

# Deri Jones & Associates Ltd

3D Laser Scanning|Marine Structures|3D CAD|3D Visualisation



## Geo-Spatial Survey Solutions

### History

Following the success of the work carried out by Geo Spatial Survey Solutions Ltd (GSS) and

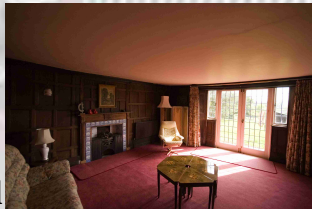


Deri Jones & Associates Ltd (DJA) on Tean Mill, the team were asked to carry out a LS880 laser scan of an 8 bedroom Manor house in the

English/Welsh Marches south of Ludlow.

With elements of the house dating from Norman times, Orleton Manor was the original seat of the Mortimer family, one of the most powerful "Marcher Lord" families, who played an important role in the history of the Kings of England over a period of some 400 years.

Sitting in some 9.3 hectares (23 acres) of land, the manor house is laid out in a U shape, having developed from the original single story long house. Constructed from large Oak posts and beams, it is a classic example of the English "black and white" timbered building. It has a panelled main living room and a grand, vaulted ceiling master bedroom with further oak panelling, both of which are relatively modern additions from the 17<sup>th</sup> Century. The purpose of the LS880 survey was to create a detailed 3D model of the house for use by the Architects and other consultants on the project. The scans would also act as a full colour record of the house as it stood prior to the renovation and also allow identification of hidden spaces and discussion of the manner and sequence of construction – an important factor in the planning of the renovation.



LS880 on site



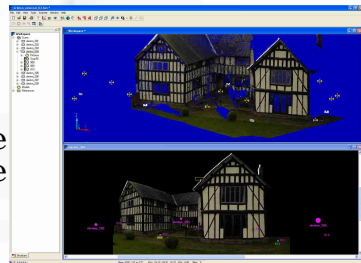
DJA worked on site for 3 days with the LS880, completing 54 full colour scans of all aspects of the house and combining these with dimensional control data to build a detailed 3D data set of the house. Inaccessible and dark areas such as cramped attic spaces and unlit cellars posed no problems to the scanner, due to

the self illuminating nature of the infra red laser and use of remote flash control. The compact nature of the scanner allowed us to work amongst the beams and pillars of the attic and the wheeled tripod allowed fast set up times outdoors, allowing us to dodge the downpours of a British Autumn.

### Data Management

Back at the office, DJA collated the six gigabytes of scan data and six hundred photographs

collected over the three days on site into a rational model. Faro's SCENE software was used to align the scans to a master reference file containing the location of each of the eighty four reference spheres used, with accuracy of scan location typically



being 4mm. The scans were then filtered to remove sky data and erroneous points, with the dark timbered areas being cleaned manually to preserve reflection data.

Once the scans had been aligned and cleaned using Faro's software, it was loaded in to

Navisworks Roamer software in preparation for creating interactive models suitable for viewing by the client. Due to the size of the data set, several versions of the model were created to suite various requirements, sampling the original scan data at a number of different

resolutions. To allow viewing of the whole house on a laptop, the full data set was reduced by a factor of 20, but even at this level of detail, it was possible to pick out detailed elements of the architecture of the house – different brickwork, bevelling of timbers etc. A variety of still and animated images were created of the full house, showing sections, walkthroughs and plans that would have been virtually impossible to generate without use of the LS880.

### Continuing Work

DJA are now busy using the 3D scan dataset to create a series of 2D drawings of the house

– working with the Architects to pull out the required elevations, plans and sections as they are



required. With the house captured in such detail, it minimises the need to return to site and provides a well of information that can be made accessible to all consultants on the project.

For further details of the laser scanning services available, please contact Deri Jones on +44 (0)870 762 0089 or by email at: info@djaweb.co.uk

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