REPORT BOOK 19/37

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D.M. 309/42

SOUTH AUSTRALIA.

DEPARTMENT OF MINES,

FLINDERS STREET, ADELAIDE.

1st December, 1942

ADVICE ON UNDERGROUND WATER - PROPERTY OF MR. H.M. CHARLICK.

WEST BEACH. SECTIONS 224/225 HD. ADELAIDE.

Advice is desired on the prospect of obtaining a supply of water from underground sources, by boring, to be used for irrigation purposes.

A 6 inch borehole in process of drilling has reached a depth of 130 ft. from the surface. Normal ground water was struck in fine sand from 10-34 ft.; a second "brackish" aquifer was passed through from 84' - 92', which has been cased out; and a third water-bearing zone entered from 112' - 130', - this last water being very salt. The driller reports that the coarse sand and grits carrying the salt water at the bottom of the casing (at 130 ft.) are rising from 7 - 8 ft. up the casing and causing trouble.

The records of certain boreholes drilled in the past in the region of the property under review, all indicate that the first water struck which is of a quality suitable for irrigation generally occurs beneath a hard limestone ranging in depth from 360 ft. to 420 ft. from the surface. The water is in a grey sand with numerous shells. For instance, on "Fogmore Farm" the limestone was struck at a depth of 375 ft. At the Glenelg Golf Club, the No. 1 borehole is 400 ft. in depth. The borehole now being drilled is situated about midway between the two boreholes mentioned. It is expected, therefore, that the present hole will have to be drilled to a depth of approximately 400 ft. (or a little deeper) before any useful supplies of ground water will be struck. It is quite possible that the water will rise and flow over the surface of the ground - at least during late winter, if not throughout the year.

The following suggestions are offered for consideration if it is desired to proceed with the drilling of the hole, to the depth mentioned:-

a. To combat the troublesome grits and salt water at 112-130 (+) ft., 8 in. casing should be used. The full depth of these grits has not yet been ascertained. The 8 in. casing must pass right through these sediments, into the underlying clays, to seal off the water and the grit.

b. Continue drilling with 6 in. casing down to the limestones - bedding the casing in the limestone.

c. Drill through the limestone with 5 in. diameter drill well into the underlying sands.

d. To develop the hole, it may be necessary to carry out a continuous pumping test extending over several days, with an air compressor, to clean out the finer grey sediments.

In connection with the irrigation project, it is suggested that a soil survey be undertaken by one of the officers of the Waite Agricultural Research Institute to ascertain the most suitable vegetation to grow. It was noted that, the Patawalonga Creek passed into the property, and is within high tide influence.