UR1975-22

Groundwater prospects on L.H. Vout's property, Forcett.

W.L. Matthews

Mr. Vout owns 8 ha of land situated approximately one kilometre north-east of Forcett [EN527610]. He requested advice on the availability of groundwater supplies for stock as well as for use on pasture.

RELIEF AND GEOLOGY

The northern boundary of the property follows the course of the Forcett Rivulet, and the land over most of the property slopes gently towards this stream. Immediately north of the rivulet the land has a much steeper slope.

The geology of the area has been mapped by A.B. Gulline and with the exception of some alluvium around the rivulet, the whole of the property is underlain by Permian rocks. These mainly belong to the Ferntree Formation although Malbina Formation rocks occur nearer to the rivulet. An east-west trending fault with a downthrow to the south has been mapped along the valley. Malbina Formation rocks exposed just below the house contain fossils which indicate this horizon to be lower Malbina in age. Part of this exposure appears to be indurated, suggesting the possibility of dolerite intruding at shallow depth. Dolerite intrudes Malbina Formation rocks to the west of the property. North of the rivulet the slopes are underlain by Permian rocks and basalt talus with *in situ* basalt capping the hills.

HYDROLOGY

The property is situated near the floor of a valley which has a considerable catchment area to the east, south and north, and Permian rocks in other areas are known to be reliable suppliers of groundwater. The water-bearing properties of these rocks varies according to the number of open joints and fractures that occur, and the more of these that are encountered below the water table, the greater will be the quantity of water obtained. The average amount of water obtained from bore holes in Permian rocks is 20-30 *l*/min, but much larger quantities are sometimes reported. The quality of water from Permian rocks is generally good.

If dolerite intrudes the Permian rocks at shallow depth, this could markedly reduce the chances of obtaining water. The hard bed of rock in the rivulet just below the house may have been indurated by dolerite, and the stream also takes a very sharp turn in this area which may indicate some local variation in the rocks. In the case of a narrow dyke affecting the area, it could be avoided by drilling upstream at Site 1 (fig. 1). However if dolerite does occur, it may be in the form of a flat sheet and could be struck in this area also.

Another possible locality, Site 2, is on the southern margin of the property which should also be on the southern side of the fault. If the fault is Tertiary in age, it is unlikely that dolerite would be encountered here in a bore hole. The site has the disadvantage of a higher elevation than Site 1, and would require a greater depth to be drilled.

CONCLUSION

The topography and rock types are favourable for the occurrence of groundwater on this property, but if dolerite occurs at shallow depth, the chances of obtaining water will be decreased.

[12 March 1975]

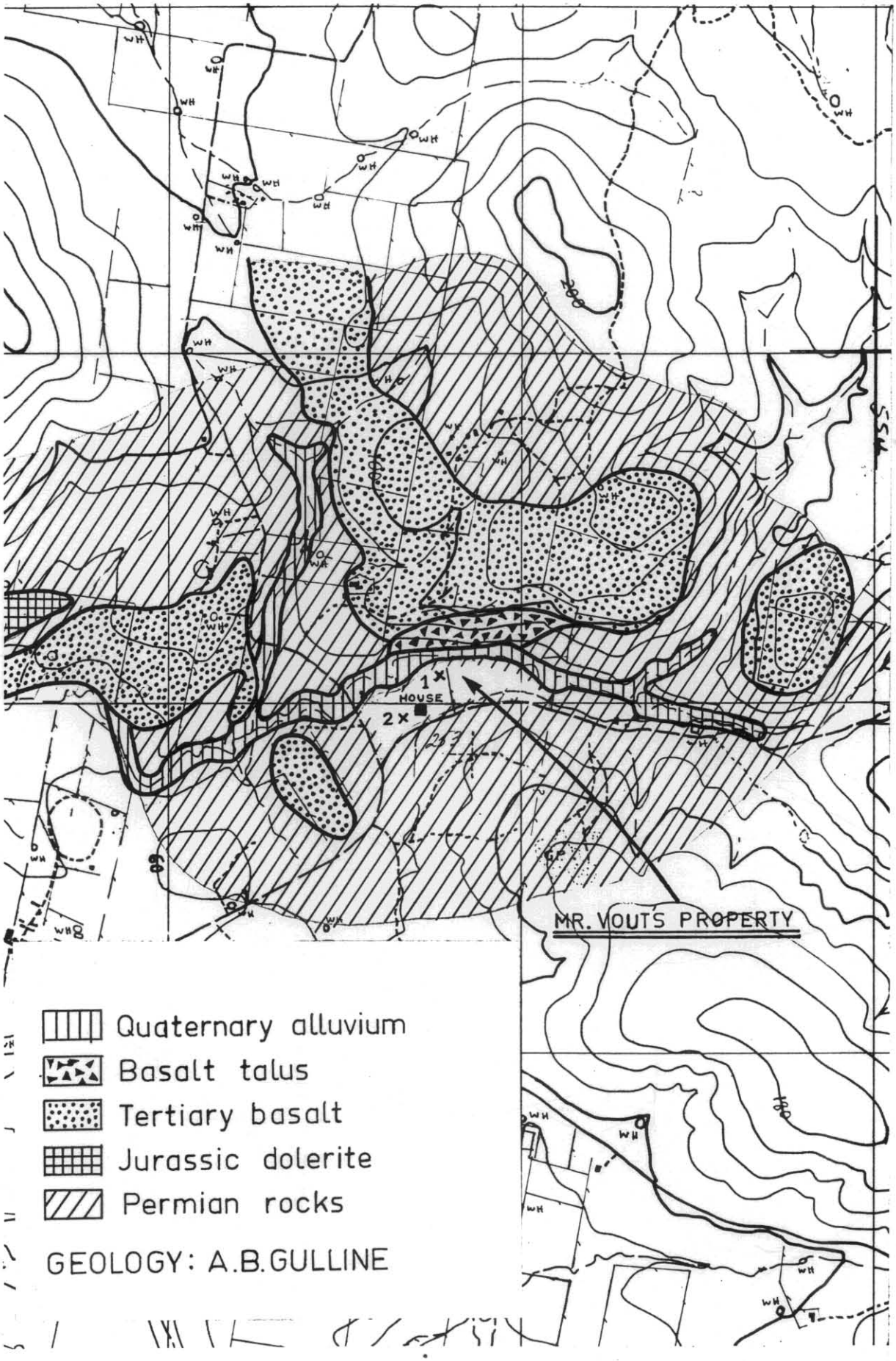
1×
HOUSE
2×
MR. VOUT'S PROPERTY
Quaternary alluvium
Basalt talus
Tertiary basalt
Jurassic dolerite
Permian rocks
GEOLOGY: A.B.GULLINE
5 cm

Figure 1.