

Groundwater Guide



Experts in water.

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This handy guide contains the information you need to know about obtaining groundwater for your property. It will guide you in choosing how best to find water, how to obtain it and how to ensure it's available where and when you need it.

Davey Pumps and Pressure systems have been used by Australians for over 55 years so once you have read this guide and recorded your details on the questionnaire, you can depend on your Davey dealer to use the information to recommend the best Davey product.



Where is groundwater found?

Groundwater or subterranean water, can occur in a variety of ways. The least common is as an underground river or reservoir. Most groundwater is contained in a water-bearing strata called an aquifer. An aquifer can be made up of a variety of materials, such as coarse sand, fractured granite, or shale, which can affect the ease with which the water can be obtained and the quality of the water itself. It is not unusual to strike more than one aquifer as you drill for groundwater.

What is the best way to access your groundwater?

Unless your groundwater is accessible from an artesian spring, the most common way to access it is to draw it from a well, borehole or sandspear.

The type of hole you drill will depend on the depth to water, the volume of water you want and the volume the bore or well is able to deliver.

If the water is less than 6 metres below the surface a well or sandspear may be sufficient. If the water is deeper a bore is normally required; the higher the flow required, the larger the hole diameter must be to fit the pumping equipment.

Drilling your hole for groundwater

There are several steps you need to follow in drilling a hole for groundwater:

Positioning the hole

The hole must be positioned vertically above the water source or aquifer; you can locate the water source through:

- your Government Water Resource Authority or a qualified Hydro Geologist
- your local well driller
- consulting a water diviner or picking a spot yourself (these 2 methods are the least reliable)

To protect the water quality, position the hole to ensure it is not affected by:

- septic tank drain field systems
- feed lots
- land fill sites
- other equipped bores

Obtaining a license for the hole

Depending on the regulations of your State or Territory, you will generally need a license to drill. Check with your local Water Resource Authority.

Specifications for your hole

On completion, your Driller should provide, in addition to any requirements of your State or Territory authorities, a signed record of drilling the hole detailing the following:

- the geological strata penetrated, including type and depth (i.e. what was drilled through)
- the standing water level
- a complete casing and screen record showing size, type, length and location
- test data from the hole eg. capacity and draw down
- the location and type of water bearing strata



Testing the water

Apart from health and legal reasons, a water quality test is strongly advised from your pump supplier's point of view, to ensure there are no elements which may affect the pump.

The test should use flowing water pumped from the hole after at least one hour's continuous pumping. Testing can be done by either Government or private laboratories; your Water Resource Authority can advise you.

Guarding against Iron Bacteria

Iron Bacteria is a naturally occurring organism which can seriously affect your pump system and borehole if not controlled. Not all groundwater contains Iron Bacteria, but if found it must be controlled. The most effective treatment is chemical treatment with antibacterial acids - consult your Davey dealer or your driller.

Can the hole change over time?

It is not unusual for the dimensions or characteristics of a hole to change as a result of:

- droughts or extended wet periods
- overpumping causing geological instability (ie: a collapsed hole)
- movement in the earth's crust
- bacterial or chemical influence on the aquifer (eg: iron bacteria)
- the influence of others pumping from the same aquifers

Pumping water from your hole

The volume of water you can pump will be determined by the water available, the size and dimensions of the hole and how it is equipped.

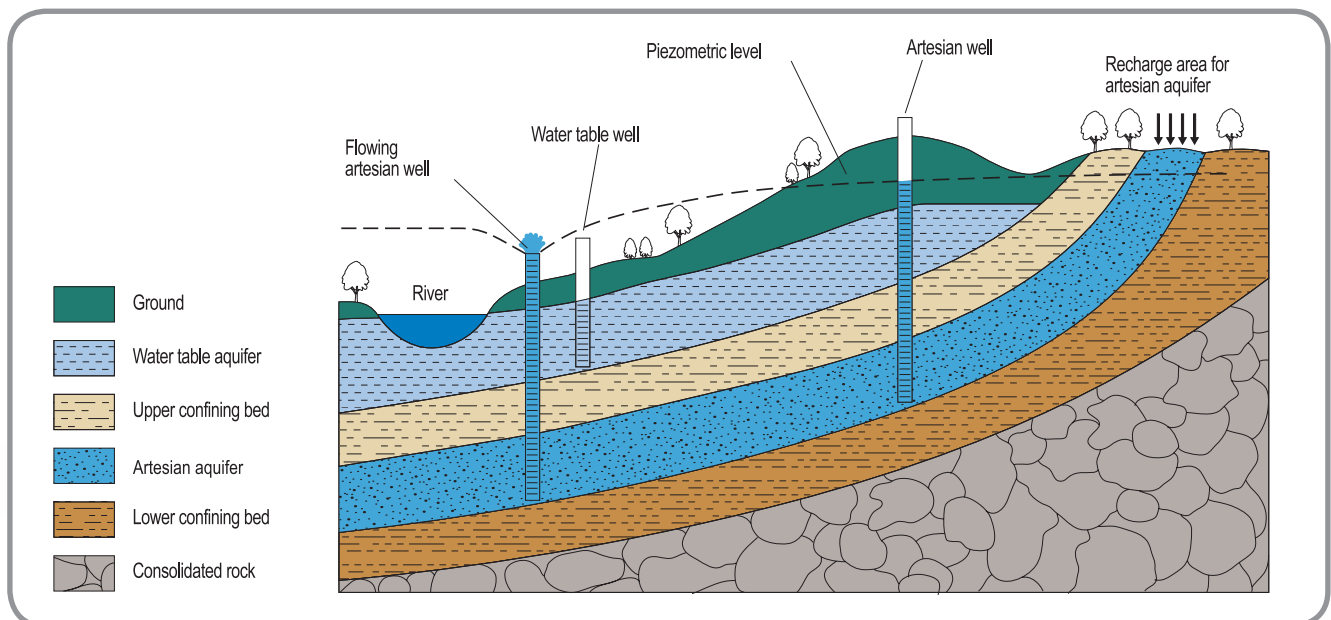
In heavily developed aquifers your State or Territory Government may place restrictions to protect the long term supply.

With a properly equipped and installed pump system, you should be able to pump water without large quantities of fines (sand and silt), and maintain the water level sufficiently above the pump inlet reducing any chance of the pump sucking air (vortexing), both of which can lead to pump damage.

Your next step

Once your bore or well has been installed you will need to provide your Davey dealer with the information they need to specify the required pump and accessory equipment.

It is recommended you complete the attached questionnaire and take it to your Davey dealer.



Your Pump Requirements Questionnaire

About your Bore or Well

(This information should be provided by your driller)

Inside diameter of casingmm
Length casedmetres
Depth of boremetres
Slotted or screened at what depths?metres

Aquifers	1	2	3
Depth from:	.....metres	.....metres	.....metres
To:	.....metres	.....metres	.....metres
Est. Flow	.....	.....	.....lpm
Rock types	.....	.....	.....

Other rock types drilled through

Bore yield test undertaken? **YES / NO**
 How?
 Yield recommendedlpm
 Pumping water levelmetres
 Standing water levelmetres
 Water supply clean muddy gritty

Driller's recommended pump settingmetres
 Driller's name.....
 Telephone.....

Your name
 Address

Telephone Location of bore

Your Water Requirements

Water Quality Test
 Was one undertaken? **YES / NO**

By Whom?
 (please attach a copy of the results)

1. For what purposes do you require a water pump?
 (Tick boxes as appropriate)
 Household water pressure
 Garden watering/sprinklers
 Stock water supply Hosing down
 Tank filling Irrigation
 Other (specify)

What power supply is available?
 240V – 1 phase 415V – 3 phase
 Distance from power to holemetres

Do you want water on demand manual starting?

Pump Performance: Flow requiredlpm

Alternatively No. of taps/outlets to be serviced at one time

Distance from bore to discharge pointmetres

Height from bore to discharge pointmetres

Pipe size & type from bore to discharge pointmm

Type: Class:

Pressure required at discharge pointmetres

Do you require loss of prime protection? **YES / NO**

Do you require installation? **YES / NO**

By what date?/...../.....

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