CORRELATING LINE SCAN AND GRID SCAN DATA

Conquest 100 helps identify embedded objects in a congested area

Overview

Conquest 100 is an integrated ground penetrating radar (GPR) system used for locating objects in concrete prior to cutting and coring. It's critical that all objects are properly marked out to prevent damage and more importantly, personal injury.

Challenges

During a condominium renovation project, a series of holes needed to be drilled for the installation and routing of plumbing lines. A contractor was called in to scan the area with GPR prior to coring. They started by using the Conquest 100 in Line Scan mode, however they quickly observed the congestion of embedded objects in the slab which was making interpretation very challenging.

Solution

The contractor went into Grid Scan mode and setup a 4' x 4' grid on the system. A grid scan is done by collecting multiple lines in the X and Y directions and then processing the data to generate a series of depth slices. Figure 1 shows one of the depth slices at 7" – 8" deep. The cross-section image in Figure 2 corresponds to the red vertical line shown in Figure 1.

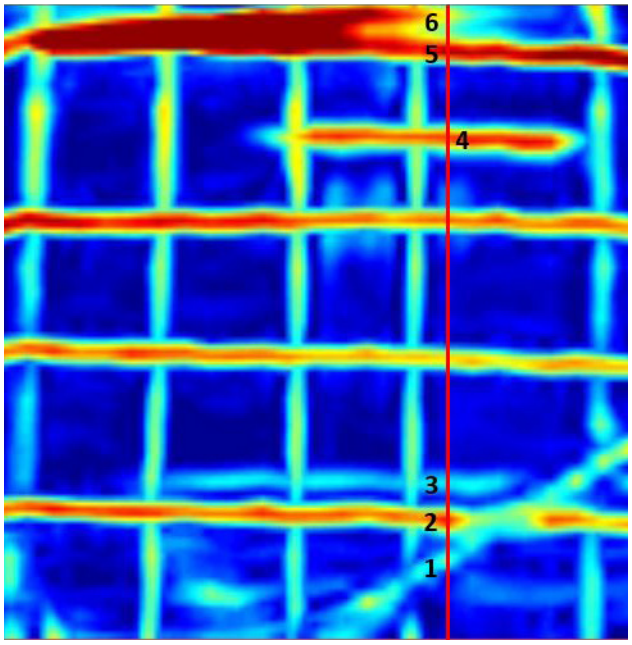

Figure 1

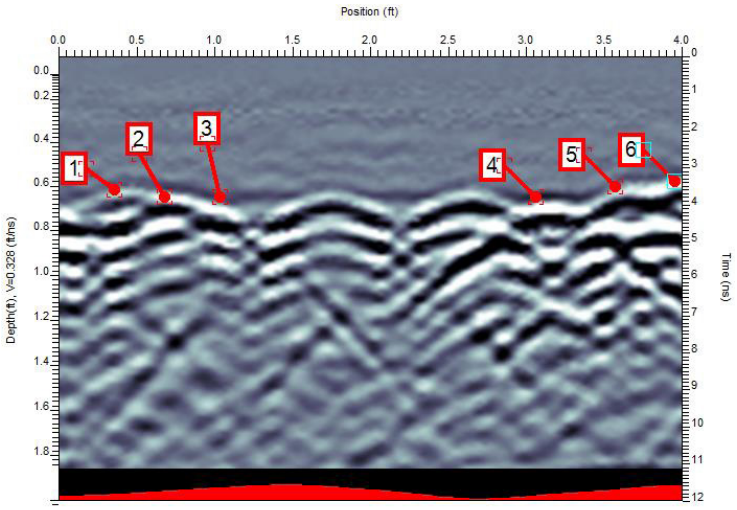

Figure 2

If one looked at just the Line Scan in Figure 2, it would be very hard to discern all the targets, let alone know the orientation of them. Using the EKKO_Project software with the Interpretation module, certain features were added as numbered annotations on the Line Scan image in Figure 2. These features are also noted on the depth slice image in Figure 1. In particular, features #1, #2, #3 all occur in a very small area making it very difficult to see them as three individual targets.

Results & benefits

Some operators rely solely on Line Scan data to mark out targets. However, line scan data can be open to a lot of interpretation, especially in congested areas. Operators should be collecting grids and then viewing all depth slices to ensure they are not missing any objects. By correlating the cross-section views with the depth slices, one can have far greater confidence in what they are observing and in marking out the targets on the floor.

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