



CaseStudy

3D Optical Scanner

Customer: Guernsey Water and The States of Jersey

Location: The Channel Islands

Project: Manhole Surveying

OnSite was invited by Guernsey Water and The States of Jersey to trial their new state-of-the-art 3D Optical Scanner for manhole inspections on the Channel Islands. The project involved surveying of some of the Islands' most hazardous assets, where a standard man-entry survey was not an option due to dangerous levels of hydrogen sulphide. The trial provided the ideal opportunity to showcase the strengths of the new scanning solution.

OnSite surveyed more than 350 manholes across Guernsey and Jersey, as well as a number of combined sewer overflows and pump station wet wells. The team completed between 25-30 asset scans per shift, as well as delivering a number of key condition surveys requested by the clients. The highly detailed video condition surveys were utilised to identify the damage caused by the hydrogen sulphide, providing a baseline reference for future condition assessment comparisons.

Unlike visual inspections, the 3D Optical scans provide a permanent visual record of asset condition that can be analysed and discussed. In this case, the client was able to integrate the scan into their infrastructure management system, so when future investigations are undertaken the site team will be able to take a virtual tour of the asset without lifting a manhole cover. By the end of the trial, the true potential of OnSite's 3D Optical Scanner as the future of safe, high resolution subsurface asset surveying was clearly evident.

“When we undertake mainline CCTV surveys of our sewers, we are not able to get a clear record of the chamber within the network, so we have to send an operative into the chamber using confined space entry processes and equipment instead. This has health and safety implications and can be very time-consuming. The OnSite system is much quicker and safer, and allows us to check for defects in a much safer, more effective and controlled manner. The opportunity to trial this new technology is being undertaken in conjunction with States of Jersey, Transport Technical Services who have similar network issues.”

Mark Walker, Capital Delivery Manager, Guernsey Water.

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The Technology

OnSite's scanning system offers special technological advantages; generating complete and rapid optical scanning of the internal features of manholes without any need for man entry into potentially dangerous assets.

The 3D scanner features two high resolution digital cameras with specially designed distortion-free wide-angle lenses, which scan the full interior of the manhole in just a few minutes during a single vertical run.

The high resolution image data is immediately at the operator's disposal as a live picture; making reliable and re-visitable condition and structure assessments on site or at any remote office location both safe and instantaneous.

Unlike video from a conventional pan and tilt camera - which only shows the section of view saved at the time of filming - the 3D Optical Scanner's software combines the imagery to provide an all-round record of the manhole. The inspector can stop at any position and instantly perform a 360° pan, zoom in for a high resolution close-up and take snapshots.

An 'unfolded' view and 3D Point Cloud model of the manhole can also be generated simultaneously. This gives a rapid overview of the condition of the structure and enables the user to measure objects on the chamber walls. The data can then be post processed into STC25 and InfoNet compatible submissions, 3D data being exportable as a DXF file into CAD for further modelling.

"My sincere thanks go to all the guys involved in the trial, their work rate and methodology was first class throughout their brief stay in Jersey, especially with regards to Health and Safety."

Graeme Le Monnier, Jersey Water.

OnSite[™]

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