Section

Rept. Bk. 54/145
G.S. 2356
D.M. 517/62
Hyd. 1321

DEPARTMENT OF MINES
SOUTH AUSTRALIA

RB 54/145.

REPORT ON GROUNDWATER PROSPECTS, SECTIONS 27, 29, & 30, HD. DARKE

- E. C. A. Edwards -

This property was inspected on 27/4/62.

REQUIREMENTS:

Advice on the prospects of obtaining water suitable for stock, a supply of 100-200 gallons per hour would probably be sufficient.

LOCATION, TOPOGRAPHY:

Situated approximately 8 miles north west of Darke Peak township, the property occupies undulating country with numerous sand ridges. The central part of the property is relatively high and the land surface slopes gently to the east and west.

Average rainfall in the area is approximately 15 inches per annum.

GEOLOGY, HYDROLOGY:

There are no exposures of Archaean rocks although they probably occur at shallow depth beneath the rising ground in the central part of the property. Lateritic sandstone associated with clay and ironstone gravel is exposed in one of the dams on Section 27. This deposit is probably quite thin and directly overlies weathered Archaean bedrock. The nature of the bedrock is not known but it probably consists of schist or gneiss, deeply weathered near the surface.

Overlying the lateritic deposits, which are Tertiary in age, are deposits of Pleistocene-Recent age consisting of alluvial clay and sand with some thin gravel beds occurring along drainage lines. Dense travertine limestone occurs as a

capping on these sediments in certain areas.

Sand dunes, consisting of fine white silica sand, are quite prominent and trend generally south east.

The occurrence of usable groundwater in such an area is dependent on local rainfall penetrating down to a suitable sand or gravel bed in the alluvium overlying bedrock. Where replenishment of the groundwater is good, the quality may be suitable for stock, such as in the vicinity of Darke Peak range. Within the property it is considered that the only prospects of obtaining water suitable for stock are in areas where run-off accumulates and then penetrates down through the soil zone. Two shallow gullies join just west of the house and during periods of run-off the water accumulating in this area is reported to soak into the soil within a short time. Under these conditions it is possible that the groundwater locally may be suitable for stock. A site has been suggested and is shown on the plan, on Section 30.

It is probable that if relatively fresh water occurs in the area it will be in the form of a thin lenticular zone with very saline water below. Therefore the first water encountered should be developed, if it is suitable for stock. If only salt water or hard bedrock occurs, drilling should be discontinued, as the deeper water is invariably salt in this type of country.

Drilling at another site in a gully near the eastern boundary of Section 27 may be warranted as conditions are apparently similar to the first site, although actual run-off is probably less. For this reason the groundwater in that area is probably more saline.

CONCLUSIONS AND RECOMMENDATIONS:

Water suitable for stock may be obtained from alluvial sediments at the site indicated. The depth is not known but is not expected to exceed 100 feet. If salt water is encountered drilling should be discontinued as the deeper water is invariably salt. If hard bedrock is found to occur at shallow depth,

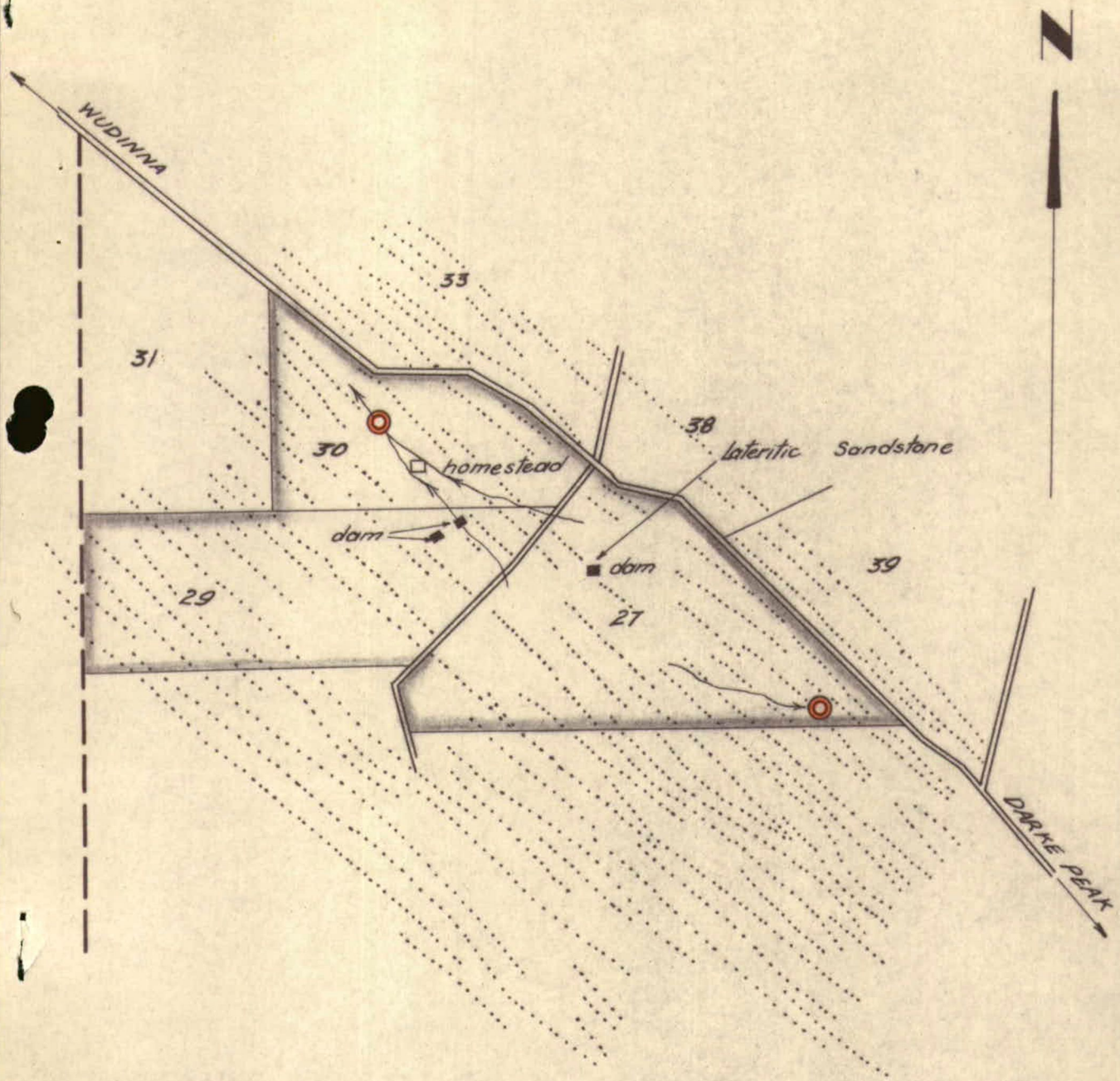
above the water table, drilling should also be discontinued. This is because the bedrock of this area would be expected to yield only a very small supply of salt water.

A second possible site is in a gully near the eastern boundary of Section 27. Prospects here are regarded as less favourable than at the site on Section 30.

R.G.S.

R. G. SHEPHERD
Geologist,
HYDROLOGY

RGS:CERF
7/5/62



PLEISTOCENE - RECENT

Alluvial sand, clay, gravel and travertine

Sand dunes

Suggested bore sites

To accompany report by R.G. Shepherd.

S.A. DEPARTMENT OF MINES

Approved	Passed	Drn.	UNDERGROUND WATER SURVEY Hº DARKE SECS. 27, 29, 30 E.C.A. EDWARDS.	D.M.	Scale 1" = 1 MILE
		Tcd. B.G.		Req.	S3002
		Ckd.			Dm. 1
Director		Exd.			Date 15-5-62.

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