

GEOPHYSICAL SURVEY REPORT

# STRATASCAN™



Project name:  
**Lay Wood, Devizes, Wiltshire**

Client:  
**CgMs Consulting Ltd**

**July 2015**

Job ref:  
**J8624**

Report author:  
**Thomas Richardson MSc ACIfA**

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Project name:

**Lay Wood, Devizes, Wiltshire**

Client:

**CgMs Consulting Ltd**

Job ref:

**J8624**

Techniques:

**Earth Resistance**

Survey date:

**22nd-25th June 2015**

Site centred at:

**SU 031 629**

Post code:

**SN10 2JW**

Field team:

**James Lawton** MSc

**Alistair Galt** MSc

Project manager:

**Simon Haddrell** BEng(Hons) AMBCS PIFA

Report written By:

**Thomas Richardson** MSc ACIfA

CAD illustrations by:

**Thomas Richardson** MSc ACIfA

Checked by:

**David Elks** MSc AIFA

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## 1 SUMMARY OF RESULTS

An earth resistance survey was conducted over approximately 3.1 hectares of agricultural land. The survey has identified evidence of robber trenches, a pit, and demolition debris in the centre of the survey area, which correspond with an area identified as being part of a Roman villa complex by previous survey and trenching. Two anomalies characterised as being possible archaeology suggest evidence of further settlement activity, however these could equally relate to more modern agricultural activity, or be natural features. The other anomalies detected relate to post-medieval field boundaries seen on mapping and in the evaluation trenching of the site, and an area of natural variation.

## 2 INTRODUCTION

### 2.1 *Background synopsis*

Stratascan were commissioned to undertake a geophysical survey of an area outlined for a residential development. This survey forms part of an archaeological investigation being undertaken by CgMs Consulting Ltd.

### 2.2 *Site location*

The site is located to the south of Horton Road, Devizes, Wiltshire OS ref. SU 031 629.

### 2.3 *Description of site*

The survey area is approximately 3.1 hectares of agricultural land. The site lies on a gentle south-west facing slope with no obstructions.

### 2.4 *Geology and soils*

The underlying geology is Upper Greensand Formation – Calcareous Sandstone and Siltstone (British Geological Survey website). There is no recorded drift geology (British Geological Survey website).

The overlying soils for the area are known as Ardington, which are typical argillic brown earths. These consist of reddish fine and coarse loamy glauconitic soils (Soil Survey of England and Wales, Sheet 5 South West England).

## 2.5 **Site history and archaeological potential**

An excavation was conducted by Wessex Archaeology targeting anomalies from a gradiometer survey. The following extract from 'Land by Lay Wood, Devizes Historic Environment Report Addendum' (AMEC 2013) discusses the findings:

*The potential villa site was indicated by a concentration of Romano-British features identified over five evaluation trenches on a slight plateau in the eastern part of the site. Structural remains in this area indicate a range of buildings, perhaps organised around a courtyard. The remains include walls of local chalk and evidence for a hypocaust system, as well as further robbed-out walls and evidence of demolition. No obvious remains of activity at or above floor level were identified by the evaluation. Artefactual finds include roof and floor tile, although also stone which may have been used for roofing, as well as a pottery assemblage dating from the first or second century into the late third or fourth century. Evidence from the alignment of buildings suggests that there may be two phases of building represented.*

*The presence of a separate subsoil beneath the current ploughsoil, as well as the generally good survival of artefacts, suggests that the impact of modern agricultural activities is not critical; however, some disturbance could be discerned where remains were visible in section and the evaluation report concludes that some remains are at risk due to deep ploughing activities, such as those exposed in Trench 14 (paragraph 4.3.15 of the report).*

*At the western edge of the site, evidence for Romano-British activity comprises two ditches and a small pit. The larger of the two ditches, some 20m from the site boundary, contained a large number of large pottery sherds. These were apparently deposited from the west, indicating potential occupation focused beyond the western boundary of the site; within Northfields housing estate. There was no evidence that this activity extends further to the east of the features identified, within the site.*

*No prehistoric features were identified by the evaluation, although some residual worked flint and pottery suggests a low level of activity of this date in the vicinity.*

*Various field enclosure boundaries, including many of those identified from historic map sources in the desk-based assessment, were targeted and identified by the trial trench evaluation.*

## 2.6 **Survey objectives**

The objective of the survey was to more fully define the extent of the Roman villa site identified by previous survey and excavation in relation to informing a preservation management plan and mitigation approach within proposed development areas.

## 2.7 **Survey methods**

This report and all fieldwork have been conducted in accordance with both the English Heritage guidelines outlined in the document: *Geophysical Survey in Archaeological Field Evaluation, 2008* and with the Institute for Archaeologists document *Standard and Guidance for Archaeological Geophysical Survey*.

Given the potential for structural remains, resistivity was used as an effective method of identifying the archaeological features on the site. More information regarding this technique is included in the Methodology section below and in the Appendices.

## 2.8 *Processing, presentation and interpretation of results*

### 2.8.1 Processing

The processing was carried out using specialist software known as Anomaly and involved the 'despiking' of high contact resistance readings.

The following schedule shows the processing carried out on the processed resistance plots.

Despike	X radius = 1
	Y radius = 1
	Spike replacement

### 2.8.2 Presentation of results and interpretation

The presentation of the data for the site involves a print-out of the processed data as a grey scale plot, as well as a colour scale plot showing areas of high resistance. Anomalies have been identified and plotted onto the 'Abstraction and Interpretation of Anomalies' drawing.

## 3 RESULTS

The earth resistance survey at Lay Wood has identified a number of anomalies that have been characterised as being either of a *probable* or *possible* archaeological origin.

The difference between *probable* and *possible* archaeological origin is a confidence rating. Features identified within the dataset that form recognisable archaeological patterns or seem to be related to a deliberate historical act have been interpreted as being of a probable archaeological origin.

Features of possible archaeological origin tend to be more amorphous anomalies which may have similar attributes in terms of strength or polarity but are difficult to classify as being archaeological or natural.

The following list of numbered anomalies refers to numerical labels on the interpretation plots.

### 3.1 *Probable Archaeology*

- 1 Low resistance linear anomalies in the centre of the site. These are indicative of former cut features, and are probably robber trenches related to the Romano-British settlement activity in the area, as seen with Context 1119, Trench 11 of the Wessex Archaeology excavation.
- 2 A discrete positive feature in the centre of the site. This is indicative of a former pit feature, and is likely to be of archaeological origin, relating to the settlement activity in the area. This is likely to be similar to the pit feature seen in Context 1104, Trench 11 of the Wessex Archaeology excavation.
- 3 A high resistance area anomaly in the centre of the site. This is likely to relate to demolition debris from the Romano-British settlement activity in the area. Demolition debris is seen in Trenches 10, 11, 12, 13 and 14 of the previous excavation.

### 3.2 *Possible Archaeology*

- 4 A high resistance area anomaly in the north of the site. Whilst this may relate to further demolition debris, the trenching report records little in the area. The anomaly is more likely to relate to an area of compacted ground or imported material relating to agricultural activity, as it appears to be confined by a former field boundary (Anomaly 6); however an archaeological origin cannot be disregarded with any degree of confidence.
- 5 A high resistance area anomaly in the south-east of the area. This is indicative of an area of compacted ground or demolition debris, and may be of archaeological origin. However, excavation in the area (Trench 14) did not identify any features.

### 3.3 *Medieval/Post-medieval Agriculture*

- 6-7 Two high resistance linear anomalies. These are related to former field boundaries present on historic mapping. Anomaly 6 is present 1886-1961, whilst Anomaly 7 is not available on any mapping available to Stratascan it is present in the Wessex Archaeology trenching report as a field boundary from historic OS mapping.



### 3.4 *Other Anomalies*

- 8 A large area of moderate resistance in the north-east of the site. Given the anomaly's size it is likely to be natural in origin.

## 4 DATA APPRAISAL & CONFIDENCE ASSESSMENT

Resistivity requires the earth to be moist, but not waterlogged to be effective. The relatively quick draining sandstone geology, combined with 20.7mm of rain in the two weeks running up to the survey suggests that the soils would have been conducive to survey. This is evidenced by the correlation in results between the resistivity and the evaluation trenching, which suggest the survey has been effective.

## 5 CONCLUSION

The survey at Lay Wood has identified a number of anomalies of probable and possible archaeological origin. Evidence of robber trenches, a pit, and demolition debris in the centre of the survey area, correspond with an area identified as being part of a Roman villa complex by previous survey and trenching. Two anomalies characterised as being possible archaeology suggest evidence of further settlement activity, however trenching in these areas revealed no features. Both of the possible archaeological anomalies could relate to more modern agricultural activity, or be natural features. The other anomalies detected relate to post-medieval field boundaries seen on mapping and in the evaluation trenching of the site, and an area of natural variation. The detection of the boundaries in both the resistance survey and the trenching lends further validation to the results.

## 6 REFERENCES

AMEC, 2013. *Land by Lay Wood, Devizes Historic Environment Report Addendum*

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## APPENDIX A – METHODOLOGY & SURVEY EQUIPMENT

### ***Grid locations***

The location of the survey grids has been plotted together with the referencing information. Grids were set out using a Leica 705auto Total Station and referenced to suitable topographic features around the perimeter of the site or a Leica Smart Rover RTK GPS.

An RTK GPS (Real-time Kinematic Global Positioning System) can locate a point on the ground to a far greater accuracy than a standard GPS unit. A standard GPS suffers from errors created by satellite orbit errors, clock errors and atmospheric interference, resulting in an accuracy of 5m-10m. An RTK system uses a single base station receiver and a number of mobile units. The base station re-broadcasts the phase of the carrier it measured, and the mobile units compare their own phase measurements with those they received from the base station. A SmartNet RTK GPS uses Ordnance Survey's network of over 100 fixed base stations to give an accuracy of around 0.01m.

### ***Sample interval***

Readings were taken at 1m centres along traverses 1m apart. This equates to 900 sampling points in a full 30m x 30 grid. All traverses were surveyed in a "zigzag" mode.

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**STRATASCAN LTD**

Vineyard House Upper Hook Road Upton upon Severn  
Worcestershire WR8 0SA United Kingdom

T:01684 592266 F: 01684 594142

[info@stratascan.co.uk](mailto:info@stratascan.co.uk) [www.stratascan.co.uk](http://www.stratascan.co.uk)

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