GROUNDWATER SURVEY

HD. WAITPINGA SECS. 351 AND 307

A. P. BELPERIO

Department of Mines
South Australia

7

DEPARTMENT OF MINES
SOUTH AUSTRALIA

GROUNDWATER SURVEY

Hundred Waitpinga, Sections 351 and 307

by

A.P. BELPERIO, B.Sc.
STUDENT GEOLOGIST

24th January, 1973.

DEPARTMENT OF MINES
SOUTH AUSTRALIA

Rept.Bk.No. 73/24
G.S. No. 5030
Hyd. No. 2474
D.M. No. 1266/72

GROUNDWATER SURVEY

Location

General: About 20 km southwest of Victor Harbour

Region: 3

County: Hindmarsh

Hundred: Waitpinga

Sections: 351 and 307

Name of Property: Bimbadeen

Owner: B. Smith & Son

Postal Address: Bag 27,
VICTOR HARBOUR. 5211.

Telephone: 595031 (Willow Creek

Requirements

Water required for: Pasture (up to 32 hectares) and dairy cattle.

Quantity: 13,500 litres per hour minimum.

Quality: Not specified but should be less than 2,000 milligrams per litre.

HYDROGEOLOGICAL REPORT

Physiography and Land Use:

The topography is mature with rounded hills, moderate slopes and shallow valleys. Drainage on the property is south-easterly, towards the coast. Surface elevation varies from about 240 to 180 metres above mean sea level.

Most of the property with the exception of that bordering the creeks is cleared of natural timber and used for grazing.

Climate:

Nearest rainfall station: Victor Harbour

Mean Annual rainfall: 543 mm averaged over 30 years.

Remarks on rainfall pattern: According to the owner, the property has a reliable rainfall of about 760 mm a year.

Surface Hydrology:

Creek names: Unnamed tributaries of Waitpinga Creek

Characteristics: Basically seasonal, running mainly through the spring and winter months. Minor flow is maintained in both creeks during the summer months by numerous small seepages.

Springs: Numerous small seepages occur along the length of the creeks and on the slopes associated with porous sandy soil. High evaporation loss from these seepages is reflected in a marked difference in creek flow during warm and cool weather.

Surface storage: Minor for stock purposes.

Geology

Soil Cover: A light brown sandy soil underlain by mottled sandy clays covers most of the property. Thickness was more than 5 metres in several areas of the gullies.

Rock Units: Quaternary - undifferentiated
Tertiary - undifferentiated
Cambrian - Kanmantoo Series

Lithology: Quaternary - Mainly slope wash deposits, mottled clays and sands.
Tertiary - Laterised deposits and ferruginised sands and gravels of relic landscape.
Cambrian - Hard micaceous quartzite approaching a banded gneissic composition in parts.

Direction and Amount of dip:
Cambrian - Gneissosity is fairly consistent dipping about 60° to the south.

Structural Features: Two joint sets are prominent in the hard quartzite. One set dips about 60° to the north and the other about 80° to the west.

Aquifer Assessment:

Type: Free Water table. Groundwater is stored in fractures and joints within the bedrock.

Extent: Throughout the property but the water table would be much shallower in the gullies.

Potential Recharge: The relatively good rainfall and the well fractured nature of bedrock in the upper reaches of the creek in Section 351 would provide a relatively good recharge.

Borehole Site Location:

General: Although a bore site has been suggested, it is recommended that primary consideration should be given to the construction of a large dam to fulfill irrigation requirements. The suggested bore site is shown on the accompanying plan.

Reason for location: In this vicinity, the watercourse passes over well jointed bedrock and potentially provides maximum water quality, quantity and recharge than another site on the property.

Proposed Depth: 60 metres

Expected Yield: 2,000 to 4,000 litres per hour

Expected Quality: Of the order of 5,000 milligrams per litre

Probable Log: Micaceous Quartzite.

Summary:

The property inspected is underlain by hard micaceous quartzites. Although a possible bore hole site is indicated, drilling is not recommended since the potential quantity and quality of the water, although adequate for stock, would not be suitable for pastures.

As the area receives a reliable rainfall, it is suggested that to obtain sufficient supplies of good quality water, one or more large new dams be constructed at sites which have already been suggested to the owner by the Department of Agriculture.

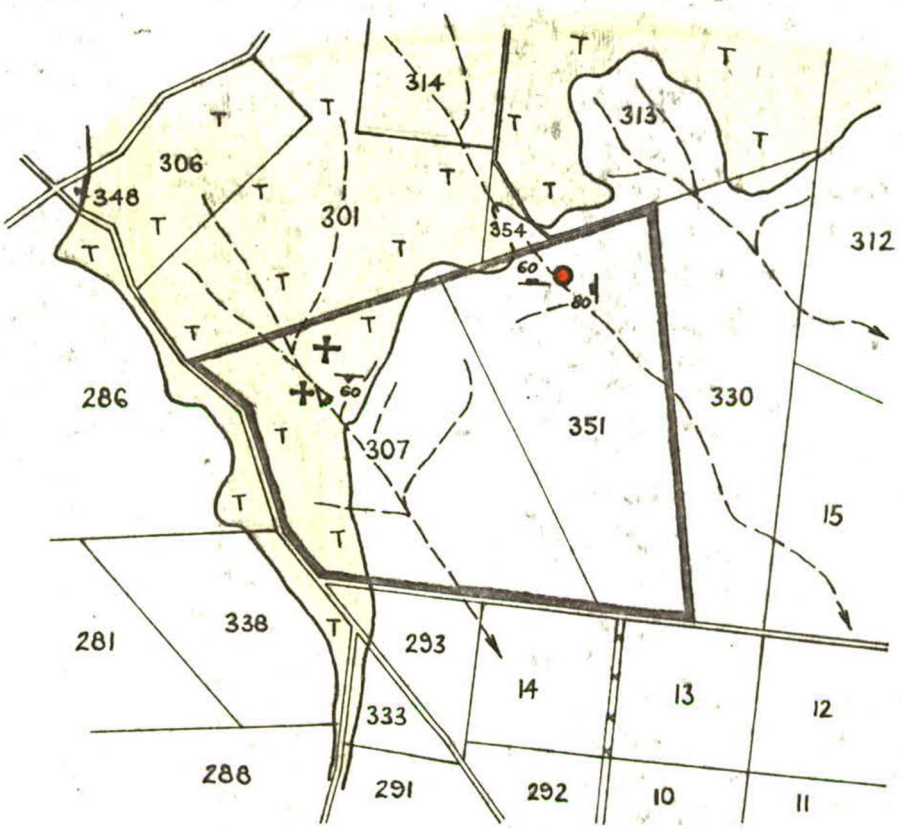
Furthermore it is recommended that the owner attempt to trench and channel some of the larger seepages so as to cut down evaporation loss and use them to supplement any new or existing dams.

A. Belperio

APB:JS
24.1.73

A.P. BELPERIO, B.Sc.
STUDENT GEOLOGIST

Survey Date: 19.1.73.



SCALE

METRES 1000 0 1000 2000 METRES

LEGEND

T T Tertiary – laterite crust

Kanmantoo Group – micaceous quartzite

Existing borehole ● 160 – Depth in metres
2015 – Salinity in milligrams per litre
5000 – Supply in litres per hour
2-72 – Month , year

Well ■

Spring ✚

Abandoned borehole ■

Proposed boresite ●

Strike and dip of bedding 60

Strike and dip of jointing 50

Strike and dip of foliation 35

Strike and dip of cleavage 45

Geological boundary .....

Fault line .....

Drainage lines .....

Surface storage .....

DEPARTMENT OF MINES - SOUTH AUSTRALIA

HYDROGEOLOGY SECTION	GROUNDWATER SURVEY	Date. 31 Jan. '73
Compiled. *A. Belperio*	SECS. 307 & 351. HD. WAITPINGA	Drg.No. S10127
Drn. *D.J.M.* Ckd. A.F.	B. SMITH & SON	Hc11

P.F. No. S7359A MH