

UR1974-31

Groundwater investigations, Carlton.

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A 2 ha block of land on the Carlton-Dodges Ferry road [EN520541] was investigated at the request of Mrs E.J. Miller, who requires water for gardening purposes.

The property is underlain by a variable thickness of Quaternary sand overlying Triassic (?) sandstone.

AUGERING

Two auger holes were drilled on the property. The first was located 50 m west of the house, and the second near the south-western boundary of the property. The following details were recorded:

Hole 1

Depth (m)	Description
0-0.5	Grey sandy topsoil.
0.5-0.7	Grey fine-grained sand.
0.7-1.0	Brown medium-grained sand, cemented in places.
1.0-4.0	Yellow medium-grained sand.
4.0-5.5	Yellow-brown sand, clayey sand and sandy clay. Clay content increases with depth.

Hole dry.

Hole 2

Depth (m)	Description
0-0.5	Grey sandy topsoil.
0.5-2.0	Fine-grained brown-grey sand, cemented in places.
2.0-3.3	Damp fine-grained white sand.
3.3-4.0	Saturated yellow brown clayey sand.

Standing water level 3.5 m.

The quality of the water (330 ppm of total dissolved solids) in Hole 2 is quite suitable for gardening purposes.

SEISMIC WORK

Two seismic spreads were fired in an attempt to estimate the depth to basement near Auger Hole 1 and the thickness of the saturated sand layer near Hole 2.

Spread 1. The results obtained from Spread 1 unfortunately do not enable depth measurements to be calculated. However, the seismic velocities obtained (of the order of 3600 m/s) indicate that basement rocks (probably sandstone and clay) are present at shallow depth, and are overlain by clay and sand. The latter are probably derived from the *in situ* weathering of the sandstone. The prospects for water appear unfavourable.

Spread 2. No basement velocities were encountered in Spread 2. However, by assessing the presence of Triassic sandstone (3600 m/s), a minimum depth can be estimated. The following results were obtained:

<i>Layer</i>	<i>Seismic Velocity (m/s)</i>	<i>Thickness (m)</i>	<i>Interpretation</i>
1	360	4.0-5.5	Dry to damp sand.
2	1800-2000	at least 15	Saturated sand and clayey sand.
3	3600	-	Basement rocks.

The results of Spread 2 (which extended from Auger Hole 2 to the St Johns Rest Home boundary) suggest that a sufficient thickness of saturated sand exists to meet the anticipated requirements.

RECOMMENDATIONS

Water will be obtained in the vicinity of Auger Hole 2 near the property boundary. It may be won by either sinking a well (preferably concrete-lined) to approximately one metre below the summer water table level, or by driving or jetting a spear bore to approximately 2 m below the water table. If the latter method is employed, it is important to select an appropriate screen size. A screen opening of about 0.15 mm (150 microns) should be suitable. Spears may be obtained from Mono Pumps (Hobart).

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