Taparewa Telemetry

Project Description:

To provide two independent soil moisture monitoring sites, with one also providing soil temperature data. To also supply and install a new pulsed output water meter together with diaphragm pump for fertigation purposes. All data from both soil moisture sites and the new water meter had to be transmitted via automatic telemetry to the WaterForce website.

Client:

Jeremy Savage – Jones Road, Taparewa

Contractor:

WaterForce Marlborough

To install a new water meter including making necessary changes to the pipework, install soil moisture probes, fertigation tank and pump. To design and make up all data telemetry units including solar panels and battery back-up units. All installation work and commisson completed system.

Installation:

September 2010

Designers:

Jared Halstead
WaterForce Monitoring
Grant Clifford
WaterForce Marlborough

Project Manager:

Grant Clifford

Project Summary:

Jeremy Savage leases a dairy farm on Jones Road, Taparewa (approximately 40km as the crow flies southwest of Motueka). Currently the farm has a full time farm manager. The property had an existing K Line irrigation system. The existing water meter was broken and had incorrect pipework leading into the meter.

Being an absentee owner, Jeremy wanted to explore the option of remotely accessing his soil and water data. Jared Halstead from WaterForce Monitoring was asked to design a suitable package to deliver this information to the WaterForce website.

The main issues with this site were lack of power and lack of suitable Vodafone network coverage. Jared did a great job in designing a simple but very effective way of monitoring the soil moisture and soil temperature, then transmitting this data to the website.

Information from the water meter and one of the soil monitoring sites was sent to a central gateway unit using radio telemetry units. This central gateway unit also monitored soil moisture and soil temperature.

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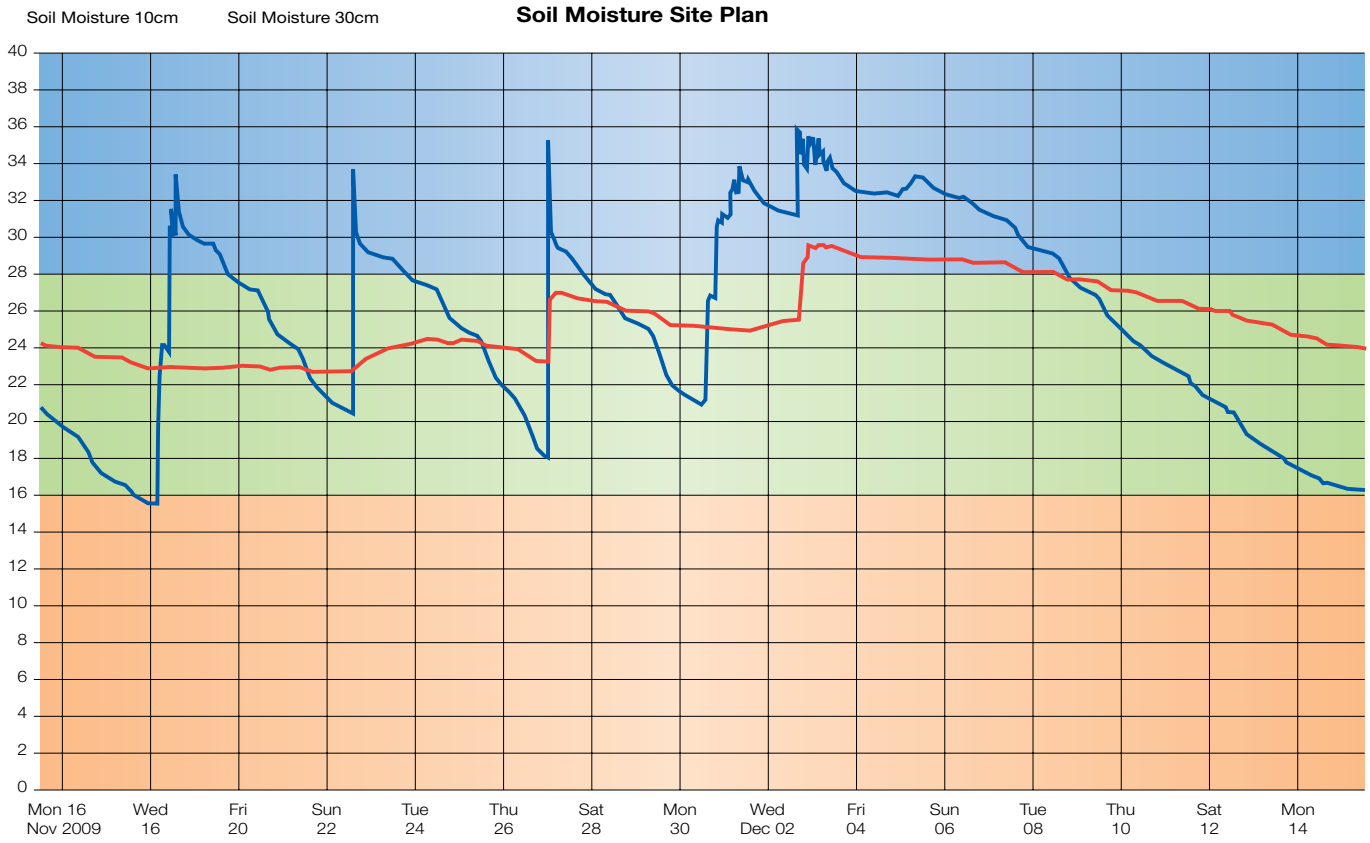

System Brief:

- Two soil moisture monitoring sites with probes at 150mm and 300mm
- One soil temperature monitoring site with the probe set at 150mm
- One 150mm water meter with pulsed output
- One 1100 litre fertiliser tank complete with suitable diaphragm pump

System specifications:

- A Dorot 150mm DIM-A-EX water meter was installed to monitor all the K Line irrigation requirements. This was directly wired to an Outpost radio telemetry unit which sends data out via the gateway unit. This site has 230volts power so does not require a solar back-up unit.
- Two Decagon ECHO 10HS soil moisture probes were installed at the first monitoring site, one at 150mm and the other at 300mm. These were wired to another Outpost radio telemetry unit complete with a solar panel.
- The central gateway site had a two further Decagon soil moisture probes installed at 150mm and 300mm. The probe set at 150mm was the Decagon ECHO 5TM which also monitored the soil temperature. This site also had a solar panel installed.
- High gain aerials were needed to transmit data due to the remoteness of this site.
- All three sites had battery back-ups installed.
- A 1.1kw AR252 diaphragm pump was installed to inject liquid fertiliser into the main pipework. A marac valve has been installed to provide control over the injection rate.

Project outcome:

The project was a great success, proving that with the right equipment data can be transmitted from very remote sites. The data is live on the WaterForce website for Jeremy to access from literally anywhere around the world.

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