

# LANKELMA

SUMMER 2004 NEWSLETTER

## New Truck visits Jersey for its first job

Lankelma's latest truck is a 17 tonne GINAF 6x6 truck with excellent off road capability. This truck will be permanently based in Scotland (Glasgow). Lankelma acquired this truck in March 2004 bringing its own land fleet to 10 specialised CPT units.

For its first job however it went out to Jersey. Darren Ward, geotechnical engineer, travelled out to Jersey to give one of our lunch talks on CPT. The local geotechnical fraternity gathered in the Arts Center in St Helier. The Public Services Department (PSD) then found us a job just over the road. This also enabled people to observe the CPT in practice. They agreed that CPT is a very useful tool on Jersey, enabling rapid site investigations and reporting.

For a new services tunnel we carried out two CPT's down



to bedrock at 10 metres. We also placed a piezometer at 9 metres and took two MOSTAP samples from 2-3 metres and from 4,5-5,5 metres. The next day we carried out 6 CPT's on a roadslip site on the east side of the island. CPT's went down between 7 and 11 metres to bedrock.

## Deep Deep Down

Recently, Lankelma CPT Ltd again demonstrated its ingenuity and versatility of the CPT by carrying out a very ambitious development program. The work was carried out 154 steps down (about 30m with no lift!) beneath London, in an underground tunnel.

The work was carried out in partnership with one of the Underground operators as part of their tunnel assessment program. Although carrying out CPT's in basements of buildings beneath road level is something that Lankelma is very experienced in, this particular job had a small twist!

That twist was that the CPT's were not required to be taken vertically down as usual but at a nearly horizontal incline through the sidewall of an underground tunnel. The solution involved attaching Lankelma's special 'Basement' set of CPT rams to the tunnel wall lining.

This job highlighted how versatile CPT's are and how they can be adapted to any location / situation. It also showed that by working together with the client at an early stage, cost effective solutions can be arrived at, saving time and pushing back the boundaries of innovation.

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## Southampton University

Lankelma has recently teamed up with Southampton University to help with an ongoing research project. The project was to investigate old pylon foundations. The research is partly funded by the National Grid and its maintenance contractors.

Lankelma's versatile CPT frame was used so as to be able to get as close to the foundation as possible. The rams on the frame can be mounted either over the end of the frame or in centre.

The reaction force was provided by concrete blocks mounted on either end of the frame. One big advantage of the frame in this situation was that the rams could be moved laterally to a different position without moving the frame itself. The tests were spaced out with a distance of as little as 20cm between them so as to accurately gain a profile of the foundation.

This work has proved that CPT's are an innovative method of ground investigation with applications in many different environments. This is also another example of Lankelma's commitment to research and advance in the use of CPT's.

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## Complete Railway Site Investigation

Rail embankments are a common place to find problems with earth movement on the Rail Network.

Lankelma recently carried out an investigation on an embankment constructed on a Peat Bog. These underlying soil conditions were causing subsidence in the embankment. As it was a boggy site a wheeled vehicle could not be used. Lankelma's 15 tonne crawler unit was used for the entirety of the works. Our crawler, with its low ground bearing pressure was able to reach all parts of the site.

The aim of the investigation was to find the properties of the material below the embankment, and to provide a profile through the embankment.

The depth of the 20 PCPT's were 20m, with some going down to 30m depending on the client's instructions. At four locations MOSTAP soil sampling was carried out.

This system was advantageous for two main reasons. The first being that there was no need to mobilise another piece of equipment as the CPT Rig was already on site, saving money. The second was because of the high quality samples that you can get from this type of push sampling.

The second stage of the investigation was to carry out CPT's at the top of the embankment on the track. This was carried out with the same CPT rig that is especially designed to work on the rail network. Over a three-weekend period, 10 CPT's were carried out to a depth of around 15m.

This shows how best suited CPT's are to the rail industry. Due to their high quality, speed and quick turn around with results, CPT's can be adapted to the constraints of short possession times and restricted access issues.

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