



the Brunellian

the Brunel Surveys newsletter

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Welcome...

...to the first 'Brunellian', a regular newsletter designed to keep clients apprised of our latest projects and developments.

We hope that you find the information interesting and, should anything catch your eye, get in touch.

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Oxford Parks Contract Doubled

Capturing data is what Brunel Surveys Ltd are all about. In the majority of cases that data is then presented as drawings, either electronically or on paper. There are occasions however when the information required goes beyond what drawings are able to provide. One such recent case is the work we have just completed for Oxford City Council.

We were asked to help the council log the details of the parks within their jurisdiction, detailing bins, benches and, in particular, grass area and useage to enable them to contract out maintenance services effectively. The data was to be presented in such a form that it could be read either as drawings or as database forms using either Microsoft Access or Excel.

This required a different approach from the one we would normally take, and at first we tried simply using GPS and GIS software. However, the amount of tree cover prevented the acquisition of consistent GPS data and the difficulties of drawing accurately in the GIS software soon made us realise that a different approach was required.

We settled on a two-pronged attack. Stage one was to survey the park as we would normally (but not collecting level data) and marking up the drawings with details of the assets as found in the field. The drawings were then imported into the GIS software and traced to provide the technical data required.

This meant that the client not only received the data originally requested, but also DWG files of each park to national grid co-ordinates.

Following our initial contract to survey twenty-seven parks we were asked to map a further fifty smaller neighbourhood parks.



New Toys

Always on the lookout for ways to improve the service offered to our clients we have recently started using a piece of equipment we first looked at some years ago, but which we found did not live up to expectations. Technology has moved on somewhat over the last five years and we are now excited to be able to offer laser scanning as a fast, accurate method of producing 3d data for a variety of projects.

Producing building plans and elevations is the natural use for this technology, but we are aiming to use it for so much more.

The technology is now at the stage where scanners can be used to draw whole streets, in colour, very rapidly. Coupling this with the modelling and rendering capabilities of the latest 3d software will enable us to produce accurate models for planning applications that can be viewed from any position and can accommodate camera fly-throughs.

The use of this equipment goes beyond even that. As it is non-contact it can be used to capture data of very sensitive items – archaeological and historical artefacts, listed buildings, quarry analysis, engineering structures etc.,



Solar Studies

Developing new housing close to existing buildings can be contentious. Among the myriad issues that may arise one that can cause very deep resentment is the possibility of the new building blocking light from its neighbours.

We were approached by an architect after he had received complaints from a landowner whose property abutted a new development. The landowner was concerned that the new build, being taller than the existing property, would cause his house to be in shadow for a large part of the day. Despite offering many reassurances the architect decided that a visual representation of the shadows created as the year progresses would help put the complainant's mind at rest.

As we had produced the initial survey he asked whether this was something we might be able to help with.

Working from the ground model produced from our survey we quickly modeled the existing and proposed buildings and then ran specialised software to render images showing shadows formed at 06:00, 09:00, 12:00, 15:00 and 18:00 at quarter-year periods.

These images were then set out in an A3 booklet and delivered as a PDF.



Rectified Photography

Brunel Surveys Ltd has been contacted by Mouchel to help catalogue the stonework on a medieval bridge. The bridge itself is a scheduled monument and repair work is required to keep it in good order.

We were required to produce photography that would enable Mouchel to detail each block of stone so that masons could then be instructed to work on specific blocks.

While it would be straightforward to simply take good-quality photographs of the structure the problems introduced by perspective would mean that it would be nigh on impossible to provide the kind of detail required.

So, using a mixture of surveying techniques to draw an accurate wireframe of the bridge, taking a number of photographs perpendicular to the structure and then stitching them together with the wireframe in Photoshop, we were able to deliver a set of images that not only contained the required amount of detail, but that were as accurate as is possible to obtain.



Verified View with a Difference

We have been producing verified views for many years, but every now and again one comes along which really tests our skills - not to mention patience. Asked to deliver a view of a proposed development taken from a helicopter we applied the same logical procedure that has served us so well. However, we were missing one vital piece of information - no-one knew the altitude from which the shot was taken.

We tried using the photo-matching tools built into the 3d software we use, and it very nearly worked. However, the lens distortion caused by the wide view (and the fact that the shot had been taken slightly off horizontal) meant that it simply would not match correctly, regardless of how much we shouted at it.

So, we returned to the old, manually calculated methods of geometry, perspective and camera tweaking which proved more reliable than the automatic methods...and the shouting.

