

**Proposed sale of Commonwealth land at the  
Bushmead Rifle Range site for  
housing development**

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**Commonwealth Department of Administrative Services**

**Advice of the Environmental Protection Authority  
to the Commonwealth Environmental Protection Agency**

**Environmental Protection Authority  
Perth, Western Australia  
Bulletin 632  
June 1992**

This proposal is being assessed under the Commonwealth Environment Protection (Impact of Proposals) Act 1974.

The Environmental Protection Authority is providing advice to the Commonwealth Environmental Protection Agency within the Department of the Arts, Sport, the Environment and Territories.

Accordingly, there are no appeal rights on this Report under the Western Australian Environmental Protection Act 1986.

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## Summary and recommendations

In response to a report published by the Housing Industry Association in early 1989, the Commonwealth Government agreed to sell land surplus to its current needs for the purpose of easing shortages of housing land in the States and Territories.

One of the areas of land being considered for sale is the Bushmead Rifle Range site. The proposal to sell the Bushmead site for possible housing development is a Commonwealth project and hence is assessed under the Commonwealth Environment Protection (Impact of Proposals) Act 1974, by the Department of the Arts, Sport, the Environment, and Territories which administers the Act.

Having made a decision to consider the land for sale, the Commonwealth entered into detailed negotiations with the Western Australian State Government agency, Homeswest. The basis of those negotiations was that the majority of the Bushmead Rifle Range site be sold to Homeswest for development of affordable residential land suited particularly to the first home buyer market.

This report is the Environmental Protection Authority's advice to the Department of the Arts, Sport, the Environment and Territories on this proposal. Although it is not a report prepared in accordance with Section 44 of the Western Australian Environmental Protection Act, and therefore not subject to the appeal provisions of the Act, the Authority has submitted this report to the Minister for the Environment and has made it available for public information.

The proponent's preferred option for development of the site is for a gradational development from normal residential densities on lower flatter slopes to larger lots on the higher steeper slopes. The site concept plan retains approximately 54ha of land for Army use of which 45ha is usable area and 9ha comprises a 50m wide creek reserve adjacent to the Army land.

Approximately 91ha or 30.7% of the site is shown as residential. The yield obtained through the subdivision of residential land ranges between 10 lots per gross hectare and 12 lots per hectare, depending on the lot size adopted.

A total of 31.3ha is set aside for special residential. It is proposed that lot sizes should range between 2000m<sup>2</sup> on the areas of flatter grades to 3500m<sup>2</sup> on areas of greater slopes. This will yield approximately 98 lots.

A total of 24.5ha is set aside for special rural where lot sizes should be a minimum of 1ha and is expected to yield 19 lots.

Approximately 93.5ha or 31.6% of the site has been set aside for open space mainly for conservation purposes including approximately 9ha of Army land that forms the proposed 50m wide creek reserve.

The geological formation of the Bushmead site is part of the Ridge Hill Shelf System and vegetation associations from the Ridge Hill Shelf System comprise the greater part of the site. Major impact has occurred to the system through forestry, mining, agriculture and urban development. By 1986 only 3.1% of the original 14,414ha covered by the system remained.

The flora of the Bushmead Rifle Range area contains in excess of 300 plant species which includes over 60 introduced weed species. The proponent's field survey recorded 60 species of birds, five indigenous and five introduced mammals, 41 reptiles and seven amphibians. Indications of the presence of two rare and endangered species, the Southern Brown Bandicoot and the Western Quoll, and one species in need of special protection, Baudin's Black Cockatoo have been recorded from the project area. Only the Southern Brown Bandicoot is resident in the area.

The Environmental Protection Authority's conservation efforts on the Swan Coastal Plain are based primarily on the System Six Study. This study identified 209 metropolitan and country

areas of regional conservation significance and/or regional representation of biological and physical values on the Swan Coastal plain and made recommendations for their management.

The Authority believes the integrity of System Six areas should not be further compromised and defends them strongly.

This does not necessarily mean that all areas outside System Six are not environmentally significant, but rather that decisions on the use of these areas should be the primary responsibility of the planning process, both at the State and local level. The Bushmead site is not covered by the recommendations contained within the System Six report.

The value of retaining existing vegetation on the Bushmead site for habitat, landscape stability, aesthetic and other functions is considered by the Authority to be important. The Authority considers the mechanism to achieve protection of remnant vegetation through the mix of planning controls and reservation advocated in the Environmental Impact Statement and the proponent's commitments is environmentally acceptable. The protection and appropriate management of the resident population of southern brown bandicoots is also considered important by the Authority.

The Authority considers other issues of environmental concern can be satisfactorily addressed through the preparation of the more detailed Structure Plan in conjunction with the various elements of the Environmental Management Programme.

### **Recommendation 1**

**The Environmental Protection Authority concludes that the proposal for the sale of Commonwealth Land at Bushmead, as outlined in the Environmental Impact Statement, is environmentally acceptable.**

**In reaching this conclusion, the Authority identified the main issues requiring detailed consideration as:**

- **retention of indigenous vegetation including vegetation types of the Ridge Hill Shelf System;**
- **impact to endangered fauna, particularly the resident population of southern brown bandicoots;**
- **management of water quantity and quality;**
- **soil contamination;**
- **existing and future air quality and noise constraints.**

**The Environmental Protection Authority considers that these environmental factors and other issues, such as planning considerations, have been addressed and are manageable, either by the environmental management commitments given by the proponent, or would be by implementation of, the Environmental Protection Authority's recommendations in this report.**

**Accordingly, the Environmental Protection Authority recommends that the proposal could proceed, subject to the proponent's commitments to environmental management as detailed in Section 10.2 of the Environmental Impact Statement (Appendix 1).**

## **Recommendation 2**

**The Environmental Protection Authority recommends that the following issues be made a requirement of the contract of sale.**

- 2.1 The developer be required to construct a stormwater disposal system capable of retaining a 1 in 10 year storm event in a specific locality of the development for 3-4 days or according to guidelines prepared by the Local Government Authority to the satisfaction of the Environmental Protection Authority.**
- 2.2 The strategy for the protection of the Bushmead bandicoot population should be finalised and implemented to the satisfaction of the Department of Conservation and Land Management. A copy of the final strategy should be made available for the Environmental Protection Authority.**
- 2.3 A study into potential contamination of the quality of groundwater arising from the former effluent disposal operations be undertaken prior to subdivision. Any remedial works should be completed before subdivision proceeds, to the satisfaction of the Environmental Protection Authority, on advice from the Department of Health.**
- 2.4 Prior to the start of any site development activities on contaminated land the proponent should prepare a Site Remediation Plan to the satisfaction of the Environmental Protection Authority and the Department of Health.**

# **1. Introduction**

In response to a report published by the Housing Industry Association in early 1989, the Commonwealth Government agreed to sell land surplus to its current needs for the purpose of easing shortages of housing land in the States and Territories.

One of the areas of land being considered for sale is the Bushmead Rifle Range site (see Figure 1). This land is currently occupied by the Australian Army and contains an active rifle range, defence housing, an Army driver training track, an Army transport depot and associated facilities.

Having made a decision to consider the land for sale, the Commonwealth entered into detailed negotiations with the Western Australian State Government agency, Homeswest. The basis of those negotiations was that the majority of the Bushmead Rifle Range site be sold to Homeswest for development of affordable residential land suited particularly to the first home buyer market.

This proposal relates specifically to the sale of all or part of the land at the Bushmead Rifle Range for potential housing development.

## **2. Commonwealth environmental assessment process and the Environmental Protection Authority**

All actions and decisions of the Commonwealth Government which are considered to have the potential to affect the environment to a significant extent, are assessed according to a framework provided by the Commonwealth Environment Protection (Impact of Proposals) Act 1974. The proposal to sell the Bushmead site for possible housing development is a Commonwealth project and hence is assessed under the above Act. The proponent's Environmental Impact Statement is assessed by the Department for the Arts, Sport, the Environment, and Territories which administers the Act.

The proponent for this proposal is the Commonwealth Minister for Administrative Services as he currently has control over that portion of the Bushmead Rifle Range site proposed for sale. For the purposes of the environmental assessment, the Commonwealth agency responsible for the preparation of the Environmental Impact Statement and administration of any subsequent action is Australian Estate Management which is a division of the Commonwealth Department of Administrative Services.

An earlier Notice of Intent commissioned by Australian Estate Management for this proposal was based on preliminary details of a structure plan for development of the Bushmead site that was, at that time being prepared by Homeswest and its consultants. As a consequence of the nature and level of public response to the Notice of Intent, during its period of public review, the Minister for Arts, Sport, the Environment and Territories directed the Department of Administrative Services to prepare an Environmental Impact Statement relating to the proposal.

This report is the Environmental Protection Authority's advice to the Department of the Arts, Sport, the Environment and Territories on this proposal. Although it is not a report prepared in accordance with section 44 of the Western Australian Environmental Protection Act, and therefore not subject to the appeal provisions of the Act, the Environmental Protection Authority has submitted this report to the Minister for the Environment and has made it available for public information.

Environmental conditions normally attached to proposals assessed under Part IV of the Environmental Protection Act will not apply for this Commonwealth proposal. However, it is

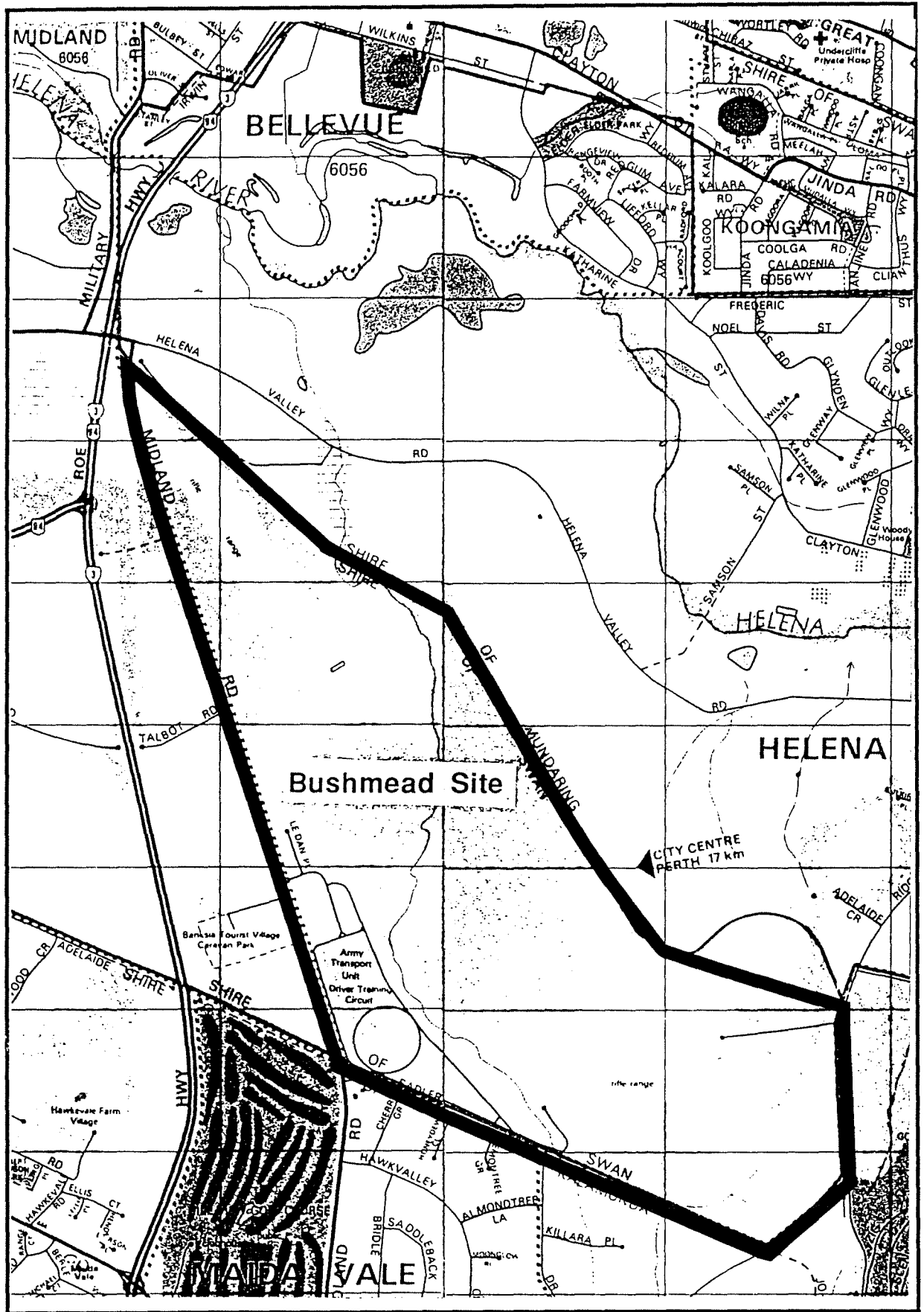


Figure 1. Location map (from Halpern Glick Maunsell, EIS)



the stated intention of the Department of Administrative Services to contractually bind Homeswest or any other developer to specific requirements and commitments in respect of environmental protection and management that have been identified in the environmental impact assessment process.

The proponent considers that the concept plan for the future development of the Bushmead site proposed in the Environmental Impact Statement recognises the environmental sensitivities of the area. However, to ensure the details of the proposal are implemented and the values of the area are protected the proponent considers that it is necessary to enumerate them and provide guidelines and parameters for the development.

There is also the intention to formulate and implement monitoring programmes designed to

- ensure environmental safeguards are being effectively applied;
- identify any unpredicted impacts requiring remedial measures;
- measure any differences between predicted and actual impacts, and
- provide for periodic review of the management plan itself.

The various requirements, commitments and monitoring programmes will form the basis of an Environmental Management Programme. The proponent also indicates that there will be a need to undertake detailed structure planning of the proposed development before details of some parts of the Environmental Management Programme can be finalised. Specific issues will need to be addressed at the detailed structure planning stage and the proponent has identified these in the Environmental Impact Statement.

### **3. Public review**

In accordance with Commonwealth procedures, the Environmental Impact Statement describing the proposal was released for public comment for eight weeks, closing on 5 June 1992. All comments received by the proponent during that time, including this one, will be reviewed and any modifications to the proposal deemed necessary as a result will be incorporated into the final Environmental Impact Statement.

### **4. Planning context of the site**

The Department of Planning and Urban Development is responsible for long-term planning for the Perth Metropolitan Region. Its principal statutory instrument is the Metropolitan Region Scheme. The Metropolitan Region Scheme lays down guidelines for the zoning of land for various uses.

The Bushmead site is currently reserved for "Public Purposes: Commonwealth Government" under the Metropolitan Region Scheme. A Scheme amendment would be required from "Public Purposes" to "Urban" in order to permit residential development of the site.

Metroplan is the new metropolitan strategy for the Perth Region. It is a government statement about the direction development of Perth will take into the next century. Metroplan is supported by a series of strategic policy statements on particular topics as well as Structure Plans for urban growth areas. The Metropolitan Region Scheme together with the policy framework provided by Metroplan are the instruments for implementing regional land use policy. As a result of the proposal by the Commonwealth to dispose of the Bushmead site, the site has been identified by Metroplan as a future urban area.

Metroplan clearly identifies the Hills and Foothills zones as an area of special sensitivity with particular value ascribed to the protection of the Darling Scarp as a key feature giving character to the Metropolitan Region. The Foothills Structure Plan has been formulated to provide a regional scale development strategy for the area that builds on the policies and proposals of Metroplan but which recognises the particular opportunities and constraints that exist.

The Foothills Structure Plan identifies the Bushmead Rifle Range site for future urban development and also recognises the role of rural land in the Foothills zone with particular attention given to landscape protection zonings in areas with significant scenic and landscape values. Areas north and south of the Bushmead site in the Foothills zone are shown to be landscape protection for this reason.

The Foothills Structure Plan is intended to provide a firm framework for planning and implementation at the district and local level, which for this area rests with the Shire of Swan. The proponent indicates that the location of the Bushmead site with respect to adjacent Shire boundaries and the lack of previous development necessitate carefully co-ordinated planning of the area. In both the adjacent Shires of Mundaring and Kalamunda there is a gradation of land development density from normal residential on the coastal plain to larger lot, Special Rural zonings in the true foothills area.

The Department of Planning and Urban Development is currently co-ordinating the Darling Range Regional Park Study. This study will identify suitable boundaries for the Park, recommend future land use and management strategies, taking into account landscape, amenity, conservation and recreation values. The Authority considers that the studies currently in progress for the Darling Range Regional Park should guide appropriate adjacent land use.

The proponent indicates there was strong community support to have the Bushmead site included in the Darling Range Regional Park Study. However the Department of Planning and Urban Development declined to include the Bushmead site indicating it would rather await the outcome of this Environmental Impact Statement before making a decision.

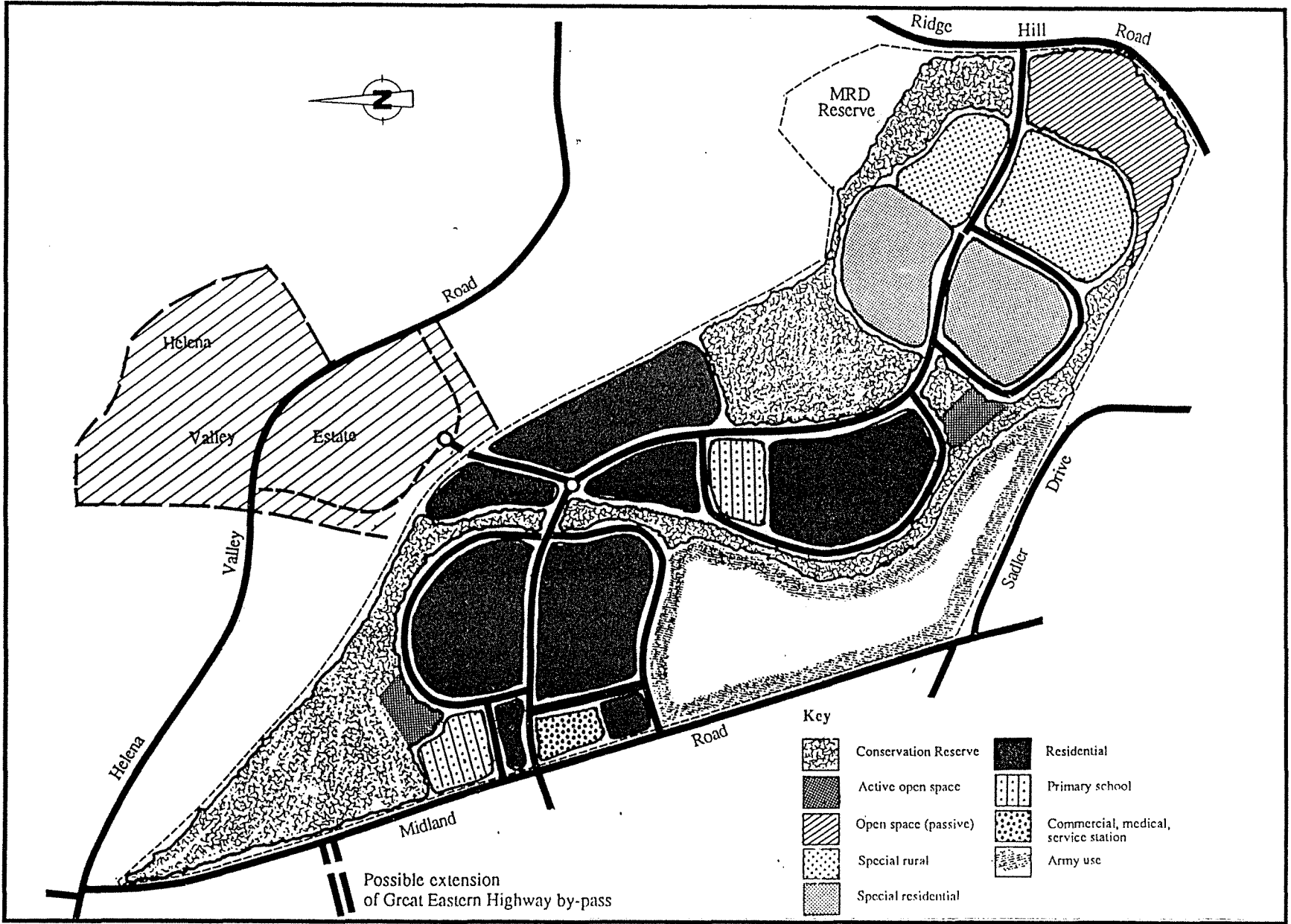
## **5. The proposal**

The Bushmead Rifle Range site encompasses an area of 296.53ha located within the Perth metropolitan area. The primary objective of this proposal is to make available land currently owned by the Commonwealth to meet the established needs for developable land in Perth. However, a further objective of the Bushmead proposal is to ensure compatibility of any site development with surrounding land uses and to ensure that an environmentally responsible approach is taken to future land use. The proposal identifies and examines a number of future land use alternatives and evaluates their compliance with the objectives. The discussion and evaluation of alternative development scenarios put forward by the proponent is satisfactory to the Authority.

The proponent's preferred option for development of the site is for a gradational development from normal residential densities on lower flatter slopes to larger lots on the higher steeper slopes (see Figure 2). The site concept plan retains approximately 54ha of land for Army use of which 45ha is usable area and 9ha comprises a 50m wide creek reserve adjacent to the Army land.

Approximately 91ha or 30.7% of the site is shown as residential. It is proposed that lot sizes vary between 450m<sup>2</sup> and 750m<sup>2</sup> with smaller lots being concentrated west of Kadina Brook. The yield obtained through the subdivision of residential land ranges between 10 lots per gross hectare and 12 lots per hectare, depending on the lot size adopted.

Figure 2. Development concept plan (from Halpern Glick Maunsell, EIS)



A total of 31.3ha is set aside for Special Residential lots and is situated generally between RL50m to RL70m. It is proposed that lot sizes should range between 2000m<sup>2</sup> on the areas of flatter grades to 3500m<sup>2</sup> on areas of greater slopes. This will yield approximately 98 lots. The proponent indicates the provision of land for Special Residential purposes is seen as a transition from the residential development on the lower portions of the site to Special Rural lots on the higher portions of the site where a greater degree of landscape protection is appropriate.

A total of 24.5ha is set aside for Special Rural where lot sizes should be a minimum of 1ha and is expected to yield 19 lots. The land designated Special Rural is situated between RL50m and RL86m at the eastern end of the landholding. The Special Rural designation is considered necessary by the proponent to achieve the high degree of landscape protection appropriate to this elevated portion of the site which abuts existing Special Rural development, region open space and a scenic tourist route.

Approximately 93.5ha or 31.6% of the site has been set aside for open space, including approximately 9ha of Army land that forms the proposed 50m wide creek reserve. The areas nominated for conservation represent areas of significant bushland as determined by the proponent in the preparation of the Environmental Impact Statement. It is normal practice to set aside 10% of the gross subdividable area of a site for open space purposes and as a general rule, a major proportion of this is for active recreational purposes, including playing fields. In this instance, some 32% of the site is being set aside for public open space, mainly for conservation purposes.

The proponent indicates that the development for residential purposes of a large proportion of the site could lead to a decision by the Army to move off the Bushmead land entirely. The proponent has proposed that in this event the remaining 45ha of Army land would be available for residential purposes and a mix of normal residential and Special Residential development is proposed.

## **6. Existing environment**

### **6.1 The physical environment**

The geological formation of the Bushmead site is part of the Ridge Hill Shelf System which occurs as a narrow belt at the foot of the Darling and Gingin Scarps from Bullsbrook to Harvey.

The general topographic form of the Bushmead site reflects its location within the transition area between the Swan Coastal Plain, the Darling Scarp and Plateau, and the Helena River Valley. Elevations rise from approximately 20m AHD in the north to approximately 100m AHD adjacent to Ridge Hill Road.

The Bushmead site lies within the catchment area of the Swan River. Surface runoff from the site is drained by a seasonal creek known as Kadina Brook which traverses the site and flows north into the Helena River which in turn connects with the Swan River. The water quality of Kadina Brook appears to be high. Drainage patterns reflect the topography and infiltration properties of soils in the area. The seasonal creek and immediately adjacent areas are essential functional components of the local natural drainage network. The Authority is concerned with the high nutrient loadings from stormwater and groundwater inflow experienced by the Helena and Swan Rivers.

Bushmead is located outside of economically important groundwater source areas. The position of the water table is within approximately 0.5m of the existing surface in lower lying areas during the winter months. There is a seasonal perched groundwater table within areas where

sandy surface soils are underlain by clays. Flow direction of the perched groundwater is likely to closely follow the surface slope. Surface discharge of either perched groundwater or unconfined groundwater from the superficial formations has been observed in certain areas on the site.

## 6.2 The biological environment

The flora of the Bushmead Rifle Range area contains in excess of 300 plant species. Indigenous plants comprise over 240 species, while the area contains well over 60 introduced weed species. No gazetted rare species were recorded by the proponent for the project area. However, two plants of regional significance are present, Red Bugles *Conostylis canescens* and *Anigozanthos manglesii* x *A. humilis* hybrids.

*Conostylis canescens* occurs on moist sandy soils in *Banksia* woodlands on the northern coastal plain from Perth to Eneabba. The Bushmead population in the north-eastern *Banksia - E. todtiana/E. marginata* woodland is the only known living population within the Metropolitan Region. While hybrids of *Anigozanthos manglesii* and *A. humilis* are known from several areas where the two species co-occur, geographic variation has produced a variety of location specific types. The Bushmead hybrids are of conservation significance for this reason.

The field survey recorded 60 species of birds, five indigenous and five introduced mammals, 41 reptiles and seven amphibians. Indications of the presence of two rare and endangered species, the Southern Brown Bandicoot and the Western Quoll, and one species in need of special protection, Baudin's Black Cockatoo have been recorded from the project area. Only the southern brown bandicoot is resident in the area. The proponent considers that the population density of the southern brown bandicoot within the Bushmead site, estimated to be in the order of 14-17 individuals, is low to moderate for the species and probably close to maximum carrying capacity under current conditions of predation pressure, habitat quality and availability. The area is considered to be a transient foraging ground for the Chuditch or Western Quoll and not a core part of the home range.

There can be little doubt that proximity of the site to urban areas has resulted in impacts to fauna. Predation by feral cats and foxes and alteration of habitat by grazing animals and previous land uses are likely agents.

## 6.3 Previous land use

Use of the Bushmead Rifle Range facilities has occurred since it was established in 1915 to the present day. Prolonged use of the firing ranges has resulted in a build up of spent ammunition at certain locations. The ammunition primarily consists of lead with smaller amounts of copper and zinc also present. The proponent indicates that metals are present largely as metallic fragments of varying size in the natural sands and there are indications that weathering of the remnant metal fragments is taking place, causing chemical degradation. This is resulting in mobilisation of the metals into the soil structure and the proponent considers that if chemical degradation of the heavy metals has occurred it may be the case that this has been carried down through the Bassendean sands to the underlying clay soils or into solution in the groundwater.

In addition to its use by Defence Forces, Police Department, other Government departments and civilian clubs, the site has in the past 25 years been utilised by others for effluent disposal and grazing as described below.

Midland Abattoirs held a licence for the disposal of livestock effluent in the south-eastern portion of the site from 1970 to 1982 when the operation was terminated. This operation utilised an 8,100m<sup>2</sup> effluent pond into which abattoir effluent was discharged and disposed of via evaporation and infiltration. Effluent was also disposed of by spray irrigation over an area of 13.5ha. The legacy of effluent disposal is evident in the presence of dead trees and

proliferation of pasture grasses and weeds within the irrigation area and surrounds. The effluent holding pond has been backfilled.

Water quality in the superficial groundwater aquifer has been affected by contamination from the former effluent irrigation area. Recent tests undertaken as part of the Environmental Impact Statement indicate that nutrient concentrations in the groundwater appear to have declined but that nitrogen concentrations in the groundwater remain extremely high. In particular, the proponent indicates that the high residual nitrate concentrations (66mg/l) pose restrictions on the use of groundwater within the site.

The majority of the site was leased for grazing of cattle and sheep from 1953 to 1982. The proponent indicates that the large tracts of natural vegetation largely devoid of understorey which has been replaced by pasture grasses and invasive weed species can be attributed to frequent severe overgrazing, during this period. There is also evidence of periodic cutting and removal of dead timber.

## **7. Environmental impacts and management**

The proponent has prepared a concept plan based upon the provision of gradational development densities across the site from normal residential densities on lower flatter slopes to larger lots on the higher steeper slopes. This is the proponents preferred development option. The proponent indicates that the majority of constraints presented by the site have been taken into account and appropriate solutions incorporated into the concept plan.

The Commonwealth has indicated that the commitments (Appendix 1), will be written into the contractual agreement relating to sale of the land and that the Proponent, the Department of Administrative Services, will monitor activities to ensure the commitments are fulfilled.

### **7.1 Urban conservation**

In 1972 the Environmental Protection Authority began a major study of Western Australia's need to set aside special areas for conservation and recreation. The State was divided into 12 regions or systems, each based on geography and human activities. One of these regions was System Six, the Darling System, which includes the highly populated areas around Perth. System 6 covers the most intensively used part of the State where land values are high and competition for differing land use is often intense. The study tried to define those parts of the region which should be kept mainly natural.

The Environmental Protection Authority's conservation efforts on the Swan Coastal Plain are therefore based primarily on the System Six Study. This study identified 209 metropolitan and country areas of regional conservation significance and/or regional representation of biological and physical values on the Swan Coastal Plain and made recommendations for their management.

The Authority believes the integrity of System Six areas should not be further compromised and defends them strongly.

This does not necessarily mean that all areas outside System Six are not environmentally significant, but rather that decisions on the use of these areas should be the primary responsibility of the planning process, both at the State and local level. The Bushmead site is not affected by the recommendations contained within the System Six report.

### **7.2 Ecological significance**

The geological formation of the Bushmead site is part of the Ridge Hill Shelf System which occurs as a narrow belt at the foot of the Darling and Gingin Scarps from Bullsbrook to Harvey. Vegetation associations from the Ridge Hill Shelf System comprise the greater part of

the site. Major impact has occurred to the system through forestry, mining, agriculture and urban development. By 1986 only 3.1% of the original 14,414ha covered by the system remained.

The Authority has recently recommended that a 20ha area of the Ridge Hill Shelf System proposed for housing development, specifically lots 37 and 47 Brixton Street Kenwick, be reserved for conservation on the basis of the significance and scarcity of the ecosystem type and the floristic diversity on the site.

Regionally, the project area is of significance as a large (296ha) partially undisturbed remnant of native woodland vegetation. There is a diversity of vegetation on the site which, despite the high degradation of some vegetation associations has high conservation value.

The contiguous nature of the area with Gooseberry Hill National Park is of significance as an ecological corridor and buffer zone between the coastal plain and Darling Scarp. The corridor effect is particularly significant for the region's avifauna and bat fauna, though the proponent considers of no real value to the terrestrial fauna due to the major barriers presented by the nearby Roe Highway and Great Eastern Highway Bypass.

The value of retaining existing vegetation on-site for habitat, landscape stability, aesthetic and other functions is considered by the Environmental Protection Authority to be important. The Authority considers the mechanism to achieve protection of remnant vegetation through the mix of planning controls and reservation advocated in the Environmental Impact Statement and the proponents commitments is environmentally acceptable.

The areas indicted as having very high and high conservation value are generally proposed for conservation reserves. The viability of these areas to fulfil a conservation function should be determined by the Department of Conservation and Land Management. That Department will submit an independent submission to the proponent. The Authority considers that the appropriate vesting of these conservation reserves in conjunction with the management, rehabilitation and monitoring provisions specified in the Environmental Impact Statement and the proponent's commitment to prepare and subsequently implement an approved Reserve Management Plan is environmentally acceptable.

It is the Authority's view that particulars associated with the preparation, approval, implementation and monitoring of detailed plans including the Reserve Management Plan, the Rehabilitation Management and Monitoring Programme and the Construction Environmental Management Plan which form part of an overall Environmental Management Programme for the Bushmead site should be to the satisfaction of the relevant State Authorities.

The Authority is prepared to support the Special Residential and Special Rural Zones in the southern more elevated portion of the site, as retention of existing vegetation in these areas of moderate to high conservation value can be adequately achieved through the incorporation of appropriate planning provisions, as prescribed in the proponents commitments.

### **7.3 Fauna**

It is recognised by the Authority that individual fauna will be affected by the proponents preferred development option and perhaps displaced or lost from parts of the Bushmead area. However, the fauna of most concern due to its listing in Schedule 1 of the Wildlife Conservation Act 1950 as "fauna that is likely to become extinct, or is rare" is the southern brown bandicoot (*Isodon obesulus*). As a species the southern brown bandicoot is considered most at risk unless detailed management provisions are established to secure the resident populations continued existence.

The southern brown bandicoot is a solitary living, rabbit-sized marsupial, which was formally widespread over the entire Swan Coastal Plain but is now restricted to areas of dense vegetation, fringing wetland areas which have remained relatively undisturbed.

The proponent suggests that the present structure of the bandicoot population indicates a heavy mortality of juveniles and subadults, with feral cats and foxes being the likely agents. The Bushmead Rifle Range bandicoot population is significant in regional context but the proponent suggests it is essentially isolated from other populations as access corridors are extremely limited. With development, it is considered by the proponent that the resident southern brown bandicoot population is not viable in the long term. The proponent considers the most appropriate management strategy would be translocation of the population to a secure conservation area with suitable habitat.

The Authority is also concerned about the survival of this population. The Authority considers that in view of the proponent's preferred development option, the viability of the bandicoot population remaining on the Bushmead site is questionable. If, as suggested by the proponent the bandicoot population is isolated from other bandicoot populations then the conclusions for the most appropriate management of the Bushmead population are reasonable. However, following discussions with the Department of Conservation and Land Management the Authority considers that the Bushmead bandicoot population may not be isolated from bandicoot populations existing in the adjacent Gooseberry Hill National Park. If this is the case then the most appropriate management scenario for the Bushmead bandicoot population should be re-evaluated.

The protection of fauna, particularly species which are gazetted under the Wildlife Conservation Act 1950 is the legislative responsibility of the Department of Conservation and Land Management.

Should the opportunity to add land to the conservation areas arise, which would enhance habitat for the bandicoot beyond that already allocated in the proponent's preferred development option, this would be considered environmentally acceptable to the Authority. It is the Authority's view that such measures would also enhance the survival and conservation prospects for other fauna such as birds and reptiles.

Should the ultimate solution for the best management of the bandicoot population be relocation of the population, then relocation should be to a site determined by the Department of Conservation and Land Management and in such a manner that is satisfactory to the Department. The relocation of the bandicoot population, if considered necessary by the Department, is supported by the Authority.

As a result of concerns for the Bushmead bandicoot population the Authority has included a specific recommendation in this submission.

## **7.4 Impacts on hydrology**

A major objective of the Environmental Protection Authority when assessing development proposals is to ensure that a minimum of nutrients, and other pollutants, enter the waterways. Major sources of nutrients include subsurface water polluted by septic tank effluent and stormwater drainage from areas utilising synthetic and animal fertilisers.

Most residential developments including the Bushmead proposal will have a significant effect on surface water. This effect will be caused primarily by the introduction of paved areas, roads and roofs, each with considerably higher rainfall runoff than the natural environment.

Development can impact on both water quantity and water quality. In the foothills, the clay soils make management of both quantity and quality of water difficult. The Authority is concerned that principles of catchment management and water balance management are introduced to



protect the quality of water entering Kadina Brook and ultimately the Helena River/Swan River environments.

The Authority believes that stormwater from a 1 in 10 year flood event should be retained on site for a period of 3-4 days in nutrient stripping basins. Should this not be achievable, then the proponent should be required to undertake a study which examines how stormwater can be managed to ensure nutrients are removed. Use of water sensitive design principles during subdivision design stage would also be supported by the Authority.

In regard to sewage disposal, the preferred condition is connection to reticulated sewerage.

It is indicated in the Environmental Impact Statement that all residential lots, including special rural lots, on the Bushmead site will be connected to reticulated sewerage. The Authority considers that under these circumstances the potential for nutrient loadings from this source entering waterways or groundwater is removed.

The Authority considers the issue of water quantity and quality management is manageable by the proponent and can be addressed in detail at the structure planning stage of the development through the environmental management programme.

Should the disposal of effluent, by other than reticulated sewerage, be considered during the development of the structure plan then such changes would need to be examined to determine the environmental acceptability of effluent disposal systems proposed.

The Environmental Protection Authority has made a specific recommendation in regard to the acceptability of residential land use over the contaminated groundwater areas.

## **7.5 Air quality**

The issue of urban air quality for the Bushmead site needs to be considered at two levels. Air quality issues which arise from nearby industries and broader air quality issues such as photochemical smog and haze, which must be considered on a regional basis.

The broader issue of air quality for the Perth Metropolitan area, particularly the Foothills and North East Corridor is of concern to the Environmental Protection Authority. A three year air shed study for the Perth Metropolitan area is presently being undertaken and the results may assist in the future planning for Perth. However, it is the Authority's view that planning and development in these corridors could proceed during the course of the air shed study. Whilst this is a fundamental issue, it is not considered by the Authority that Bushmead development should be withheld pending results of the study. The implications of the air shed study on planning for the Perth metropolitan area will need to be fully examined upon the completion of that study.

Air quality issues arising from the nearby industries are within our current resources to address as necessary.

Two rendering plants currently operate within the Hazelmere area located approximately 1.2km from the western boundary of the Bushmead site. There is also a poultry farm adjacent to the site's western boundary. Air quality at Bushmead is influenced by odour emissions from these sources.

The Environmental Protection Authority has defined the current area of influence of the rendering plants which is reflected adequately in the Draft Environmental Impact Assessment Statement. It is the Authority's view that there should be no residential development within the area of influence. The proponent has responded to this environmental constraint in the preferred option by zoning this land as Conservation Reserve. The requirement for odour buffer zones and the subsequent exclusion of non compatible development within the area of influence will

remain as long as the subject industries are situated in their present locality. Current Environmental Protection Authority licences for both plants set conditions for the combined areas of influence to be gradually contracted over a five year period. By 1995 odour control will limit detectable odours to an approximate radius of 500m from each of the plants.

Notwithstanding the requirement for the rendering works to comply with the Authority's licence conditions, it is likely that residences located within the proposed subdivision area, outside the buffer, will experience odour impacts from these sources on occasions.

Poultry farms currently operate on the western side of Midland Road. The Environmental Protection Authority has prepared an Environmental Code of Practice for the poultry industry. Odours associated with poultry sheds can constitute an aesthetic nuisance for many neighbours. For existing sheds, the only effective means of control is to keep the poultry sheds distanced from populated areas. It is essential at the planning stage to prevent residential development (other than homes on the poultry farm) to be located too close to established poultry sheds. Proposals for residential development should not be located within 500 metres of any existing poultry sheds.

These limits are also in accordance with Victorian Environmental Protection Authority criteria contained in "Recommended Buffer Distances For Industrial Residual Air Emissions" (Publication No AQ2/86, revised July 1990).

The proponent has recognised the constraint placed upon the preferred development option by the proximity of the poultry farm and stated that "*residential development close to the poultry farms will be restricted until they are relocated at some future time.*"

The proponent recognises the proximity of the northern boundary of the Bushmead site to the Prestige Brickworks and this industry's potential impact on air quality due to residual hydrogen fluoride contaminants borne in kiln emissions. The Environmental Protection Authority considers the 1.2km distance between this industry and the northern boundary of the Bushmead site is sufficient to allow the proposal to proceed.

## **7.6 Noise**

Sources of noise affecting the Bushmead site include traffic movement on the Roe Highway and Midland Road, and aircraft using the Perth Airport. Traffic noise can be managed by appropriate building setbacks, bunding and building design.

Aircraft activity is the major source of noise disturbance in the locality. The Australian Noise Exposure Composites (ANEC) for the Perth Airport provides a basis for land use planning which limits the extent of residential development. Residential areas will not be developed within or adjoining the 20-25 ANEC contours which comprises the northern end of the Bushmead site, proposed for conservation reserve. The remainder of the Bushmead site is outside the 20 ANEC contour. The ANEC contours also allow for construction of a future parallel runway, thus aircraft noise is not expected to be an unacceptable nuisance to residents in the future. The proponent has recognised the constraints imposed by the aircraft activity from Perth airport and has located residential sites accordingly.

## **7.7 Other impacts**

There are other issues affecting the development and a brief discussion of these is given below.

### **7.7.1 Aboriginal sites**

The Environmental Impact Statement has concluded that there are no impediments in respect of the Aboriginal Heritage Act to the proposed development proceeding.

### **7.7.2 Unexploded ordnance**

The Environmental Impact Statement concludes that although no guarantee can ever be given that no unexploded ordnance exist on the Bushmead Rifle Range, the State Emergency Service recommends that the possibility of unexploded ordnance on the Bushmead Rifle Range be discounted when deciding the future of the site. In relation to this issue, the Authority considers that decisions on the use of the site should be the responsibility of the planning process, both at the State and local level.

### **7.7.3 Visual impacts**

The primary underlying concept of the proposed development plan is a gradation of residential housing densities from single residential in the north on the coastal plain to special residential and semi-rural areas in the south-eastern foothills area. One of the benefits of this gradation is to maximise retention of the existing tree canopy in an effort to minimise impacts on views from elevated areas overlooking the site. The proponents have tried to achieve a housing development which recognises the need for conservation and integration with existing and surrounding areas and the landscape.

It is the Authority's view that the gradational development option offers the best opportunity to achieve the environmental acceptability of the proposal whilst still fulfilling the prime objective for housing.

### **7.7.4 Soil contamination**

It is the Authority's view that it may be more practical to recommend that the topsoil from contaminated areas is removed and disposed of at an approved landfill site. However, the Authority notes the intention of the proponent to undertake further investigations and trial screening of contaminated soils and then to prepare a site remediation plan detailing all aspects of the proposed clean up.

The Authority considers that the developer should prepare an approved site remediation plan prior to any development on contaminated sites and that the plan should be to the satisfaction of the Environmental Protection Authority on advice from the Department of Health. The Authority has included a recommendation to this effect.

### **7.7.5 Roads**

The connection of the Great Eastern Highway bypass to Midland Road as indicated in the proponent's preferred concept plan is acceptable to the Authority. The proponent indicates that, consistent with the Foothills Structure Plan it is essential to avoid any direct connection between the Great Eastern Highway bypass and Helena Valley Road or into the proposed Bushmead development. The Authority considers that any access across the proposed Conservation Reserve in this area would seriously affect the value of the area to fulfill a conservation function and should not be countenanced.

The environmental and planning implications associated with the possible realignment of the Midland Road approximately 300 metres further to the west of its current alignment will need further detailed evaluation before the acceptability of the realignment can be determined.

The placement of boundary roads around the development area edge, which separates housing from conservation reserves, as indicated in the concept plan, is supported by the Authority.

## **8. Conclusions and recommendations**

The Authority considers that the proposal for the Sale of Commonwealth Land at the Bushmead Rifle Range site for housing in accordance with the proposed development concept plan can be

implemented without causing unacceptable environmental impacts. The Authority recognises that the proponents preferred development option allocates 93.5ha or 31.6% of the Bushmead site for open space and that the greater part of the open space will be conservation reserves.

### **Recommendation 1**

**The Environmental Protection Authority concludes that the proposal for the sale of Commonwealth Land at Bushmead, as outlined in the Environmental Impact Statement, is environmentally acceptable.**

**In reaching this conclusion, the Authority identified the main issues requiring detailed consideration as:**

- **retention of indigenous vegetation including vegetation types of the Ridge Hill Shelf System;**
- **impact to endangered fauna, particularly the resident population of Southern Brown Bandicoots;**
- **management of water quantity and quality;**
- **soil contamination;**
- **existing and future air quality and noise constraints.**

**The Environmental Protection Authority considers that these environmental factors and other issues, such as planning considerations, have been addressed and are manageable, either by the environmental management commitments given by the proponent, or by the Environmental Protection Authority's recommendations in this report.**

**Accordingly, the Environmental Protection Authority recommends that the proposal could proceed, subject to the proponents commitments to environmental management as detailed in Section 10.2 of the Environmental Impact Statement (Appendix 1).**

### **Recommendation 2**

**The Environmental Protection Authority recommends that the following issues be made a requirement of the contract of sale.**

- 2.1 The developer be required to construct a stormwater disposal system capable of retaining a 1 in 10 year storm event in a specific locality of the development for 3-4 days or according to guidelines prepared by the Local Government Authority to the satisfaction of the Environmental Protection Authority.**
- 2.2 The strategy for the protection of the Bushmead bandicoot population should be finalised and implemented to the satisfaction of the Department of Conservation and Land Management. A copy of the final strategy should be made available for the Environmental Protection Authority.**
- 2.3 A study into potential contamination of the quality of groundwater arising from the former effluent disposal operations be undertaken prior to subdivision. Any remedial works should be completed before subdivision proceeds, to the satisfaction of the Environmental Protection Authority, on advice from the Department of Health.**

**2.4 Prior to the start of any site development activities on contaminated land the proponent should prepare a Site Remediation Plan to the satisfaction of the Environmental Protection Authority and the Department of Health.**

## **9. References**

Halpern Glick Maunsell (1991), "Draft Environmental Impact Statement for proposed sale of Commonwealth land at the Bushmead Rifle Range Site Western Australia".

ecologia Environmental Consultants (1991), "Bushmead Rifle Range Development Draft Environmental Impact Statement: Biological Survey".

Department of Planning and Urban Development (1991), "Foothills Structure Plan".

# **Appendix 1**

## **Environmental and other commitments by Department of Administrative Services**

## 10.2 COMMITMENTS

The following commitments will need to be made in recognition of the findings of this EIS if the Bushmead Rifle Range site is to be developed for residential purposes. The Commonwealth has indicated that these commitments will be written into the contractual agreement relating to sale of the land and that the Proponent, DAS, will monitor activities to ensure the commitments are complied with.

### 10.2.1 Detailed Structure Planning

The following commitments relate to the various components of the development concept plan:

- (a) The boundaries of the various residential, commercial and school cells shall comply with the concept plan presented as Option 3 in this EIS.
- (b) The single residential cells east of Kadina Brook shall be subdivided into lots having a minimum area of  $700\text{m}^2$ . Those cells west of Kadina Brook may include smaller lots down to  $600\text{m}^2$  and could include some precinct housing of between  $450\text{-}500\text{m}^2$  lot size and aged persons accommodation.
- (c) The claims of the Ballarok people for compensation for loss of what were traditional lands shall be assessed during detailed structure planning. If this claim is upheld, two residential lots of  $700\text{m}^2$  size shall be provided.
- (d) Aboriginal perspectives shall be taken into account in the detailed planning of the development including the naming of streets and other features of the development with Aboriginal names.
- (e) Lot sizes in the special residential areas shall range between  $2,000\text{m}^2$  on the areas of flatter grades to  $3,500\text{m}^2$  on areas of greater slopes and, in particular, the southern slopes down to Kadina Brook.

- (f) To minimise the adverse effects of development on the amenity of the zone, the special residential zoning in the Shire of Swan's District Planning Scheme shall incorporate provisions which limit clearing, require a high level of planting in cleared areas, specify appropriate building and fencing materials and nominate building envelopes.
- (g) Remnant, mature trees shall be retained in this zone and residents encouraged to plant native trees to ensure replacement of the tree canopy. Developments on individual lots shall be limited so that the qualities of the area are maintained and enhanced.
- (h) Lot sizes for the special rural zones shall be a minimum of 1ha.
- (i) To minimise the adverse effects of development on the amenity of the area, the special rural zoning in the Shire of Swan's District Planning shall incorporate provisions which limit clearing, specify appropriate house building materials, fencing standards and control the placement of buildings by definition of building envelopes on each lot.
- (j) Strict clearing controls within the special rural zone shall be implemented to preserve the landscape value of this area and adjoining open space.
- (k) Provisions that prohibit the grazing of livestock shall be included in the District Planning Scheme. In addition, normal or increased limitations on numbers of domestic pets per household shall be closely monitored by the local authority. The public education programme shall include a component designed to educate the community about the adverse impacts of uncontrolled domestic pets on native fauna [ref. Section 10.2.15 (b)].
- (l) Hobby farms shall not be permitted because the prime objective is for residential living in a rural/country atmosphere.

#### 10.2.2 Roads and Services

The following commitments relate to roads:

- (a) Clearing of native vegetation required for road construction shall be minimised.
- (b) A local distributor road shall traverse the centre of the site from Midland Road through to Ridge Hill Road and this road shall only cross Kadina Brook at one point. This crossing is located on the flatter grades in the northern end of the site where the soils are not as susceptible to erosion.
- (c) Three road access points shall be incorporated into the concept plan; from Midland Road, Ridge Hill Road and Helena Valley Road via the future Helena Valley Estate.
- (d) No access shall be provided through to Sadler Drive.



- (e) Midland Road shall be the main access point to the development. This arterial road shall be upgraded to a dual carriageway during the staged site development at a time determined by traffic levels. Assessment of traffic levels and scheduling of the upgrading will be the responsibility of the Shire of Swan and the Main Roads Department.
- (f) Internal roads shall be located to define boundaries between residential cells and conservation and open space areas to assist in minimising impacts of residential activities on these areas.

The following safeguards and recommendations apply to services:

- (g) Connections to trunk services outside the Bushmead site shall be located in areas where there is no native vegetation of conservation or landscape value.
- (h) Services within the Bushmead development shall be located as far as possible within designated road reserves to minimise clearing of vegetation on the Bushmead site. Alternative appropriate locations for siting of services are firebreaks skirting the conservation and open space areas or the stock route. No services shall be sited along Kadina Brook and crossings of the Brook shall be minimised and concentrated in particular areas.

### 10.2.3 Community Facilities

The following relates to tailoring the proposed site development to particular elements presented by the site and to specific social requirements:

- (a) The commercial/retail centre shall be established at least to a first stage during the first stage of development to provide for the needs of the first residents.
- (b) The public transport service currently servicing the Bushmead area shall be extended as necessary to meet the growing requirements of the expanding Bushmead population. Assessment of demand for public transport will be the responsibility of Transperth.

### 10.2.4 Staging of Development

- (a) The area contained within the 500m radius boundary of the poultry farm shall not be developed for residential purposes whilst this operation remains in this location.
- (b) Cleanup of soil contamination from the firing ranges shall be completed prior to any site development within 1,000m of the contamination area.
- (c) The initial stages of the special residential area shall be concentrated in the area previously used for effluent disposal.

- (d) The initial stages of the special rural area shall be constructed on the western edges.

#### 10.2.5 Past Site Usage

- (a) The former usage of the site shall be clearly identified on all future titles of subdivided lots to notify future landowners of the possibility of UXOs and live, small arms ammunition being found on the site.
- (b) Measures shall be taken to ensure that caveats are entered against each individual title created on the land compelling owners to immediately notify the relevant authorities of the discovery of any live ammunition (and UXOs).

#### 10.2.6 Site Remediation

The following commitments apply to the formulation and implementation of a site remediation strategy:

- (a) The site remediation works shall be undertaken by specialist consultants experienced in such work including further site investigations, trial cleanup methods, documentation, gaining approvals and supervision of the cleanup operation.
- (b) All site cleanup works shall be fully supervised and carefully controlled to ensure adherence to acceptable criteria.
- (c) The cleanup work shall be subject to confirmatory testing which shall be fully documented to provide evidence of the extent and integrity of the work.
- (d) Groundwater quality in the vicinity of the main areas of contamination shall be assessed prior to cleanup with a suitable monitoring programme instituted for at least five years following cleanup to assess long term impacts on groundwater quality.

#### 10.2.7 Active Open Space

- (a) Significant Aboriginal sites are located in the vicinity of the active open space adjacent to Kadina Brook. To avoid the possibility of their disturbance, the boundaries to the active open space areas shall be clearly demarcated using wooden pole barrier fencing.
- (b) Development within the active open space areas shall be designed to complement the surrounding land uses.

- (c) Fertiliser use in the active open space areas shall be minimised to avoid possible runoff of nutrients into Kadina Brook or pollution of underlying groundwater.
- (d) Playgrounds and particularly sandpits shall be constructed using clean sand imported onto the site.
- (e) The western active open space area will be located on an area previously contaminated by lead and buried rubbish. Whilst this area will be cleaned up to an acceptable standard it shall be developed with fully grassed playing areas and sealed surfaces to minimise direct contact between users and underlying soils.
- (f) The active open spaces and their management and maintenance shall be the responsibility of the developer for the first year after their development. Design of these areas will be approved by the Shire of Swan who will also be responsible for their long term management and maintenance.

#### 10.2.8 Passive Open Space

- (a) Recreation facilities shall be located well back from Ridge Hill Road and the southern boundary of the area.
- (b) Facilities to be provided in the area shall be low key and of simple rustic design. They should be constructed from natural materials.
- (c) All facilities shall be located and designed so as not to require clearing of vegetation, result in soil erosion or cause water pollution. Clearing shall be minimised wherever possible.
- (d) If toilets are provided in this area, they shall be either connected to the deep sewer reticulation or have septic systems designed so that there is no potential for nutrient pollution of Kadina Brook or the groundwater.
- (e) If barbecues are provided in this area they shall be electric and coin-operated.
- (f) Fertilisers shall not be used.
- (g) Parking areas for cars shall be restricted to small grouped parking bays of simple, rustic design and constructed from natural materials.
- (h) The passive open space area and its management and maintenance shall be the responsibility of the developer for the first year after development. The Shire of Swan will be responsible for long term management and maintenance.

### 10.2.9 Conservation Areas

- (a) The entire bandicoot population shall be relocated prior to construction of the development. Its destination will be determined by CALM.
- (b) A monitoring programme shall be instituted to identify population performance over a period of two years.
- (c) Public access into the conservation reserves shall be restricted to dual use paths associated with the reserves. Wooden barrier fencing shall be constructed around the entire boundaries of the reserves combined with signage prohibiting access for conservation reasons.
- (d) Where dual use paths are sited around the perimeter, fencing shall be located about 20m in from the reserve boundaries to allow for alignment of paths on the borders. If dual use paths are sited through the reserves, fencing and signs shall be installed along their route to discourage user disturbance of the conservation reserves.
- (e) A firebreak system shall be created throughout each of the conservation reserves in addition to their entire perimeters.
- (f) A fire control programme shall be developed in conjunction with the Shire of Swan with advice from CALM.
- (g) An ongoing weed control programme in the conservation reserves and passive open space area shall be implemented and conducted by the developer for the first five years of site development.
- (h) An education programme shall be introduced through a community resource centre in an effort to discourage residents from dumping soil and garden rubbish in the conservation reserves.
- (i) A dieback prevention and management programme shall be formulated and implemented.
- (j) A feral animal control programme shall be instituted and maintained for the first five years of development and continued by the Shire of Sawn in the long term.

### 10.2.10 Dual Use Path System

- (a) A DUP system shall be designed to enable pedestrians and cyclists to traverse the length of the Bushmead site giving access to the active and passive open space areas and conservation reserves and provide connections to Helena Valley Estate, Sadler Drive and Midland Road. It shall be integrated with any future bridle/walk trail down the stock route and in the MRD reserve.
- (b) Where associated with the conservation reserves, the DUPs shall have associated wooden barrier fencing to discourage public access into the remainder of the reserves.

- (c) Construction of the DUPs through all areas, including road verges, shall involve minimal clearing of vegetation.

#### 10.2.11 Reserve Management Plan

- (a) A Reserve Management Plan shall be prepared prior to development occurring and implemented for the first five years of development.

#### 10.2.12 Water Quality Protection and Management

- (a) Undertake ongoing monitoring of groundwater in both the contaminated effluent disposal area and also below the area currently contaminated by the old rifle range spoil. These locations shall be augmented by a local "control" groundwater bore. Monitoring of these three locations shall be conducted six monthly with testing carried out by appropriately certified analytical laboratories for a period of five years from the commencement of site development.
- (b) Stormwater collection and disposal systems shall be designed in accordance with guidelines acceptable to the Water Authority of WA.

#### 10.2.13 Rehabilitation

- (a) A rehabilitation programme for the northern conservation reserve shall be formulated and implemented to cover the existing rifle range and including rigorous on-site trials to determine suitable plant species and appropriate techniques.
- (b) A rehabilitation programme for the upper reaches of Kadina Brook shall be formulated and implemented. The programme shall be based on planting of seedlings to be carried out by community groups.
- (c) A Rehabilitation Management and Monitoring Programme shall be prepared prior to development occurring and implemented for the first five years of development.

#### 10.2.14 Construction Phase

- (a) A Construction Environmental Management Plan will be formulated prior to development and implemented throughout all construction activities on the site.

#### 10.2.15 Social Issues

- (a) A Social Monitoring Programme will be formulated prior to development and implemented for the first five years of the development to identify public usage and pressures on surrounding community facilities.
- (b) A programme designed to facilitate and encourage community involvement and knowledge of the immediate environment shall be formulated prior to development and implemented for the first five years of development.

#### 10.3 PERFORMANCE MONITORING

Having established the conditions under which the sale and development of the Bushmead Rifle Range site can occur and the requirements applicable to implementation of the proposal, it will be necessary for the Proponent to monitor performance. This will be achieved by ensuring that all development plans, management plans and monitoring programme proposals and results are furnished to the Proponent during the course of the development.

Documentation relevant to the development shall be forwarded to the Proponent prior to implementation. In addition, monitoring results and associated assessment analyses shall be forwarded to the Proponent immediately they are prepared.

If deemed necessary, the Proponent may, at any time, commission an independent audit of the development that may cover any or all of the various issues identified in this EIS.