Accurate Rebar Assessment of a Large Concrete Tunnel

Overview

- Nebest, an independent engineering/consultancy firm, was called to finalize a design for widening the highway on top of the large KW240 tunnel in the Netherlands as some structural reassessments had to be made. Unfortunately, none of the rebar specifications were available.
- The Proceq GP8000 was used to provide this info in a non-destructive, effective and reliable way.
- The Stepped Frequency Continuous Wave (SFCW) Technology enabled Nebest to map with a **single** instrument and a **single** pass, both near-surface targets and deeper ones.

The Challenge

The customer requested information about the rebars in order to expand the highway above the tunnel. Nebest, was subcontracted to provide an accurate map of rebars.

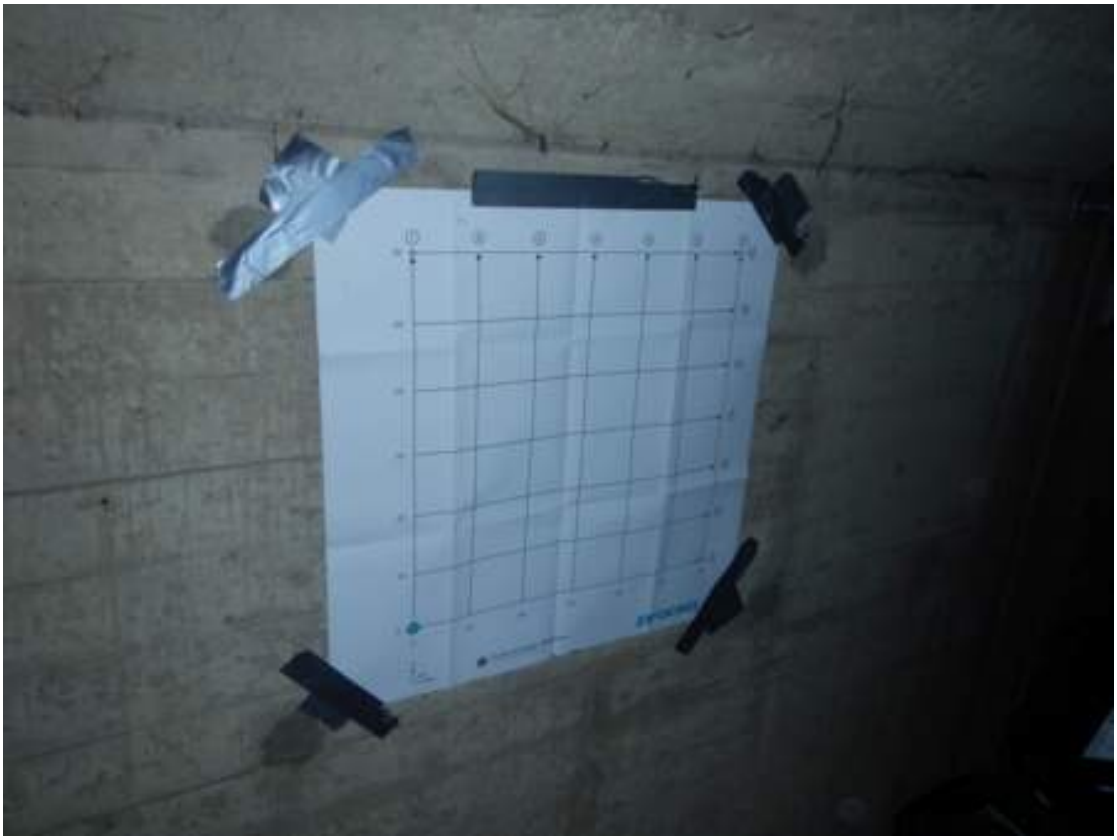
Usually, the first and second layer of rebars, roughly 10 cm below the surface, can be easily resolved with a combination of ground penetrating radar and Profometer.

Typically, Nebest would find the rebars and then open up some of the concrete with a jack hammer to verify the diameter. In this project though, Nebest had to determine the rebars at the bottom of the tunnel wall, which was 50 cm deep.

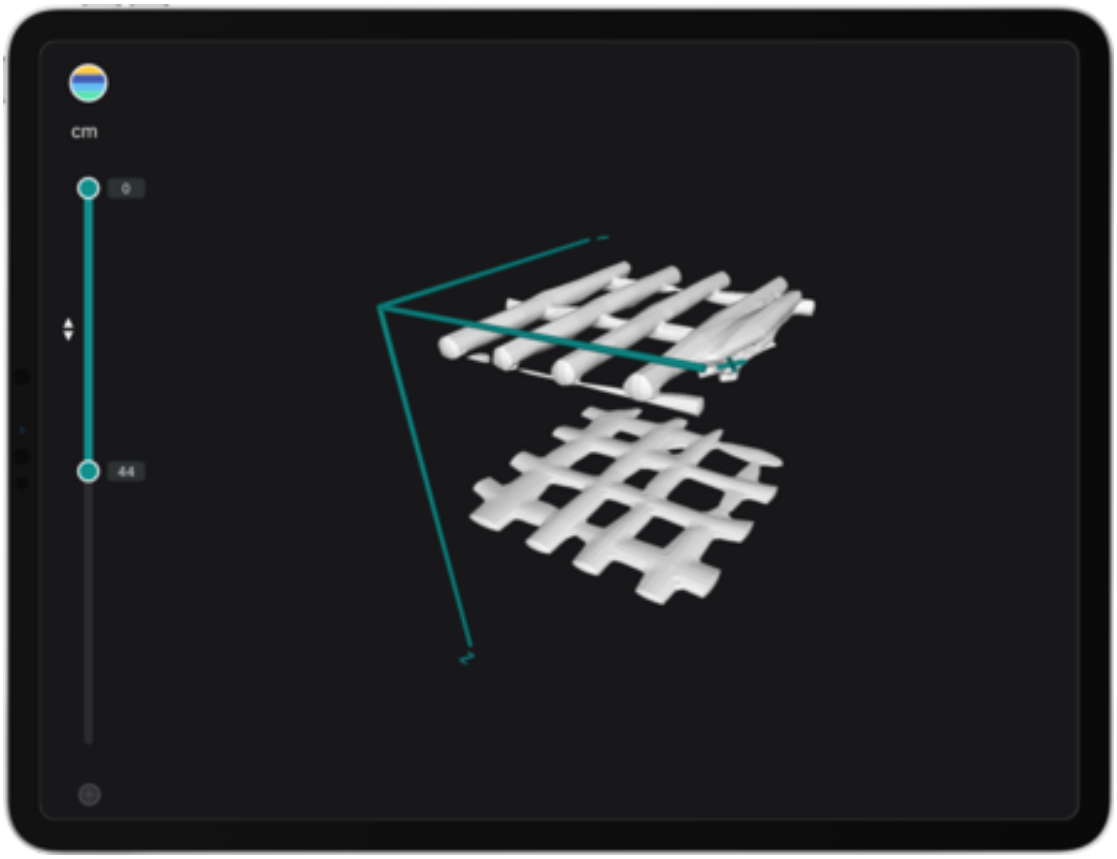
On top of the depth difficulty, the backside of the wall was filled with soil and therefore inaccessible.

The Results

With the combination of the GP8000 and drilling some cores Ø200 all the way through the wall, we were able to determine the rebar configuration at this depth.



Where most equipment would stop, our SFCW technology provided enough depth penetration for the contractor to reach the rebars at 50cm depth. The GP8000 provided accurate information on the depth, spacing of the rebars that were at the backwall and these results have been verified with Ø200 cores. Based on this info, the contractor provided enough information to the structural engineers to finalize the design.



Learn more about the applications for the GP8000 in our Tech Hub.