

**Clay excavation, part lot 1 and lots 222, 27, 26, 25,  
28, and 7 Hallett and Copley roads, Upper Swan**

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**Midland Brick Company Pty Ltd**

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

**Environmental Protection Authority  
Perth, Western Australia  
Bulletin 599  
December, 1991**

## THE PURPOSE OF THIS REPORT

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

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

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

## APPEALS

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

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

## ADDRESS

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

## CLOSING DATE

Your appeal (with the \$10 fee) must reach the Minister's office no later than 5.00 p.m. on 20 December 1991.

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## Summary and recommendations

Midland Brick Company Pty Ltd currently excavate clay for making bricks in a quarry located near Hallett and Copley roads, just east of Great Northern Highway and about 12 km north of Midland Junction. The environmental impact of the project was previously assessed by the former Department of Conservation and Environment in 1982, prior to the Metropolitan Region Planning Authority giving the project approval for a 30 year term.

An application for Renewal of Excavation Licence by Midland Brick Company Pty Ltd was referred to the Environmental Protection Authority by the Shire of Swan in August, 1990. The Authority has assessed the environmental impact of the proposal by way of a Consultative Environmental Review, in conjunction with four other nearby clay excavation proposals which, together with this proposal, were thought to potentially impact on Ellen Brook Nature Reserve and to have common regional issues of rehabilitation and final end use.

Ellen Brook Nature Reserve contains a specially fenced-off area which has been set aside by the State Government for the protection of the rare and endangered Western Swamp Tortoise (commonly referred to as the short necked tortoise). This habitat area contains the only known population of naturally occurring short necked tortoises in the world (about 20 to 30 animals).

### Major issues

*The Environmental Protection Authority is concerned to ensure that the clay excavation does not jeopardise the survival of the short necked tortoise, either by muddy runoff water entering the reserve during winter, or by interference to the hydrology of the habitat area.*

Recent detailed hydrological studies, which were conducted for other clay excavation proposals around the tortoise habitat further to the north, have confirmed that:

- **surface catchment waters from the Hallett Road/Copley Road excavation are completely separate from the surface water north of Coondaree Swamp which drains into the Ellen Brook Nature Reserve;**
- **during high rainfall conditions, surface waters from the Hallett/Copley Road area drain south into the Swan River, after flowing through sedimentation traps to remove silt; and**
- **there is no hydrological connection between the Hallett/Copley Road excavations and the tortoise habitat area.**

This conclusion has been supported by the Geological Survey of Western Australia in its submission to the Authority.

*After the excavations cease, the resultant end use, such as residential, should not be allowed to indirectly lead to impacts on the short necked tortoise.*

The Environmental Protection Authority previously made recommendations in 1983 that ways and means of providing a protective buffer zone around Ellen Brook Nature Reserve be sought through planning procedures.

The proponent has made the following commitments:

- **to consult with planning authorities to facilitate the derivation of a long term strategic plan for the Upper Swan locality which recognizes and accepts the interim priority land use of clay extraction; and**
- **to ensure that the company's present rehabilitation concept is consistent with the overall rehabilitation goal for the locality once this has been formally agreed to by the parties concerned.**

These commitments have been further strengthened by:

- **the Authority's recommendation in this report for the proponent to contribute to the joint preparation of a regional development, drainage and rehabilitation strategy for the Upper Swan locality by all the clay excavation proponents in the area, in consultation with government authorities, and within two years time.**

*Public submissions suggested that the Swan Valley area is known to have sites of major Aboriginal significance in both archaeological and ethnographic terms, yet no information was provided in the proponent's CER relating to Aboriginal sites.*

The Authority suggests that the proponent discuss with the Department of Aboriginal Sites of the West Australian Museum appropriate ways of complying with the provisions of the Aboriginal Heritage Act 1972-80.

*The Environmental Protection Authority is concerned with the magnitude of the project and its impact on the environment in the long term. Furthermore, the Authority believes that environmental protection standards expected by the community have risen since the project was last assessed by the Department of Conservation and Environment in 1982.*

The Environmental Protection Authority has recommended that, within six months of approval of this application and in consultation with the appropriate government authorities, Midland Brick Company Pty Ltd should prepare an Environmental Management Programme to the satisfaction of the Minister for the Environment. This programme should enable the company to detect, report on, and manage any impacts, and remedy any unacceptable impacts on the environment by this proposal. The programme should be implemented and periodically reviewed to the satisfaction of the Environmental Protection Authority. Plans to be prepared as part of the Environmental Management Programme should include a staged quarrying strategy, excavation and rehabilitation procedures, drainage management, protection of groundwater, lakewater management, end use and progressive rehabilitation of the site, noise, dust and visual impacts associated with the quarrying and transportation operations, and public safety and social impacts.

The Environmental Protection Authority recognises the very rare and endangered status of the short necked tortoise, and the requirement to protect its habitat. Accordingly, the Authority has set a very high onus of proof on this and other nearby quarrying proposals, to demonstrate that there will be no adverse impacts on the tortoises and their habitat. It is only after detailed study that the Authority considers that the proposal would not have any adverse impacts and therefore could proceed.

Accordingly, the Authority makes the following conclusions and recommendations:

#### **Recommendation 1**

The Environmental Protection Authority concludes that the proposal by Midland Brick Company Pty Ltd to continue to quarry clay on Part Lot 1 and Lots 222, 27, 26, 25, 28, and 7, as outlined in the Consultative Environmental Review, is environmentally acceptable.

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

- impact on the local environment;
- impact on the nearby habitat of the endangered Western Swamp Tortoise, *Pseudemydura umbrina*;
- protection of Aboriginal sites;
- need for a regional development, drainage and rehabilitation strategy for the area.

The Environmental Protection Authority considers that these issues are manageable, either by the environmental management commitments given by the proponent, or by the Environmental Protection Authority's recommendations in this report.



Accordingly, the Environmental Protection Authority recommends that the proposal could proceed, subject to the proponent's commitments (Appendix 1) and the Environmental Protection Authority's recommendations in this report. Approval for the proposal should be for a maximum of 10 years from the time of approval. Subsequent applications will be reviewed in the light of the proponent's environmental performance at the site.

### **Recommendation 2**

The Environmental Protection Authority recommends that, within six months of approval of this application and in consultation with the appropriate government authorities, Midland Brick Company Pty Ltd should prepare an Environmental Management Programme to the satisfaction of the Minister for the Environment. This programme should enable the proponent to detect, report on, and manage any impacts, and remedy any unacceptable impacts on the environment by this proposal. The programme should be implemented and periodically reviewed to the satisfaction of the Environmental Protection Authority. Plans to be prepared as part of the Environmental Management Programme should include, but not necessarily be limited to:

- a staged quarrying strategy;
- excavation and rehabilitation procedures;
- drainage management;
- protection of groundwater;
- lakewater management;
- end use and progressive rehabilitation of the site;
- noise, dust and visual impacts associated with the quarrying and transportation operations; and
- periodic reporting of monitoring results and consequential changes to environmental management.

### **Recommendation 3**

The Environmental Protection Authority recommends that Midland Brick Company Pty Ltd, in consultation with the Department of Conservation and Land Management, the Department of Planning and Urban Development, the Shire of Swan, and other affected parties, including current and proposed clay excavation proponents, should contribute to the preparation of a regional development, drainage and rehabilitation strategy for the Upper Swan locality between Ellen Brook and the Swan River, within two years of approval of this proposal and to the satisfaction of the Environmental Protection Authority.

# 1. Introduction and background

Midland Brick Company Pty Ltd currently excavate clay for brick making purposes in a quarry located near Hallett and Copley roads, just east of Great Northern Highway and about 12km north of Midland Junction (Figure 1).

The environmental impact of the project was previously assessed by the Department of Conservation and Environment in 1982. Prior to the Metropolitan Region Planning Authority giving the project approval for a 30 year term, the Department provided advice (Appendix 2) in regard to the rehabilitation programme, end use of the land, aesthetics, lakewater quality and discharges to the Swan River, groundwater impacts, and the foreshore reserve to the Swan River.

An application for Renewal of Excavation Licence by Midland Brick Company Pty Ltd (Midland Brick) was referred to the Environmental Protection Authority by the Shire of Swan in August, 1990. The Authority determined that a formal level of assessment was necessary, to allow the Minister for the Environment to set environmental conditions on the project. Four other nearby clay excavation proposals, also in the vicinity of the Ellen Brook Nature Reserve (Figure 1), are also subject to formal assessment (by way of Consultative Environmental Reviews). The Authority considered that the issues for this particular proposal are of a regional nature, involving final land use and interaction between the other clay excavation proponents in the broad area surrounding the tortoise habitat.

Ellen Brook Nature Reserve contains a specially fenced-off area which has been set aside by the State Government for the protection of the rare and endangered Western Swamp Tortoise (commonly referred to as the short necked tortoise). This habitat area contains the only known population of naturally occurring short necked tortoises in the world (about 20 to 30 animals). Another population of about 150 short necked tortoises used to exist in the nearby Twin Swamps Nature Reserve in 1963, but by 1985 the population was virtually extinct. The presence of exotic predators (foxes, dogs and pigs particularly) and lower rainfall are thought to be the main factors in their loss.

In its report titled "Conservation Reserves for Western Australia - the Darling System - System 6" (commonly referred to as the "Red Book") in 1983, the Environmental Protection Authority recommended that ways and means of providing protective buffer areas around both Ellen Brook and Twin Swamps Nature Reserves (M17) be sought through planning procedures. Furthermore, in August, 1989, the Authority advised the proponents of the four clay excavation proposals around the tortoise habitat that, prior to assessing their individual proposals, a study of the water relationships associated with Ellen Brook Nature Reserve would need to be undertaken. This work was subsequently carried out and reported in a joint Consultative Environmental Review for the four clay excavations, which are being assessed by the Authority in parallel with this proposal.

## 2. Project description

The area encompassed by the proposed excavation covers about 70 hectares, and incorporates Part Lot 1 and Lots 222, 27, 26, 25, 28, and 7. By 1990 the excavation, which had commenced on Part Lot 1 near Glen Road, had progressed eastwards through to the adjoining Lot 27. Figure 2 shows the likely sequence of development.

About 4.5 metres of soil and overburden are removed, prior to excavation of an average thickness of 5 metres of clay, which is then transported from the site. After overburden and soil have been returned to the new surface and the rehabilitation completed, the water table lies between 2.5 and 10 metres below the surface.

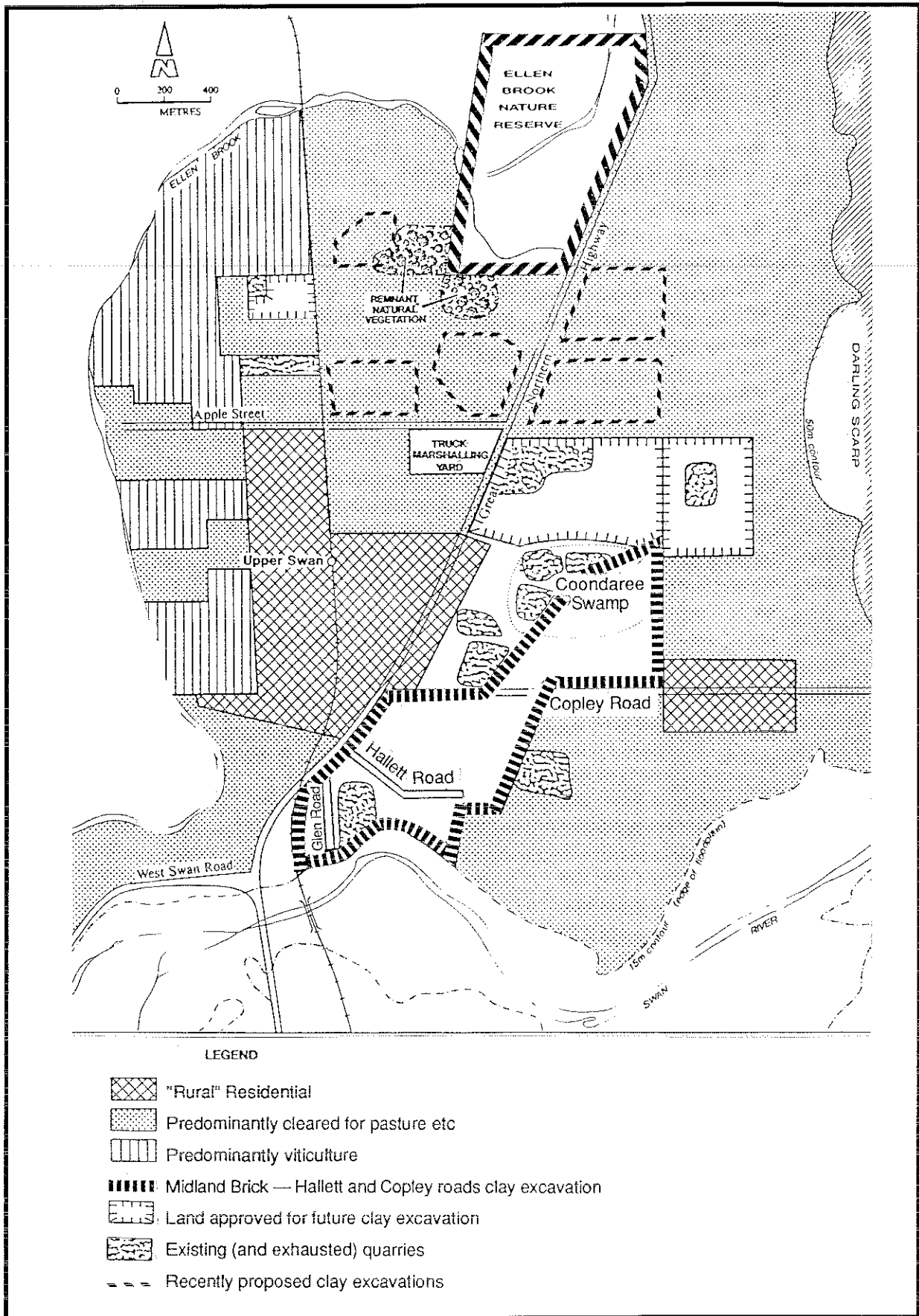


Figure 1. Land use in the vicinity of Ellen Brook Nature Reserve, showing current and proposed clay excavations.

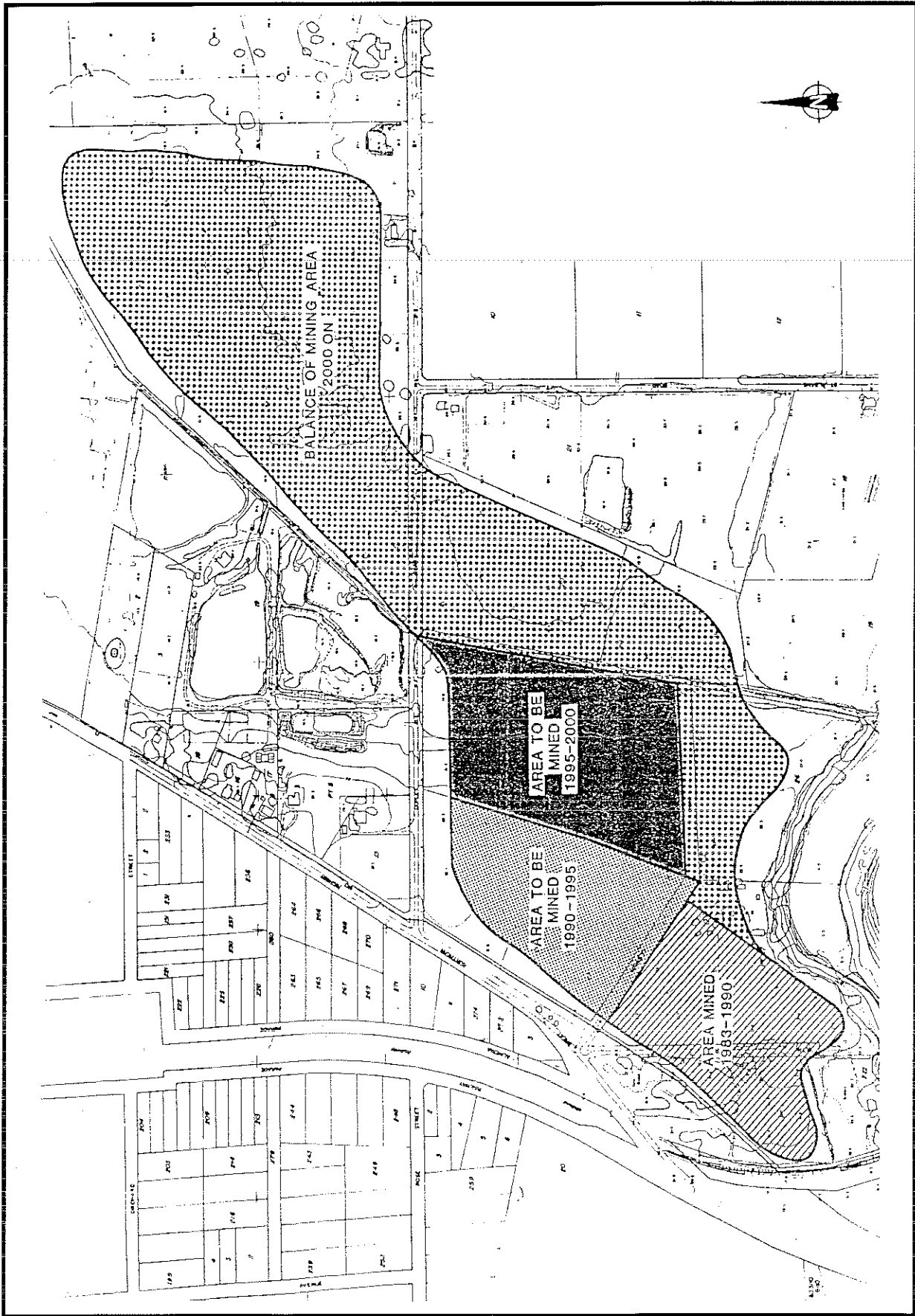


Figure 2. Staging plan for clay excavation, corner of Hallett and Copley roads

### **3. Public consultation**

The proponent prepared a brief document for the Consultative Environmental Review which was released for public review in October, 1990. Four Government submissions and one private submission were received by the Authority.

The clay excavation proposal was amongst about 70 proposals that were selected for expedited assessment at this time. However, due to the complex nature of the clay excavation proposals, the Authority determined that its assessment of the issues was not amenable to the expedited process, and the proposals were removed from the "expedited list".

A more detailed submission was recently sought from the Department of Planning and Urban Development in July, 1991, as planning issues formed a major part of the assessment.

### **4. Environmental impacts and management**

#### **4.1 Local environmental impacts**

The development lies completely within a single drainage catchment, referred to as the Darling Scarp -Upper Swan South Catchment in Figure 3. Since 1987, all surface runoff from this catchment has been directed into Midland Brick's first stage of excavation on Lot 27. A sedimentation basin and silt trap has been installed by the company, and any overflow is through a pipe into the Swan River. The discharge is licensed by the Swan River Trust. The proponent has given a commitment in the CER to comply with excavation licence conditions negotiated with the Shire of Swan and in consultation with the Environmental Protection Authority and the Swan River Trust.

Midland Brick propose to rehabilitate the excavations to a system of interconnected lakes. The company has also given notice that, as a result of recent additional land acquisitions in the area, they intend to expand the mining and lakes project. A formal submission is expected to be lodged with the Shire of Swan soon.

The Environmental Protection Authority is concerned with the magnitude of project and its impact on the environment in the long term. Furthermore, the Authority believes that environmental protection standards expected by the community have risen since the project was last assessed by the Department of Conservation and Environment in 1982. The Authority considers that the proponent should monitor and manage the impact of its activities on the local environment. These include effects on drainage, quality of lakewater and discharges to the Swan River, groundwater impacts, excavation and rehabilitation procedures, end use of the rehabilitated sites, noise, dust and visual impacts, and local planning impacts.

The Authority considers that Midland Brick should prepare an Environmental Management Programme within six months of approval, to take into account the above issues. The programme should be prepared in consultation with the appropriate government authorities, including the Shire of Swan, the Department of Conservation and Land Management, the Water Authority of Western Australia, the Geological Survey of Western Australia, and the Swan River Trust. The proponent should carry out the programme to the satisfaction of the Environmental Protection Authority and review it on a regular basis.

#### **4.2 Drainage impacts on Ellen Brook Nature Reserve**

A preliminary study commissioned by the proponents in 1982 indicated that clay mining in the vicinity of Hallett and Copley roads should not impact on the Ellen Brook Nature Reserve. This conclusion has been supported by more detailed studies in 1990, which were conducted for the clay excavation proposals further to the north. The studies have shown that the Hallett Road/Copley Road excavation is completely separate from the surface water north of Coondaree Swamp which, until now, drains into the Ellen Brook Nature Reserve. This conclusion has been supported by the Geological Survey of Western Australia in their submission to the Authority.

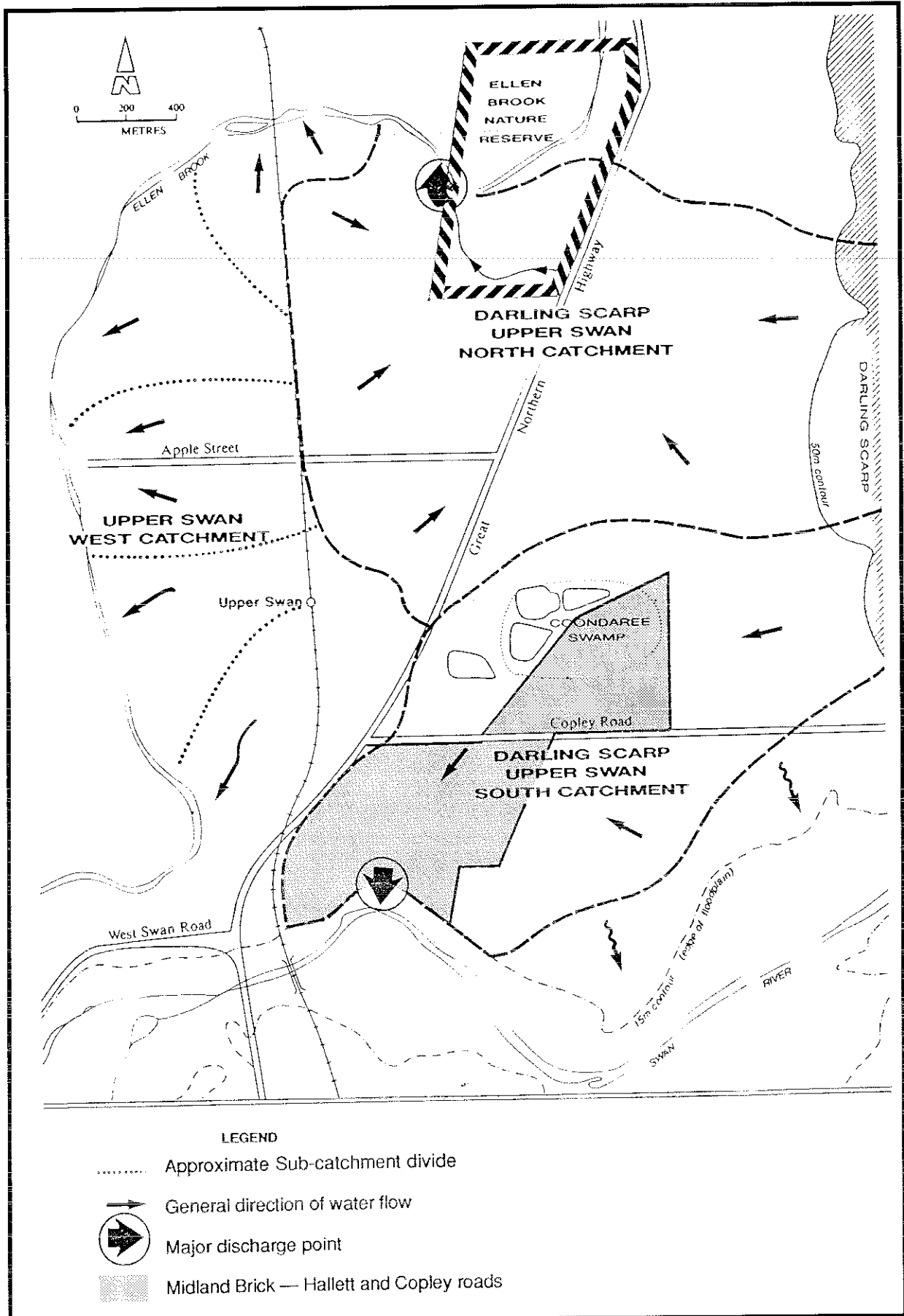


Figure 3. Surface water catchments between Ellen Brook and the Swan River.

### **4.3 Aboriginal sites**

No information was provided in the proponent's CER relating to Aboriginal sites. The Department of Aboriginal Sites of the Western Australian Museum has advised the Authority that the Swan Valley area is known to have sites of major Aboriginal significance, in both archaeological and ethnographic terms. The Department of Aboriginal Sites has suggested that a survey of such sites should be carried out prior to approval, and it may also be desirable to carry out some monitoring of subsurface material during excavation.

The Authority considers that the proponent should comply with the requirements of the Aboriginal Heritage Act 1972-80 with respect to archaeological and ethnographic sites.

### **4.4 Regional development, drainage and rehabilitation**

The Authority is concerned about the large extent of land likely to be affected by future proposals for clay extraction in the area between the Swan River and Ellen Brook. These clay excavations are within an important resource area identified by the Department of Planning and Urban Development in its Basic Raw Materials Policy for the State.

In its submission to the Authority, the Department of Planning and Urban Development has indicated the following:

- any structure plan for the locality would reflect the need to protect the clay resource areas from incompatible developments;
- only limited future urban development will occur in the Upper Swan locality, due to the need to protect the clay resource, and the remoteness of the area from the existing sewerage system;
- the Department would most likely not support the subdivision of existing rural lots in the immediate locality of the clay excavations into "Special Rural" sized lots, as this would lead to more intensive uses that would be incompatible with the clay excavation operations and possibly prejudice future long term planning options for the locality;
- It would be appropriate for the proponents of the different excavation proposals to prepare a comprehensive long term rehabilitation/development strategy for the locality, in consultation with the Council, Environmental Protection Authority and the Department of Planning and Urban Development. The strategy could be based on transforming the excavation sites into a wetland system surrounded by compatible recreation and tourism developments.

The Authority notes the proponent's commitment to consult with planning authorities to facilitate the derivation of a long term strategic plan for the Upper Swan locality which recognizes and accepts the interim priority land use of clay extraction. Midland Brick is also committed to ensure that their present rehabilitation concept is consistent with the overall rehabilitation goal for the locality once this has been formally agreed to by the parties concerned.

The Authority considers that the proponents of all clay excavations in the Upper Swan locality should jointly prepare a regional development, drainage and rehabilitation plan for the locality, and the objectives of the plan should include the protection of the habitat of the Western Swamp Tortoise.

## **5. Conclusions**

**The Environmental Protection Authority recognises the very rare status of the short necked tortoise, and the requirement to protect its habitat. Accordingly, the Authority has set a very high onus of proof on this and other nearby quarrying proposals, to demonstrate that there will be no adverse impacts on the tortoises and their habitat. It is only after detailed study that the Authority considers that the proposal would not have any adverse impacts and therefore could proceed.**

Accordingly, the Authority makes the following conclusions and recommendations:

### **Recommendation 1**

The Environmental Protection Authority concludes that the proposal by Midland Brick Company Pty Ltd to continue to quarry clay on Part Lot 1 and Lots 222, 27, 26, 25, 28, and 7, as outlined in the Consultative Environmental Review, is environmentally acceptable.

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

- impact on the local environment;
- impact on the nearby habitat of the endangered Western Swamp Tortoise, *Pseudemydura umbrina*;
- protection of Aboriginal sites;
- need for a regional development, drainage and rehabilitation strategy for the area.

The Environmental Protection Authority considers that these issues are manageable, either by the environmental management commitments given by the proponent, or by the Environmental Protection Authority's recommendations in this report.

Accordingly, the Environmental Protection Authority recommends that the proposal could proceed, subject to the proponent's commitments (Appendix 1) and the Environmental Protection Authority's recommendations in this report. Approval for the proposal should be for a maximum of 10 years from the time of approval. Subsequent applications will be reviewed in the light of the proponent's environmental performance at the site.

### **Recommendation 2**

The Environmental Protection Authority recommends that, within six months of approval of this application and in consultation with the appropriate government authorities, Midland Brick Company Pty Ltd should prepare an Environmental Management Programme to the satisfaction of the Minister for the Environment. This programme should enable the proponent to detect, report on, and manage any impacts, and remedy any unacceptable impacts on the environment by this proposal. The programme should be implemented and periodically reviewed to the satisfaction of the Environmental Protection Authority. Plans to be prepared as part of the Environmental Management Programme should include, but not necessarily be limited to:

- a staged quarrying strategy;
- excavation and rehabilitation procedures;
- drainage management;
- protection of groundwater;
- lakewater management;
- end use and progressive rehabilitation of the site;
- noise, dust and visual impacts associated with the quarrying and transportation operations; and
- periodic reporting of monitoring results and consequential changes to environmental management.



### **Recommendation 3**

**The Environmental Protection Authority recommends that Midland Brick Company Pty Ltd, in consultation with the Department of Conservation and Land Management, the Department of Planning and Urban Development, the Shire of Swan, and other affected parties, including current and proposed clay excavation proponents, should contribute to the preparation of a regional development, drainage and rehabilitation strategy for the Upper Swan locality between Ellen Brook and the Swan River, within 2 years of approval of this proposal and to the satisfaction of the Environmental Protection Authority.**

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The Authority considers that any approval for the proposal based on this assessment should be limited to five years. Accordingly, if the proposal has not been substantially commenced within five years of the date of this report, then such approval should lapse. After that time, further consideration of the proposal should occur only following a new referral to the Authority.

The Authority notes that during the detailed implementation of proposals, it is often necessary to make minor and non-substantial changes to the designs and specification which have been examined as part of the Authority's assessment. The Authority considers that subsequent statutory approvals for this proposal could make provision for such changes, where it can be shown that the changes are not likely to have a significant effect on the environment.

## **Appendix 1**

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### **Environmental management commitments by Midland Brick Company Pty Ltd**



In addition to the conditions of their existing approval, Midland Brick Company Pty Ltd agree to:

- (i) Consult with planning authorities to facilitate the derivation of a long term strategic plan for the Upper Swan locality which recognizes and accepts the interim priority land use of clay extraction.
- (ii) Ensure that the company's present rehabilitation concept is consistent with the overall rehabilitation goal for the locality once this has been formally agreed by the parties concerned.
- (iii) Comply with excavation licence conditions negotiated with the Shire of Swan and in consultation with the Environmental Protection Authority and the Swan River Trust.



## **Appendix 2**

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**Advice by the Department of Conservation and Environment  
to the Metropolitan Region Planning Authority, 1982**



ACTING SECRETARY  
METROPOLITAN REGION  
PLANNING AUTHORITY

21-1750-1  
1-5/81 PH:JA  
Paul Holmes

ATTENTION : MR N. AYTON

PROPOSED CLAY EXCAVATION, UPPER SWAN - MIDLAND BRICK COMPANY

The delay in responding to the Authority's request for comments on this proposal is regretted. However, the proposal raises a number of important issues and the Department has been liaising with the Company on these matters. Basically, the Department considers that additional information is required on various aspects of the proposed operation. It is, however, acknowledged that this information may not be available at this time and might only become available following initiation of appropriate monitoring programmes once excavation is underway. The issues considered to require clarification are discussed hereunder.

1. Method of operation - the progressive excavation/rehabilitation programme appears acceptable assuming adequate supplies of topsoil for respreading are stripped prior to excavation. Operational procedure should also include deep ripping of areas that are to be revegetated but which have been compacted by vehicle and machinery movements. It is presumed that deep ripping will occur but confirmation is required.
2. End use - the proponent's engineering consultant acknowledges that future land use in areas adjoining the operation site is an important consideration in terms of establishing appropriate rehabilitation parameters for the proposed lakes. Lands affected by the proposal are presently zoned "Rural" under both the local authority Town Planning Scheme and the Metropolitan Region Scheme. It would be best to consider this development only in relation to its current zoning although the proposal canvasses various alternatives.



3. Finished contours - clearly, this issue is closely related to and can only be resolved in conjunction with the above discussed matter of site end use. Plans of the finished landform suggest that the recontoured site should meld satisfactorily with the surrounding landscape. Nevertheless, information concerning the proposed grades of the lake embankments and bed formation is somewhat confusing, the plans submitted indicating highly variable grades while slopes in the order of 1 in 6 are suggested in the engineering consultant's report. More detailed cross sections of the lakes should be provided.
4. Water quality - conclusions concerning maintenance of water quality in the lakes are seemingly based on uniform movement within the water column throughout the entire system of lakes. The effect of variations in water depth, and chemical and physical stratification within the water column needs to be considered. Further, if the nearby lakes created by clay excavations are to be cited in support of this proposal, their comparability with the proposed lakes and sustained high water quality therein should be demonstrated.

Turbidity is another aspect of lake water quality requiring attention. Low salinity levels in lake water (probably less than 300 p.p.m) means that turbidity could remain high. The possibility of turbid lakes is understood to be of concern to the proponents as this would downgrade the aesthetic quality of the lake system. However, the Department's concern in relation to water quality in the lake system is twofold:

- the system has an outfall to the Swan River and therefore, any problems that arise would not necessarily be confined to the lakes;
- the issue of who would be responsible for remedial works should problems arise with the lakes has not been addressed.

Perhaps the most appropriate means of addressing the water quality issue at this juncture would be for the Swan River Management Authority to identify suitable standards with which any discharge to the Swan River must comply.

5. Groundwater - it is acknowledged that the excavation should not directly interfere with groundwater. However, the removal of some 5.6 million cubic metres of clay and overburden material and its replacement by a lake complex would cause a considerable reduction in the weight of material overlying the aquifer and this may in turn affect its performance. Even assuming that all the overburden is replaced in the excavation and that as much as one third of the volume of clay removed is replaced with water, the weight differential would be in the order of 10,000 tonnes/hectare.

6. Monitoring - the proponent's engineering consultant concludes that:

"Monitoring of the seasonal groundwater levels, the rainfall-runoff characteristics of the catchment, and the seasonal runoff water quality will be necessary over a period of several years to enable the final design of the lake system to be based on a thorough understanding of the catchment area."

The need for a thorough monitoring programme (particularly of groundwater) is clear and particulars of the programme to be implemented should be provided. Furthermore, as the excavation has in effect begun, monitoring should already be in progress.

7. Foreshore reserves - the reasons for the Company not wanting to cede a foreshore reserve throughout the entire property at this time are appreciated. However, some indication of the Company's intentions regarding the reserve should be provided.

Other matters requiring consideration in terms of the foreshore area include:

- an indication of any improvements envisaged (e.g. remedial works at the severely eroded outfall of the Copley Road drain);
- contingency plans for re-stabilising the outfall of the piped drain should river bank erosion occur;
- clarification of the comment in the proponent's supplementary report concerning options for modification of drainage patterns within the foreshore region.

From Departmental involvement with this and other proposals submitted by Midland Brick, it is apparent that the Company is prepared to undertake its operations in an environmentally acceptable manner. However, given the various uncertainties concerning the operation and its possible consequences, this Department believes that if the proposal is to proceed, it should do so only on the basis of firm commitments from the Company in the following directions:

1. to provide as much information on the issues identified as is presently available;
2. to implement monitoring programmes to the satisfaction of the relevant authorities to fulfill outstanding information requirements;
3. to so vary operational practices, and undertake such remedial measures, as may be revealed necessary by monitoring; and

4. to comply with water quality criteria specified by the relevant authorities for waters discharged to the Swan River.

From this Department's point of view, the preceding stipulations would form an acceptable basis for conditional approval of the project.

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Signed by C. F. Porter

C.F. Porter  
DIRECTOR

17 August 1982