PUBLIC ENVIRONMENTAL REVIEW

OUTDOOR AUDITORIUM
LOT 2 TOODYAY ROAD, RED HILL

ACE NOMINEES

20 November 2001

Invitation to make a submission

The Environmental Protection Authority (EPA) invites people to make a submission on this proposal. If you are able to, electronic submissions emailed to the EPA Project Assessment Officer would be most welcome.

Ace Nominees proposes to construct an Outdoor Auditorium on Lot 2 , Toodyay Road, Red Hill. In accordance with the Environmental Protection Act, a Public Environmental Review (PER) has been prepared which describes this proposal and its likely effects on the environment. The PER is available for a public review period from 10 December 2001, closing on 4 February 2002.

Comments from government agencies and from the public will help the EPA to prepare an assessment report in which it will make recommendations to government.

Why write a submission?

A submission is a way to provide information, express your opinion and put forward your suggested course of action - including any alternative approach. It is useful if you indicate any suggestions you have to improve the proposal.

All submissions received by the EPA will be acknowledged. Submissions will be treated as public documents unless provided and received in confidence, subject to the requirements of the Freedom of Information Act, and may be quoted in full or in part in the EPA's report.

Why not join a group?

If you prefer not to write your own comments, it may be worthwhile joining with a group interested in making a submission on similar issues. Joint submissions may help to reduce the workload for an individual or group, as well as increase the pool of ideas and information. If you form a small group (up to 10 people) please indicate all the names of the participants. If your group is larger, please indicate how many people your submission represents.

Developing a submission

You may agree or disagree with, or comment on, the general issues discussed in the PER or the specific proposals. It helps if you give reasons for your conclusions, supported by relevant data. You may make an important contribution by suggesting ways to make the proposal more environmentally acceptable.

When making comments on specific elements of the PER:

- clearly state your point of view;
- indicate the source of your information or argument if this is applicable;
- suggest recommendations, safeguards or alternatives.

Points to keep in mind

By keeping the following points in mind, you will make it easier for your submission to be analysed:

- attempt to list points so that issues raised are clear. A summary of your submission is helpful;
- refer each point to the appropriate section, chapter or recommendation in the PER;
- if you discuss different sections of the PER, keep them distinct and separate, so there is no confusion as to which section you are considering;
- attach any factual information you may wish to provide and give details of the source. Make sure your information is accurate.

Electronic Submission

It is requested that a single consolidated email response be provided after you have reviewed the full PER. Please note that where email is received an additional hard copy is not required (except for attachments that cannot be forwarded electronically).

You will receive an electronic acknowledgment of your submission and will also be advised electronically when the EPA's report and recommendations become available.

Remember to include:

- your name;
- address;
- date; and
- whether you want your submission to be confidential

The closing date for submissions is: 4 February 2002

Submissions should ideally be emailed to
hans.jacob@environ.wa.gov.au

OR addressed to:

The Environmental Protection Authority
PO Box K822
PERTH
WA 6842

Westralia Square
141 St George's Terrace
PERTH WA 6000]

Attention: Hans Jacob

PUBLIC ENVIRONMENTAL REVIEW

OUTDOOR AUDITORIUM
LOT 2 TOODYAY ROAD, RED HILL

(Assessment Number 1291)

ACE NOMINEES

20 November 2001

Prepared by **Landform Research**
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Copies of the independent consultants reports which support the findings and conclusions of the PER are available for viewing at the City of Swan and Department of Environmental Protection Libraries.

Executive Summary

Executive Summary

Proposal

Ace Nominees Pty Ltd (the proponent) intends to construct and operate an outdoor auditorium on Lot 2 Toodyay Road, Red Hill. The proposed lot is indicated on Figure 1 and is located approximately 15 km east of the Perth suburb of Midland.

The site was selected after much research into potential locations across the metropolitan area. It was chosen for its isolation in an area of natural beauty, which can add significantly to the aesthetics of the facility. The site has large buffers, there are no nearby sensitive land uses and the closest dwelling is 2.2 km away.

A feature of the facility will be the link with nature, provided by the natural back drop of trees, the evening sky and city lights.

The proposed auditorium is to be a small grassed area facing a stage in the west, with an associated car park. No formal seating is to be provided. It is planned to commence operations with a capacity of about 2 500 patrons, potentially building up to a maximum of 5 000 people if demand warrants it.

Being an outdoor auditorium it will generally only operate for about 5 summer months of the year.

The auditorium will provide an outdoor facility for performing arts, children's events and perhaps films. The number of events will be variable, with perhaps several events in one week or one event on consecutive days in one week followed by a period of time when there may be less or no concerts. A maximum number of events cannot be provided at this stage but up to 100 events per year is anticipated. Events are expected to run for 3 to 4 hours. The majority of events are planned to have low amplification, with perhaps one higher amplified rock band on average once per week.

The permanent features that will be initially constructed on site will be a stage area to be formed from pre-cast concrete, drainage basins, a car park and other landscaping features. These facilities will be sympathetically designed to blend in with the environment.

Portable facilities are to be used on site. These facilities will include toilets, food and drink caravans, stage equipment and lighting erected specifically for each event, rubbish bins, change rooms and the like. If permanent facilities are found to be more acceptable than portable facilities, the construction of limited, sympathetically designed, buildings to possibly house toilets, kiosk and storage will be considered. No permanent buildings will be constructed without full development approval through the City of Swan. The requirement for development approval will provide a means of control on all aspects of any permanent structure including the type, design, location and size. Public input could be made during this approval process.

Security will be provided for each event. Loose litter will be contained within the fenced areas and collected after each concert, to prevent blowing and to discourage vermin. Refreshments will be sold on site, such as a broad range of food, soft drinks, coffee, water and liquor.

The car park will have a design capacity of 900 vehicles. For each concert a substantial number of patrons are expected to arrive by bus, perhaps linking with existing services such as the suburban rail system at Midland Station.

Access to the facility will be from Toodyay Road. The cross over and associated slip lanes have been assessed and approved by Main Roads.

Project Summary

Outdoor Auditorium - Toodyay Road Redhill	
Element	**Description**
Project	• Outdoor Auditorium
Purpose	• Provide an outdoor venue for performing arts, concerts, children's events and perhaps films.
Location	• Lot 2, Toodyay Road, Red Hill
Area	• Lot size 10.0266 hectares • Area affected by development, 4.6 hectares
Facility	• Maximum capacity 5 000 (initial capacity 2 500) • A constructed roofed stage with side and rear walls. • Car parking with a bus turning circle and bus parking bays. • Informal seating. • Initially portable facilities will be used for catering and toilets. More permanent arrangements may be made at a later stage controlled by City of Swan approvals. • Water supply for irrigation with an associated holding tank.
Annual number of events	• Up to 100 per year; variable from mid-November to mid-April. Sometimes several events will be held in one week and at other times there may only be one event.
Access	• Access Road from Toodyay Road. Crossover to Main Roads specifications.

Table 1 Key Characteristics Table

Existing Land Use

Currently Lot 2 lies within the "Resource" Zone under City of Swan Town Planning Scheme. "Resource" zoning has been created to provide sites for industries/activities that require larger buffer distances; such as quarries, landfill and some recreational activities.

The surrounding land is predominantly uncleared vegetation of the Darling Scarp, which separates and acts as buffers for the industries/activities. Figure 4 shows the location of adjoining land uses. The adjoining Lots 1 - 10 are held by Midland Brick Company Pty Ltd and listed as Priority Clay Resource Locations in Statement of Planning Policy 10. Clay is currently excavated from pits 900 metres east, 1 000 metres to the north east and 3 000 metres to the south east. The Red Hill Regional Landfill Site, operated by the East Metropolitan Regional Council, lies 2 000 metres to the east, with a motorcross and trail bike recreation area 2 500m to the east.

Pioneer Construction Materials' Red Hill hard rock quarry and processing plant is across Toodyay Road, 500 metres north of the site, and thus the proposed auditorium

lies within the 1 000 buffer zone to that quarry. All of these operations provide good buffers to the auditorium for managing off site impacts such as noise.

The proposed Perth - Adelaide Highway is planned to run along the northern edge of Lot 2, and flight paths from Perth airport pass to the north of the site.

Adjoining land to the south and west is the northern portion of John Forrest National Park, but this section of the park is some 4.5 km from the commonly used public areas of the park.

From aerial photography the nearest dwelling is 2.2 km to the west. Future dwellings are unlikely to be constructed closer to the proposed auditorium, because John Forrest National Park covers the area to the west and south, the Red Hill Landfill site constrains development in the east, and Pioneer Construction Materials' hard rock quarry prevents development to the north.

Environmental Assessment

The environmental factors that were considered relevant to the proposed outdoor auditorium were identified by the Environmental Protection Authority (EPA), in consultation with the City of Swan, Shire of Mundaring and the Department of Conservation and Land Management. The EPA subsequently issued a detailed project specific set of guidelines specifying the scope of the Public Environmental Review (PER) document for this proposal. The environmental factors to be addressed in the PER were listed as "Environmental Factors relevant to the proposal', in Section 2 of the Guidelines of the Formal Instructions for the PER. The Guidelines are included in Appendix 1.

The proponent encourages members of the public to make a submission on the proposal as set out in the "Invitation to Make a Submission" at the front of the document.

Independent consultants were used to assess these factors.

Copies of the independent consultants' reports which support the findings and conclusions of the PER are available for viewing at the City of Swan and Department of Environmental Protection Libraries. Some information contained in the report by Yates Heritage Consultants may contain sensitive information and consequently the report prepared by Yates Heritage Consultants is not included in the Independent Consultants Reports. A copy has been lodged with the Department of Aboriginal Affairs and any further data should be requested from that department.

Vegetation

The vegetation study conducted by Mattiske Consulting Pty Ltd identified the vegetation type to be most affected by the proposal as Open Woodland of *Eucalyptus marginata - Corymbia calophylla* over heath species (Type R vegetation as defined by Havel 1975a). This vegetation is rated as well reserved in the adjoining John Forrest National Park, and of lower conservation value than the heathland associated with granite outcrops that occurs on the northern half of Lot 2. They confirmed that no Rare and Declared flora species were detected on site, however a population of *Verticordia*

that is potentially *Verticordia huegelii* var. *decumbens* (P3) was noted in the central north of Lot 2.

Mattiske Consulting Pty Ltd suggested that alternative sites be selected and that if any development occurred on Lot 2 it should be located on the southern part of the site away from outcrops of granite. Alternative sites were extensively investigated but were found to be unacceptable. The auditorium has been located on 4.6 hectares on the southern half of Lot 2, to avoid the majority of the granite outcrops where the most significant vegetation occurs. It will also avoid the population of the *Verticordia* that is potentially *Verticordia huegelii* var. *decumbens* (P3). The size of the auditorium represents 45% of Lot 2.

Only land essential to the facility will be cleared, and any disturbed land that is not required will be rehabilitated with local species. Where possible trees will not be cleared and disturbed areas, such as the batters created by the construction of the car park and access roads, will be densely planted with local shrubs and trees.

The vegetation communities to be disturbed by the proposal are well represented in the adjoining John Forrest National Park. For example comparisons of vegetation communities of John Forrest National Park show that similar vegetation communities are well represented in approximately one third of the Park or about 850 hectares.

The only wetland on site is the stream side vegetation associated with the creek which flows during winter and dries up in summer. Disturbance to this vegetation and habitat will be restricted to the creek crossing of the access road.

Weeds and dieback disease are important factors to the surrounding vegetation. These will be addressed during construction and operation by the incorporation of management procedures within the Construction and Operational Management Plans to be prepared for the proposal.

Dieback

The site was inspected by Glevan Dieback Consultancy Services who found that "The site appears to be almost entirely infected with *Phytophthora*, with only one section of dieback free vegetation in the south east corner of the area", shown in Figure 10.

Dieback is widely present across John Forrest National Park with only small areas secured as dieback free. Honey fungus, *Armillaria luteobubalina* is also known to occur within the National Park. The spread of dieback will be managed through a Dieback Management Plan that will incorporate the recommendations of Glevan Dieback Consultancy Services, and will be included in the Construction and Operational Management Plans for the proposal.

Fauna

Bamford Consulting Ecologists assessed the fauna from a site inspection on 21 May 2000 and research of published records. Their research concluded that representatives from 12 species of frogs, 44 reptile species, 87 bird species and 26 mammal species could possibly occur in the area. They identified the areas of exposed granite and heathland over shallow soil in the northern part of Lot 2 as being especially significant and should be protected. The proposed location of the auditorium on the southern half of Lot 2 largely avoids these communities.

Boundary fencing is planned to be stranded wire to enable the movement of wildlife across the site and into John Forrest National Park. Local indigenous plants will be used in the rehabilitation of areas disturbed during the construction of the auditorium that are not an integral part of the facility. This includes road verges, bunds and previously cleared areas that are to be rehabilitated.

Wetlands - Surface Water Quality

The only wetland on site is the stream side vegetation associated with the creek on the northern edge of Lot 2. The auditorium will be located 170 metres from the creekline and the only disturbance to the creekline vegetation will be the crossing of the access road.

The main potential impact on this vegetation and the creekline will be from nutrients that could come from the grassed seating area, runoff from hard paved surfaces and litter and rubbish.

Lawns will be monitored for moisture to minimise run off, and fertiliser will only be added on the basis of nutrient testing.

All runoff from the site will be fed through two detention basins that will be capable of retaining a 1 : 10 year storm event, and contain filtering devices, prior to release to the watercourse. Toilets will initially be self contained serviced transportable units.

Odour

The site lies 1.5 km west from the Red Hill Landfill Site. Although easterly winds blow across the auditorium site daily coverage of the landfill is used to reduce vermin and wind blown impacts such as odour. From site observations of the surrounding land uses and the timing of most concerts it is unlikely that odour will affect the operation of the auditorium.

Dust

The access road is to be sealed but the carpark will remain gravel, at least in the initial stages, to achieve a "natural" look. The carpark will be treated with water or a dust suppressant emulsion as required to reduce the potential for dust generation.

Glevan Dieback Consultancy Services recommends that construction occur during the summer months to minimise the risk of spread of dieback disease. In this situation wetting down will be used to suppress construction dust.

Dust management will be included in both the Construction and Operational Management Plans to ensure dust does not impact on patrons or the adjoining areas.

Potential Noise Impact

Noise modelling has been conducted by Herring Storer Acoustics, and the project modified to minimise the emanation of noise from the auditorium. The planned stage is to be enclosed with sides and a roof, and face east. Construction will be 100 mm thick pre-cast concrete panels 5 metres in height to the rear and sides. A roof of 0.6 mm

sheet metal deck is proposed and all walls and the roof are to be lined with acoustic insulation.

Herring Storer Acoustics used the Environmental Noise Model (ENM) to model the loudest case scenario of an amplified rock band with an average occurrence of one concert per week from mid-November to mid-April.

Noise output from two banks of speakers was assumed to have a peak noise generation of up to 133 dBA at some frequencies, and a resultant of 127 dBA. These levels were used under wind conditions from all directions.

When wind data was taken into account Herring Storer Acoustics found that with a loudest case scenario of an amplified band perhaps up to 28 dwellings affected by westerly winds might be able to hear the band once per summer. During southerly winds an amplified band might be able to be heard at up to 14 dwellings between 2 and 4 times in a summer.

Herring Storer Acoustics conclude that "no dwellings will experience a noise level of above 40 dB(A) and the dwellings which receive a level above 30 dB(A) will be for a short period of time". Almost all dwellings lie within the predicted 30 - 35 dB(A) zone. They go on to conclude that "the proposed venue is considered acoustically acceptable". Figures 12 – 16 show the predicted noise contours and the location of the dwellings that might be affected. The closest dwellings are over 2 km from the proposed auditorium. At 30 dBA the model predicts that the music will not heard at a dwelling, however at a predicted 40 dBA the music is likely to be heard.

Noise levels within John Forrest National Park are generally between 30 and 40 dB(A), with only a small adjoining area receiving a predicted 40 dB(A). This will only occur when a loudest case scenario amplified band is playing, with most impact occurring when northerly winds are blowing. Liaison will be maintained with the park management in order to notify them of concerts to reduce any potential conflict with activities occurring in the Park.

Ace Nominees are committed to the preparation and implementation of a Noise Operational Management Plan. The plan will be included in the Operational Management Plan and will be implemented prior to any outdoor event taking place. The Noise Operational Management Plan will address noise mitigation measures including construction techniques, noise level emissions under various weather conditions, monitoring and engineering to adjust noise output during individual concerts, and a complaints response procedure.

Light Overspill

Lights will only be used during and in preparation for night concerts. General lighting along the access road and car park will be "low level" lighting which should have low visual impact from outside the property. The stage will be protected by a roof, back and walls, and, with lighting directed towards the stage during events, light overspill should be minimised.

Public Health and safety

Public safety is covered under a variety of Acts and Regulations. However as this site is slightly remote, and with potentially 5 000 people on site, some contingency plans are required.

Fire management has been addressed by a Fire Management Plan prepared by TEC Services and approved by the City of Swan. Fire will only be a potential threat during events. At other times there will be few constructed features on site and no public access. The site will generally only be used during summer.

The carpark, lawn and access roads will form natural firebreaks, and an Emergency Plan, to be included in the Operational Management Plan will include the provision of training for staff, the location of fire fighting equipment, evacuation and liaison with the local bush fire brigade.

An Emergency Plan will also prepared to address safety issues including fire, first aid, and evacuation.

Recreation

The site lies north of John Forrest National Park, which adjoins the southern boundary and to the west.

The John Forrest National Park Management Plan, 1994, Map 9, which is reproduced as Figure 16, shows that the majority of people will be confined to the central southern area around Jane Brook, 4.5 km from the proposed auditorium. Only minor walk tracks are planned/exist near the facility, one of which is the boundary fire break.

Orienteering, rogaining, cross country running and horse riding are only permitted on recognised management tracks (John Forrest National Park Management Plan, 1994) and liaison will be undertaken with the management of John Forrest National Park to minimise potential impact.

Culture and Heritage

Yates Heritage Consultants did not record any archaeological or ethnographic sites on Lot 2. They did note the ruins of the convict hiring station to the west on Toodyay Road. The sliplanes for the cross over have been designed to not impact on this European Heritage site.

Landscape

The sloping nature of the site increases the aesthetic quality of the auditorium, but also increases the potential visual impact. The facility will be set back 170 metres from Toodyay Road. Earthworks associated with construction will be heavily vegetated with local tree/shrub species, and screening vegetation will be used around the stage and other facilities.

Road Transport

The only transport construction on site will be a car park, associated drainage and related landscaping features. The car park will have a design capacity of 900 vehicles.

For each event a substantial number of patrons are expected to arrive by bus, either independently or perhaps linking with existing services such as the suburban rail system at Midland Station.

A traffic study has been undertaken by Main Roads, negotiations held with Main Roads, and an access designed to comply with Main Roads requirements.

Key Environmental Impacts

From an assessment of the environmental factors by independent consultants, several key environmental issues have been identified. These key environmental issues are listed as

- **Loss of indigenous vegetation and habitat.**

- **Potential offsite impact on nearby landholders and users**. This encompasses water, noise, light and visual amenity.

As the project will be divided into two separate phases, Construction and Operation, which have different potential impacts, Ace Nominees has opted to prepare a Construction Management Plan and an Operational Management Plan to address and manage the above mentioned environmental issues associated with the proposed facility. These management plans will incorporate environmental management of the relevant factors included in Section 3 of the text of the PER. They will also be able to respond to any other environmental issues raised during the public review process as these can also be incorporated into the management plans. Commitments are made to the preparation and implementation of the management plans in Section 5.0, Commitments, prior to the commencement of construction and operation respectively.

Both the Construction and Operational Management Plans will be prepared in an AS/NZS ISO 14001 format, that will document how each environmental factor will be managed, who will undertake the work, and who will be responsible for reviewing and ensuring that the management of each environmental factor is satisfactorily carried out. These management plans will, for example, document which contractors/consultants will be responsible for each of the tasks.

Conclusions

Whilst there are some potentially significant environmental impacts these can be managed at a level acceptable to the community. Any impacts have to be balanced against the need for another outdoor auditorium for Perth, in an area not constrained by increased local and planning pressure.

With the development of the Construction and Operational Management Plans Ace Nominees believe that the construction and operation of an outdoor Concert Auditorium at Red Hill is sustainable with minimal environmental impact, and will provide the public with a valuable community asset.

A summary of the potential impact and management proposed is included as Table 2, which follows. The Commitments made by Ace Nominees Pty to manage the site are included as Table 3, and repeated in Section 5 of the PER.

Table 2

Summary of Environmental Impacts

Environmental Summary

Loss of indigenous vegetation and habitat

Terrestrial Flora

Site Specific Factor	EPA Objective	Existing Environment	Potential Impact	Proposed Environmental Management	Predicted Outcome
Impacts on regionally significant vegetation from clearing and increased risk of fire and weed introduction and spread	Maintain the abundance, species diversity, geographic distribution and productivity of vegetation communities, and to protect declared rare flora and priority flora, consistent with the provisions of the Wildlife Conservation Act 1950	Four vegetation communities occur on site. The most common and most sensitive is the vegetation associated with granite outcrops.	Potential to spread dieback and introduce weeds. Only 4.6 hectares of the 10.03 hectare site will be cleared. The northern half of Lot 2 which contains most of the granite outcrops and sensitive vegetation will be retained. The majority of the most sensitive habitats and vegetation associated with granite outcrops will be protected as the proposed auditorium will be located on the southern half of Lot 2, predominantly in Community Type R but extending slightly into Type G.	• Clearing will be restricted to the area nominated on the plans. • Workers and contractors are to be educated on the need to be diligent in dieback and weed management. • Weed management procedures will be included within the Construction and Operational Management Plans. • Earthmoving machinery and other vehicles are to be confined to the construction area. • During operation of the outdoor auditorium, all vehicles and the public will be restricted to the cleared areas. There will be no permitted access to the remnant vegetation. • Clearing and land disturbance will be minimised.	The location of the outdoor entertainment facility in the southern portion of Lot 2 will minimise disturbance to most sensitive vegetation communities associated with granite outcrops. No Declared Rare flora was recorded and the potential impact on Priority flora will be minimised by the avoidance of those populations. The EPA objective can be met.

Site Specific Factor	EPA Objective	Existing Environment	Potential Impact	Proposed Environmental Management	Predicted Outcome
Declared Rare and Priority Flora	Protect Declared Rare and Priority Flora, consistent with the provisions of the Wildlife Conservation Act 1950.	No Declared Rare plants were located during the survey. A *Verticordia*, potentially priority species i*Verticordia huegelii* var. *decumbens*, (P3) grows on granite outcrops in the northern portion of Lot 2.	The construction site is on the southern half of Lot 2, south of the recorded population of *Verticordia huegelii* var. *decumbens* (P3)	• See above	
Dieback					
Dieback Phytoph thora cinnamomi	Protect areas free of vegetation diseases and to minimise the spread of diseases where they are identified.	Almost all the site is already infected by dieback, although deaths are not widespread. Only a small dieback free area exists on the southern edge of the carpark site.	Potential to spread dieback across the site. from infected to non infected areas.	• The recommendations of Glevan Dieback Consultancy Services will be incorporated into a Dieback Management Plan to form part of both the Construction and Operational Management Plans. The Dieback Management Plan will include the management actions listed below. • Workers and contractors are to be educated in the need to be diligent in dieback management. • All construction work on the site will be conducted using dieback hygiene principles. • All earthmoving and other vehicles entering the site are to be washed down to ensure they are not carrying any soil or vegetation prior to entering the site. (preferably at their last point of work). • Where possible earthworks will be conducted in summer when the soils are dry. • Earthmoving machinery and other vehicles are to be confined to the construction area.	The site is already affected by dieback. A Dieback Management Plan will be implemented for the construction phase which deals with the movement of soils on site and entry onto the site. Management of water when the site is operating will assist in reducing potential movements of the spores. Therefore the EPA objective can be met.

Site Specific Factor	EPA Objective	Existing Environment	Potential Impact	Proposed Environmental Management	Predicted Outcome
				• Earth moving vehicles are to be free from soil or plant material when moving into the dieback free area. • All vehicles and the public will be restricted to the cleared areas. There will be no permitted access to the remnant vegetation. • All materials introduced to the site are to be dieback free, including:- - All gravel and road making materials to be used for carpark and access road construction. - All soil and fill materials used for the lawn and other areas. - All plants and tube stock to be used during rehabilitation. • Water draining from hard surfaces will be retained in detention basins and then fed directly to the creekline, reducing overland flow and preventing ponding.	
Fauna					
Terrestrial Fauna	Maintain the abundance, species diversity and geographical distribution of terrestrial fauna	12 species of frogs, 44 reptile species, 87 bird species and 26 mammal species could possibly occur in the area.	Only 4.6 hectares of the 10.03 hectare site will be cleared. The majority of the most sensitive habitats and vegetation associated with granite outcrops will be protected. The stream line and associated vegetation will not be altered apart from one constructed crossing point.	• Boundary fencing will be stranded wire to permit movement of fauna. The bottom wire will be left off to allow the movement of large mammals. • There will be no public access to the remainder of the site, although, apart from boundary fencing, it will not initially be fenced as this could constrain fauna. • Construction and operation will be restricted to the nominated area. • The public will be restricted to the constructed areas.	Whilst some loss of habitat will occur, fauna will be able to exchange with John Forrest National Park and so should be able to adjust to the disturbance. The habitats along the creekline and the granite outcrops will largely be protected. Thus any impact on fauna will be minimised and the EPA objective can be met.

Site Specific Factor	EPA Objective	Existing Environment	Potential Impact	Proposed Environmental Management	Predicted Outcome
				• Lighting will be designed to be low, not on high poles, to minimise potential impact. • Only local native flora will be used in restoration of the site, and any topsoil cleared will be directly returned to revegetate disturbed areas. • Rubbish will be cleared within 24 hours of a event and all bins and other facilities removed from the site, or stored in a locked facility • Limited events are planned with a maximum of 100 events per year, mostly in the summer period. • During events light will be directed only onto the stage area.	
Specially Protected Threatened) Fauna	Protect Specially Protected (Threatened) Fauna consistent with the provisions of the Wildlife Conservation Act 1950. Protect Threatened Fauna and Priority Fauna species and their habitats, consistent with the provisions of the Wildlife Conservation Act 1950	Only three fauna of conservation value are likely to occur in the area and these are regarded by Bamford Consulting Ecologists to be free ranging across habitats in John Forrest National Park and adjoining areas.	See above The construction site represents only a small part of the habitat and range of these species, with the exception of Quendas. Quendas are becoming increasingly common as a result of fox baiting, (pers com Mike Bamford).	• See above.	

Site Specific Factor	EPA Objective	Existing Environment	Potential Impact	Proposed Environmental Management	Predicted Outcome
Wetlands - Surface Water Quality					
Watercourses	Maintain the integrity, functions and environmental values of watercourses.	A small water course lies along the north of the site, adjacent to Toodyay Road.	The only impact will be the construction of a crossing for the access road using two 900 mm concrete pipes.	• Batters constructed and land cleared as part of the construction of the crossing will be rehabilitated with local species within the first winter. • Stormwater will be fed through two detention basins and only the overflow released to the creek. • Water from the detention basins may be pumped to the holding tank for recycling and irrigation of the lawn area. • Rubbish and all facilities will be removed after a event and thus the potential for materials to be lost to the creek will be minimised. • The proposed slip lane can be constructed on the existing shoulder of Toodyay Road and should not impact on the northern creekline. • Fertiliser will only be added to the lawns in summer in response to soil testing, and at the rates determined for passive lawn in the Draft Turf and Lawn Guidelines produced by the Department of Environmental Protection, ie 0 - 5 kg P/ha/year and 0 - 50 kg N/ha/year. • Detention basins will be used to retain runoff from hard surfaces for irrigation of the lawn area. This will enable runoff from most summer storms (1 in 10 year) and the early winter rains to be retained. Filtration of sediment and litter will be incorporated into the drainage management. • Overflow from the detention basins will normally only occur later in winter when the lawns are not being fertilised.	The EPA objective can be met
	Ensure riparian vegetation on substantial stream lines is adequately protected	See above	See above	• Apart from one crossing point all stream side vegetation will be retained. • See above	

Site Specific Factor	EPA Objective	Existing Environment	Potential Impact	Proposed Environmental Management	Predicted Outcome
Pollutants	Ensure that nutrient (fertiliser) and pesticides used for the establishment and management of the development do not impact adversely on flora and fauna on or adjacent to the subject land	A small water course lies along the north of the site, adjacent to Toodyay Road.	4.6 hectares will be cleared, a lawn seating area and gravel car park created. There will be increased runoff from hard surfaces and potential for nutrients to be lost from lawns.	• The existing soils are gravelly grading to clays at depth and have good phosphate retention capability. • Soils to be used for the seating area will be earthy or loamy sands which have good phosphate retention characteristics. • Initially there will be no effluent disposal on site. Transportable units will be used and waste water removed from the site following each event. Monitoring of toilet use during the first two years will be undertaken to determine whether permanent systems will be more environmentally sustainable. If permanent systems are found to be more acceptable they will be constructed in accordance with any Development Approvals issued by the City of Swan and to the requirements of Health Department, Health Act and City of Swan.	
Erosion	Ensure that land degradation does not occur through wind or water erosion.	There is little or no potential for wind erosion. Sloping and disturbed soils can be subject to water erosion.	Sloping and disturbed soils can be subject to water erosion.	• The potential for water erosion is addressed under Surface Water Quality. • The potential for wind erosion is deemed to be insignificant.	

Site Specific Factor	EPA Objective	Existing Environment	Potential Impact	Proposed Environmental Management	Predicted Outcome
Surface Water Quality	Maintain or improve the quality of surface water to ensure that existing and potential uses, including ecosystem maintenance are protected, consistent with the draft WA Guidelines for Fresh and Marine Waters (EPA, 1993) and the NHMRC/ARMCANZ Australian Drinking Water Guidelines - National Water Quality Management Strategy.	A small water course lies along the north of the site, adjacent to Toodyay Road.	4.6 hectares will be cleared, a lawn seating area and gravel car park created. There will be no clearing or access apart from construction areas, access road and a northern firebreak. The existing southern firebreak will be maintained. There will be increased runoff from hard surfaces. It is estimated that approximately 50% of runoff from hard surfaces will be recycled for irrigation and dust management. The remainder will flow through detention basins to the creekline. The first winter runoff will be retained in the small detention basins.	• The northern firebreak will be located to reduce the potential for erosion of the soil. • Erosion of firebreaks will be monitored and appropriate drainage constructed as necessary. • Any existing and future erosion of firebreaks will be repaired. • Run off from paved areas will be fed through detention basins and sediment traps. • Detention basins will be large enough to retain most summer storm events (1 : 10 year), when the lawns are growing and fertiliser has been applied. • Runoff from the lawn area will normally only occur in winter when the site is not being used and the lawns will not be growing. At this time there may be overflow from the detention basins. • Nutrients will only be added to the lawn as determined by nutrient testing twice per year in spring and late summer. Nutrient quantities will comply with the DEP Guidelines for active lawn. • All disturbed areas will be rehabilitated by dense planting and seeding. • Rubbish will be removed promptly to an approved waste disposal site following cleanup from a event. • Wastes will be recycled where possible; eg suitable plastics, and aluminium.	

Potential offsite impact on nearby landholders and users					
Site Specific Factor	EPA Objective	Existing Environment	Potential Impact	Proposed Environmental Management	Predicted Outcome
Dust					
Dust	Ensure that the dust levels generated by the proposal do not adversely impact upon welfare and amenity or cause health problems, by meeting statutory requirements and acceptable standards	The site lies to the south of and near Toodyay Road and the planned Eastern Highway. To the north is Pioneer hard rock quarry, to the east Midland Brick clay pits and the EMRC landfill site.	Local dust could be generated from traffic on the car park, and during construction.	• The carpark will be watered or treated with a dust suppressant to minimise dust generation during events. • There will not be continual movement of cars and other vehicular transport on the site. Once parked, the cars will remain unattended until the end of the event at which time they will be accessed and allowed to leave. • Dust suppression will be used during construction. • A water tank will be constructed on site and used for dust mitigation and irrigation. • Water from detention basins will be recycled for water conservation. • Agreements have been made with Midland Brick Company Pty Ltd to enable access to water from Lots 7-9 in the east. Any additional water will be carted to the site as required. • The access road will be bituminised prior to the first event occurring.	It is unlikely that dust will impact on patrons and thus the EPA objective can be met.

Site Specific Factor	EPA Objective	Existing Environment	Potential Impact	Proposed Environmental Management	Predicted Outcome
Non-chemical emissions - Noise and Light					
Noise	Protect the amenity of nearby land users (including users of John Forrest National Park) from noise impacts in accordance with the Environmental Protection (Noise) Regulations 1997. Ensure that noise emanating from the proposal does not impact on the behaviour of native animals in John Forrest National Park in a significantly adverse way	The site lies to the south of and near Toodyay Road and the planned Eastern Highway. To the north is Pioneer hard rock quarry, to the east Midland Brick clay pits and the EMRC landfill site. Aircraft flight paths lie close to the site. Aircraft and road traffic noise are currently significant impacts on the site.	There is planned to be limited events per month over the 5 month summer period. For amplified events a noise study has been conducted by Herring - Storer Acoustics which shows that only under a loudest case scenario, when the wind is blowing from the right direction, will any noise be potentially heard at a dwelling. Herring Storer Acoustics predict that up to 28 dwellings might be able to hear an amplified rock band on perhaps one occasion each summer and up to 14 dwellings might be able to hear a rock band 2 - 4 times each summer. The noise study by Herring Storer Acoustics indicates that noise levels will be greater than 40 dBA for only the northern part of John Forrest National Park. The potential impact of amplified events on fauna is not well documented.. However animals normally live around quarry sites, airports and other noisy locations with little apparent impact, to such an extent that they can become a problem to the activity.	• The majority of events will have low levels of amplification. It is anticipated that a worst case scenario rock event will only occur on average once per week. • The closest dwelling is 2 km to the west. • The stage will be constructed from 5 metre high precast concrete panels to the rear and sides, and face east. A metal deck roof will be used and all walls and roof lined with acoustic material as described in the Noise Assessment by Herring Storer Acoustics 2001. • Herring Storer Acoustics conclude that "no dwellings will experience a noise level of above 40 dBA and the dwellings which receive a level above 30 dBA will be for a short period of time". They go on to conclude that "the proposed venue is considered acoustically acceptable". • Ace Nominees will prepare and implement a Noise Operational Management Plan prior to the first event being held.	Herring Storer Acoustics have predicted that the Auditorium can comply with the Environmental (Noise) Regulations 1997, thus the EPA objective can be met. With a Noise Operational Management Plan in place the EPA objective can be met. There is unlikely to be any impact from light and thus the EPA objective can be met.

Site Specific Factor	EPA Objective	Existing Environment	Potential Impact	Proposed Environmental Management	Predicted Outcome
Light overspill	Ensure that lighting associated with the facility does not unreasonably interfere with the welfare or amenity of adjacent land users including users of John Forrest National Park.	The site currently has no lights on it, although lights are used at Pioneer quarry adjoining to the north.	Lights may be visible from the Swan Coastal Plain at a significant distance. Lights are likely to be visible from Toodyay Road and John Forrest National Park.	• Lights will be directed onto the stage area during night time events. • General lighting along the access road and car park will be "low level" lighting which should generally be protected by trees on the site when viewed from outside the property. • It is possible that some light may be visible from the Swan Coastal Plain but this will be minimised and should not represent much more impact than several dwellings. • Liaison will be maintained with the land manager of John Forrest National Park to notify them of events to reduce any potential conflict between activities. • The northern portion of the park is only lightly used. • The auditorium is 4.5 km from the main activity area in John Forrest National Park.	
Landscape					
Landscape	Maintain the integrity, environmental and aesthetic values of the landscape	The site lies in indigenous bushland just back from the brow of the Darling Scarp. John Forrest National Park adjoins to the south.	Only 4.6 hectares of the 10.03 hectare site will be affected by the development There is planned to be limited events per month, generally over a 5 month summer period. Development will be setback 200 metres from the current Toodyay Road and 160 metres from the proposed orange route upgrade. 20 metre buffers have been retained to the John Forrest National Park.	• The development is located in an area of few trees. • The development has been confined to the southern portion of Lot 2. • Where possible trees will be retained. • Batters and disturbed areas will be rehabilitated with local species. • A screen of tall trees of local species will be planted on the northern side of the stage area. • The site should only be visible as glimpses through the vegetated buffers, if at all, when not being used. • There will be no large permanent buildings on site. Any developments will be subject to City of Swan development approval. • The water tank will be coloured green and screened by planted vegetation.	The site has been located and designed in a manner that will minimise the potential visual impact and thus the EPA objective can be met.

Site Specific Factor	EPA Objective	Existing Environment	Potential Impact	Proposed Environmental Management	Predicted Outcome
				• Lighting for the access road and car park will be low to reduce visual impact. • Stage lighting must be directed only onto the stage area for satisfactory performance. The stage will have rear and side walls and a roof.	
Public Health and Safety					
Public Health and Safety					
Fire (risk of ignition and risk to patrons of the facility in the event of a major wildfire threatening the Auditorium)	Ensure that risk is as low as reasonably achievable and complies with acceptable standards including the EPA's criteria for individual facility risk off-site, acceptable criteria for societal risk and the DME's requirements in respect of public safety.	The site lies in indigenous bushland. National Park land adjoining the site is to be managed with less than 8.5 tonnes fuel loading per hectare. (John Forrest National Park Management Plan, 1994).	Patrons can potentially increase the fire risk by smoking. Safety of patrons during a bushfire. The hard surfaces and lawns will act as a natural firebreak.	Fire • A fire management plan has been prepared by TEC Services and will be implemented. • A water tank will be constructed on site and a minimum of 10 000 litres retained at all times for fire fighting. • A small firebreak is to be constructed in the north of the site, and hazard reduction to be maintained to the west and north of the stage area. • Back packs and fire extinguishers will be strategically located around the site during each event to deal with any minor incident. These will be under the control of security staff. • Security staff will receive training in the use of fire extinguishers and back packs. • Liaison will be undertaken with the local bush fire brigade, notifying them when each event is to occur. • The Emergency Evacuation Plan will be developed with assistance from the local bushfire brigade to cover fire contingency. • The site is within mobile telephone range. Public Safety • Qualified first aid personnel will be on site during each event. Assistance from trained security staff or employed staff, depending on the assessed risk.	The Fire Management Plan has been accepted by the City of Swan. Together with an Emergency Evacuation Plan to be prepared by the proponent, fire and other safety can be managed. Thus the EPA objective can be met.

Site Specific Factor	EPA Objective	Existing Environment	Potential Impact	Proposed Environmental Management	Predicted Outcome
				• The site is within mobile telephone range. • The logistics of moving people to and from the site will be documented into an "action plan". • An Emergency Evacuation Plan will be developed by Ace Nominees prior to any event taking place. • The power transmission lines will cross the access road. The pylons are widely spaced and will be "out of bounds" and patrolled by security staff during events.	
Odour					
Odours generated by the nearby Red Hill waste disposal facility	Ensure that odours emanating from the nearby Red Hill waste disposal facility do not adversely affect the welfare and amenity of users of the facility.	The site is 1.5 km west from the Red Hill Landfill facility. The Red Hill Landfill Site covers the waste daily at the end of operations. Thus the potential for odour generation is minimised. Easterly winds predominantly occur on summer mornings from midnight onwards at times when the facility is unlikely to be used.	Assessed as not significant to the proposal.	• None required	There is unlikely to be any impact from odour and thus the EPA objective can be met.

Site Specific Factor	EPA Objective	Existing Environment	Potential Impact	Proposed Environmental Management	Predicted Outcome
Recreation					
Recreation	Ensure that the proposal does not unduly compromise recreational usage of the area, as developed by planning agencies, particularly with respect to present and future users of John Forrest National Park.	The site lies in indigenous bushland with John Forrest National Park adjoining to the south and west. Midland Brick owns Lots 1 to the west and Lots 3 - 10 to the east. There are active clay pits on Lots 8 - 10 to the east and the EMRC landfill site lies to the east. Both adjoin John Forrest National Park.	Noise from events. Incursions by patrons into the National Park	• Boundary fencing will continue to be stranded wire to permit movement of fauna. • Security staff will be hired at each event to restrict public access to the constructed areas. • Security of the facility may assist in maintaining vigilance of the boundary fence which is currently being cut by four wheel drive vehicles. • There is planned to be a maximum of 100 events over a 5 month summer period. • Liaison will be maintained with the Park management in order to notify them of events to reduce any potential conflict between activities. • The northern portion of the park is only lightly used. • The outdoor entertainment facility is 4.5 km from the main activity area in John Forrest National Park. • See 4.6 Non-Chemical Emissions-Noise and Light	The distance to the main activity area of John Forrest National Park and the low usage of walk tracks in the adjoining park together with the overall small numbers of events will reduce the potential for impact on John Forrest National Park.
Road Transport					
Road Transport	Ensure that road transport associated with the proposal does not result in unacceptable impacts on levels of service or safety on the existing networks.	The site lies to the south of and near Toodyay Road and the planned Eastern Highway. Lot 2, as an existing lot, has access rights to Toodyay Road.	An additional access to Toodyay Road will be created. Slip lanes will need to be constructed on the existing verge.	• Main Roads has approved the design and location of the access road onto Toodyay Road. • Traffic management during events will be addressed by the Operational Management Plan.	As Main Roads has approved the access the EPA objective can be met.

Culture and Heritage

Site Specific Factor	EPA Objective	Existing Environment	Potential Impact	Proposed Environmental Management	Predicted Outcome
Aboriginal culture and heritage	Ensure that the proposal complies with the requirements of the Aboriginal Heritage Act 1972; and Ensure that changes to the biological and physical environment resulting from the project do not adversely affect cultural associations with the area	Whilst there is evidence of aboriginal activity to the east, there is no evidence of archaeological material on Lot 2.	No known impact	• During development and operation of the auditorium Ace Nominees will comply with the requirements of the Aboriginal Heritage Act 1972. • Yates Heritage Consultants recommended "that development may proceed with no further action required".	No heritage or aboriginal sites were recorded from the affected area and thus the EPA objective can be met.
European heritage	Ensure the development complies with statutory requirements in relation to areas of cultural or historic significance.	There are no European heritage sites on Lot 2	No known impact	• Yates Heritage Consultants searched records and inventories as well as the site and found no evidence of European Heritage on Lot 2. • The proposed passing lane and cross over have been designed to be constructed east of the convict hiring station.	

Alternative Proposals

Site Specific Factor	EPA Objective	Existing Environment	Potential Impact	Proposed Environmental Management	Predicted Outcome
Alternative proposals and site alternatives	Ensure that all reasonable alternatives to a proposal are considered within sound social and environmental constraints before a decision is made to adopt a proposal.	The site lies in indigenous bushland just back from the brow of the Darling Scarp.	Provides a needed facility in Perth as other facilities are coming under planning and local pressure. Impact covered in sections above.	• The site has been selected after thorough research across the Perth Metropolitan Area. • See Need for an alternative outdoor entertainment Auditorium in the Perth Metropolitan Area" at start of Management Review.	The site has been selected as the only one found which met the criteria for large buffers that such a facility requires, and thus the EPA objective can be met.

Table 3

Commitments

Ace Nominees makes the following commitments with respect to the proposed outdoor auditorium on Lot 2, Toodyay Road, Red Hill.

Commitments

From an analysis of the project, the following issues are determined as being the most significant to the construction and operation of the proposed Outdoor Auditorium.

- Loss of indigenous vegetation and habitat
- Potential offsite impacts that include noise, light, water quality and visual amenity
- Public health and safety. Public health and safety has potentially less impact on the environment and falls under the control of various regulations and government authorities.

The following Commitments are made to minimise environmental impact from the proposed Outdoor Auditorium. The Department of Environmental Protection will audit the implementation of the Commitments in Table 3.

The potential impacts on the environment could occur during construction and during operation. Therefore it is proposed to develop Construction and Operational Management Plans which will provide structure to environmental management and be the basis on which the project can be audited. Incorporated into these management plans will be separate management plans for Operational Noise, Fire and Emergency.

These management plans will incorporate the management actions listed within the text of the Public Environmental Review document, but will be extended to more precisely document who will undertake the action, when the management action will occur and who will provide advice on the action.

Both the Construction and Operational Management Plans will be prepared in an AS/NZS ISO 14001 format that will document how each environmental factor will be managed, who will undertake the work, and who will be responsible for reviewing and ensuring that the management of each environmental factor is satisfactorily carried out. These management plans will, for example, document which contractors/consultants will be responsible.

TABLE 3 PROPONENTS ENVIRONMENTAL MANAGEMENT COMMITMENTS

No	Topic	Scope of Management Plans	Objective	Timing	Advice
1	Impacts of construction	The Construction Management Plan will be prepared. It will incorporate the management actions proposed within the PER document and will specifically address the management of clearing, bulk earthworks, surface water quality, dust, surface water quality, dieback weeds, and public safety.	To manage the environmental impacts of the construction phase	Prior to commencement of construction	City of Swan, CALM and other relevant authorities
2	Impacts of construction	Implement the Construction Management Plan referred to in Commitment 1 above.	To manage the environmental impacts of the construction phase	During the construction phase	City of Swan, CALM and other relevant authorities
3	Impacts of operation	An Operational Management Plan will be prepared. It will include the day to day management of the auditorium. It will incorporate the management actions proposed within the PER document and include ongoing environmental management of the facility to manage and reduce off site impacts. This plan will incorporate the Noise Operational Management Plan, Fire Management Plan and the Emergency Plan	To manage the environmental impacts of the operation phase	Prior to first event	City of Swan, CALM and other relevant authorities
4	Impacts of operation	Implement the Operational Management Plan referred to in Commitment 3 above.	To manage the environmental impacts of the operation phase	During operation of the facility	City of Swan, CALM and other relevant authorities
5	Noise Operational Management Plan	A Noise Operational Management Plan will be prepared to assist with monitoring and managing the levels of noise emitted from the auditorium. The plan will address; • Noise mitigation measures • Noise limits at certain locations • Noise levels emitted during concerts under various weather conditions • Noise monitoring • Complaints procedures • Timing of concerts	To manage the impacts of noise on nearby residents	Prior to first event	City of Swan
6	Noise Operational Management Plan	Implement the Noise Operational Management Plan referred to in Commitment 5 above.	To manage the impacts of noise on nearby residents	During operation of the facility	City of Swan
7	Fire Management Plan	The Fire Management Plan will be finalised. This will address the potential for spread of fire to and from the facility. The current Fire Management Plan has been accepted by the City of Swan	To manage the risk of fire spreading from the facility	Prior to first event	City of Swan
8	Fire Management Plan	Implement the Fire Management Plan referred to in Commitment 7 above.	To manage the risk of fire spreading from the facility	During operation of the facility	City of Swan
9	Emergency Plan	An Emergency Plan will be developed to manage potential emergencies when the auditorium is being used, such as evacuation, threat of bush fire, security and first aid.	To manage potential emergencies during the operational phase	Prior to first event	City of Swan and other relevant authorities
10	Emergency Plan	Implement the Emergency Plan referred to in Commitment 7 above.	To manage potential emergencies during the operational phase	During operation of the facility	City of Swan and other relevant authorities

TABLE 4 OUTLINE OF ENVIRONMENTAL MANAGEMENT ACTIONS TO BE INCLUDED IN THE CONSTRUCTION AND OPERATIONAL MANAGEMENT PLANS

CONSTRUCTION MANAGEMENT PLAN

The Construction Management Plan will address the following environmental impacts that have been assessed as being significant,

No	Significant Environmental Impacts	Topic	Scope of Management Plans	Auditable Objective	Timing	Advice
1	Construction Management Plan		Ace Nominees will prepare a Construction Management Plan to address the significant environmental issues that have been identified during the Public Environmental Review Process, and that relate to construction activities.	Prepare a Construction Management Plan.	Prior to construction	Relevant authorities
			Ace Nominees will implement and work to the Construction Management Plan during the construction phase of the project.	Implement the Construction Management Plan	During construction	Relevant authorities
2	Construction	The Construction Management Plan will include construction in accordance with the approved plans and diagrams.		Construction to be in accordance with approvals	Construction	City of Swan
3	Habitat Protection Flora and Fauna	The auditorium has been located in the southern half of Lot 2, predominantly within Community Type R, and extending slightly into the more sensitive Type G community associated with granite outcrops. Clearing will be restricted to the less sensitive 4.6 hectare southern portion of Lot 2.				
		Flora and Fauna	The Construction Management Plan will provide for minimum interference to the most sensitive flora and habitat by including such actions as; • using only local native flora in the restoration of disturbed areas that are not integral to the operation of the facility such as screening vegetation, banks and slopes, • and the direct transfer of topsoil from cleared to rehabilitated areas.	Minimise the impact of the development on indigenous vegetation communities and habitat.	Construction	City of Swan
		Dieback	A Dieback Management Plan will be included within the Construction Management Plan. It will be developed from the recommendations of Glevan Dieback Consultancy Services and incorporate the dieback management listed in the text of the PER.	Minimise the impact of dieback on indigenous vegetation communities	Construction	City of Swan CALM
		Weeds	The management of weeds will be included in the Construction Management Plan and will address the importation of landscaping materials, monitoring and treatment of weeds.	Minimise the impact of weeds on indigenous vegetation communities	Construction	City of Swan CALM

4	Off Site Impacts	Potential off site impacts from construction will be little different to that on nearby quarries and will be managed in a similar manner through the preparation and implementation of the Operational Management Plan				
		Noise	Noise from construction will consist mainly of earth moving equipment similar to that used at nearby quarries. Construction noise will be included in the Operational Management Plan	Manage noise generation on site. Environmental Protection Noise Regulations	Construction	City of Swan
		Dust	Dust management will be addressed in the Construction Management Plan through a program of wetting down during construction earthworks.	Minimise the generation of dust during construction. EPA Guidance 18 for Prevention of Air Quality Impacts from Land Development Sites	Construction	City of Swan
		Visual Quality	Visual management will be addressed in the Construction Management Plan through the use of setbacks, visually sympathetic materials and screening vegetation	Minimise local visual impact	Construction	City of Swan
		Water Quality	The Construction Management Plan will address offsite water through construction of the water management facilities in accordance with the approved plans and diagrams.	Minimise the impact on water quality.	Construction	City of Swan
5	Public Health and Safety	Most public health and safety issues will be controlled by relevant authorities. Those issues relevant to the environmental management of the site will be incorporated into the Operational Management Plan.				
		Traffic Safety	Public traffic safety will be addressed by approval by Main Roads of the design of the access road and cross over.	Minimise the potential impacts on traffic safety	Construction	City of Swan Main Roads
		Fire Management	Incorporate the Fire Management Plan into the Operational Management Plan in conjunction with the Emergency Plan. This will address fire minimisation, fire fighting facilities, training, liaison with various authorities and evacuation.	Minimise the risk from fire to patrons and the adjoining vegetation.	Construction	City of Swan
		Emergency	Prepare and incorporate an Emergency Plan into the Operational Management Plan to address the provision of first aid, training and evacuation.	Minimise the risk to patrons.	Construction	City of Swan Relevant Authorities

OPERATIONAL MANAGEMENT PLAN

The Operational Management Plan will address the following environmental impacts that have been assessed as being significant.

No	Significant Environmental Impacts	Topic	Scope of Management Plans	Auditable Objective	Timing	Advice
1	Operational Management Plan		Ace Nominees will prepare an Operational Management Plan that will address the significant environmental issues that have been identified during the Public Environmental Review Process that relate to operational activities.	Prepare an Operational Management Plan.	Prior to the first event	Relevant authorities
			Ace Nominees will implement and work to the Operational Management Plan during the operational phase of the project.	Implement the Operational Management Plan	Prior to the first event	Relevant authorities
2	Habitat Protection Flora and Fauna	Adjoining vegetation	The Operational Management Plan will provide for minimum interference to the most sensitive flora and habitat by including such actions as; All activities and the public will be restricted to the 4.6 hectares of the nominated site, located in the southern portion of Lot 2.	Minimise impact on adjoining vegetation communities	Ongoing	City of Swan CALM
		Dieback	Dieback will be managed by the implementation of the Dieback Management Plan which will incorporate the recommendations of Glevan Dieback Consultancy Services and the dieback management listed in the text of the PER. The relevant sections of the Dieback Management Plan will be included in the Operational Management Plan.	Minimise the impact of dieback on indigenous vegetation communities	Ongoing	City of Swan CALM
		Weeds	The potential introduction of weeds will be managed by the measures outlined in the PER being incorporated into the Operation Management Plan. This will restrict materials being brought to the site and include monitoring and the management of weeds that may occur on site.	Minimise the impact of weeds on indigenous vegetation communities	Ongoing	City of Swan CALM
		Pest fauna	Management of rubbish and litter will be incorporated into the Operational Management Plan to discourage exotic fauna species.	Discourage exotic and pest fauna.	Ongoing	City of Swan CALM

3	Potential Off site Impacts	Noise	A Noise Operational Management Plan will be incorporated into the Operational Management Plan to manage noise output from individual concerts, taking into account the particular weather conditions, monitoring of noise and the use of complaint procedures.	Manage noise generation on site to maintain compliance with the Noise Regulations.	Ongoing	City of Swan
		Dust	Dust management will be addressed through dust suppression measures incorporated into the Operational Management Plan including the bituminising of the access road and wetting down of the car park as required.	Minimise the generation of dust during construction	Ongoing	City of Swan
		Light	Potential light overspill will be addressed in the Operational Management Plan through the location, type and use of lighting.	Minimise light overspill	Ongoing	City of Swan
		Visual Quality	Visual management will be addressed in the Operational Management Plan through the use of visually sympathetic materials and screening vegetation	Minimise local visual impact	Ongoing	City of Swan
		Water Quality	Water quality will be addressed in the Operational Management Plan by the maintenance of the water management and filtering devices, management of nutrients applied to the lawn and the management of rubbish and litter.	Minimise the impact on water quality.	Ongoing	City of Swan
4	Public Health and Safety	Traffic Safety	Public traffic safety will occur through the approval by Main Roads of the design of the access road and cross over. Traffic management will be included in the Operational Management Plan	Minimise the potential impacts on traffic safety	Ongoing	City of Swan Main Roads
		Fire Management	Ace Nominees will incorporate the Fire Management and Emergency Plans into the Operational Management Plan. Fire management will encompass fire minimisation, fire fighting facilities, training, liaison with various authorities and evacuation.	Minimise the risk from fire to patrons and the adjoining vegetation.	Ongoing	City of Swan
		Emergency	An Emergency Plan will be incorporated into the Operational Management Plan to address the provision of first aid, training and evacuation procedures.	Minimise the risk to patrons.	Ongoing	City of Swan Relevant authorities

Environmental Review

1.0 Introduction

1.1 Need for an alternative auditorium in the Perth Metropolitan Area.

REDHILL OUTDOOR AUDITORIUM

The aims of the Auditorium are to ***Provide a meeting place for community and cultural events nestled within the magnificence of the Australian landscape.***

A strong commitment to a balanced coexistence within the natural environment and the promotion of culturally significant events is considered essential. Such a place should be available to all ages and tastes who seek to be part of the beauty and feeling of escape it provides.

CHOICE OF LOCATION

Choosing the location began by establishing the components considered essential for its practical implementation. They are listed as follows;

1) Set within a natural environment.
2) Main road frontage.
3) Access to water and electricity.
4) Isolation from areas which may be affected by noise and traffic.
5) Within a 45 minute drive from the centre of Perth.

In order to view existing venues a copy of all licensed premises within Western Australia was obtained from the Office of Racing, Gaming and Liquor and all were inspected. After completing the exercise it was found that no sites in Perth meet the criteria. While some of the Auditoriums meet most of the above criteria, the main obstacle concerns surrounding areas which could be affected by noise and traffic. Licensed establishments around the metropolitan area receive varying degrees of opposition from the local residents as do one off events such as the classical music concert at Cottesloe on New Year's Eve 2000.

The focus was then moved from existing licensed venues to unlicensed locations that satisfied all of the components listed above. To not satisfy even one of these prerequisites would make any site unsuitable. A physical search was again carried out. The areas of Baldivis, Serpentine, Bullsbrook, Gidgegannup, Kalamunda, Anketell, Karnup, Paulls Valley, Hacketts Gully, Canning Mills, Bedfordale, Byford, Forrestdale, and the old mining pits on the side of the hill behind Maddington, were singled out as possible locations but all had fundamental flaws which made any proposal within these areas unrealistic.

Whiteman Park and land along Toodyay Road in Redhill were suggested as possible alternatives. Whiteman Park seemed to satisfy much of the criteria and a meeting was held with the manager. It became evident after a tour of the site and preliminary investigation that the effect of sound and increased traffic flow would potentially impact on nearby residents, so the site was abandoned.

Discussions were held with the City of Swan to discuss a potential site along Toodyay Road.

Land adjoining the Red Hill Landfill Site on Lot 2, Toodyay Road was considered. A preliminary investigation found the site satisfied all essential criteria, but that there were rural living lots and a potential urban area relatively nearby.

Discussions were also held with Midland Brick Company Pty Ltd in reference to Lots 1 to 9 Toodyay Road. This land is bush so the infrastructure could be placed within the natural landscape with minimal effect to the surrounding areas. The disturbed land could be replanted with native trees and plants so with time and nurturing they would return to their natural state.

It was decided to choose Midland Brick land, specifically Lot 2 Toodyay Road, as it is considerably more isolated from existing residents and those within the proposed subdivisions in Parkerville and Stoneville. The closest resident would be over 2 kms away from the Auditorium.

This location lies within the buffer areas for the local quarrying operations, and would take advantage of the buffers created to minimise any possible sound concerns in the area. The other neighbour, John Forrest National Park, has no public facilities nearby therefore the auditorium's activities will not infringe upon any of the Park's amenities. Furthermore the auditorium's hours of trade are at different times to the local quarries and National Park, eliminating conflicts of interest.

THE BENEFITS OF THE PROPOSED REDHILL AUDITORIUM

Presently Perth does not have a auditorium that accommodates more than 3500 patrons or less than 8000. An auditorium which holds 5000 would satisfy this need. While the proposed location has no residents within a 2 km buffer, existing locations around Perth have many close residents. In order to minimise impact on nearby residents, a more isolated location such as this is desirable.

With the establishment of the Midland Redevelopment Authority a point that has been continually raised is the encouragement of culture within the City of Swan. The placement of an auditorium on the foothills to the east of the city centre, drawing in Australian and World renowned performers would assist the process. Bringing more people into Midland will help local businesses and community groups through the provision of services to the facility.

Ace Nominees is committed to the establishment of the Outdoor Auditorium and the development of an environmental management program which, when implemented, will not only protect the landscape but will act as a benchmark for any other future developments throughout Perth.

Marcus Sarich

Ace Nominees

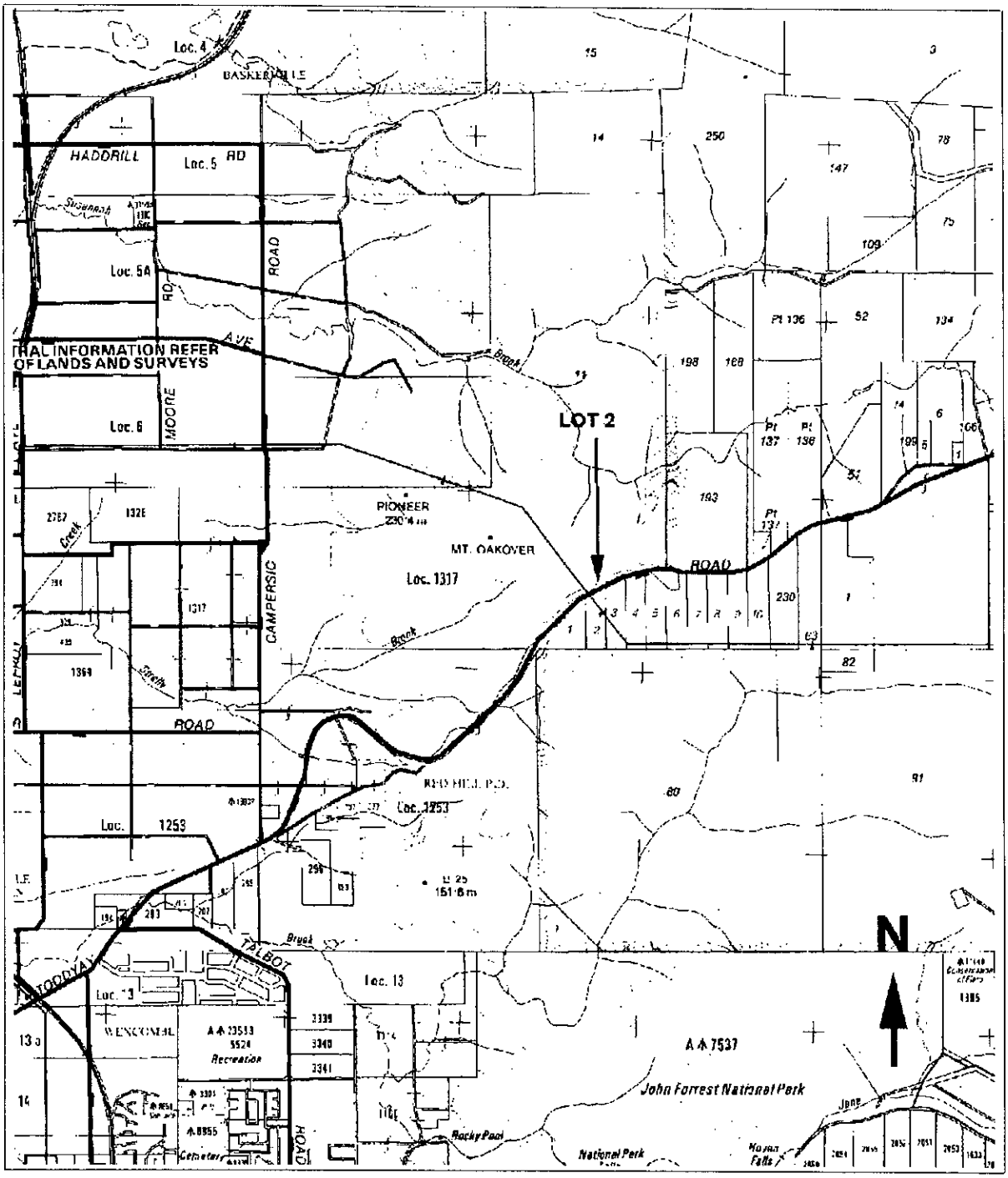


Figure 1 Location of Lot 2 Toodyay Road

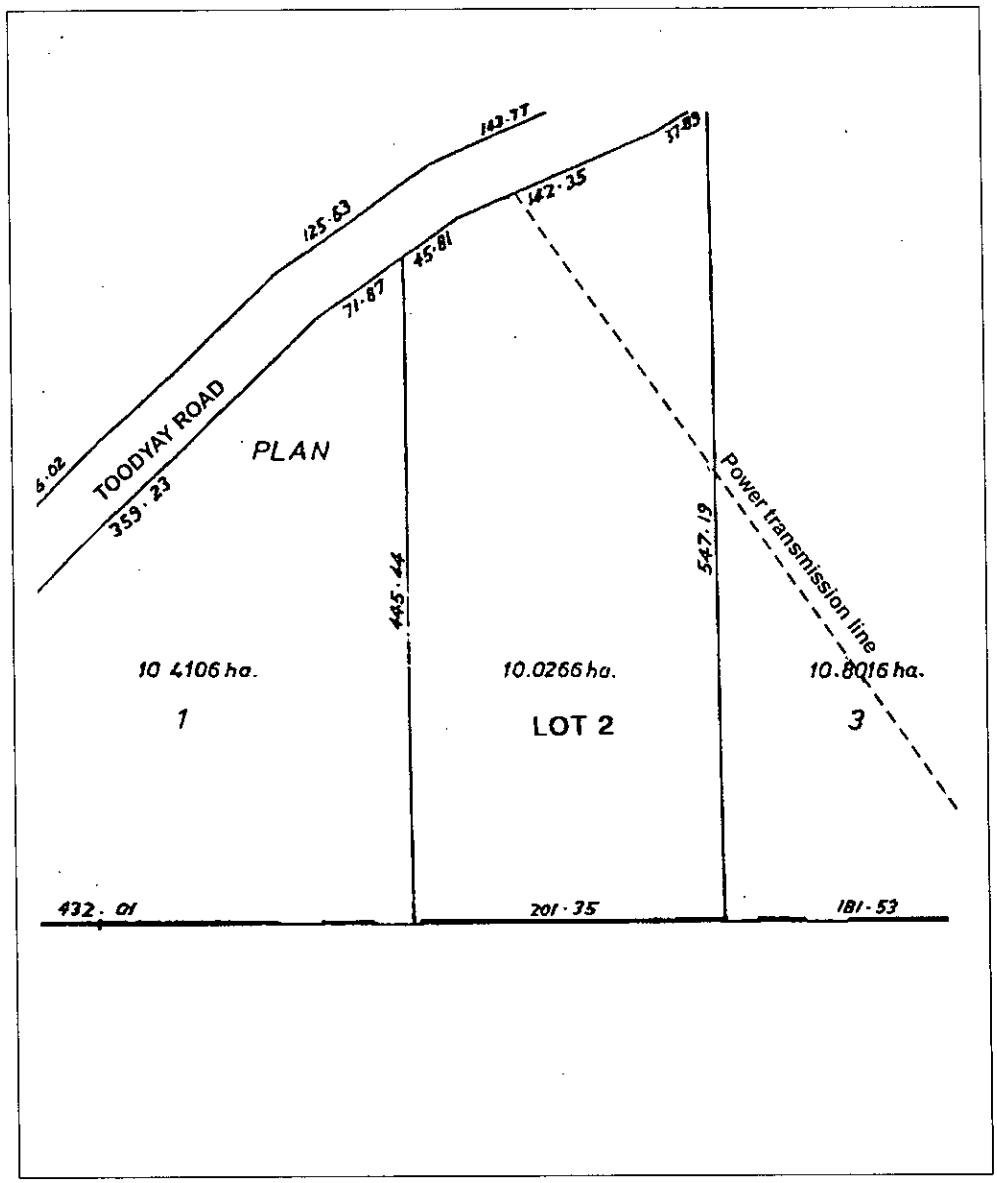


Figure 2 Lot 2

1.2 Description of the Outdoor Auditorium

1.2.1 Proposed Auditorium

An Outdoor Auditorium is proposed for Lot 2, Toodyay Road, Red Hill by Ace Nominees. The proposed auditorium is to cater for performing arts, children's events and perhaps films, in an outdoor environment.

Originally the proposal was for the auditorium to be located on Lot 1 but this was changed in order to better protect the flora communities, and provide a greater setback from Toodyay Road.

1.2.2 Proponent

The proponent is Ace Nominees Pty Ltd.

1.2.3 Site

Lot 2 has a total area of 10.0266 hectares, although only 4.6 hectares will be affected by this proposal. The existing vegetation is shown in Figure 5 and the proposed construction in Figure 4.

The site lies on the southern side of Toodyay Road at Red Hill, just on the brow of the Darling Scarp. The proposed auditorium is to be constructed at the rear of Lot 2, adjacent to the northern boundary with John Forrest National Park. The location is shown in Figure 1 and the land use in Figure 3.

The land is currently held by Midland Brick Company Pty Ltd, with Ace Nominees holding an option to purchase, conditional on approval from the City of Swan.

Currently Lot 2 lies within the "Resource" Zone under City of Swan Town Planning Scheme. "Resource" Zoning has been created to provide sites for industries/activities associated with the Perth Metropolitan Area that require larger buffer distances; such as quarries, landfill and some recreational activities.

The surrounding land is predominantly uncleared vegetation of the Darling Scarp, which separates and acts as buffers for the industries/activities. Figure 3 summarises the nearby landuses. The following nearby activities are current;

- Lots 1 - 10 are listed as Priority Clay Resource Locations in Statement of Planning Policy 10, "Basic Raw Materials". This policy, released by the Western Australian Planning Commission, aims to protect the raw materials used by industry.

- Lots 1 and 3 - 10 are held by Midland Brick Company Pty Ltd.

- Active clay pits lie 900 metres east on Lots 8 – 10, 1 000 metres to the north east and 3 000 metres to the south east. There are no clay resources on Lot 2.

- The Red Hill Landfill Site, operated by the East Metropolitan Regional Council, lies 2 000 metres to the east.

- A motorcross and trail bike recreation area lies 2.5 km to the east.

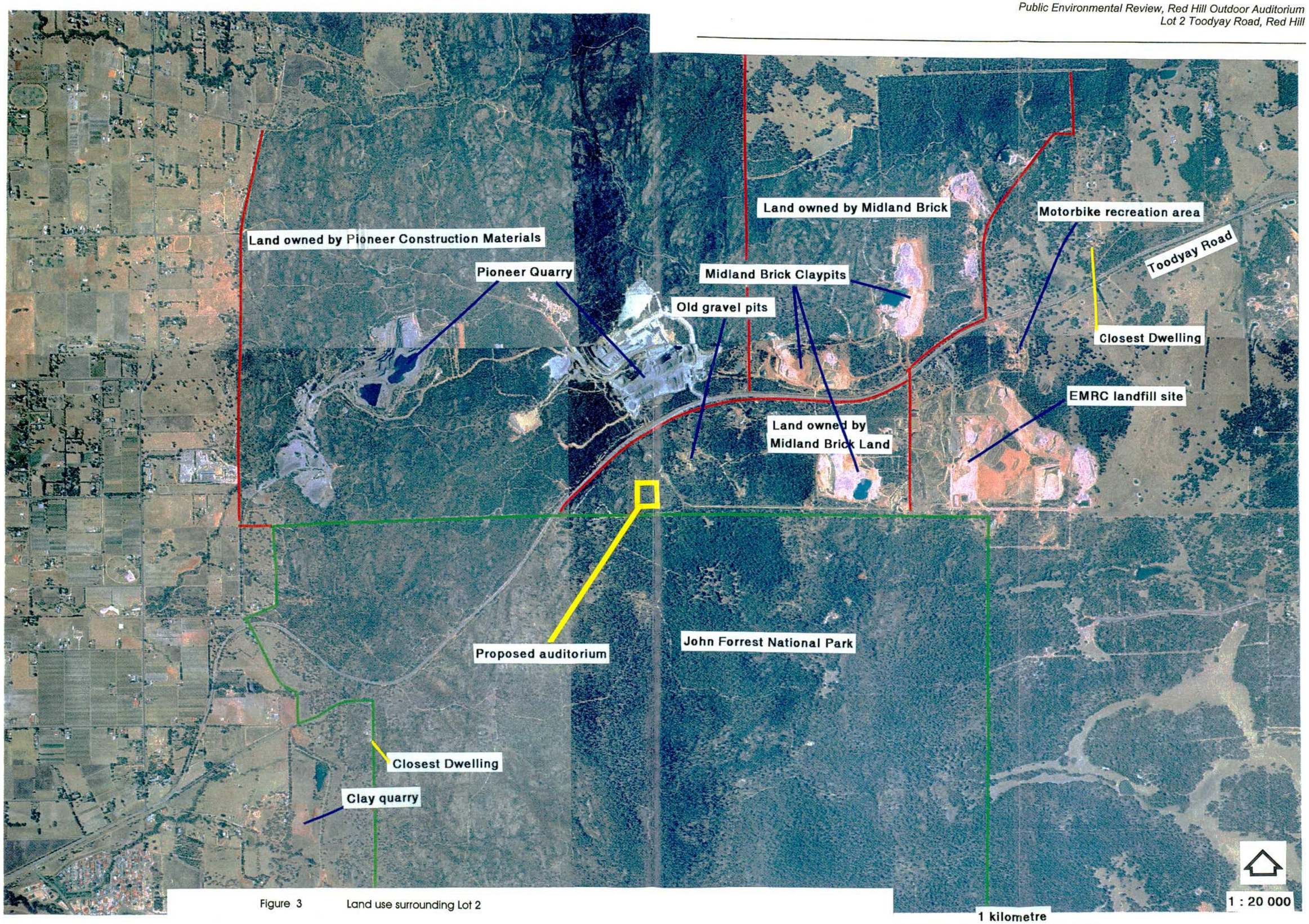


Figure 3 Land use surrounding Lot 2

- Pioneer Construction Materials' Red Hill hard rock quarry and processing plant lies across Toodyay Road, 500 metres north of the site. The old Herne Hill hard rock quarry lies 1 500 metres to the north east. Lot 2 lies within the nominated 1 km buffer to the Red Hill Quarry.

- The proposed Perth - Adelaide Highway is planned to run along the northern edge of Lot 2.

- Flight paths from Perth airport pass to the north.

- The North East Corridor Structure Plan shows the site and surrounding land as Basic Raw Materials.

- Adjoining to the south and west is John Forrest National Park.

- From aerial photography the nearest dwelling is 2.2 km to the west from the site; shown on Figure 4. Further dwellings closer to the site are unlikely to be constructed because John Forrest National Park covers the area to the west and south, and the Red Hill Landfill site, with its consequent buffer, constrains development in the east. The Pioneer Construction Materials' hard rock quarry prevents development to the north.

1.2.4 Design and Capacity

The proposed auditorium is to be a small grassed area facing a stage in the west. No formal seating is to be provided. It is planned to start with a smaller capacity of about 2 500 patrons, building up to a maximum of 5 000 people if demand warrants, and the success of the earlier smaller functions. This will place the Auditorium between the Entertainment Centre at 8 000 and Belvoir or Perth Metropolis at 3 500. The design is shown in Figure 4.

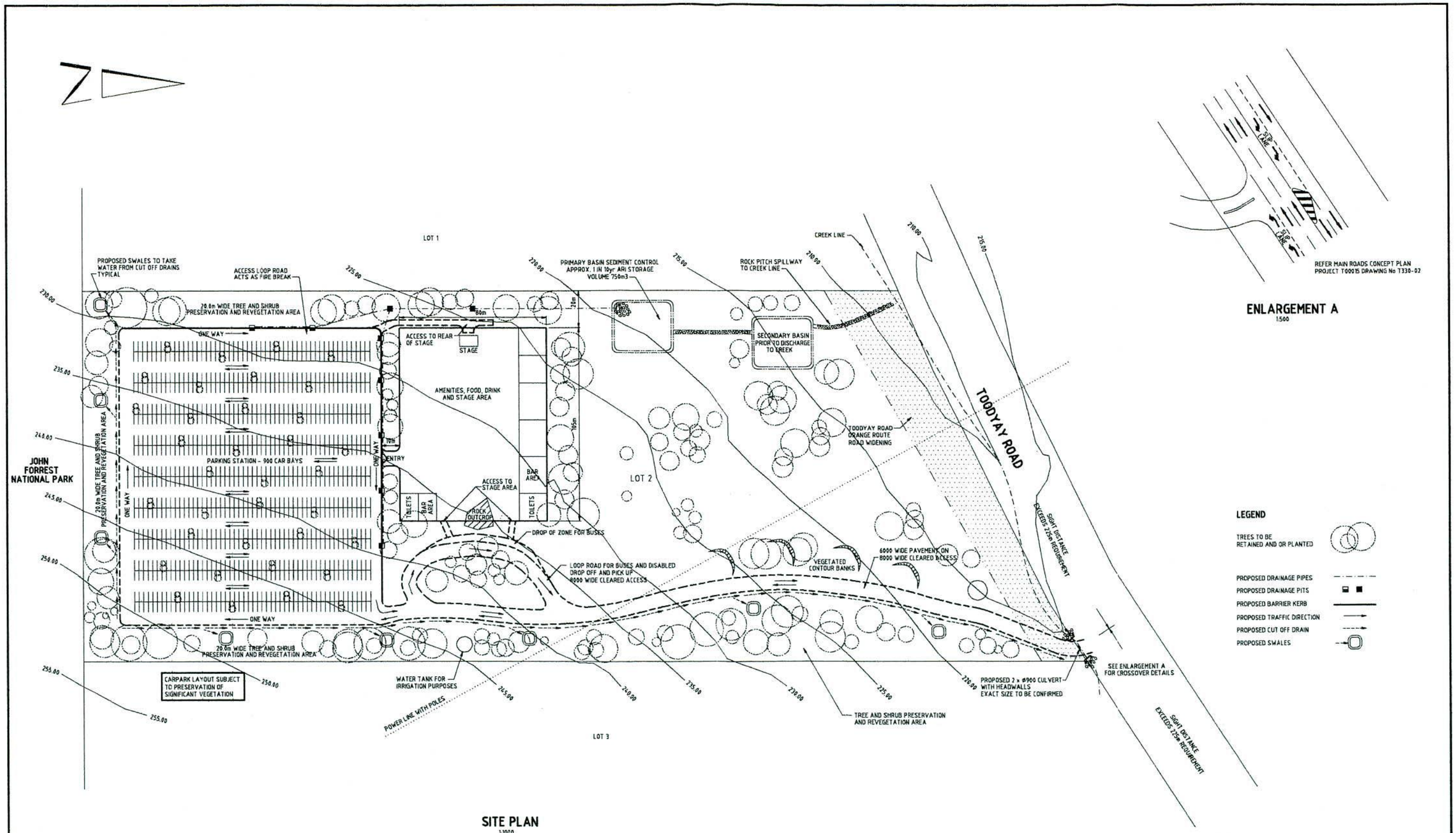
Being an outdoor auditorium it will generally only operate for about 5 months of the year.

The auditorium will provide an outdoor facility for performing arts, children's events and perhaps films. The number of events will be variable, with perhaps several events in one week or one event on consecutive days in one week followed by a period of time when there may be less or no concerts. A maximum number of events cannot be provided at this stage but an average of 100 events per year is anticipated. Events are expected to be run for 3 to 4 hours. The majority of events are planned to have low amplification with perhaps one higher amplified event such as a rock band on average once per week.

A feature of the facility will be the link with nature, provided by the natural back drop of trees, the evening sky and city lights.

The permanent constructions on site will be a stage area formed from precast concrete, drainage basins, potentially two small buildings for catering and toilets, a car park and other landscaping features. The facilities are to be sympathetically designed to blend in with the environment.

Portable facilities to be used for the concerts include toilets, food and drink stalls, stage equipment and lighting, rubbish bins, change rooms and the like.



ENLARGEMENT A
1:500

SITE PLAN
1:1000

Figure 4 Design of Outdoor Auditorium

REVISION	DESCRIPTION	DRAWN	CHECKED	DATE
B	ADDITIONAL TREE SCREENING ADDED TO NORTHERN SIDE OF VENUE	E.B	G.C	31.10.00
A	CUT OFF DRAINS AND SWALES ADDED , STAGE AREA AND LOOP ROAD ALTERED, CONTOUR BANKS RELOCATED	E.B	M.F	26.07.00

ALL DIMENSIONS IN MILLIMETRES
DO NOT SCALE

McDOWALL AFFLECK
CIVIL, STRUCTURAL, MECHANICAL & MUNICIPAL ENGINEERS AND PROJECT MANAGERS
MIDLAND HOUSE
69 GREAT NORTHERN HIGHWAY
MIDLAND. WESTERN AUSTRALIA 6056
PO BOX 1377 MIDLAND 6936
TELEPHONE (08) 9274 6444
PREFERRED FAX (08) 9250 3433
SECOND FAX (08) 9274 6592

SCALE	1:1000
SHEET SIZE	A1
DESIGN	M.F
DATE	JULY-2000
DRAWN	E.B
DATE	JULY-2000
CHECKED	G.C
DATE	JULY-2000
DATUM	A.H.D

THIS IS ISSUED FOR
- [x] INFORMATION
- [ ] COMMENT
- [ ] APPROVAL
- [ ] TENDER
- [ ] CONSTRUCTION

DO NOT USE FOR ANY PURPOSE OTHER THAN THAT INDICATED

CLIENT: MARK SARICH
PROJECT: OUTDOOR ENTERTAINMENT VENUE LOT 2 TOODYAY ROAD RED HILL
TITLE: PROPOSED LAYOUT
DRAWING NUMBER: 7541/2
REVISION: B

However situations may occur where it is more environmentally desirable to have small permanent buildings erected than to use portable facilities. For example a small rammed earth building to act as a temporary stall during events may be more aesthetically suitable than a number of portable stalls brought to the facility for each event. Bins or ancillary equipment could be stored on site in a small building rather than being removed at the end of each event.

No additional permanent buildings will be constructed without full development approval from the City of Swan. The requirement for development approval will provide a means of control on all aspects of the facility, including type of structure, design, location and size. Public input could be obtained at this time.

The car park will have a design capacity of 900 vehicles. For each event some patrons are expected to arrive by bus, either independently or perhaps linking with existing services such as the suburban rail system at Midland Station.

Access to the facility will be from a road to Toodyay Road. The access has been approved by Main Roads. The currently approved plan is Project T00015 Drawing No T330-02 part of which is shown in Figure 4.

1.2.5 Operation of the Auditorium

Initially, apart from the stage, all facilities will be brought to the site as required, and all servicing will be through portable facilities. This provides flexibility in the delivery of any particular concert and reduces the potential impact of the auditorium.

Portable facilities are becoming increasingly important in entertainment, with more shows being performed in self contained localities such as recent productions on the Esplanade in Perth and the Leeuwin Concert.

Security will be hired for each event. Loose litter will be contained within the fenced areas and collected after each event to prevent blowing and attracting vermin.

Refreshments will be sold on site, such as a broad range of food, soft drinks, coffee, water and liquor (when applicable to a particular event and through licensing).

Public transport will be encouraged and where possible buses can be linked to train services to try and reduce traffic in the area. Other patrons will arrive by car.

The number of events will be variable in terms of their frequency, format and degree of amplification.

The planned project can be summarised as;

1.2.6 Project Summary

Outdoor Auditorium - Toodyay Road Redhill	
Element	**Description**
Project	• Outdoor Auditorium
Purpose	• Provide an outdoor venue for performing arts, concerts, children's events and perhaps films.
Location	• Lot 2, Toodyay Road, Red Hill
Area	• Lot size 10.0266 hectares • Area affected by development, 4.6 hectares
Facility	• Maximum capacity 5 000 (initial capacity 2 500) • A constructed roofed stage with side and rear walls. • Car parking with a bus turning circle and bus parking bays. • Informal seating. • Initially portable facilities will be used for catering and toilets but more permanent arrangements may be made at a later stage, subject to City of Swan approvals. • Water supply for irrigation of lawn and dust suppression, with an associated holding tank.
Annual number of events	• Up to 100 per year; variable from mid-November to mid-April. Sometimes several events will be held in one week and at other times there may only be one event.
Access	• Access road from Toodyay Road. Crossover to Main Roads specifications.

Table 1 Key Characteristics Table

1.3 Project History

This study of the proposed Outdoor Auditorium, Lot 2 Toodyay Road, Red Hill, by Ace Nominees was carried out to assess the current environmental status of the land, determine the site capability and identify environmental factors and management issues related to the proposal.

The initial proposal was submitted to the City of Swan in July 1999. It was referred to the Environmental Protection Authority. On the basis of a number of issues identified during the environmental review the proposal was moved to, and restricted to, Lot 2 Toodyay Road.

Ace Nominees have studied the need for an outdoor entertainment facility of this nature. They have also researched the Perth Metropolitan area for suitable sites. (See 1.1 "Need for an alternative outdoor auditorium in the Perth Metropolitan Area").

The environmental factors that were considered relevant to the proposed outdoor auditorium were identified by the Environmental Protection Authority (EPA), in consultation with the City of Swan, Shire of Mundaring and the Department of Conservation and Land Management. The EPA subsequently issued a detailed project specific set of guidelines specifying the scope of the Public Environmental Review (PER) document for this proposal. The environmental factors to be addressed in the PER were listed as "Environmental Factors relevant to the proposal', in Section 2 of the Guidelines of the Formal Instructions for the PER. The Guidelines are included in Appendix 1.

The EPA will provide a summary of issues raised during the public review of the PER document. The proponent must then provide a written response to the issues raised and where appropriate include additional commitments to the environmental management of the construction and operation of the auditorium. The issues and proponent's response to them are published by the EPA in its report and recommendations to the Minister for the Environment.

The Environmental Protection Authority invites members of the public who have any comments, to make a submission on the proposal, as set out in the "Invitation to Make a Submission" at the front of the document.

As a result of these instructions independent consultants were asked to assess both Lots 1 and 2 to identify the area of least impact and recommend ways of reducing environmental impact.

Consultants used in the study were;

- Landform Research - Geology, soils, hydrology
- Statewest Survey and Planning - Planning
- Mattiske Consulting Pty Ltd - Flora
- Bamford Consulting Ecologists - Fauna
- TEC Services - Fire management
- Yates Heritage Consultants - Archaeology and ethnographics
- McDowell Affleck - Engineering design
- Glevan Dieback Consultants - Dieback disease
- Main Roads - Access design
- Herring Storer Acoustics - Noise and acoustics

Individual consultants' reports accompany this Public Environmental Review.

The Archaeological and Ethnographic Report may contain sensitive information and therefore only a summary is included in this Review. Full copies of the Archaeological and Ethnographic studies have been lodged with the Department of Aboriginal Affairs by Yates Heritage Consultants. Requests to view the studies should be directed to that department.

From an assessment of the environmental factors by independent consultants, several key environmental issues have been identified. These key environmental issues are listed as

- **Loss of indigenous vegetation and habitat.**

- **Potential offsite impact on nearby landholders and users**. This encompasses water, noise, light and visual amenity.

As the project will be divided into two separate phases, Construction and Operation, which have different potential impacts Ace Nominees has opted to prepare a Construction Management Plan and an Operational Management Plan to address and manage the above mentioned environmental issues associated with the proposed facility. These management plans will incorporate environmental management of the relevant factors included in Section 3 of the text of the PER. They will also be able to respond to any other environmental issues raised during the public review process as these can also be incorporated into the management plans. Commitments are made to the preparation and implementation of the management plans in Section 5.0 Commitments, prior to the commencement of construction and operation respectively.

Both the Construction and Operational Management Plans will be prepared in an AS/NZS ISO 14001 format, that will document how each environmental factor will be managed, who will undertake the work, and who will be responsible for reviewing and ensuring that the management of each environmental factor is satisfactorily carried out. These management plans will, for example, document which contractors/consultants will be responsible for each of the tasks. See the Commitments made in Section 5.0.

Figure 5 Aerial photograph of Lot 2

2.0 Summary of the Existing Environment

2.1 Geology and Geomorphology

The site lies on the southern side of a small creek which ultimately joins Strelly Creek. The land drops from 254 metres in the south east corner of the site down to 208 metres in the north western corner adjacent to the creek. Figure 4 shows on site contours.

Lot 2 lies on the gentle south facing slope of a small valley developed on eroded granite of the Western Gneiss Terrane. Laterite gravels and duricrust occur in the central south east on which most of the facility will be located. Outcrops of granite are common, particularly in the north and central parts of the site, where large boulders are frequently exposed. Development has been concentrated on the laterite gravel areas, and the granite areas have been avoided as much as possible.

2.2 Soils

The soils in the granite areas are shallow with cream to light orange loams and clays over granite basement at very shallow depth. Basement outcrop is common and varies from large boulders to surface sheets.

The south eastern corner is covered by a Tertiary plateau remnant of laterite soils. These consist of thin brown gravelly loam top soil overlying yellow brown gravel and loam gravel, over lighter coloured gibbsite rich subsoils and clay.

Soil depth increases gradually upslope towards the south eastern corner where the laterite soils are exposed.

Some erosion of the firebreaks has occurred along the southern boundary.

2.3 Climate

The climate of the area is classified as Mediterranean, with dry hot Summers and cool wet Winters.

Data used to be recorded at the Upper Swan Research Station but this was 7 km to the west on the Swan Coastal Plain. Current data is available from Pearce Airbase at Bullsbrook. Some stations that record limited data are more relevant. Precipitation is recorded at Gidgegannup where the annual average is 921 mm of which 79% falls in the five wettest months, May to September inclusive. Evaporation exceeds rainfall in all but the four wettest months.

Average maximum temperatures at Kalamunda reach 30.8 degrees Celsius for the hottest month, February, but fall to 15.4 degrees Celsius in July. Average minima for the coldest month August, are 7.8 degrees Celsius. Maximum temperatures in Summer may be a degree or two hotter than at Kalamunda.

Wind data and wind rose are available for Pearce Airbase and old data is available for Swan Research Station at the base of the Darling Scarp, for 9.00 am and 3.00 pm. There is no wind data available for the scarp. Whilst this data provides information on wind

directions and gives a general impression of the wind speed in the area, there will be some differences in wind speed due to the katabatic effects of the scarp. These effects are not likely to affect assessment of the influence of wind, apart from the fact that easterly wind speeds are likely to be less strong in summer.

In Summer at Pearce Airbase wind blows from the east 70% of the time at 9.00 am and from the west/south west for 60% of the time at 15.00 pm. Summer wind speeds tend to be 6 to 10 km/hour at 9.00 am and between 11 and 20 km/hour at 15.00 pm.

The Winter wind directions are more even, but there is a slight predominance from the east at 9.00 am and south west at 15.00 pm. The average speeds are between 1 to 10 km/hour.

2.4 · Hydrology

The site drains north westwards to the creek line which runs along the northern edge of Lot 2 to ultimately join Strelly Brook and the Swan River. The northern creek line only flows in winter and is fresh.

This creek line is covered by, and would be modified by, the proposed Toodyay Road widening (orange route), if or when it is constructed. The current location of the proposed route is shown in Figure 4.

2.5 Vegetation

Vegetation was assessed by Mattiske Consulting Pty Ltd in both June and November 2000, to identify a good representation of the species present. The survey comprised transects at 100 metre intervals across Lot 2 and the adjoining Lot 1 to the west. Prior to the survey a database survey of Department of Conservation and Land Management Declared Rare and Priority Flora records was obtained. Plants collected in the field were dried, pressed and sorted in accordance with the requirements of the Western Australian State Herbarium. Specimens were identified to determine if any Priority or Rare species were present, to determine the community types and provide a species list.

A total of 29 families, 68 genera and 112 plant taxa, including subspecies and varieties, were recorded in the area. The species composition is typical of the Dale Botanical District. Only one weed species, *Watsonia sp.*, was recorded in the north west adjacent to the drainage line.

No plant taxa gazetted as Declared Rare, pursuant to subsection(2) of section 23F of the Wildlife Conservation Act (1950), were located during the survey. Two Priority flora species were located in the survey area. These were *Lambertia multiflora* var. *darlingensis* (P3) and *Darwinia pimeolioides* (P4). Another potential priority species is *Verticordia huegelii* var. *decumbens* (P3) which grows on granite outcrops. The location of *Verticordia huegelii* var. *decumbens* will be outside the development area as shown in Figure 6.

The vegetation is typical of vegetation associated with the Darling Scarp and comprises four main vegetation communities as defined by (Havel 1975a and b) in Mattiske, 2000. The distribution of these vegetation communities is shown in Figure 6.

- Mosaic of open woodland of *Eucalyptus marginata - Corymbia calophylla* and closed heath of Proteaceae - Myrtaceae species and lithic complex associated with granite.

- Open woodland of *Eucalyptus marginata - Corymbia calophylla* on the fringes of granite outcrops, with understorey including *Hibbertia hypericoides, Hakea undulata and Dryandra lindleyana*.

- Open woodland of *Eucalyptus wandoo* with some pockets of *Grevillea bipinnatifida* and *Hakea undulata* and other heath species.

- Occasional pockets of *Eucalyptus rudis* over *Agonis linearifolia and Astartea fascicularis* with associated cyperaceae along the creekline

Mattiske, 2000, notes the vegetation as in "Excellent" condition with the exception of the disturbed areas near the creekline, where weeds are present, and the power line which has been partially cleared.

Glevan Dieback Consultants, 2000, note that dieback disease is present across the site but is confined to the small drainage lines with the intervening vegetation unaffected. A small dieback free area exists near the southern boundary in the south eastern corner of the site but dieback is common up slope to the south east. The area currently infected by dieback is shown in Figure 10.

2.6 Fauna

On the basis of ground and literature search Bamford Consulting Ecologists believe that representatives from up to 12 species of frogs, 44 reptile species, 87 bird species and 26 mammal species could possibly occur in the area. They also note that 3 species of birds and 12 species of mammal are extinct in the general area. Naturally the site is too small for all of these to be present, but at some time they could be present or may be transient across the site.

3.0 Environmental Assessment and Management

Following initial input to the Environmental Protection Authority (EPA) by the proponent Ace Nominees, the environmental factors that were considered relevant to the proposed outdoor auditorium were identified by the EPA. The environmental factors to be addressed in the PER were listed as "Environmental Factors relevant to the proposal" in Section 2 of the Guidelines of the Formal Instructions for the PER. These are included in Appendix 1. Each environmental factor has been addressed in this section.

As a result of the environmental assessment, the following environmental factors have been identified as the most significant environmental issues.

- **Loss of indigenous vegetation.**
- **Potential offsite impact on nearby landholders and users**. This encompasses noise, light and visual amenity.
- **Public health and safety**. This covers a number of less significant environmental issues that need to be addressed during the project. These will be managed by **Construction and Operational Management Plans** and **Commitments** for the facility.

The environmental issues have been summarised in the Conclusions in 4.0 and a number of commitments made by Ace Nominees to manage these potential environmental issues in 5.0, Commitments, which are repeated as Table 3 in the Executive Summary.

Also in the Executive Summary is a summary of the environmental factors identified in the guidelines, the potential impact of the development, and the predicted outcome for the environment shown as Table 2 of the Executive Summary.

3.1 Terrestrial Flora

3.1.1 Description of the Vegetation

The vegetation of Lot 2 and the adjoining Lot 1 to the west was assessed by Mattiske Consulting Pty Ltd in both June and November 2000. The database of Department of Conservation and Land Management Declared Rare and Priority Flora records was searched. (Mattiske, 2000, Flora and Vegetation Studies, Proposed Amphitheatre Site, Red Hill), contained in the Independent Consultants Reports for this proposal, located at the EPA and City of Swan Libraries.

A total of 29 families, 68 genera and 112 plant taxa, including subspecies and varieties, were recorded on Lots 1 and 2. Only one weed species, *Watsonia sp.*, was recorded in the north west adjacent to the drainage line.

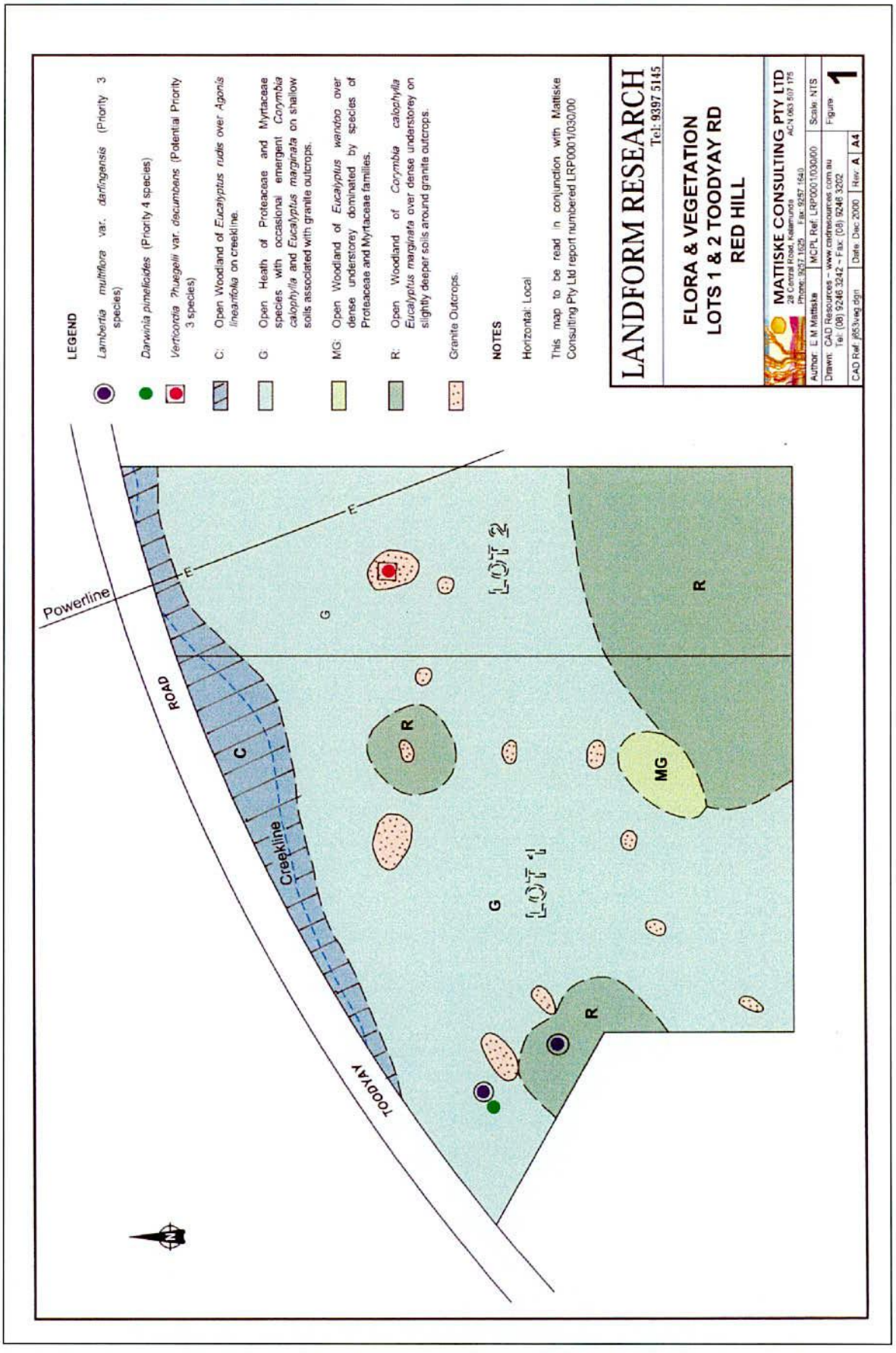


Figure 6 Vegetation Communities on Lot 2, (Mattiske Consulting Pty Ltd, 2000)

The species composition is typical of the Dale Botanical District and the vegetation associated with the Darling Scarp. It comprises four main vegetation communities as defined by (Havel 1975a and b; Mattiske, 2000) and shown in Figure 6.

- **Vegetation Type G** - Mosaic of open woodland of *Eucalyptus marginata - Corymbia calophylla* and closed heath of Proteaceae - Myrtaceae species and lithic complex associated with granite.

- **Vegetation Type R** - Open woodland of *Eucalyptus marginata - Corymbia calophylla* on the fringes of granite outcrops, with understorey including *Hibbertia hypericoides, Hakea undulata and Dryandra lindleyana.*

- **Vegetation Type MG** - Open woodland of *Eucalyptus wandoo* with some pockets of *Grevillea bipinnatifida* and *Hakea undulata* and other heath species

- **Vegetation Type C** - Occasional pockets of *Eucalyptus rudis* over *Agonis linearifolia* and *Astartea fascicularis* with associated cyperaceae along the creekline

Vegetation Types MG and C are largely unaffected by the proposed outdoor auditorium. Type MG does not occur on Lot 2 and Type C is associated with the stream line in the north that will be crossed by the access road. It should however be noted that the whole of the stream line including Vegetation Type C lies within the proposed route of Toodyay Road when it is to be upgraded as shown in Figure 4.

The proposed auditorium predominantly lies within Community Type R and extends into Community Type G.

3.1.2 Representation of Vegetation Community Types

John Forrest National Park Management Plan, 1994 records the plant communities within the Park, using Havel 1975a and b classification system. Therefore direct comparison of the communities is possible. Figure 9, which is repeated from the John Forrest Management Plan, 1994, shows that the areas of heath associated with granite outcrops, Community Types G and R, are found within Mixed Species Heath and Herbfields and Heaths of John Forrest National Park. Vegetation Type R of Mattiske, 2000, is correlated with Jarrah/Marri Sheoak Forest in Figure 9, with which it adjoins to the south. Mattiske, 2000 states "The site vegetation types of the survey area are reserved within John Forrest National Park".

Figure 9 also shows the size of the auditorium compared to the size of the vegetation communities within John Forest National Park, at the same scale. It can be seen that the 4.6 hectares to be cleared is small in comparison with the communities preserved in John Forrest National Park. The area of John Forrest National Park is 2676 hectares, (CALM 1994).

Broad scale classification of the vegetation of the Darling System was undertaken by Heddle, EM, OW Loneragan and JJ Havel, 1980. This has been recently updated in mapping for the Regional Forests Agreement by Mattiske and Havel, 1998.

The vegetation study conducted by Mattiske Consulting showed that the vegetation on Lot 2 was predominantly G and R, (Figure 6). Mattiske & Havel 1998, classify the site as Yarragil 1 vegetation in the northern half of the site and Dwellingup 2 on the higher

southern portion of Lot 2. The Dwellingup 2 vegetation is predominantly the vegetation complex to be cleared as a result of construction of the auditorium.

As the vegetation of the Darling Scarp, including Lot 2 and John Forrest National Park is covered by significant areas of uncleared land the vegetation complexes that occur on Lot 2 are well represented. For example comparisons of vegetation communities of John Forrest National Park show that the Dwellingup 2 Complex is represented in approximately one third of the Park or about 850 hectares. This must be compared to the 4.6 hectares that is required to construct the outdoor auditorium.

In addition the Darling Scarp Complex extends north and south along the scarp and the Yarragil 1 Complex is represented in smaller valleys of the Darling Scarp.

Much of the remaining remnant vegetation of the western edge of the Darling Scarp and Plateau is included within Landscape Protection Zones within the City of Swan Town Planning Scheme and is within the scope of EPA Guidance No 10, 2001, (Draft), "Level of Assessment for proposals affecting bushland areas within System 6 and the Southern Coastal Plain Region". EPA Guidance Statement No 100 provides advice to proponents, and the public generally, about the minimum requirements for environmental assessment and management which the EPA would expect to be met when the EPA considers a proposal during the assessment process. Protection of vegetation is achieved through proposed developments, which might impact on remnant vegetation, being referred to the EPA.

3.1.3 Declared Rare and Priority Flora

No plant taxa gazetted as Declared Rare pursuant to subsection(2) of section 23F of the Wildlife Conservation Act (1950) was located during the survey by Mattiske Consulting, 2000. Two Priority flora species were located in the survey area. These were *Lambertia multiflora* var. *darlingensis* (P3) and *Darwinia pimeolioides* (P4). Another potential priority species is *Verticordia huegelii* var. *decumbens* (P3) which is associated with granite outcrops. The *Verticordia* could not be positively identified during the field study due to a lack of flowering material but is assumed to be *Verticordia huegelii* var. *decumbens* (P3).

Both Lots 1 and 2 were surveyed, but Lot 1 has now been excluded from the proposed outdoor auditorium. The recordings of *Lambertia multiflora* var. *darlingensis* (P3) and *Darwinia pimeolioides* (P4) are in the west of Lot 1 and are therefore not affected by the proposal. The *Verticordia* which could not be readily identified, *Verticordia huegelii* var. *decumbens* (P3), lies in the northern half of Lot 2 and will be protected because development is to be restricted to the southern half of the lot. The location of the population of *Verticordia* is shown in Figure 6.

3.1.4 Significance of the Vegetation

Mattiske, 2000, notes that "Lots 1 and 2 do not contain any regionally significant vegetation or any threatened communities as defined by English and Blyth (1997). Furthermore, the site-vegetation types present are represented within the adjacent John Forrest National Park".

Mattiske, 2000, goes on to state "The 20 hectares of bushland area in Lots 1 and 2 Toodyay Rd, Red Hill are considered to be locally significant as a result of the following values;

- it supports pockets of *Nuytsia floribunda* on shallow eroded patches of granite,
- it supports priority species which are mainly on the granitic soils,

- it supports vegetation which is relatively undisturbed, and it provides an area of undeveloped native bushland of high botanical value."

These botanical values were ascribed to the whole 20 hectares of Lots 1 and 2, but only 4.6 hectares of vegetation will be affected by the development. In addition the locally significant values apply more to the vegetation developed in association with granite outcrops. For this reason the proposed auditorium has been located on the southern part of Lot 2 and there is no proposed impact on Lot 1. This location enables the majority of the more significant Community Type G to be protected. It also avoids most of the pockets of *Nuytsia floribunda* and the population of *Verticordia huegelii* var. *decumbens*. Compare the construction of the facility in Figure 4 to the location of these species in Figure 6.

3.1.5 Vegetation Condition

Mattiske Consulting, 2000, notes the vegetation as in "Excellent" condition with the exception of the disturbed areas near the creekline where weeds are present and associated with the power line that crosses the site where the vegetation is rated as "Very Good".

The site was inspected by Glevan Dieback Consultancy Services who found that "The site appears to be almost entirely infected with *Phytophthora* with only one section of dieback free vegetation in the south east corner of the area." See 3.2 Dieback.

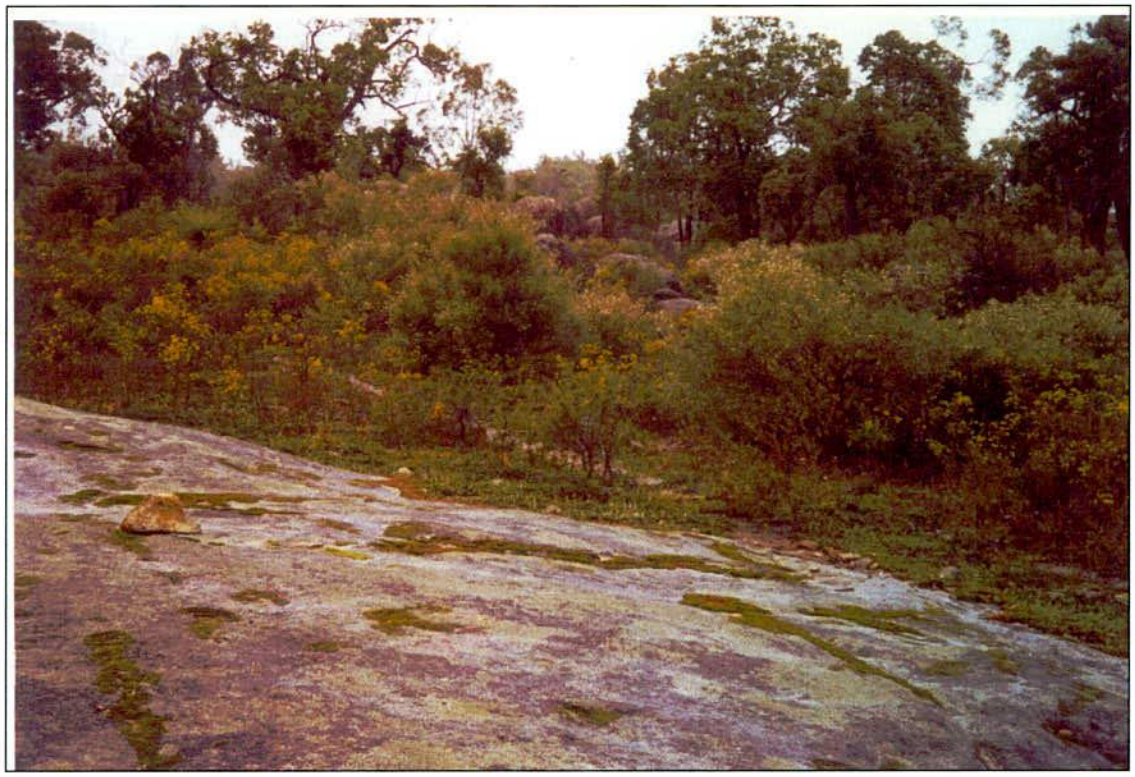


Figure 7 Vegetation associated with granite outcrops which will largely be avoided

Figure 8 View of southern part of area to be cleared showing Vegetation Type R. Clearing will take a small area of the Jarrah Marri

3.1.6 Conclusions

The recommendations of Mattiske Consulting, 2000 are, in summary;

- "alternative sites should be assessed and compared for proposed development".
- "It is possible to minimise the impact on the property by locating the development in the south eastern corner of the property, which has previously been disturbed."

Significant research was undertaken. by Ace Nominees to try and find an alternative Auditorium site. However existing auditoriums are coming under intense local public pressure to close, forcing them to relocate. Relocation can only be to isolated sites and unfortunately isolated sites sufficiently close to transport are not common and are frequently covered by native bush. In addition even apparently isolated sites are in areas of smaller rural holdings and special rural areas where public acceptance is seldom forth coming.

This site was chosen, after extensive research, to meet community requests. *(See 1.1 Need for an alternative auditorium in the Perth Metropolitan Area).*

Bearing in mind issues concerning vegetation, the facility is located in the southern half of Lot 2. This will avoid the majority of the granite outcrops which contain the most significant vegetation. It will also avoid the population of the *Verticordia* that is potentially *Verticordia huegelii* var. *decumbens* (P3).

Only land essential to the facility will be cleared from Lot 2 and any disturbed land that is available will be rehabilitated with local species. Approximately 45% of the native vegetation of the 10.0266 hectares on Lot 2 will be retained. Where possible trees will not be cleared. Disturbed areas such as the batters created by the construction of the car park and access roads will be densely planted with local shrubs and trees. This will be addressed in the Construction Management Plan which is listed in 5.0 Commitments.

Weeds and dieback are important factors, and the aim will be to prevent their spread to the adjoining National Park and the areas of good vegetation on the site.

It is possible for weeds to be introduced or for lawn species to migrate from the site. This will be managed by restricting the types of material brought to the site, monitoring and spot spraying program, as well as through the construction of buffers and hard paved surfaces. Weeds will be addressed by the Construction and Operational Management Plans contained within 5.0 Commitments.

The firebreaks on the eastern and southern boundaries will be relocated because the carpark and seating area will provide natural firebreaks. Old firebreaks will be rehabilitated with local species.

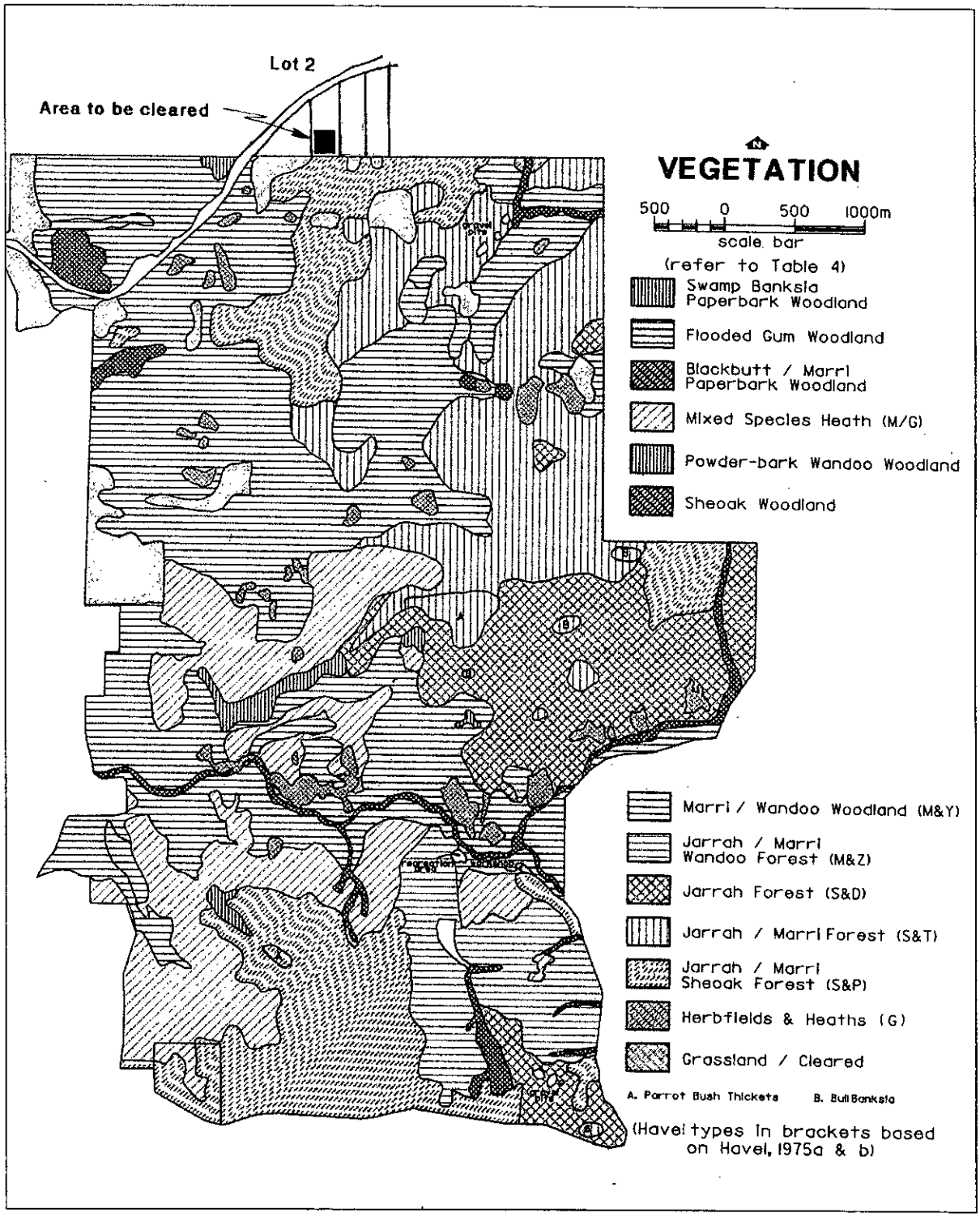


Figure 9 Vegetation of John Forrest National Park Reprinted from (John Forrest National Park Management Plan 1994)

Terrestrial Flora				
Site Specific Factor	**EPA Objective**	**Existing Environment**	**Potential Impact**	**Proposed Environmental Management**
Impacts on regionally significant vegetation from clearing and increased risk of fire and weed introduction and spread.	Maintain the abundance, species diversity, geographic distribution and productivity of vegetation communities, and to protect declared rare flora and priority flora, consistent with the provisions of the Wildlife Conservation Act 1950.	Four vegetation communities occur on site. The most common and most sensitive is the vegetation associated with granite outcrops.	Only 4.6 hectares of the 10.03 hectare site will be cleared. The majority of the most sensitive habitats and vegetation associated with granite outcrops will be protected as the proposed auditorium will be located on the southern half of Lot 2, predominantly in Community Type R but extending slightly into Type G.	Habitats and Flora • Trees will be retained where possible. • The facility has been located in the least sensitive laterite soil areas in the southern half of Lot 2. • Public access to the uncleared areas will not be permitted. • Batters and disturbed areas will be rehabilitated with local species. • Firebreaks will be strategic and not along each boundary line. • Firebreaks no longer required will be rehabilitated with local species • Apart from one crossing point all stream side vegetation will be retained. Weed Policy • Only one weed *Watsonia sp.* was identified by Mattiske Consulting, 2000. • All soils and plant materials brought to the site are to be weed free. • A 20 metre buffer of remnant vegetation will be retained along the eastern and southern boundaries. A hard paved path of gravel will be constructed between the buffer and the lawn area. • A weed monitoring program will be implemented with inspections and treatments undertaken at least twice yearly. • Weeds will be spot sprayed with environmentally friendly Glysophate^{R} as required. • All vehicles and the public will be restricted to the cleared areas. There will be no permitted access to the remnant vegetation. Dieback Policy • See 3.2 Dieback
Declared Rare and Priority Flora	Protect Declared Rare and Priority Flora, consistent with the provisions of the Wildlife Conservation Act 1950.	No Declared Rare plants were located during the survey. Two Priority flora species were located in the survey area. These were *Lambertia multiflora* var. *darlingensis* (P3) and *Darwinia pimelioides* (P4). Another potential priority species is *Verticordia huegelii* var. *decumbens* (P3) which grows on granite outcrops.	The populations of *Lambertia multiflora* var. *darlingensis* (P3) and *Darwinia pimelioides* (P4) occur in the west of Lot 1. Lot 1 is no longer required for the auditorium. The construction site is on the southern half of Lot 2, south of the recorded population of *Verticordia huegelii* var. *decumbens* (P3)	• No recorded Priority species occurs in the construction area.

Predicted Outcome

The location of the outdoor concert auditorium in the southern portion of Lot 2 will minimise disturbance to most sensitive vegetation communities associated with granite outcrops. No Declared Rare flora were recorded and no Priority flora will be cleared during construction. The vegetation to be cleared is well represented in John Forrest National Park and along the Darling Scarp.

Therefore the EPA objective can be met.

3.2 Dieback

3.2.1 Site Assessment

Lots 1 and 2 were inspected by Glevan Dieback Consultancy Services who found that "The site appears to be almost entirely infected with *Phytophthora* with only one section of dieback free vegetation in the south east corner of the area" as shown in Figure 10. Site analysis was conducted by observation and confirmed by laboratory testing of selected plant tissue.

Glevan Dieback Consultancy Services note, "The pathogen appears to have been introduced into the area along two vectors, the firebreak running along the southern boundary and the powerline track....." "unfortunately the majority of the site is down slope from these vectors". "The observed impact is low to moderate due in part to the harsh nature of the site and the seasonal desiccation of the soils. " (Glevan, 2000, Assessments for the Presence of *Phytophthora* sp, Lots 1 and 2 Toodyay Road Red Hill), contained in the Independent Consultants Reports for this proposal, located at the EPA and City of Swan Libraries.)

Dieback is widely present across John Forrest National Park with only small areas secured as dieback free. Honey fungus, *Armillaria luteobubalina,* is also known to occur within the National Park. (John Forrest National Park Management Plan 1994). Dieback is present in plant communities adjoining the proposed auditorium which is located down slope from the Park. Therefore, there is considered to be no additional dieback risk to the Park from the construction of the auditorium.

3.2.2 Conclusions

A summary of the recommendations of Glevan Dieback Consultancy Services are;

- Ensure drainage is controlled and not allowed to collect on the site.
- Ensure machinery entering the site is clean on entry and free from plant or soil material when entering the dieback free section.
- Restrict soil moving activities to the summer months under dry soil conditions.

A dieback management program is proposed during the construction stage and will be included within the Construction Management Plan. The dieback policy reflects the Dieback Management Plan prepared by Glevan Dieback Consultancy Services and dieback hygiene methods outlined by CALM Dieback Hygiene Manual, Main Roads and Department of Mineral and Petroleum Resources.

	flora and fauna on or adjacent to the subject land		from lawns.	carried out to determine whether permanent systems will be more environmentally sustainable. If permanent systems are found to be more acceptable they will be constructed, through Development Approval of the City of Swan and to the requirements of Health Department, Health Act and City of Swan.
Erosion	Ensure that land degradation does not occur through wind or water erosion.	There is little or no potential for wind erosion. Sloping and disturbed soils can be subject to water erosion.	Sloping and disturbed soils can be subject to water erosion.	• The potential for water erosion is addressed under Surface Water Quality. • The potential for wind erosion is deemed to be insignificant.
Surface Water Quality	Maintain or improve the quality of surface water to ensure that existing and potential uses, including ecosystem maintenance are protected, consistent with the draft WA Guidelines for Fresh and Marine Waters (EPA, 1993) and the NHMRC/ARMCA NZ Australian Drinking Water Guidelines - National Water Quality Management Strategy.	A small water course runs along the north of the site, adjacent to Toodyay Road.	4.6 hectares will be cleared, a lawn seating area and gravel car park created. There will be no clearing or access apart from construction areas, access road and a northern firebreak. The existing southern firebreak will be maintained. There will be increased runoff from hard surfaces. It is estimated that approximately 50% of runoff from hard surfaces will be recycled for irrigation and dust management. The remainder will flow through detention basins to the creekline. With the use of water for irrigation of lawns, summer flows and the first winter runoff will be able to be retained in the detention basins.	• The northern firebreak will be located to reduce the potential for erosion of the soil. • Erosion of firebreaks will be monitored and appropriate drainage constructed as necessary. • Any existing and future erosion of firebreaks will be repaired. • Run off from paved areas will be fed through detention basins and sediment traps. • Detention basins will be large enough to retain most summer storm events (1 : 10 year), when the lawns are growing and fertiliser has been applied. • Runoff from the lawn area will normally only occur in winter when the site will not be used and the lawns will not be growing. At this time there may be overflow from the detention basins. • Fertiliser will only be added to the lawn as determined by nutrient testing twice per year in spring and late summer. Nutrient quantities will comply with the Department of Environmental Protection Guidelines for active lawn, ie 0-5 kg P/ha/year and 0 – 50 kg N/ha/year. • All banks and disturbed areas will be rehabilitated by dense planting and seeding. • Rubbish will be removed promptly to an approved waste disposal site following cleanup from a concert. • Wastes will be recycled where possible; eg suitable plastics, and aluminium.

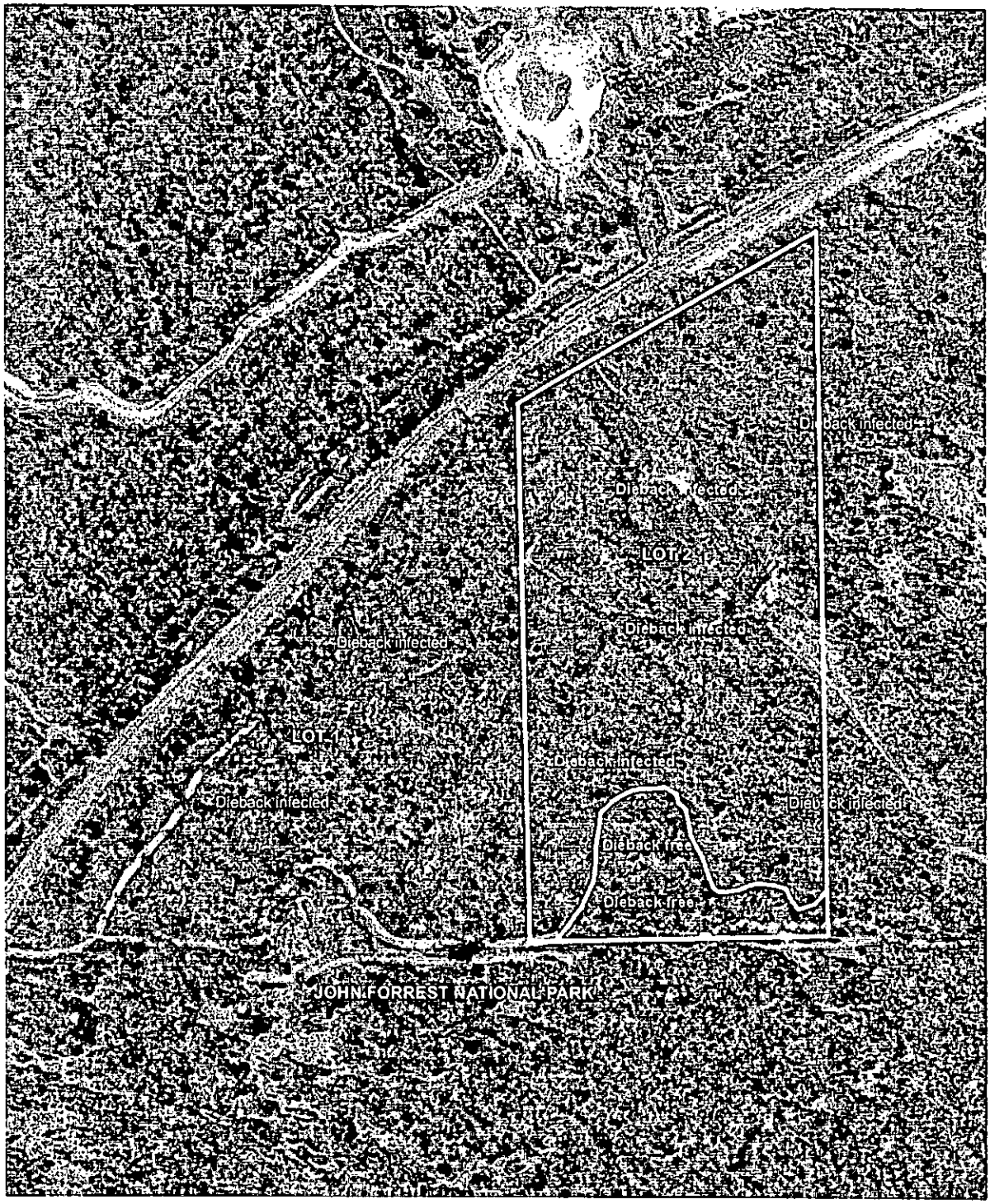


Figure 10 Distribution of Dieback, (Glevan Dieback Consultancy Services, 2000)

The critical aspects of dieback management are to ensure that all equipment and soil/plant materials are dieback free and that all drainage is controlled, with water passing through detention basins. Construction and soil movement should be conducted where possible during the summer months when conditions are least favourable for the survival of Phytophthora. In addition care is to be taken to limit movement of vehicles to the area of interest during construction and operation of the outdoor auditorium.

Construction during dry months will assist dieback management but could generate more dust. See 3.6 Dust

Dieback				
Site Specific Factor	EPA Objective	Existing Environment	Potential Impact	Proposed Environmental Management
Dieback Phytoph thora cinnamomi	Protect areas free of vegetation diseases and to minimise the spread of diseases where they are identified.	Almost all the site is already infected by dieback, although deaths are not widespread. Only a small dieback free area exists on the southern edge of the carpark site.	Potential to spread dieback across the site from infected to non infected areas. Only 4.6 hectares of the 10.03 hectare site will be cleared.	• The recommendations of Glevan Dieback Consultancy Services will be incorporated into a Dieback Management Plan, to form part of both the Construction and Operational Management Plans. The Dieback Management Plan will include the management actions listed below. • Workers and contractors are to be educated on the need to be diligent in dieback management. • All construction work on the site will be conducted using dieback hygiene principles. • All earthmoving and other vehicles entering the site are to be washed down to ensure they are not carrying any soil or vegetation prior to entering the site. (preferably at their last point of work). • Where possible earthworks will be conducted in summer when the soils are dry. • Earthmoving machinery and other vehicles are to be confined to the construction area. • Earth moving vehicles are to be free from soil or plant material when moving into the dieback free area. • During operation of the outdoor auditorium, all vehicles and the public will be restricted to the cleared areas. There will be no permitted access to the remnant vegetation. • All materials introduced to the site are to be dieback free, including:- - All gravel and road making materials to be used for carpark and access road construction. - All soil and fill materials used for the lawn and other areas. - All plants and tube stock to be used during rehabilitation. • Clearing and land disturbance will be minimised. • Water draining from hard surfaces will be retained in detention basins and then fed directly to the creekline, reducing overland flow and preventing ponding.

Predicted Outcome

Lot 2 is already affected by dieback, as is John Forrest National Park to the south. A Dieback Management Plan will be implemented for the construction phase which deals with the movement of soils on site and entry onto the site. When the site is operating, management of water will assist in reducing potential movements of dieback spores.

Therefore the EPA objective can be met.

3.3 Fauna

Bamford Consulting Ecologists assessed the fauna on both Lots 1 and 2 during a site inspection on 21 May 2000. Research of published records of the Perth region was carried out to predict the fauna that could possibly occur on site. This included WA Museum Records, personal observations from previous studies carried out in the area, fauna studies conducted in John Forrest National Park by Ninnox Wildlife Consulting in 1991, Karakamia Sanctuary, a study completed at Lake Lechenaultia, together with records by Dell 1983. In addition a fauna study for Pioneer Construction Materials was available for the land on the northern side of Toodyay Road. (MJ and AR Bamford, 2000, The Vertebrate Fauna of Proposed Amphitheatre Site, Red Hill), contained in the Independent Consultants Reports for this proposal, located at the EPA and City of Swan Libraries.)

Bamford Consulting Ecologists believe that representatives from 12 species of frogs, 44 reptile species, 87 bird species and 26 mammal species could possibly occur in the area. They also note that 3 species of birds and 12 species of mammal are extinct in the general area.

3.3.1 Amphibians

The John Forrest National Park Management Plan notes that 10 species of frog have been recorded within the Park.

Species such as the Moaning Frog are large and mobile and could occur anywhere on site, and the Quacking Frog could be found in streams and in damp situations such as under granite boulders. Other species such as the Granite Froglet and Green-bellied Froglet have a close association with wetlands and streams.

Frogs are most likely to be found where the vegetation is least disturbed, and retention of woodland with understorey vegetation and streamlines will assist the conservation of frogs.

Bamford Consulting Ecologists note that it is unlikely that any frog species have become extinct at the site and that none of the species is of national conservation significance.

The retention of existing remnant vegetation, the quality of habitat, and the number of animals that will be sustained in the area, will be dependant on the proportion of remnant vegetation retained in the long term and the degree of restriction placed by fences and other restraining devices.

Currently a stranded wire fence separates Lot 2 from the National Park. This will be retained to enable fauna to continue to move freely.

Approximately 55% of the native vegetation on Lot 2 will be retained. Compare the location of the auditorium in Figure 4 to the vegetation communities shown in Figure 6. Where possible trees will not be cleared. Disturbed areas such as the batters created by the construction of the car park and access roads will be densely planted with local shrubs and trees.

3.3.2 Reptiles

Bamford Consulting Ecologists suggest that it is unlikely that all 44 species of reptile would occur on site, however in the absence of trapping they have to be regarded as potentially present. The reptile assemblage is particularly rich because of the range of habitats, with granite areas being especially important. The John Forrest National Park Management Plan notes that 23 species of reptile have been recorded within the Park with further species likely to occur.

Two species of conservation significance may be present on the site, which contains patches of suitable habitat. These are the Darling Range *Ctenotus* (Priority 4 of CALM - Rare or insufficiently known) and the South-West Carpet Python (Schedule 4 of the Wildlife Conservation Act).

Conservation of reptiles present depends on retention of existing vegetation wherever possible. Bamford Consulting Ecologists conclude that emphasis should be given to maintaining a broad range of vegetation types as well as granite outcrops.

3.3.3 Birds

Because of the mobility of birds almost any species from the Perth Region could occur on site. This includes any of the 87 nominated species. Whilst some species will tolerate disturbed sites the majority (57 of the 87) are largely confined to native vegetation. However the John Forrest National Park Management Plan notes that 91 bird species have been recorded within the Park probably due to the greater area and increased habitat diversity.

Maintaining linkage of the vegetation to other areas will be important for birds, particularly those small sedentary insectivores such as the Southern Emu-wren and thornbills. Whilst the Southern Emu-wren is not classified as having conservation significance, it has a scattered distribution and is known from only a few sites in the Metropolitan area.

Nine species that may be present are recognised as having National conservation significance. Seven are large mobile species such as the Masked Owl and Square Tailed Kite (Priority 4, CALM list), Long and Short-billed Black Cockatoos (Schedule 1 of the Wildlife Conservation Act).

Bamford Consulting Ecologists note that the Red Hill Site contains a substantially intact avifauna community in close proximity to John Forrest National Park which increases its conservation value. The presence of a diversity of vegetation types and many nesting hollows are important.

On the other hand the proximity to John Forrest National Park and uncleared habitats on the Darling Scarp should enable fauna displaced by the clearing of a maximum of 4.6 hectares for the facility, roads and other features, to relocate.

3.3.4 Mammals

Mammal populations have decreased catastrophically since settlement due to changes in fire regimes, habitat loss and predations by foxes and cats. Although several species would forage on cleared areas the mammal fauna is dependant on native vegetation habitat.

A total of 11 mammal species have been recorded within the John Forrest National Park Management Plan.

Whilst three species have conservation significance, Brush-tailed Phascogale, Quenda and the Chuditch, Bamford Consulting Ecologists state that many of the mammals are free ranging and that the Red Hill site is only a "small part of a much larger habitat" that includes John Forrest National Park. They also state that "the Phascogale, Quenda and Brush Wallaby have low levels of conservation significance, almost all native mammal species are locally significant because they have either declined or disappeared in the Perth area." The Brush-tailed Phascogale has not been recorded in John Forrest National Park, CALM 1994, but the Quenda, Chuditch and Brush Wallaby have been recorded as being present. It is also noted that numbers of Brush Wallaby *Macropus irma*, are declining.

With this project Bamford Consulting Ecologists were instructed to look at both Lots 1 and 2 which have a total area of 20.4 hectares. For the whole 20.4 hectares Bamford Consulting Ecologists note that a "small but significant population" of Quendas could occur but only a "few" Brush Wallabies could be supported and the site could form part of the range of "one or two animals. However only 4.6 hectares is required for the proposed outdoor auditorium, therefore the species of conservation significance most likely to be impacted on are Quendas, if a population occurs within the construction site. The number of Quendas has increased significantly across outer Metropolitan areas since the introduction of fox baiting (pers com Mike Bamford).

3.3.5 Conclusions

A summary of the conclusions made by Bamford Consulting Ecologists are;

- Clearing of vegetation should remove no more "than is absolutely necessary", with access restrictions on the remainder of the site.
- "Areas of exposed granite and heathland over shallow soil are especially significant and should be protected". Loose granite rocks are important and should not be collected.
- Only local native plants should be used for landscaping.
- There should be no encouragement of exotic species. For example food could attract cats and rodents.
- Fire management is natural and sometimes beneficial but should not leave broad scale burnt areas.
- For the purposes of fauna conservation, the Red Hill site should be considered as an extension of the John Forrest National Park and should be managed accordingly.

3.3.6 Proposed Management

The management of fauna is the protection and management of habitat by minimising clearing and reducing potential impact during operation of the auditorium. Bamford Consulting Ecologists were asked to assess both Lots 1 and 2, a total of 20.4 hectares, and

made their conclusions on that basis. They identified the areas of exposed granite and heathland over shallow soil as being especially significant and should be protected.

On the basis of the vegetation study, the Open Woodland of *Corymbia calophylla - Eucalyptus marginata* over dense understorey, Community Type R, was selected as the most suitable location for the auditorium. This community occurs in the southern half of Lot 2 as shown in Figure 6. Field examination does show some shallow soils associated with granite outcrops on the auditorium site, but not to the same extent as the outcrops on the remainder of Lots 1 and 2, which will be protected. The area occupied by the proposed auditorium has been minimised and will be restricted to 4.6 hectares in the southern part of Lot 2. Compare the location of the auditorium in Figures 4 and 5 to the vegetation communities shown in Figure 6.

The other management measures relate to construction and operation of the auditorium. These will be addressed by the Construction and Operational Management Plans contained within 5.0 Commitments. Only local indigenous plants will be used in the rehabilitation of areas disturbed during the construction of the auditorium that are not an integral part of the facility. This includes road verges, bunds and previously cleared areas that are to be rehabilitated. The Operational Management Plan includes management of wastes that will reduce the potential to attract cats and other pests. The plan also relates to the Fire Management Plan for the site which addresses safety and fire management in general.

The Construction Management Plan in 5.0, Commitments, will address boundary fencing that is planned to be stranded wire to enable the movement of wildlife across the site and into John Forrest National Park.

Lighting could possibly impact on nocturnal fauna. Lighting will only be used for each event; perhaps several hours on a night. Lighting will be directed onto the stage during performances, away from John Forrest National Park. Other lighting will be low. The presence of the public during events will reduce the potential for fauna to be drawn to the lighting.

Fauna				
Site Specific Factor	EPA Objective	Existing Environment	Potential Impact	Proposed Environmental Management
Terrestrial Fauna	Maintain the abundance, species diversity and geographical distribution of terrestrial fauna	12 species of frogs, 44 reptile species, 87 bird species and 26 mammal species could possibly occur in the area.	Only 4.6 hectares of the 10.03 hectare site will be cleared. The majority of the most sensitive habitats and vegetation associated with granite outcrops will be protected. The stream line and associated vegetation will not be altered apart from one constructed crossing point.	• Boundary fencing will be stranded wire to permit movement of fauna. The bottom wire can be left off to allow the movement of large mammals. • There will be no public access to the remainder of the site, although, apart from boundary fencing, it will not initially be fenced as this could constrain fauna. • Boundary fencing will not be accompanied by firebreaks. The facility will form a strategic fire break. • Construction and operation will be restricted to the nominated area. • The public will be restricted to the constructed areas. • There is planned to be limited concerts with up to 100 concerts per year, mostly in the summer period. • During concerts light will be directed only onto the stage area. • Lighting will be designed to be low and

				not on high poles to minimise potential impact. • Only local native flora will be used in restoration of the site and any topsoil cleared will be directly returned to revegetate disturbed areas. • Rubbish will be cleared within 24 hours of a concert and all bins and other facilities removed from the site, or stored in a locked facility
Specially Protected (Threatened) Fauna)	Protect Specially Protected (Threatened) Fauna consistent with the provisions of the Wildlife Conservation Act 1950. Protect Threatened Fauna and Priority Fauna species and their habitats, consistent with the provisions of the Wildlife Conservation Act 1950	Only three fauna of conservation value are likely to occur in the area and these are regarded by Bamford Consulting Ecologists to be free ranging across habitats in John Forrest National Park and adjoining areas.	See above impacts. The construction site represents only a small part of the habitat and range of these species, with the exception of Quendas.	• See above.

Predicted Outcome

Whilst some loss of habitat will occur, the area to be cleared has been minimised and restrained to the least sensitive vegetation communities. Fauna will be able to exchange with John Forrest National Park and so should be able to adjust to the disturbance. The habitats along the creekline and the granite outcrops will largely be protected. It is proposed that only limited events will be held monthly which will reduce potential impact on fauna. Therefore overall impact on fauna should be minimised and the EPA objective can be met.

3.4 Wetlands - Surface Water Quality

3.4.1 Site Assessment

The site drains to a creekline that ultimately drains to Strelly Brook, and the Swan River.

The only wetland on site is the stream side vegetation associated with the creek, which flows during winter and dries up in summer. The only disturbance to this vegetation and habitat will be the creek crossing of the access road. Crossing the creek will be achieved through 2 x 900 mm pipes, with the batter slopes revegetated with local species.

It should be noted that much of this stream side vegetation is covered by the planned widening and reconstruction of Toodyay Road as shown in Figure 4. The earthworks associated with the access, recommended in the traffic study, can be incorporated within the existing shoulder of the road and should not impact on the northern creekline.

The main potential nutrients will come from the grassed seating area, as nutrients lost from fertiliser and from litter and rubbish.

Toilets will initially be self contained serviced transportable units. These units have 5 pans for females and 3 urinals and 2 pans for males, with holding tanks for fresh and waste water. Similar units are used for the Leeuwin Concert at Margaret River each year. The holding tanks have a capacity of 4 000 litres. Fresh water can be supplied from scheme, when available, or brought to the site by tanker. Waste will be pumped out as required after each event. If an event continued for a longer time the units can be pumped out more frequently. Contact with the hire company, who supply the units to the Leeuwin Concert, suggest that one transportable unit is required for each 1 000 people. The number of transportable units to be used will be determined by the normal loading ration in addition to the time requirements during intermissions.

Monitoring of the toilet facilities will be undertaken during years 1 and 2 to determine if constructed toilets will be more efficient and environmentally acceptable. Given the soil conditions on site, it is likely that any permanent facilities will also need to be pumped out regularly, in the same manner as portable systems. Connection to scheme water supply may be required for permanent facilities, but for portable units water can be tankered in. Permanent toilets will only be constructed through approval of the City of Swan.

The lawn will be monitored for moisture and nutrient content to ensure that run off will be minimised. It will only be watered as necessary. Fertiliser will be added on the basis of soil nutrient testing. It is important to retain all summer runoff from the lawns and the first flush of winter. The planned primary and secondary detention basins are to be designed to accommodate a 1 : 10 year event and will be large enough to achieve this. There may be some overflow in mid to late winter through filtering devices.

By pumping surface water from the detention basins to the tank in spring and autumn, water will be recycled for irrigation and thus any overflow will normally only occur in winter when the lawn is dormant and not being used or fertilised. Recycling of water is estimated to reduce the potential run-off from the facility by perhaps 50%.

The existing clay and gravel soils have good phosphate retention characteristics based on compositional examination of the soils for fines, clays and sesqui-oxides, and comparison to Chemistry Centre Data and Landform Research database on phosphate retention ability of soils. The clayey nature of the soil at depth decreases water penetration, and the soils are shallow. Soils brought to the site will be loams or earthy sands which also have high phosphate retention capability.

Runoff from the hard paved areas will be directed to the detention basins.

All rubbish containers will be brought to the site prior to events, and waste removed promptly following cleanups. Containers and bins will also be removed or locked away in a constructed facility. As events will predominantly be held in summer, when there is no runoff, the likelihood of litter being carried to the water course is minimal.

Potential water erosion is low to moderate apart from clearing for a firebreak in the northern portion of the site. The existing firebreak along the southern boundary will be rehabilitated, and the access road, carpark and lawn area will provide strategic breaks, thus reducing the need to clear additional land. Monitoring of earthworks for erosion, and the dense planting of all banks and disturbed areas, with the exception of firebreaks, is an integral part of site construction.

There is little potential for salinity increases because soil disturbance will be kept to 4.6 hectares. Any water emanating from the hard paved surfaces will be fed through detention basins and not allow to recharge the groundwater.

The only risk of flooding is from storm events draining from hard surfaces and the lawn area. Stormwater from hard paved and gravel areas will eventually exit the site in the creek that runs along the northern boundary.

3.4.2 Conclusions

The site drains to Strelly Brook and ultimately the Swan River.

A comprehensive water management plan is proposed that will feed all surface water to detention basins which contain filtering capacity prior to release of any water off site. Autumn runoff which potentially contains the most nutrients will be contained within the detention basins and the only water that is anticipated to leave the site will be in middle to late winter.

Water management procedures are proposed to be addressed in the Construction and Operational Management Plans and should ensure that the facility does not impact on the water quality of Strelly Brook.

Wetlands - Surface Water Quality				
Site Specific Factor	EPA Objective	Existing Environment	Potential Impact	Proposed Environmental Management
Watercourses	Maintain the integrity, functions and environmental values of watercourses.	A small water course runs along the north of the site, adjacent to Toodyay Road.	It should be noted that the proposed widening of Toodyay Road, (orange route) will remove a significant part of the streamside vegetation. (see Figure 4). The only impact on this water course will be the construction of a crossing for the access road using two 900 mm concrete pipes.	• Batters constructed and land cleared as part of the construction of the crossing will be rehabilitated with local species within the first winter. • Stormwater will be fed through two detention basins and only the overflow released to the creek. • Water from the detention basins may be pumped to the holding tank for recycling and irrigation of the lawn area. • Rubbish and all facilities will be removed after a concert and thus the potential for materials to be lost to the creek will be minimised. • The proposed slip lane can be constructed on the existing shoulder of Toodyay Road and should not impact on the northern creekline.
	Ensure riparian vegetation on substantial streamlines is adequately protected	See above	See above	• Apart from one crossing point all stream side vegetation will be retained. • See above
Pollutants	Ensure that nutrient (fertiliser) and pesticides used for the establishment and management of the development do not impact adversely on	A small water course runs along the north of the site, adjacent to Toodyay Road.	4.6 hectares will be cleared, a lawn seating area and gravel car park created. There will be increased runoff from hard surfaces and potential for nutrients to be lost	• The existing soils are gravelly grading to clays at depth and have good phosphate retention capability. • Soils to be used for the seating area will be earthy or loamy sands which have good phosphate retention characteristics. • Initially there will be no effluent disposal on site. Transportable units will be used and waste water removed from the site following each event. Monitoring of toilet use during the first two years will be

	flora and fauna on or adjacent to the subject land		from lawns.	carried out to determine whether permanent systems will be more environmentally sustainable. If permanent systems are found to be more acceptable they will be constructed, through Development Approval of the City of Swan and to the requirements of Health Department, Health Act and City of Swan.
Erosion	Ensure that land degradation does not occur through wind or water erosion.	There is little or no potential for wind erosion. Sloping and disturbed soils can be subject to water erosion.	Sloping and disturbed soils can be subject to water erosion.	• The potential for water erosion is addressed under Surface Water Quality. • The potential for wind erosion is deemed to be insignificant.
Surface Water Quality	Maintain or improve the quality of surface water to ensure that existing and potential uses, including ecosystem maintenance are protected, consistent with the draft WA Guidelines for Fresh and Marine Waters (EPA, 1993) and the NHMRC/ARMCA NZ Australian Drinking Water Guidelines - National Water Quality Management Strategy.	A small water course runs along the north of the site, adjacent to Toodyay Road.	4.6 hectares will be cleared, a lawn seating area and gravel car park created. There will be no clearing or access apart from construction areas, access road and a northern firebreak. The existing southern firebreak will be maintained. There will be increased runoff from hard surfaces. It is estimated that approximately 50% of runoff from hard surfaces will be recycled for irrigation and dust management. The remainder will flow through detention basins to the creekline. With the use of water for irrigation of lawns, summer flows and the first winter runoff will be able to be retained in the detention basins.	• The northern firebreak will be located to reduce the potential for erosion of the soil. • Erosion of firebreaks will be monitored and appropriate drainage constructed as necessary. • Any existing and future erosion of firebreaks will be repaired. • Run off from paved areas will be fed through detention basins and sediment traps. • Detention basins will be large enough to retain most summer storm events (1 : 10 year), when the lawns are growing and fertiliser has been applied. • Runoff from the lawn area will normally only occur in winter when the site will not be used and the lawns will not be growing. At this time there may be overflow from the detention basins. • Fertiliser will only be added to the lawn as determined by nutrient testing twice per year in spring and late summer. Nutrient quantities will comply with the Department of Environmental Protection Guidelines for active lawn, ie 0-5 kg P/ha/year and 0 – 50 kg N/ha/year. • All banks and disturbed areas will be rehabilitated by dense planting and seeding. • Rubbish will be removed promptly to an approved waste disposal site following cleanup from a concert. • Wastes will be recycled where possible; eg suitable plastics, and aluminium.

Predicted Outcome

Fertiliser will only be added to the lawns in summer in response to soil testing and at the rates determined for passive lawn in the Draft Turf and Lawn Guidelines produced by the Department of Environmental Protection, ie 0 - 5 kg P/ha/year and 0 - 50 kg N/ha/year.

Detention basins will be used to retain runoff from hard surfaces for irrigation of the lawn area. This will enable runoff from most summer storms (1 in 10 year) and the early winter rains to be retained in detention basins. Overflow from the detention basins will normally only occur later in winter when the lawns are not being fertilised.

Thus the EPA objective can be met

3.5 Odour

3.5.1 Site Assessment

The site lies 1.5 km from the Red Hill Landfill Site. Easterly winds are most common on the summer nights, from spring through to autumn, with the greatest occurrence in summer at times when the auditorium is unlikely to be in operation. These were studied by Mitchell, 1979, who included a site at Guildford. The major time of commencement of the easterly winds was between midnight and 2.00 am with only 7% of the easterly winds commencing in the two hours prior to midnight. The location of the Red Hill Landfill is shown in Figure 3.

3.5.2 Conclusions

The operation of the Red Hill Landfill site is such that daily covers are placed over the waste in the interests of reducing vermin and wind blown impacts. Daily coverage also reduces the potential for odour development and emanation.

Odour				
Site Specific Factor	EPA Objective	Existing Environment	Potential Impact	Proposed Environmental Management
Odours generated by the nearby Red Hill waste disposal facility	Ensure that odours emanating from the nearby Red Hill waste disposal facility do not adversely affect the welfare and amenity of users of the facility.	The site is 1.5 km west from the Red Hill Landfill facility. The Red Hill Landfill Site covers the waste daily at the end of operations. Thus the potential for odour generation is minimised. Easterly winds predominantly occur on summer mornings from midnight onwards at times when the facility is unlikely to be used.	Assessed as not significant on the proposal. Concerts will be held mainly in the evenings after the Red Hill Landfill Site has been closed for the day	• None required

Predicted Outcome

As there is unlikely to be any impact on the auditorium from odour from the Red Hill Landfill site, the EPA objective can be met.

3.6 Dust

3.6.1 Site Assessment

The potential for wind erosion is not significant apart from dust from activity on the carpark. The access road is to be sealed. When events are occurring, the carpark will be treated with water or a dust suppressant emulsion to reduce the potential for dust generation. At this stage it is not proposed to bituminise the carpark because this would alter the "natural" look that is trying to be created for the site.

Glevan Dieback Consultancy Services recommend that construction occur during the summer months to minimise the risk of spread of dieback disease. During summer there is likely to be more dust generated during land clearing and soil disturbance, which has to be balanced against reductions in the potential to spread dieback. The site is isolated, and the construction area is set back 180 metres from Toodyay Road, protected by existing plant communities.

The use of water for dust minimisation has the potential to keep soils moist through summer and may assist *Phytophthora* growth. Water will therefore be used to just manage dust on the car park and not to create runoff. All run off from the car park will be fed through the detention basin systems and not allowed to access indigenous vegetation. Once parked, cars will not move until the end of the event, which should help to reduce the potential for dust generation.

3.6.2 Conclusions

Dust can be managed through the use of a bituminised access road, regulation of traffic and the use of water for wetting down susceptible areas. The management of dust will be addressed by the Construction and Operational Management Plans.

Dust				
Site Specific Factor	EPA Objective	Existing Environment	Potential Impact	Proposed Environmental Management
Dust	Ensure that the dust levels generated by the proposal do not adversely impact upon welfare and amenity or cause health problems by meeting statutory requirements and acceptable standards	The site lies to the south of and near Toodjay Road and the planned Eastern Highway. To the north is Pioneer hard rock quarry, the east Midland Brick clay pits and the EMRC landfill site.	Local dust from traffic in the car park. There should be no dust from the access road which will be sealed.	• The carpark will be watered or treated with a dust suppressant to minimise dust generation during events. • There will not be continual movement of cars and other vehicular transport on the site. Once parked, the cars will remain unattended until the end of the event at which time they will be accessed and allowed to leave. • A water tank will be constructed on site and used for dust mitigation and irrigation. • Water from detention basins will be recycled for water conservation. • Agreements have been made with Midland Brick Company Pty Ltd to enable access to water from Lots 7-9 in the east. Any additional water will be carted to the site. • The access road will be bituminised prior to the first event occurring.

Predicted Outcome

It is unlikely that dust will impact on patrons and thus the EPA objective can be met.

3.7 Non-Chemical Emissions - Noise and Light

3.7.1 Noise

3.7.1.1 Noise - Local community

The site lies on Lot 2 which is zoned Resource under the current town planning scheme. Resource Zoning permits extractive industries, and the Red Hill Landfill operation. Extractive industries lie 1 000 metres to the east and 500 metres to the north and north east. The proposed auditorium lies 180 metres from Toodyay Road in the south of Lot 2. The closest dwellings are over 2 km to the west and east as shown in Figure 3.

Aircraft and traffic noise on Toodyay Road can be heard from the site.

The site was selected because of its isolation and distance from dwellings.

The proposed venue is planned to operate between mid-November to mid-April.

The auditorium will provide an outdoor facility for performing arts, children's events and perhaps films. The number of events will be variable, with perhaps several events in one

week or one event on consecutive days in one week followed by a period of time when there may be less or no concerts. A maximum number of events cannot be provided at this stage but is expected to be up to 100 events per year. Events are expected to run for 3 to 4 hours. The majority of events are planned to have low amplification, with perhaps an average of one highly amplified event per week, such as a rock band.

Noise modelling was conducted by Herring Storer Acoustics in the preliminary stages for both Lot 1 to the west and Lot 2 (April and August 1999). Preliminary noise modelling suggested that the stage of the facility could be redesigned to minimise noise emanation. (Herring Storer Acoustics, 2000, Acoustical Assessment of Proposed Outdoor Concert Venue, Toodyay Road Red Hill), contained in the Herring Storer report which is included in the Independent Consultants Reports, located at the EPA and City of Swan Libraries.)

As there are no wind recording stations on the Darling Scarp, the percentage of wind directions was taken from the recording station with similar landform features, Pearce Airbase. Whilst Pearce is some distance from the venue the meteorological conditions are likely to be more similar to the proposed venue than data from Perth Airport. Perth Airport is located some distance from the Darling Scarp but Pearce Airbase is located at the base of the scarp with less valley influencing factors. The proposed venue is located on the edge of the scarp.

Old data is also available for the Upper Swan Research Station which is essentially similar to the Pearce Data. Both sets of data are included within the Independent Consultants Reports, located at the EPA and City of Swan Libraries. Climatic data is summarised in 2.3 Climate.

Long term wind data and wind roses is only collected for 9.00 am and 3.00 pm.

In Summer at Pearce Airbase wind blows from the east 70% of the time at 9.00 am and from the west/south west for 60% of the time at 15.00 pm. Summer wind speeds tend to be 1 to 10 km/hour at 9.00 am and between 11 and 20 km/hour at 15.00 pm.

The Winter wind directions are more even, but there is a slight predominance from the east at 9.00 am and south west at 15.00 pm. The average speeds are between 1 to 10 km/hour.

The wind data provides general information on wind directions and gives an impression of the wind speed in the area. There will be some differences in wind speed due to the katabatic effects of the scarp and particularly between the recorded 3.00 pm data and the time of the concerts, often between 8.00 pm and 11.00 pm, when the wind is more likely to be slowing down and swinging round to the east. A slowing of wind speed is likely to lead to increased potential travel of noise to the dwellings in the east. With a change in the wind to the east noise will be blown away from those dwellings and will lead to reduced potential for noise to be heard.

Noise modelling utilised various wind scenarios from calm conditions and for 3 m/s winds from the east, north, west and south. Winds of greater than 3 m/s are found to become turbulent flows and thus break up noise transmission. A speed of 3 m/s is equivalent to a speed of 10.98 km/h.

The planned stage is to be enclosed with sides and a roof, and face east. Construction will be 100 mm thick pre-cast concrete panels 5 metres in height to the rear and sides. A roof of 0.6 mm sheet metal deck is proposed and all walls and the roof are to lined with acoustic insulation.

Herring Storer Acoustics were then asked to re-model noise emissions for a loudest case scenario of an amplified band performing at the planned venue. Their modelling is included in the Independent Consultants Reports and shown in Figures 11 - 15.

Herring Storer Acoustics modelled the loudest case scenario using Environmental Noise Model (ENM) to determine the likely impact at nearby facilities and compliance with the Environmental Protection (Noise) Regulations 1997. The ENM model uses ground topography, sound power levels and meteorological information to predict noise propagation. An amplified band concert was used in the loudest case scenario modelling, even though it is planned that the auditorium will be commonly used for non amplified concerts and other events.

Herring Storer noted that noise output from two banks of speakers results in noise generation of up to 133 dB at some frequencies with a resultant of 127 dBA (dBA is an adjustment that approximates the human ear). Meteorological conditions used in the modelling were a temperature of 20°C with wind speeds of calm to 3 m/s blowing from all potential wind directions. Wind speeds of greater than 3 m/s have been shown to create turbulence that attenuates noise transmission.

Where noise from amplified events is loud at receiving premises, adjustments need to be made for the impulsiveness of music, as stated in the Environmental Protection (Noise) Regulations 1997. In the preliminary studies Herring Storer Acoustics noted that where the received noise is very small the impulsiveness component will be minimal to non existent and the penalty should not be applied.

Herring Storer Acoustics stated in their conclusions that the "current noise level required to be achieved at all noise sensitive premises has been determined to be 30 dB(A), in order to meet Regulations 7 and 8 of the Environmental (Noise) Regulations 1997 (as amended)". 35 dB(A) noise level applies between the hours of 10 pm and 7 am with 40 dB(A) prior to 10 pm. Penalties of +10 are likely to be applied where the noise is audible and +15 where the music is both audible and impulsive. With background noises frequently exceeding 40 dB(A), from wind blowing in trees and other environmental factors, Herring Storer Acoustics concluded that at a predicted level of 30 dB(A) the music will not be heard and thus no penalty should be applied. However at a predicted level of 40 dB(A) the music would be audible, and with a 10 dB(A) penalty the predicted noise level would be 50 dB(A).

On this basis, a predicted noise level of 40 dBA was selected by Herring Storer as possibly not complying with the Regulations and would require appropriate management actions. A predicted level of 30 dBA was deemed to meet the Regulations. Between these two predicted measurements, some noise management may be required under certain weather and concert conditions. Therefore the preparation of a Noise Operational Management Plan is proposed to ensure that any noise will have minimal or no community impact.

Once the predicted contours were determined for the proposed venue for all wind directions, the number of potentially affected dwellings were counted from aerial photography and knowledge of the area. In order not to miss a premises, or to understate the numbers, all dwellings were counted, together with what appeared to be large sheds and small rural lifestyle lots on which a dwelling could be constructed in the future. This gives an inflated number of dwellings that lie within the 30 plus dB(A) noise contour. Plots of the noise contours under the various wind regimes are shown in Figures 11 - 15.

Herring Storer Acoustics, July 2001, found that the predicted noise levels shown were low. None of the identified dwellings were affected by noise levels of 40 dB(A). **No dwelling was affected at 30 dB(A) during calm conditions and none when wind was blowing from the east or north.** There might be up to 14 dwellings where the predicted noise levels exceed 30 dB(A), when wind blows from the south, and up to 28 dwelling when the wind blows from the west. In both cases almost all dwellings lie within the predicted 35 dB(A) zone. Figures 11 - 15 show the predicted noise levels for a loudest case scenario under a variety of wind conditions. It should be noted that all the potentially affected dwellings are over 2 km from the auditorium.

Herring Storer Acoustics also found that westerly winds occur for 9% of the time in the worst affected month and 5% on average. With a worst case scenario of an amplified band once per week over a five month period, this will mean dwellings affected by westerly winds (perhaps up to 28) might be able to hear an amplified band once per summer. Southerly winds blow for 17% of the time in the worst month and 12% on average. This means that a loud amplified band might be heard at up to 14 dwellings between 2 and 4 times in a summer.

Old data from Swan Research Station suggests that there is a greater component of lighter winds from all directions at 3.00 from the south and south west than Pearce. This could be due to localised differences between the two sites or could reflect general wind conditions in the respective areas. For example from the south west Swan Research Station data suggests that lighter south westerly winds occur on three times more often than at Pearce Airbase.

The wind data used for 3.00 pm could exaggerate the real wind pattern on summer evenings when the wind swings round from the east during the evening. There will be a tendency for the sound to travel further as the wind slows from the south and west in the evening and to not carry as far as the wind changes to the east. The amount of time dwellings might be affected is therefore difficult to determine accurately because of localised conditions but is likely to the similar to the data provided by Herring Storer.

Herring Storer Acoustics conclude that "no dwellings will experience a noise level of above 40 dB(A) and the dwellings which receive a level above 30 dB(A) will be for a short period of time". They go on to conclude that "the proposed venue is considered acoustically acceptable".

3.7.1.2 Noise - John Forrest National Park

For John Forrest National Park, noise levels are generally between 30 and 40 dB(A) with only a small adjoining area receiving a predicted 40 dB(A), which equates to 50 dB(A) when the penalty is applied. This will only occur when a worst case scenario amplified band is playing, with most impact occurring when northerly winds are blowing, shown in Figures 11 to 15. When calm, or in winds from other directions, the area of impact is significantly reduced. It should also be remembered that the noise from many other concerts or activities will not be amplified to the same extent and will not have the same potential for impact.

Even though the northern portion of the Park is only lightly used and night use is likely to be minimal, liaison will be maintained with the Park management in order to notify them of concerts to reduce any potential conflict between activities. Figure 16 shows the walk trails and tracks within John Forrest National Park.

3.7.1.3 Conclusions

As there may be times when the predicted noise level could be greater than 30 dB(A) at some dwellings, a Noise Operational Management Plan is proposed.

For example if weather conditions suggest that gentle westerly or southerly breezes are present and that noise might travel to dwellings, sound mixing could be modified to reduce base, impulsiveness or volume. This could be used to ensure that the Noise Regulations are met, and could be adjusted during a concert as conditions change.

A Noise Operational Management Plan will be prepared and implemented prior to any outdoor event taking place to maintain noise emissions within the required levels. It will address;

- Noise mitigation measures including construction techniques to reduce noise emission.
- Noise levels emitted under certain weather conditions,
- Noise monitoring and engineering to adjust noise output during individual concerts in response to changing wind conditions.
- Complaints procedures.

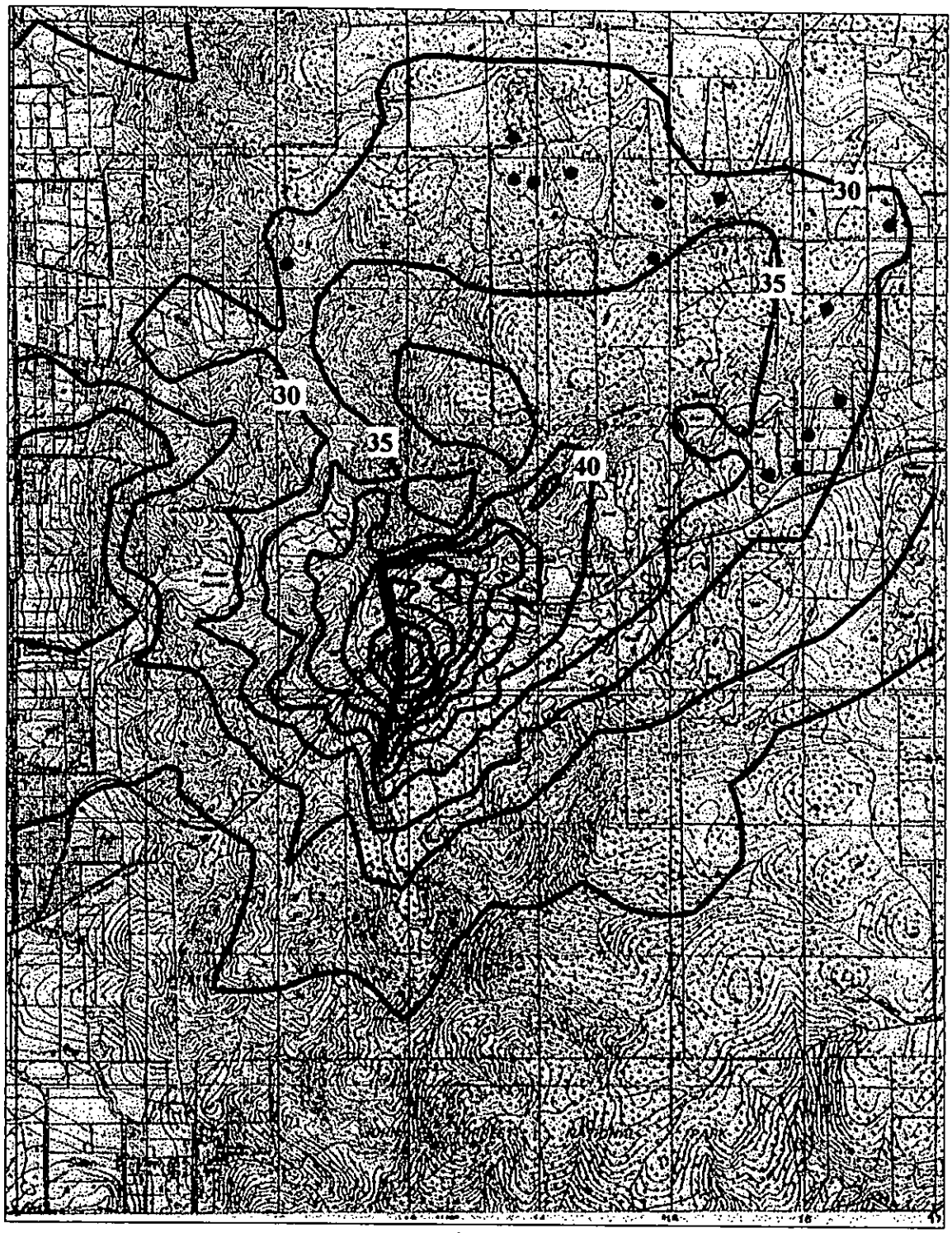


Figure 11 Predicted Noise Levels, 3 m/s southerly winds, (Herring Storer 2001)

- Dwellings that may be affected

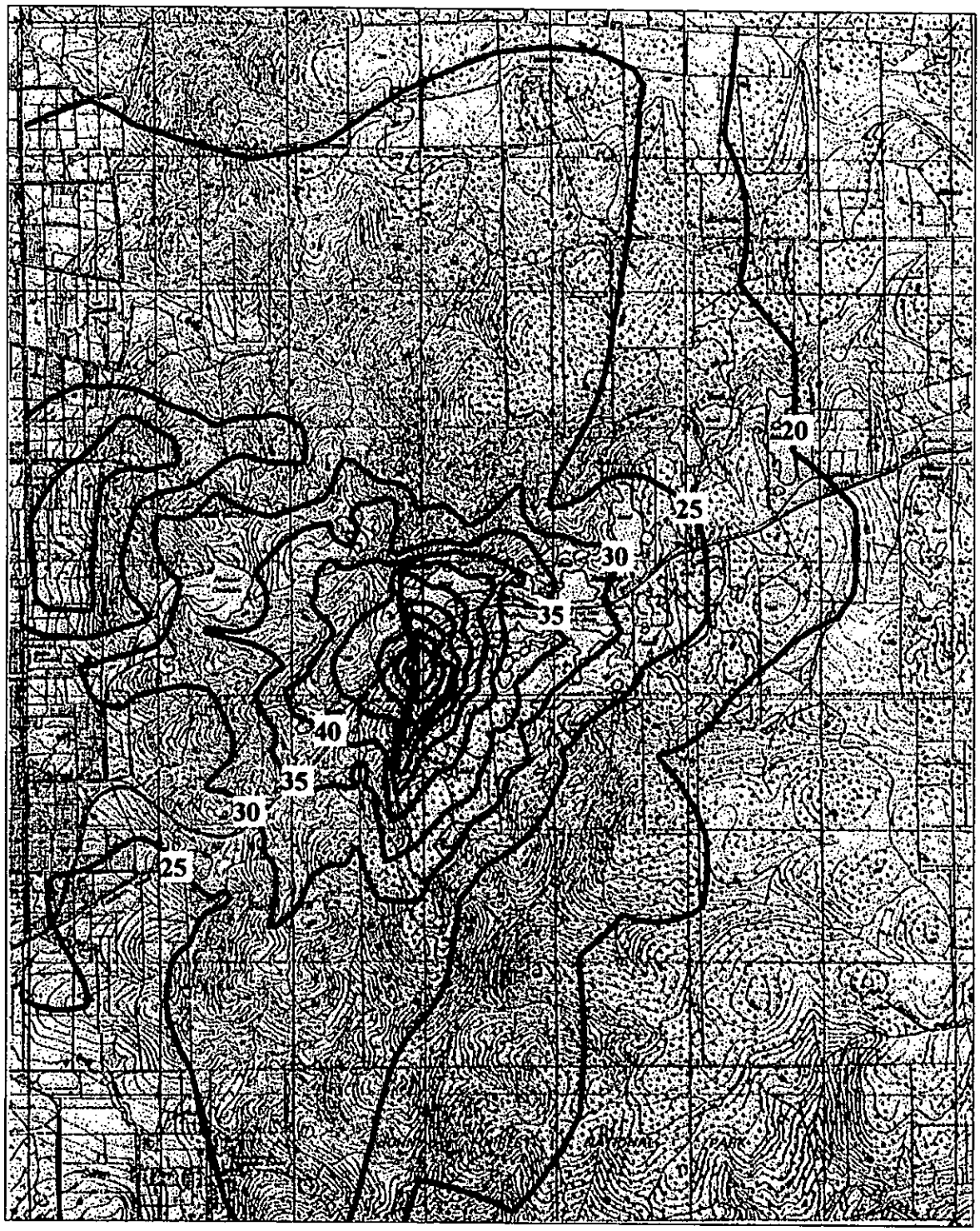


Figure 12 Predicted Noise Levels, 3 m/s easterly winds, (Herring Storer 2001)

- Dwellings that may be affected (None predicted to receive 30 dBA)

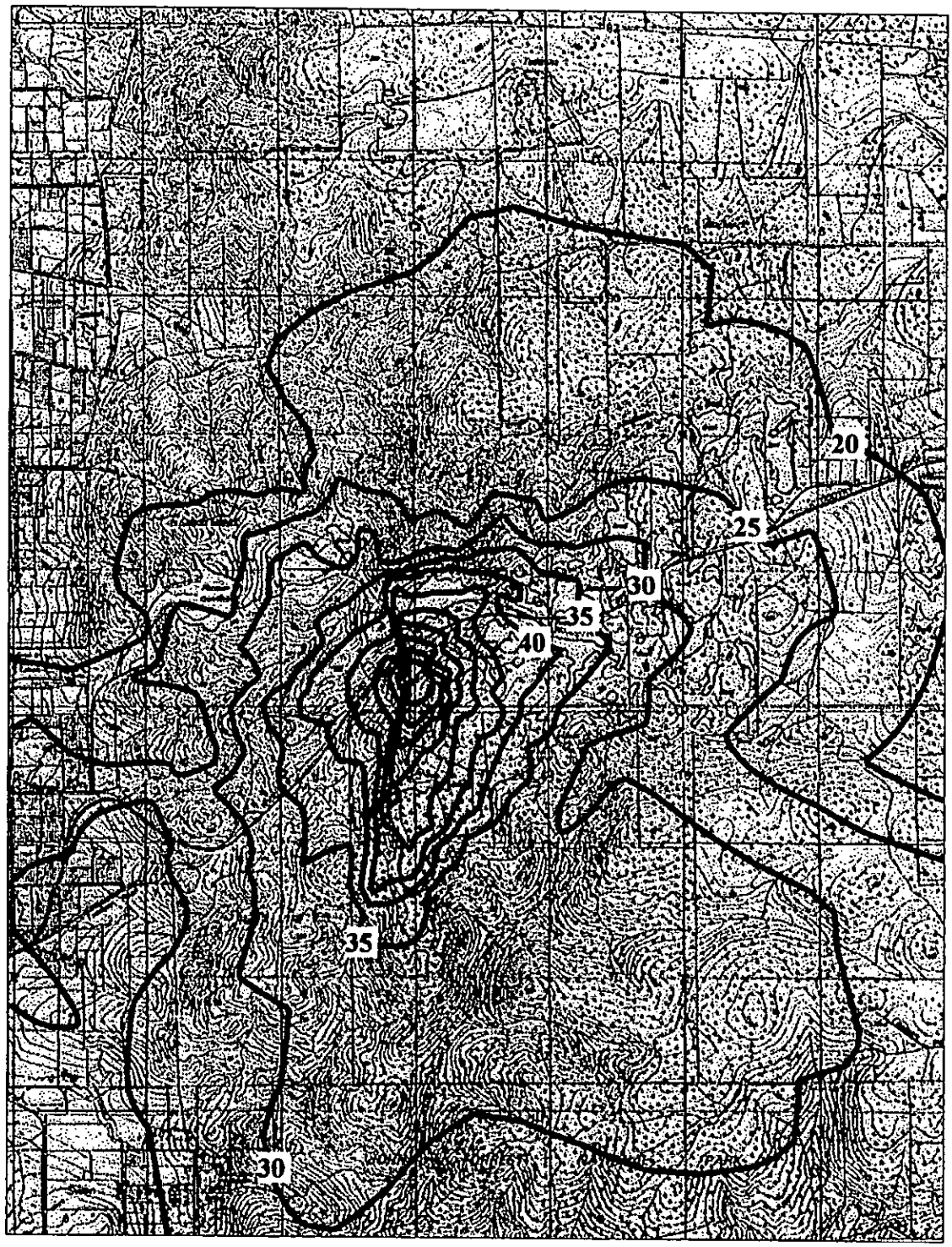


Figure 13 Predicted Noise Levels, 3 m/s northerly, (Herring Storer 2001)

- Dwellings that may be affected (None predicted to receive 30 dBA)

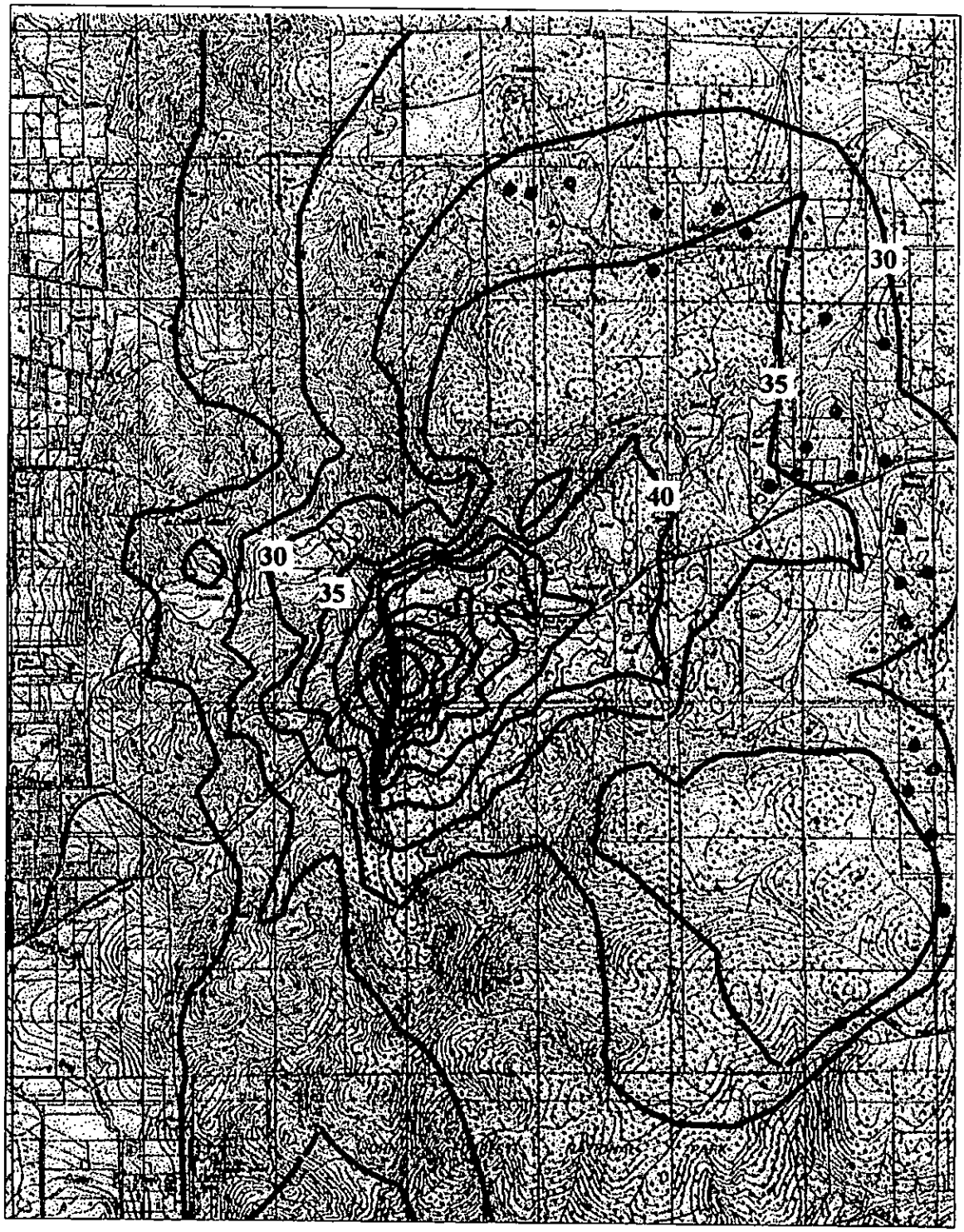


Figure 14 Predicted Noise Levels, 3 m/s westerly winds, (Herring Storer 2001)

- Dwellings that may be affected

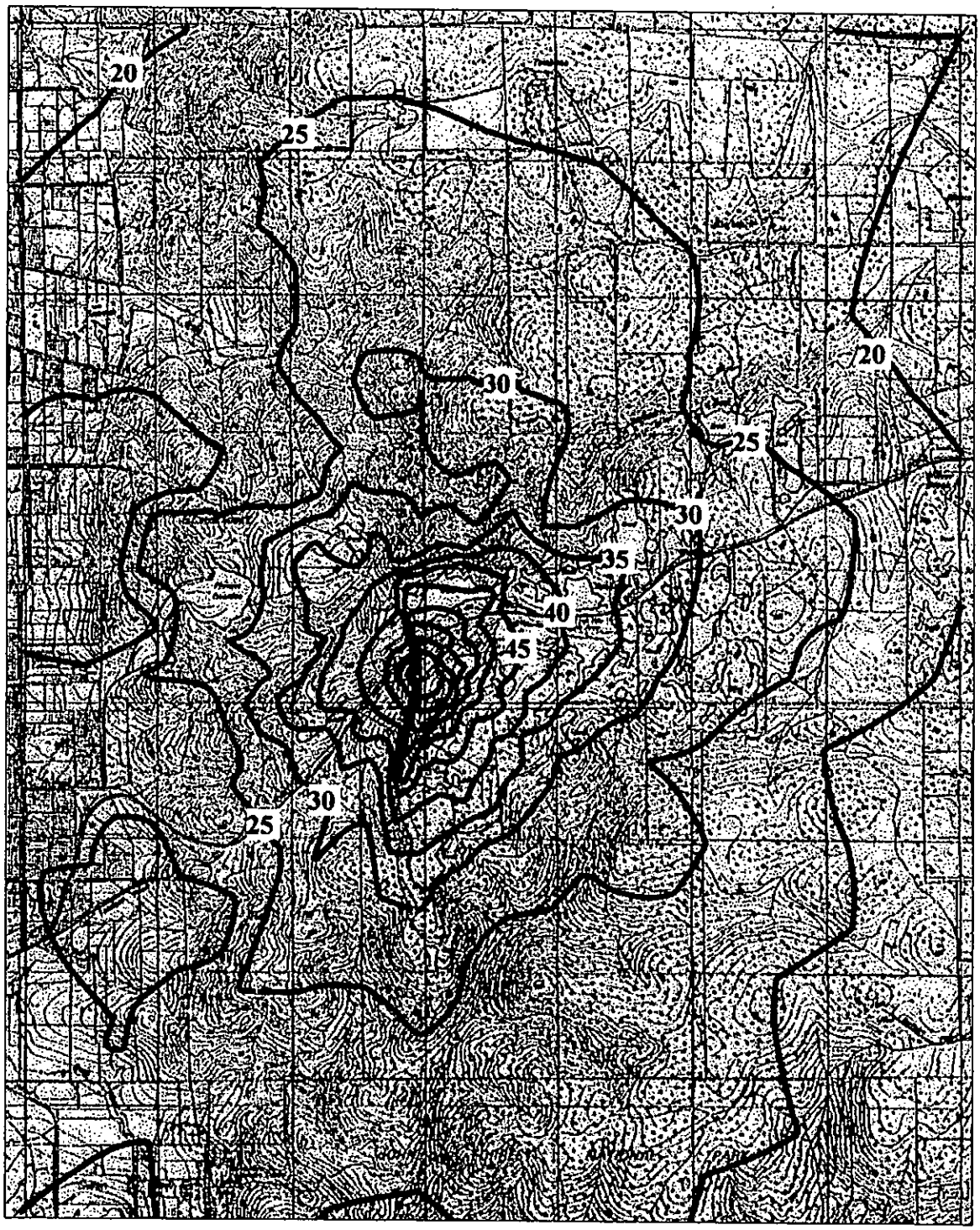


Figure 15 Predicted Noise Levels, calm conditions, (Herring Storer 2001)

- Dwellings that may be affected (None predicted to receive 30 dBA)

3.7.2 Light Overspill

3.7.2.1 Project Assessment

The outdoor entertainment facility is 4.5 km from the main activity area in John Forrest National Park.

Lights will only be used during preparations for concerts. General lighting along the access road and car park will be "low level" lighting which should have low visual impact from outside the property. The stage will be protected by a roof, back and walls, and, with lighting directed towards the stage during events, light overspill should be minimised.

3.7.2.2 Conclusions

It is possible that some light may be visible from the Swan Coastal Plain but this will be minimised and should not represent much more impact than several dwellings.

Lighting may be more of an issue for night activities in the northern part of John Forrest National Park. Liaison with the management of John Forrest National Park with regard to noise, can also address potential light impact by co-ordinating the timing of events.

Non-chemical emissions - Noise and Light

Site Specific Factor	EPA Objective	Existing Environment	Potential Impact	Proposed Environmental Management
Noise	Protect the amenity of nearby land users (including users of John Forrest National Park) from noise impacts in accordance with the Environmental Protection (Noise) Regulations 1997). Ensure that noise emanating from the proposal does not impact on the behaviour of native animals in John Forrest National Park in a significantly adverse way	The site lies to the south of and near Toodjay Road and the planned Eastern Highway. To the north is Pioneer hard rock quarry, the east Midland Brick clay pits and the EMRC landfill site. Aircraft flight paths lie close to the site. Aircraft and road traffic noise are currently significant impacts on the site.	There is planned to be limited concerts per month over the 5 month summer period. For amplified concerts a noise study has been conducted by Herring - Storer Acoustics which shows that only under a worst case scenario, when the wind is blowing from the right direction, will any noise be potentially heard at a dwelling. Herring Storer Acoustics predict that that up to 28 dwellings might be able to hear an amplified band on perhaps one occasion each summer and up to 14 dwellings might be able to hear the rock band 2 – 4 times each summer.	• The majority of concerts will have low levels of amplification. It is anticipated that a higher level amplified event may take place on average once per week. • The stage will be constructed from 5 metre high precast concrete panels to the rear and sides and face east. A metal deck roof will be used and all walls and roof lined with acoustic material as described in the Noise Assessment by Herring Storer 2001. • Herring Storer Acoustics conclude that "no dwellings will experience a noise level of above 40 dB(A) and the dwellings which receive a level above 30 dB(A) will be for a short period of time". They go on to conclude that "the proposed venue is considered acoustically acceptable". • Ace Nominees will prepare and implement a Noise Operational Management Plan prior to the first event being held.

			The noise study by Herring Storer Acoustics indicates that noise levels will be greater than 40 DBE for only the northern part of John Forrest National Park. The potential impact of amplified concerts on fauna is not known, however animals normally live around quarry sites, airports and other noisy locations with little apparent impact, to such an extent that they can become a problem to the activity.	
Light overspill	Ensure that lighting associated with the facility does not unreasonably interfere with the welfare or amenity of adjacent land users including users of John Forrest National Park.	The site currently has no lights on it, although lights are used at Pioneer quarry adjoining to the north.	Lights may be visible from the Swan Coastal Plain at a significant distance. Lights are likely to be visible from Toodyay Road and John Forrest National Park. The northern portion of the Park is only lightly used. The outdoor auditorium is 4.5 km from the main activity area in John Forrest National Park.	• Lights will be directed onto the stage area during night time concerts. • General lighting along the access road and car park will be "low level" lighting which should generally be protected by trees on the site when viewed from outside the property. • It is possible that some light may be visible from the Swan Coastal Plain but this will be minimised and should not represent much more impact than several dwellings. • Liaison will be maintained with the Park management in order to notify them of concerts to reduce any potential conflict between activities.

Predicted Outcome

Impact from lighting is expected to be small when viewed from outside the facility and thus the EPA objective can be met.

Herring Storer conclude that for a worst case scenario of a rock band, "no dwellings will experience a noise level of above 40 dB(A) and the dwellings which receive a level above 30 dB(A) will be for a short period of time". They go on to conclude that "the proposed venue is considered acoustically acceptable".

Noise will emanate from the site across the northern portion of John Forrest National Park, which is only lightly used. Up to 42 dwellings, at distances of over 2 km, are predicted to be able to potentially hear an amplified rock concert under certain weather conditions. As this situation might occur 2 - 4 times each summer, a Noise Operational Management Plan will be prepared and implemented to manage noise emissions. The Noise Management Plan will be able to respond to changing weather and concert conditions and be included in the Operational Management Plan.

With a Noise Operational Management Plan in place the Auditorium can comply with the Environmental (Noise) Regulations 1997, thus the EPA objective can be met.

3.8 Public Health and Safety

3.8.1 Fire Management

Public safety is covered under a variety of Acts and Regulations. However as this site is slightly remote, and with potentially 5 000 people on site, some contingency plans are required.

Fire Control falls under the Bush Fires Control Act (as amended) and the City of Swan.

Fire management has been addressed by a Fire Management Plan prepared by TEC Services and approved by the City of Swan. Fire will only be a potential threat during events. At other times there will be no constructed features on site and no public access. The site will generally only be used during summer.

The Management Plan for John Forrest National Park aims to retain the fuel loading of land adjoining the site to below 8.5 tonnes per hectare. (John Forrest National Park Management Plan, 1994).

A hard path will be located around the site, inside the firebreaks, to provide access and assist as a firebreak.

The carpark, lawn and access roads will form natural firebreaks. Field observations show four wheel drive access into the National Park in the vicinity of the auditorium, where the boundary fence to the National Park had been cut in a number of places. This may increase the security risks for the facility, but in turn the presence of security on the site may assist with Park management even if only in a small way.

3.8.2 Emergency Plan

There are a number of situations that relate to emergency conditions. There is a risk of fire started by patrons, a patron may be injured, there may be a need to evacuate the site or there may be security concerns. These and other safety issues will be addressed by the preparation and implementation of an Emergency Plan prior to the first event.

Some actions to be included in the Emergency Plan will be evacuation procedures, provision of fire extinguishers and back packs stationed strategically around the site, the hiring of security as appropriate to each event, training of staff, preparedness for first aid

contingencies, liaison with the local bush fire brigade on fire risk, restriction of public access to the car park during events and traffic management.

The Emergency Plan will be incorporated into the Construction and Operational Management Plans listed in 5.0 Commitments.

3.8.3 Conclusions

The Fire Management Plan and the Emergency Plan will provide a means of managing any risk to public safety which should ensure the safety of patrons as well as the wider community.

Public Health and Safety				
Site Specific Factor	EPA Objective	Existing Environment	Potential Impact	Proposed Environmental Management
Fire (risk of ignition and risk to patrons of the facility in the event of a major wildfire threatening the Auditorium)	Ensure that risk is as low as reasonably achievable and complies with acceptable standards including the EPA's criteria for individual facility risk off-site, acceptable criteria for societal risk and the DME's requirements in respect of public safety.	The site lies in indigenous bushland. National Park land adjoining the site is to be managed with less than 8.5 tonnes fuel loading per hectare. (John Forrest National Park Management Plan, 1994).	Patrons can potentially increase the fire risk by smoking. Safety of patrons during a bushfire. The hard surfaces and lawns will act as a natural firebreak.	Fire • A fire management plan has been prepared by TEC Services and will be implemented. • A water tank will be constructed on site and a minimum of 10 000 litres retained at all times for fire fighting. • A small firebreak is to be constructed in the north of the site, and hazard reduction to be maintained to the west and north of the stage area. • Back packs and fire extinguishers will be strategically located around the site during each event to deal with any minor incident. These will be under the control of security staff. • Security staff will receive training in the use of fire extinguishers and back packs. • Liaison will be undertaken with the local bush fire brigade, notifying them when each event is to occur. • The site is within mobile telephone range. Public Safety • Qualified first aid personnel will be on site during each event. • The site is within mobile telephone range. • The logistics of moving people to and from the site will be incorporated into an Emergency Plan. • An Emergency Evacuation Plan will be developed and implemented by Ace Nominees prior to any event taking place.

Predicted Outcome

The Fire Management Plan has been accepted by the City of Swan. With this, and the Emergency Plan to be prepared and implemented by the proponent, fire and other safety can be managed. Thus the EPA objective can be met.

3.9 Recreation

3.9.1 Assessment

The site lies directly north of John Forrest National Park, which adjoins the southern boundary and to the west.

The John Forrest National Park Management Plan, 1994, Map 9, which is reproduced as Figure 16, shows that the majority of people will be confined to the central southern area around Jane Brook. Only minor walk tracks are planned/exist near the facility, one of which is the boundary fire break.

Actions for Recreation Areas in the National Park appear to encourage most activity in the main central southern portion of the Park. On the other hand trails for bush walking are to be developed in the northern extension of the Park. Any walk trails are unlikely to run along the northern boundary because it is more degraded. Orienteering, rogaining, cross country running and horse riding are only permitted on recognised management tracks (John Forrest National Park Management Plan, 1994). Activities could therefore conceivably take place in the northern portion of the Park, both during the day and night, for rogaining.

Night bush walking would not normally be permitted in the Park without specific permission or supervision. Such activity could either be timed to avoid coming near the entertainment facility when a event is planned or avoid the northern area. Liaison with management of John Forrest National Park could determine minimise potential clashes.

The main potential impacts on John Forrest National Park are noise, light overspill, and increased fire risk. Dieback is present in the adjoining portion of John Forrest National Park and as the auditorium is located down slope from the Park, there is considered to be no additional dieback risk from the construction of the auditorium.

During concerts lighting will be directed onto the stage, pointing away from John Forrest National Park. The stage will be located 200 metres from the boundary of the Park. The carpark will be located on the southern portion of Lot 2, with a 20 metre vegetated buffer along the southern boundary. Some of this boundary is currently degraded and will be replanted with local indigenous trees, shrubs and groundcovers. Lighting for the carpark will be low, at about 1 - 2 metres, which will reduce the risk of light overspill to the Park.

The potential for increased fire risk from patrons will be covered through implementation of the Fire Management Plan, prepared by TEC Services, and the development and implementation of an Emergency Evacuation Plan. In addition security staff trained in the use of fire fighting equipment will patrol the carpark at all times during events. Communication on the timing of events will occur between Ace Nominees and Management of John Forrest National Park. With these measures in place the potential for increased fire risk to John Forrest National Park can be minimised.

Noise is the main potential issue with respect to recreation within John Forrest National Park. During a loudest concert of an amplified rock concert, noise levels are predicted to be generally between 30 and 40 dB(A) for the northern portion of the Park, with only a small adjoining area receiving a predicted 40 dB(A), which equates to 50 dB(A) when the penalty is applied, See Non Chemical Emissions - Noise and Light. The distance between boundary of the National Park and the main use areas in John Forrest National Park are shown in Figure 16.

The most likely time of greatest potential impact is when an amplified band is playing, with most impact occurring when northerly winds are blowing. When calm, or in winds from other directions, the area of impact is significantly reduced. It should also be remembered that the noise from many other events or activities will not be amplified to the same extent and will not have the same potential for impact.

3.9.2 Conclusions

Noise is most likely to impact on activities in the northern section of John Forrest National Park which is only lightly used, and night use is likely to be minimal. Liaison with the Park management to notify them of concerts will reduce potential conflict between activities.

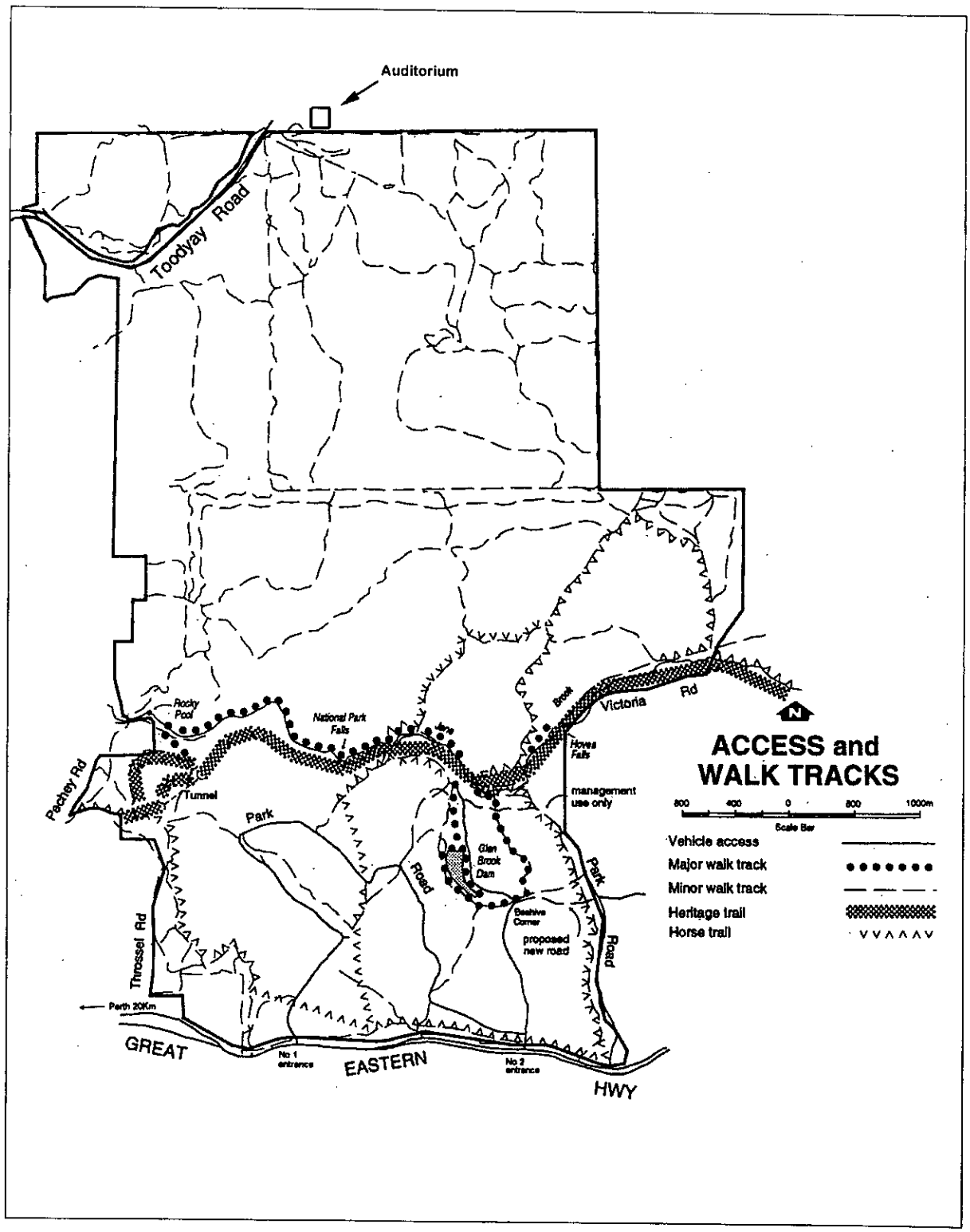


Figure 16 Map 9 from the Management Plan for John Forrest National Park showing access and walk trails within the Park. (Reprinted from John Forrest National Park Management Plan 1994).

Recreation				
Site Specific Factor	EPA Objective	Existing Environment	Potential Impact	Proposed Environmental Management
Recreation	Ensure that the proposal does not unduly compromise recreational usage of the area, as developed by planning agencies, particularly with respect to present and future users of John Forrest National Park.	The site lies in indigenous bushland with John Forrest National Park adjoining to the south. Midland Brick owns Lots 1 to the west and Lots 3 - 10 to the east. There are active clay pits on Lots 8 - 10 to the east and the EMRC landfill site lies to the east. Both adjoin John Forrest National Park.	Noise from concerts. Incursions by patrons into the National Park The auditorium is 4.5 km from the main activity area in John Forrest National Park.	• Boundary fencing will be maintained. • Security staff will be hired at each concert to restrict public access to the constructed areas. • Security of the facility may assist in maintaining vigilance of the boundary fence which is currently being cut by four wheel drive vehicles. • There are planned to be up to 100 concerts over the 5 month summer period. • Liaison will be maintained with the Park management in order to notify them of events to reduce any potential conflict between activities. • The northern portion of the Park is only lightly used. • See 3.7 Non Chemical Emissions – Noise and Light

Predicted Outcome

The distance to the main activity area of John Forrest National Park, liaison with Park management, and the low usage of walk tracks in the adjoining Park, together with the overall small number of events, will reduce the potential for impact on John Forrest National Park.

Thus the EPA objective can be met.

3.10 Culture and Heritage

3.10.1 Site Assessment

An Aboriginal archaeological and ethnographic site assessment was completed by Yates Heritage Consultants for Lots 1 to 7 Toodyay Road, Red Hill. In addition a European heritage study was completed. Literature searches were conducted and preliminary reconnaissance undertaken, followed by detailed site searches.

Whilst the ruins of a convict hiring station occur nearby on Toodyay Road, no evidence of any European heritage was found from searching known inventories and literature or from the field work. The hiring station lies to the north of Toodyay Road, west of the entrance. Its location was considered by BSD Consultants in their design of the turning lanes. They concluded that "The constraints of the heritage site situated approximately 200 metres west of the proposed crossover location dictates that the right turn facility can only be accommodated if the proposed crossover is located approximately 50 metres further east, at the site boundary, and then only if the length of the facility is reduced from 300 metres. This should not compromise the safety of the facility..." These recommendations have been incorporated into the design of the access road and crossover which is to Main Roads standards and is shown in Figure 4.

Two archaeological sites, including an ochre site, were noted some distance to the east of Lot 2. No archaeological material was found on Lot 2, the site of the proposed outdoor auditorium.

The ethnographic survey, and consultations with local authorities, revealed significant historical aboriginal occupation of the wider area which would have certainly included access across the development site. No specific ethnographic significance was ascribed to Lot 2 or adjoining areas. An ochre site to the east of Lot 2 has ethnographic significance.

Details of the archaeological and ethnographic surveys may contain sensitive information and consequently the report prepared by Yates Heritage Consultants is not attached as an Independent Consultants report. A copy has been lodged with the Department of Aboriginal Affairs and any further data should be requested from that department.

3.10.2 Conclusions

Yates Heritage Consultants concluded that due to the absence of sites, "development may proceed with no further action required".

As there are no known aboriginal or European heritage sites on Lot 2 the potential for impact is low.

Culture and Heritage				
Site Specific Factor	EPA Objective	Existing Environment	Potential Impact	Proposed Environmental Management
Aboriginal culture and heritage	Ensure that the proposal complies with the requirements of the Aboriginal Heritage Act 1972; and Ensure that changes to the biological and physical environment resulting from the project do not adversely affect cultural associations with the area	Whilst there is evidence of aboriginal activity to the east, there is no evidence of archaeological material on Lot 2.	None known	• During development and operation of the Auditorium Ace Nominees will comply with the requirements of the Aboriginal Heritage Act 1972. • Yates Heritage Consultants recommended "that development may proceed with no further action required".
European heritage	Ensure the development complies with statutory requirements in relation to areas of cultural or historic significance.	There are no European heritage sites on Lot 2	None known	• Yates Heritage Consultants searched records and inventories as well as the site and found no evidence of European Heritage on Lot 2. • The proposed passing lane and cross over have been designed to be constructed east of the convict hiring station.

Proposed Outcome

No European or Aboriginal sites were recorded on Lot 2 and thus the EPA objective can be met.

3.11 Landscape

3.11.1 Site Assessment

The facility will be constructed 180 metres from Toodyay Road, on sloping ground with a buffer of scattered trees. The sloping nature of the site increases the aesthetic quality of the auditorium, but increases the potential visual impact.

The creek line is to be retained but could be taken at a later date by the planned upgrade of Toodyay Road. Earthworks associated with the parking area and bus bay will require the creation of batters which will be heavily vegetated with local tree/shrub species. As these grow the screening from the road will increase. Any developments constructed on site will be aesthetically designed and constructed to blend into the landscape which should assist visual screening.

Possibly the most impact will be at night when lights may be visible through the buffer of trees. Lighting will be kept low to reduce the visual impact at night, and stage lighting must, of necessity, be directed only onto the stage with no overspill. See 3.7, Non-Chemical Emissions - Noise and Light.

3.11.2 Conclusions

There may be some visual impact but this should reduce as planted screening vegetation grows.

Landscape				
Site Specific Factor	EPA Objective	Existing Environment	Potential Impact	Proposed Environmental Management
Lands-scape	Maintain the integrity, environmental and aesthetic values of the landscape	The site lies in indigenous bushland just back from the brow of the Darling Scarp. John Forrest National Park adjoins to the south.	Only 4.6 hectares of the 10.3 hectare site will be affected by the development. There are planned to be limited concerts per month, generally over a 5 month summer period. Development will setback 180 metres from the current Toodyay Road. The site should only be visible as glimpses through the vegetated buffers, if at all, when not being used. 20 metre buffers have been retained to the John Forrest National Park and side.	• The development has been confined to the southern portion of Lot 2. • Where possible trees will be retained. • Batters and disturbed areas will be rehabilitated with local species. • A screen of tall trees of local species will be planted on the northern side of the stage area. • There will be no large permanent buildings on site. Any developments will be subject to City of Swan development approval. • The water tank to be installed will be coloured green and screened by planted vegetation. • Lighting for the access road and car park will be low level to reduce visual impact. • Stage lighting will be directed only onto the stage area. The stage will have rear and side walls and a roof.

Proposed Outcome

The site has been located and designed in a manner that will minimise the potential visual impact, and thus the EPA objective can be met.

3.12 Road Transport

3.12.1 Assessment

The only transport construction on site will be a car park, associated drainage and related landscaping features. The car park will have a design capacity of 900 vehicles. For each event a substantial number of patrons are expected to arrive by bus, either independently or perhaps linking with existing services such as the suburban rail system at Midland Station.

A traffic study was prepared by Main Roads. This study considered a maximum patronage of 5 000, and whilst this size event may eventually be held, initially the facility will be used for events of approximately 2 500 patrons.

Negotiations have been undertaken with Main Roads who have approved the access road. This is shown in Figure 4. (Main Roads Project T00015, Drawing No T330-02).

3.12.2 Conclusions

As the crossover and access has been approved by Main Roads transport issues associated with the auditorium can be managed. There will be some management of transport during events and this will be addressed within the Operational Management Plan.

Road Transport				
Site Specific Factor	EPA Objective	Existing Environment	Potential Impact	Proposed Environmental Management
Road Transport	Ensure that road transport associated with the proposal does not result in unacceptable impacts on levels of service or safety on the existing networks.	The site lies to the south of and near Toodyay Road and the planned Eastern Highway. Lot 2 has an existing access to Toodyay Road.	An additional access to Toodyay Road.	• Main Roads has approved the design and location of the access road onto Toodyay Road. • The operational Management Plan will address transport issues during events.

Predicted Outcome

As Main Roads has approved the access the EPA objective can be met.

3.13 Alternative Proposals

3.13.1 Research

The selection of the site is covered extensively in *1.1 Need for an alternative outdoor entertainment Auditorium in the Perth Metropolitan Area.*

The site lies on the brow of the Darling Scarp at Red Hill. It was selected after detailed research into potential locations right across the metropolitan area. The site was chosen for its isolation in an area of natural beauty, to enhance the facility. However the auditorium is located within a less sensitive area from a planning perspective as Lot 2 and adjoining lots are nominated as a Basic Raw Materials Policy area. Lot 2 is adjacent to John Forrest National Park, which can provide significant buffers for the facility. The Basic Raw Materials Policy area is an area nominated by the Western Australian Planning Commission for the protection of buffers to large quarries and thus Lot 2 will be protected from the influence of new sensitive developments. The nomination of the buffer is contained within Statement of Planning Policy No 10 released by the Western Australian Planning Commission, July 2000.

3.13.2 Conclusions

Research of potential sites around the Perth Metropolitan Area show that Lot 2 is one of the few sites that meet most of the criteria for outdoor auditorium.

Alternative Proposals				
Site Specific Factor	EPA Objective	Existing Environment	Potential Impact	Proposed Environmental Management
Alternative proposals and site alternatives	Ensure that all reasonable alternatives to a proposal are considered within sound social and environmental constraints before a decision is made to adopt a proposal.	The site lies in indigenous bushland just back from the brow of the Darling Scarp.	Provides a needed facility in Perth as other facilities are coming under planning and local pressure. Impact covered in sections above.	• The site has been selected after thorough research across the Perth Metropolitan Area. • See 1.1 "Need for an alternative outdoor auditorium in the Perth Metropolitan Area".

Predicted Outcome

The site was selected as the only available site meeting most of the criteria for an outdoor auditorium, and thus the EPA objective can be met.

4.0 Conclusions

Following initial input to the Environmental Protection Authority (EPA) by the proponent, Ace Nominees, the environmental factors that were considered relevant to the proposed outdoor auditorium were identified by the EPA. These formed the scope of the Public Environment Review (PER). The environmental factors to be addressed in the PER were listed as "Environmental Factors relevant to the proposal" in Section 2 of the Guidelines of the Formal Instructions for the PER. These are included in Appendix 1. Each environmental factor has been addressed in Section 3.0 from which the environmental issues have been summarised and a number of commitments made in 5.0.

From an assessment of the environmental factors for the project several key environmental issues have been identified. These key environmental issues requiring management are listed as;

- **Loss of indigenous vegetation and habitat; and**

- **Potential offsite impact on nearby landholders and users**. This encompasses surface water runoff, noise, light and visual amenity.

- **Public health and safety**. This covers a number of less significant factors that need to be addressed during the construction and operation of the project. Some of these are not environmental factors but are factors that are overseen by other Government authorities.

As the project will be divided into two separate phases, Construction and Operation, which have different potential impacts, Ace Nominees have opted to prepare a Construction Management Plan and an Operational Management Plan to cover the environmental management of the auditorium. These management plans will incorporate the environmental management of the relevant factors included in Section 3 of the text of the PER. They will also be able to respond to any other environmental issues raised during the public review process as these can also be incorporated into the management plans. Commitments are made to the preparation and implementation of the management plans in Section 5.0 Commitments. Prior to the commencement of construction and operation respectively.

Both the Construction and Operational Management Plans will be prepared in an AS/NZS ISO 14001 format that will document how each environmental factor will be managed, who will undertake the work, and who will be responsible for reviewing and ensuring that the management of each environmental factor is satisfactorily carried out. These management plans will, for example, document which contractors/consultants will be responsible.

A brief summary of the processes that will be involved in the management of significant environmental issues identified above, follows.

Loss of Indigenous Vegetation and Habitat

The essential points on the loss of vegetation are that the least significant vegetation is disturbed and that surrounding vegetation is protected, thereby minimising the environmental impact on vegetation.

The vegetation study conducted by Mattiske Consulting Pty Ltd identified four vegetation communities on both Lots 1 and 2, of which the Open Woodland of *Eucalyptus marginata - Corymbia calophylla*, (Community Type R) was the least sensitive. Community Type G which is a Mosaic of open woodland of *Eucalyptus marginata - Corymbia calophylla* and closed heath of Proteaceae - Myrtaceae species and lithic complex associated with granite was considered more sensitive. A population of *Verticordia* that is potentially *Verticordia huegelii* var. *decumbens* (P3) was noted on the northern half of Lot 2.

Bamford Consulting Ecologists also identified the areas of exposed granite and heathland over shallow soil as being significant to fauna and should be protected.

The auditorium will occupy 4.6 hectares on the southern half of Lot 2 and largely avoids Community Type G which is developed on the areas of granite outcrops, and avoids the population of potentially significant *Verticordia*. The other two vegetation communities will be avoided apart from a crossing over the creekline on the northern boundary.

The Construction Management Plan will document the measures to protect the most sensitive vegetation by restricting access and disturbance to the identified development area, incorporating the management recommendations of Glevan Dieback Consultancy into a Dieback Management Plan and including weed management procedures. Also included will be the restoration of disturbed area, such as banks and firebreaks that are not required, with local indigenous species using the direct transfer of topsoil where available.

Fencing and liaison with management of John Forrest National Park will be included within the Construction Management Plan to assist in the protection of fauna.

Protection of the adjoining indigenous vegetation will also be addressed in the Operational Management Plan where public assess will be restricted to the constructed areas. The management and removal of wastes will be included to reduce the potential to attract cats and other pests.

A Fire Management Plan for the site has been prepared, and will be included in both the Construction and Operational Management Plans, to address fire management and therefore the protection of vegetation.

Offsite Impacts

The main potential off site impacts will occur during operation of the auditorium, although there will be some potential impacts during construction. During construction the potential impacts will be largely from the use of earth moving machinery which will be little different to that occurring on nearby quarries. These potential construction impacts will be included in the Construction Management Plan.

During operation a number of environmental factors will need to be addressed. These include water quality, noise, light and visual amenity.

The most potentially significant of these is operational noise. As there may be uncertainties in the potential for impact on the nearest dwellings, located over 2 km from the site, Ace Nominees will prepare a Noise Operational Management Plan to manage potential noise emanation. The plan, which will be prepared and included in the Operational Management Plan, will be implemented prior to any outdoor event taking place. The Noise Operational Management Plan will address noise mitigation measures including construction techniques, noise levels emissions under various weather

conditions, monitoring and engineering to adjust noise output during individual concerts and a complaints procedure.

Water quality relates mainly to the potential export of nutrients and sediment from the site. The Construction Management Plan will include the construction of detention basins with filtration capability. The Operational Management Plan will, in addition, address nutrient management of the lawn areas, rubbish, litter and waste water.

Firebreaks roads and other hard surfaces will be monitored for erosion, and remedial action taken.

Visual amenity and light emissions will be addressed in both the Construction and Operational Management Plans, which will provide control through vegetation screening and low level lighting.

Public Health and Safety

Health and safety issues are mainly concerned with the safety of the public and are subject to regulations and control by other Government authorities. A Fire Management Plan has been prepared and accepted by the City of Swan. This will be incorporated into the Construction and Operational Management Plans. An Emergency Plan will be prepared and implemented prior to the first concert, to deal with potential operational emergencies. The Emergency plan will be incorporated into the Operational Management Plan. This will deal with first aid, training, security and evacuation procedures.

Access and road design has been approved by Main Roads and will be incorporated into the Construction Management Plan. Traffic management will be addressed in the Operational Management Plan

Summary

Whilst there are some potentially significant environmental impacts these can be managed at a level acceptable to the community. Any impacts have to be balanced against the need for another outdoor auditorium for Perth in an area not constrained by increased local and planning pressure.

With the development of the Construction and Operational Management Plans, Ace Nominees believes that the construction and operation of an outdoor Concert Auditorium at Red Hill is sustainable with minimal environmental impact and will provide the public with a valuable community asset.

5.0 Commitments

From an analysis of the project, the following issues are determined as being the most significant to the construction and operation of the proposed Outdoor Auditorium.

- Loss of indigenous vegetation and habitat
- Potential offsite impacts that include noise, light, water quality and visual amenity
- Public health and safety. Public health and safety has potentially less impact on the environment and falls under the control of various regulations and government authorities.

The following Commitments are made to minimise environmental impact from the proposed Outdoor Auditorium. The Department of Environmental Protection will audit the implementation of the Commitments in Table 3.

The potential impacts on the environment could occur during construction and during operation. Therefore it is proposed to develop Construction and Operational Management Plans which will provide structure to environmental management and be the basis on which the project can be audited. Incorporated into these management plans will be separate management plans for Operational Noise, Fire and Emergency.

These management plans will incorporate the management actions listed within the text of the Public Environmental Review document, but will be extended to more precisely document who will undertake the action, when the management action will occur and who will provide advice on the action.

Both the Construction and Operational Management Plans will be prepared in an AS/NZS ISO 14001 format that will document how each environmental factor will be managed, who will undertake the work, and who will be responsible for reviewing and ensuring that the management of each environmental factor is satisfactorily carried out. These management plans will, for example, document which contractors/consultants will be responsible.

TABLE 3 PROPONENT'S ENVIRONMENTAL MANAGEMENT COMMITMENTS

No	Topic	Action	Objective	Timing	Advice
1	Impacts of construction	The Construction Management Plan will be prepared. It will incorporate the management actions proposed within the PER document and will specifically address the management of clearing, bulk earthworks, surface water quality, dust, surface water quality, dieback weeds, and public safety.	To manage the environmental impacts of the construction phase	Prior to commencement of construction	City of Swan, CALM and other relevant authorities
2	Impacts of construction	Implement the Construction Management Plan referred to in Commitment 1 above.	To manage the environmental impacts of the construction phase	During the construction phase	City of Swan, CALM and other relevant authorities
3	Impacts of operation	An Operational Management Plan will be prepared. It will include the day to day management of the auditorium. It will incorporate the management actions proposed within the PER document and include ongoing environmental management of the facility to manage and reduce off site impacts. This plan will incorporate the Noise Operational Management Plan, Fire Management Plan and the Emergency Plan	To manage the environmental impacts of the operation phase	Prior to first event	City of Swan, CALM and other relevant authorities
4	Impacts of operation	Implement the Operational Management Plan referred to in Commitment 3 above.	To manage the environmental impacts of the operation phase	During operation of the facility	City of Swan, CALM and other relevant authorities
5	Noise Operational Management Plan	A Noise Operational Management Plan will be prepared to assist with monitoring and managing the levels of noise emitted from the auditorium. The plan will address; • Noise mitigation measures • Noise limits at certain locations • Noise levels emitted during concerts under various weather conditions • Noise monitoring • Complaints procedures • Timing of concerts	To manage the impacts of noise on nearby residents	Prior to first event	City of Swan
6	Noise Operational Management Plan	Implement the Noise Operational Management Plan referred to in Commitment 5 above.	To manage the impacts of noise on nearby residents	During operation of the facility	City of Swan
7	Fire Management Plan	The Fire Management Plan will be finalised. This will address the potential for spread of fire to and from the facility. The current Fire Management Plan has been accepted by the City of Swan	To manage the risk of fire spreading from the facility	Prior to first event	City of Swan
8	Fire Management Plan	Implement the Fire Management Plan referred to in Commitment 7 above.	To manage the risk of fire spreading from the facility	During operation of the facility	City of Swan
9	Emergency Plan	An Emergency Plan will be developed to manage potential emergencies when the auditorium is being used, such as evacuation, threat of bush fire, security and first aid.	To manage potential emergencies during the operational phase	Prior to first event	City of Swan and other relevant authorities
10	Emergency Plan	Implement the Emergency Plan referred to in Commitment 7 above.	To manage potential emergencies during the operational phase	During operation of the facility	City of Swan and other relevant authorities

TABLE 4 OUTLINE OF ENVIRONMENTAL MANAGEMENT ACTIONS TO BE INCLUDED IN THE CONSTRUCTION AND OPERATIONAL MANAGEMENT PLANS

CONSTRUCTION MANAGEMENT PLAN

The Construction Management Plan will address the following environmental impacts that have been assessed as being significant,

No	Significant Environmental Impacts	Topic	Action	Auditable Objective	Timing	Advice
1	Construction Management Plan		Ace Nominees will prepare a Construction Management Plan to address the significant environmental issues that have been identified during the Public Environmental Review Process, and that relate to construction activities.	Prepare a Construction Management Plan.	Prior to construction	Relevant authorities
			Ace Nominees will implement and work to the Construction Management Plan during the construction phase of the project.	Implement the Construction Management Plan	During construction	Relevant authorities
2	Construction	The Construction Management Plan will include construction in accordance with the approved plans and diagrams.		Construction to be in accordance with approvals	Construction	City of Swan
3	Habitat Protection Flora and Fauna	The auditorium has been located in the southern half of Lot 2, predominantly within Community Type R, and extending slightly into the more sensitive Type G community associated with granite outcrops. Clearing will be restricted to the less sensitive 4.6 hectare southern portion of Lot 2.				
		Flora and Fauna	The Construction Management Plan will provide for minimum interference to the most sensitive flora and habitat by including such actions as; • using only local native flora in the restoration of disturbed areas that are not integral to the operation of the facility such as screening vegetation, banks and slopes, • and the direct transfer of topsoil from cleared to rehabilitated areas.	Minimise the impact of the development on indigenous vegetation communities and habitat.	Construction	City of Swan
		Dieback	A Dieback Management Plan will be included within the Construction Management Plan. It will be developed from the recommendations of Glevan Dieback Consultancy Services and incorporate the dieback management listed in the text of the PER.	Minimise the impact of dieback on indigenous vegetation communities	Construction	City of Swan CALM
		Weeds	The management of weeds will be included in the Construction Management Plan and will address the importation of landscaping materials, monitoring and treatment of weeds.	Minimise the impact of weeds on indigenous vegetation communities	Construction	City of Swan CALM

4	Off Site Impacts	Potential off site impacts from construction will be little different to that on nearby quarries and will be managed in a similar manner through the preparation and implementation of the Operational Management Plan				
		Noise	Noise from construction will consist mainly of earth moving equipment similar to that used at nearby quarries. Construction noise will be included in the Operational Management Plan	Manage noise generation on site. Environmental Protection Noise Regulations	Construction	City of Swan
		Dust	Dust management will be addressed in the Construction Management Plan through a program of wetting down during construction earthworks.	Minimise the generation of dust during construction. EPA Guidance 18 for Prevention of Air Quality Impacts from Land Development Sites	Construction	City of Swan
		Visual Quality	Visual management will be addressed in the Construction Management Plan through the use of setbacks, visually sympathetic materials and screening vegetation	Minimise local visual impact	Construction	City of Swan
		Water Quality	The Construction Management Plan will address offsite water through construction of the water management facilities in accordance with the approved plans and diagrams.	Minimise the impact on water quality.	Construction	City of Swan
5	Public Health and Safety	Most public health and safety issues will be controlled by relevant authorities. Those issues relevant to the environmental management of the site will be incorporated into the Operational Management Plan.				
		Traffic Safety	Public traffic safety will be addressed by approval by Main Roads of the design of the access road and cross over.	Minimise the potential impacts on traffic safety	Construction	City of Swan Main Roads
		Fire Management	Incorporate the Fire Management Plan into the Operational Management Plan in conjunction with the Emergency Plan. This will address fire minimisation, fire fighting facilities, training, liaison with various authorities and evacuation.	Minimise the risk from fire to patrons and the adjoining vegetation.	Construction	City of Swan
		Emergency	Prepare and incorporate an Emergency Plan into the Operational Management Plan to address the provision of first aid, training and evacuation.	Minimise the risk to patrons.	Construction	City of Swan Relevant Authorities

OPERATIONAL MANAGEMENT PLAN

The Operational Management Plan will address the following environmental impacts that have been assessed as being significant.

No	Significant Environmental Impacts	Topic	Action	Auditable Objective	Timing	Advice
1	Operational Management Plan		Ace Nominees will prepare an Operational Management Plan that will address the significant environmental issues that have been identified during the Public Environmental Review Process that relate to operational activities.	Prepare an Operational Management Plan.	Prior to the first event	Relevant authorities
			Ace Nominees will implement and work to the Operational Management Plan during the operational phase of the project.	Implement the Operational Management Plan	Prior to the first event	Relevant authorities
2	Habitat Protection Flora and Fauna	Adjoining vegetation	The Operational Management Plan will provide for minimum interference to the most sensitive flora and habitat by including such actions as; All activities and the public will be restricted to the 4.6 hectares of the nominated site, located in the southern portion of Lot 2.	Minimise impact on adjoining vegetation communities	Ongoing	City of Swan CALM
		Dieback	Dieback will be managed by the implementation of the Dieback Management Plan which will incorporate the recommendations of Glevan Dieback Consultancy Services and the dieback management listed in the text of the PER. The relevant sections of the Dieback Management Plan will be included in the Operational Management Plan.	Minimise the impact of dieback on indigenous vegetation communities	Ongoing	City of Swan CALM
		Weeds	The potential introduction of weeds will be managed by the measures outlined in the PER being incorporated into the Operation Management Plan. This will restrict materials being brought to the site and include monitoring and the management of weeds that may occur on site.	Minimise the impact of weeds on indigenous vegetation communities	Ongoing	City of Swan CALM
		Pest fauna	Management of rubbish and litter will be incorporated into the Operational Management Plan to discourage exotic fauna species.	Discourage exotic and pest fauna.	Ongoing	City of Swan CALM

3	Potential Off site Impacts	Noise	A Noise Operational Management Plan will be incorporated into the Operational Management Plan to manage noise output from individual concerts, taking into account the particular weather conditions, monitoring of noise and the use of complaint procedures.	Manage noise generation on site to maintain compliance with the Noise Regulations.	Ongoing	City of Swan
		Dust	Dust management will be addressed through dust suppression measures incorporated into the Operational Management Plan including the bituminising of the access road and wetting down of the car park as required.	Minimise the generation of dust during construction	Ongoing	City of Swan
		Light	Potential light overspill will be addressed in the Operational Management Plan through the location, type and use of lighting.	Minimise light overspill	Ongoing	City of Swan
		Visual Quality	Visual management will be addressed in the Operational Management Plan through the use of visually sympathetic materials and screening vegetation	Minimise local visual impact	Ongoing	City of Swan
		Water Quality	Water quality will be addressed in the Operational Management Plan by the maintenance of the water management and filtering devices, management of nutrients applied to the lawn and the management of rubbish and litter.	Minimise the impact on water quality.	Ongoing	City of Swan
4	Public Health and Safety	Traffic Safety	Public traffic safety will occur through the approval by Main Roads of the design of the access road and cross over. Traffic management will be included in the Operational Management Plan	Minimise the potential impacts on traffic safety	Ongoing	City of Swan Main Roads
		Fire Management	Ace Nominees will incorporate the Fire Management and Emergency Plans into the Operational Management Plan. Fire management will encompass fire minimisation, fire fighting facilities, training, liaison with various authorities and evacuation.	Minimise the risk from fire to patrons and the adjoining vegetation.	Ongoing	City of Swan
		Emergency	An Emergency Plan will be incorporated into the Operational Management Plan to address the provision of first aid, training and evacuation procedures.	Minimise the risk to patrons.	Ongoing	City of Swan Relevant authorities

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Appendix 1

Environmental Protection Authority
Guidelines

OUTDOOR ENTERTAINMENT VENUE

Lots 1 & 2 Toodyay Rd Red Hill

(Assessment Number 1291)

Part A	Specific Guidelines for the preparation of the Public Environmental Review
Part B	Generic Guidelines for the preparation of an environmental review document

Attachment 1	Example of the invitation to make a submission
Attachment 2	Advertising the environmental review
Attachment 3	Project location map

These guidelines are provided for the preparation of the proponent's environmental review document. The specific environmental factors to be addressed are identified in Part A. The generic guidelines for the format of an environmental review document are provided in Part B.

The environmental review document must address all elements of Part 'A' and Part 'B' of these guidelines prior to approval being given to commence the public review.

Part A: Specific Guidelines for the preparation of the Public Environmental Review

1. The proposal

Ace Nominees Pty Ltd (the proponent) intends to construct and operate an outdoor entertainment venue at Lots 1 & 2 Toodyay Road Red Hill. The proposed lot is indicated on the attached plan (Attachment 3) and is located approximately 15 km east of the Perth suburb of Midland adjacent to John Forrest National Park.

The purpose of the venue is to provide for outdoor pop and rock concerts, children's events and other public events with an audience of up to 5000 people.

The facility will include informal seating, a stage area and parking for a limited number of vehicles. Patrons will be encouraged to use a shuttle facility connecting with public transport at Midland. The majority of other facilities will be temporary and will be brought in for each event. The proposal will require clearing of approximately 4 hectares of native vegetation.

The proposal appears unlikely to be able to comply with the standard criteria for noise emissions as set out in *Environmental Protection (Noise) Regulations 1997*. The proposal is therefore likely to require an exemption from these criteria, granted by the Minister for the Environment in accordance with Regulation 17 of the noise regulations, in order to operate.

2. Environmental factors relevant to this proposal

At this preliminary stage, the Environmental Protection Authority (EPA) believes the relevant environmental factors, objectives and work required is as detailed in the table below:

CONTENT		SCOPE OF WORK	
Factor	**Site specific factor**	**EPA objective**	**Work required for the environmental review**
BIOPHYSICAL			
Terrestrial Flora	Impacts on regionally significant vegetation from clearing and increased risk of fire and weed introduction and spread	Maintain the abundance, species diversity, geographic distribution and productivity of vegetation communities, and to protect declared rare flora and priority flora, consistent with the provisions of the *Wildlife Conservation Act 1950*.	Carry out and present the results of a vegetation and flora survey of the property. Evaluate the local and regional significance of the impacted communities by comparing the extent of each community impacted with the uncleared extent of that community in the John Forrest National Park and other nearby land. Explain the management and prevention of fire and weed introduction and spread which will be carried out in order to protect the values of native vegetation both on and off site.
	Declared Rare and Priority Flora	Protect Declared Rare and Priority Flora, consistent with the provisions of the Wildlife Conservation Act 1950.	Conduct a targeted search by appropriately trained and experienced persons under appropriate seasonal conditions to identify Declared Rare and Priority flora likely to occur on the subject land. Assess the likelihood of occurrence of taxa not flowering at time of survey. Identify other species of significance which may be impacted by the proposals and discuss the reason for their conservation significance. These species may include undescribed species, new records for the region, species or taxa that are endemic to the region, or species confined to specific sites of limited occurrence in the region. Retain voucher specimens from all significant species and lodge them with the WA Herbarium. Propose measures to manage and/or mitigate impacts.
Disease	Dieback (*Phytophthora cinnamomi*)	Protect areas free of vegetation diseases and to minimise the spread of diseases where they are identified.	Using a CALM-accredited dieback interpreter, map the occurrence of Phytophthora cinnamomi and other plant diseases on and adjacent to the subject lot. Predict the impact of the proposal on dieback spread within and from the site in the long term and propose management to minimise the human induced spread of disease to uninfested susceptible areas
Terrestrial Fauna		Maintain the abundance, species diversity and geographical distribution of terrestrial fauna.	Conduct and present the results of a baseline study to identify existing fauna in the project area and relate the results to the fauna of the adjacent land especially the National Park. Assess the potential impacts of the proposal (direct and indirect) on fauna (local and regional, terrestrial and aquatic) as a result of the construction and operation of the entertainment venue. Identify risks of exotic species and diseases being introduced to the environment. Propose measures to manage impacts
Specially Protected (Threatened) Fauna		Protect Specially Protected (Threatened) Fauna, consistent with the provisions of the Wildlife Conservation Act 1950. • Protect Threatened Fauna and Priority Fauna species and their habitats, consistent with the provisions of the Wildlife Conservation Act 1950.	Conduct and present the results of a baseline study or targeted search by appropriately trained persons for Specially Protected (threatened) and Priority Fauna which may occur in the project area. Provide an analysis of the values of affected land as habitat for endangered fauna. Propose measures to manage impacts.

CONTENT		SCOPE OF WORK	
Factor	**Site specific factor**	**EPA objective**	**Work required for the environmental review**
Land	Erosion	Ensure that land degradation does not occur through wind or water erosion	Describe the erosion potential at the site and detail the design and management of the venue which will be used to prevent and manage the impact of potential erosion.
Wetlands	Watercourses	Maintain the integrity, functions and environmental values of watercourses. Ensure riparian vegetation on substantial streamlines is adequately protected.	Describe potential impacts on streams and other watercourses and their mitigation and / or management.
POLLUTION MANAGEMENT			
Odour	Odours generated by the nearby Red Hill waste disposal facility	Ensure that odours emanating from the nearby Red Hill waste disposal facility do not adversely affect the welfare and amenity of users of the facility	Determine whether odours from the Red Hill waste facility are a potential issue for patrons of the venue and if so, describe how the impacts from odour can be managed or how the proponent will make them aware of the issue prior to them purchasing tickets.
Dust		Ensure that the dust levels generated by the proposal do not adversely impact upon welfare and amenity or cause health problems by meeting statutory requirements and acceptable standards. Ensure that location of the venue does not allow adjoining land uses such as resource extraction to impact on patrons in a significantly adverse way.	Describe aspects of the design and management of the proposal which will minimise impacts. Provide an evaluation of the likelihood of impacts on patrons from current and potential adjacent resource extraction activities. Explain how these potential impacts will be managed.
Surface water quality		Maintain or improve the quality of surface water to ensure that existing and potential uses, including ecosystem maintenance are protected, consistent with the draft WA Guidelines for Fresh and Marine Waters (EPA, 1993) and the NHMRC / ARMCANZ Australian Drinking Water Guidelines - National Water Quality Management Strategy.	Describe aspects of the design and management of the proposal which will minimise impacts.
Pollutants	Nutrients and pesticides	Ensure that nutrient (fertiliser) and pesticides used for the establishment and management of the development do not impact adversely on flora and fauna on or adjacent to the subject land	Describe aspects of the design and management of the proposal which will minimise impacts.
Non-chemical Emissions	Noise	Protect the amenity of nearby land users (including users of John Forrest National Park) from noise impacts in accordance with the Environmental Protection (Noise) Regulations 1997. Ensure that noise emanating from the proposal does not impact on the behaviour of native animals in John Forrest National; Park in a significantly adverse way	Conduct noise measurements and undertake modelling of noise related impacts of the proposal. Describe whether or not the proposal will comply with the Noise Regulations and present a well justified case for approval through alternative regulatory means where appropriate. Consider the planned as well as the present land uses on surrounding land potentially affected by noise.
	Light overspill	Ensure that lighting associated with the facility does not unreasonably interfere with the welfare or amenity of adjacent land users including users of John Forrest National Park	Describe aspects of the design and management of the proposal which will minimise impacts

CONTENT		SCOPE OF WORK	
Factor	**Site specific factor**	**EPA objective**	**Work required for the environmental review**
SOCIAL SURROUNDINGS			
Social			
Public health and safety	Fire (risk of ignition and risk to patrons of the facility in the event of a major wildfire threatening the venue)	Ensure that risk is a slow as reasonably achievable and complies with acceptable standards including the EPA's criteria for individual fatality risk off-site, acceptable criteria for societal risk and the DME's requirements in respect of public safety.	Conduct and present the results of a study of the risk to users of the venue from wildfires and propose measures to mitigate this risk and the risk and consequences of fire ignition .
Recreation		Ensure that the proposal does not unduly compromise recreational usage of the area, as developed by planning agencies, particularly with respect to present and future users of John Forrest National Park	Discuss the potential impacts of the proposal on the recreational amenity of the nearby John Forrest National Park and propose measures to mitigate any impacts
Culture and Heritage	Aboriginal culture and heritage	(i) Ensure that the proposal complies with the requirements of the Aboriginal Heritage Act 1972; and (ii) Ensure that changes to the biological and physical environment resulting from the project do not adversely affect cultural associations with the area.	Conduct and present the results of an archaeological and ethnographic survey of the proposal area and provide evidence of consultation of relevant stakeholder groups. propose measure to manage or mitigate impacts
	European heritage	Ensure the development complies with statutory requirements in relation to areas of cultural or historic significance.	Discuss management of heritage issues
Landscape		Maintain the integrity, environmental and aesthetic values of landscape	Describe or illustrate the predicted impacts of the proposal on visual amenity and describe the management or mitigation of these impacts.
Road Transport		Ensure that road transport associated with the proposal does not result in unacceptable impacts on levels of service or safety on the existing networks.	Discuss potential impacts and their management
OTHER ADVICE			
Alternative proposals and site alternatives		Ensure that all reasonable alternatives to a proposal are considered within sound social and environmental constraints before a decision is made to adopt a proposal.	Discuss alternative sites and design concepts and explain the basis and reasons for the option selected.

These factors should be addressed within the environmental review document for the public to consider and make comment to the EPA. The EPA expects to address these factors in its report to the Minister for the Environment.

The EPA expects the proponent to take due care in ensuring any other relevant environmental factors which may be of interest to the public are addressed.

3. Availability of the environmental review

3.1 Copies for distribution free of charge

Supplied to DEP:

- Library/Information Centre.....9
- EPA members.....6
- Officers of the DEP (Perth).....6

Distributed by the proponent to:

Gov't departments
- Conservation and Land Management 3
- Water and Rivers Commission 3
- Commissioner of Soil and Land Conservation 1
- WA Police 2
- Ministry for Planning 2
- Commissioner of Soil and Land Conservation 2
- Main Roads WA 2
- WA Department of Minerals and Energy.....1

Local government authorities
- Shire of Swan.....2
- Shire of Mundaring.....2

Libraries
- J S Battye Library.....3
- The Environment Centre 2
- Midland Town Library 2

Other
- Conservation Council of WA.....1

3.2 Available for public viewing

- J S Battye Library;
- Midland Town Library; and
- Department of Environmental Protection Library.

Could you please supply the DEP's project officer for this assessment with an electronic copy of the document for use on Macintosh, Microsoft Word Version 6, and any scanned figures. Where possible, figures should be reproducible in a black and white format.

Part B: Generic Guidelines for the preparation of an environmental review document

1. Overview

All environmental reviews have the objective of protecting the environment. Environmental impact assessment is deliberately a public process in order to obtain broad ranging advice. The review requires the proponent to describe:

- the proposal;
- receiving environment;
- potential impacts of the proposal on factors of the environment; and
- proposed management strategies to ensure those environmental factors are appropriately protected.

Throughout the assessment process it is the objective of the Environmental Protection Authority (EPA) to help the proponent to improve the proposal so the environment is protected. The DEP administers the environmental impact assessment process on behalf of the EPA.

The primary purpose of the environmental review is to provide information on the proposal within the local and regional framework to the EPA, with the aim of emphasising how the proposal may impact the relevant environmental factors and how those impacts may be mitigated and managed.

The language used in the body of the environmental review should be kept simple and concise, considering the audience includes non-technical people, and any extensive, technical detail should either be referenced or appended to the environmental review. The environmental review document will form the legal basis of the Minister for the Environment's approval of the proposal and therefore should include a description of all the main and ancillary components of the proposal, including options where relevant.

Information used to reach conclusions should be properly referenced, including personal communications. Such information should not be misleading or presented in a way that could be construed to mislead readers. Assessments of the significance of an impact should be soundly based rather than unsubstantiated opinion, and each assessment should lead to a discussion of the management of the environmental factor.

2. Objectives of the environmental review

The objectives of the environmental review are to:

- place this proposal in the context of the local and regional environment;
- adequately describe all components of the proposal, so that the Minister for the Environment can consider approval of a well-defined project;
- provide the basis of the proponent's environmental management program, which shows that the environmental impacts resulting from the proposal, including cumulative impact, can be acceptably managed; and
- communicate clearly with the public (including government agencies), so that the EPA can obtain informed public comment to assist in providing advice to government.

3. Environmental management

The EPA expects the proponent to have in place an environmental management system appropriate to the scale and impacts of the proposal including provisions for performance review and a commitment to continuous improvement. The system may be integrated with quality and health and safety systems and should include the following elements:

- environmental policy and commitment;
- planning of environmental requirements;
- implementation and operation of environmental requirements;
- measurement and evaluation of environmental performance;
- review and improvement of environmental outcomes.

A description of the proposed environmental management system should be included in the environmental review documentation. If appropriate, the documentation can be incorporated into a formal environmental management system (such as AS/NZS ISO 14001). Public accountability should be incorporated into the approach on environmental management.

The environmental management program (EMP) is the key document of an environmental management system that should be adequately defined in an environmental review document. The EMP should provide plans to manage the relevant environmental factors, define the performance objectives, describe the resources to be used, outline the operational procedures and outline the monitoring and reporting procedures which would demonstrate the achievement of the objectives.

4. Format of the environmental review document

The environmental review should be provided to the DEP officer for comment. At this stage the document should have all figures produced in the final format and colours.

Following approval to release the review for public comment, the final document should also be provided to the DEP in an electronic format.

The proponent is requested to supply the project officer with an electronic copy of the environmental review document for use on Macintosh, Microsoft Word Version 6, and any scanned figures. Where possible, figures should be reproducible in a black and white format.

5. Contents of the environmental review document

The contents of the environmental review should include an executive summary, introduction and at least the following:

5.1 The proposal

A comprehensive description of the proposal including its location (address and certificate of title details where relevant) is required.

Justification and alternatives

- justification and objectives for the proposed development;
- the legal framework, including existing zoning and environmental approvals, and decision making authorities and involved agencies; and
- consideration of alternative options.

Key characteristics

The Minister's statement will bind the proponent to implementing the proposal in accordance with any technical specifications and key characteristics[1] in the environmental review document. It is important therefore, that the level of technical detail in the environmental review, while sufficient for environmental assessment, does not bind the proponent in areas where the project is likely to change in ways that have no environmental significance.

Include a description of the components of the proposal, including the nature and extent of works proposed. This information must be summarised in the form of a table as follows:

[1] Changes to the key characteristics of the proposal following final approval, would require assessment of the change and can be treated as non-substantial and approved by the Minister, if the environmental impacts are not significant. If the change is significant, it would require assessment under section 38 or section 46. Changes to other aspects of the proposal are generally inconsequential and can be implemented without further assessment. It is prudent to consult with the Department of Environmental Protection about changes to the proposal.

Table 1: Key characteristics (example only)

Element	Description
Life of project (mine production)	< 5yrs (continual operation)
Size of ore body	682 000 tonnes (upper limit)
Area of disturbance (including access)	100 hectares
List of major components • pit • waste dump • infrastructure (water supply, roads, etc)	refer plans, specifications, charts section immediately below for details of map requirements
Ore mining rate • maximum	 • 200 000 tonnes per year
Solid waste materials • maximum	 • 800,000 tonnes per year
Water supply • source • maximum hourly requirement • maximum annual requirement	 • XYZ borefield, ABC aquifer • 180 cubic metres • 1 000 000 cubic metres
Fuel storage capacity and quantity used	litres; litres per year
Heavy mineral concentrate transport • truck movements (maximum)	 • 75 return truck loads per week

Plans, Specifications, Charts

Adequately dimensioned plans showing clearly the location and elements of the proposal which are significant from the point of view of environmental protection, should be included. The location and dimensions (for progressive stages of development, if relevant) of plant, amenities buildings, accessways, stockpile areas, dredge areas, waste product disposal and treatment areas, all dams and water storage areas, mining areas, storage areas including fuel storage, landscaped areas etc.

Only those elements of plans, specifications and charts that are significant from the point of view of environmental protection are of relevance here.

Figures that should always be included are:

- a map showing the proposal in the local context - an overlay of the proposal on a base map of the main environmental constraints;
- a map showing the proposal in the regional context; and, if appropriate,
- a process chart / mass balance diagram showing inputs, outputs and waste streams.

The plan/s should include contours, a north arrow, a scale bar, a legend, grid co-ordinates, the source of the data, and a title. If the data is overlaid on an aerial photo then the date of the aerial photo should be shown.

Other logistics

- timing and staging of project; and
- ownership and liability for waste during transport, disposal operations and long-term disposal (where appropriate to the proposal).

5.2 Environmental factors

The environmental review should focus on the relevant environmental factors for the proposal, and these should be agreed in consultation with the EPA and DEP and relevant public and government agencies. Preliminary environmental factors identified for the proposal are shown in Part A of these guidelines.

Further environmental factors may be identified during the preparation of the environmental review, therefore on-going consultation with the EPA, DEP and other relevant agencies is recommended. The DEP can advise the proponent on the recommended EPA objective for any new environmental factors raised. Minor matters which can be readily managed as part of normal operations for the existing operations or similar projects may be briefly described.

Items that should be discussed under each environmental factor are:

- a clear definition of the area of assessment for this factor;
- the EPA objective for this factor;
- a description of what is being affected - why this factor is relevant to the proposal;
- a description of how this factor is being affected by the proposal - the predicted extent of impact;
- a description of where this factor fits into the broader environmental / ecological context (only if relevant - this may not be applicable to all factors);
- a straightforward description or explanation of any relevant standards / regulations / policy;
- environmental evaluation - does the proposal meet the EPA's objective as defined above;
- if not, environmental management proposed to ensure the EPA's objective is met;
- predicted outcome.

The proponent should provide a summary table of the above information for all environmental factors, under the three categories of biophysical, pollution management and social surroundings:

Table 2: Environmental factors and management (example only)

Environ-mental Factor	EPA Objective	Existing environment	Potential impact	Environ-mental management	Predicted outcome
BIOPHYSICAL					
vegetation community types 3b and 20b	Maintain the abundance, species diversity, geographic distribution and productivity of vegetation community types 3b and 20b	Reserve 34587 contains 45 ha of community type 20b and 34 ha of community type 3b	Proposal avoids all areas of community types 20b and 3b	Surrounding area will be fully rehabilitated following construction	Community types 20b and 3b will remain untouched Area surrounding will be revegetated with seed stock of 20b and 3b community types
POLLUTION MANAGEMENT					
Dust	Ensure that the dust levels generated by the proposal do not adversely impact upon welfare and amenity or cause health problems by meeting statutory requirements and acceptable standards	Light industrial area - three other dust producing industries in close vicinity Nearest residential area is 800 metres	Proposal may generate dust on two days of each working week.	Dust Control Plan will be implemented	Dust can be managed to meet EPA's objective
SOCIAL SURROUNDINGS					
Visual amenity	Visual amenity of the area adjacent to the project should not be unduly affected by the proposal	Area already built-up	This proposal will contribute negligibly to the overall visual amenity of the area	Main building will be in 'forest colours' and screening trees will be planted on road	Proposal will blend well with existing visual amenity and the EPA's objective can be met

5.3 Environmental management commitments

Environmental management commitments

The final stage of the Environmental Impact Assessment (EIA) process is reached when the Minister for the Environment issues the Ministerial statement for the project, which is a set of legally enforceable conditions and procedures for the implementation of the project. One of the standard procedures is a requirement for the proponent to implement the commitments which have been made (by the proponent) during the EIA process. It is accepted practice for a consolidated list of the proponent's commitments to be attached to the Minister's statement.

Commitment formatting

1. Commitment components

Commitments which address key environmental factors will be audited by the DEP, together with the environmental conditions. Unless the commitments are framed in a standard format, it may become difficult in practice to implement or audit them. By applying the principles of quality management, a standard format for the commitments has been arrived at. The format ensures that a chain of responsibility is established to facilitate compliance and that redundant, overlapping or non-enforceable commitments are avoided.

The required standard format for all commitments comprises a number of components as follows:

The proponent (**who**) will undertake an action (**what, how, where**) to meet an environmental objective (**why**) to a time frame (**when**), and on advice of somebody (**to whom**, eg. third party, government agencies such as Department of Conservation and Land Management, Department of Minerals and Energy, Water and Rivers Commission, Shire Council). With regard to 'whom' this need only be included if the expertise of a third party is relevant to implementing the commitment.

It is important for the consolidated list of commitments to be numbered correctly for easy reference in the implementation and auditing stages of the project. These should therefore be sequentially numbered 1, 2, 3, ... without use of subgroups such as 1.1, 1.2 or 2(i) or 2(a), 2(b).

2. Paragraph format

In applying the standard components (who, what, why, how, where, when, to whom) an example of a commitment in paragraph form is as follows:

The proponent will prepare and implement a Dust Control Program which will minimise dust generation on-site and prevent dust emission from construction of the foreshore extension in order to protect the amenity of nearby land users. The Program will be prepared during the design (project planning) phase and will meet EPA dust control criteria (EPA, 1996), on advice of the Shire of Widgiemooltha. The approved Program will be implemented during the construction phase.

However in writing the commitment in paragraph form, a confusing or clumsy sentence structure can result that may be difficult to interpret for future auditing purposes. Also it is difficult to verify that all components have been incorporated into every commitment. A paragraph format is therefore not the preferred format.

3. Tabular format

Due to the limitations of the paragraph format, it is preferable to format a commitment in tabular form. It is recommended that the table column headings be ordered as: 'commitment number', 'topic', 'action', 'objective', 'timing' and 'advice'. However table headings can be re-ordered if necessary.

The example in paragraph form on page 1 can therefore be written in tabular form as per examples 1 and 2 below. Note that the tabular format makes it easier to ensure that no component of the commitment is left out and that each action is recognised as a separate commitment. This format also permits the inclusion of additional clauses or more precise wording of clauses which can be difficult in a sentence structure. It is acceptable for table columns to be re-ordered if necessary. Finally, the tabular format provides an immediate audit framework for use by the proponent and the DEP, enabling efficient administration of environmental approvals.

Examples 1 & 2.

The proponen' is committed to the following:

No.	Topic	Action **(What/How/Where)**	Objective/s **(Why)**	Timing **(When)**	Advice **(To whom)**
1.	Dust management	Prepare a Dust Control Program for the foreshore construction site which addresses: 1) abc 2) xyz	• Minimise dust during the construction phase • Maintain the amenity of nearby land users • To meet EPA dust control criteria	Pre-construction	Shire
2.	Dust management	Implement the approved Dust Control Program	Achieve the objectives of Commitment 1	Construction	-

Example 3.

No.	Topic	Action	Objective/s	Timing	Advice

3.	Fauna protecito n	Undertake a trapping programme for capturing and relocating the Southern Brown Bandicoots	Minimise impact on Southern Brown Bandicoots	Pre-construction (prior to commencement of ground disturbance)	CALM

Example 4.

No.	Topic	Action	Objective/s	Timing	Advice
4.	Vege-tation	Revegetate disturbed areas with vegetation types indigenous to the area	• To minimise impact on local flora • To achieve the completion criteria stated in CER (Section 5.1.1)	Post-construction (progressively during operations)	Kings Park Board

Example 5.

No	Topic	Objective	Action	Timing	Advice
5.	Groundwater	Minimise impact on groundwater levels, surface water levels and surrounding vegetation	Groundwater drawdown shall not exceed 0.5 m at any boundary of the mine site	Operation	Water and Rivers Commission

Example 6.

No.	Topic	Action	Objective	Timing	Advice
6.	Clean-up	Post-clean up activities will only proceed after demonstrating to (and gaining approval from) the DEP that the site clean-up criteria identified in the 1993 CER have been met	To achieve the soil quality objectives in the Australian and New Zealand Guidelines for the Assessment and Management of Contaminated Sites, Jan 1992	Post-clean up (On completion of cleanup and prior to commencement of post-cleanup activities)	–

5.4 Public consultation

A description should be provided of the public participation and consultation activities undertaken by the proponent in preparing the environmental review. It should describe the activities undertaken, the dates, the groups/individuals involved and the objectives of the activities. Cross reference should be made with the description of environmental management of the factors which should clearly indicate how community concerns have been addressed. Those concerns which are dealt with outside the EPA process can be noted and referenced.

5.5 Other information

Additional detail and description of the proposal, if provided, should go in a separate section.

Attachment 1

The first page of the proponent's environmental review document must be the following invitation to make a submission, with the parts in square brackets amended to apply to each specific proposal. Its purpose is to explain what submissions are used for and to detail why and how to make a submission.

Invitation to make a submission

The Environmental Protection Authority (EPA) invites people to make a submission on this proposal.

[the proponent] proposes [the rezoning of land and the development of a Marina Complex in the City of Bunbury]. In accordance with the Environmental Protection Act, a [PER] has been prepared which describes this proposal and its likely effects on the environment. The [PER] is available for a public review period of [8] weeks from [**date**] closing on [**date**].

Comments from government agencies and from the public will help the EPA to prepare an assessment report in which it will make recommendations to government.

Why write a submission?

A submission is a way to provide information, express your opinion and put forward your suggested course of action - including any alternative approach. It is useful if you indicate any suggestions you have to improve the proposal.

All submissions received by the EPA will be acknowledged. Submissions will be treated as public documents unless provided and received in confidence subject to the requirements of the Freedom of Information Act, and may be quoted in full or in part in the EPA's report.

Why not join a group?

If you prefer not to write your own comments, it may be worthwhile joining with a group interested in making a submission on similar issues. Joint submissions may help to reduce the workload for an individual or group, as well as increase the pool of ideas and information. If you form a small group (up to 10 people) please indicate all the names of the participants. If your group is larger, please indicate how many people your submission represents.

Developing a submission

You may agree or disagree with, or comment on, the general issues discussed in the [PER] or the specific proposals. It helps if you give reasons for your conclusions, supported by relevant data. You may make an important contribution by suggesting ways to make the proposal more environmentally acceptable.

When making comments on specific elements of the [PER]:

- clearly state your point of view;
- indicate the source of your information or argument if this is applicable;
- suggest recommendations, safeguards or alternatives.

Points to keep in mind

By keeping the following points in mind, you will make it easier for your submission to be analysed:

- attempt to list points so that issues raised are clear. A summary of your submission is helpful;
- refer each point to the appropriate section, chapter or recommendation in the [PER];
- if you discuss different sections of the [PER], keep them distinct and separate, so there is no confusion as to which section you are considering;
- attach any factual information you may wish to provide and give details of the source. Make sure your information is accurate.

Remember to include:

- your name;
- address;
- date; and
- whether you want your submission to be confidential.

The closing date for submissions is: **[date]**

Submissions should be addressed to:

The Environmental Protection Authority
Westralia Square
141 St George's Terrace
PERTH WA 6000

Attention: **[Project Officer name]**

Attachment 2

Advertising the environmental review

The proponent is responsible for advertising the release and arranging the availability of the environmental review document in accordance with the following guidelines:

Format and content

The format and content of the advertisement should be approved by the DEP before appearing in the media. For joint State-Commonwealth assessments, the Commonwealth also has to approve the advertisement. The advertisement should be consistent with the attached example.

Note that the DEP officer's name should appear in the advertisement.

Size

The size of the advertisement should be two newspaper columns (about 10 cm) wide by about 14 cm long. Dimensions less than these would be difficult to read.

Location

The approved advertisement should, for CER's, appear in the news section of the main local newspaper and, for PER's and ERMP's, appear in the news section of the main daily paper's ("The West Australian") Saturday edition, and in the news section of the main local paper at the commencement of the public review period and again two weeks prior to the closure of the public review period.

Timing

Within the guidelines already given, it is the proponent's prerogative to set the time of release, although the DEP should be informed. The advertisement should not go out before the report is actually available, or the review period may need to be extended.

Example of the newspaper advertisement

Proponent Name

Consultative/Public/ Environmental Review/and Management Programme

TITLE OF PROPOSAL

(Public Review Period: **[date]** to **[date]**)

Proponent is planning to brief description of proposal.

A Consultative Environmental Review (CER)/Public Environmental Review (PER)/Environmental Review and Management Programme (ERMP) has been prepared by the company to examine the environmental effects associated with the proposed development, in accordance with Western Australian Government procedures. The CER/PER/ERMP describes the proposal, examines the likely environmental effects and the proposed environmental management procedures.

Proponent has prepared a project summary which is available free of charge from the company's office address.

Copies of the CER/PER/ERMP may be purchased for $5/$10 from:

Company Name
Street
Suburb/Town WA Postcode
Telephone: (08) 9xxx xxxx

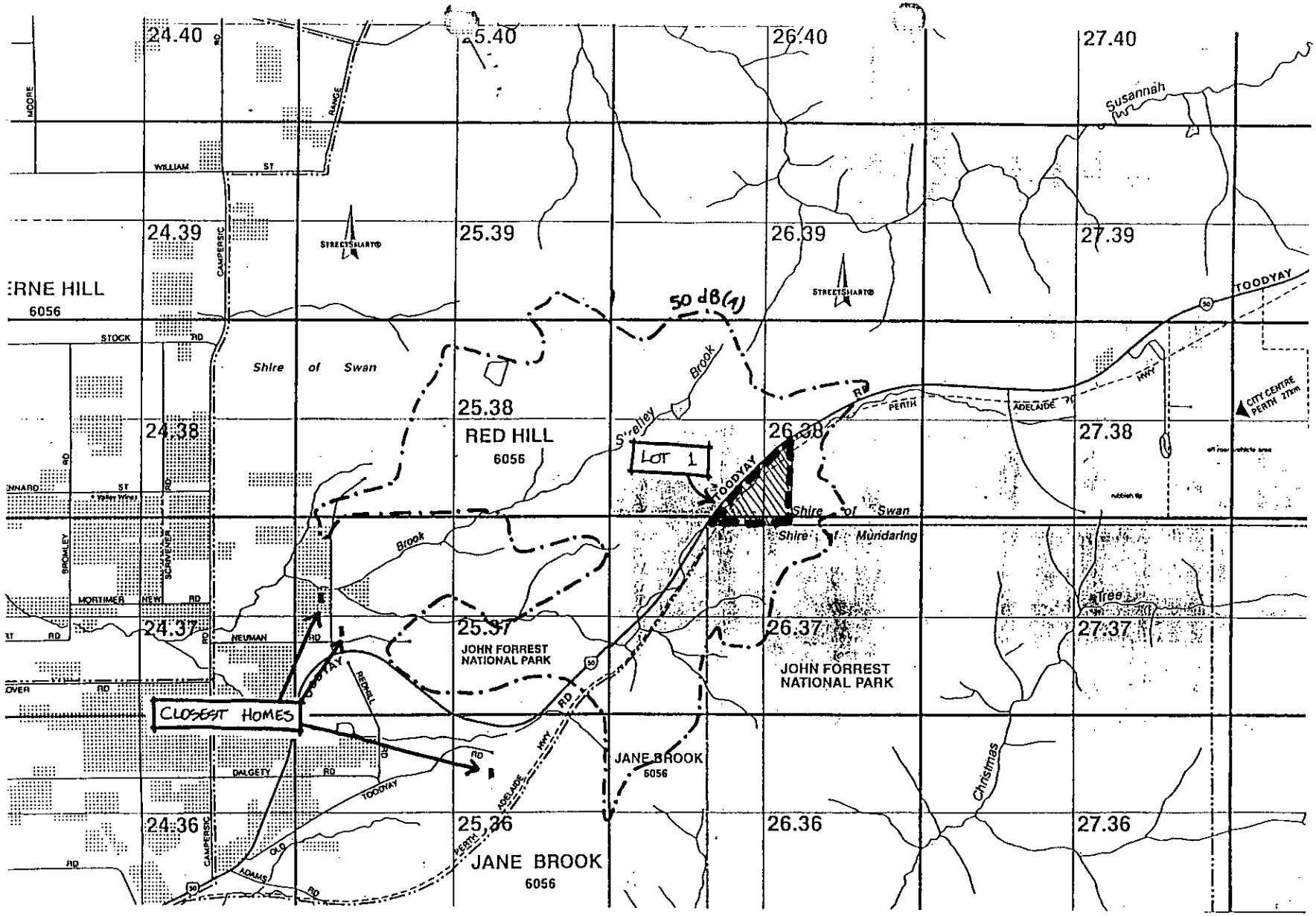
Copies of the complete CER/PER/ERMP will be available for examination at:

- Department of Environmental Protection
  Library Information Centre
  8th Floor, Westralia Square
  141 St Georges Terrace
  PERTH WA 6000
- Department of Environmental Protection
  Regional Office - if appropriate
- Relevant local libraries

Submissions on this proposal are invited by **[closing date]**. Please address your submission to:

Chairman
Environmental Protection Authority
8th Floor, Westralia Square
141 St Georges Terrace
PERTH WA 6000
Attention: **[Project Officer name]**

If you have any questions on how to make a submission, please ring the project officer, **[Project Officer name]**, on (08) 9222 7xxx.



ATTACHMENT 3

STATEWEST SURVEYING & PLANNING

Licensed Surveyors & Town Planners

Directors: B.A. Hunt & R.J.M. Rogers
Associates: P. Incerti, S.E. O'Hara & L.G. Smith
Telephone: (08) 9274 3198 *Email:* statewest@statewes...
Mid... House P.O. Box 1377, Midland WA 6936
69 Great Northern Highway, Midland
Facsimile: (08) 9274 6592

LOCATION PLAN - LOT 1 TOODYAY RD, RED HILL
PROPOSED ENTERTAINMENT VENUE

SCALE	DATE	DRAWN	CHECKED	REFERENCE	SHE
1:25	MAY '99	SOH		12354	