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Croughton Evaluation Report

A Report on the Archaeological Evaluation
undertaken at Croughton Roman Settlement,
Northamptonshire

CAS Project 492

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A Report on the Archaeological Evaluation undertaken at Croughton Roman Settlement, Northamptonshire.

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Summary

A Roman settlement site at Croughton, Northamptonshire was discovered in 1991 after metal detectorists alerted the county archaeologist to a number of Roman artefacts they had discovered along a new gas pipeline. Further prospection by metal detectorists on nearby land, led to the discovery of a well preserved decorative mosaic floor. The mosaic features a central panel depicting the Greek figure Bellerophon, mounted upon Pegasus, slaying the mythical monster Chimaera.

Geophysical survey of the area by English Heritage revealed that the mosaic lay within a rectangular building, a possible villa, situated near the southern margin of a widespread complex of buried features which extended over at least 5 hectares.

An archaeological evaluation of the Roman settlement site was undertaken in the summer of 1995, whose purpose was to inform decisions regarding the long-term conservation and management of the site. Hand excavated trenches were opened within the area of the villa building within which the mosaic lies. Removal of topsoil revealed archaeological deposits of Roman date just below the present ground surface. Remnants of once substantial walls were visible, as were indications of internal structures. All trenches showed evidence of modern plough damage, and in some areas archaeological deposits had been completely removed. Remarkably the area of mosaic floor revealed during this work was extremely well preserved. It was drawn in detail by hand, and recorded by photogrammetric survey. The condition of the mosaic was assessed by the Ancient Monuments Laboratory, who also advised on future conservation.

A large number of machine excavated trenches were opened within the area of the surrounding settlement. The size of the settlement was validated, as was the extremely well preserved state of the archaeological deposits. The majority of the buried features appeared to be Roman in date, although a number of earlier Iron Age features were detected at the fringes of the Roman settlement. Of particular note was the discovery of a La Tene II asymmetrical spearhead which dates to the second century BC.

Illustrations

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- Figure 8 Magnetometer survey grey-scale plot showing the location of the villa building, and the Iron Age enclosure.
- Figure 9 Plan showing extent of plough damage within the excavated trenches across the villa building.

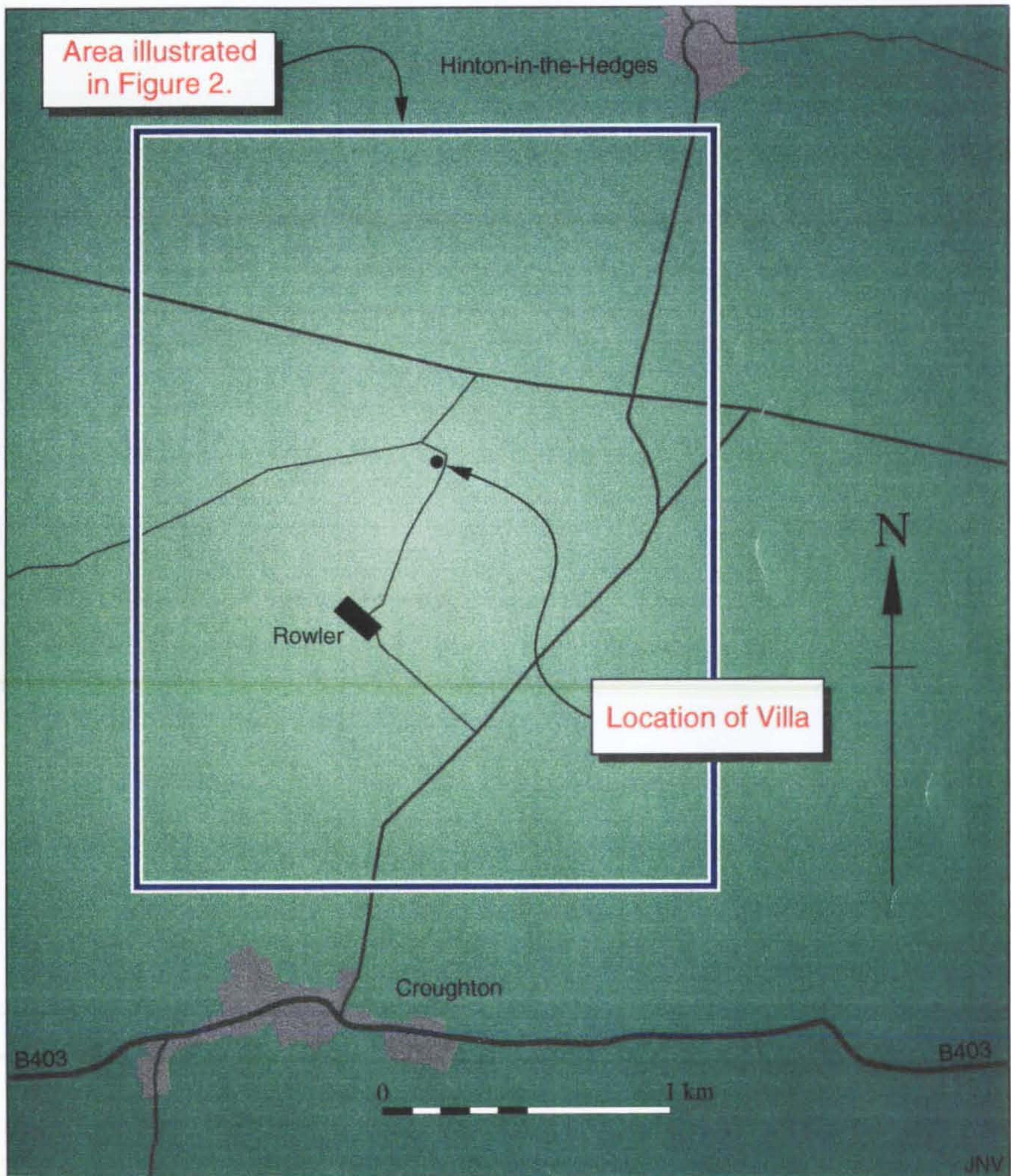


Figure 1. General Location Plan

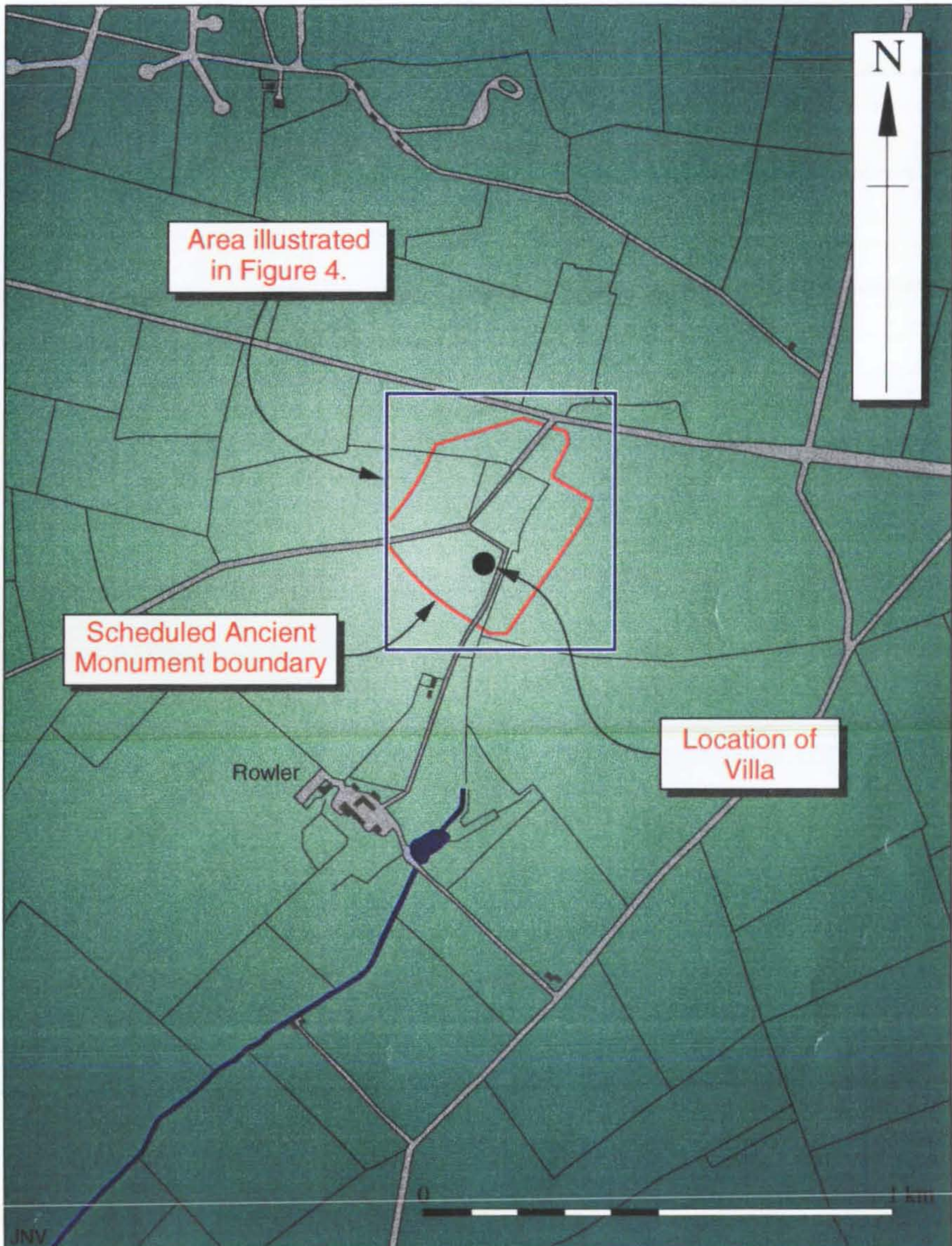
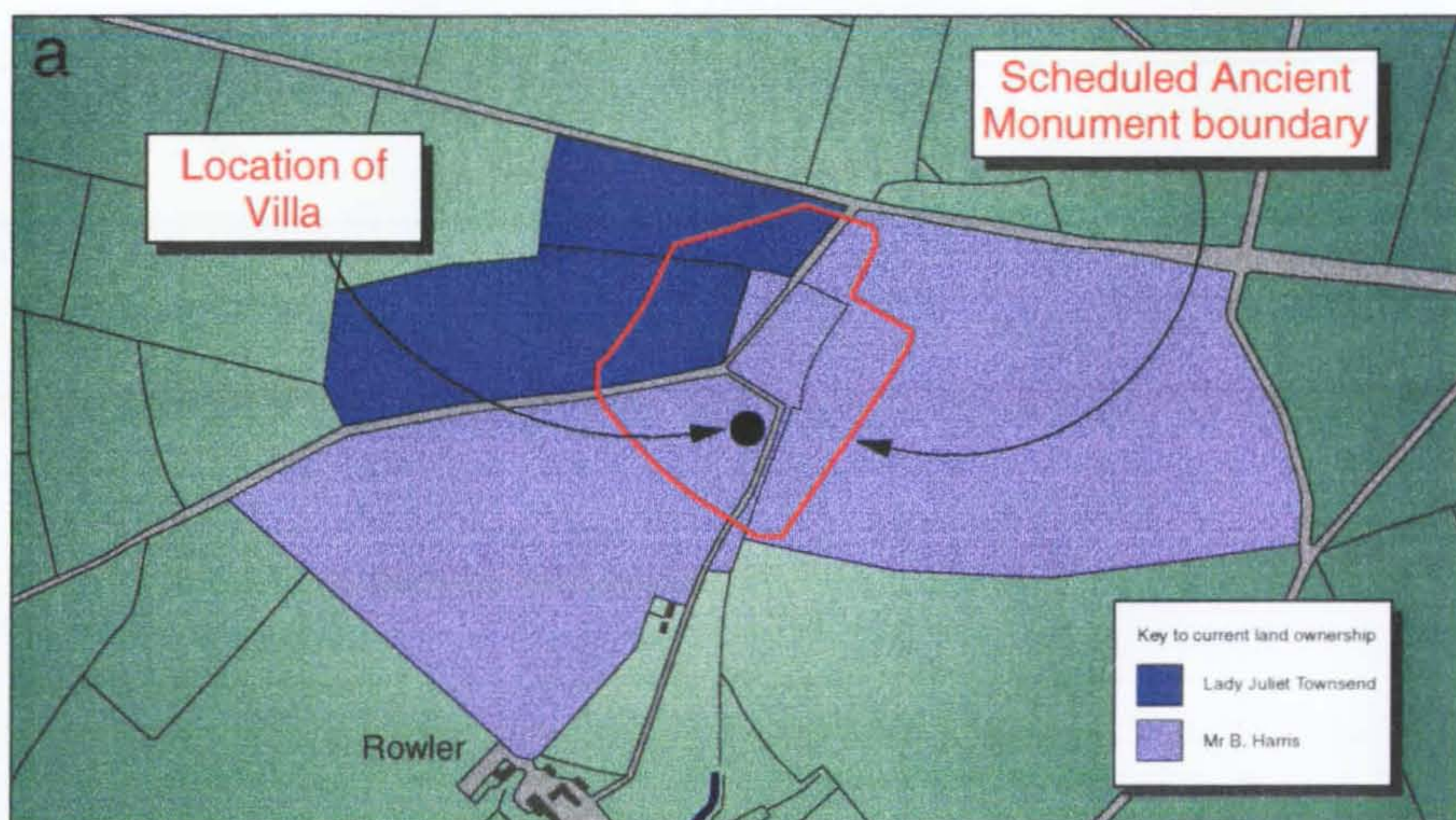


Figure 2. Plan showing field layout, location of the Villa site and the Scheduled Ancient Monument boundary



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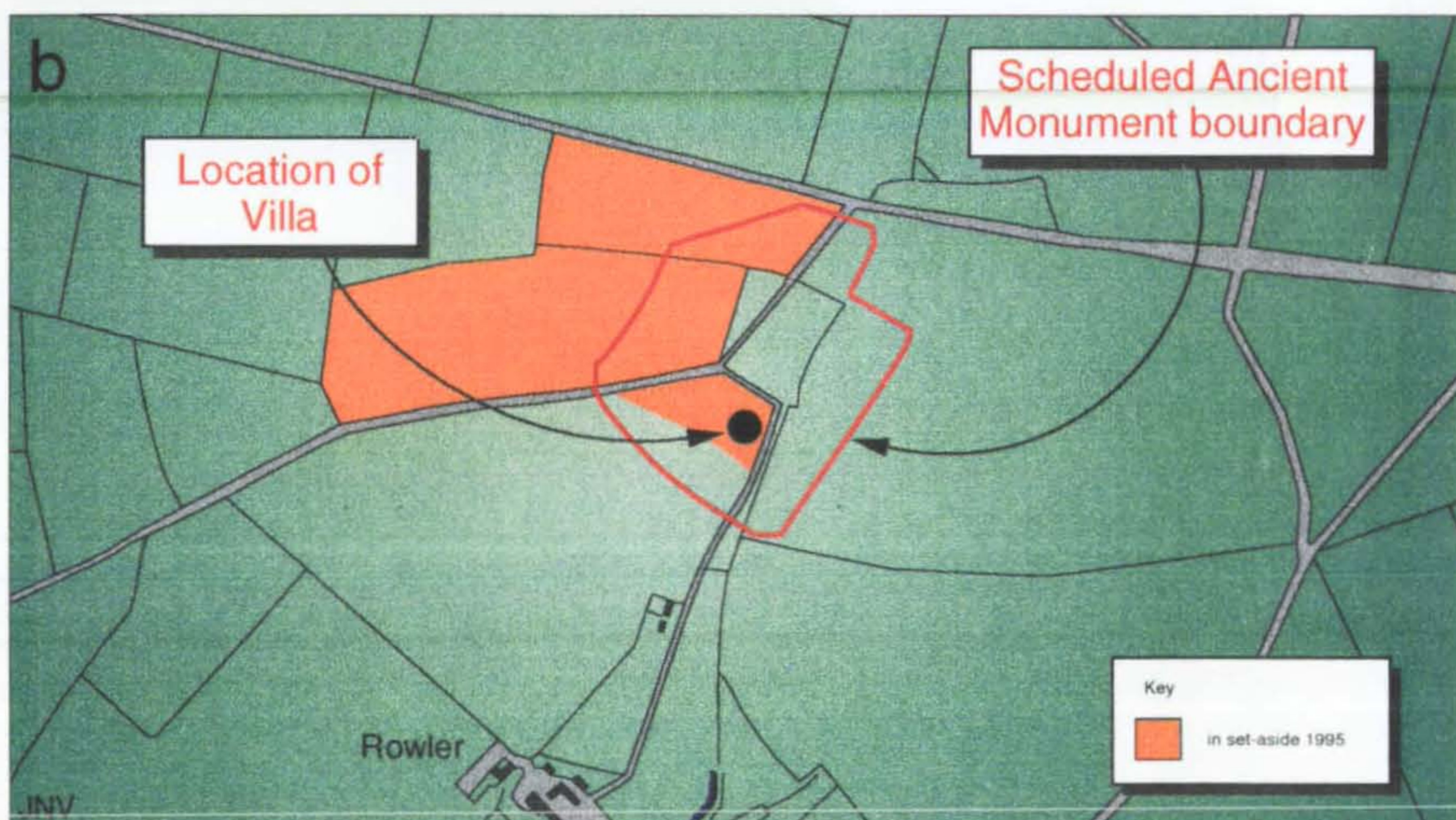


Figure 3a. Plan showing current land ownership
Figure 3b. Plan showing area of current set-aside

Location

The scheduled ancient monument (National Monument No 22703) is situated on the parish boundary between Croughton and Newbottle (SP55043553), within the county of Northamptonshire (fig 1). It lies at the head of a tributary valley just south of the watershed between the Great Ouse and the Thames/Cherwell.

The scheduled ancient monument boundary is shown in Figure 2. The scheduled area falls within the ownership of two people: Mr B Harris, and Lady Juliet Townsend (fig 3a).

The scheduled area is currently under set-aside within the land owned by Lady Juliet Townsend. It is under a mixture of set-aside and cereals within the land owned by Mr Harris (fig 3b); the area of set-aside protecting the villa building.

Previous work

In July 1991, metal detectorists alerted the county archaeologist to a number of Roman artefacts they had discovered along the new gas pipeline within the bounds of Rowler Farm. Subsequently, an archaeological watching brief was then maintained on the pipeline by Northamptonshire Archaeology, which revealed possible walls, surfaces, and a quantity of Roman pottery and tile at c SP550356 (Northamptonshire Archaeology 1995).

During further prospection by metal detectorists on nearby land a hole was excavated to the south-east of the pipeline, and the remains of a mosaic were revealed (fig 2). An area of approximately 25m² was uncovered to expose a fine decorative mosaic floor, with a central circular panel depicting Bellerophon mounted on Pegasus slaying the Chimaera. The English Heritage Inspector of Ancient Monuments for the region, was informed of the discovery by the landowner. On inspection of the mosaic the Inspector advised the landowner to backfill the opened area in order to protect it until a decision could be made as to its future care.

In October 1992 and January 1993, the English Heritage Ancient Monuments Laboratory (AML) undertook a geophysical survey of the area surrounding the mosaic. The work included both magnetometer and resistivity survey. An interim report was produced (David and Payne 1993). Further work was undertaken to the east and north-east of the original survey area in September 1994. The results of this work, particularly the magnetometer survey, were of a high quality. Figure 4 shows the grey scale plot of the magnetometer survey. An interpretative plot has not yet been produced, but the resolution of the grey scale plot is sharp enough to allow a general interpretation to be made.

The outline of the building associated with the mosaic floor is rectangular in shape, approximately 8m x 30m in area, and aligned roughly north-south (fig 4). It appears to be a villa of simple rectangular type including a range of rooms without a corridor. The building is situated near the southern margin of a very widespread complex of buried features (fig 4) which extends over at least 5 hectares. These features include many ditches which define enclosures, trackways and other boundaries, and a great variation of other anomalies which suggest dense occupation, including probably some industrial activity (Andy Payne pers comm). In places there may also be the remains of other stone-built structures.

Little aerial photography has been carried out in the area successfully. The little that has been successful confirms the results of the geophysical survey, and reveals further enclosures, linear boundaries and ditched trackways to the north-west.

In July 1993, the mosaic was re-excavated by the Central Archaeology Service, in order to replace the original backfill with more suitable inert protective materials (Blore 1993). The area that had been opened in 1991 was irregular in shape (fig 7); the excavators had exposed sufficient to reveal the large central circular panel of the mosaic floor. This panel portrayed the figure of Bellerophon slaying the mythical beast, the Chimera. Bellerophon is depicted mounted on a white horse, Pegasus, and with his right arm thrusts a spear into the mouth of the monster which has a lion's head, a goat's body, and a dragon's tail. The circular panel

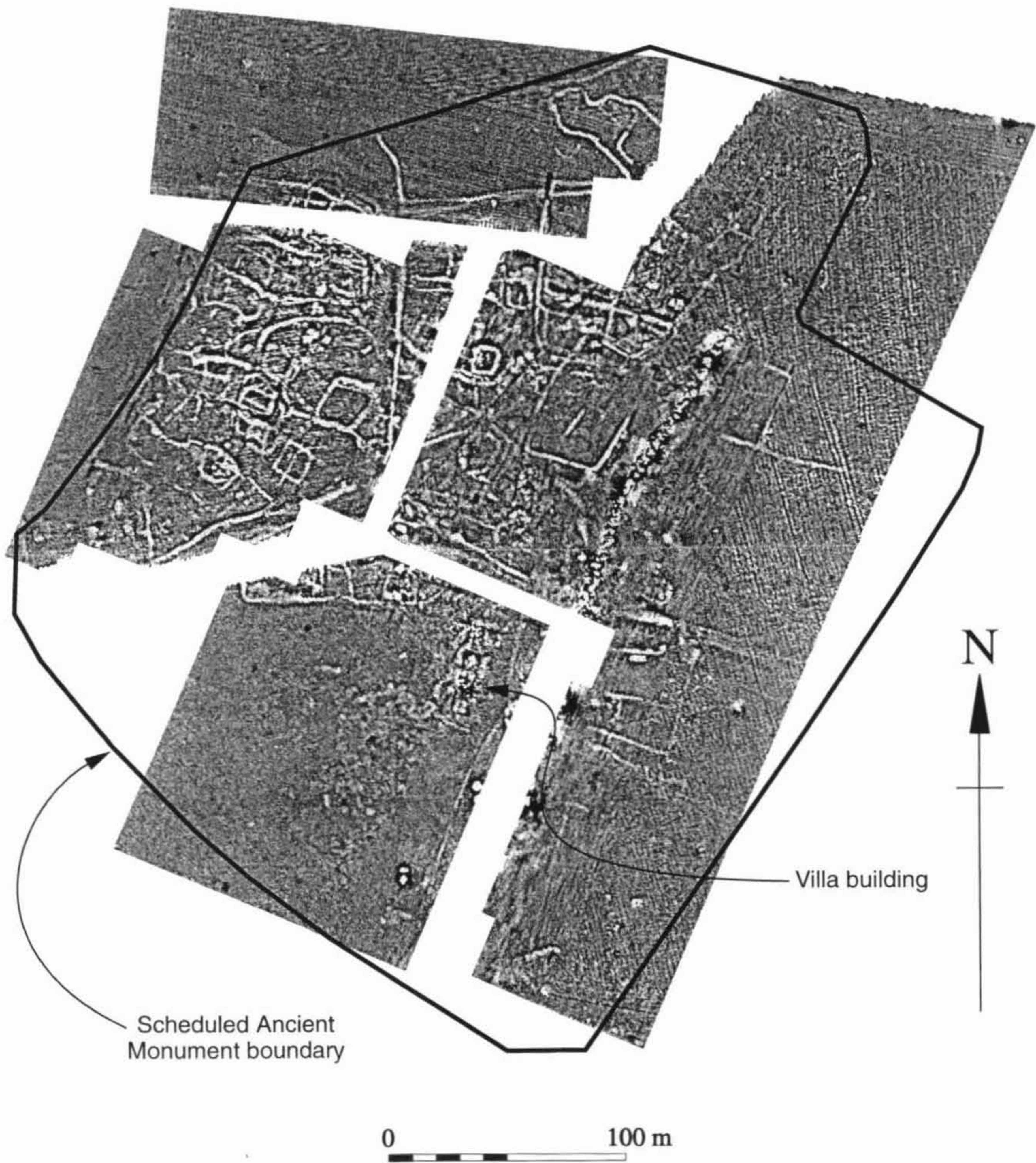


Figure 4. Location of magnetometer surveys 1992-94

is set in an octagon at the centre of two overlapping squares which are bordered by braided ornament; together they form an eight-pointed star which is set within a wider geometrical framework. The mosaic which is constructed of tesserae cut from limestone and sandstone, has been dated to the later 4th century. This scene is not common, and where it has been utilised at the Roman villa sites of Lullingstone, and Hinton St Mary, it is in association with a number of Christian symbols.

The depth of topsoil, as seen in section, lying above recognisable archaeological deposits varied from a maximum of 0.26m to a minimum of 0.09m in the south-east corner of the trench. Immediately below the topsoil there appeared to be a layer of destruction material, including burnt mortar, wood, tile, and painted plaster. This destruction layer was separated from the mosaic surface by a fine layer of pea-grit. In places the mosaic surface appeared to have been burnt or stained by the destruction material.

To the south-east and the north-west of the opened trench area there were indications of two robbed stone walls bordering the mosaic floor. A number of artefacts were recovered from the topsoil during the removal of the backfill, consisting mainly of Roman pottery, *tesserae*, brick, tile, and a little post medieval pottery. The finds were bagged, labelled, and placed under the sand, when backfilling took place, so their context was not lost.

After being photographed the mosaic was covered with a succession of inert materials: semi-permeable membrane, silver sand, concrete slabs, and then a covering of soil.

In April 1993 Northamptonshire Archaeology were commissioned by English Heritage, who grant-aided the project, to undertake a fieldwalking survey of the villa site (fig 5) and the surrounding area. The aims of the project were to establish the extent of the settlement around the villa, and discern any internal patterning within the villa itself (Northamptonshire Archaeology 1995). The fields to the north-west of the villa were unavailable for walking as they were in set-aside (fig 3b).

The majority of the diagnostic pottery collected during the fieldwalking belonged to the 2nd and 4th centuries, with certain fabric type and forms more specifically late 3rd to 4th centuries. Very little early Roman, or Iron Age pottery was recovered. The distribution of Roman pottery fell off clearly to the north and south, but less so to the east, especially to the north-east. Within the field in which the villa lies, the pottery distribution remained quite constant across the area fieldwalked, but with a number of concentrations identified at a distance from the villa itself. The most obvious was to the north where a concentration occurred in close proximity to a series of enclosures associated with a linear boundary ditch identified by geophysical survey (David and Payne 1993).

Intensive walking of the villa area revealed that the main concentration of pottery lay towards the north-west of the villa, with only small amounts of pottery recovered from within the confines of the villa, making internal patterning impossible to discern. In contrast to the pottery distribution, ceramic tile appeared to have been concentrated around the southern end of the villa. However, in general the distribution of ceramic tile recovered from the

fieldwalking correlates with that of the pottery. *Tesserae*, mortar and plaster were almost entirely recovered from the area of the villa. As with the tile, they can be seen to lie principally around its southern end.

In summary: the results of the fieldwalking and the geophysical survey suggest that at Croughton a mid-to late-Roman villa existed, with an associated agricultural settlement whose date is conceivably of 2nd to 4th century in date, and possibly largely of the 3rd to 4th centuries. It is apparent that to the east and north-east of the villa a correspondence can be seen in the fall off of both geophysical survey features, and the amount of pottery and tile recovered.

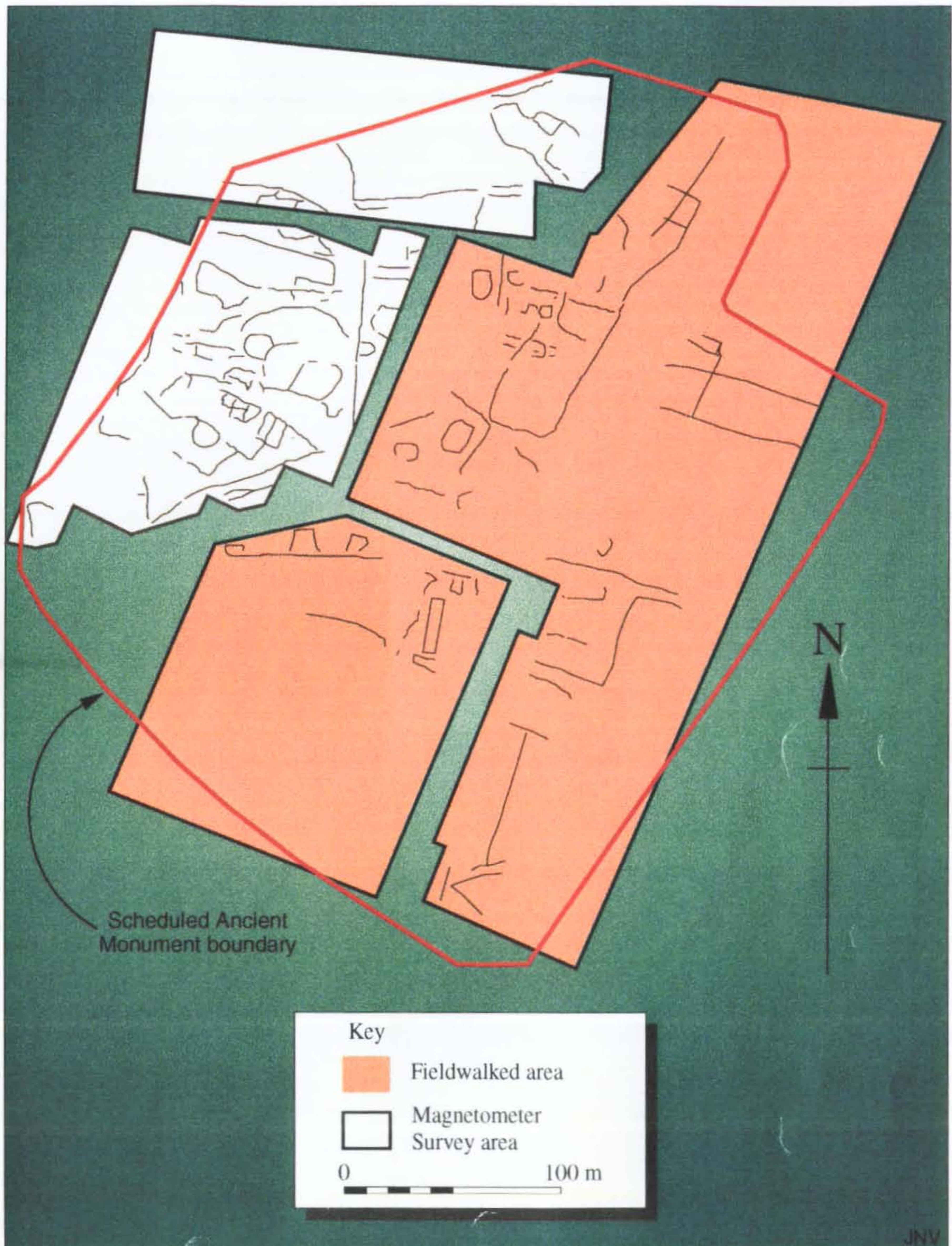


Figure 5. Plan showing the areas fieldwalked

Reasons for and circumstances of the project

The Department of National Heritage has approved the scheduling of the Roman villa and associated settlement (fig 2), following the recommendations of English Heritage. These recommendations were based upon the results from the fieldwalking survey undertaken by Northamptonshire Archaeology, and the Ancient Monument Laboratory's geophysical survey. However, while scheduling provides a framework of protection, a need for further characterisation of the nature and disposition of the archaeological deposits has been identified. This information is essential when considering the most appropriate protection for the mosaic, and the best form of management for the larger archaeological site within which the mosaic sits.

Aims and objectives

Prior to this evaluation a preliminary assessment of the site (Blore 1993) suggested the unusual iconography of the mosaic, and its possible Christian associations, causing the mosaic to be of national significance. Therefore a strong desire for recording and publishing was identified. Whilst this could be achieved with a relatively limited project, there was also a clear need for some characterisation of the building complex, and the settlement within which the building falls.

The scheduling proposals approved by the Secretary of State for National Heritage provide a framework of protection, but there was a need for further characterisation of the nature and disposition of the archaeological remains. This information is indispensable when considering the most appropriate protection for the mosaic, and the best form of management for the larger archaeological site within which the mosaic sits.

To fulfil these aims a number of overall objectives were identified :

- A To establish the date, nature and potential of the existing settlement and its boundaries
- B To assess the nature of the building complex associated with the mosaic
- C To record and assess the significance of the mosaic
- D To identify the building/construction sequence for the mosaic building, and assess the potential for earlier structures/mosaics
- E To assess the current condition and conservation needs of the mosaic and associated structure(s)
- F To characterise the nature, disposition and vulnerability of the settlement site, its structures, deposits, artefacts and ecofacts
- G To assess the current management regime for the settlement site
- H To identify modifications and changes to current management regime to ensure effective management and conservation
- I To assess the viability of a public display strategy for elements of the site
- J To identify an appropriate analytical and publication strategy
- K To develop and test archaeological methodology with regard to reconnaissance, evaluation, conservation, analysis, publication and display where appropriate

Of these objectives a number were identified for this phase of the project :

On-site intervention

- 1 To uncover, and record the area of mosaic revealed during previous work.
- 2 To assess the condition, and the conservation needs of the mosaic.
- 3 To characterise the structure within which the mosaic sits.
- 4 To characterise, if possible, any earlier or later archaeological deposits found in association with the mosaic.
- 5 To characterise the surrounding archaeological remains, by identifying their date, nature, disposition, potential, and vulnerability.

Evaluation methods statement

Machine excavated trial trenches

17 trial trenches were excavated by machine (fig 6). They ranged in length from approximately 50m to 400m, with a width of 1.8m. The trenches were positioned, as shown in Figure 6, to maximise the retrieval of information, and ensure that the archaeological resource was understood. They were positioned to determine the extent of the settlement area, and allowed the accuracy of the geophysical survey results, including a number of uncertain anomalous activities, to be tested.

The exact positioning of the trial trenches depended on extant services.

The trial areas were excavated by machine to the top of archaeological deposits, or where these were not present, to the top of natural deposits. Mechanical excavation was undertaken using a toothless ditching bucket. A few areas were cleaned to prove the presence or absence of archaeological features, and to determine their significance if present. No excavation of archaeological deposits took place. The archaeological deposits were recorded in plan using a total station theodolite, following the procedure set out below.

Hand excavated evaluation trenches

A number of evaluation trenches were hand excavated, within the area of the villa building. The position of these trenches (fig 7) ensured that the archaeological deposits within the locality of the villa was understood, as well as the archaeology of the building itself.

The evaluation trenches were excavated manually to the top of archaeological deposits, or where these were not present, to the top of natural deposits. All trenches were cleaned to an appropriate standard to prove the presence or absence of archaeological deposits, and to determine their significance.

Once cleaned the trenches were recorded in plan.

The topsoil removed during the evaluation process was kept nearby for the easier backfilling of the area at the end of the project.

Hand excavation in area of mosaic

It had, at one stage, been envisaged that the requirement for a complete drawn record of the mosaic, would necessitate limited excavation of the later archaeological deposits covering the edges of the mosaic. However, following discussions between the Project Director, and the English Heritage Inspector, it was decided that there was no justification for excavating such sensitive deposits out of phase with the surrounding archaeology. It was agreed that the 1993 trench should be re-opened, the area cleaned, and limited sampling undertaken of the 'burnt' material that lies above the mosaic. It was also agreed that a small area in the north-west

corner of the 1993 trench should be excavated to locate the existence of the north to south running wall.

The archaeological deposits still covering the mosaic were recorded in plan.

The mosaic was recorded in plan at true scale. It was also recorded photogrammetrically by a team from the Photogrammetric Department of English Heritage. This has provided an accurate record of the mosaic, as well as a 3-dimensional plot of the mosaic surface, which will aid any monitoring of changes in the condition or disturbance of the mosaic in future years.

All archaeological deposits were recorded using a continuous numbered context system on pro-forma CAS recording sheets.

Written, drawn and photographic records (b&w and colour slides) of an appropriate level of detail were maintained throughout the course of the project. Plan drawings (other than location plans) were drawn at a minimum scale of 1:20; section drawings were a minimum scale of 1:10; photographic records were a minimum of 35mm format.

Drawn records were related to Ordnance Survey data, and published boundaries where appropriate.

All artefacts recovered during the project were retained, and related to the contexts from which they were derived. All typologically distinct, and closely datable finds were recorded three-dimensionally.

Backfilling

All machine excavated areas were backfilled by machine at the end of the project. They were backfilled to their former surface level, and every attempt was made to return the areas to their former condition.

The archaeological deposits revealed within the hand excavated trenches across the villa building were partially covered with a semi-permeable membrane before being backfilled with soil.

When the former temporary protection of: semi-permeable membrane, sand and concrete slabs over the mosaic floor was removed, the effectiveness of this protective method was assessed. On removal of these protective materials the mosaic was found to be in an excellent condition, and that this has proved the most appropriate form of protection. Therefore this method was used again to cover the mosaic at the end of the project.

Survey method

The survey work at Croughton was carried out in two stages. During the first stage a control survey established a grid for the work on the villa building, and also established the line of the machine trenches. This was performed with CAS's own instrument, a Leica T1600 total station theodolite with DI5S EDM attached.

The second stage of the work was the recording of archaeological features that were exposed within the trenches, and hand excavated areas. During this stage a Geotronics Geodimeter System 600 robotic total station theodolite was used; recorded data were down-loaded into AutoCAD for the creation of a digital plan archive for the site. The method was to essentially trace the outline of each feature with the TST, creating a set of CAD drawings representing all the features and trench outlines on the O.S. grid.

Finds processing

All the finds from the site were processed on-site, in accordance with CAS procedures, and recorded using the CAS Recording Manual. In the case of the bulk finds this involved washing, marking and packaging. The registered finds were packed in appropriate storage according to the material. All records have been computerised and entered onto the CAS Delilah database. The registered finds have been sent to the Ancient Monuments Laboratory, where the ironwork will be X-rayed, and any necessary conservation to keep the material in a stable condition will be done. At this stage of the Project no investigative conservation has been carried out.

Mosaic conservation

During the excavation the mosaic was exposed for the shortest time possible as the varying climatic conditions could have caused the pavement to deteriorate. The humid weather during the project could have promoted ideal conditions for fungal growth. Some fungi produce acids which can damage the surface of the mosaic; this was therefore monitored during the project.

A number of loose tessera that had become detached from the mosaic were collected, and sampled to determine the material type.

Once the mosaic was exposed the Ancient Monuments Laboratory conservator, Glynis Edwards, visited the site to inspect the condition of the mosaic, and to compare it with the condition observed when opened in 1993. Ms Edwards also visited before the mosaic was re-buried to assess any deterioration that had occurred whilst the pavement was exposed. The mosaic was also checked for any loose tessera that may have indicated that the mortar is decaying.

Whilst the mosaic was open, the various options for its protection and presentation were considered, and the implications of any long term plans were examined.

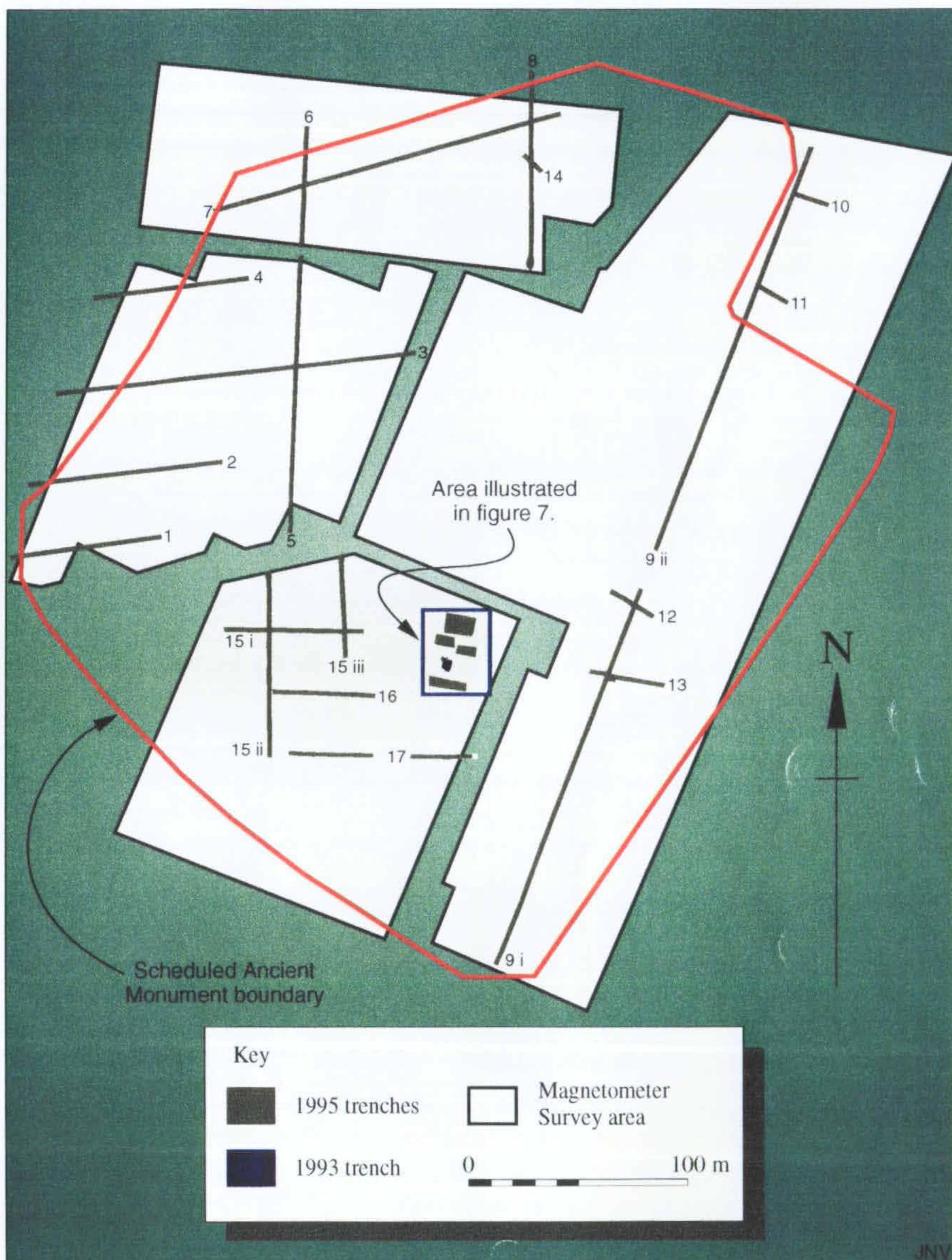


Figure 6. Plan showing the location of all excavated trenches.

Results

For detailed information on the finds and environmental material recovered from the evaluation please refer to the appropriate appendix at the end of this report.

Machine excavated trial trenches

Please refer to Figure 6 : Plan showing the location of all excavated trenches.

The trenches were excavated by machine, as described in the method statement above, to the top of archaeological deposits, or where these were not present, to the top of natural deposits. Unless otherwise stated no archaeological deposits revealed within the trenches were cleaned or excavated. The extent of the archaeological deposits were recorded in plan using a total station theodolite, following the procedures related in the method statement.

Brief descriptions of the archaeological deposits revealed within each trench are listed in the table below:

Trench No	Context No & average depth of topsoil above archaeology or natural subsoil	Description of archaeological horizon revealed by removal of topsoil
1	1003 0.23m	An abundance of archaeological features were revealed within the trench, the concentration of which increased towards the eastern end. They included linear and rectangular features, possible walls, post-pits, and compacted limestone surfaces. Finds included animal bone, pottery and tile.
2	1004 0.23m	Approximately 33m from the western end of the trench a number of linear stony (limestone) layers were revealed. As the trench progressed eastwards the concentration of archaeological features grew, including ditches, and other uncharacterised deposits. Finds included animal bone, and pottery.
3	1005 0.21m	Approximately 52m from the western end of the trench, the first linear feature was exposed. As the trench progressed eastwards the concentration of archaeological features grew, and included limestone rubble spreads, linear features, and at some points such a mass of archaeology that it remained uncharacterised. However, an area was cleaned at the junction of this trench and trench 5, which revealed limestone rubble spreads sitting within very compacted clay. Just to the east of the junction, within trench 3, limestone frags. had been placed on edge to form a right angle that held within it a very neat

Trench No	Context No & average depth of topsoil above archaeology or natural subsoil	Description of archaeological horizon revealed by removal of topsoil
		packed limestone herringbone surface. Only this one angle was seen, as the rest was obscured by the baulk. Finds included copper alloy coins, animal bone, pottery; including a nearly complete samian dish, and ceramic tile.
4	1006 0.25-0.30	Approximately 53m from the western end of the trench, the first linear feature, running NE-SW, was exposed (possibly a collapsed stone drain). As the trench progressed eastwards the concentration of archaeological features increased, including a number of linear features. Finds included animal bone, and pottery.
5	1007 0.15-0.30m	Archaeological features were present throughout the trench, little could be characterised. However, an area was cleaned at the junction of this trench and trench 3, which revealed limestone rubble spreads sitting within very compacted clay. A 4m length was also cleaned towards the southern end of the trench. This again revealed very compacted limestone rubble spreads. Finds included a copper alloy bracelet, animal bone, pottery, and ceramic tile.
6	1008 0.30-0.70m	8m from the southern end of the trench a number of linear features were revealed containing a range of artefacts. Three stone-lined land drains running NW-SE were then exposed, and towards the northern end of the trench there was evidence of a metallised limestone surface orientated E-W (?trackway). Finds included animal bone, pottery, ceramic tile, and fired clay.
7	1009 0.35-0.65m	Approximately 27m from the western end of the trench a stone-lined land drain was exposed. Another five similar drains were then exposed; the last being 78m from the western end, all were roughly orientated NW-SE. At the eastern end of the trench a feature was revealed curving to the north, with two extensions to the south, containing pottery of possible Iron Age date.
8	1010 0.30-0.65m	Measuring from the south, the first 42m of excavated trench, uncovered five linear features (possible ditches), orientated E-W, and one, possibly natural, linear feature running NW-SE. 52m from the southern end a curved ?ditch feature was revealed. It appeared to have two fills; a secondary fill of

Trench No	Context No & average depth of topsoil above archaeology or natural subsoil	Description of archaeological horizon revealed by removal of topsoil
		<p>burnt material that contained Iron Age pottery, and a primary fill of cleaner clay. It was within this primary fill, at the southern edge of the feature, that a socket of an iron spearhead was detected. Upon excavation the spearhead was found to be in an angled position, pointing slightly downwards. It was definitely well secured within the fill. (Please see Appendix 1 for a fuller description). Upon the opening of trench 14, to better define this feature, it was discovered that both ends of the ditch curve around to the north, and appear to join up with the possible ditch identified at the eastern end of trench 7. Is this a possible Iron Age enclosure ditch? At the far northern end of the trench an area of limestone cobbles was discerned, although its edges could not be easily defined.</p> <p>Finds included animal bone, Roman and Iron Age pottery, fired clay/daub, and an iron spearhead.</p>
9(i/ii)	<p>1011</p> <p>0.15-0.35m</p>	<p>The trench was divided into two lengths; 9i and 9ii, to allow access to farm vehicles.</p> <p>9i) Archaeologically barren until a point 100m from the southern end of the trench, where a linear feature crosses the trench, and continues to run the whole length of trench 13. An amorphous curvi-linear feature containing pottery was identified at 130m, and at the far northern end of the trench at the conjunction with trench 12, a large area of dark material was revealed, filled with animal bone, and pottery sherds. It had the appearance of a possible refuse pit.</p> <p>9ii) The first 60m of the trench, from its southern end, showed deep plough striations and/or parallel land drains. The next 85m exposed two gravel-lined land drains. However, at 135m archaeologically significant deposits were revealed. Closely positioned stone walls running E-W, and their returns were visible. (Please see sketch on back of context sheet 1032). Although there was little burning in the area, it had the appearance of a ?corn drier. To the north of this feature, within the trench, excavation of the topsoil revealed a number of modern ceramic land-drains, but also at 206m a possible metallated surface/trackway orientated E-W.</p>

Trench No	Context No & average depth of topsoil above archaeology or natural subsoil	Description of archaeological horizon revealed by removal of topsoil
10	1012	This trench was opened for the purpose of tracing the possible metallated surface/trackway identified in trench 9ii. However, the surface proved to be difficult to define, and appeared more a 'natural' feature than man made.
11	1013 0.30m	This trench was opened for the purpose of revealing more of the stone structure, possible ?corn drier, visible within trench 9ii.
12	1014 0.35m	At the conjunction with trench 9i, a large area of dark material was revealed. It was filled with animal bone, pottery sherds, and had the appearance of a possible refuse pit. This deposit was visible throughout the western part of the trench.
13	1015 0.25m	The trench was opened to follow the E-W linear feature crossing trench 9i at this point. The feature fades away towards the eastern end of trench 13. Finds included occasional pottery.
14	1016	The trench was excavated to enable a better identification of the possible Iron Age ?enclosure ditch visible in trench 8. It was discovered that both ends of the ditch curve around to the north, and appear to join up with the possible ditch identified at the eastern end of trench 7. Is this a possible Iron Age enclosure ditch ?
15i	1017 0.25m	Approximately 9m from the western end of the trench a ceramic land-drain, orientated NW-SE was exposed.
15ii	1018 0.25	Approximately 83m from the southern end of the trench, a linear ?ditch was revealed, containing much animal bone, pottery and snails. It is roughly 5.5m wide.
15iii	1019	18m from the southern end of the trench a ceramic land-drain, orientated NW-SE, was exposed. At approximately 41m a possible metallated surface was revealed, within which pottery sherds were visible.

Trench No	Context No & average depth of topsoil above archaeology or natural subsoil	Description of archaeological horizon revealed by removal of topsoil
16	1020 0.25m	46.5m from the western end of the trench, and continuing to the end, was a layer of potential archaeology linearly demarcated from the natural bedrock. It is possibly natural, with little or no indication of human activity.
17	1021 0.30m	Approximately 83m from the western end of the trench a linear feature orientated N-S, was revealed. At 89m, evidence was revealed of a large ?ditch. Pottery and charcoal seen within fill, as were large limestone frags. It could be a build-up of hill wash ? Machine excavated at the far eastern end of the trench to test depth of ditch, and found to be extremely deep. Could not excavate to bottom as water mains pipe in area.

Hand excavated evaluation trenches

Introduction

A number of evaluation trenches were opened within the area of the villa building. The trenches were positioned in an attempt to understand the archaeological deposits within the locality of the villa, as well as the archaeology of the building itself.

Turf and topsoil were excavated manually to the top of archaeological deposits, or where these were not present, to the top of natural deposits. All the trenches were cleaned and planned. No excavation of archaeological deposits was undertaken.

Trench A

Using the geophysical plot as a guide (fig 4), Trench A was positioned to expose the northern end of the main villa building, and the smaller rectangular structure to the North. However, upon excavation it was found that the trench just missed the E-W return of the main building, but exposed a large portion of the smaller structure.

The depth of topsoil (1024) within the trench is given in the table below:

Trench A	Depth of topsoil (1024) above archaeology (m)
Western end	0.15
Mid point	0.20
Eastern end	0.19

Upon removal of topsoil the well defined rectangular limestone walled structure was revealed to the north of the main villa building (fig 7), confirming the results of the geophysical survey in this area. This structure was approximately 4.5 x 7.5m in size, with a southern E-W return suggested by the position of a mortar spread that had clearly once respected a ?wall in this area. The limestone walls that were visible were of a mixture of tabular and herringbone construction, with an average width of 0.70m. A dense spread of ceramic and limestone roof tiles, some nearly complete, lay within, and immediately to the west of this building. There were indications of possible pits in the area, as well as some evidence of a connecting wall between the two buildings. However, as the E-W return of the main villa building remained under the baulk, the precise relationship between the two remains uncertain.

To the east of the smaller rectangular structure was a compact 'rubble spread' of limestone pieces, and ceramic tile fragments within a silty clay loam. It was in cleaning this area that a large number of artefacts was recovered, including a number of copper alloy and iron finds, worked bone, pottery sherds, glass fragments, antler, and a few pieces or worked flint.

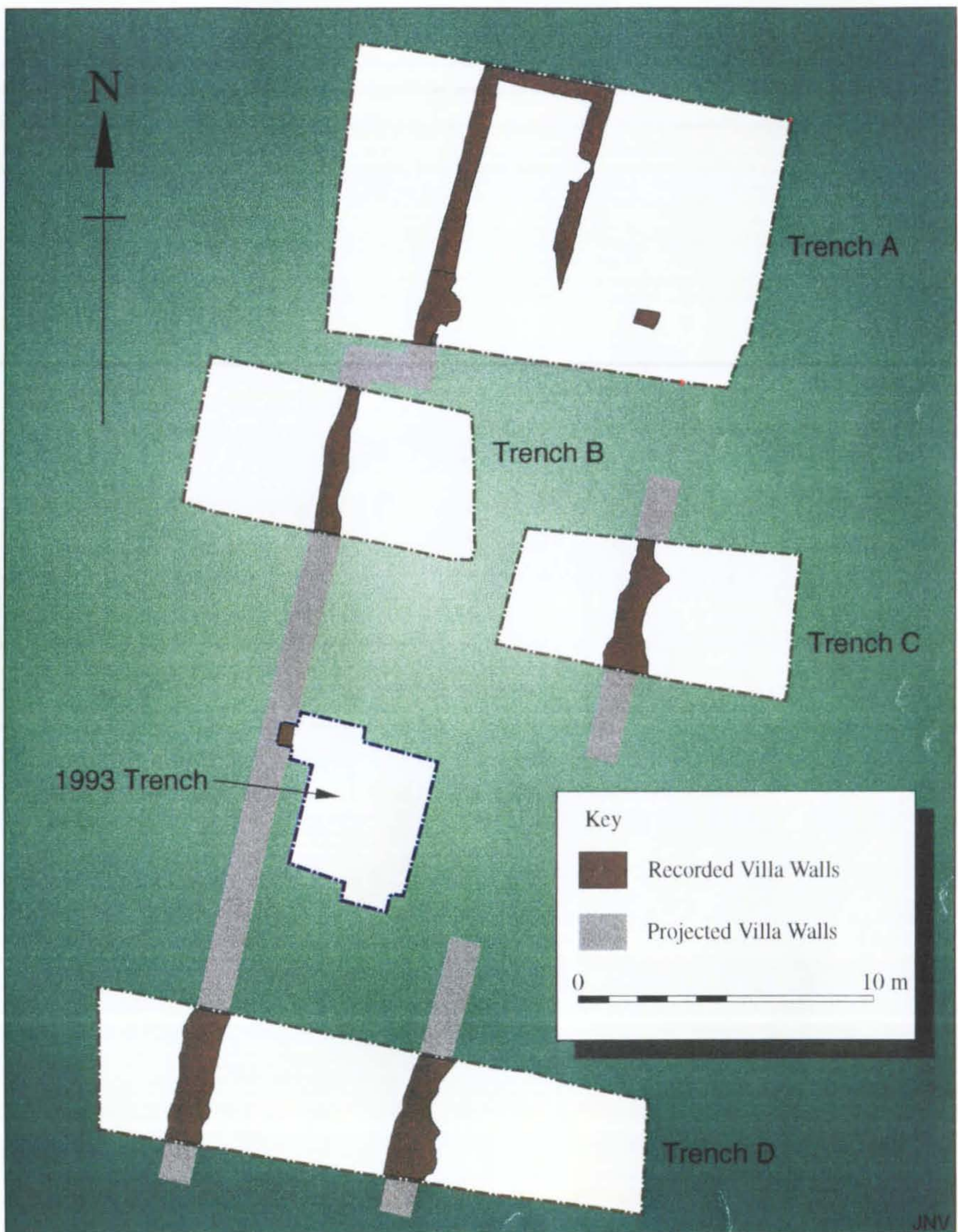


Figure 7. Plan showing the excavated trenches across the villa building

The copper alloy artefacts included coins, armlets, and a brooch. The iron artefacts included buckle pins, strips, nails, and a number of unidentifiable fittings. All the metalwork was in a good condition; the copper alloy only having a slight patina, and the iron only slightly corroded. The worked bone artefacts included two combs and a number of pins. Also within this area was some suggestion of an E-W wall.

Upon removal of the topsoil at the very eastern end of the trench, limestone bedrock was exposed. However, between this and the rubble spread to its west a very compact 'surface' was revealed, constructed from many similar sized pieces of limestone positioned so that they overlapped one another. This did not have the appearance of a natural, but a man made deposit. A number of small copper alloy coins were found in this area.

Apart from a number of plough scars visible in its north-west corner, Trench A showed little disturbance by modern ploughing in comparison with the other trenches.

Trench B

Using the geophysical plot as a guide (fig 4), the trench had been positioned to expose the western wall of the main villa building.

The depth of topsoil (1022) within the trench is given in the table below:

Trench B	Depth of topsoil (1022) above archaeology (m)
Western end	0.20
Mid point	0.19
Eastern end	0.15

Removal of the topsoil revealed the western wall of the building (fig 7). Its edges were well defined by tabular limestone blocks towards the north, and by a mortar spread that had clearly once butted either side of the wall to the south. The wall had an average width of 0.70m. Within the trench, to the west of this wall, a compacted soil containing limestone fragments was exposed, with indications of another narrow wall running roughly in a N-S direction, as well as a linear feature filled with pieces of limestone in the very NW corner of the trench.

An extensive spread of mortar and limestone rubble was revealed to the east of the villa wall, but little patterning could be seen in it. A copper alloy finger ring decorated in the form of a snake, and in excellent condition, was discovered during cleaning of this deposit. To the east of this rubble spread was a distinct rectangular shaped area of limestone fragments, sitting in an ordered array, one overlapping another, with the top edge of the stones pointing to the east. A few fragments of ceramic roof tile could be seen within this deposit.

This limestone deposit appeared to act as a western boundary to an area of burnt material (1031), that also has a clear edge to the north. This context was filled with charcoal, ash, burnt pottery and bone. The edges of it were well defined, perhaps reflecting an internal wall or room that has been lost. There were a number of very dark regions within this deposit; an environmental sample was taken from one of these dark areas. The results of this sampling indicate that this may have been the site of a human cremation. Approximately 50 fragments of burnt, calcined and charred bone fragments were recovered.

Cleaning of the topsoil revealed the damage that had been caused to the underlying archaeology by intensive ploughing. The plough scars were very clear criss-crossing the whole of the trench in a N-S and a SE-NW direction.

Trench C

Using the geophysical plot as a guide (fig 4), the trench had been positioned to expose the eastern wall of the main villa building.

The depth of topsoil (1023) within the trench is given in the table below:

Trench C	Depth of topsoil (1023) above archaeology (m)
Western end	0.20
Mid point	0.15
Eastern end	0.15

Intensive ploughing, especially at the eastern end of the trench, had destroyed much of the underlying archaeology. Removal of the topsoil exposed a light compacted surface, containing ceramic roof tile, bone and pottery. It also revealed the fact that natural limestone bedrock lies only a few centimetres below this surface. Large limestone flags were exposed towards the western end of the trench. The largest (approximately 1.0 x 2.0m) appears very worn on its visible surface, indicating possible use as a floor. An iron serrated blade was discovered in close vicinity to this limestone flag (photo record 542).

The position of the eastern N-S wall of the villa was identified (fig 7), although it appeared that very little of it remains. It was initially identified by an orange clay used as a bonding material, but weathering of the trench revealed the edges of the wall more clearly, exposing a number of tabular limestone pieces that formed part of the wall. This wall does not correspond to the projected line of the east wall in trench D. It must be assumed, therefore, that this part of the villa is not a single-cell structure, and is possibly of more than one phase.

Very few artefacts were recovered from the topsoil.

Trench D

Using the geophysical plot as a guide (fig 4), the trench had been positioned to expose the southern end of the main villa building. However, upon excavation it was found that the trench just missed this southern E-W return, but exposed two N-S running walls that are assumed to be of the same building.

The depth of topsoil (1001/2) within the trench is given in the table below:

Trench D	Depth of topsoil (1001/2) above archaeology (m)
Western end	0.20
Mid point	0.16
Eastern end	0.14

Upon topsoil removal the remains of two N-S walls were evident (fig 7). Of the two walls, the western wall, with a width of 1.0m, appears to be constructed from tabular limestone bonded with mortar, while the eastern wall appears to have been bonded with clay. Evidence of the latter eastern wall has been severely truncated by ploughing.

Within the area exposed between these two walls there was evidence of possible internal walls and areas of intense burning. Fragments of ceramic tile, pottery, bone, and tufa were evident, and left *in situ*. Unfortunately, it was not possible to discern any patterning within the grouping of the archaeological deposits at this level.

Ploughing has severely damaged the archaeological deposits. Plough scars were visible running SE-NW, and roughly N-S. At the eastern end of the trench the topsoil was extremely shallow, with an average depth of 0.14m. Below this ploughing had removed all traces of archaeological deposits, and the natural sub-soil was exposed once the topsoil had been excavated.

Could the tufa be evidence of window fenestration or vaulting ?

Hand excavation in area of mosaic

Having located the 1993 trench; the backfill was removed.

The depth of topsoil (1027) within the trench is given in the table below:

Trench E	Depth of topsoil (1027) above archaeology (m)
Western end	0.25
Mid point	0.18
Eastern end	0.13

The backfill included the concrete slabs, sand, and permeable lining that had been positioned to protect the exposed mosaic floor. Once these materials, and the overlying topsoil had been removed, the trench edges were cut back slightly. No further major areas of mosaic floor were uncovered, but the topsoil was removed over a slightly larger area than that in 1993, to reveal the latest archaeological deposits, to inspect the deposits lying above the mosaic, and to look for further areas of plough damage. A small amount of excavation was undertaken to locate the edge of the mosaic to the west in order to calculate the approximate size of the mosaic floor, and to ascertain whether the western wall of the building was in the position indicated by the geophysical plot.

The dimensions of the mosaic are approximately 7.10 x 5.25m.

The mosaic appeared to have undergone no severe change or deterioration since the last time it was opened, and considering its proximity to the ground surface it remains in good condition. The depressions and cracks in the surface do not appear to have become worse.

Removal of topsoil revealed that the mosaic floor lay under a fairly compacted layer of 'demolition debris' (1029). This deposit contained a high percentage of burnt daub, burnt painted wall plaster, mortar, and charcoal. Throughout the deposit were quite large pieces of wood charcoal, especially at the interface with the mosaic.

This deposit contained a high percentage of wall plaster (with osier impressions on it), plaster and mortar, together with the evidence of burnt timber. The randomness of the debris could indicate wall collapse due to burning rather than post-demolition burning; the burnt timber generally being sealed below other debris. The wall plaster was very fragmentary but the design appears to have been mainly red with a thin cream coloured border separating a green panel.

A whole earth sample was taken of the deposit (1029); initial results show that this deposit is packed with charred cereal grains. A 10 litre sample produced 6000 cereal grains together with approximately 200 fragments of chaff.

Towards the eastern edge of the exposed mosaic there are clear signs of plough damage. The topsoil in this area lies directly above the mosaic surface. It is full of burnt material and tesserae; a probable result of plough disturbance. Some of this mixed topsoil deposit was removed during de-turfing, as there was no horizon between the soil just below the turf and the mixed material below.

A large number of tesserae were found within the topsoil, but little pottery or fragments of roof tile. This was in direct contrast to the other trenches where numerous fragments of roof tiles were recovered from the topsoil. Had this area been cleared of any roof demolition material, or had the roof been deliberately dismantled ? It is also possible that the roof had been constructed from other materials that have not survived.

Discussion

Roman settlement

The trial trenching verified the size and location of the settlement, as suggested by the results of the geophysical survey.

The survival of below ground deposits was demonstrated. The majority of the buried deposits appeared to be Roman in date, although a number of earlier Iron Age features were detected at the fringes of the Roman settlement. Other Iron Age deposits may be obscured by the dense Roman activity in the area. Where it was possible to identify the archaeological deposits; ditches, structures, limestone spreads, walls, post pits, and metalled surfaces were perceived.

Where the archaeology was cleaned, at the junction of Trenches 5 and 3, limestone spreads within very compacted clay were revealed. At the southern end of Trench 9ii archaeologically significant deposits were revealed. Closely positioned stone walls running E-W, and their returns were visible. Although there was little burning in the area, it had the appearance of a corn drier. A number of copper alloy coins were found in this area that have yet to be identified.

The pottery assemblage from the trial trenching suggest that apart from the Iron Age sherds, some of which might have been of mid-to-late Iron Age date, the main period of occupation appears to be Roman. There is no firm evidence that this started before the 2nd century but it certainly lasted into the 4th century. There is insufficient stratified material to show if there were any periods of inactivity or extra growth. The end date for the occupation is similarly uncertain, but no Saxon pottery was recovered. The tile and brick recovered obviously shows that some of the buildings on the site had tiled roofs and the bricks and flue tiles hint at the presence of a hypocaust system.

Preservation of bone was extremely good in most instances. The range of species recovered was quite wide, including horse, cattle, sheep/goat, pig, and bird, probably goose. There were examples of butchery, gnawing and burning on a number of the bones.

Within Trenches 7, 8 and 14 evidence of a possible Iron Age ditched enclosure was revealed (fig 8). Pottery within the ditch has been dated to the Iron Age, as has a spearhead discovered within the same fill. Upon excavation the spearhead was found to be in an angled position, pointing slightly downwards. It has been identified as a LA Tene II asymmetrical spearhead which dates to the second century BC, and is probably unique to Britain (Dr I Stead, British Museum, pers comm). This type of spearhead is extremely rare outside La Tene. Whilst the importance of this find cannot be overstated, it is worth remembering that it is an isolated, and possible chance, find. At present there is no other evidence to suggest that the site may be that significant, as only a small amount of pottery dating to this period has been recovered from the area. No other artefacts of an Iron Age were recovered during the evaluation.

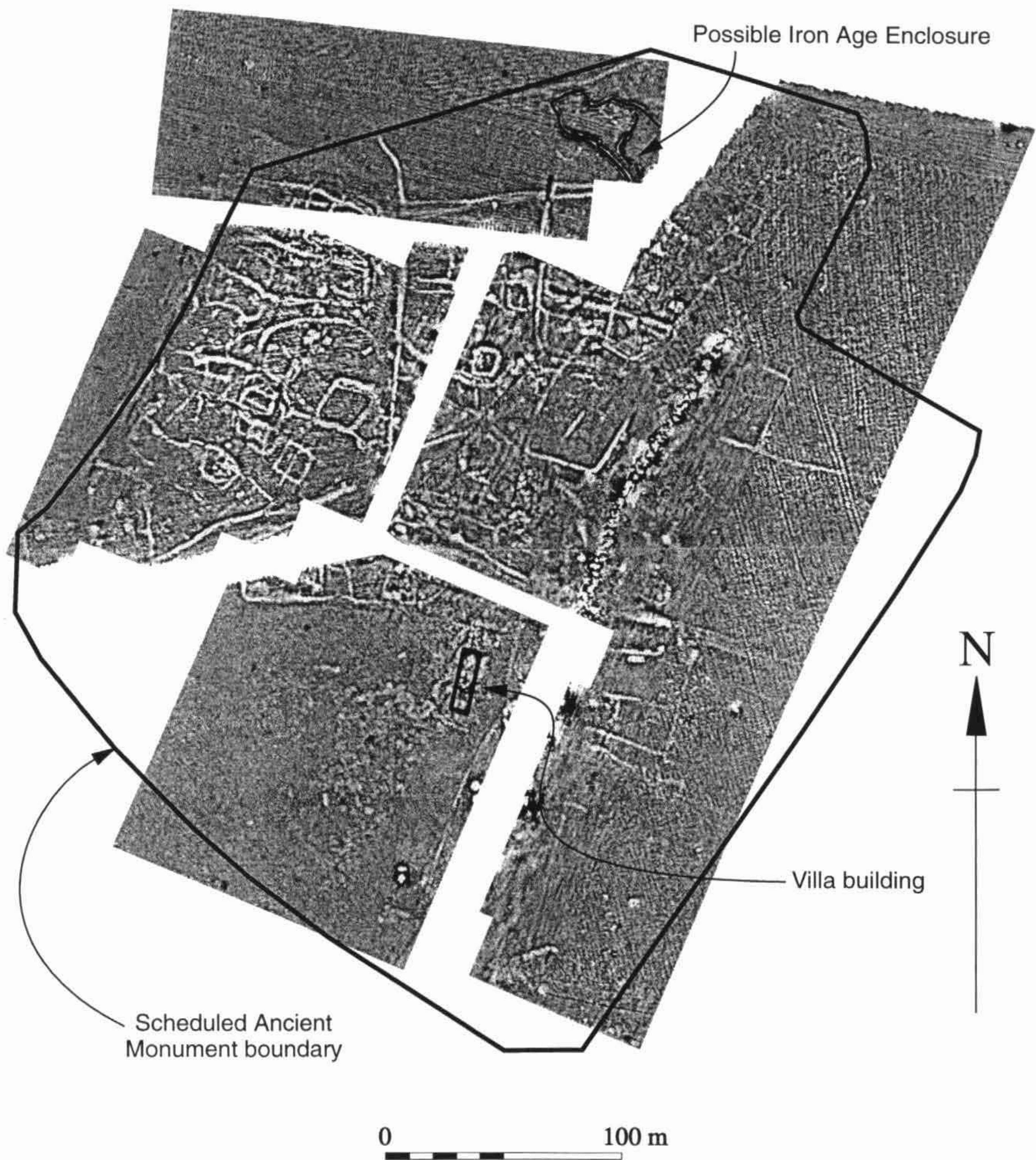


Figure 8. Magnetometer survey grey-scale plot showing location of villa building and Iron-Age enclosure

The spearhead was x-radiographed at the Ancient Monuments Laboratory. This has confirmed that the blade was re-fashioned at some point in time, by cutting the original blade to form the curvi-linear shape it now has. The socket will be examined for any remains of mineral preserved wood which could identify the material used for the shaft.

Villa building

The excavation of topsoil within the trenches across the villa (fig 7), revealed the layout of the villa building to be comparable to that suggested by the geophysical survey results. However, within Trench C the eastern wall of the villa building does not correspond to the projected line of the east wall in trench D. It must be assumed, therefore, that this part of the villa is not a single-cell structure, and is possibly of more than one phase.

The villa building measured 8 x 30m in area. Its walls were constructed from tabular limestone blocks, ranging from 0.70 - 1.00m wide. Little internal patterning could be seen, although there was some evidence of changes in the archaeological deposits, including areas of densely packed stones, evidence of intense burning; with areas of burnt clay and ash. Further excavation of the archaeology would clarify the nature of these deposits. Within the interior of the building as revealed in Trench C, natural limestone flags were exposed. The largest appeared to be worn on its visible surface, indicating possible use as a floor.

Within Trench B an environmental sample taken from layer 1031 established that a cremation had been deposited in the area. The human bone consisted of approximately 50 fragments of burnt, calcined and charred bone fragments.

Preservation of bone from these contexts was extremely good, as it had been within the topsoil removed during trial trenching. Again the range of species recovered included cattle, sheep/goat, pig, and bird. A piece of shed antler from a red deer was also recovered from Trench A.

Intensive ploughing, especially towards the eastern end of the trenches had destroyed much of the underlying archaeology (fig 9). At the eastern end of Trenches A, c, and D ploughing had removed all traces of archaeological deposits, and the natural sub-soil was exposed once the topsoil had been excavated. However, within Trench A the smaller rectangular structure to the North of the main villa building (fig 7) appeared to have survived better. The dense spread of ceramic and limestone roof tiles, some nearly complete, that lay within the this building suggest roof collapse. If this is true; floor surfaces may well have been preserved beneath this deposit.

The artefact assemblage is typical of a Roman rural settlement with items of personal adornment, and toilet equipment well represented. The armlets are all decorated including one with a devolved snake's head terminal as well as the cable and notched types. The only finger ring is decorated in the form of a snake and is in superb condition. Unfortunately, the one brooch from the site is broken and badly encrusted, but appears to be a Hod Hill type. Two bone combs and several fragments of bone hair pins were also recovered.

A full range of structural fittings were found including nails, window glass, and painted wall plaster. The wall plaster is very fragmentary but the design appears to have been mainly red with a thin cream border separating a green panel.

The tile and brick recovered obviously demonstrates that the building had a tiled roof, and the bricks and flue tiles hint at the presence of a hypocaust system.

With the high level of plough damage in this area it is highly fortunate that the mosaic has survived so well. Apart from a small number of plough scars in the north-east corner of the mosaic, it has survived virtually intact. The mosaic appeared to have undergone no severe change or deterioration since the last time it was opened, and considering its proximity to the ground surface it remains in good condition. The depressions and cracks in the surface do not appear to have become worse.

The dimensions of the mosaic are approximately 7.10 x 5.25m.

About 9.5 kilos of tesserae were recovered, most were of small decorative-pavement size and the rest comprised cruder border tesserae. The materials from which all the tesserae were fashioned were either stone or tile, with the former providing white pieces and the latter both red and grey-blue and, occasionally buff. Most of the tile used for the smaller tesserae were of the sandy fabric but some of the larger pieces were in the grogged fabric. One larger tesserae appeared to have been made from a quernstone.

Removal of topsoil revealed that the mosaic floor lay under a fairly compacted layer of 'demolition debris' (1029). This deposit contained a high percentage of burnt daub, burnt painted wall plaster, mortar, and charcoal. Throughout the deposit were quite large pieces of wood charcoal, especially at the interface with the mosaic.

This deposit contained a high percentage of wall plaster (with osier impressions on it), plaster and mortar, together with the evidence of burnt timber. The randomness of the debris could indicate wall collapse due to burning rather than post-demolition burning; the burnt timber generally being sealed below other debris. The wall plaster was very fragmentary but the design appears to have been mainly red with a thin cream coloured border separating a green panel.

10 litres of this burnt layer (1029) were processed. Even though the sorting was restricted the number of charred plant remains recovered from this sample was extremely high. Over 6000 cereal grains were recovered, together with approximately 200 fragments of chaff. The chaff consisted mainly of *Triticum spelta* (spelt wheat) spikelet forks and glume bases. A few *Triticum dicoccum* (emmer wheat) glume bases were recovered and a single *Hordeum* sp (barley) rachis fragment was also present. The lack of time precluded thorough sorting, but no charred weed seeds were readily apparent from the sorting which was undertaken.

The lack of chaff suggests that the sample represents part-processed grain being stored before final parching, winnowing and milling. Normally, spelt was stored 'on the ear' and processed

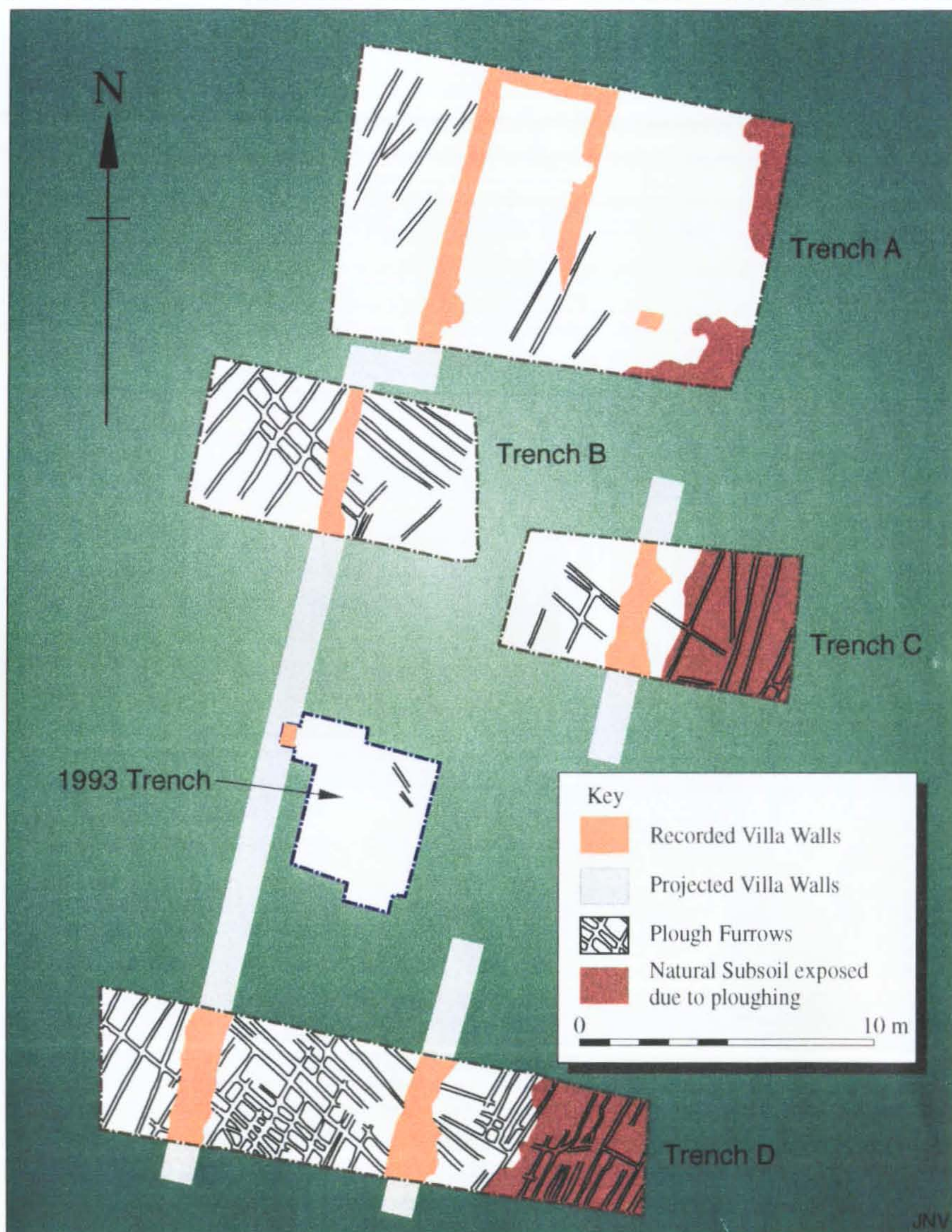


Figure 9. Plan showing extent of plough damage within the excavated trenches across the villa building

as required (Van der Veen 1992, 82).

The most interesting discovery during the sorting of the sample was the pest damage to the charred cereal grains. Almost every grain demonstrated holes and 'runnels' caused by insect infestation. Such discoveries are extremely rare from rural sites; no evidence of insect infestation of stored crops was found at Stanwick, and similarly at Barton Court Farm, grain pests were also absent (Robinson 1995). Stored grain pests are far more common in urban environments, where warehouse conditions and the bulk storage of grain would lead to infestations of weevils. The only solution in circumstances where infestations were heavy was to destroy the grain, usually by burning, and demolish the store before starting afresh (Kenward and Williams 1979).

Due to the excellent preservation of the grains and chaff, it is also a possibility that charred insect remains are preserved in the sample. However, time restrictions prevented sorting of the fine flots to check for insect remains.

As only 10 litres of the sample were processed, and the sample represents only a small part of the layer overlying the mosaic, it is difficult to know whether the charred grain represents a small cache which became infested with insects, or was part of a far larger store of grain which was heavily affected and therefore destroyed by fire. Clearly it is vital that this should be pursued to establish the origin of the cereal grains and what the material represents.

The well-preserved plant macrofossils from the layer above the mosaic represent an extremely important discovery and warrant full investigation even at this stage. The material is of national significance as the only example in England of a rural site with an infestation of grain pests. There will also be a number of regional comparisons with the Thames Valley Roman settlement sites and of course the villa and settlement at Stanwick.

APPENDICES :

A Summary Assessment of the Iron Age, and Roman Pottery by Rob Perrin

Methodologies

Details of the pottery have been recorded on proforma sheets and it is intended that the data will be input onto a computer pottery database in due course. The attributes recorded are fabric, vessel form, minimum number of vessels, weight and count per fabric, and context date, which together comprise a minimum archive level used by the author for the pottery from other sites and are advocated by the Study Group for Roman Pottery in a recent publication (SGRP 1994). Fabric and vessel form are recorded according to fabric and vessel form series devised by the author in conjunction with those used in the Northampton Archaeological Unit, and previously by himself in Peterborough.

Factual data

Some 26 contexts contained pottery. Most of these were topsoil and contained mixed assemblages in terms of fabrics, forms, and date. A few had more specific locations where the pottery and date range were less mixed.

The total number of sherds recovered was 1,433 weighing 19,785 grammes with a minimum number of 184 vessels. The bulk of the pottery was Roman but around 24 sherds weighing 106 grammes were of probable Iron Age date. Examples of 30 fabrics were recognised falling into four main categories - grogged wares, shell-gritted wares, reduced (grey) wares, and oxidised wares as well as samian ware, and amphorae. The Iron Age pottery was all shell-gritted. Fragments from 10 different vessel classes were noted - jar, bowl, dish, flagon, beaker, 'box', lid, strainer, mortarium, and amphora. Table 1 gives the number of sherds, weight and number of vessels for the most common fabrics, and Table 2 the vessel forms in the main fabrics.

TABLE 1

Fabric	A2	B,B4	C4,C11	D1	D4	D6/9	D16	D22,D24	D40-D42
Count	501	185	21	27	110	32	168	5	10
% Count	35	13	1+	2	8	2+	12	-	<1
Weight	9907	2207	222	403	1100	249	991	56	700
% Weight	50	11	1	2	5.5	1+	5	-	3.5
Vessels	41	15	3	11	32	4	19	3	6
% Vessels	22	8	1+	6	17+	2	10+	1.5	3+

TABLE 2

Type \ Fabric	A2	B,B4	C4,C11	D1	D4	D6/9	D16	D22,D24	D40-D42
Jar	40	11	1		2	3	7		
Bowl		4	2	4	25		3	1	4
Dish		1		2					2
Flagon				1		1			
Beaker				2				2	
Box				1					
Lid				1					
Strainer	1?						1		
Mortarium					5		8		
Totals	41	16	3	11	32	4	19	3	6

It can be seen that the most common fabric was A2, otherwise known as 'soft pink grogged' ware but the figures reflect the fact that vessels in this ware are very often large heavy storage jars which can fragment into many pieces. The same is true to a certain extent of the shell-gritted ware [B, B4]. The quantities of these two fabrics might suggest local production but this is uncertain (see below). Many of the most common reduced and oxidised wares are recognisably from a number of well-known kiln sites, particularly those of Oxfordshire [C27, D4, D16, D27] and the Upper Nene valley [C4, C11, D6/9]. More regionally-based imports are represented by colour-coated wares from the Lower Nene valley [D1, D24] and black-burnished ware (Category 1) from Dorset [C8]. Continental products are confined to samian ware [D42] and amphora [D51].

Jars of various types dominate the vessel form statistics though bowls and dishes are also common. Certain fabrics have a notably limited range of vessel types. The overall numbers of 'finer' vessel types such as beakers and flagons is small but mortaria are well represented in contrast to amphora which occurred in only one context.

Apart from the Iron Age sherds, some of which might have been of mid-to-late Iron Age date, the main period of occupation appears to be Roman. There is no firm evidence that this started before the 2nd century but it certainly lasted into the 4th century. There is insufficient stratified material to show if there were any periods of inactivity or extra growth. The end date for the occupation is similarly uncertain, but no Saxon pottery was recovered.

Statement of current and future potential

Given the geographical location of the site it was anticipated that much of the pottery in use on it during the Roman period would have been produced in the known nearby kiln sites in current day Oxfordshire, Northamptonshire and North Buckinghamshire. Furthermore it was also expected that fineware products of the Lower Nene valley kilns would occur and, given the apparent high status of at least part of the site, that continental finewares might also be represented. Such an assemblage would be of interest for comparison with those found on other local and regional sites, both rural and urban, especially further to the east along the Nene Valley. It was also anticipated that the Roman occupation would span at least one century leading up to the time that the building containing the mosaic was constructed and that the development of the site could be usefully compared to that of other sites.

The assemblage as recovered is very much as anticipated, but it has one or two intriguing aspects which give it added value. The most important of these ceramically is the larger than expected quantities of 'soft pink grogged' ware and the wide variety of forms in which it occurred (the fabric was also used for the manufacture of tile, some of which was used to make coarse tesserae for the mosaic border). Another notable aspect is the apparent absence of pottery, especially mortaria, from the large production centre of Mancetter-Hartshill which is usually well represented on sites in the region.

Despite being both relatively small and mixed, this assemblage nevertheless has the potential to contribute at a basic level to the following research. All of these aspects would obviously be greatly enhanced by the recovery in the future of material from securely stratified sequences located in varying parts of the site.

1. Site-based studies :

- a) chronology
- b) activities and function
- c) trading links and economy
- d) status of the settlement

2. Ceramic studies :

- a) likely source of the 'soft pink grogged' ware industry
- b) range of vessels made in the 'soft pink grogged' ware industry
- c) date of the 'soft pink grogged' ware industry
- d) sources of other pottery, especially local
- e) relative importance of local industries through time
- f) local ceramic trading patterns through time
- g) vessel function

A Summary Assessment of the Roman Tile, Brick and Tesserae by Rob Perrin

Methodologies

All of the material was weighed by context, and was scanned in order to gain a general impression of the fabrics and types represented. The tile and brick from two contexts (1001 and 1027) was recorded in more detail. This comprised dividing the material into fabrics by eye and then quantifying by weight, and count per fabric according to types. Other details such as decoration were also noted.

Factual data

Tile and brick with a combined weight of over 82 kilos was recovered from 23 contexts. Of these, three (1002, 1024, 1027) accounted for 75 % of the material with one (1024) providing nearly 44 %. The two selected contexts (1001 and 1027) contained around 4 and 10 kilos respectively. There were no complete tiles or bricks, though some fragments were large.

In all the contexts there were two main fabrics - a sandy fabric with few inclusions, and a fabric containing grog. Only one piece of tile in a shelly fabric, from a tegula, occurred and a few pieces in a variant of the sandy fabric with white inclusions were noted. There also appeared to be a fabric which was either the sandy variety with some grog or the grogged fabric with very little grog. The predominant colour of the sandy fabric was a reddish-yellow but a few fragments were more of a reddish-buff; most pieces had a grey or bluey-grey core. The grogged fabric usually also had a grey core but the surface colour was far more variable occurring in reddish-yellow, buff, reddish-buff, and dark buff hues. The sandy fabric was generally hard-fired but the grogged fabric appeared less hard. The two variants were hard-fired. In both of the selected contexts the grogged fabric comprised around two-thirds of the material.

Most of the fragments in both fabrics were from tegulae but imbrices were also present. Some of the material was thick enough to be from *bessalis* bricks but these could alternatively have been from the larger *pedalis* tiles. A few examples of flue tile occurred, again in both fabrics but there were no obvious finials or antefixes. Overall there did not appear to be a bias in any of the fabrics towards certain types. The flue tile had four-groove combed decoration in both straight and wavy-line patterns, and a few of the tegulae were similarly decorated; a wavy-line decoration was also observed on at least one of the imbrices. The only other decoration noted was a deep red paint on some of the tegulae and imbrices. Most of these painted tiles seemed to be in the sandy fabric. A number of fragments had nail holes, but there were no obvious graffiti marks or animal paw-prints. It should be noted that fragments of stone roof-tile were also recovered.

About 9.5 kilos of tesserae were recovered from nine different contexts, with nearly 90% coming from just two (1027, 1028) of which the former contained 66%. Most were of small decorative-pavement size and the rest comprised cruder border tesserae. The materials from

which all the tesserae were fashioned were either stone or tile, with the former providing white pieces and the latter both red and grey-blue and, occasionally buff. Most of the tile used for the smaller tesserae were of the sandy fabric but some of the larger pieces were in the grogged fabric. One larger tesserae appeared to have been made from a quernstone.

Statement of current and future potential

The tile and brick recovered obviously shows that some of the buildings on the site had tiled roofs and the bricks and flue tiles hint at the presence of a hypocaust system.

The variety of fabrics (including the stone) offers potential for the determination of the sources of the tile and brick whilst the differing ratios in the main fabrics might give scope for the study of the relative importance of the various centres, possibly through time. The small quantity of shell-gritted tile is particularly intriguing as more might have been expected especially in 4th century contexts. This could have additional implications as regards both sources and dating and any future work should investigate this further. It would also be justifiable to compare the tile fabrics, particularly the grogged, with those of similar pottery fabrics to ascertain if they were from the same sources.

The fact that both main fabrics were used for all tile and brick types should be confirmed and it would be interesting to see if the use of paint was indeed confined to those made in the sandy fabric. This would be especially important if the use of paint could be linked, by distribution, to a specific building or phase. Otherwise the different colours of the tiles as a whole would have provided the builders with the opportunity to create 'decorated' roof vistas; it would be worthwhile examining the locations, juxtapositions and distributions in the future if appropriate deposits were identified.

The relative value of the tesserae recovered is small given that one of the buildings on the site is known to have contained an important mosaic floor which has been recorded. Some of the loose stone pieces, however, could obviously be used to determine sources and should there be future work on the site, it would be worthwhile trying to determine whether tile and brick was turned into tesserae on site.

A Summary Assessment of the Roman Finds
by Jan Summerfield, and Glynis Edwards

A total of 22 boxes of finds were recovered from the site, that included a range of materials; pottery, brick and tile, fired clay and daub, metalwork, metalworking debris, glass, and bone objects. A small amount of painted wall plaster was also recovered.

191 Archaeological Object Record (AOR) numbers were allocated to the materials from this evaluation, and the breakdown is as follows :

Copper alloy	20 coins 6 armlets 1 strip 4 unidentifiable fragments 1 chain link 1 brooch 2 modern objects (cartridge case and a fitting) 1 finger ring
Iron	14 bags of nails 8 pieces of agricultural equipment 4 strapping 4 sheet 8 strip 4 pins 1 ring 5 unidentified objects 1 fitting 3 bags of metalworking debris 1 spearhead
Bone	2 combs 3 pins 1 fragment of worked bone
Lead	1 sheet with rivet holes 1 encrusted lump 5 fragments of folded sheet
Other	16 bags of glass (both vessel and window) 4 bags of wall plaster 6 flint flakes 1 ceramic counter 1 jet/shale spindle whorl

Artefact condition

All the small finds are in excellent condition, especially the metalwork. The majority of the iron objects are only slightly corroded, and not heavily encrusted. The ironwork will be x-radiographed to confirm identifications. The majority of the copper alloy objects have only a light patina, although one copper alloy brooch is heavily corroded. X-radiography will assist in the identification of its type. The copper alloy coins should need very little work to make them legible, and x-radiography may suffice in some cases. Little work should be needed to clarify the decoration present on some of the other artefacts.

The fragmentary bone comb with iron rivets from Trench A (1024) has been lifted on a block of soil so any reconstruction should be made easier. The painted wall plaster although fragmentary seems in reasonable condition. The shale? spindlewhorl is dry and shows slight lamination. It may be possible to use analytical techniques to confirm the identity of the material; as to whether it is actually shale or not.

Mosaic condition

The mosaic appeared to have undergone no severe change or deterioration since the last time it was opened in 1993, and considering its proximity to the ground surface it remains in good condition. The depressions and cracks in the surface do not appear to have become worse while it was open this year. A further small area was uncovered and although this was stained no cleaning was attempted. The detailed recording by photogrammetry will show any changes when it is opened again. However, frequent uncovering of the mosaic which will change its environment may cause decay to start so it should not be opened in future without a good reason. Next time this occurs it would be advisable to have a full condition survey carried out by a specialist mosaic conservator, and this could be combined with decisions on its long term future.

Samples of the three colours of tessera have been taken to the Ancient Monuments Laboratory for identification.

Potential

The artefact assemblage is typical of a Roman rural settlement with items of personal adornment, and toilet equipment well represented. The armlets are all decorated including one with a devolved snake's head terminal as well as the cable and notched types. The only finger ring is decorated in the form of a snake and is in superb condition. Unfortunately, the one brooch from the site is broken and badly encrusted, but appears to be a Hod Hill type. Two bone combs and several fragments of bone hair pins were also recovered.

A total of 20 coins were recovered from the evaluation but these have not yet been identified.

A full range of structural fittings were found including nails, window glass, and painted wall

plaster. The wall plaster is very fragmentary but the design appears to have been mainly red with a thin cream border separating a green panel.

In addition a number of modern machine parts were also collected.

Iron spearhead

The most unusual find from the site is a La Tene II asymmetrical spearhead which dates to the second century BC, and is probably unique to Britain (pers comm Dr I Stead, British Museum), recovered from Trench 8 (1010) during machining. This type of spearhead is extremely rare outside La Tene. Whilst the importance of this find can not be overstated, it is worth remembering that it is an isolated, and possible chance, find. At present there is no other evidence to suggest that the site may be that significant, as only a small amount of pottery dating to approximately this period has been recovered from the area. No other artefacts of an Iron Age were recovered during the evaluation.

The spearhead was x-radiographed at the Ancient Monuments Laboratory. This has confirmed that the blade was re-fashioned at some point in time, by cutting the original blade to form the curvi-linear shape it now has. The socket will be examined for any remains of mineral preserved wood which could identify the material used for the shaft.

A Summary Assessment of the Post Roman Pottery
by Sarah Jennings

Site archive report on the post Roman pottery :

Context No	Description
1001	18th to 20th century; 20th century 2 sherds Chinese Export Porcelain (CEP), 3 sherds Late Post Medieval (LPM) (white china), 1 fragment opaque white glass
1002	18th to 20th century: 19th/20th century 3 sherds CEP, 3 sherds LPM (white china), 2 sherds Late Stoneware.
1004	16th to 19th century: 17th century 1 sherd post medieval redware, flange from a dish or bowl; 1 sherd fine orange slightly sandy fabric with white slip covered in a copper green glaze, only a very small area of slip survives
1005	late 17th to 18th century: late 17th/earlier 18th century 1 sherd Staffordshire-type tortoise shell or flecked ware from a lathe turned tankard
1008	late 18th to earlier 19th century 1 sherd Flow Blue.
1021	19th century 1 sherd Nottingham/Derby stoneware lid
1022	18th to 20th century, probably 20th century 1 sherd CEP, 1 sherd Transfer Printed Ware (TPW), 2 sherds LPM (white china)
1023	mid 17th to 20th century: late 19th/20th century 3 sherd CEP including a fine good quality teabowl sherd, 18 sherds LPM (white china), 1 rim/neck sherd late stoneware bottle.
1024	18th to 20th century: 20th century 17 sherds CEP, 1 sherd Sponged Blue, 1 sherd TPW, 50 sherd LPM (white china), 1 sherd TPW, 3 sherds Late Stoneware
1026	18th to 20th century: 20th century 2 sherd CEP, 1 sherd LPM (white china)

1027 18th to 20th century: 20th century
2 sherd CEP including base of a teabowl, 5 sherds LPM (white china)

Most of the sherds are small, but the impression given is that in fact they represent only a few individual vessels. Certainly many of the Chinese Export Porcelain sherds all have the same 'daisy' design, and either derive from the same one or two plates, or from a larger number of vessels with the same design.

Nearly all the Late Post Medieval sherds are of plain white china, and some of the fragments look as though they may well be from the same vessels. The proportion of undecorated wares is unusually high and like the Chinese Export Porcelain mainly represent table rather than kitchen wares.

It is likely that the Chinese Export Porcelain vessels were of some age before they were broken and discarded, because the remaining associated material has a very consistent, but later, date range. If the Chinese Export Porcelain had been discarded in the 18th century there would have been other material of this date as well. However, the single sherds from 1008 and 1021 are different. These both date to the 19th century and are not likely to be part of the same group.

Two sherds of 17th century date were retrieved from context 1004, both are classic post medieval types and are likely to have been made fairly locally. One sherd, from the base of an open form, had a small area of slip surviving, the rest having flaked off. The glaze covering the white slip contains copper oxide as a colorant, but too small an area survives to indicate whether or not this was part of a pattern. The single sherd from context 1005 may be contemporary with the two fragments from 1004 as it could date to the late 17th century, but unlike them is not local. This sherd is from a well known type of lathe-turned tankards, and its clay suggests that it was a product of the Staffordshire industries.

A Summary Assessment of the Environmental Material from the 1995 Evaluation at Croughton Roman Settlement by Clare de Rouffignac

Previous work

No environmental samples were collected during the preliminary work undertaken to uncover the mosaic in 1993.

1995 evaluation

The original environmental sampling programme envisaged that there would not be much opportunity for extensive sampling to be undertaken during the 1995 evaluation work. It was judged that environmental investigations would be more usefully carried out during more extensive excavations in the future. However, after consultation on site with the Inspector of Ancient Monuments, it was decided that a small number of samples would be collected to examine the possible potential of the environmental remains.

A total of 3 bulk samples were collected from the evaluation. Of these, 3 were part-processed, with none being discarded before processing. These samples were collected from the layer above the mosaic in trench E (1029; sample 1), from an ash filled feature in the northern end of trench 9 (no context number given; sample 2) and from an area of dark soil which was identified in trench B (1031; sample 3).

The potential for soil science was investigated by Matt Canti (AML) who visited the site to advise on the possibility of soil micromorphology being used as a method of study.

Aims

Assessment of the environmental remains was undertaken using the Management of Archaeological Projects (English Heritage 1991) as a guide. This document defines the purpose of the assessment stage as being '...to evaluate the potential of the data collection to contribute to archaeological knowledge and to identify further study necessary' (English Heritage 1991, 15).

As no environmental strategy had been devised for the evaluation project, a set of aims had not been formalised for the environmental work against which the potential of the data could be compared. However, in keeping with the strategy employed on most CAS excavations, the aims of the environmental sampling strategy for the evaluation were written retrospectively as:

- 1 Recover ecofacts which will give evidence of environmental and economic change both spatially and temporally using features which are securely stratified and well dated;

- 2 Examine ecofactual material from features which may be of unknown purpose to determine possible function;
- 3 Examine site formation and taphonomic processes.

This is however a wholly artificial set of aims which as can be seen from this assessment, will require considerable modification if further fieldwork is to take place.

Method

As for all CAS excavations, the environmental strategy adopted methods which would enhance the retrieval of ecofacts without bias against the recovery of artefactual remains. All samples consisted of whole earth, that is, no ecofacts or artefacts were removed unless the sample processing would have a detrimental effect on the find itself.

Each bulk sample consisted of a minimum of 10 litres of soil wherever possible. Recording of the samples was carried out by the Environmental Officer at Fort Cumberland once the samples had been returned due to the small number recovered. Table 1 gives details of the samples recovered.

Table 1

Sample No	Context No	Sample size	Context type
1	1029	40 litres	Layer
2	None	10 litres	Fill of?pit
3	1031	5 litres	?Cremation

The mesh sizes used for processing were 500µm for the flots and 1mm for the residues. 10 litres of sample 1 (1029) were floated on site; the residue and remaining 30 litres of soil are stored unprocessed at Fort Cumberland. Sample 2 (no context no) was floated on site and the material was not recovered; the water was drained off and the sample retained. For sample 3 (1031), the sample was fully processed at Fort Cumberland.

The samples were processed using a 'washover' into buckets rather than the Siraf tank due to practicalities of water supply on site and the small size of the samples recovered. The flots from sample 1 and the residue and flot from sample 3 were air-dried before sorting. As described above, sample 2 was not dried and was stored without any further work being done.

Sample 1 and sample 3 were treated differently during sorting and therefore these are described individually. As sample 1 was found to be so rich in cereal remains, the flot from 10 litres of the sample was resieved dry using a 4mm and a 1mm sieve to separate the

fractions for sorting. All the >4mm fraction of the flot was sorted. 50% of the 1-4mm fraction of the flot was sorted, whilst the <1mm fraction was left unsorted.

For sample 3, the >4mm fraction of the residue was sorted to recover animal and human bone. The flot was scanned at 1mm to check for the presence of cereal grains, chaff and weed seeds.

Results and discussion

For this assessment, the author briefly examined all environmental material recovered from the samples and the hand-retrieved animal bone. The time available and the unexpected richness of the deposits examined precluded any intensive examination. The material examined consisted of animal bone, human bone, land mollusca, plant macrofossil remains, charcoal and flots. The overall quality and quantity of each assemblage of material was noted, and any unusual occurrences of certain materials were also noted.

Table 2 lists the different environmental materials noted in the samples with an indication of abundance, where + is <100 items, ++ is 100-200 items, and +++++ is >1000 items. Root contamination is also noted as this may have a bearing on the preservation and intrusion of material in the deposits.

Table 2

Material	Sample 1	Sample 2	Sample 3
Animal bone	-	-	+
Human bone	-	-	+
Charcoal	+	+	++
Cereal grains	+++++	-	+
Chaff	++	-	-
Weed seeds	+	-	-
Mollusca	++	++	++
Root contamination	+	-	++

The results of the environmental assessment are given for each material type. Criteria in Carruthers (1993) for archaeobotanical and invertebrate remains are also considered for this assessment. This must remain in some ways an impressionistic account of the environmental remains from the evaluation due to the circumstances of recovery and the unexpected nature of the samples.

Animal bone

Sample 3 only

The animal bone recovered consisted of small mammal bones and frog bones. These are probably intrusive as the deposit was no more than 150mm below the modern ground surface. One bone was stained green, probably from copper salts in the soil, suggesting that there may be a metal artefact in the vicinity of the area sampled.

Animal bone was also retrieved by hand from contexts 1001, 1002, 1003, 1004, 1005, 1007, 1008, 1010, 1011, 1014, 1015, 1017, 1018, 1023, 1024, 1026, and 1027, which are all topsoil/clearance contexts. Preservation of bone from these contexts was extremely good in most instances, apart from 1010 where the few fragments of cow bone were very worn. The range of species recovered was quite wide, including horse, cattle, sheep/goat, pig, and bird, probably goose. A piece of shed antler from a red deer was also recovered from 1024. There were examples of butchery, gnawing and burning on a number of the bones.

With the degree of disturbance on the site due to ploughing it is difficult to predict how much of the animal bone assemblage is Roman in date, but 1007 produced a short cattle metapodial which is suggestive of a Dexter-sized animal typical of the Roman period. However, the large number of horse bones which appear to be from one individual which were present in most of the contexts where bone was recovered may indicate the burial of a single animal at a period later than Roman; it is possible that other bones may also represent farm animals buried in the fields at death and disturbed during ploughing.

Human bone

Sample 3 only

The probable human bone consisted of approximately 50 fragments of burnt, calcined and charred bone fragments. The few fragments of bone due to the small sample size means that the diagnostic material is rather lacking and the suggestion that the bones are from a human cremation is based on stratigraphic evidence and the accompanying charred plant remains.

Molluscan remains

Samples 1, 2 and 3

These were mainly limited to examples of *Ceciliodes acicula* MÜller, the burrowing snail which can penetrate to a depth of at least one metre. Specimens of these were noted in samples 1, 2 and 3. At least eight other species of snail were recovered from sample 1 and 3; and noted in sample 2, but as the root penetration was considerable and depth of stratigraphy shallow, it is likely that many of the snails are modern specimens. It must also be noted that the underlying geology of the site is limestone, and much of the debris from demolished buildings also consists of limestone rubble which would contribute to the

excellent preservation of snail shells.

Charcoal

Samples 1, 2 and 3

The charcoal from the two flots examined from samples 1 and 3 was fragmentary and too small to undertake species identifications. Charcoal was noted in the flot of sample 2; this was also extremely small and not recovered for identification.

Plant macrofossil remains

Sample 1

Only 10 litres of this sample were processed and sorting of the sample was restricted. However, the number of charred plant remains recovered from this sample was extremely high. Over 6000 cereal grains were recovered, together with approximately 200 fragments of chaff. The chaff consisted mainly of *Triticum spelta* (spelt wheat) spikelet forks and glume bases. A few *Triticum dicoccum* (emmer wheat) glume bases were recovered and a single *Hordeum* sp (barley) rachis fragment was also present. The lack of time precluded thorough sorting, but no charred weed seeds were readily apparent from the sorting which was undertaken.

The lack of chaff suggests that the sample represents part-processed grain being stored before final parching, winnowing and milling. Normally, spelt was stored 'on the ear' and processed as required (Van der Veen 1992, 82).

The most interesting discovery during the sorting of the sample was the pest damage to the charred cereal grains. Almost every grain demonstrated holes and 'runnels' caused by insect infestation. Such discoveries are extremely rare from rural sites; no evidence of insect infestation of stored crops was found at Stanwick, and similarly at Barton Court Farm, grain pests were also absent (Robinson 1995). Stored grain pests are far more common in urban environments, where warehouse conditions and the bulk storage of grain would lead to infestations of weevils. The only solution in circumstances where infestations were heavy was to destroy the grain, usually by burning, and demolish the store before starting afresh (Kenward and Williams 1979).

Due to the excellent preservation of the grains and chaff, it is also a possibility that charred insect remains are preserved in the sample. However, time restrictions prevented sorting of the fine flot to check for insect remains.

As only 10 litres of the sample were processed, and the sample represents only a small part of the layer overlying the mosaic, it is difficult to know whether the charred grain represents a small cache which became infested with insects, or was part of a far larger store of grain which was heavily affected and therefore destroyed by fire. Clearly it is vital that this should

be pursued to establish the origin of the cereal grains and what the material represents.

Sample 2

No charred seeds were recovered from this sample.

Sample 3

This sample produced some charred seeds, all of which were cereal grains. The grains were badly popped and warped, suggesting a high temperature for their burning. No weed seeds were noted, but a few awn fragments and twiglets were present. Due to the small size of the sample (5 litres) it is difficult to ascertain more than the presence of the cereals but the charcoal and twigs may be indicative of material used as tinder or fuel for the cremation which was later incorporated into the deposit upon burial.

Soils

The soils were examined on site by Matt Canti and it was determined that a dark earth *sensu stricto* was not present in the area of the building with the mosaic. The darkness of the soil was due to burning and not to the type of build-up typical of urban late Roman abandonment (Yule 1990). No other areas of the site were noted as having soils suitable for further investigation at the time of the evaluation. However, it was decided that if suitable deposits were ever encountered during the course of future fieldwork, a sampling programme for soil science would be devised.

Statement of potential

The assessment has shown that some classes of environmental material were present in various states of preservation at the site.

The animal bones from the samples were small and fragmentary but it must be noted that the conditions for preservation were excellent. Hand retrieved bones were also extremely well preserved, and indicate that if full excavation takes place, then the range of species and quantities of bones should enable assessment and analysis on a large scale. Currently the animal bone from the topsoil clearance should not be given too much credence due to the nature of the deposits from which they came, but these may be useful for terms of reference for stratified material. In regional terms, comparison of the site with the villa and settlement at Stanwick is probably not out of place.

The quantity of cremated human bones from a small feature which was not fully sampled makes them unsuitable for more than a cursory assessment and no analysis will be required. It may be possible to relate the bone currently recovered from the cremation to the remaining material in the ground if excavation goes ahead, but the degree of contamination does rather limit this as a possibility. Any intact cremations in the future should however be fully rather than partially sampled.

For the molluscan remains, the majority of the snails were intrusive and will not contribute to the study of the local environment of the site in the Roman period either currently or during future excavation.

The charcoal assemblage was very poor, with none of the samples containing sufficient fragments to make assessment of the different species worthwhile. This may change depending on the nature of the features investigated, in which case, large charcoal fragments could be used for species identifications and some indication of woodland composition and exploitation.

The well-preserved plant macrofossils from the layer above the mosaic represent an extremely important discovery and warrant full investigation even at this stage. The material is of national significance as the only example in England of a rural site with an infestation of grain pests. There will also be a number of regional comparisons with the Thames Valley Roman settlement sites and of course the villa and settlement at Stanwick.

The soils showed no potential for investigation as the lack of a "dark earth" particularly precluded any need for soil micromorphology. Due to the nature of the deposits it is unlikely that any further work will be required (Matt Canti pers comm).

Recommendations

It is recommended that:

- 1 The remaining samples already collected from the layer above the mosaic are processed apart from a 5 litre subsample;
- 2 The remaining sub-sample should be processed at Oxford by Mark Robinson to investigate the preservation of charred insect remains;
- 3 An assessment report should be then produced on the charred plant macrofossil and insect remains;
- 4 Any further excavation at the site should have a full environmental sampling strategy: this should take account of investigating the layer above the mosaic by gridding and total sampling of the deposit to enable the distribution of charred plant remains to be determined;
- 5 No further investigations of the soils on the site should be undertaken unless significantly different deposits are found.

Conclusions

The samples show that there is preservation of various types of environmental material from the site. The problems of modern contamination, truncation of features and the small numbers of remains from the samples mean that the potential for assessment and analysis is reduced from what it could be, but still is important in regional terms. The most significant material from the site includes the charred plant macrofossils which are affected by the insect infestations; this makes the site of national importance as it is the first rural site to demonstrate such grain storage problems.

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