



Government of **Western Australia**
Department of **Water**



Looking after all our water needs

Operational policy 5.17
Metropolitan domestic garden bores

August 2011

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Contents

1	Policy statement	1
2	Background	3
3	Implementation	4
3.1	Exemption from licensing requirements.....	4
3.2	Sprinkler restrictions	4
4	Explanatory note.....	5
4.1	Issue	5
4.2	Policy outcomes.....	5
4.3	Policy links	5
4.4	Legislation.....	5
4.5	Description of the policy statement.....	5
4.5.1	More water efficient gardens and water use	5
4.5.2	Domestic garden bores are a suitable alternative to use of scheme water	6
4.5.3	Where garden bores are not suitable.....	6
4.5.4	Use of water from a domestic garden bore.....	7
4.6	Determining the number of garden bores and level of use.....	7
4.7	Review	8
	Appendix 1: Common questions and answers	9

1 Policy statement

1. The Department of Water recommends establishing water efficient gardens that incorporate appropriate plant and surface treatment selection, industry best practice irrigation techniques and alternate water sources to ensure the most efficient use of water.
2. The department has determined areas that are suitable and unsuitable for establishing domestic garden bores, and these areas are shown in Figure 1.
3. In suitable areas, if gardens require irrigation, the department supports the establishment and efficient use of domestic garden bores in preference to using scheme water.
4. The department does not support the establishment of new domestic garden bores in unsuitable areas. For domestic garden bores that already exist in unsuitable areas, the department supports their ongoing use in preference to using scheme water. However, users must be aware that the water quality or quantity may not be appropriate for garden irrigation.
5. The use of domestic garden bore water for drinking is not recommended, unless it has been treated according to Department of Health guidelines. The use of domestic garden bore water for cooking, bathing and filling pools and spas is not recommended unless it has been professionally tested and found to be “fit for purpose”.
6. The department will not require domestic garden bores in the metropolitan area to be licensed or metered.

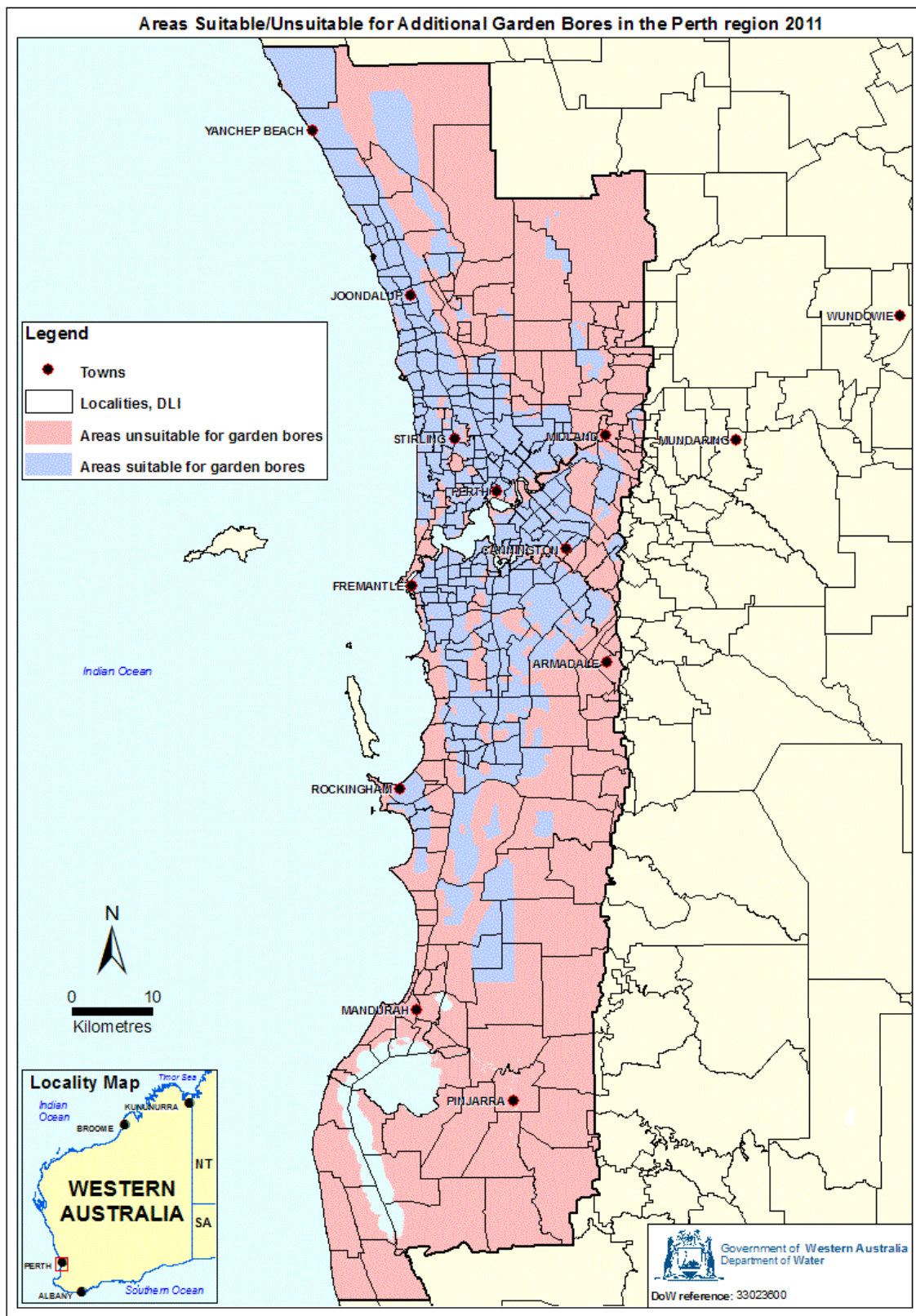


Figure 1 Areas suitable and unsuitable for garden bores

2 Background

In 2010, there were an estimated 167 000 domestic garden bores in the Perth metropolitan area, using approximately 73 GL of water a year. This is about 15 per cent of all groundwater taken in the Perth region.

Feedback from the community in response to the dry season experienced in 2010 has prompted us to clarify our position on domestic garden bores in the metropolitan area.

This policy:

- outlines the department's position on the use of domestic garden bores
- identifies suitable areas for establishing new domestic garden bores
- describes how domestic garden bores are regulated.

For the purpose of this policy, the metropolitan area in question is shown in Figure 1, including much of the Perth and Peel regions.

3 Implementation

The Department of Water will implement this policy by:

- raising public awareness of the issues associated with the use of domestic garden bores, including where they are suitable and where they are not
- encouraging efficient water use
- drafting by-laws and/or Orders in Council, if it is necessary to restrict the use of these bores.

3.1 Exemption from licensing requirements

Metropolitan garden bore users do not require a licence. They are exempt from the requirement to have a licence through an Exemption Order under the *Rights in Water and Irrigation Act 1914*. This applies to domestic garden bores drilled into the superficial aquifer. Construction and taking water from a confined aquifer requires a licence.

The department has adopted this management approach for metropolitan domestic garden bores because:

- the risk to the environment from domestic garden bore use in suitable areas is minimal
- the risk to other water users is minimal
- it would be costly to licence many small water users and there is little benefit to be gained
- information on the number of domestic garden bores and the level of use can be collected more cost-effectively through surveys
- there is no need to secure water entitlements for domestic garden bore users.

3.2 Sprinkler restrictions

Sprinkler restrictions may apply to the use of domestic garden bores from time to time. Bore users should check the status of restrictions on the Department of Water website <www.water.wa.gov.au>.

4 Explanatory note

4.1 Issue

Some uncertainty and concern has arisen in the community about the management and use of domestic garden bores in the Perth metropolitan area, particularly as a result of the dry season experienced in 2010. Some people believe the use of these bores should be licensed similar to other groundwater abstraction.

4.2 Policy outcomes

- The irrigation of gardens in Perth is reduced.
- The use of scheme water to irrigate gardens is reduced.
- Efficient groundwater use in suitable areas replaces the use of scheme water.

4.3 Policy links

Strategic policy 2.03 – Managing unlicensed groundwater use: this policy outlines the Department of Water's approach to managing unlicensed groundwater use.

4.4 Legislation

Licensing the take and use of groundwater under the *Rights in Water and Irrigation Act 1914* is the main tool for managing use of the state's groundwater resources.

Because domestic garden bores in suitable areas do not significantly impact on groundwater resources, there is no management requirement to license them, and it would not be an appropriate use of public funds. As such, domestic garden bores are exempt from the requirement to have a licence through an Exemption Order under the Act.

4.5 Description of the policy statement

4.5.1 More water efficient gardens and water use

The Department of Water recommends establishing water efficient gardens that incorporate appropriate plant and surface treatment selection, industry best practice irrigation techniques and alternate water sources to ensure the most efficient use of water.

The water efficiency of garden irrigation systems can be improved through selection of appropriate sprinkler types and sizes, or installation of soil moisture sensors and climate monitoring devices that detect when irrigation is required.

Grey-water reuse systems can be installed as an alternative to the use of garden bores or scheme water for irrigation.

4.5.2 Domestic garden bores are a suitable alternative to use of scheme water

The department has determined areas suitable for establishing domestic garden bores. In these areas, we support the establishment and efficient use of domestic garden bores in preference to using scheme water.

Domestic garden bores provide a local source of water which is fit-for-purpose and generally use the additional groundwater introduced to an aquifer when an area is urbanised or from the use of scheme water. Some of this water, if not used by garden bores, would discharge via drains to the Swan River, Peel-Harvey estuary, or the ocean. This means that domestic garden bores provide an effective way to recycle stormwater.

We prefer the efficient use of domestic garden bores in suitable areas because they:

- reduce the demand on scheme water and delay the need for new scheme water supplies to be developed (these schemes can have a significant environmental impact and cost)
- allow gardens to be watered with untreated groundwater rather than highly treated scheme water which is of greater value for drinking and other household uses
- can reduce the volume of water discharged to the river/ocean via drainage
- assist in counteracting any water level rises (during average rainfall years) following urbanisation, which could potentially harm the local environment.

People who intend to construct a bore should check the Contaminated Sites Database (available on the Department of Environment and Conservation's website) to identify any known local contaminated sites that may adversely affect water quality.

They should also check the Department of Water's website for the current water restrictions in place. The restrictions help to ensure the efficient use of bores, and fines apply if water restrictions are breached.

4.5.3 Where garden bores are not suitable

Not all areas of Perth are suitable for the establishment and use of garden bores. The department does not support the establishment of new domestic garden bores in unsuitable areas, which could harm the local environment, impact adversely on existing users, or damage the aquifer.

If domestic garden bores already exist in an unsuitable area, users must be aware that the water quality or quantity may not be appropriate for garden irrigation.

Areas may be deemed unsuitable for domestic garden bores because:

- the salinity level means the water is unsuitable for garden irrigation
- the area is close to the ocean or a river and vulnerable to drawing salt water into the aquifer through bore use (e.g. the Cottesloe Peninsula)

- the area is close to conservation wetlands and other important groundwater-dependent ecosystems, which could be adversely affected by bore use
- the supply may be unreliable due to the soil type (e.g. Guilford Clay)
- the area has a thin superficial aquifer underlain by a confined aquifer (e.g. the Leederville), meaning that inadvertent use or waste of the confined aquifer and the transfer of groundwater between aquifers is possible. (A licence is required to construct a bore and pump water from confined aquifers.)
- there is potential for acid sulfate soils to be exposed to the air and increase groundwater acidity
- the area is over-allocated to existing users, and further development of garden bores could present a sustainability risk to the groundwater.

Figure 1 shows the areas that are suitable and unsuitable for domestic garden bores. The department will review these areas from time to time.

4.5.4 Use of water from a domestic garden bore

Domestic garden bores generally provide water of a suitable quality for irrigation. The use of garden bores for drinking is not recommended, unless it has been treated. Similarly, the use of garden bores for cooking, bathing and filling pools and spas is not recommended, unless it has been professionally tested and found to be “fit for purpose”.

The Department of Health website contains guidelines and fact sheets on the safe use of bore water. The Department of Environment and Conservation website contains information on the location of contaminated sites that may impact on groundwater quality.

4.6 Determining the number of garden bores and level of use

The level of use of garden bores can vary significantly over time, depending in part on whether sprinkler restrictions are in place.

The department regularly reviews the number of garden bores, their distribution, and average level of use. This ensures up-to-date information is available to support planning and management of water resources in the Perth area.

The department uses the following processes to gain this information:

- We estimate the total number of dwellings using domestic garden bores by using the best-available survey-derived data. This includes Australian Bureau of Statistics domestic garden bore use surveys for the Perth area (undertaken in 2003, 2006 and 2009), and commissioned surveys for the Mandurah area (last undertaken by Research Solutions in 2009).

- We determine the distribution of domestic bores in the Perth area (by groundwater sub-area), by using the Water Corporation's residential private use dataset.
- We estimate the average level of water use per bore, by using the average metered water use measured through a number of metered domestic bores throughout the metropolitan area (last undertaken in 2010 after the introduction of sprinkler restrictions).
- We then estimate the total domestic bore water use, and the total use by groundwater sub-area, by multiplying the number of domestic bores by the average use per bore.
- We maintain a historical time-series dataset of domestic bore use by groundwater sub-area across the Perth region.

Anyone seeking further information about the number of garden bores, their distribution and average level of use, can contact the department.

4.7 Review

This policy will be reviewed:

- when required due to changing circumstances, or
- within five years.

Appendix 1: Common questions and answers

Do metropolitan domestic garden bore users require a groundwater licence?

Metropolitan domestic garden bore users do not require a licence. They are exempt from the requirement to have a licence through an Exemption Order under the *Rights in Water and Irrigation Act 1914*.

The Department of Water has adopted this management approach for metropolitan domestic garden bores because:

- the risk to the environment through domestic garden bore use in suitable areas is minimal
- the risk to other water users is minimal
- it would be costly to licence many small water users and there is little benefit to be gained
- information on the number of domestic garden bores and the level of use can be collected more cost-effectively through surveys
- there is no need to secure water entitlements for domestic garden bore users.

Does the use of garden bores interfere with water available for licensed bore users?

In most of the metropolitan area, domestic garden bore users are not located near to licensed users, and there is limited potential for garden bore use to interfere with licensed bores at the local level.

In some areas of Perth's urban fringe, domestic garden bore users and licensed bore users are close to each other. However, the potential for interference is small because:

- the quantity of water taken for domestic use is generally very small in proportion to licensed users
- domestic bore users access the superficial aquifer at a shallow depth, where as licensed users typically access water deeper into the superficial aquifer (beyond potential interference) or from confined aquifers.

Overall use by domestic garden bores is taken into account when the department determines allocation limits – which set the amount of water that can be taken sustainably by licensed users. This ensures the use of water by both licensed bore users and domestic garden bore users is at a sustainable level.

What sprinkler restrictions apply to garden bore use?

Garden bore users in the Perth to Mandurah area can use their bores three days a week, with a roster applying according to house/lot number. Users can water once a day on their rostered days, outside the hours of 9 am to 6 pm.

Why do metropolitan garden bore users have less stringent sprinkler restrictions than scheme water users?

Under the current water restrictions, metropolitan garden bore users can water three days a week, while scheme water users can water only two days a week. The less-stringent sprinkler restrictions provide an incentive for residents to use garden bores because they provide a fit-for-purpose supply instead of high-quality scheme water.

However, domestic garden bores need to be used wisely. Responsible use ensures sufficient water is available (in suitable areas) for all garden bore users.

Are there any fees or charges for metropolitan garden bores?

There are no fees or charges payable to the department for allowing construction or use of a garden bore.

Are there areas where I am not allowed to have a domestic garden bore?

Many areas of Perth are suitable for garden bores, but some areas are unsuitable. Figure 1 shows the suitable and unsuitable areas. The department does not support the construction and use of new bores in unsuitable areas.

Are the number of bores and the quantity of use monitored?

The department periodically estimates the number of garden bores and the volume of water used. We last estimated bore numbers and use in 2009, finding there were approximately 167 000 garden bores in the Perth metropolitan area. With the introduction of three-day-a-week sprinkler restrictions for garden bores, we estimate each garden bore will use an average of 440 kilolitres of water a year, giving a total water use in the order of 73 gigalitres a year.

Why are garden bores encouraged when some parts of the Gnangara Mound are stressed and allocations are being reduced?

The superficial aquifer in some parts of the Gnangara Mound is under stress. Generally, this is away from urbanised areas, in the rural, semi-rural or bush areas of the mound. These areas are the focus for abstraction from the superficial aquifer for public water supplies and licensed private users. The reduced recharge to the mound due to low rainfall is causing lower water-tables than would normally occur.

In urbanised areas of the mound, recharge is generally greater because trees are removed and hard surfaces such as roofs and roads increase the amount of rain recharging to the aquifer.

The department has taken account of areas of the mound that are under stress in identifying those areas of Perth suitable for new garden bores to be established.

How can my neighbour over the road be in a suitable area, but my area is considered unsuitable for garden bores?

In developing the map of suitable and unsuitable areas for garden bores, the department made some practical decisions to ensure boundaries did not cut across blocks or small localities. In general, we used roads to define the boundaries. If you

are on the edge of an unsuitable area, you can contact the department for specific advice on whether your area is suitable or unsuitable.

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