

◆ A medieval moated site and manorial complex rediscovered through LiDAR at Broadbridge Heath, West Sussex

By Andrew Margetts

Combining historic landscape analysis with freely available LiDAR data has revealed a forgotten medieval moated site. The results also identified the probable medieval site of Broadbridge Mill as well as highlighting the potential of this form of survey for Wealden site recognition.

INTRODUCTION

When Gardiner conducted a survey and review of the archaeology of the Weald over 25 years ago (1990) it was clear that the archaeology of the entire *pay* (taken from the French term for an area of culturally and environmentally distinctive territory, country and region) was little studied. This was as true for the Middle Ages, traditionally viewed as the time of most fundamental Wealden landscape change (Witney 1976; Everitt 1986; Brandon 1974; 2003), as it was for the prehistoric and Romano-British periods. Since Gardiner highlighted, and attempted to redress, this lack of knowledge (e.g. 1990; 1997; 1998), there has been little work on medieval settlement of the area until relatively recently (Margetts in press; in prep.). One of the key factors that has limited past site recognition has been the persistently well wooded environment of the region (Gardiner 1990, 33). Application of LiDAR technology with its ability to reveal sites concealed by vegetation has the potential to revolutionise the quantity of known archaeological sites. This short article represents an attempt to utilise this method of survey in order to illustrate and investigate a hitherto 'lost' Wealden manorial complex, moated site and potential 'new' ironworks.

THE 11TH–13TH-CENTURY MANOR

The history and archaeology of the manor of Broadbridge, near Horsham, has recently come to prominence due to a large-scale project linked to the 'Wickhurst Green' housing development

(Margetts in prep.; Fig. 1). Amongst the reasonably dense multi-period remains was evidence of a well preserved medieval landscape including several sites of potential 'manorial' status. The earliest of these dated from the late 10th or early 11th century and may relate to a lost holding mentioned in Domesday (Morris 1976, 11.58). The application of the label 'manor' prior to 1086 is essentially an anachronism as the Latin word *manerium* from which it derives is wholly a Norman introduction (Lewis 2012). Though these sites appeared to straddle the Conquest the term 'estate centre' is more correct as at least one of the holdings appears to have been a very late Anglo-Saxon foundation. The existence of multiple centres of seigniorial control within what is a fairly restricted geographical area (c. 85ha), demonstrates the complexities of tenurial patterns in the Weald. What had previously been assumed to be the local manor house, Broadbridge Farm (Hudson 1986, 24; Fig. 2), has proved to be just one element of a much more intricate pattern of 'lordly' sites.

The earliest surviving place-name related to Broadbridge manor, is *Brodebrig* recorded in 1237 (Mawer and Stenton 1929, 225). By this time it can be associated with William Covert who appears to have held part of one carucates of land 'in the *Brodebrig*' (Salzmann 1903, no. 344) and by 1243 Broadbridge had become a separate manor held by William along with Sullington from the de Braose lords of Bramber Rape (Hudson 1986, 20). By 1272 a deer park had been established at Broadbridge, although the addition of the phrase 'by what warranty they know not' (Salzman 1941, 30) suggests it was not strictly legal. An inquisition following the death of Roger Covert, who inherited

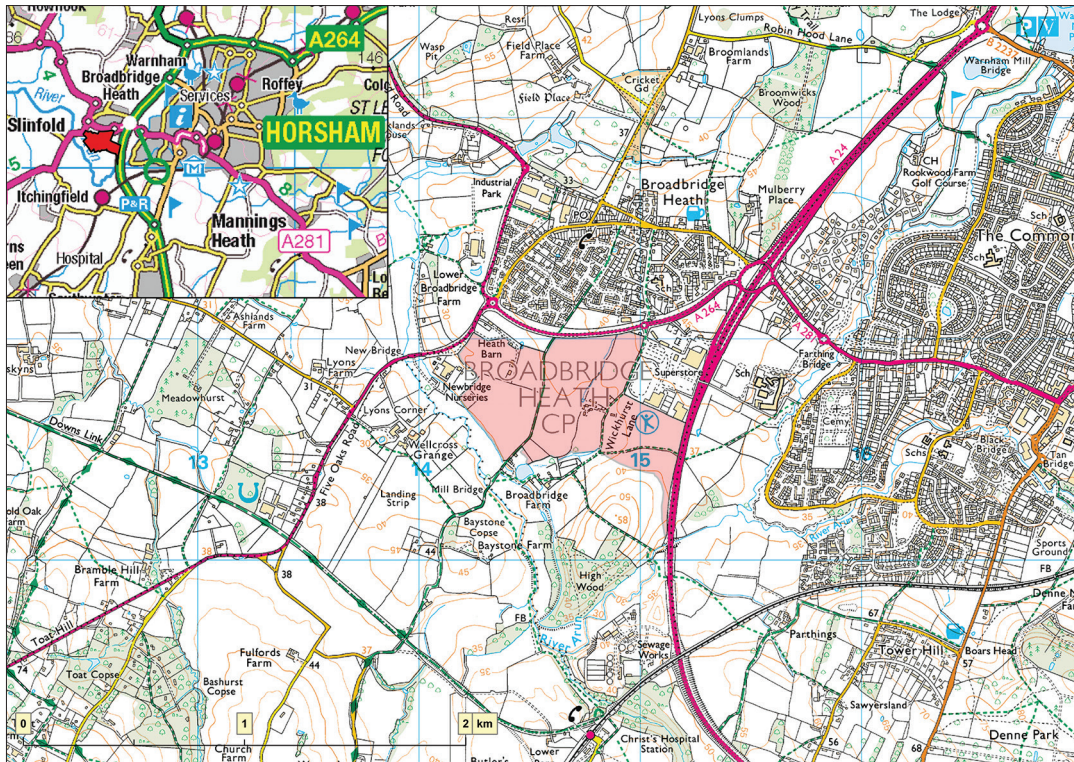


Fig. 1. Location, in red, of the 'Wickhurst Green' housing development. Ordnance Survey mapping data © Crown copyright and database right 2007.

the manor from his father William, shows that in 1297/8 the manor comprised:

The curia of Bradebrugge with a garden	3s 4d
50 acres of arable land at 2d an acre	8s 4d
27 acres of meadow at 12d an acre	27s
Pasture of a meadow	4s
Patches or enclosures of woodland [hayscii de bosco]	2s
A water mill	20s
Rents of free tenants at Brembelden	30s
9 quarters [quarteria] of salt at Bedyng at 12d a quarter	9s
Total of Bradbrugge	103s 8d

(Cooper 1903, 174; translation of 'hayscii de bosco' on referee's advice, in place of Cooper's hedges or underwood).

These details of the manor allow some interpretation of the LiDAR data presented below.

THE LIDAR SURVEY

The highest resolution LiDAR data currently available for this area is the 2m resolution Open

Survey Data freely available from the Environment Agency Geostore. Nine 1km² Digital Terrain Models (DTM) tiles were obtained, surrounding the site at NGR TQ 514717 130698. These nine tiles were merged using the open source QGIS software, and a range of LiDAR Visualisations produced. Visualisation methods reviewed include Single Hillshade, Sky View Factor, Slope and Aspect. For the purposes of this study, a combination of the Sky View Factor and Single Hillshade models were found to be most useful, and have been analysed alongside other heritage data sources, within an ArcGIS platform.

DISCUSSION

The LiDAR survey (Figs. 3 and 4) has revealed features which, despite study of the cartographic sources back to the Tithe (1840), are not represented in either modern or historic mapping. Perhaps the most striking of these is a rectilinear enclosure to



Fig. 2. Broadbridge Farm, 2017 (photograph: author). The earliest fabric of the building dates to the 15th century, although one post from a possibly earlier hall survives (Hudson 1986, 24).

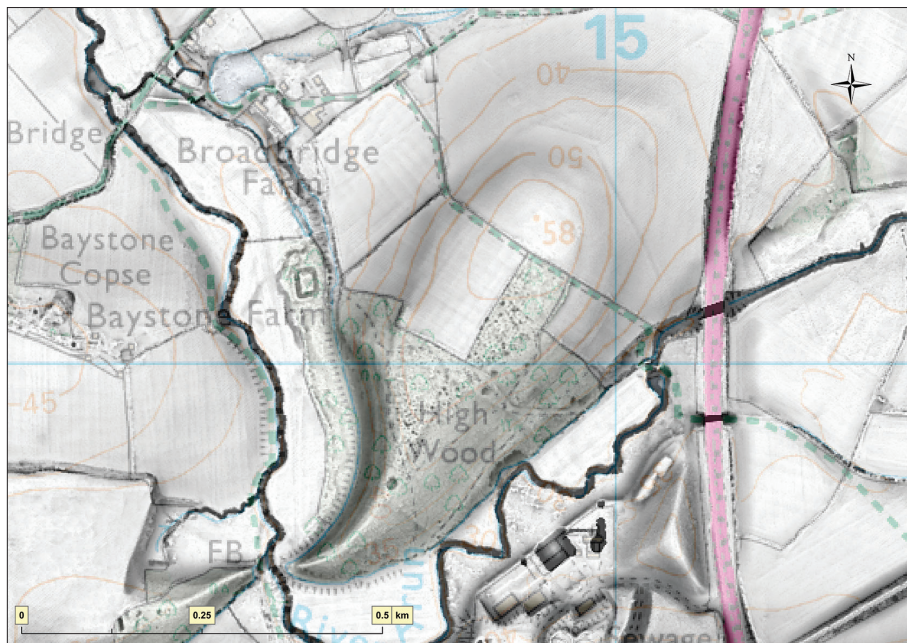


Fig. 3. Lidar Model: Sky View Factor overlay on the modern OS 1: 25000. Public sector information licensed under the Open Government Licence v3.0.

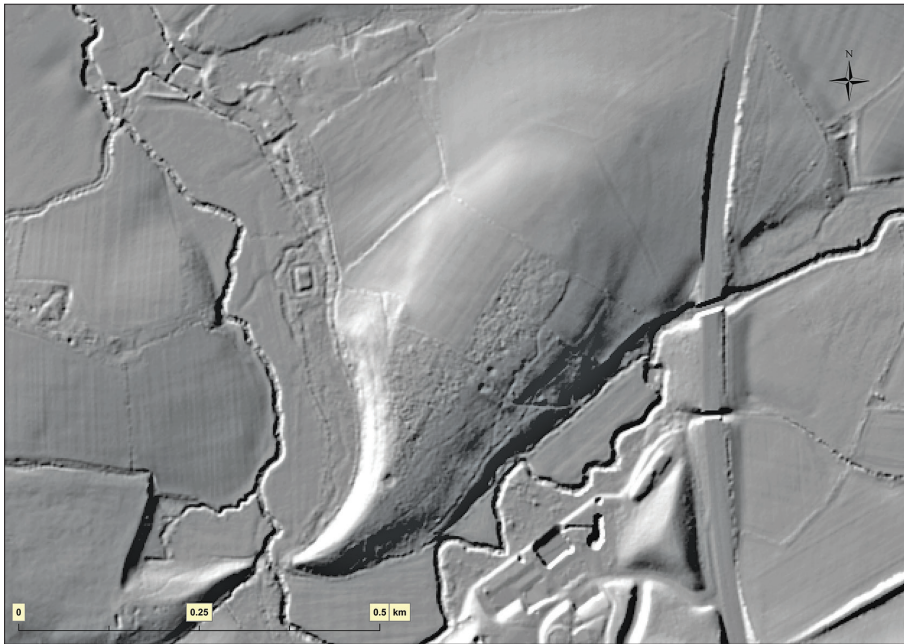


Fig. 4. Single Hillshade Model (Azimuth 315, Altitude 15, Elevation 1). Public sector information licensed under the Open Government Licence v3.0.

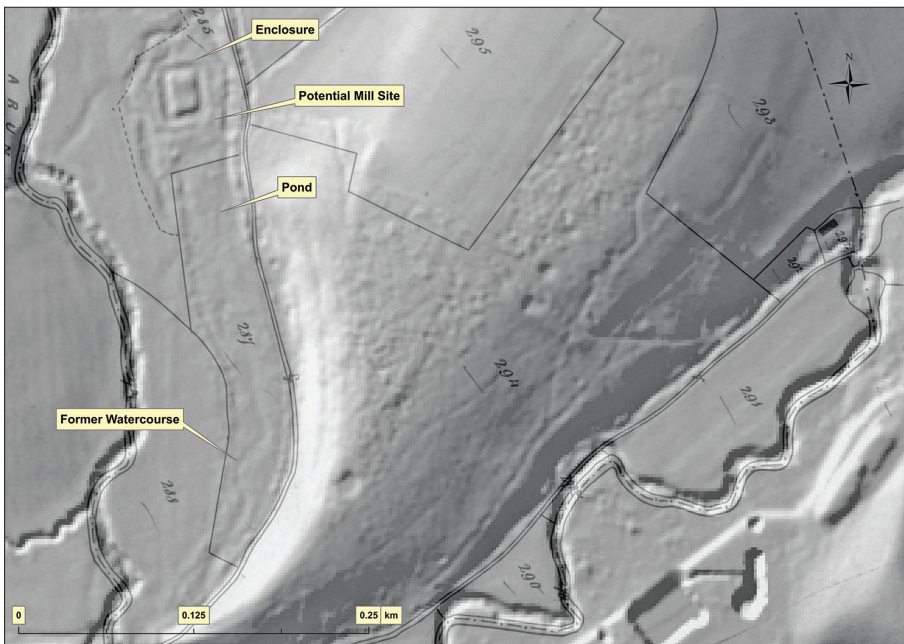


Fig. 5. LiDAR Model: Single Hillshade overlain by the Sullington Tithemap of 1840 (West Sussex Record Office, TD/W 122), showing the location of the 'enclosure', mill, former watercourse and 'High Wood Pond'. Public sector information licensed under the Open Government Licence v3.0.

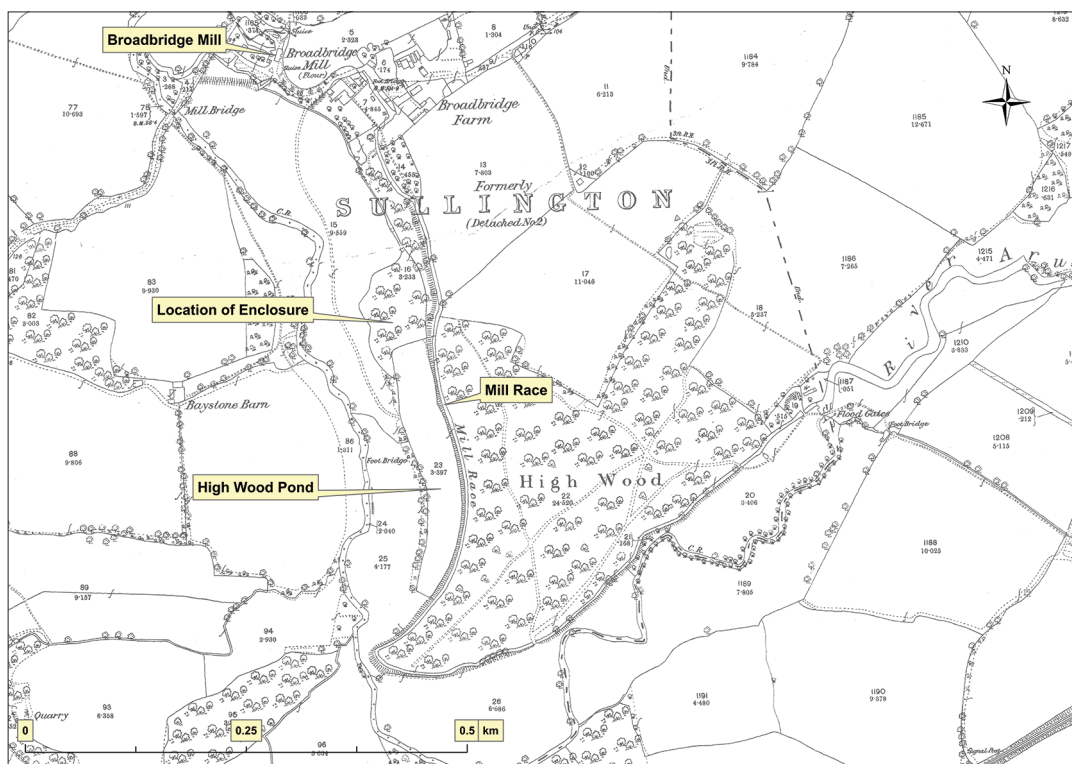


Fig. 6. The OS County Series (1:2500; 1875) showing locations of landscape features mentioned in the text.

the immediate west of 'High Woods Hill'. This is located in a small parcel of land currently under scrubby coppiced woodland. Unfortunately the landowner turned down a request for access to the woodland. Nevertheless, it is possible to make several interpretations of the enclosure and various related features within the surrounding landscape.

The enclosure is situated to the north of an area named 'High Wood Pond' on the Sullington Tithe Map of 1840 (plot 287; Fig. 5). At that time the parcel was laid to meadow. It is likely therefore that this narrow, curvilinear, area of land in which a former watercourse is apparent, comprised a silted pond. It has previously been assumed that the 13th-century watermill, mentioned in the inquisition, was located in roughly the same location as the post-medieval Broadbridge Mill (Fig. 6). The 'Mill Race' shown on the Tithe and OS County Series (1:2500; 1875) maps has clearly been cut into the side of the hill in order to avoid High Wood Pond. A further race can, however, be discerned on the LiDAR results

extending to the north of High Wood Pond (Fig. 7). The area where this race begins is proposed as the location of a dam for what is surely the medieval location of the former Broadbridge Mill.

To the north of 'High Wood Pond', the rectilinear enclosure bears striking similarity to medieval moated sites which are not uncommon within the Sussex Weald. From the LiDAR it is possible to suggest a central platform measuring *c.* 18m wide by *c.* 20m in length. It is surrounded by a ditch of *c.* 5m or so in width. A noticeable interruption on the northern side possibly relates to a causeway, the most common form of entrance on this site type (Aberg 1978, 10). The ditch dimensions also accord well with a moated site, for these features are known usually to measure between 3m and 6m in width (Aberg 1978, 8). Platforms are often rectangular, although many variations and shapes are possible.

In addition to the morphological characteristics, local field-names may also support the notion that moated sites were present within the vicinity. Two

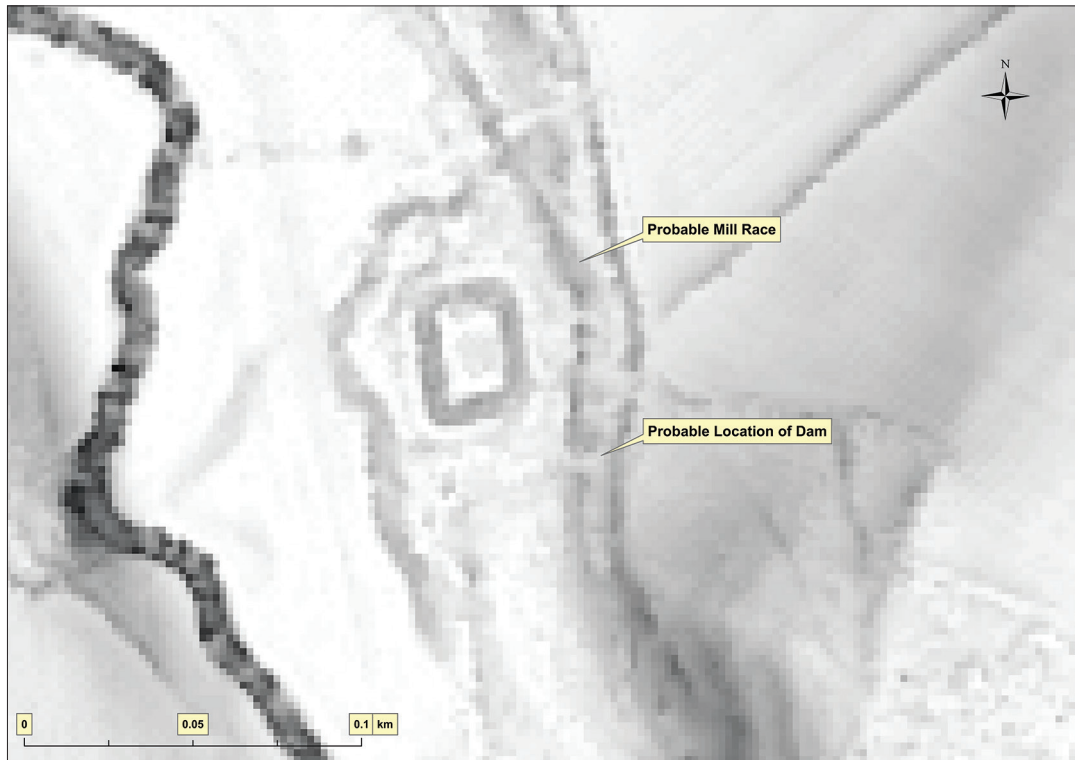


Fig. 7. Lidar Model: Detail of Sky View Factor showing the probable locations of a dam and mill race. Public sector information licensed under the Open Government Licence v3.0.

land parcels named Castle Field (plot 52) and Castle Mead (plot 52a) on the Itchingfield Tithe map (some 660m to the south of the enclosure) may recall local knowledge of this or, more likely, a further lost moated site (WSRO, TD/W 72).

It is the 13th and 14th centuries which are most often associated with the construction of this type of site and the example situated close to Broadbridge Farm was likely an important part of the Coverts' demesne. As such, it is possible that this may have been the former site of the *curia* mentioned in the inquisition, as they are most often interpreted as residences. It is also possible, however, that this enclosure formed the 'garden' mentioned in the same document. Moated sites could fulfil this function as well as being the location of pleasure grounds, vineyards, orchards and granges.

As apparent as the moated site are many pits that pockmark both the summit of 'High Woods Hill' and other nearby woods across the Arun and south of the Sewage Works (Sparrow Copse). The

examples within the High Woods can be viewed from a footpath and comprise circular depressions known locally as 'delves'. Such features are often associated with the extraction of iron ore and these examples are recorded by Cleere and Crossley as 'sandstone diggings deepened for extraction of clay ironstone' (1995, 27). Associations with the Wealden iron industry may be particularly relevant as Broadbridge Farm is known to have been connected with the prominent Gratwicke family (England 2012, 39). It is likely that by 1574 it was occupied by the ironmaster Roger Gratwicke whose father owned a furnace at Ifield and forges in St Leonards Forest (Comber 1919, 42; Hudson 1986, 26). The underlying geology to the pits is an outcrop of Paludina Limestone (Geological Survey of England and Wales Sheet 302, *Horsham*), a strata not known for its ore bearing qualities. Though this material may have been utilised in the same way as *Cyrena* or Bethesden Marble amongst the charge in the ironworking process (see Hodgkinson 2008,

10), *Paludina* is unlikely to have been quarried directly for the iron industry (Jeremy Hodgkinson pers. comm.). If ore extraction was occurring, stone deposits would have to be dug out to reach the ore. Interpretations as quarries or marl pits are perhaps more appropriate, as lime was locally important for arable production and the stone can be used both internally and externally within buildings (Historic England 2015).

CONCLUSION

Freely available LiDAR data utilised for this small study proved beneficial in analysing an area of

the historic landscape of Sussex. It has produced results which, although not verified in the field, can be interpreted on the strength of morphology and historical documentary evidence. It is hoped that the remains may be surveyed and even archaeologically investigated in the future, a project which would provide a valuable insight into the workings and nature of a medieval Wealden manor.

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