

48. Groundwater prospects at South Bruny Area School, Alonnah

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The area within a 500 m radius of the school is underlain by dolerite. Alluvial deposits, derived from the dolerite and from the Permian rocks which occur about 800 m upstream, overlies the dolerite along the field beside the creek.

The small hill on which the school stands is a fossil sand dune, it overlies and is probably younger than the alluvial deposits of the river.

Three electrical resistivity depth probes were observed in the paddocks on the river flats to the south-east of the school, on the school play area to the south of the school buildings and on the sand hill and to the north-east between the school buildings and the main road.

All three probes showed an increase in resistivity with depth indicating the presence of dolerite at 4-6 m. The probe on the river flats showed a surface resistivity of about $12\Omega\text{-m}$ and the last mentioned probe about $18\Omega\text{-m}$ corresponding to the presence of clayey alluvium. The probe on the sand hill gave a surface value of $66\Omega\text{-m}$, but corresponded in form to the other probes.

There are three possible groundwater sources which could provide a useful water supply (say 700 l/h upwards).

(1) The sand-hill could act as an efficient though rather limited collector and storage. Supplies are obtained from such sources in Tasmania and the sand is readily recharged by creek floods and rainfall. If some of the alluvium is in fact younger than the sand-hill then the storage of the latter will be increased.

(2) The creek alluvium, if it contains any appreciable proportion of coarse material (Triassic and Permian derived) could yield a useful supply. The resistivity values indicate much clay, however, only thin lens of coarse material could be required.

(3) The dolerite appears in outcrop as well jointed and if only penetrated for a few metres could give useful supplies.

On balance it appears that the greatest chance of a supply is afforded by drilling on the sand-hill preferably on the south side of the school buildings so as to approach the deeper parts of the dolerite basement. In this position the sand, and probably the alluvium and the dolerite would all be able to contribute. The driller should be instructed to use slotted casing in and below the sand, and not to rely on larger supplies at depth.

RECOMMENDATIONS

It is suggested that the hole be re-bored and extended, which will allow removal of the pump-housing and casing (3 m). To be sure that the hole is clean, the hole should be reamed from 2 in to 6 in. Right-inch casing will then be required for the top 3 m.

The hole should be extended to about 35 m. This should give 27.5-30 m