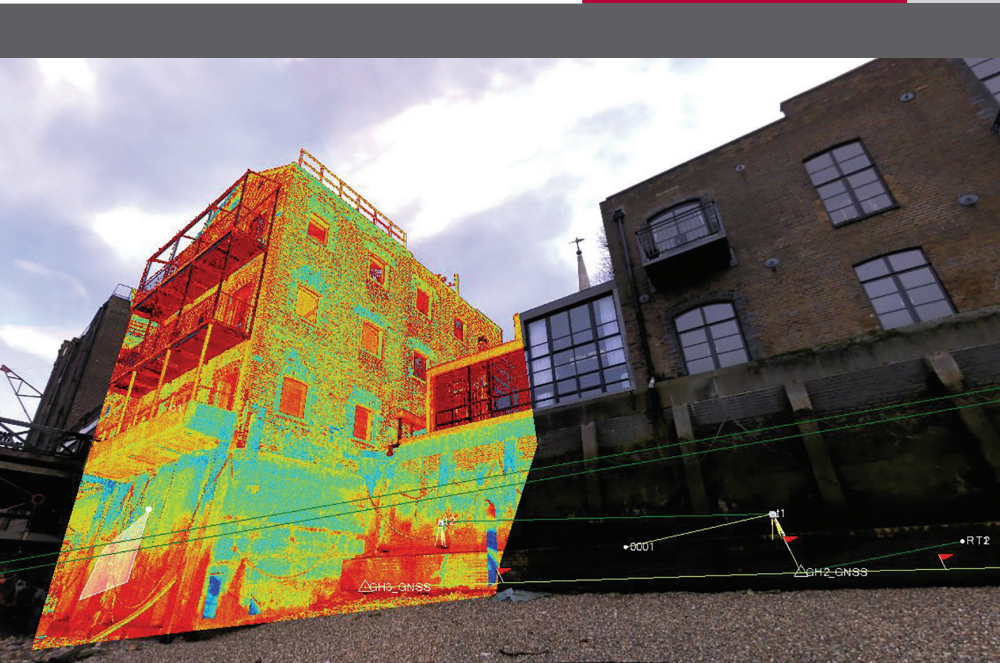


Case Study

Customer:
The Greenhatch Group

Project:
Thameside building survey

Solution:
Trimble SX10



when work was finished. The initial scan was carried out using an existing Greenhatch 3D laser scanner and the second one with the SX10.

“What we noticed first on this trial was the scanning speed of the SX10 which enabled us to double our work load,” explains Jordan. “In the time it took us to scan 600m with our existing scanner, we had carried out 1200m with the SX10. Speed is a big factor for us because we often get last minute requests from clients and with the SX10 we will be better

“Double the range, half the kit, twice as productive”

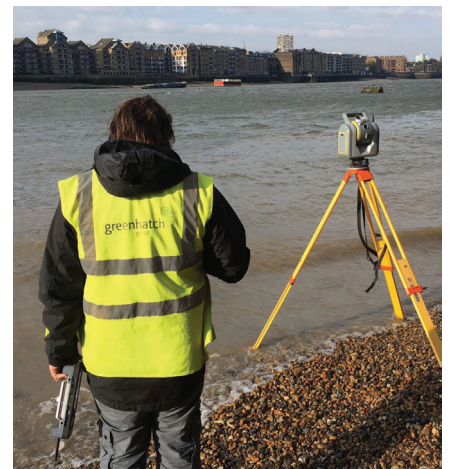
Jordan Knight,
Engineering Manager

equipped to respond to these needs simply because we can undertake the work so much faster. For example, we can now carry out an as-built scan in 12 minutes rather than half a day.”

Jordan continues, “We were also struck by how easy

the SX10 is to use. One of our team, who has never used Trimble before, picked up the workflow in just 5 minutes! The transition for non-Trimble users is a straightforward one thanks to the intuitive nature of the Trimble Access software which runs on the tablet driving the SX10.”

Jordan tested all aspects of the SX10's functionality and was impressed by the quality of the imaging and the benefits that being able to scan and traverse at the same time would bring. On a practical



▲ On the edge of the Thames with the SX10

Tackling time constraints with the Trimble SX10

Under the guidance of Engineering Manager Jordan Knight, The Greenhatch Group has had plenty of opportunity to test Trimble's assertion that the SX10 Scanning Total Station is the most innovative survey product it has ever engineered.

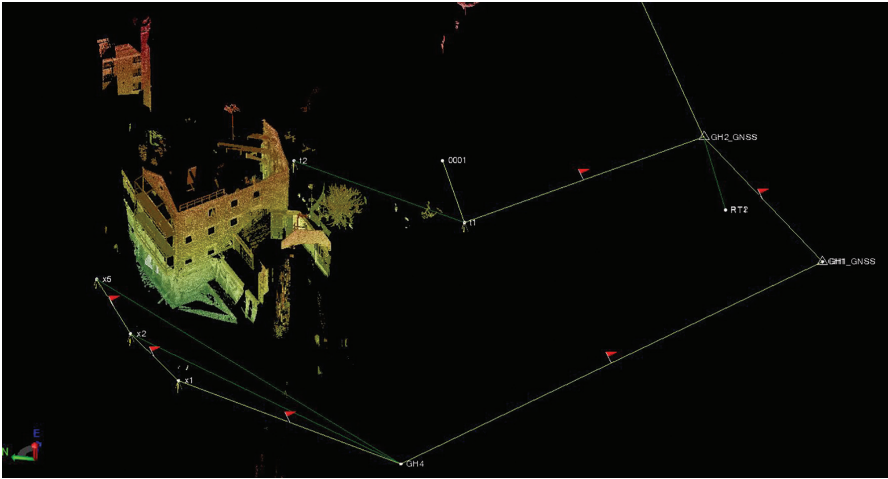
The Greenhatch Group can trace its origins back over 30 years and today operates through 3 regional offices employing more than 70 staff. With its core business being topographical and measured building surveys it depends upon the reliable performance of its optical, laser scanning and GNSS instrumentation and reviews its fleet regularly to ensure that Greenhatch surveyors are equipped with the best tools for the job.

Greenhatch buying decisions are based on extensive trials backed up by feedback from the site team and this proactive approach has seen Greenhatch recently switch away from its original correction service and GNSS supplier replacing it with Trimble's VRS Now correction service and **KOREC** supplied Trimble R10 GNSS receivers. Consequently, the group is aware of technological advancements within the survey industry and was one of the first to arrange for a trial of Trimble's SX10 Scanning Total Station.

Trialling the SX10

At the end of 2016, Group Director Neil Jefferies attended the launch of the SX10 at Trimble's Las Vegas Dimensions event and on his return to the UK tasked Greenhatch Engineering Manager, Jordan Knight, with a full examination of the instrument.

Greenhatch has been involved in 3D laser scanning since it first became commercially available within the industry. The company has a range of laser scanners including HD, compact and hand-held and Jordan was keen to assess what the SX10 could bring to its existing laser scanning services. The SX10 was therefore hired over several weeks and used to undertake a number of projects. One of these jobs was located at an old RAF base in Gaydon where a new test track was being laid for the testing of Jaguar Landrovers. The track required scanning for material quantities and again



▲ Establishing control and scanning in one hit!

level, because the SX10 combines high speed 3D laser scanning and high accuracy total station measurements, the Greenhatch team could undertake many jobs with just a single instrument. This would enable Greenhatch surveyors to be more flexible on site and carry less kit in their estate cars.

Jordan also states that an added benefit is how much SX10 technology reduces the file sizes he has to deal with. "Typically, we'd expect 30 scans using the SX10 to generate around 1.75GB of data, that's the equivalent amount of data that just two scans would generate with our existing scanner! The smaller file sizes mean that we can Dropbox projects to the office where processing can begin immediately – great news for our clients who need data quickly."

Jordan concludes, "What stands out is the quality of data from the SX10 and the speed with which it scans. We were about to buy a new scanner just before the SX10 was launched and I'm glad we held off. Leica's Multistation simply doesn't compare because it doesn't feel like a scanner. The SX10 feels far more complete. Even when we use the SX10's coarse option for a full dome scan, the result is good enough for us to draw from and of course we have the

photos to back it up as well. This is something that's been particularly useful in a recent rail job that required us to scan 30 gantries with a very tight deadline."

"The industry has been crying out for an instrument like the SX10 and it's a benchmark for everything else and everyone else to



compete with. It really does offer double the range, twice the productivity and half the kit. Additionally, we've had excellent support from **KOREC**. We were new to the instrument and **KOREC** technical support has dealt with any queries incredibly quickly, something we rarely see from other suppliers. The SX10 is best described as productive, fast and complete, all our surveyors want to get their hands on it!"

After the initial trials and following positive feedback from Jordan and the Greenhatch surveyors, an SX10 was purchased in early 2017 and has since been used on a wide range of projects:

Case Study: Tackling time constraints on the Thames

For Greenhatch, providing a high quality of service within tight time constraints is an on-going challenge, whether those time constraints be imposed by the client, by a rail blockade, traffic management or even the forces of nature. On a current project, it is the forces of nature that Greenhatch must contend with in the shape of the Thames tide and this limited period of access has provided just the sort of challenging site conditions that Jordan seeks to meet with the Trimble SX10.

During a routine laser scan on a building alongside the Thames, it was noticed that the brick work of an abutting property was bowed. The leaseholder contacted Greenhatch to undertake the monitoring of the bowed building, annually, over a 5 year period. Whilst the leaseholder had proposed undertaking the work with a traditional approach, monitoring by total station was ruled out because there was, as yet, no indication as to where the targets should be placed. Greenhatch Engineering Manager, Jordan Knight, therefore suggested a 3D laser scan as the best methodology with the initial scan being used as base data. However, work

would have to be undertaken from the beach which uncovered some new challenges. Access was by slippery steps, scan time on the beach would be restricted because of the tide and control had to be established outside the zone of influence. Jordan's solution was to use the SX10 to improve productivity on this project in two key areas, establishing control and making best use of scan time on the beach.

Establishing control with the SX10: Using the SX10, Jordan was able to come off the external control well outside the zone of influence which means that each time he returns to the site he can go directly to the same control saving time, and giving better accuracy and repeatability. Without the SX10 a separate scanner and total station would have been required taking much longer and increasing the probability of error in precision.

These stations were also statically controlled using a Trimble R10 GNSS and would be used for gathering further monitoring observations on each return to the site. An added bonus was that they could reduce the instruments they needed on the beach by one.

Selective scanning from the beach:

Traditional laser scanners often capture significantly more data than required and for Greenhatch, Jordan estimates this amount to be around 40%. He therefore decided to scan selectively to speed up the process. The SX10 is driven by Trimble Access software on a tablet which means no eyepiece is necessary. This also means that Jordan could simply draw a polygon on the live video feed on the tablet which would allow him to define both the area to be scanned and the scan density. With the tablet, he also had a clear visual of the scans that he had undertaken which meant he did not have to wait until he was back in the office to register the scan and check that nothing had been missed. Instead, whilst still on the beach, he was able to spot immediately that on the eastside of the building more data was required due to an overhanging balcony obscuring the brick work behind it. The total station functionality of the SX10 was used to shoot some reflectorless measurements, for example, on a window reveal, to cross-check with the scan data.

In the future, thanks to the 600m range of the SX10, Jordan will also be able to scan the building from the other side of the river.

Back at the office the registered scan was dragged and dropped into Trimble Business Center software where it was coordinated to an OS grid and Jordan drew the client's required contours to show the deviation and reflection on each accessible façade.

Contact us:

Please do get in touch for further information on any of the products or services mentioned in this case study, a demonstration, support or just a chat about your requirements.

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