

## Underground water prospects at Ross.

W.L. Matthews

The Ross Council requested a survey of possible occurrences of underground water that could be used to augment the town supply during dry periods. The present supply is pumped from the Macquarie River just upstream from the stone bridge west of the town.

### GEOLOGY

The geology of the Midlands area including Ross, was mapped by Nye in 1921. A reconnaissance of the various rock types was made during the present survey. The rock types occurring in the immediate vicinity of Ross are Permian mudstone, Triassic sandstone, Jurassic dolerite, Tertiary basalt, recent alluvium and windblown and locally derived sand.

Apparently unfossiliferous mudstone of Permian age with a southerly dip crops out to the north and north-east of the town.

Triassic sediments, consisting mainly of quartz sandstone, are exposed along the eastern margin of the flood plain of the Macquarie River. The main part of Ross township is underlain by this sandstone and to the south-east of the town, numerous quarries were developed in the past to provide sandstone for building purposes.

Jurassic dolerite intrudes Triassic and Permian sediments around the northern perimeter of Ross. Bodies of dolerite also occur to the south, along the west margin of the flood plain of the Macquarie River, and at many other localities surrounding Ross.

Tertiary basalt occurs in a NW-trending belt to the east of Ross. The town reservoir is built on basalt.

Recent alluvium underlies the flood plain along the Macquarie River, the flood plain is up to 2 km in width in the vicinity of Ross. Exposures of materials underlying the flood plain are not common although small sections of clay beds and some gravel can be seen at some localities. A quarry developed in a terrace deposit just west of the Ross bridge has an exposure of about 3 m of gravel. The gravels consist mainly of dolerite, fossil wood, indurated sedimentary rocks and occasional basalt boulders.

Windblown and locally derived sand can be found covering many of the hills and valleys, thus covering considerable areas underlain by older rocks.

### HYDROLOGY

Both Triassic and Permian sediments would probably yield underground water in many localities, if drilled. However the rate at which water can be withdrawn from these rocks is usually not very great and in other parts of the State would average 20-40 l/min. The salinity of any water found, particularly that from Triassic rocks might be too high for use in a town supply.

Dolerite is not usually regarded as a good prospect for underground water.

Basalt has been known to supply large quantities of water of varying quality in other parts of the State. The larger areas of basalt are some distance from Ross and it would be costly to tie any supply found in these

rocks into the town scheme.

The best prospect for a useful source of underground water in the area, is the alluvium along the course of the Macquarie River. If permeable gravel and/or sand beds occur below river level, it could be expected that large quantities of water of similar quality to the river water, could be obtained. Although the surface stream might get very low or could completely dry up during a drought period water flowing through or stored in any gravel or sand that occurs below the stream bed could be tapped with a bore. In such a situation, it is unlikely that water encountered in a bore could be pumped into the stream bed and be expected to reach the present pump location by surface flow. Any water so found, would have to be piped into the present pipeline.

So that costs would be kept to a minimum it would be desirable to locate water, if available, in the vicinity of the pump station. An area of alluvium that could be examined in more detail and reasonably close to the pump station is shown on the accompanying plan. Geophysical surveys such as seismic and resistivity traverses would be a useful aid in locating an area for testing with a bore. In selecting an area that might be looked at in more detail, special attention should be given to the effects of floods on any bore and pump that is installed.

#### CONCLUSIONS

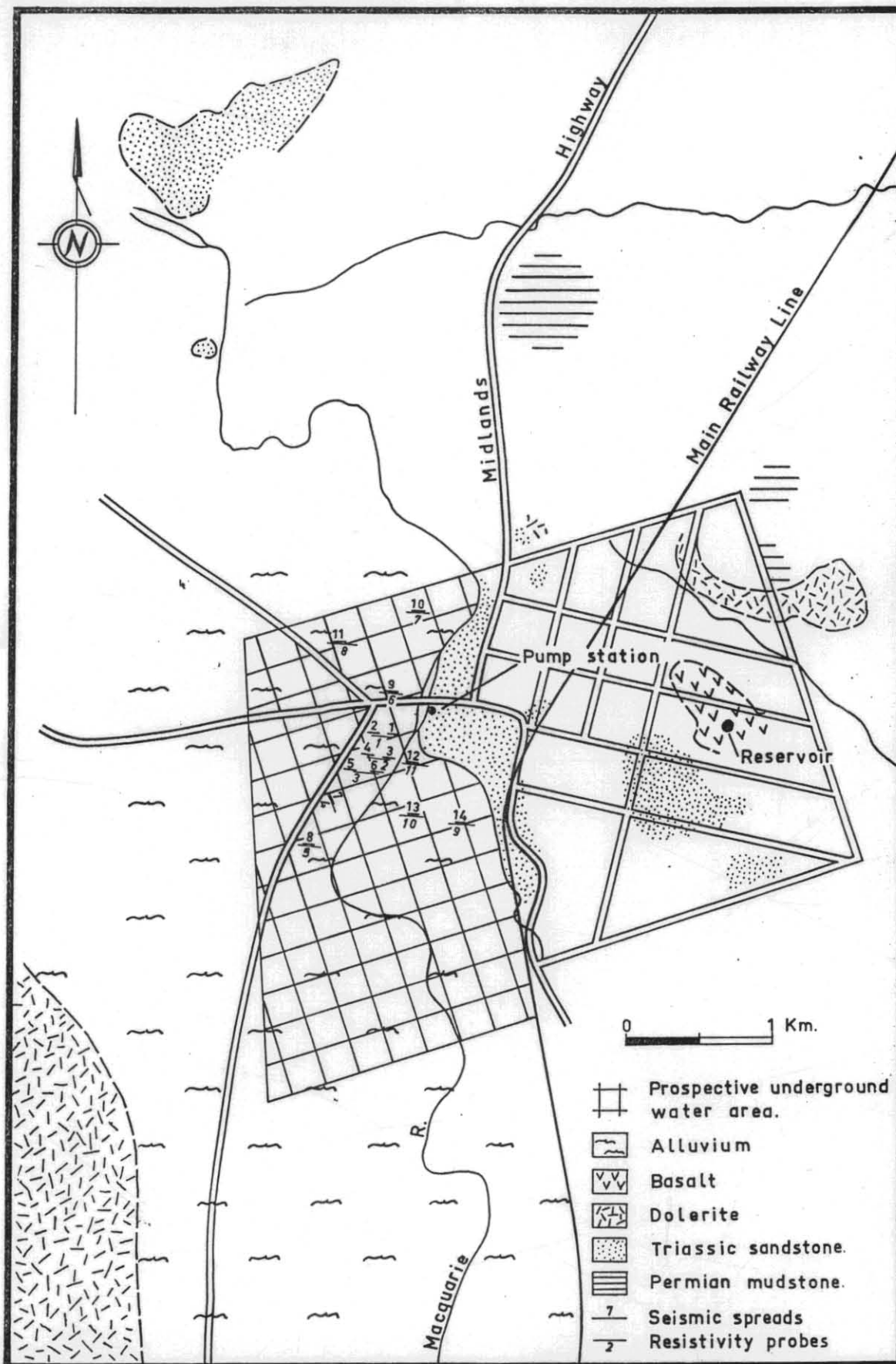
The most likely areas where a useful supply of water could be obtained is the alluvium along the Macquarie River course.

Geophysical surveys would aid in selecting the best areas to investigate with test bores.

#### REFERENCE

NYE, P.B. 1921. The underground water resources of the Midlands. *Undergr. Wat. Supply Pap. Tasm.* 1.

[4 January 1973]



DEPARTMENT OF MINES — TASMANIA

# GEOLOGICAL SKETCH PLAN OF ROSS AREA

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W.L.MATTHEWS

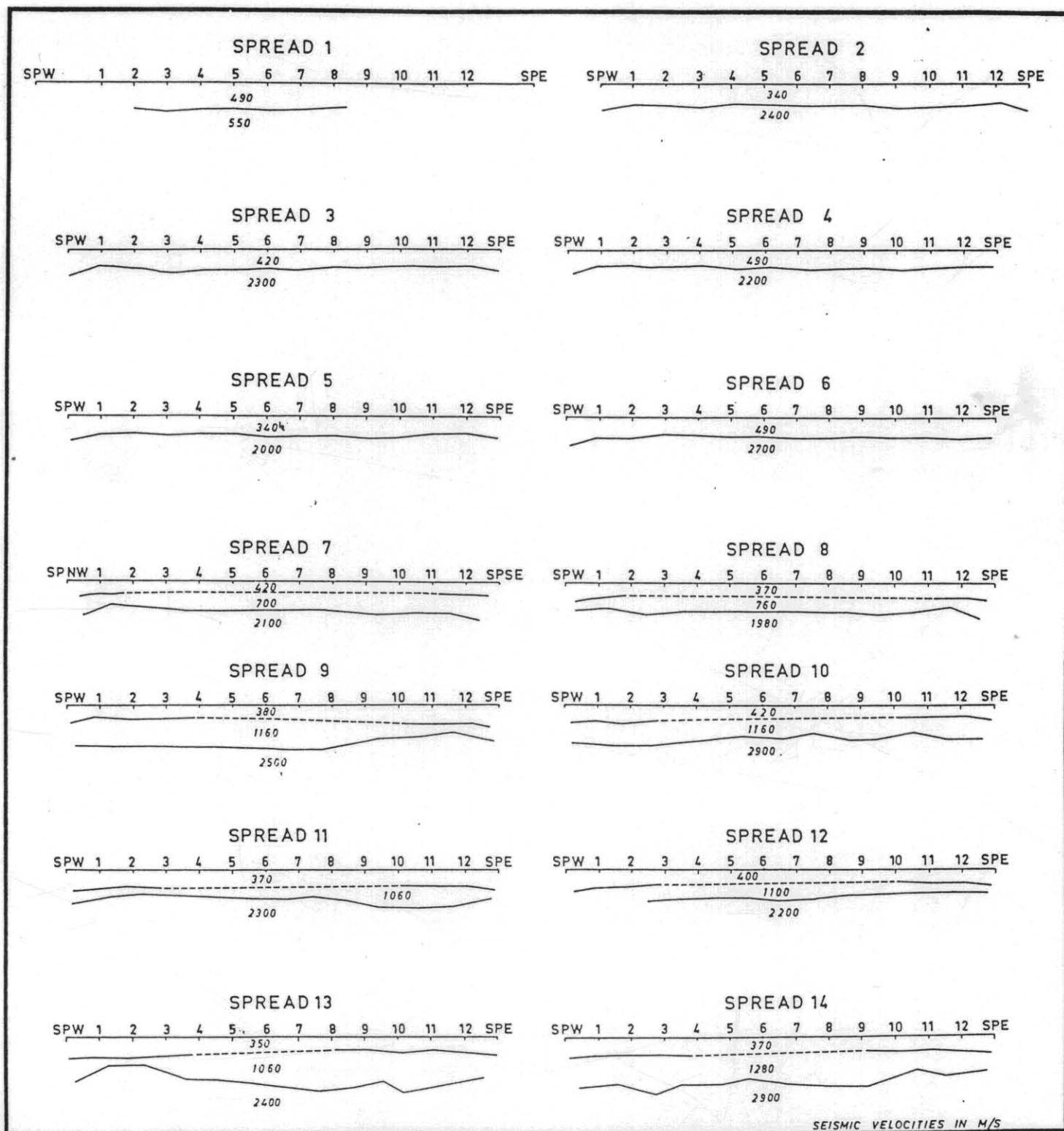
Draftsman  
P.J.Donnelly

Date  
January 1973

3708

5 cm

FIG 1



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# SEISMIC INTERPRETATIONS — ROSS AREA

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Date  
March 1973

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FIG. 2

5 cm