

# CASE STUDY

## LANCASHIRE RAIL



Lankelma was asked to undertake a site investigation on the rail tracks near Bolton in the first quarter of 2014. Using the 19 tonne road-rail vehicle, UK12, Lankelma drove to the set road rail access point, deployed the turntable and bogies to get on track and then began testing within the four-foot.

Due to the poor ground conditions; glacial till, running sands and a high water table, the engineers needed a greater understanding of the underlying geology before any track stabilisation could take place. Obtaining this knowledge required Lankelma to complete several CPTs and install a vibrating wire piezometer (VWP) within the four-foot during a single night-time possession.

The vibrating wire piezometer is a geotechnical installation that uses a pressure transducer to accurately measure

| PROJECT SPECIFICATION |                         |
|-----------------------|-------------------------|
| LOCATION              | Lancashire              |
| DATE OF WORKS         | February 2014           |
| TESTING UNDERTAKEN    | CPT<br>VWP Installation |
| RIG                   | UK12                    |

pore water pressure over time. The VWP is lowered into a pre-pushed CPT hole before being fully grouted in place with bentonite-cement.

By the end of the shift UK12 had successfully installed one 300 kPa capacity VWP and pushed four CPTs to 10 m. The VWP was then connected to a data logger which automatically sent data to the client each week, negating the need for any track-side data collection. This data, coupled with the CPT data, has enabled the client to gain an improved understanding of the underlying ground conditions and water table.

