



LANKELMA



**THE EXPERT IN SPECIALIST
GEOTECHNICAL INVESTIGATIONS**



Lankelma is one of the world's leading cone penetration testing (CPT) companies, delivering ground investigations and providing engineering consultancy for construction projects around the globe.

We provide high quality data to determine a range of parameters, including soil type, relative density, insitu stress conditions and shear strength, for use in geotechnical design. We also offer interpretation and engineering input to our clients' projects.

Lankelma was established in the UK in 1999. Over the past two decades, we have developed an extensive fleet of CPT equipment, operated by experienced staff, which can be mobilised anywhere in the UK (or the rest of the world) at short notice. Our services can be tailored to suit different ground conditions and environments, including on the railway, on restricted access sites and in the marine environment.

THE BENEFITS OF CPT



Fast, efficient and cost-effective data gathering and handling



High quality, repeatable results, available in real time



Data can be used directly in geotechnical design



Soil stratigraphy identified from mechanical response and soil behaviour



Giving confidence in conventional borehole and testing results

We were named Ground Investigation Specialist of the Year at the 2015 Ground Engineering Awards and won the award for Equipment Innovation in 2017.

OUR FLEET

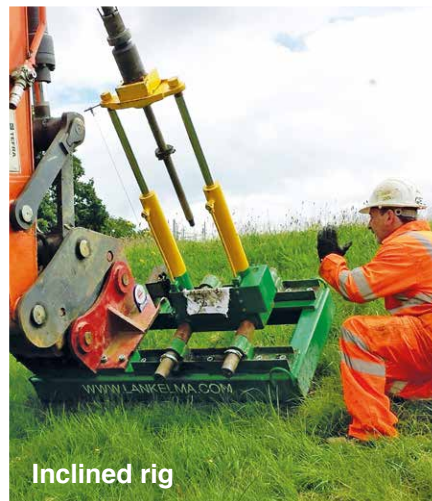
We are innovators, working with universities, manufacturers, contractors and consultants to develop new ways of gathering and delivering high quality geotechnical data to be used directly in design.



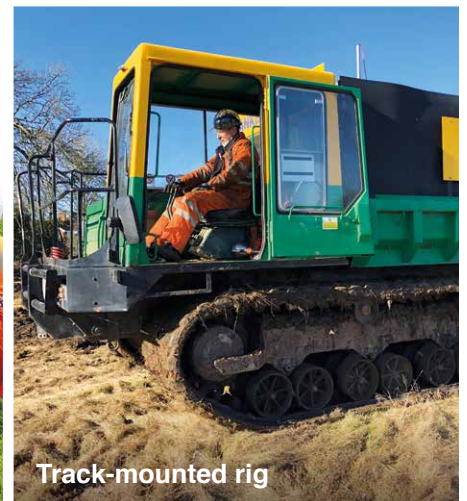
Mini crawler



6x6 wheeled rig



Inclined rig



Track-mounted rig



Excavator-mounted CPT



Lightweight CPT rams



Road-rail CPT



Track-truck

Versatile track-trucks

Track-trucks are our most versatile rigs. They can be driven on the road and, once on site, deploy tracks to allow them to reach test locations over soft or uneven ground.

6x6 wheeled rig for penetrating hard ground

Our 6x6 wheeled rig is the largest CPT unit in our fleet, weighing 30t. Offering a high reaction force, it can penetrate hard ground with our dummy cone tip to allow testing to continue beneath. It is ideal for working on the highway.

Track-mounted rigs for soft ground

Our rubber tracked CPT rigs have a large footprint, high ground clearance and low bearing capacities, making them ideal for working on soft or boggy ground.

Road-rail CPT unit

The world's first dedicated CPT rail truck can test within the four-foot. The VAB-approved unit is fitted with a rail bogie and a central turntable that rotates it through 360°, allowing it to gain access to the railway at most access points.

Mini crawler for restricted sites

The mini crawler allows us to carry out CPTs on sites with very tight access. The rig, which is just 770mm wide and can fit through a standard doorway, can use our full range of cones and samplers and can also install instrumentation.

Excavator-mounted unit for difficult access

Our excavator-mounted CPT unit is ideal for difficult access work. Mounted on an excavator arm, the unit runs off the machine's systems. The rig is VAB-approved for rail work and is suitable for testing on the four-foot, six-foot, cess and embankments.

Lightweight CPT rams for tunnels, stations and basements

Our lightweight hand-mobilised CPT rams can be bolted into position on tunnel walls to gain reaction to test in multiple orientations, or fixed vertically for testing in basements and confined spaces, and is powered by three-phase power or an external generator. The CPT rams can also be mounted to an excavator arm for inclined testing beneath structures or on embankments.



CONE PENETROMETERS

We use a wide range of cones for geotechnical and environmental investigations, from our standard cone and piezocone, to more specialist cones designed to gather a wide range of ground information in different environments.

These include:

- ✓ Seismic cone for measuring small strain stiffness and G_{Max}
- ✓ Cone pressuremeter for measuring large strain stiffness and soil strength
- ✓ High pressure dilatometer for elastic measurements in rock
- ✓ Membrane Interface Probe for characterising ground contamination
- ✓ Videocone, providing visual assessment of geological conditions and UV fluorescence of contaminants
- ✓ Sampling: MOSTAP, Shelby and water
- ✓ Installations: Standpipe, vibrating wire piezometer and inclinometer
- ✓ Push-in shear vane for measuring undrained shear strength of clay
- ✓ Lubricating module to test at greater depths in stiff clays

CONSULTANCY AND STAFF PLACEMENT

We offer a range of services, including supplying fieldwork teams, contractor supervision, project management and acting as the client representative. We also provide consultancy, reviewing interpretative reports, data quality tests, reporting of third party tests in AGS (or other formats) and advise on appropriate testing and equipment for ground conditions and project-specific requirements.

RESEARCH AND DEVELOPMENT

We believe in constant improvement of our equipment and systems to provide solutions to difficult testing scenarios and data requirements. Our R&D team works on new developments and improving systems, using our fully-equipped workshops. We are renowned for our innovations, winning the Ground Engineering Award for Equipment Innovation in 2017.

NEARSHORE MARINE

We also carry out nearshore geotechnical investigations for marine civil engineering, coastal and flood defences and energy projects, working in water depths of up to 25m. We own a wide range of marine drilling and CPT equipment, including Sandpiper, our Combifloat C5 Jack-up platform. These can be operated by our staff anywhere in the world or alternatively, clients can hire the jack-up to operate themselves.

OUR EXPERIENCE



We carry out more than 250 CPT investigations a year for developments and civil engineering projects ranging from residential, commercial and industrial projects, to road and rail schemes, river and sea defences, wind farms, tunnels and utilities.

Scotland: Delivering high quality railway data

Our road-rail truck carried out more than 250 CPTs, to a maximum of 12m depth, over 90 night shifts on the Edinburgh-Glasgow improvement programme. Data was used directly in the design of foundations for the overhead line equipment support structures and for station remodelling as part of modernisation and electrification of the main line between Edinburgh and Glasgow and to Stirling and Dunblane.

Portugal: Contamination characterisation

Our mini crawler and Membrane Interface Probe proved to be the ideal combination for characterising ground conditions and contamination in and around a petrol station in the Algarve, southern Portugal. The rig carried out 12 tests between the pumps on the forecourt and around the site, identifying high concentrations of petrol contamination between 2m and 12m below ground.

New Zealand: Supporting earthquake recovery

One of our 6x6 trucks carried out more than 60 seismic CPT investigations in Christchurch, New Zealand, in the wake of the devastating 2011 earthquake. Results fed into detailed ground models developed for the region, to help the design of earthquake-resistant buildings and infrastructure.

Finland: Verifying soil mixing

We were called in to carry out more than 150 CPTs and insitu shear vane tests to provide an accurate measurement of soil mixing column shear strength in Kittila, Finland. The 18m long columns were being used to raise a mine tailings dam.

England: Beating the tide

We had to bring all our experience of working in intertidal zones to bear on a ground investigation on the north east coast of England. Our track-truck rig was able to reach test positions on the foreshore quickly, to carry out testing through thick beach deposits and into the underlying clay, along the route of a proposed pipeline.



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