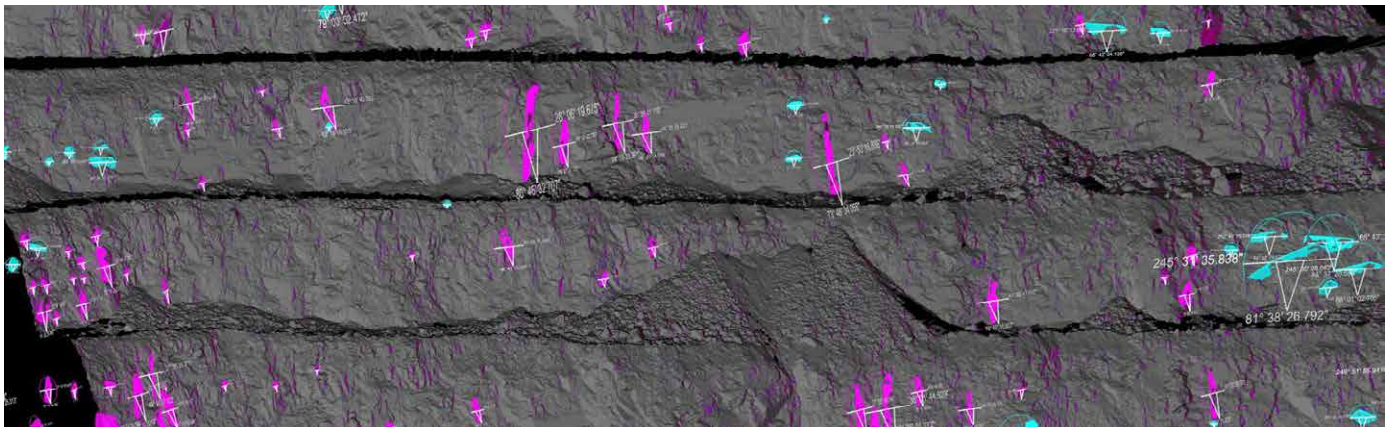


## Slope stability analysis

A large slope failure in a limestone quarry prompted Golder Associates to use the Maptek™ I-Site™ system to collect and process geotechnical data for stability analysis.



When a government-mandated review of slope stability in a 4km long quarry was ordered, Golder Associates turned to Maptek™ I-Site™ technology to help with mapping and analysis.

From previous experience coupling the I-Site system with Golder manual mapping programs, Golder knew it was ideal for rapid collection and analysis of high quality geotechnical data.

The main objective for the field investigation was the collection of a high resolution 3D point cloud and imagery for digital geotechnical mapping of existing pit slopes for use in structural stability analyses.

A secondary objective was to generate current, accurate 3D surfaces as a basis for detailed 2D slope stability analyses.

A key focus during data collection was to limit personnel exposure to hazards. The long range of the Maptek™ I-Site™ 8810 laser scanner provided a safe option to capture all aspects of the operation.

Tools in the Maptek™ I-Site™ Studio Geotechnical Module allowed Golder to rapidly develop accurate and statistically significant datasets of critical areas in the quarry.

Extract Discontinuities provided for the generation of large datasets, which, after review and quality control, allowed for definition of local structural conditions with a high degree of statistical confidence.

During the review and quality control process, the Merge Discontinuities tool resulted in significant time savings.

When Extract Discontinuities generates multiple sets of the same feature, and the Merge Discontinuities tool allows the user to combine them into a common set.

This is an advantage when bringing the data into a stereonet for further analysis.

Golder staff were able to quickly understand the distribution of discontinuity sets in each of the main pit areas by applying Colour Surface by Dip & Strike.

Additional filtering of the dip and strike range proved useful during the digitisation process, allowing verification of the validity and dimensions of features generated by the Extract Discontinuities tool.

'The I-Site laser scanner and I-Site Studio geotechnical tools allowed us to complete the geotechnical assessment with greater confidence and statistical significance than otherwise possible, given the short project schedule,' said Steven Otto, Geological Engineering Specialist.

The I-Site scanner-software combination allowed Golder to effectively meet their client's needs with increased efficiency - while maintaining high standards for safety, quality data collection, analysis and design.

*Thanks to  
Steven Otto  
Geological Engineering Specialist  
Golder Associates Ltd*