



GLS-2000 is a Great Solution for i-Construction!

3D Laser Scanner Dramatically Increases Civil Engineering Work Efficiency

Saito Construction Co., Ltd. works throughout southern Hokkaido from its base in Hakodate. The enterprising general construction company was involved in the construction of the Hokkaido Shinkansen, and formed an i-Construction project team in November 2016. The company shared its experience with using the GLS-2000 3D laser scanner in a road improvement project.

GLS-2000 Introduced for Corporate Growth

Saito Construction started doing ICT-integrated construction work using CIM and 3D surveying in 2013. The company had to rely on some outsourcing at first, but realized it would never grow without learning to rely on itself. The goal of growth led them to adopt the approach that they can create major assets for the company by introducing and deploying new construction technology, knowledge and experience on their own. "That approach drove our decision to start using the GLS-2000 for this project, and to launch an i-Construction project within our company," Saito Construction Civil Engineering Department Director Masaaki Abe said.



Masaaki Abe, Civil Engineering Department Director

The introduction of the GLS-2000 had roots in

another development. In the design phase of the road improvement project, plans called for a 3,000 m³ embankment. When design changes more than doubled that volume, the company proposed that the work be done under i-Construction specifications, and decided to use the GLS-2000.

3D Measurements Effective in Both Surveying, Designing

The positive changes brought by the GLS-2000 impressed Hiroaki Kenchi, the i-Construction project team leader in Saito Construction's Civil Engineering Department. "We were able to do surveying before and after construction around three times faster compared to the conventional total stations," Kenchi said. "We collected 3D point cloud data for the entire work site, so even when design changes happened, we were able to make changes easily and output figures instantaneously on the computer; we didn't have to do cross section and profile leveling not at all. The benefits don't stop at surveying; in designing as well, it is a major advantage to be able to use the laser scanner to take 3D



Hiroaki Kenchi, i-Construction Project Team Leader, Construction Department

measurements."

This road improvement project took place during the winter, which in Hokkaido meant using the 3D laser scanner to do surveying in deep snow. Saito Construction persisted boldly through the challenging circumstances, repeating the process of carefully clearing snow away from finished surfaces, surveying and synthesizing data to survey the completed work.

The company also noted that creating 3D models to enable visualization of the work site facilitated communication with outside entities.

"Relevant officials were very pleased with how easy it was to understand the 3D models we used in meetings on the present state of the site and design and construction plans," Kenchi said.

Spearheading i-Construction in Hokkaido

Abe offered bold words on the intentions of Saito Construction. "We will continue to investigate the characteristics and precision of various surveying equipment carefully and ICT-integrated construction machinery so that we can make full use of the right equipment in the right places," Saito said. "We will lead the charge into i-Construction in Hokkaido by being a company that serves clients in all facets of construction, from 3D surveying and design data creation to ICT-integrated construction work and inspections."

*"i-Construction" is...

Ministry of Land, Infrastructure, Transport and Tourism (MLIT) in Japan has been promoting "i-Construction", that the Japanese construction companies shall utilize 3D data in all the procedure of construction work to increase its productivity dramatically, generated by not only the conventional equipment such as Total Stations and GNSS receivers but also Drones, 3D Laser Scanners, and ICT Construction Machineries. "i-Construction" is a registered trademark of the National Institute for Land and Infrastructure Management, MLIT.