UR1973_04

Underground water prospects at Oyster Cove.

W.C. Cromer

B. Curran requested an investigation into underground water prospects on his property near Oyster Cove. The land, of 18 hectares, is situated on the south-east side of the Channel Highway-Oyster Cove Road intersection. It is unimproved and lightly timbered, rising gently to the south. The owner requires water for later irrigation. An 11000 m^3 dam has been proposed for this purpose and subsurface water may be required to augment surface run-off. The proposed dam site is in a small northward flowing valley which is fed in part by a number of small springs at its head. Mr Curran proposes to erect a house in the vicinity of these springs and he has also requested that the Department investigate the suitability of this site.

GEOLOGY

Upper (marine) Permian rocks underlie the area investigated, and generally the soil cover is sparse. A thin veneer of Tertiary(?) silcrete and clayey sand is present towards the western edge of the property. The same rocks also occur to the north, on the lower parts of the property near the Oyster Cove Road. The springs on the property occur where a thin layer of these Tertiary(?) deposits overlies consolidated Permian rocks. The extreme north-eastern section of the property is apparently underlain by more recent alluvial sand and gravel, but these are only very thin.

HYDROLOGY

Leaman (1967) has investigated the groundwater characteristics of the Permian rocks in the Cygnet area, and it is probable that most of his conclusions are applicable in the Channel area. On this basis, the rocks on the property under investigation may be considered a likely source of underground water. Quantities are generally small, however, and have been found to range from 15-30 *l*/min. Qualities are variable, ranging from 600-3000 ppm of total dissolved solids. Values in the higher part of range may be unsuitable for irrigation.

RECOMMENDATIONS

It is evident that a dam constructed on the proposed site would receive substantial supplies of subsurface water (from springs) and surface water, and it is recommended that such a construction be attempted. However, if further supplies are needed, attempts at obtaining bore water will probably meet with some success. Any water so obtained may be of marginal quality, especially for the cultivation of small fruits. In such a situation it will be necessary to dilute the bore water by pumping it into the dam containing surface run-off and spring water. If attempted, the bore should not exceed 35-40 m in depth, and should preferably be situated in a low-lying site on the north-eastern corner of the property. Any water struck during boring should be analysed to determine its quality.

It is probable that the present site chosen for construction of a house is potentially unstable due to soil movements and landslips - the site has been partly excavated over a perennial spring in unconsolidated clayey sands. It may be possible to construct solid foundations if consolidated Permian sediments are present at a shallow depth, but it would appear judicious to choose an alternative site. A favourable locality is some 50-100 m upslope to the west above the springs, where hard sandstones would provide sound foundations.

REFERENCE

LEAMAN, D.E. 1967. The groundwater resources of the Cygnet District. *Undergr.Wat.Supply Pap.Tasm.* 6.

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