



GODSTOW WEIR MONITORING

Sector: Monitoring, Infrastructure

Contractor: BAM Nuttall

Location: Godstow Weir - Oxford

Duration: March 2022 – October 2022, 7 months

0330 433 1766

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GODSTOW WEIR MONITORING

BAM Nuttall are civil engineer contractors, part of the Royal BAM Group, and are a long-standing customer of Sunbelt Rentals Survey. BAM share our values of safety, sustainability and innovation, including utilising the latest digital construction methods, and focus on collaboration with their customers and in their company, making our solutions ideal for them.

Located just north of Oxford, Godstow Trout Weir is attached to Godstow bridge, a Cotswold stone road bridge and The Trout Inn. BAM Nuttall were tasked with replacing the weir. Both the bridge and the historic pub are Grade II Listed Buildings, making it imperative that the structural integrity of each of them is not disrupted.

THE CHALLENGE

BAM had multiple challenges for this work. First, they had to make sure that they did not damage either Godstow Bridge or the Trout Inn. Second, the road and the pub had to remain open while they carried out the works. This meant that they needed to monitor air quality, noise, dust and vibration as well as monitoring the bridge, pub and the retaining wall at the base of the pub terrace for movement and vibration.

▲ At Sunbelt Rentals Survey, we are always looking to provide the best possible solution for our customers. This includes thorough training and support to make the customers project progression as easy as possible. This was a challenge in a really interesting location, and we made sure that BAM had a bespoke solution that suited their uses. This was a great way of applying our recently onboarded Move equipment. ▲

Ben Carruthers
Business Development Director,
Rail Technology & Monitoring
Sunbelt Rentals

Equipment supplied

- Bespoke Move Solutions Monitoring System
- Casella Guardian2 Environmental Monitoring System
- Leica TS16 Total Station



Old Weir



Move Tilt Sensor

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The Weir being replaced, with the site drained

THE SOLUTION

The initial intention of the site staff was to carry out daily movement monitoring with a Total Station, which would be very labour-intensive.

After consultation with Sunbelt Rentals, it was agreed that they would use a bespoke monitoring solution comprising of:

- 8 Move Solutions tilt sensors to monitor the movement of the retaining wall, the wall of the pub nearest the pier, and the bridge
- One Move Solutions vibrometer on the bridge to measure impact from piling and drilling
- One Casella Guardian2 Environmental Monitoring System to measure particulates, noise and vibration in and around the pub building
- One Leica TS16 Total Station to complete a series of extra checks approximately once a week

Alongside the hire of our equipment, Sunbelt Rentals trained the site staff on how to install, use and maintain the monitoring system throughout the entire job and gave full technical support. We also provided backup with extra equipment where needed.

▲ BAM Nuttall Ltd are known for thriving on interesting and challenging projects with plenty of expertise in the marine environment. Godstow Weir B is no exception, giving the logistical challenges of a river crossing to replace a weir, and the weir itself being adjacent to sensitive medieval structures.

It was imperative in such a sensitive environment to have knowledge and real-time information on the state of the existing structures whilst our works progressed, not to mention the impacts on the Grade II listed pub as it continued business in view of our works.

Sunbelt Rentals were first on the list with a good profile of successful and reliable equipment to overcome surveying challenges. We have been able to proceed with confidence with the ability to view information at any time, setting alarms to ensure we stay within our limitations. The monitoring included structural movement and environmental monitoring (dust, noise, wind) ▲

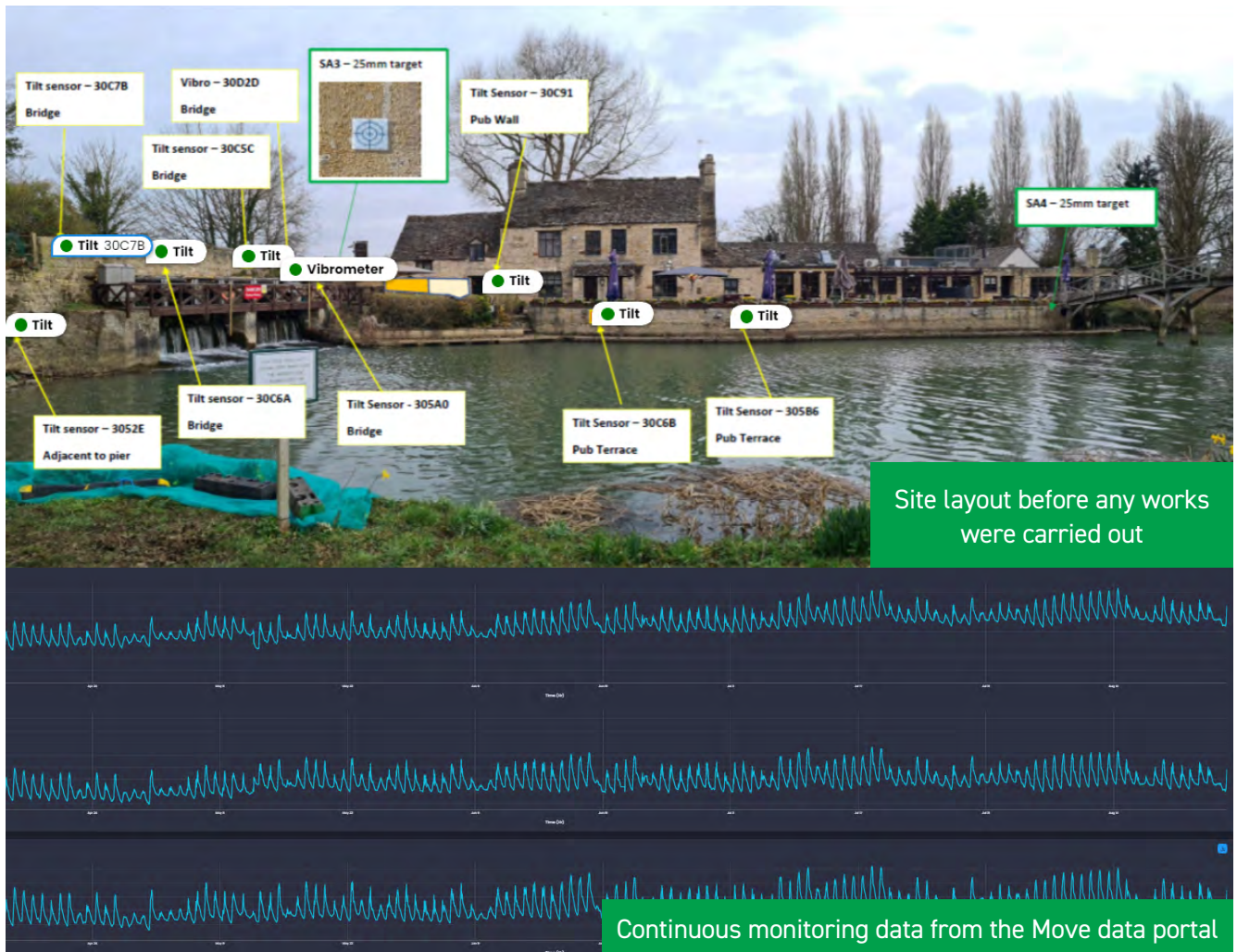
Simon Ablitt
Sub Agent
BAM Nuttall Ltd

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THE RESULTS

The Move Solutions system was able to continuously monitor the bridge, pub and retaining wall 24/7 for the duration of the project. The monitoring solution was designed to give automated readings from each sensor, all collected into one online system. The BAM Nuttall team were able to see the movement in real time, with access to all recorded data, and could be alerted to when a limit was exceeded.

It quickly became apparent that the bridge, the weir and the pub were in a very dynamic environment. This highlighted that using the Total Station in this way would not have been reliable as the data was very noisy. Therefore the BAM Nuttall team used the Total Station less in favour of the Move equipment.

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