

**SURVEY RESULTS****2001 / 44 Chicksands Priory, Bedfordshire****1. Survey Areas**

- 1.1 Resistance survey was undertaken within four areas, 1 - 4, the location of which is shown in Figure 1 (1:1000). Three small areas, A – C, were selected for investigation using GPR, and these are also indicated on Figure 1.
- 1.2 The survey grids were set out by **GSB Prospection** and tied in by Dr Henry Chapman using a GPS system.

**2. Display**

- 2.1 Figure 2 presents the raw, interpolated resistance data as a greyscale image. In Figure 3 the data has been high-pass filtered so as to suppress broad-scale background variations, such as geology. Figure 4 is an interpretation. These are displayed at the scale of 1:1000.
- 2.2 Figure 5 – 8 display the data from the GPR investigations.
- 2.3 These display formats are discussed in the *Technical Information* section at the end of the text.
- 2.4 Letters in parentheses in the text refer to specific anomalies noted on the interpretation diagrams.

**3. General Considerations - Complicating factors**

- 3.1 In Areas 2-4, the space available for survey was limited. Consequently, there is limited context in which to view the anomalies detected. Area 1 is interrupted and dissected by two roads.
- 3.2 During its long history, the site and estate will have undergone many uses and modifications which will have produced a complex of features. The detected anomalies are a compound of the responses from these features and it is not always readily possible to ‘disentangle’ them when interpreting the data.

**4. Results of Resistance Survey****Area 1**

- 4.1 A group of high resistance features (A) and (B) exhibit a degree of rectilinearity and are characteristic of structural remains or foundations partially obscured by rubble. Given their similar alignment and proximity to the existing buildings, it is likely that these represent remains of part of the former range of ecclesiastical buildings. It should be noted that the western edge of anomaly (B) coincides with an extant ha-ha wall and may, therefore, represent a post-monastic garden feature. However, it is thought likely that (B) reflects foundations of a boundary that is respected by the later ha-ha. A linear low-resistance response adjacent to, and parallel with, (B) is attributed to the build-up of water behind the wall of the ha-ha. To the north and north-west of anomalies (A) and (B), a number of amorphous high-resistance responses may also represent spreads of rubble or, perhaps, foundations partially obscured by rubble.

- 4.2 A thin high resistance anomaly (C) may be structural. Whilst it may be a precinct wall, it could equally be due to any of the several phases of activity at the site, such as a pipe/service trench.
- 4.3 Close to structural responses (A) and (B), several faint linear high-resistance anomalies have been noted. As these are on a similar orientation to (A) and (B), they may also relate to former buildings. However, their weak nature leaves open the possibility that they represent former garden landscaping features or instrument noise.
- 4.4 The area is divided by two roads, and the southern segment of Area 1 contains many high and low resistance anomalies which are possibly natural in origin. A stream diverted from the River Flit lies close by to the south and it is possible that the pronounced amorphous high resistance responses represent pockets and banks of gravels and sands, with interspersed pockets of silts and clays causing low-resistance anomalies. However, three more pronounced responses (D) may represent rubble spreads, although this is tentative.
- 4.5 The data are traversed by several low resistance linear responses which are characteristic of service trenches. Several of the amorphous high resistance anomalies noted in paragraph 4.4 such as (E) may, given their proximity to a putative service trench, represent spoil from the trench. A number of amorphous low resistance anomalies have also been detected but are thought to be modern in origin. For example, (F) coincides with a low mound, which may be a pitcher's mound for baseball.
- 4.6 Several trends can be discerned within the data for which any interpretation is conjecture. Trend (G) may relate to former buildings but could equally be a former garden feature. Several parallel trends to the north and east of (G) are characteristic of ridge and furrow. Two thinner trends have been noted at the southern end of Area 1 whose nature is obscure.

#### **Area 2**

- 4.7 Three small groups of high resistance readings have been recorded. These are associated with existing buildings and paths and are discounted as modern.

#### **Area 3**

- 4.8 A circular zone of low resistance coincides with a tree; the surrounding 'halo' of high resistance readings are attributed to soil desiccation caused by the tree's root system. A weaker high resistance feature enclosing an area of low resistance readings may reflect the position of a former tree. An ill-defined high resistance anomaly (H) and a low resistance response to its north-east may also be archaeological but a natural origin is thought more plausible.
- 4.9 A modern linear anomaly corresponds with an extant path.

#### **Area 4**

- 4.10 Two rectilinear zones of high-resistance readings are attributed to modern causes as they coincide with an area of hard-standing and a path. The high-resistance anomaly (I) and the two low resistance responses (J) may be of interest. When viewed as a whole, their rectilinear form is suggestive of former garden features.

## **5. Results of GPR Survey**

- 5.1. Three areas were surveyed in detail at Chicksands using GPR. In all three areas the traverse interval was 0.5m and data was collected with a stepsize of 0.1m and using a 225 MHz antenna.
- 5.2. The data from the GPR survey were collected as radargrams and converted to timeslices indicating response at differing depth. The timeslices shown in the figures show variable depth envelopes. The depths are estimates based on an assumed velocity of 0.08 m/ns. The calculated depth is shown against each timeslice and the most shallow response is shown in the top left image and the deepest response in the bottom right.

#### **Area A**

- 5.3. This survey was undertaken at the presumed north west corner of the cloister, in a gap in the buildings surrounding the present courtyard.
- 5.4. It was assumed that if archaeology is present in this area then it would be at some depth, perhaps in excess of 1m. As a result the 225 MHz antenna was chosen for this survey.
- 5.5. As expected the near surface response suggests made up ground (see Figure 5). Beneath 1m or so the dominant response is 'ringing' associated with services known to run across the area. However, significant responses emerge at some depth in the centre of the survey area. These responses have largely disappeared by an assumed depth of 3m. While the significance of these responses is uncertain, they may represent variations in the natural subsoil, it is clear that no anomalies indicative of monastic remains are apparent.

#### **Area B**

- 5.6. This survey area lies within the present courtyard and was positioned to investigate the possibility that part of the cloister remains may be within this area.
- 5.7. As with Area A the archaeology was potentially at some depth and the 225 MHz antenna was again used. The data are shown as timeslices in Figure 6. A number of broad linear anomalies are aligned approximately east-west at both the southern and northern end of this area. Many of these responses are the product of near surface features, most likely buried services of some sort.
- 5.8. It is likely that significant archaeological responses are not apparent until the 1.8-2.0m timeslice. It is possible that the large amorphous anomalies at the eastern edge of the survey indicate the response from cellars that are believed to extend under the courtyard. At this level a linear response emerges at the southern edge of the survey and it can be seen to migrate to the north on increasing depth. This apparently moving feature is a product of the form of response. This may be seen on the radargram from one of the traverses (Figure 7). The radargram represents a vertical section through the ground. One vertical axis is in nanoseconds (ns) and indicates the length of time required for the transmitted pulse to travel down to an interface and return to the receiver. This is referred to as two-way-time. The other vertical axis displays the approximate depth of these reflectors below the surface. The coloured bands on the radargram represent some of the timeslice envelopes indicated in Figure 6. It can be seen that the a feature has generated a large response at the southern edge of the radargram and starting at a depth of c. 1.8m. The timeslices envelopes show that the edge of this response is seen further north as the depth of the timeslice increases.

#### **Area C**

- 5.9. This survey lies between Trench X and Y. The initial impetus for the survey was the deep stratigraphy found in an excavation trench directly to the west. Again, the 225MHz antenna was used for data collection in Area C.
- 5.10. The results are disappointing in this survey area, Figure 8. They show a general strong response between the two area trenches and this may indicate compact soil or made up ground associated with the archaeology that was found in this area. Some structure is apparent in the 1.3-1.5m timeslice, but it is not certain if it is real or not. An analysis with the excavated evidence may be revealing in this case. In some of the deeper time slices linear anomalies probably relate to a buried service.

## **6. Conclusions**

- 6.1 Resistance survey was conducted in four areas and a large number of responses of archaeological interest have been noted, principally within Area 1. Within this area, a group of high-resistance anomalies display a marked rectilinearity and are, therefore, thought to reflect building remains. Their shared orientation with the existing buildings of Chicksands Priory strengthens their interpretation. Several other high resistance responses have also been recorded, which are of archaeological potential and may indicate rubble spreads, former garden features, or possible former structures. However, their lack of form and/or strength precludes any definitive statement as to their nature.
- 6.2 Responses which may indicate former garden features have been noted in Area 4. The remaining anomalies in all areas are, with varying degrees of certainty, attributed to modern or natural origins.
- 6.3 The GPR survey indicated a number of features at depth. However, none of these anomalies could be definitively linked to presumed archaeology at the site.

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### **References:**

- GSB 1993 *Report on Geophysical Survey at Chicksands Priory* GSB Report No. 93/84. Unpublished Report.
- SSEW 1983 *Soils of England and Wales. Sheet 6, South-East England.* Soil Survey of England and Wales.

## SITE SUMMARY SHEET

2001 / 44 Chicksands Priory, Bedfordshire

**NGR: TL 121 393**

### **Location, topography and geology**

The site lies approximately 2.3km west-northwest of Shefford and c.12.5km south-east of Bedford. Resistance survey was undertaken in four areas (labelled Areas 1-4) in the grounds of Chicksands Priory. At the time of survey, the areas studied were under short grass. The soils are argillic brown sands consisting of deep well drained coarse loams; the parent geology comprises Mesozoic and Tertiary sands (SSEW, 1983).

### **Archaeology**

The Priory was a monastic foundation of the Gilbertine order until the Dissolution. It then passed into private ownership and underwent a succession of modifications. In the recent past, the house and grounds were part of a US military establishment before reverting to the ownership of the Ministry of Defence. A previous survey (GSB, 1993) produced some promising results although dry ground conditions and small survey areas hindered data collection and interpretation.

### **Aims of Survey**

Resistance and ground penetrating radar (GPR) survey were undertaken with the aim of locating structural remains associated with the former priory and any detectable anomalies of archaeological interest. This survey forms part of an archaeological evaluation being undertaken by **Time Team** for **Channel 4 TV**.

### **Summary of Results \***

Within Area 1, there are a number of rectilinear high resistance responses characteristic of building foundations. Another group of high resistance anomalies, which are more amorphous, are also thought to be of archaeological potential. The data also contain two concentrations of ill-defined high resistance responses. Whilst these are thought to be of possible archaeological interest, such an interpretation is cautious. The data contain numerous linear and amorphous low resistance anomalies. These are attributed to modern and natural features.

Survey within Areas 2 and 3 has recorded several high and low resistance anomalies but modern and natural origins are thought most probable. Within Area 4, a number of low resistance responses which display a degree of rectilinearity and appear to enclose a sub-rectangular area of high resistance readings. These may reflect former garden features, however, this is conjectural.

The GPR survey, while producing two interesting data sets, failed to provide any anomalies that are conclusively archaeological in origin.

**\* It is essential that this summary is read in conjunction with the detailed results of the survey.**



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