

CASE STUDY

Geotechnical Engineering and Marine Surveys, Ltd. (GEMS)



GEMS (Geotechnical Engineering and Marine Surveys, Ltd.) is a multidisciplinary international consultant and contractor in the fields of marine and land-based geotechnical, geophysical, hydrographic and environmental site investigations. GEMS uses gINT as a basis for all geotechnical site investigations, from seabed PCPT investigations through to foundation design/analysis of offshore platforms.

GEMS has been using gINT since 2003. The software has been used extensively for pipeline outfall, port breakwater foundation investigations and offshore oil and gas foundations investigations, off the coast of West Africa.

gINT is utilized on many levels within the execution and reporting phases of a geotechnical site investigation.

During the execution phase of a site investigation the software is used to store and process test results including:

- Specimen descriptions (Borehole log compilation)
- SPT results
- Processing PCPTs
- Triaxial processing
- Water content/density processing
- In situ and miniature Vane processing
- Point load test processing
- UCS processing
- PSD processing



GEMS's drilling vessel, Albatros 1. Engineers use gINT on board the vessel to process data and generate logs. The gINT logs are then delivered from the vessel directly to the client via satellite transfer.

During the reporting phase of an investigation, GEMS uses gINT extensively to produce graphical and text outputs. These include borehole logs and 3D fence diagrams as well as project and borehole summaries used to streamline commercial invoicing.

Some of the typical outputs include:

- Borehole log (SPT/CPT results included)
- Derived/raw PCPT plots
- Profiles of shear strength, water content, relative density, carbonate content, etc.
- Laboratory test results summary tables
- Borehole / project summaries

Throughout a site investigation, gINT is used to output data at the client's request, which is normally sent via satellite link. This allows GEMS to optimise site investigations, identifying early requirements for route/foundation alterations as well as providing early indications of foundation conditions for fast-track designs.

“Before we began using gINT, the process of collating and processing data was very time-consuming and labor-intensive,” says Arran Armstrong, Geotechnical Engineer at GEMS. “In many cases, multiple macro-driven Excel sheets would be in use. This made the reporting and data processing procedure inefficient and a long, arduous process.”

Armstrong further notes that gINT provided, in the first instance, a single project database that contains all relevant information concerning the data and test results of a site investigation. gINT also provides a simple user interface for data input, resulting in consistent data input style and format. With the increased speed and efficiency of the data input, data output for GEMS also became more efficient, with output of acquired data only one or two mouse clicks away. Because the data is stored within one project, data can be processed with ease, increasing the efficiency and simplifying QA procedures.

“Since we began using gINT as our geotechnical software,” Armstrong continues, “we have been able to streamline our data management and reporting system, whilst efficiently fulfilling the most demanding requirements of our clients.”

A sample of a GEMS logs generated in gINT follows.

