the proposal.

The proposal for a primary school, high school, parish centre, presbytery and church within the proposed Beeliar Regional Park is of such a scale and intensity that it is not considered to be in keeping with the intent of this area of the proposed Regional Park, or the original System Six recommendation M93. The Authority requests that you give consideration to reducing the scale of your proposal and design it so that it complements the System Six recommendation for this area.

If you wish to discuss this matter, or if you have any queries about the CER guidelines, please contact Jackie Boyer on 222 7000.

Yours sincerely

R A D Sippe
DIRECTOR
EVALUATION DIVISION

7 February 1992

cc: Chappell and Lambert
Alan Tingay and Associates

CSchool design 070292 JBO

Environmental
Protection Authority

1 Mount Street Perth
Western Australia 6000
Telephone (09) 222 7000
Facsimile (09) 322 1598

BEELIAR PARK CATHOLIC SCHOOL DEVELOPMENT

GUIDELINES FOR THE CONSULTATIVE ENVIRONMENTAL REVIEW

In Western Australia, the environmental assessment process is about protecting the environment. The fundamental requirement is for the proponent to describe the proposal in some detail, to discuss the environmental impacts and potential environmental impacts of the proposal, and then to describe how those environmental impacts are going to be avoided, ameliorated or managed so that the environment is protected.

Throughout the process, it is the aim of the Environmental Protection Authority (EPA) to advise and assist the proponent to improve or modify the proposal in such a way that the environment is protected. However, it is the responsibility of the proponent to design and implement proposals which protect the environment, and to present the design proposals for review.

These guidelines have been prepared to assist the proponent in identifying issues which should be addressed within the Consultative Environmental Review (CER) Beelihar Park Catholic School Development. They are not intended to be exhaustive and the proponent may consider that other issues should also be included in the document.

The CER should facilitate a review of the key environmental issues. The purpose of the CER should be explained, and the contents should be concise and accurate as well as being readily understood. Specialist information and technical description should be included only where it assists the understanding of the the proposal. Where specific information has been requested by a Government Department or the Local Authority this should be included in the document.

It is not intended that the document be unduly lengthy. Rather it is intended that all relevant material should be succinctly presented in order that the key environmental issues may be assessed.

The principal function of the CER is to place this project in the context of the regional environment and progressive developments, including the cumulative impact of this development. It seeks to explain why this project is being proposed in the way it is, at this place and at this time. It should also set out the environmental impacts the project will have, and what management steps the proponent intends to use to avoid, ameliorate or mitigate any negative environmental impacts.

A copy of these guidelines should appear in the CER document.

PROJECT DESCRIPTION

It is important to include a description of the proposal itself, including specifically what is proposed, how it is to be carried out, the timing of the project, and what measures will be taken to ameliorate possible negative effects.

Detailed plans of the site should be included showing:

- existing land uses and land status;
- adjacent land uses;
- roads and services;
- proposed land uses;
- System 6 areas boundaries;
- Beelihar Park proposal boundaries; and
- Wetlands.

These plans may be included in the text, or included as appendices to the report. In addition, fauna and flora surveys should be included to facilitate assessment and planning

ENVIRONMENTAL IMPACTS AND MANAGEMENT

Predicted environmental impacts and proposed measures to overcome or minimise these problems should be discussed in sufficient detail so as to allow an adequate assessment to be made.

The specific environmental concerns with the Beeliar Park Catholic School Development proposal revolve around a number of issues, which include:

- System 6 recommendations - it is important that this proposal be seen in the context of the whole of the system 6 area, and demonstrate its compatibility with the recommendation;
- Beeliar Park recommendations - it is important that this proposal be seen in the context of the proposals for the Beeliar Regional Park, and demonstrate its compatibility with the objectives of the Park proposal;
- Protection of the nearby wetlands;
- Drainage management, effluent disposal, nutrient management;
- Protection of groundwater;
- Flora and fauna conservation and rehabilitation of vegetation. (The vegetation on site has regional significance);
- Midge, mosquito and insect nuisance -management;
- Fire management;
- Landscape amenity; and
- Odours from nearby wool scourers.

COMMITMENTS

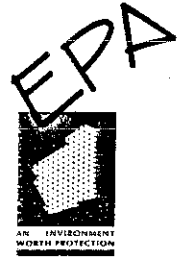
Specific commitments should be given to all components of the management programme. Where appropriate, the commitments should include

- a) who is responsible for the commitment and who will do the work,
- b) what is the nature of the work
- c) when and where the work will be carried out and
- d) to whose satisfaction will the work be carried out.

A summary of commitments in numbered form should be given. A set of well written concise commitments covering the key issues of the proposal and its effects will help to expedite assessment of the proposal.

Appendix 2

Issues



Mr R Dullard
Catholic Education Office
50 Ruislip Street
Leederville WA 6007

Your ref:
Our ref: 91.118
Enquiries: Ms K Wilson

Dear Mr Dullard

BEELIAR PARK CATHOLIC SCHOOL DEVELOPMENT

Following the public review period for the Consultative Environmental Review (CER) relating to the above project, I wish to advise you that there were a number of issues of concern raised by people and organisations which made submissions to the Authority. Whereas some of these deal with matters to which reference has already been made in your document, it is clear that more information or some further reassurance is being sought. Accordingly, I now provide you with a list of key issues which should be addressed by you or your consultants.

A copy of this letter, and your response, will be included in the Appendix of the Environmental Protection Authority's assessment report, and references may be made in the text of that report also.

Under the Environmental Protection Act, the Authority's report is subject to a 14 day appeal period, during which time the public may appeal against the report or its recommendations. An incomplete response to any of the issues raised could lead to public appeals, and these, in turn, can delay the finalisation of Ministerial conditions.

- Many submissions indicated considerable concern that the proposed development would take place in an area designated under System 6 recommendations as being suitable for reservation for a regional park, with particular reference to ensuring the lakes in the eastern chain of the Cockburn wetlands are managed for conservation of flora and fauna and recreation.

- Similarly, as the land in question forms part of the proposals for the Beelihar Regional Park, many submissions expressed concern that the proposed development would not be consistent with the recommendations for Beelihar, especially as the Park boundaries have yet to be formalised.

Environmental
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• Arising from this concern, the additional issue was noted that the land in question is recognised as presenting a severe midge problem, and that this has now been compounded by the dangers of Ross River Virus. There could be potential health hazards for the school and church communities

• From the point of view of the lakes themselves, the subject land has been seen as an important buffer, to protect the wetlands and their ecosystems. The proposed development has raised concerns for submitters that this buffer would be compromised to the detriment of the lakes.

• The intention to use Lot 8 which is a publicly owned Parks and Recreation Reserve for essentially private use, and for active rather than passive recreation, at least during school hours, also raised considerable comment from those who felt that it formed a valuable part of the overall buffer for the lakes, as part of the System 6/Beeliar Park system.

• Protection of flora and fauna, and visual amenity were also seen as part of the importance of maintaining this buffer.

• It was further suggested that extensive earthworks on Lot 8 could spread dieback to the regenerating jarrah in the area.

• Whereas reference was made to the Murray and Middle report on Lake Kogalup, the lack of a detailed fauna survey was seen as a serious omission, especially as it is claimed the area contains a number of endangered or threatened species such as bandicoots and black gloved wallabies.

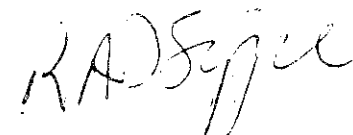
• In terms of the proposed development as such, concern was expressed about pollution levels in the groundwater, including arsenic, which may render the water inappropriate for school use, even for playing field watering. The Authority has also been advised that a bore license would be required before this water could be accessed.

• Concern has been expressed that fertilisers used on the oval could adversely affect the water in the Lakes.

• Increased noise levels and additional traffic congestion were also raised as issues in some submissions.

It is acknowledged that some of these issues have been referred to in the CER document, however, the level of concern is such that it may well be in your interest to elaborate on these issues in reply to this letter. I look forward to receiving your response to these matters.

Yours sincerely



R A D Sippe *RS*
DIRECTOR
EVALUATION DIVISION

12 May 1992

cc: Sec 6 B, ...

Appendix 3

Response to issues

ALAN TINGAY & ASSOCIATES
ENVIRONMENTAL SCIENTISTS
A.C.N. 009 103 468

FAXED

26 May 1992

SAB:pl/182.91051

The Chairman
Environmental Protection Authority
Westralia Square
38 Mounts Bay Road
PERTH WA 6000

Attention: Ms Katrin Wilson

Dear Katrin

RE: BEELIAR CATHOLIC SCHOOL RESPONSES

Attached are the proponents responses to the questions raised during the public review period for the proposed primary school at Yangebup. The questions responded to are also supplied to ensure a full understanding of the answers given.

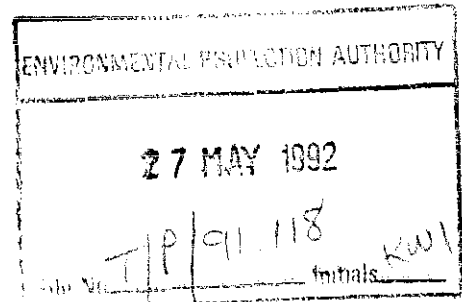
I would like to take this opportunity to thank you for your co-operation in preparing the Consultative Environmental Review and the attached responses and look forward to reading the assessment report on the project. Once again, thank you.

Yours sincerely,



SCOTT BIRD
Associate

c.c. Mr Ron Dullard - Catholic Education Office



COPY TO 45/90

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CATHOLIC EDUCATION OFFICE

BEELIAR CER RESPONSES

1. Many submissions indicated considerable concern that the proposed development would take place in an area designated under System 6 recommendations as being suitable for reservation for a regional park, with particular reference to ensuring the lakes in the eastern chain of the Cockburn wetlands are managed for conservation of flora and fauna and recreation.
 2. Similarly, as the land in question forms part of the proposals for the Beeliar Regional Park, many submissions expressed concern that the proposed development would not be consistent with the recommendations for Beeliar, especially as the Park boundaries have yet to be formalised.
- 1&2a Both the System 6 report and that recommending boundaries for the proposed Beeliar Regional Park are concerned with the maintenance of the eastern chain of the Cockburn wetlands for conservation of flora and fauna and for recreation. It is understood that the boundaries of the proposed Park have yet to be set. The proposed development site is within an area that is under consideration as buffer for this chain of wetlands. The proponent recognises this and as a result of discussion with the EPA has designed the proposal in order to retain the environmental features of the property. The proponent has accepted a significant reduction in the scale of the project to achieve this objective.

The proponent has conducted surveys and other research to assess the development site's environmental features. These surveys have found that its vegetation is degraded and as a consequence the site has little conservation value with regard to flora or fauna. However, the proponent recognises the need for the land to be properly managed in order to protect the functioning of the wetlands and to provide a buffer from neighbouring residential areas. Potential impacts have been identified and management strategies have been proposed so as to prevent any adverse affects to the eastern chain of the Cockburn wetlands from the proposal.

The document Beeliar Regional Park Proposals for Establishment, Administration and Use makes particular reference to the land involved in this proposal. It is stated that because of the known midge problem in this locality these lots (6 and 7) are recommended for inclusion within the Parks and Recreation Reserve. It is concluded that the proposal to include these lots in the proposed park was made to provide a buffer between nearby housing area and wetlands to prevent problems associated with midges from occurring. Partial development of Lot 6 for educational purposes has already been approved.

It is considered that the proposed school is a suitable use for the land because it provides education facilities for the local community and retains a buffer

between housing and the wetlands. The retention of vegetation and replanting of denuded areas will enhance its value as a buffer for the wetlands. On this basis it is considered that the proposal is consistent with the criteria used to define the proposed boundaries of the park and will not detract from the proposed Beeliar Regional Park and the eastern chain of Cockburn wetlands.

3. Arising from this concern, the additional issue was noted that the land in question is recognised as presenting a severe midge problem, and that this has now been compounded by the dangers of Ross River Virus. There could be potential health hazards for the school and church communities.
- 3a. The proponent has local knowledge of the site and is aware of the extent of the midge problem. It is satisfied that midges will not be an unmanageable constraint to using the site for a primary school and church. This is primarily because midges are a problem predominantly around sunrise and sunset at which times the school and church will not be in use. The establishment of the Association for Christian Education's primary school immediately to the west of the site and housing immediately to the north attests to the site's suitability.

The proponent has considered the potential dangers posed by Ross River Virus and has informal advice from researchers who are monitoring the disease and the mosquito populations which carry it. It is concluded that there is no undue risk with regard to Ross River Virus. Mosquitoes are prevalent in the evening and as the school will not be in use at this time there will be minimal exposure risk. Health authorities who are responsible for the control of Ross River Virus have the option to control mosquitoes by spraying breeding areas with a specific growth retarding hormone which prevents the larvae mosquitoes from becoming adult. This spraying technique has been chosen over the use of insecticides because of its relative effectiveness and its lack of environmental impact. The proponent is prepared to commit to liaising with the Health Department to ensure that the risk of catching the disease by attending school or church at the location will be minimised.

4. From the point of view of the lakes themselves, the subject land has been seen as an important buffer, to protect the wetlands and their ecosystems. The proposed development has raised concerns for submitters that this buffer would be compromised to the detriment of the lakes.
- 4a. The Consultative Environmental Review (CER) on the proposal considers the full range of potential environmental impacts that the development could have on the nearby wetlands, including those related to surface water drainage, sewage disposal, groundwater pollution, vegetation retention, visual amenity and fire management. The proponent has made proposals in the form of commitments to prevent any adverse impacts to the wetlands and believes that the use of the land for educational purposes is compatible with its use as a buffer between the wetlands and the urban area to the west. The use of Lot 8 as

a playing field is consistent with the proposed use of the area as described in the document concerned with the Beeliar Parks Establishment, Administration and Use (Map 6 and Table 1).

5. The intention to use Lot 8 which is a publicly owned Parks and Recreation Reserve for essentially private use, and for active rather than passive recreation, at least during school hours, also raised considerable comment from those who felt that it formed a valuable part of the overall buffer for the lakes, as part of the System 6/Beeliar Park system.
- 5a. The document, Beeliar Regional Park, Proposals for Establishment, Administration and Use, describes the proposed uses for the subject land. This land use is designated as Recreation and Leisure (Map No. 6) which is defined as "areas that have some natural values, where passive and active recreation is compatible" (Table 1). The proponent recognises that the majority of these areas will be for passive recreation but notes that active recreation is considered to be a suitable land use within these designated areas. Carparking, rehabilitation, and landscaping are management activities emphasised for these areas. The proponent proposes all of these in a manner which will not adversely impact on the existing native vegetation of Lot 8 and the Beeliar chain of wetlands. As a consequence, it is considered that an oval on Lot 8 is a land use that will provide a valuable public facility to residents and be consistent with the recommendations relating to the proposed Beeliar Regional Park.

The proposed agreement regarding use of the oval will result in the oval being freely accessible outside school hours to the general public. Inside school hours it is envisaged that the school will have preferential use of the oval, however, the general public would have full access when the oval is not being used during school hours. It is considered that this type of agreement is typical of those in place between Local Authorities and Sporting Clubs, and schools both private and public throughout the State. Importantly, however, the school is willing to pay for the establishment and maintenance of the oval thus creating a public asset.

6. Protection of flora and fauna, and visual amenity were also seen as part of the importance of maintaining this buffer.
- 6a. The proponent has conducted surveys and research into the conservation value of flora and fauna of the site and has concluded that it has little conservation value. The site is in the same condition as Lot 9 which is adjacent and next to Kogolup Lake. Lot 9 was considered for inclusion into the proposed park but as it was in private ownership and was seen as having little conservation value it was not recommended for inclusion (Beeliar Regional Park document p24).

It is considered that despite its poor condition the site has the potential to be part of the buffer protecting the wetlands if properly managed. The commitments

given in the CER represents the management which the proponent will undertake to ensure the values of this buffer is protected.

The vast majority of the development will be hidden from view from the proposed park by a ridgeline than runs between the proposed park and Lots 6 and 7. The retention of large trees and rehabilitation of earthworked areas including shielding bunds around the oval on Lot 8 will ensure that it cannot be seen from the park.

7. It was further suggested that extensive earthworks on Lot 8 could spread dieback to the regenerating Jarrah in the area.
- 7a. The proponent recognises that the spread of dieback is a potential impact that could arise from the earthworks proposed on Lot 8. For this reason the proponent commits to undertaking measures to prevent the spread of dieback including the cleaning of earthmoving equipment prior to introduction to the site and inspection of the site for the presence of dieback prior to construction commencing.
8. Whereas reference was made to the Murray and Middle report on Lake Kogalup, the lack of a detailed fauna survey was seen as a serious omission, especially as it is claimed the area contains a number of endangered or threatened species such as Bandicoots and Black-Gloved Wallabies.
- 8a. The proponent has conducted a survey of the vegetation of the site and found it to be in poor condition and lacking the understorey which is required to support species such as the Short-Nosed Bandicoot and the Black-Gloved Wallaby. The development site is adjacent to areas to the south with vegetation in good condition and this could contain the abovementioned fauna species. The proponent considers that the retention of these areas of good quality vegetation within the park is important and is to be fully supported.

The report by Murray and Middle indicates the type of fauna species that would be found on the development site. There is every indication that given the lack of suitable habitat, at best the site would contain fauna typical of Jarrah/Banksia Woodlands on the Swan Coastal Plain and no rare or endangered species. For this reason it is believed that the Murray and Middle Study in conjunction with the studies carried out by the proponent is sufficient for the purposes of the environmental assessment and does not believe that a specific fauna survey of the site is warranted.

9. In terms of the proposed development as such, concern was expressed about pollution levels in the groundwater, including arsenic, which may render the water inappropriate for school use, even for playing field watering. The

Authority has also been advised that a bore license would be required before this water could be accessed.

- 9a. The proponent has recently liaised with staff of the Water Authority of Western Australia (WAWA) as a result of the questions raised regarding arsenic in groundwaters. The presence of arsenic in groundwaters around industry east of Lake Yangebup has been confirmed, however, given the distance between this industry and the proposed school site, it is unlikely that the arsenic content of groundwaters will be sufficient under the site to prevent its use. Notwithstanding this, the proponent will investigate this issue prior to utilisation of any bore water and will satisfy the relevant authorities that the bore water is suitable for use around the school. WAWA confirmed that the site is within a proclaimed area with regard to groundwater resources and thus any bore will need to be licensed by WAWA unlike bores in typical urban areas.
10. Concern has been expressed that fertilisers used on the oval could adversely affect the water in the Lakes.
- 10a. It is concluded that fertilisers applied to the oval will not adversely affect the waters of Yangebup or Kogolup Lakes because of proposed soil amendment with red mud beneath the oval and because of the westerly direction of groundwater flow beneath the site away from the wetlands. Red mud has an ability to bind phosphorus and when mixed with soil can prevent the transport of phosphorus not taken up by the turf down to the water table. In addition, any nutrients which manage to reach the groundwater will be carried with the regional groundwater flow in a westward direction away from the wetland and consequently will not reach those wetlands.
11. Increased noise levels and additional traffic congestion were also raised as issues in some submissions.
- 11a. Development of the region for Urban uses will inevitably result in increased noise levels and traffic congestion in the area. Noise and traffic associated with the school and church will not be any different than those created by similar facilities throughout the metropolitan area and on this basis these increases are considered minor and acceptable especially considering that these facilities will be fulfilling a need within a growing community.

Appendix 4

Proponent commitments

REVISED LIST OF COMMITMENTS

As a result of input by the public, the proponent has made commitments in addition to those made in the CER. The following is a revised list of commitments made by the proponent.

The Catholic Education Office commits to undertake the following commitments with respect to the Beeliar Park Catholic School Development.

1. The Proponent will minimise the removal of native trees and shrubs within the development site. This will be done to the satisfaction of the City of Cockburn.
2. The Proponent will carry out management strategies which will include the application of red mud, and minimisation of fertiliser application. Turf will be irrigated in a manner which minimises the potential for leaching of nutrients down to the water table. This will be done to the satisfaction of the City of Cockburn and the EPA.
3. The Proponent will replant parts of Lot 8 and Lot 9 Yangebup Road, Yangebup with indigenous vegetation. This will be done to the satisfaction of the EPA, the City of Cockburn, and CALM.
4. With regard to the oval on Lot 8 Yangebup Road, the Proponent commits to meeting the costs of establishment and maintenance. This will be done to the satisfaction of the City of Cockburn.
5. The Proponent commits to designing the development to contain and dispose of all stormwater on site. This will be done to the satisfaction of the City of Cockburn.
6. The proponent commits to determining the suitability of the groundwaters beneath the site for irrigation purpose prior to development of a bore. This will be done to the satisfaction of WAWA and the City of Cockburn.
7. The proponent commits to managing the earthworks associated with the construction of the oval with regard to preventing the spread of dieback. This will be done to the satisfaction of the EPA.
8. The proponent commits to liaising with the Health Department and the Local Authority to ensure that any additional risk posed by attending the church or school with regard to Ross River Virus is minimised. This will be done to the satisfaction of the Health Department and the Local Authority.
9. The proponent commits to providing shielding bunds around the oval on Lot 8 so that the oval will not be visible from the proposed Beeliar Park. This will be done to the satisfaction of DPUD and the Local Authority.

Appendix 5

Additional commitments

ALAN TINGAY & ASSOCIATES
ENVIRONMENTAL SCIENTISTS

35 Labouchere Road, South Perth. WA 6151

Telephone No: 0011 61 9 474 1300 Facsimile No: 0011 61 9 4743394

A& SR Tingay Pty Ltd - A.C.N. 009 103 468

FACSIMILE TRANSMISSION**TO:** EPA.**FAX NO:****ATTENTION:** Kahin Wilson**DATE:** 22/06/92**FROM:** Scott Bird**JOB NO:****SUBJECT:** Beelior**PAGE:** 1 OF 3

Please check all sheets have been transmitted and are legible. If not, ring or send a fax immediately.

Kahin,

Following is the letter on behalf of the
Catholic education office

Regards



ALAN TINGAY & ASSOCIATES
ENVIRONMENTAL SCIENTISTS
A.C.N. 009 103 468

22 June 1992

SAB:pl/190.91051

The Chairman
Environmental Protection Authority
Westralia Square
38 Mounts Bay Road
PERTH WA 6000

Attention: Ms K Wilson

Dear Kartin,

RE: BEELIAR PRIMARY SCHOOL

This letter is in response to questions raised in the public review period with regard to the Consultative Environmental Review (CER) on the above project.

The Catholic Education Office wishes to reaffirm its commitment to ensuring an environmental theme to the Beeliar Primary School and to exploiting the obvious educational benefits associated with the school being partly within and adjacent to the Beeliar Regional Park. To achieve this the proponent will promote environmental awareness as an important part of the primary school curriculum. The proponent is prepared to commit to the development of an environmental resource centre to help achieve this objective and to manage an adjacent portion of land for conservation purposes. These commitments are as follows:

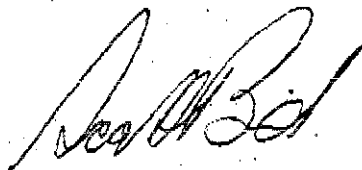
- o The proponent will, in conjunction with the Department of Planning & Urban Development (DPUD), provide an environmental resource centre within the proposed development for the use of the general public and school children. This will be done to the satisfaction of DPUD and the Environmental Protection Authority (EPA).
- o The proponent will, in conjunction with the Department of Conservation and Land Management, manage part Lot 4 Yangebup Road, Yangebup for conservation purposes. This will be done to the satisfaction of the EPA.

In addition to the above, the Catholic Education Office reiterates their commitments regarding the management of the primary school in a manner which is appropriate to its setting within the Beeliar Regional Park. Formal commitments have already been made in the CER regarding the retention of vegetation, the disposal of stormwater, the management of nutrient discharges and the rehabilitation of parts of Lot 8 and Lot 9 Yangebup Road. It is felt that these commitments

will ensure that the primary school is managed in a manner which promotes conservation and will enhance the natural environment of the area.

We hope the above sufficiently answers your questions regarding the management of the primary school and we look forward to the production of the EPA assessment report on the proposal.

Yours sincerely,



SCOTT BIRD
Associate

~~c.c. Mr D Overall - Department of Planning & Urban Development~~

Appendix 6

Selected sections of Beeliar Report

BEELIAR

Regional Park

PROPOSALS FOR ESTABLISHMENT,
ADMINISTRATION AND USE

FINAL



Department of Planning and Urban Development
Albert Facey House
469 Wellington St.
Perth, Western Australia

JUNE 1992

4.3 RECOMMENDED BOUNDARIES

Map 4 shows the areas recommended for inclusion in the Beeliar Regional Park. These include all of the Environmental Protection Authority's System 6 areas, except where noted in the discussion below.

Murdoch Sports Complex

A Portion of Part Jandakot A.A. Lot 172 which is included in the System 6 boundary has little environmental value and is not needed for sporting uses. Its inclusion in the park would be an unnecessary cost so it is not proposed for reservation for Parks and Recreation.

Kogolup Lake

The majority of land west of Kogolup Lake is owned by Homeswest. Presently the land south of the proposed realignment of Yangebup Road and east of the System 6 boundary is zoned rural. The Kogolup Lake area is proposed to be reserved for Parks and Recreation in the Metropolitan Region Scheme.

A deviation of the park boundary from the System 6 recommendation in this area involves Part of Lot 9, which fronts the old Yangebup Road, near the north-east corner of the Lake. This land is in private ownership and has little conservation value.

Yangebup Lake

Land north of the re-aligned Yangebup Road is mainly reserved for Parks and Recreation with Lots 6 and 7 being zoned urban deferred.

These lots are within the System 6 area and because of the known midge problem in this locality, were recommended by the Consultative Committee for inclusion within the Parks and Recreation reservation.

Homeswest has proposed an environmental school be built on Lots 6 and 7 which would retain their current zoning. The school would participate in management of the park. As the land is zoned Urban Deferred, the cost of reservation and acquisition is disproportionate to its value as a bushland area. However, some of these values could be retained if the area is developed as a school. The concept of a school in the park to introduce young people to conservation principles at an early stage is considered to have merit, and to be consistent with both System 6 and the regional park concept proposed in the Red Book.

Hird Road and Twin Bartram Swamps

These wetlands are to be incorporated into the local open space system of the proposed South Jandakot urban development area. They will not be incorporated into the park but will be managed in association with the Beeliar wetlands.

Thomsons and Banganup Lakes

The boundaries of these class A reserves will be unchanged. They are proposed to be reserved for Parks and Recreation in the Metropolitan Region Scheme with Banganup Lake having the Restricted Public Access designation. Land currently owned by Homeswest to the south west of

Banganup reserve is proposed to be reserved for Parks and Recreation and acquired for inclusion in the park. A small unnamed wetland to the east of Thomsons Lake which is affected by a System 6 recommendation, is also proposed for reservation and acquisition.

Land South of Banganup Lake to Wattleup Lake

This land is currently in private ownership and is zoned rural in the Metropolitan Region Scheme. Current activities are of a rural nature and the land remains generally uncleared. Wattleup Lake has a pleasant appearance and management of the general area appears to be adequate. The area is included within the System 6 boundary which recommended that it be reserved for Parks and Recreation in the Metropolitan Region Scheme. The then MRPA considered there was no need for this area to be reserved under the Metropolitan Region Scheme. However, Beeliar Regional Park management should be given the brief to enter into negotiations to ensure conservation values can be maintained by agreement with the owners of this private land. Protection of bushland between Banganup and Wattleup Lakes could be achieved through landscape protection measures which are currently under consideration.

PLANNING ISSUES

4.1 URBAN DEVELOPMENT

A common theme in the submissions was apprehension at the rapid urban growth in the South West Corridor, and the effect it is perceived to have on bushland and wetlands in the Beelias area. One submission opposed housing development on the Jandakot Mound and ten submissions specifically referred to problems resulting from urban expansion, considering that urban development near lakes was undesirable, particularly because of drainage problems, and that zoning restrictions should be applied. Two submissions advocated the establishment of compatible zoning adjacent to the park which would protect the landscape and act as buffers between the park and housing developments.

One submission opposed 'encroachment' by Homeswest housing projects south of Yangebup Road and west of Lake Kogolup. These do not affect land earmarked for the park, although considerable areas of bushland in the urban zone are being replaced by housing.

4.2 PROPOSED BEELIAR PARK ENVIRONMENTAL SCHOOL

A major submission by Homeswest suggested that Homeswest's Lots 6, 7 and 8 Yangebup Road of which Lots 6 and 7 are presently zoned Urban Deferred, (map 5 of draft report) have limited value for inclusion in the park and would be a most expensive acquisition. Homeswest has proposed that part of Lots 6 and 7 be used for an environmental school, which would be an integral part of the Regional Park.

The school playing field would be located on Lot 8 and would be a multiple use facility available for public use and not restricted to school use. This proposal is consistent with the concept and objectives of the park. It will engender community participation in the park, reduce land acquisition costs and protect the important bushland areas on the land through the provision of a school nature study reserve and a public environment study centre near Yangebup Lake.

Nevertheless there are concerns that some stands of Jarrah and Marri may be lost, that nutrient runoff from the areas may affect Kogolup and Yangebup Lakes, and that overuse of Kogolup Lake by students may cause problems. The environmental investigations accompanying the proposal indicate that the nutrient concern can be overcome through proper design, and that the school layout was designed to minimise tree loss on the site.

A new alignment for Yangebup Road will separate the school from Kogolup Lake in the future and the existing alignment near Yangebup Lake will be closed. This separation and fencing of Kogolup Lake and the school may overcome the perceived problem of overuse. The question of midge nuisance is also addressed in the environmental investigations accompanying the proposal.

The final report proposes that Lots 6 and 7 remain zoned for urban use in the Metropolitan Region Scheme and that Lot 8 and Lot 4 remain reserved for Parks and Recreation to give effect to the concept of a school in the park. Detailed plans, however, will be the subject of separate planning and environmental assessment.

4.3 PROPOSED LANDSCAPE PROTECTION MEASURES

One submission was strongly opposed to the suggested use of the Waterways reservation because of the hardship it may impose, and this view is accepted. At present the Department of Planning and Urban Development is finalising proposals for new landscape protection measures. These would be used to protect privately owned wetlands as proposed in the draft report. The final report proposes an Amendment to the Metropolitan Region Scheme which will generally reserve any 'rural' portions of the park which are not protected by landscape protection measures, for Parks and Recreation.

5

PARK BOUNDARIES AND AREAS PROPOSED FOR INCLUSION IN THE PARK

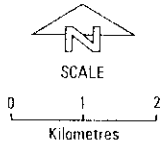
5.1 WETLANDS

As well as the wetland reserves in the City of Melville mentioned in Section 3.2, thirteen submissions suggested that other wetlands should be included in and managed as part of the park. They are:-

- Roe Swamp
- Bull Creek Wetlands
- Solomon Road Swamp
- Twin Bartram Swamps
- Hird Road Swamp
- Bollard Bullrush Swamp
- Long Swamp
- Lake Wattleup
- Branch Circus Wetland
- Market Garden Swamp No. 3






Roe Swamp is to be protected as part of the North Lake Parks and Recreation reserve but the **Bull Creek wetlands** which are part of the Swan and Canning River System and come under the jurisdiction of the Swan River Trust are not proposed for inclusion in Beeliar in the final report.

Prepared by the Department of Planning
and Urban Development Perth, Western Australia
May 1997



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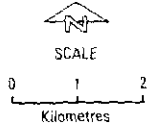
-  Beeliar Regional Park (approximate area 2700ha)
-  Possible future linkages
-  Murdoch University
-  Proposed Beeliar Environmental School
-  Proposed landscape protection area
- ① Market Garden Swamp No. 3
- ② Branch Circus Wetland
- ③ Wattleup Lake
- ④ Long Swamp
- ⑤ Boilard Bullrush Swamp

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





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Prepared by the Department of Planning
and Urban Development Perth, Western Australia,
May 1992



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-  Recreation, Leisure and Sport
-  Recreation and Leisure
-  Natural Environment uses
(including Education and Research)
-  Conservation and Protection
-  Special Management: Pollution Control
-  Murdoch University
-  Proposed Beeliiar Environmental School

BEELIAR REGIONAL PARK
LAND USE AND MANAGEMENT GUIDELINES