

1976/2. Groundwater prospects near Dunalley.

W.C. Cromer

Mrs A. Sadek requested an investigation of the groundwater potential of land situated 2.5 km south of Dunalley [EN670484]. The property is an elongate strip about one kilometre in length, bounded by Carlisle Beach to the west, and the Arthur Highway to the east. Water is required for gardens.

The land slopes gently to Carlisle Beach where a 4 m high cliff has been cut in actively eroding aeolian sand deposits at high water mark. Small intermittent streams have cut through the sand exposing older, partly cemented, marine sands underlying the unconsolidated aeolian deposits. The thickness of sand decreases rapidly inland, where it overlies Jurassic dolerite. The dolerite does not crop out on the site, but exposures in drains along the Arthur Highway show that the rock is deeply weathered to a yellow-brown clay with a thin clayey soil.

The prospects for obtaining groundwater are not favourable. Dolerite is an unreliable supplier of water, and drilling in this rock is generally unsuccessful and is therefore not recommended. Small quantities of water are likely to be present in the aeolian sand deposits behind Carlisle Beach but the yield would probably be unreliable and temporary because of their limited extent and thickness.

It is recommended that surface water supplies be used for gardening. Large amounts of water draining from the nearby hills are collected by drains along the Arthur Highway, and channelled across the property to Carlisle Beach. A dam should be constructed near the Arthur Highway to collect this runoff. The dam may be excavated to solid bedrock, which probably exists at shallow depth, or to the weathered dolerite, either material providing an impervious base to reduce leakage. (At least two small dams have been constructed in the weathered dolerite on adjoining properties). Excavations in the sand deposits should be avoided as they are unstable and do not retain water.

[16 January 1976]