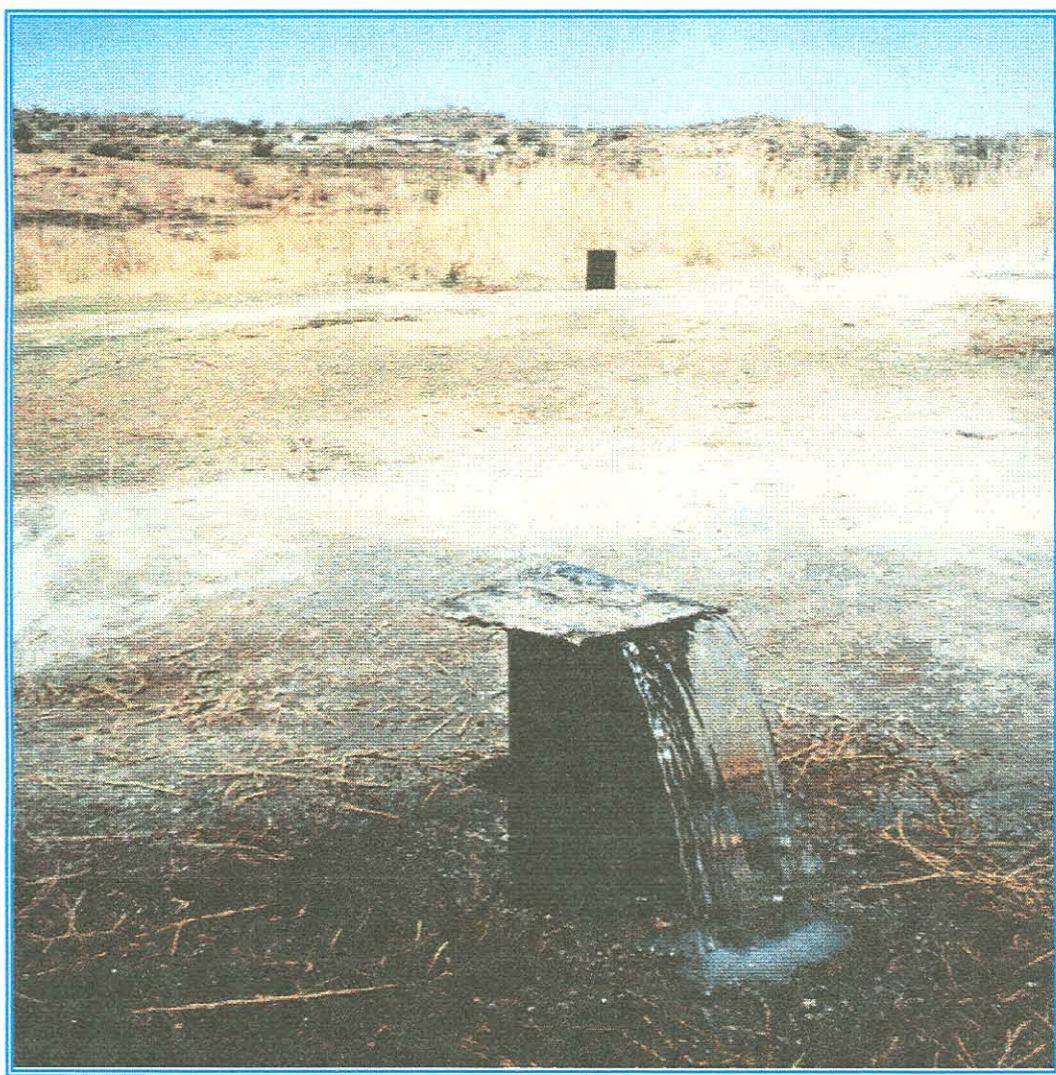


*Ground water resource development in hard crystalline rock aquifers
on the Nebo Plateau, South Africa.*

By

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in the Faculty Natural and Agricultural Sciences, University of Pretoria.

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WATER

*“He opened a rock,
and water gushed out,
flowing through the desert like a river”*

The National Research Foundation

The Department of Science and Technology

Psalm 105 : 41

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Abstract

ABSTRACT

In some regions of the Northern Province difficulties have risen concerning the provision and management of water resources. This research project attempted to find some solutions to the problems encountered and the principal aims were to understand the water regime and to develop new ground water resources. A research area of approximately 100 km² was chosen in the Jane Furse district Northern Province.

The study area is underlain by granite of the Lebowa Granite Suite, Bushveld Igneous Complex, with Dolerite/Diabase intrusions prominent in the north. Linear structures were identified through field mapping, existing satellite images and geophysical data.

A first phase geohydrological investigation was conducted. The initial results indicated good blow yields, but from pump tests it was deduced that the aquifers have a low storage capacity. The results further indicated that the ground water may have a high fluoride content which must be addressed.

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DESCRIPTION OF RESEARCH AREA

The research area (Figure 1) is situated near the town of Nylstroom in the South African Local Municipality of Vryheid in the Northern Province. The area is approximately 10 km long and 5 km wide and contains a number of granite domes and numerous small hills.

The area has a mean elevation of approximately 1 500 m above sea level (Figure 1). The terrain is hilly and rugged (Wessels, 1994). The area is a typical granite dome landscape consisting of numerous granite hills and rolling hills (Figure 1).