



Summary

English Heritage asked Geospatial Survey Solutions and Deri Jones & Associates (GSS/DJA)



to provide a laser survey of St. Peters church, in Barton-upon-Humber, England. The requirement was a full laser scan survey of the site to produce a record of the floor heights for monitoring of subsidence, and to allow photographs of the 1980's archaeological excavations to be used for photogrammetry. The initial survey was undertaken in August 2007 and we returned in 2008 to capture a further set of data to allow comparison and identify areas of subsidence.

History

Saint Peter's Church in Barton-upon-Humber can be dated back to the late tenth century and is among one of the most important historic buildings in Northern England. The structure combines an Anglo-Saxon tower and baptistery, with a high medieval nave and chancel all including a wide range of architectural styles. Saint Peter's church is in the care of English Heritage who took over the building in 1978 and carried out a detailed excavation between 1978 and 1984.

Site Survey

On both visits to St. Peters, a single day's scanning was all that we required to compile the data we needed. As there was uncertainty



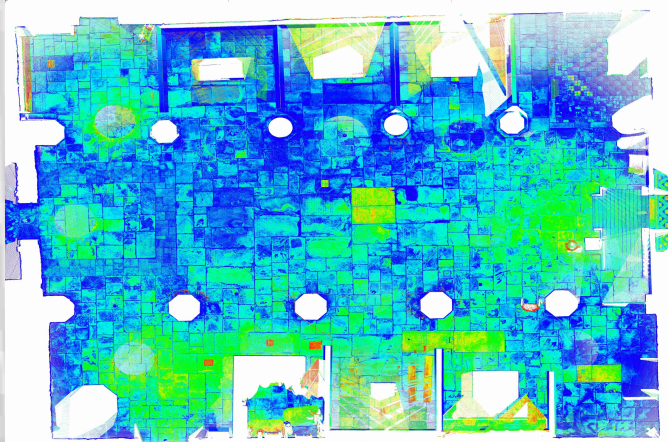
on the stability of the building, survey references were placed outside the church on separate structures to minimise movement. These could also be used if an external survey was required in the future. The FARO LS 880 laser scanner was used to capture the points, the separate

scans were tied together using references gathered by our Total Station.

Processing

The scan data from the 2007 survey was compiled using the FARO Scene software, and moved into Pointools where an orthographic image of the floor could be created, and heights could be recorded for individual flagstones. Further orthographic images of the walls of the church were taken to assist with the identification of known points in the 1980's photo survey of the excavations.

The second set of scans were processed in a similar way, but once an orthographic image was taken, we used it to trace a stone-by-stone CAD drawing of the church floor, on this we



recorded the heights of individual flagstones compared with the previous years results. Over a thousand flagstones were recorded, with some 2500 individual heights taken from the scan data.

Deliverables

The combined scans were used to produce a single 3D point file containing all the survey data which could be easily viewed and utilised by the customer through the freely available Point-tools Viewer. Sections were taken through the building and digitised to CAD drawings, as well as elevations of the main internal walls of the church. A CAD drawing representing the church floor was provided with the height labelled for each stone, showing a comparison between the heights in 2007 and 2008. If you would like to find out more about the services offered by GSS/DJA, please call Deri Jones on +44 (0)870 762 0089.