

## Frequency Domain Electromagnetic (FDEM) Induction Method

Electromagnetic Induction (EMI) methods include frequency-domain EM methods (FDEM) and time-domain EM methods (TDEM). Blackhawk GeoServices' geophysicists have successfully utilized a wide variety of EMI methods for engineering, environmental and hydrogeologic investigations.

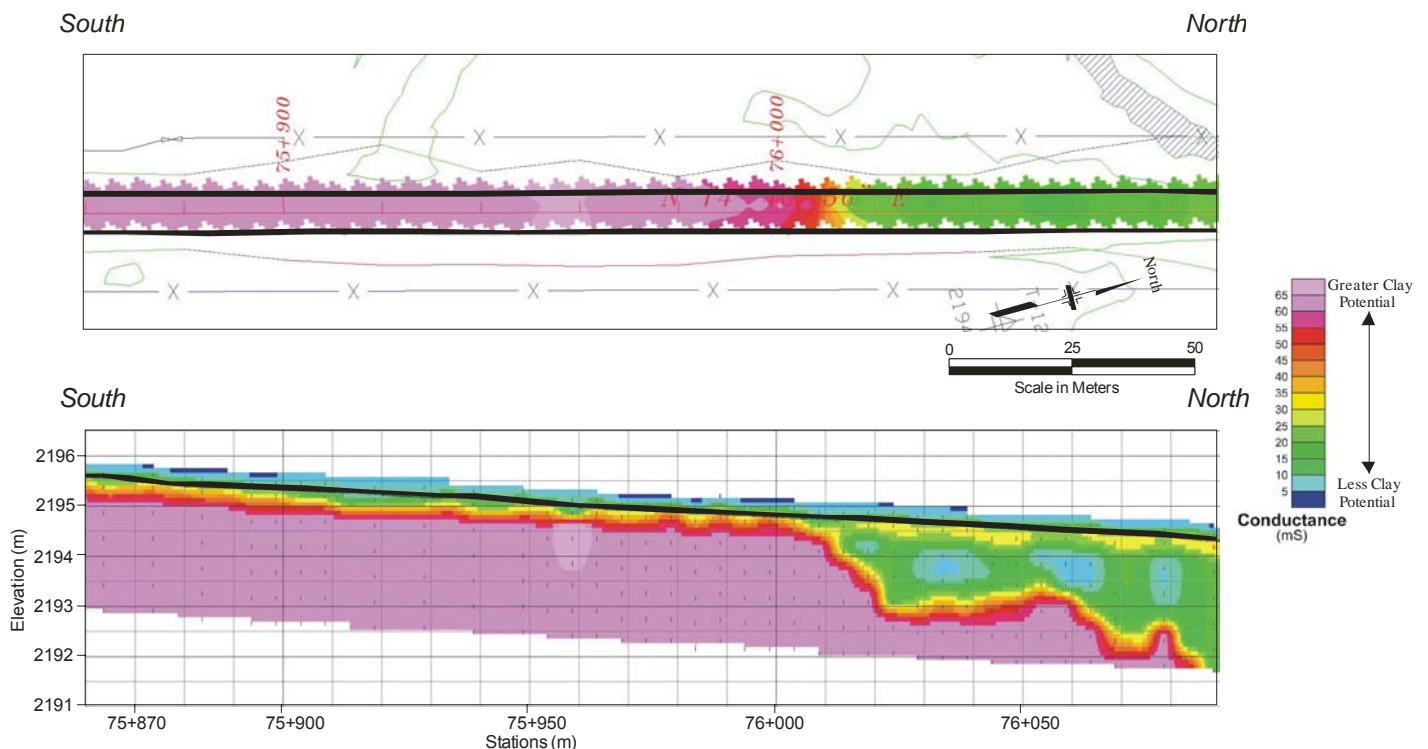
### Mapping Clay in Road

The Geonics Limited EM31-3 uses three receiver coils at three different transmitter-receiver coil spacings. The transmitter-receiver coil separations are 1m, 2m and 3.66m. This allows for the acquisition of three separate data sets simultaneously, each measuring the apparent conductivity to a different effective depth below grade.



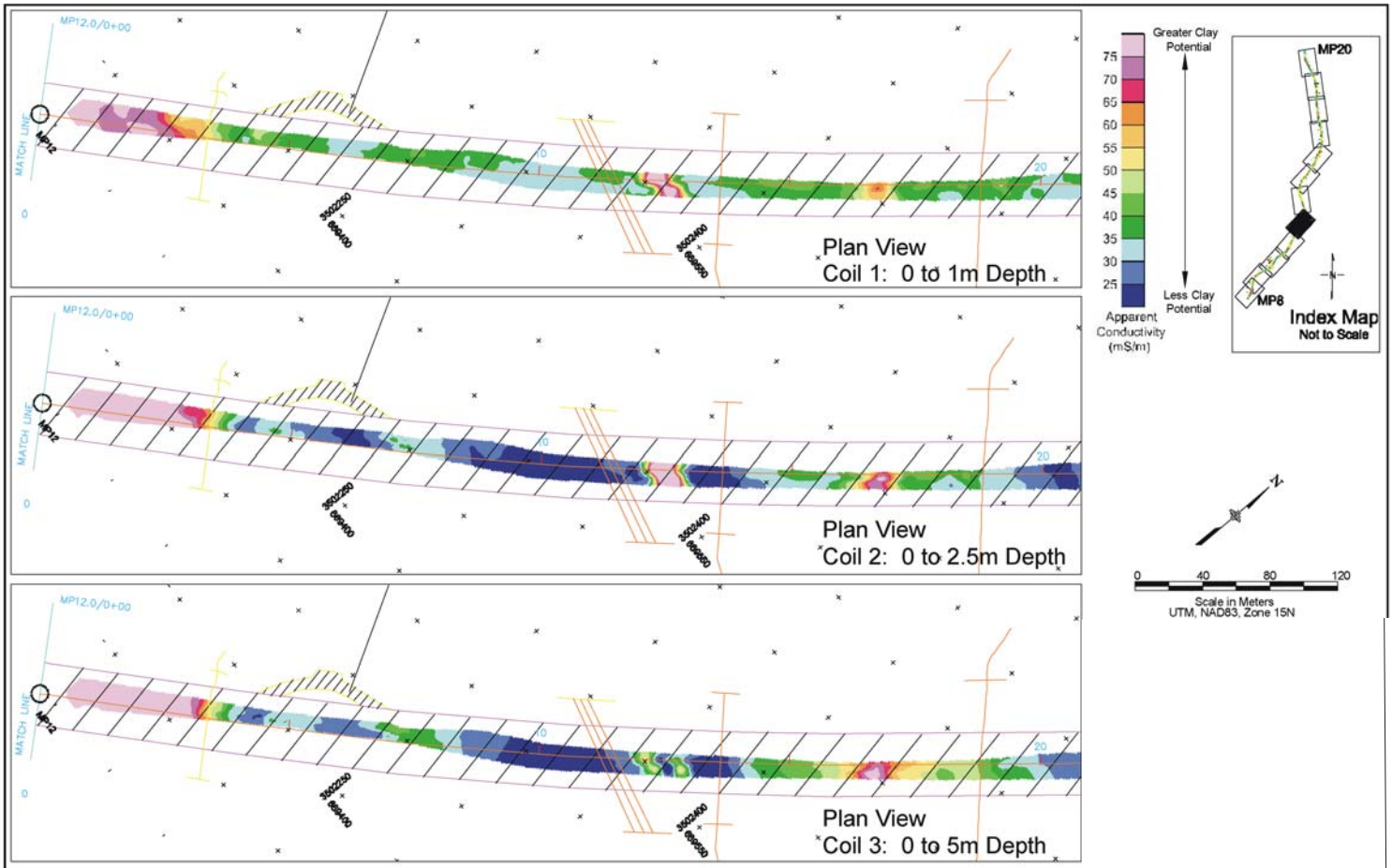
Electromagnetic Induction data acquisition system.

### Case Study #1 Dulce, NM



Color contoured interval conductance overlain on engineering Plan & Profile drawings.

## Case Study #2 Natchez, MS



Color contoured apparent conductivity plan maps overlain on engineering Plan & Profile drawings. Each of the three windows represent different depths of investigation.

### Benefits

- ◆ When the presence of clay in the road subgrade is of concern, the FDEM method is a fast, efficient, and cost effective geophysical tool for mapping spatial distribution of clays.
- ◆ The FDEM method will complement and focus soil sampling programs during preliminary site investigations, and for road rehabilitation design and construction projects.
- ◆ The FDEM method will create significant cost savings by reducing construction cost overruns.