

## CASE STUDY *Hydrological Monitoring for Gold Ridge Mining Limited*

The Gold Ridge project is an advanced stage gold project located on the island of Guadalcanal in the Solomon Islands. The Gold Ridge project is operated on the island of Guadalcanal, the central island of the Solomon Islands, approximately 30km South East of the capital city Honiara.



*Map of the Solomon Islands*

The Instrument Group has been involved with the project for two years and were initially contracted to build, install and commission a number of gauging stations for two projects during 2006-07.

The Islands have a tropical equatorial climate with high humidity but modified by trade winds from the sea. The temperature is a fairly consistent 28-30 degrees but in the evening it may drop to 23 degrees. Rain falls in short, heavy bursts most of the year, although the months between November and April are known as the rainy season.

Australian Solomons Gold Limited (ASG) is currently completing an infill drill program in order to prepare a new mineral resource estimate, in conjunction with a feasibility study and to providing samples for additional metallurgical tests.

### *Mini-Hydro Feasibility*

Two gauging stations were installed in July 2006 as part of a feasibility study for design of a mini-Hydro power station. The two gauging stations were installed in two adjacent catchment areas. The data collected from these gauging stations (both level and flow) aid in providing engineers to help with assessments.

### Project Summary

#### Application Type

A network of five Gauging Station

#### Location

Solomon Islands, approx 2100kms NNE of Brisbane, Australia

#### Contracting Agency

Australian Solomons Gold (ASG)

#### Measured Parameters

Meteorological: Rainfall

Hydrological: Water Level and Flow

#### Communications

None - Download Logger Direct using PDA



*A gauging station installed with RSS (Rising Stage Sampler) posts at the lower end of the catchment. ASG environment staff service and download station on a monthly basis.*

Installation of these sites proved to be challenging for a number of reasons such as:

- all equipment was carried into the selected sites by hand. The treks cover up to 10km a day through dense jungle and steep catchment areas, often in heavy rain, and
- most of the local helpers could not speak English.

### Base-line Studies

One gauging station was installed in November 2006 and two more in October 2007.

These stations were installed in the catchment areas below the existing mine pits for long term data collection of water-level and flow data.

During the installation phase (at each of the three gauging stations), control x-sections and physical flow measurements were taken at various water level stages (gaugings) to develop rating tables\* for these sites.

Rising Stage Samplers were also installed at these sites. Samples are collected at preferred water-levels and flow rates. Once the collected water samples are analysed, sediment loads can be calculated and water quality measured. This information is important before any new mining activity starts. The results from this data will then be part of determining the EEMP (Environmental Management and Monitoring Plan) once mining activity begins.

\*A rating table or curve is a relationship between stage and discharge at a cross section of a river/run-off channel.



A completed gauging station high in the catchment area.

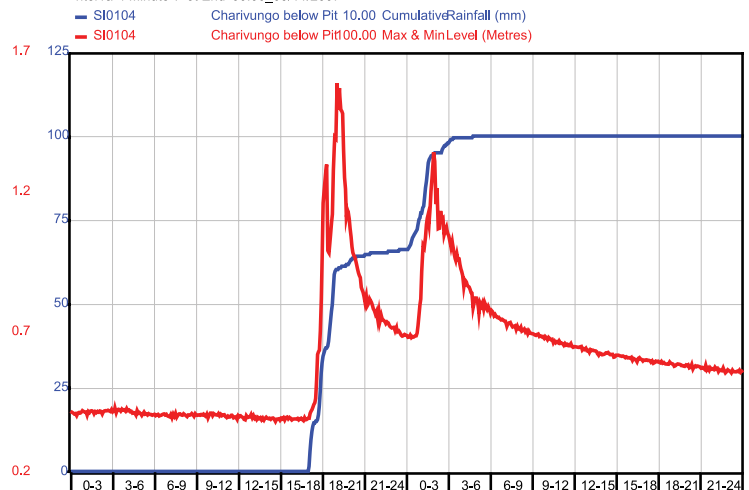
### Ecowise Environmental

HYPLOT V130 Output 04/02/2008

Period 2 Day Plot Start 00:00\_03/11/2007

2007

Interval 4 Minute Plot End 00:00\_05/11/2007



The continuous water level recorded (red) and cumulative rainfall (blue).



ASG Geologist downloading a logger through PDA.