Landfill, Lot 23 Fawcett Road, Munster

M Tolich

Report and recommendations of the Environmental Protection Authority

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Contents

	Page
Summary and recommendations	i
1. Introduction and background	1
2. Description of proposal	1
3. Consultation	4
4. Discussion of environmental issues	5
4.1 Potential for and impacts of pollution from materials dumped	5
4.1.1 Definition of dry inert fill	6
4.1.2 Ensuring only dry inert fill is dumped	7
4.1.3 Clean-up if pollution occurs	7
4.1.4 Unauthorised dumping	7
4.2 Site management	8
4.2.1 System 6 and Beeliar Regional Park proposals	8
4.2.2 Surface water management	8
4.2.3 Impacts on adjacent residences (noise & dust)	11
4.3 Planning and aesthetic issues	11
4.3.1 Landform and aesthetics	11
4.3.2 End-use of filled land	11
4.3.3 Access road	12
5. Conclusion	12
Figures	
1. Existing landform and environment, Lot 23 Fawcett Road, Munster	2
2. Proposed cross sections of final landform at north and south boundary of Lot 23 Fawcett Road, Munster	3
System 6 and Beeliar Regional Park proposed boundaries for Market Garden Swamp No 3	9
 Proposed location of fence based on existing vegetation and unauthorised fill and maintaining or creating a natural environment to the west of the fence 	10

Summary and recommendations

Lot 23 Fawcett Road, Munster, is the site of a proposal by the owner, M Tolich, to import fill for up to 5 years. The fill is intended to enable recontouring of the land.

Some unauthorised filling has already occurred on Lot 23. This filling was halted in 1989. No rehabilitation of this fill has taken place, with the result that it is currently unsightly and has been colonised by weeds. The fill is within 10 to 15 metres of the remaining salt water paperbarks surrounding the wetland.

Most of Lot 23 is part of the wetland known as Market Garden Swamp No 3. This wetland is part of the environmentally significant Cockburn wetlands. The Authority recommended in its System 6 Report on conservation reserves of the Darling System, which included the Swan Coastal Plain, that this wetland should form part of a regional park over those wetlands. The Department of Planning and Urban Development subsequently proposed in its April 1990 Beeliar Regional Park report that Market Garden Swamp No 3 be reserved as a Waterway under the Metropolitan Region Scheme.

If any polluting materials were dumped at this site, pollution of the nearby wetlands, including Lake Coogee and Market Garden Swamp No 3, could occur. The Environmental Protection Authority is concerned to ensure that the important conservation values of Market Garden Swamp No 3 are protected.

There is little doubt, however, that Lot 23 is untidy and its appearance needs to be improved. The Environmental Protection Authority believes that some additional filling may be necessary to enable rehabilitation of Lot 23 to occur, but it should be done quickly, and be properly managed to protect the wetlands and prevent problems to neighbours.

Recommendation 1

The Environmental Protection Authority concludes that the proposal by M Tolich to undertake a landfill operation on Lot 23 Fawcett Road, Munster to "improve the visual aspect", as modified during the process of interaction between the proponent, the Environmental Protection Authority, the public and government agencies that were consulted, is environmentally acceptable.

In reaching this conclusion the Environmental Protection Authority identified the main environmental factors requiring detailed consideration as:

- the potential for pollution from non-inert fill;
- protection of the conservation values of Market Garden Swamp No 3; and
- potential impacts on adjacent residents from site operations, especially noise and dust.

The Environmental Protection Authority considers that the environmental factors mentioned above have been addressed adequately by the proponent changing the proposal, 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 Environmental Protection Authority's recommendations in this Assessment Report.

Protection of the nearby wetlands from pollution requires measures which prevent materials which could cause groundwater pollution from being dumped at the site.

Recommendation 2

The Environmental Protection Authority recommends that in order to prevent pollution of the groundwater and wetlands near the proposal:

- only dry inert fill be permitted to be dumped at Lot 23, to the satisfaction of the Environmental Protection Authority on advice of the City of Cockburn;
- the proponent should obtain independent written documentation that only inert material is filled at Lot 23 Fawcett Road, Munster. Such documentation should be made available to the Environmental Protection Authority and City of Cockburn upon request;
- unauthorised dumping and landfill should be prevented by the proponent;
 and
- the City of Cockburn give consideration to whether the proponent should be required to provided some financial bond or guarantee to cover the cost of any clean-up.

For the purpose of this recommendation, independent means a competent person or corporate body not associated with the proponent.

Encroachment of the fill into areas with conservation value needs to be prevented.

Recommendation 3

The Environmental Protection Authority recommends that before the start of filling operations the proponent should construct a fence along the line shown in Figure 4, to the satisfaction of the Environmental Protection Authority on advice of the the Department of Planning and Urban Development and City of Cockburn.

The Environmental Protection Authority further recommends that the area between the fence and Market Garden Swamp No 3 be rehabilitated by the proponent, to the satisfaction of the Environmental Protection Authority.

Stormwater runoff from the site could carry high levels of suspended solids which could affect foreshore vegetation and the water quality of Market Garden Swamp No 3.

Recommendation 4

The Environmental Protection Authority recommends that the proponent should construct a swale (west of the fence shown in Figure 4) which is capable of containing the runoff from a one in ten year storm event, before the start of filling, and then subsequently maintain it, to the satisfaction of the City of Cockburn.

Adjacent residents noted concerns regarding noise and dust levels from previous operations. These need to be managed to minimise problems. The site also requires some rehabilitation, and weed control measures are necessary.

The Authority therefore suggests that any approval by the City of Cockburn associated with the proposal should:

- be limited to a period of 12 months only, to ensure that adjacent residents are not inconvenienced over a long period of time;
- restrict site operations to 0700 1700 hours Monday to Friday;
- include dust and noise control measures; and
- include fire risk minimisation measures.

1. Introduction and background

The owner of Lot 23 Fawcett Road, Munster has applied for approval to import fill. This proposal was of concern to the Environmental Protection Authority because much of Lot 23 is part of the wetland known as Market Garden Swamp No 3.

Some unauthorised filling has already occurred on Lot 23. This filling was halted in 1989 following action by the City of Cockburn and officers of the Environmental Protection Authority. The existing unauthorised fill has become covered in weeds and the dumped mounds of boulders and dirt have not been levelled. This makes the area look unsightly. The fill is located within 10 to 15 metres of the remaining salt water paperbarks which surround the wetland.

The City of Cockburn gave conditional approval for filling to re-commence at this site, and subsequently referred the proposal to the Department of Planning and Urban Development which then referred it to the Environmental Protection Authority.

In its 1983 System 6 report on conservation reserves in the Darling System the Environmental Protection Authority included Market Garden Swamp No 3 within a regional park over the Cockburn wetlands (M 92). The Department of Planning and Urban Development Beeliar Regional Park report of April 1990 has proposed that Market Garden Swamp No 3 be reserved under the Metropolitan Region Scheme as a Waterway.

Given the important conservation value of Market Garden Swamp No 3, portion of which is located on Lot 23, and the potential for the conservation value to be compromised by this proposal the Environmental Protection Authority required formal assessment as a Consultative Environmental Review.

The Environmental Protection Authority is aware of landfill sites in the metropolitan area designated for inert materials only where non-inert and polluting materials dumped at the site have caused or have the potential to cause pollution. The Authority wishes to ensure that pollution of the wetlands does not occur as a result of this proposal.

2. Description of proposal

The proponent, M Tolich, has proposed to contract Covich Contractors to undertake a landfill operation over a period of 5 years. The proponent's application states "The reason for the landfilling is to re-contour the existing undulating land as per plan supplied (See Figure 1) to an approximate grade of 1:10 to the Western lakes edge, Southern and Northern property boundaries, so as to improve the the overall visual aspect". Figure 1 shows the existing landform and location of the wetland, and Figure 2 shows the proposed cross sections at the north and south boundary. It is proposed to retain all existing trees on site.

Covich Contractors has indicated that the fill would consist of grass, topsoil and excavated rock material and that they do not intend to dump demolition rubble or trees.

Filling would take place only on weekdays between 7 am and 5 pm.

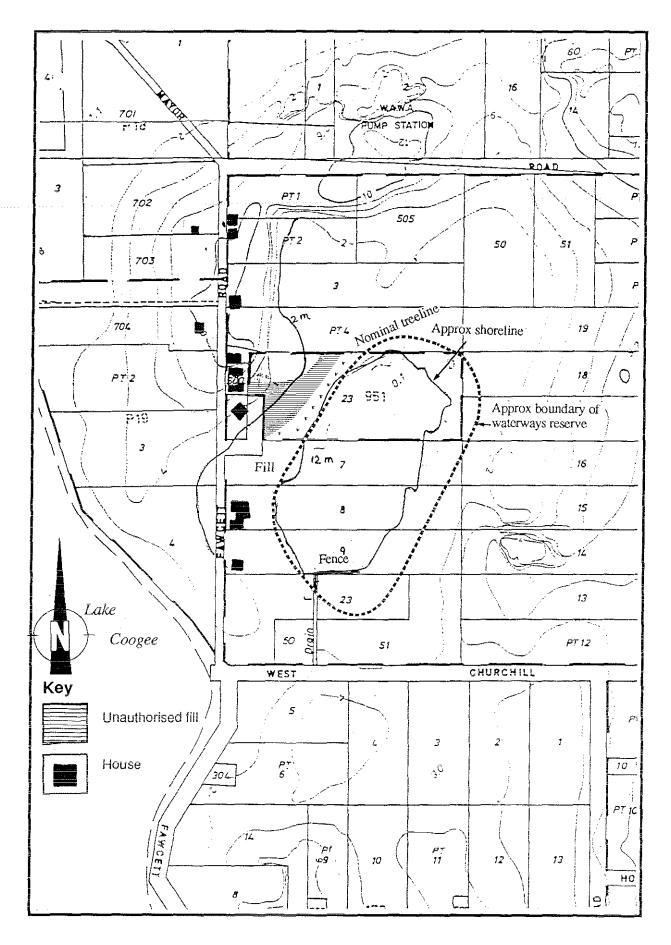


Figure 1. Existing landform and environment, Lot 23 Fawcett Road, Munster

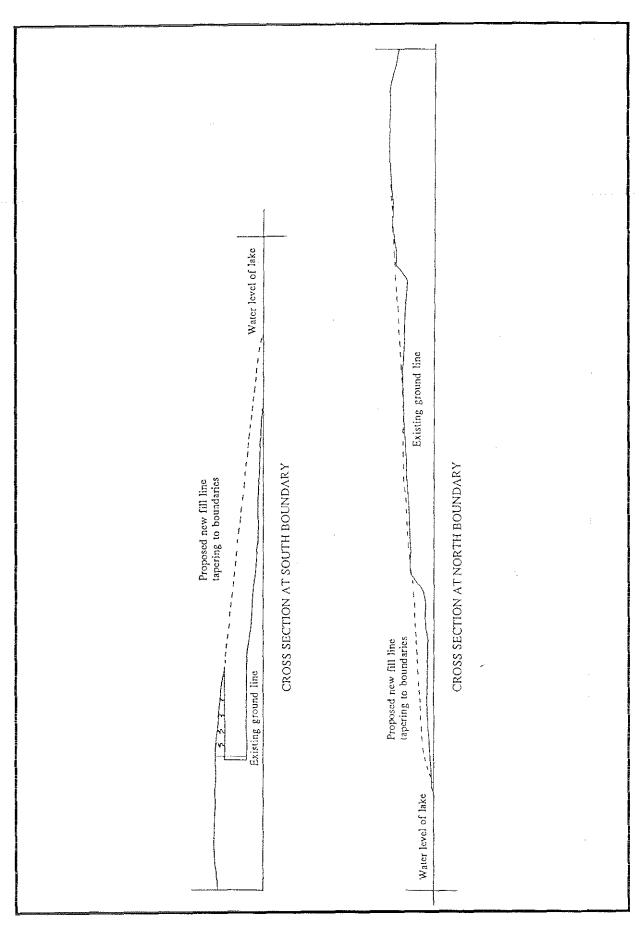


Figure 2. Proposed cross sections of final landform at north and south boundary of Lot 23 Fawcett Road, Munster

3. Consultation

The Environmental Protection Authority circulated information regarding the proposal to immediate neighbours and to groups and agencies which would have an interest in the proposal.

The following people, groups and agencies were consulted in preparation of this assessment report.

Australian Conservation Foundation

Conservation Council of Western Australia

Department of Conservation and Land Management

City of Cockburn

Department of Planning and Urban Development

Geological Survey of Western Australia

L Gianoli

Mrs M Ingrilli

Mr G Monastra

Mr V Monastra

M Petroissian

Mr P Tolich

Mr N C Willsea

A petition signed by 17 people objecting to the proposal was also received by the Authority.

The following list of issues reflects oral and written comments made to the Environmental Protection Authority:

- The proposal should be permitted to proceed, and the owner should be required to clean-up the unauthorised fill.
- Noise and dust have been a problem during past filling operations; concerned that
 periodic nature of dumping makes enforcement of noise levels and dust control controls
 difficult.
- The irregular frequency of fill operations makes prediction of bad dust levels from trucking and dumping operations impossible. Therefore nearby residents have been unable to take preventative measures to prevent dust affecting their houses, washing etc.
- The existing fill contains old car bodies, 200 litre drums and an old water tank under the bulk of the fill. This should be investigated and/or removed.
- Groundwater pollution should be monitored using a monitoring bore.
- A clear demarcation between the conservation area and the acceptable area to be filled should be made. A fence is suggested.
- Construction of a swale to prevent surface water runoff into the wetland is necessary.
- Current vegetation (ie the fennel) is unsightly, invading vegetation with high conservation value and presenting a fire risk.
- The plans presented have insufficient detail to provide a clear indication of proposed fill levels.
- The proposed fill will devalue adjacent properties.
- Fill levels should not be higher than Fawcett Road or the proposed unmade road in order to protect residents views.
- The landform of the proposed fill should be consistent with the area.
- Current landform is unacceptable; it is too high and too rough.

4. Discussion of environmental issues

This proposal raises a number of environmental issues which have been addressed by the Authority in this report. Those issues are:

- protection of the conservation value of Market Garden Swamp No 3 and other nearby wetlands; and
- dust and noise.

Following its review of the proposal and comments made by the public and agencies, the Authority considers that carefully managed filling of portion of Lot 23 would be beneficial.

Recommendation 1

The Environmental Protection Authority concludes that the proposal by M Tolich to undertake a landfill operation on Lot 23 Fawcett Road, Munster to "improve the visual aspect", as modified during the process of interaction between the proponent, the Environmental Protection Authority, the public and government agencies that were consulted, is environmentally acceptable.

In reaching this conclusion the Environmental Protection Authority identified the main environmental factors requiring detailed consideration as:

- the potential for pollution from non-inert fill;
- protection of the conservation values of Market Garden Swamp No 3; and
- potential impacts on adjacent residents from site operations, especially noise and dust.

The Environmental Protection Authority considers that the environmental factors mentioned above have been addressed adequately by the proponent changing the proposal, 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 Environmental Protection Authority's recommendations in this Assessment Report.

4.1 Potential for and impacts of pollution from materials dumped

The ability of the environment to accept non-inert wastes depends upon the geology, the ability of the soils to contain or bind pollutants and the sensitivity of the receiving environment to pollution.

The site is located on the Spearwood Dune formation above Tamala Limestone. The Tamala Limestone in this area consists of limestone, calcareous sandstone and yellow sand. The Authority understands that the limestone is not cavernous and therefore does not significantly influence groundwater flow directions and rates.

The depth of Spearwood Dune formation soil between the groundwater table is less than one metre over much of the area of Lot 23 which is proposed to be filled. Although the soils of the Spearwood Dune formation have more capacity to bind pollutants than most other Swan Coastal Plain soils, the Authority is concerned that the capacity of the thin layer of Spearwood Dune formation soil to bind pollutants would be rapidly used up and would not prevent groundwater contamination if non-inert materials were dumped.

If groundwater contamination occurred it could reach Market Garden Swamp No 3 or nearby Lake Coogee. Hydrological data for Lake Coogee indicate that groundwater discharge into the lake is a contributing factor in maintaining lake levels after winter rains. Lake Coogee lies about 300 metres to the west of Lot 23.

Given the proximity of the proposed fill to wetlands and the pollution attenuation capacity of the soil in this area, the Environmental Protection Authority considers it is essential that only dry inert fill is dumped.

The proponent intends to accept fill from only one nominated contractor, however the Authority's recommendations in this report apply to all fill brought onto Lot 23, irrespective of the contractor.

With higher prices being charged at many domestic landfill sites there is increasing incentive for waste disposal operators to dump at unauthorised sites or dispose of non-inert materials at sites suitable for dry inert fill only. Dry inert fill site operators need to be vigilant to ensure that materials which could cause pollution are not hidden in the loads which they accept. When such materials are detected, it needs to be removed from the site and disposed of at an approved site.

It is important to ensure all material which is dumped at a dry inert fill site is dry and inert, particularly if material is sought from many sources. The Authority is aware of at least three dry inert fill sites in the Metropolitan area where materials dumped at the site have caused or have had the potential to cause pollution.

An inspection of the existing unauthorised fill indicated that soils, boulders and some concrete had been dumped on the site. However, it has been alleged that car bodies, drums and a water tank are buried underneath higher parts of the existing landfill. These items are comprised mostly of steel and plastic, which are considered to be inert materials by the Authority. Any small quantities of oil and petrol which may have been contained within the car bodies would probably be mostly absorbed by the sand and would probably not significantly affect nearby wetlands. Further dumping of items which may contain oil or petrol could cause significant impacts and are therefore not acceptable.

4.1.1 Definition of dry inert fill

The word dry is used to clearly indicate that no liquids, such as oils, acids, sewage or sludges (eg wet concrete) should be disposed of at a dry inert fill site.

The definition of inert means that material is 'without active properties' or 'chemically inactive'. In the context of a landfill operation this definition implies that there would be no chemical change to the material as a result of biological activity or interaction of the material with water. If the definition of inert is strictly applied the oxidation of steel materials to form rust classifies these materials as non-inert. The Authority has decided to adopt the definition of inert stated above as the general definition of materials that may be dumped at a dry inert fill site and to create a list of non-inert materials which may be dumped at dry inert fill sites because they either degrade at rates which are not likely to cause groundwater pollution or degrade to chemical substances which are not of concern.

The Authority considers that the following materials are inert: asphalt from former roads, bricks, fibreglass, plastic, road base materials, and soils such as topsoil, excavated rock material, sand, gravel and clay.

The following non-inert materials may be dumped at dry inert fill sites: timber, metals used in building construction (eg steel, galvanised iron, aluminium), and concrete blocks.

It should be noted that the following materials are <u>not</u> considered inert and should not be dumped at dry inert fill sites: garden refuse such as tree loppings, grass clippings etc, containers such as chemical containers, sawdust and paper and cardboard wastes.

The Authority understands that loads delivered to a site are often mixed, for example, some loads of bricks and sand may contain small quantities of garden waste. The Authority considers that the site operator has a responsibility to remove these materials.

Dumping on Lot 23 should be supervised by the City of Cockburn.

4.1.2 Ensuring only dry inert fill is dumped

The Environmental Protection Authority considers that control of materials dumped at this site could be adequately achieved by the proponent requiring independent written documentation that any material which is dumped on Lot 23 complies with the Environmental Protection Authority's definition of dry inert waste. In this context independent means a competent person or corporate body not associated with the proponent.

The Environmental Protection Authority gave some consideration as to whether the proponent should be required to install monitoring bores and concluded that bores would not be necessary. The independent written documentation along with random site inspections by various authorities (eg Environmental Protection Authority and City of Cockburn) should ensure adequate control for the small volume of fill which would be required to improve the overall appearance of the site.

4.1.3 Clean-up if pollution occurs

Where landfill activities result in groundwater pollution, the Authority believes that the "polluter pays" principle should apply.

It is the Authority's view that pollution should be prevented at source, rather than looking to clean it up afterwards. This is the approach being used for this proposal. Although groundwater pollution is considered unlikely, if groundwater quality has been adversely affected downstream of the landfill and this can be attributed to pollution from the landfill operation, the Environmental Protection Authority may require the proponent to prepare and implement a strategy for clean-up in accordance with the Environmental Protection Act. Clean up could be difficult and would be expensive.

To ensure that the proponent would bear any costs associated with possible clean up, the Authority suggests that the City of Cockburn consider whether the proponent should provide a financial guarantee sufficient to cover the estimated cost of a clean-up operation. In Victoria a bank guarantee system is used for privately owned or operated refuse sites. This may also be appropriate in Western Australia, although the Environmental Protection Act has provisions to address clean up.

4.1.4 Unauthorised dumping

Access to the site should be restricted so that unauthorised dumping does not occur. The Environmental Protection Authority considers that it should be the responsibility of the proponent to remove and appropriately dispose of material which is not permitted at the site.

Recommendation 2

The Environmental Protection Authority recommends that in order to prevent pollution of the groundwater and wetlands near the proposal:

- only dry inert fill be permitted to be dumped at Lot 23, to the satisfaction of the Environmental Protection Authority on advice of the City of Cockburn;
- the proponent should obtain independent written documentation that only inert material is filled at Lot 23 Fawcett Road, Munster. Such documentation should be made available to the Environmental Protection Authority and City of Cockburn upon request;
- unauthorised dumping and landfill should be prevented by the proponent;
 and
- the City of Cockburn give consideration to whether the proponent should be required to provided some financial bond or guarantee to cover the cost of any clean-up.

4.2 Site management

4.2.1 System 6 and Beeliar Regional Park proposals

Market Garden Swamp No 3 is proposed to be reserved as a Waterway under the Metropolitan Region Scheme, in recognition of its conservation value. Figure 3 shows the boundaries proposed in the Environmental Protection Authority's System 6 report and the Department of Planning and Urban Development Beeliar Regional Park report. These boundaries provide only a broad-brush indication of where the boundary should be.

On the basis of an onsite inspection of Lot 23 and in consultation with the Department of Planning and Urban Development and City of Cockburn it was decided that an area of between 10 and 15 m from the paperbarks should be protected and rehabilitated as shown on Figure 4. This decision was based on the existing site vegetation and the edge of the area disturbed by unauthorised fill activities.

In order to protect foreshore vegetation from disturbance, the Authority considers a fence should be constructed along this line prior to further filling of the site. Some fill may need to be removed along and to the east of the fence line. Furthermore the Environmental Protection Authority considers that the area inside the fence which has been adversely affected by the unauthorised fill and fence construction should be rehabilitated.

Recommendation 3

The Environmental Protection Authority recommends that before the start of filling operations the proponent should construct a fence along the line shown in Figure 4, to the satisfaction of the Environmental Protection Authority on advice of the the Department of Planning and Urban Development and City of Cockburn.

The Environmental Protection Authority further recommends that the area between the fence and Market Garden Swamp No 3 be rehabilitated by the proponent, to the satisfaction of the Environmental Protection Authority.

4.2.2 Surface water management

Surface water runoff could adversely affect the water quality in Market Garden Swamp No 3 particularly with respect to turbidity and nutrients. The types of materials dumped could also affect surface water run-off rates. For example clays such as those found in the unauthorised fill would rapidly shed water.

Management of the site to capture surface run-off and prevent it entering the swamp should include stabilisation of slopes with vegetation as soon as practical after finished levels are reached as well as construction of a swale at the base of the slopes, just west of the proposed fence. During dumping operations and for a period after filling is complete it is important that the both the volume and infiltration capacity of the swale is maintained.

Recommendation 4

The Environmental Protection Authority recommends that the proponent should construct a swale (west of the fence shown in Figure 4) which is capable of containing the runoff from a one in ten year storm event, before the start of filling, and then subsequently maintain it, to the satisfaction of the City of Cockburn.

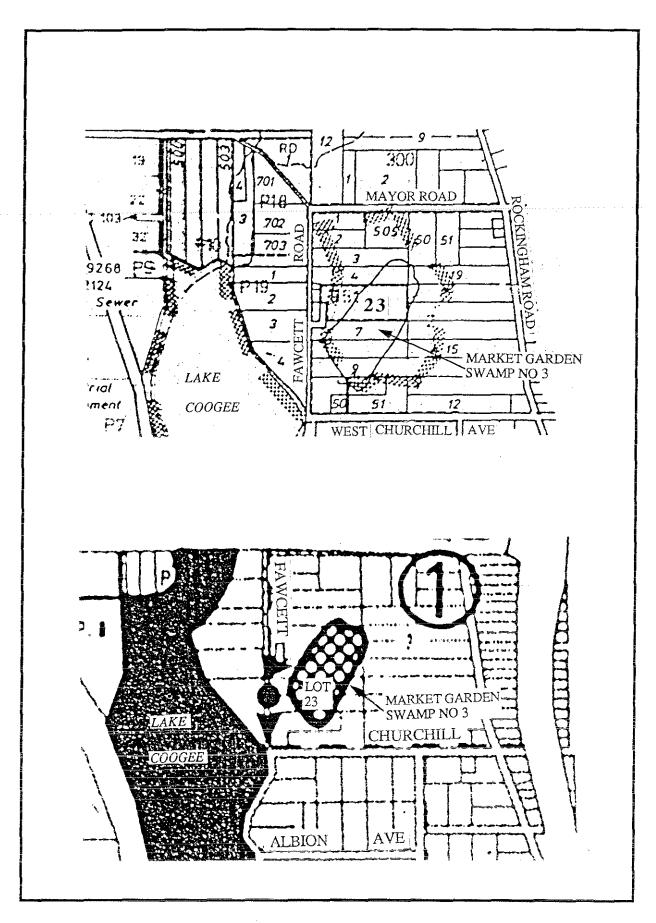


Figure 3. System 6 and Beeliar Regional Park proposed boundaries for Market Garden Swamp No 3.

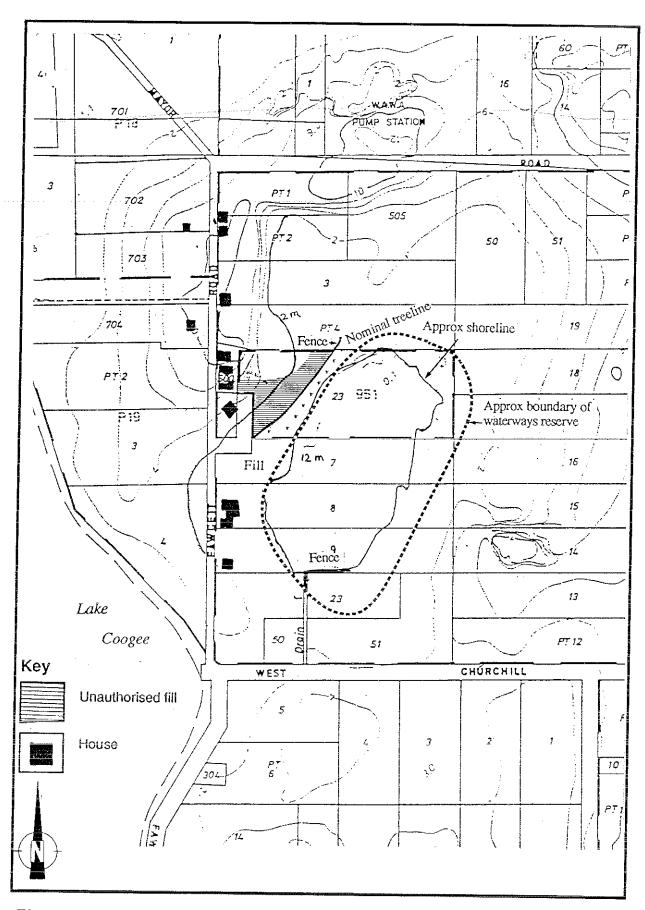


Figure 4. Proposed location of fence based on existing vegetation and unauthorised fill and maintaining or creating a natural environment to the west of the fence. The recommended monitoring bore locations are also shown.

4.2.3 Impacts on adjacent residences (noise & dust)

Lot 23 is located adjacent to a number of houses, as indicated in Figure 1. Nearby residents have expressed concern about noise and dust generated from earlier filling on the site as well as any that would arise from this proposal.

The previous dumping has left the site in an unsightly condition and any efforts to remedy this would cause noise. Equipment noise levels may exceed those considered acceptable at adjacent residences and cause some annoyance. Silencing of equipment such as trucks and loaders down to levels that would provide acceptable noise levels is not feasible. The Environmental Protection Authority therefore considers that the proposal should be completed as quickly as possible to minimise the period of adverse impacts on adjacent residences. Given the small volume of fill that would be required in order to improve the overall visual aspect the Authority expects that the project could easily be completed within 12 months.

It is noted that the proponent has indicated that filling operations would be limited from Mondays to Fridays between 7 am and 5 pm. Compliance with these times and days should minimise problems arising from noise levels.

In view of the fact that the filling is going to occur on an occasional basis, the Environmental Protection Authority considers that the proponent should be required by the City of Cockburn to re-vegetate newly filled areas as soon as practicable to prevent dust generation during strong winds.

The site is currently covered by fennel and other weeds which appear to be encroaching into undisturbed areas of the wetland and which could be a fire risk. The Authority suggests that the proponent employ weed control measures, such as slashing, on filled areas so that they do not become a fire risk.

The Authority considers that these operational aspects of the proposal, this is noise, dust, fire and weed control, can be appropriately managed by the City of Cockburn as part of its approval of the proposal.

4.3 Planning and aesthetic issues

4.3.1 Landform and aesthetics

The fill cross sections supplied to the Authority do not clearly indicate the final landform between the unmade road and Market Garden Swamp No 3. During consultation on the proposal, adjacent landholders expressed concern that filling in this area would obscure their views of the lake and cause the unmade road to lie in a valley. The Environmental Protection Authority considers that the final landform should relate to existing landforms and that the Department of Planning and Urban Development and City of Cockburn should further consider this aspect prior to granting approvals.

4.3.2 End-use of filled land

Lot 23 is currently zoned rural in the Metropolitan Region Scheme and in the City of Cockburn's current and proposed Town Planning Scheme.

The City of Cockburn's "Indicative Structure Plan for the Long Term Development of the Rural Zone" indicates that this land would ultimately be zoned urban. The Authority understands that the unauthorised fill on site would make urban development of the land expensive because the large boulders, clay materials, car bodies and large containers make the existing fill unsuitable to build upon. In terms of planning considerations, further filling on top of the existing unauthorised fill may be undesirable if the land is ultimately to become urban.

The proponent did not indicate a preferred end use for the land in the proposal.

The responsibility of the Environmental Protection Authority is to consider environmental issues associated with the proposal, including the need to ensure that the proposed filling does not create pollution nor adversely affect the conservation value of Market Garden Swamp No 3. The Authority has not recommended that the existing fill be removed nor that the proposed fill be of a standard that allows building construction. However the Department of Planning and Urban Development and the City of Cockburn may wish to consider the question of end-use when considering the conditions under which this proposal could operate.

This assessment does not pre-empt planning considerations nor necessary approvals. The Environmental Protection Authority has suggested this set of recommendations as a way of improving the current site. However, there may be other ways of achieving this.

4.3.3 Access road

Maintenance of the access road into the site was raised as an issue during consultation. This should be addressed by the City of Cockburn.

5 Conclusion

There is little doubt that the current condition of Lot 23 is unsightly. The Environmental Protection Authority has made these recommendations with a view to permitting improvement of the current site. However, there may be other ways of achieving the same goals identified in the recommendations which planning authorities may want to consider.

The Environmental Protection Authority has concluded that the proposal by M Tolich to undertake a landfill operation to "improve the visual aspect" of Lot 23 Fawcett Road, Munster is environmentally acceptable, subject to the recommendations in this report.