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**GROUNDWATER INVESTIGATIONS AT
ADELINA FARM**

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Sustainable quantities of groundwater are needed at Adelina farm for large scale irrigation since the small streams available in the farm cannot provide the required quantities. It is against the foregoing background that this project was undertaken to obtain groundwater at the farm. In this project, geophysical survey using electrical resistivity sounding and gravity method of surveying were carried out to determine and delineate areas within Adelina farm with high groundwater potential. Electrical resistivity soundings, using the Schlumberger electrode configuration were performed over the farm to determine the depth to the bedrock or thickness of Karoo sandstones. Gravity method of surveying was also carried out to confirm the results obtained with electrical resistivity method. Vertical electrical sounding data collected from each site was processed using a computer program Resist version 1 in order to obtain the depth to the bedrock and the resistivity of the Karoo sandstones lying above the bedrock. The depth values from all the sites were then processed using Geosoft (oasis montaj) software to produce a map showing bedrock topography while resistivity values were also processed to produce a resistivity map of the bottom layer (aquifer). Gravity data was collected along profiles and was used to calculate Simple Bourger Anomaly along each profile which shows the generally slope of the bedrock. The results of both methods generally agree. There is however a few discrepancies which require further investigation. From these results, three possible best areas of high groundwater potential were determined and delineated within Adelina farm.