

## Bodiam Castle, East Sussex. Geophysical and Topographic Survey of an Archaeological Landscape

Kristian Strutt  
Dominic Barker  
Penny Copeland  
Matthew Johnson  
Tim Sly

[K.D.Strutt@soton.ac.uk](mailto:K.D.Strutt@soton.ac.uk)

Since March 2010 a geophysical and topographic archaeological survey, combined with a new building survey, of Bodiam Castle and its environs has been conducted by staff, undergraduate and postgraduate students from the University of Southampton in the UK and North Western University in the USA. The project is being conducted to investigate the nature and extent of buried archaeological material at the site, and to provide the National Trust with a new plan of the archaeological features located during the survey.

Bodiam Castle is located on the south-facing slope of the north side of the River Rother, in the parish of Bodiam, East Sussex. The castle occupies a site on the edge of the Rother valley, with associated features located along a higher ridge to the north. The underlying geology comprises Ashdown beds of Cretaceous sandstone to the north, corresponding to the higher ground of the National Trust property, and alluvial deposits with peat corresponding to the Rother valley bottom and the southern portion of the National Trust property.

The castle is situated in an area of high archaeological potential at the junction of the High Weald and the floodplain of the Rother, with a wealth of archaeological material from the Palaeolithic through to Roman, medieval and post-medieval periods. While the main focus of the current project is concerned with the medieval and post-medieval aspects of the landscape around Bodiam castle, a number of other sites and monuments dating to various periods are reflected in the landscape and the results of the topographic and geophysical surveys that have been conducted to date.

### Survey Methodology

The geology of the High Weald and the presence of masonry structures suggested that use of resistivity would be the most useful technique in recording the remains of sub-surface



*Figure 1 Staff and students working in the vicinity of Bodiam Castle (top) using total stations on the topographic survey, (middle) conducting magnetometry and (bottom) undertaking ERT survey across the Rother valley.*

archaeological structures, particularly in terms of medieval features. A complete survey of the landscape to the north of the river Rother has been conducted using Geoscan Research RM15

resistance meters with 0.5m twin probe array configuration. Measurements were taken at 1m interval along traverses spaced 1m apart. Magnetometer survey (Fig. 1) was also conducted to provide comparative survey data across the site. This technique was chosen as a relatively efficient survey technique, especially useful for locating potential Iron Age and Romano-British features in the landscape. The presence of a possible Roman road surfaced in iron slag running to the west of the castle, and possible later prehistoric enclosures were of particular interest. Survey was conducted using Bartington Instruments Grad 601 fluxgate gradiometers, with measurements taken at 0.25m intervals along 0.5m traverses.

In addition Ground Penetrating Radar (GPR) was conducted over parts of the site, particularly the interiors of rooms associated with the extant remains of the castle, and over features located in the resistivity survey, including a possible mill building. Data was collected along traverses at 0.5m spacing using a Sensors and Software Noggin Plus with Smartcart and a 500Mhz antenna. An Electrical Resistivity Tomography (ERT) survey was also conducted across the Rother valley using Allied Associates Tigre equipment, to assess the nature and depth of deposits in the floodplain.

A new survey of the extant remains of the castle has also been conducted, mapping the structure in plan, and the main elevations of the monument, utilising red laser total stations with TheoLT software.

### Preliminary Survey Results

Results of the topographic and geophysical surveys (Figs 2 - 4) in the immediate environs of the castle indicate a substantial quantity of archaeological material and features relating to the development of the estate. To the west of the castle the topography, resistivity and magnetometry all show the presence of a substantial bank and ditch feature, running as a so-called cascade to the north then cutting off the eastern part of the low ridge. A significant concentration of anomalies is visible in the resistivity results to the south east of the castle, suggesting the presence of stone-built structures, and two revetted channels, one running from west-east, the other from north-south. The presence of the pond to the east of the castle, and the fall in

the terrain as one proceeds south, would suggest that the anomalies mark the presence of a possible mill and mill race associated with the ponds at Bodiam.



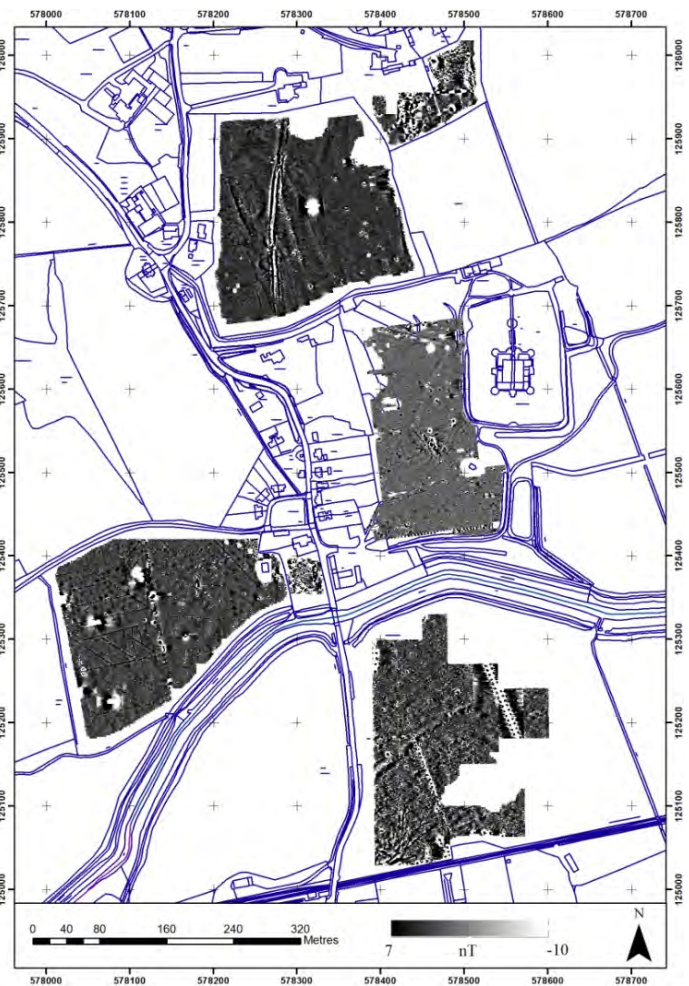
*Figure 2. Results of the topographic survey of the landscape of Bodiam Castle.*

Results of the magnetometry indicate a significant concentration of ferri-magnetic and burnt features to the west of the castle. Some of these suggest very distinctive kiln features, and in one instance a rectilinear structure associated with a kiln. Others are more suggestive of slag heaps of residue from firing and the remnants of other industrial activity.

The location of these features seem to respect the presence of the tenement boundaries immediately to the west, and this may indicate that the industrial workings post-date the village tenements. If so, these may relate to the phase of construction for the castle at Bodiam, for the preparation of materials such as lime. Alternatively they may relate to later development of the estate and castle by individuals such as Curzon. Other dipolar anomalies in the magnetometry, especially those located on the low ridge to the west of the castle, may be



**Figure 3. Results of the resistivity survey in the landscape at Bodiam Castle.**



**Figure 4. Results of the magnetometer survey in the landscape at Bodiam Castle.**

associated with other kilns or firing of material, or alternatively dump deposits of iron ore. One possibility is that they relate to iron smelting from the Iron Age and Romano-British period, located on the valley sides above the settlement. Similar features are reported on the south side of the Rother and elsewhere in the Weald.

In terms of the building survey, the results show that some features on the plan are not represented by those drawn by Taverner Perry, commissioned by Cubitt, Baron Ashdowne, such as the doorway adjoining one of the large fireplaces blocked at an early period; but that plan does show an opening in the oven which has long been closed off.

However, the general layout and geometry of the castle plan as a whole respects that of the Ordnance Survey and other plans, with a change in the line of the causeway and the relative position of the walls and towers in places. A detailed analysis of the castle building from the

extensive survey undertaken is in preparation for publication.

The area of Doke's Field to the north west of the castle did provide some new and very interesting features. A significant road, probably Roman in date, does cut through the field. A second and probably later road also deviates from this original line heading to the south-east. The former road seems to lie on an alignment which would carry it through to the bridge crossing the Rother, some 500m to the south. In addition to the road a number of terraces, pits and an enclosure are visible on the western side of the field, on the edge of the ridge located to the west of Doke's Field. Some of these anomalies may indicate Iron Age or Romano-British features, possibly associated with cemetery activity close to the line of the possible Roman road. The entire field is also covered by broad low resistance anomalies suggesting ploughed terraces. They appear to be later than the main road feature, and may

represent cultivation of Doke's Field in the medieval period.

Results of the topographic survey, resistivity, ERT and magnetometry to the north and south of the Rother indicate a number of features which may require further investigation. The previous courses of the Rother are clearly indicated in the results of the topographic survey and in the magnetometry and a number of large waterlogged features are also located along the southern edge of the floodplain. The three broad low-lying areas may represent the presence of medieval ponds, but their size (in the region of 110m across) suggests that they may be associated with a harbour area or other feature to the south of the Rother. The presence of possible kiln features, and linear anomalies in the magnetometry and suggest the presence of an extensive settlement of Romano-British date along the low sand terrace to the south of the river. The results of the 2012 survey show runoff of ferrous material from the terrace overlooking the valley, and a number of rectilinear features, and possible industrial working on the plain.

In the cricket field to the north of the Rother a number of discrete positive anomalies at first suggested pit or kiln features along the edge of the floodplain. However evidence from hand augering samples, four of which were conducted in 2012, indicated alluvial deposits to a depth of 1.5-2.0m, overlying protrusions of humic peaty material in the locations of these anomalies. Two linear features in the cricket field may suggest the

presence of a leat or drainage feature running upstream of Bodiam Castle towards the mill ponds near the castle.

The survey work at Bodiam is part of an ongoing project looking at medieval sites in the south-east of England. Further work is planned at Bodiam, with the focus of the project then shifting to other medieval sites in East Sussex and Kent, including Ightham and Knole.

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