



Northamptonshire Archaeology

Further archaeological geophysical survey in the
Tiltyard Gardens, Hampton Court Palace, KT8 9AU
February 2013



Northamptonshire Archaeology
2 Bolton House
Wootton Hall Park
Northampton NN4 8BE
t. 01604 700493 f. 01604 702822
e. sparry@northamptonshire.gov.uk
w. www.northantsarchaeology.co.uk



**Northamptonshire
County Council**

John Walford and Brian Dix
Report 13/78
May 2013



STAFF

Project Manager: Adam Yates BA MIFA

Fieldwork: John Walford MSc
Amy Sinclair BA

Text: John Walford
Brian Dix BA FSA

Illustrations: John Walford

QUALITY CONTROL

	Print name	Signed	Date
Checked by	Pat Chapman	<i>PC</i>	13/05/2013
Verified by	Adam Yates	<i>AJ</i>	13/05/2013
Approved by	Steve Parry	<i>SP</i>	13/05/2013

HAMPTON COURT PALACE

OASIS REPORT FORM 150298

PROJECT DETAILS		
Project name	Further archaeological geophysical survey in the Tiltyard Gardens, Hampton Court Palace, KT8 9AU, February 2013	
Short description	Northamptonshire Archaeology was commissioned to carry out earth resistance survey in the west-central compartment of the Tiltyard Gardens at Hampton Court. The survey followed on from previous survey in the north-western compartment, and was intended to locate historic remains, including possible Tudor Tiltyard towers and elements of former garden layouts. A possible former path was identified, but the majority of the results related to modern (20th – 21st century) land use.	
Project type	Geophysical survey	
Site status	Scheduled Monument No: LO83	
Previous work	Geophysical survey (GSB 2009; Butler and Dix 2011, Fisher and Dix 2012). Test-pit excavation (Sykes and Ford 2010)	
Current Land use	Gardens	
Future work	Unknown	
Monument type/ period	Post-medieval gardens	
Significant finds	None	
PROJECT LOCATION		
County	Greater London / Surrey	
Site address	Hampton Court Palace	
Study area	c0.36ha	
OS Easting & Northing	TQ 1555 6872	
Height OD	c10 m AOD	
PROJECT CREATORS		
Organisation	Northamptonshire Archaeology (NA)	
Project brief originator	Brian Dix	
Project Design originator	NA	
Director/Supervisor	John Walford	
Project Manager	Adam Yates	
Sponsor or funding body	Historic Royal Palaces	
PROJECT DATE		
Start date	14 February 2013	
End date	14 May 2013	
ARCHIVES		
	Location	Content
Physical	N/A	
Paper	NA	Site survey records
Digital	NA	Geophysical survey & GIS data
BIBLIOGRAPHY		
	Journal/monograph, published or forthcoming, or unpublished client report	
Title	Further archaeological geophysical survey in the Tiltyard Gardens, Hampton Court Palace, KT8 9AU, February 2013	
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**FURTHER ARCHAEOLOGICAL GEOPHYSICAL SURVEY IN THE
TILTYARD GARDENS, HAMPTON COURT PALACE, KT8 9AU
FEBRUARY 2013**

ABSTRACT

Northamptonshire Archaeology was commissioned to carry out earth resistance survey in the west-central compartment of the Tiltyard Gardens at Hampton Court. The survey followed on from previous survey in the north-western compartment, and was intended to locate historic remains, including possible Tudor Tiltyard towers and elements of former garden layouts. A possible former path was identified, but the majority of the results related to modern (20th – 21st century) land use.

1 INTRODUCTION

Historic Royal Palaces commissioned Northamptonshire Archaeology, in association with Brian Dix, to carry out a geophysical survey in the west-central compartment of the Tiltyard Gardens at Hampton Court Palace (NGR TQ 1555 6872, Fig 1). This work was intended to assist the development of proposals for redisplaying the area to the public. An earth-resistance survey was undertaken on 14-15 February 2013, under a licence (Case No. SL00048140) granted for that purpose by English Heritage under Section 42 of the 1979 Ancient Monuments and Archaeological Areas Act (as amended by the National Heritage Act 1983).

2 TOPOGRAPHY AND GEOLOGY

The survey was conducted in the west-central compartment of the Tiltyard Gardens, at the north-western corner of the palace grounds. The compartment is located immediately north of the visitor car-park and east of Vrow Walk (Fig 1). It stands at an elevation of c10m aOD, and is underlain by First Terrace (Kempton Park) gravels above Thames Group London Clay (BGS 2011).

The present layout of the west-central compartment comprises a central lawn surrounded by a perimeter path. There are two flower beds in the southern half of the lawn, and a shrubbery along much of its western edge. Two recently disused flower

beds have been re-turfed, but remain evident as slight earthworks in the northern half of the lawn.

3 HISTORY AND PREVIOUS ARCHAEOLOGY

The Tiltyard was created by King Henry VIII on the western part of the Great Orchard in 1537 and whilst its earliest recorded use for a tournament does not occur for another twenty years, he presumably hosted such events there in addition to using the space for training and other exercise (Gregory 2011, 14-16). A series of towers, comprising two along the eastern edge and three others located more centrally within the Tiltyard, may have provided guest or staff accommodation as well as being used for banquets and related entertainments (ibid 16-18). They were shown in Wyngaerde's view of the north side of Hampton Court *circa* 1558 (ibid fig 02) and further illustrated for Cosimo III de Medici in 1669 (ibid fig 05), by which time the Tiltyard had been turned into pasture. Most of the towers had disappeared by the end of the century (ibid 19-21). Remains of the north-east tower have been located by archaeological trial excavation together with the partially robbed-out east wall of the one at the southern end of the central group, suggesting that those in the middle probably lay to the east of the spine wall of the later gardens (Sykes and Ford 2010: trenches 4 and 6, especially discussion on pages 26 and 28).

The area was turned into a kitchen garden and divided into six compartments as a result of partitioning early on in the reign of King William III and Queen Mary. It continued to supply food for the royal household until the mid-eighteenth century but only intermittently thereafter, following the lease of the ground to local market gardeners. This rental arrangement continued until the 1920s when the ground was converted into recreational and flower garden areas for visitors to enjoy (Longstaffe-Gowan 2005, 136-45; Gregory 2011, 22-9). The layout of the individual gardens up to that time can be traced through a series of historical maps and views, which show an evolving pattern of perimeter and cross paths, borders, and variously worked or dug-over areas (cf Gregory 2011, figs 06-15).

Limited archaeological excavation within some of the kitchen garden compartments indicates that modern levelling together with the activity of two centuries of prolonged

tillage and manuring have resulted in a depth of cultivated and built-up soil that is over a metre thick (Sykes and Ford 2010, 33-6: descriptions of trenches 6-8). In places the base of former bedding trenches have been located beneath the more mixed deposits, each generally between 0.70-0.85m wide and up to 0.30m deep; some contained eighteenth-century pottery (ibid trenches 6-8: paras 3.1.30 and 3.1.37 with figs 7 and 9 respectively). At one point the rows appear to terminate, possibly associated with a change of planting or other horticulture (ibid trench 7: paras 3.1.33-34 and fig 8). Contiguous blocks cultivated in different directions with rows running at right angles are shown in some of the historical plans (cf Gregory 2011, figs 12 and 14). A corresponding break in the method of digging in the individual plots may be denoted by a geophysical anomaly detected previously in the west-central compartment adjacent to the present survey area (Butler and Dix 2011, 4-5 and fig 8).

4 METHODOLOGY

The survey was conducted under a Section 42 licence (SL00048140), and in accordance with guidelines issued by English Heritage and by the Institute for Archaeologists (EH 2008; IfA 2011).

The geophysical survey covered approximately 0.36ha of land in the west-central compartment of the Tiltyard Gardens. This area was divided into 20m grid squares, which formed the basic units of survey. These grids were established with a tape measure and optical square, and their locations were recorded relative to fixed landmarks depicted in the Ordnance Survey mapping of the area. Within each square, readings were taken at 1.0m intervals along 1.0m spaced traverse lines.

Data were collected with a Geoscan Instruments RM15 resistance meter connected to a 0.5m 'twin-probe' electrode array. Such an instrument and probe configuration are standard for archaeological earth resistance survey (EH 2008, 25).

The survey data were processed using Geoplot 3.00v software. Where necessary the background levels of adjacent grids were balanced arithmetically. The processed data are presented in this report in the form of a grey-tone plot at a scale of 47 Ω to 72 Ω (white/black). The plot has been scaled, rotated and resampled (georectified) for display

against the Ordnance Survey base mapping (Fig 2). An interpretative diagram is presented as Figure 3.

5 SURVEY RESULTS

5.1 The west-central compartment

The survey data from the west-central compartment of the Tiltyard contains two distinct low-resistance anomalies relating to the pair of recently turfed-over flower beds in the northern half of the lawn (Fig 3, C and D). A second pair of flower beds to the south has produced less distinct geophysical anomalies (Fig 3, E and F). Each is represented by a zone of 'noisy' data, where the relatively loose and aerated soil of the bed has given rise to a significant number of poor electrical contacts.

Between flower beds C and D, there is a high resistance linear anomaly which may represent the remains of a former path. It is located close to the principal axis of the garden compartment, and is comparable to the 'path' anomalies detected previously in the north-western compartment.

There is a discontinuous zone of high resistance around the shrubbery at the western edge of the lawn. Whilst it is possible that this represents an area of stony or gravelly soil, a more plausible interpretation would be that the soil is drier here than elsewhere due to increased water uptake by the roots of the shrubs. Similarly, the small areas of high resistance along the eastern edge of the lawn may be due to the root systems of a row of birch trees.

When the present survey results are compared with earlier results from the same garden compartment (GSB 2009; Butler and Dix 2011), it is clear that the present data is more subdued and contains fewer conspicuous high resistance anomalies. This difference is probably due to the damp ground conditions in February 2013, which would have attenuated the contrasts in earth resistance.

5.2 The north-western compartment

A programme of groundworks was being undertaken in the north-western compartment of the Tiltyard at the same time that the present survey was underway. Archaeological observation of these works provided some new information, permitting a slight

re-assessment of the geophysical data from the north-western compartment reported in Fisher and Dix 2012.

The 2012 survey had identified two distinct zones of resistance to the south of the tarmac surface (Fig 3, A and B). A test pit which was dug across the junction of these zones showed that each was underlain by a layer of clinker and slag hardcore which represented the basal make-up of the former tennis court. In the northern zone (A) the hardcore lay 0.35m below the turf and was overlain by a dark brown loam but in the southern zone (B) it lay only 0.2m below the turf and was overlain by a sandy silt with abundant brick and mortar fragments. It thus appears that the former tennis court surface was removed in two stages and that the geophysical results merely reflect the differing quality of the re-instatement works.

The residual modern hardcore present in both zones A and B is likely to have masked any underlying archaeological features from detection by earth resistance survey. It is probable, therefore, that the only genuine archaeological features to have been detected by this technique are the sections of former path which lie around the edges of the compartment, beyond the footprint of the former tennis court.

6 CONCLUSION

The survey of the west-central compartment of the Tiltyard has provided little archaeological information. The data contains one short linear anomaly, which may represent a former path, but is otherwise dominated by the electrical responses from modern flowerbeds. Nothing has been detected which might plausibly relate to the former Tiltyard towers.

Recent observations have prompted a re-assessment of the previous earth resistance survey results from the north-western compartment of the Tiltyard (Fisher and Dix 2012). The identification of former paths around the edges of the compartment is still considered to be valid, but the central part of this compartment is now known to be underlain by the hardcore base of a former tennis court. This will probably have masked any earlier archaeological features from detection by earth resistance survey, although deeper radar responses have been noted previously (GSB 2009, Figs 8-9).

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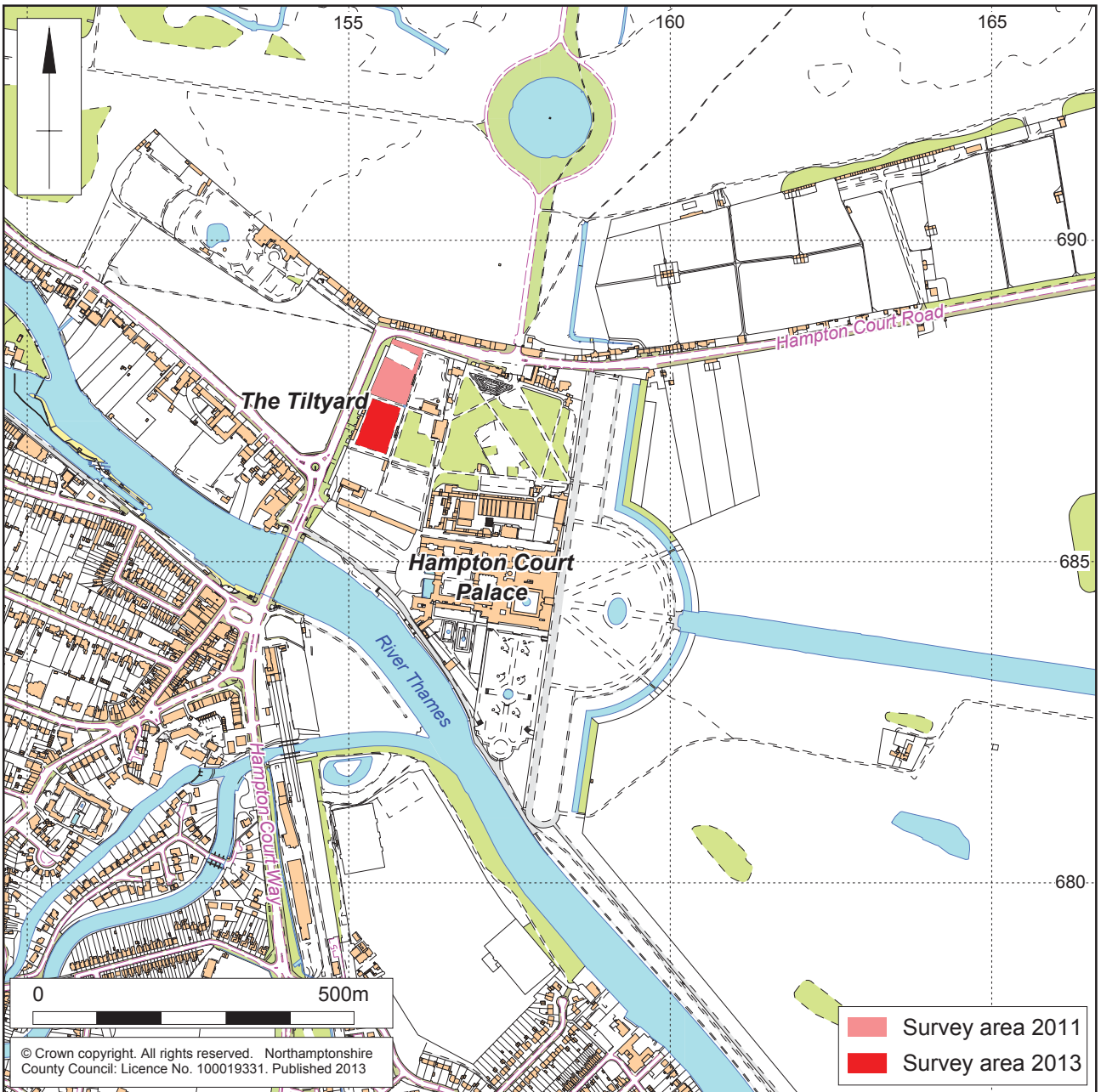
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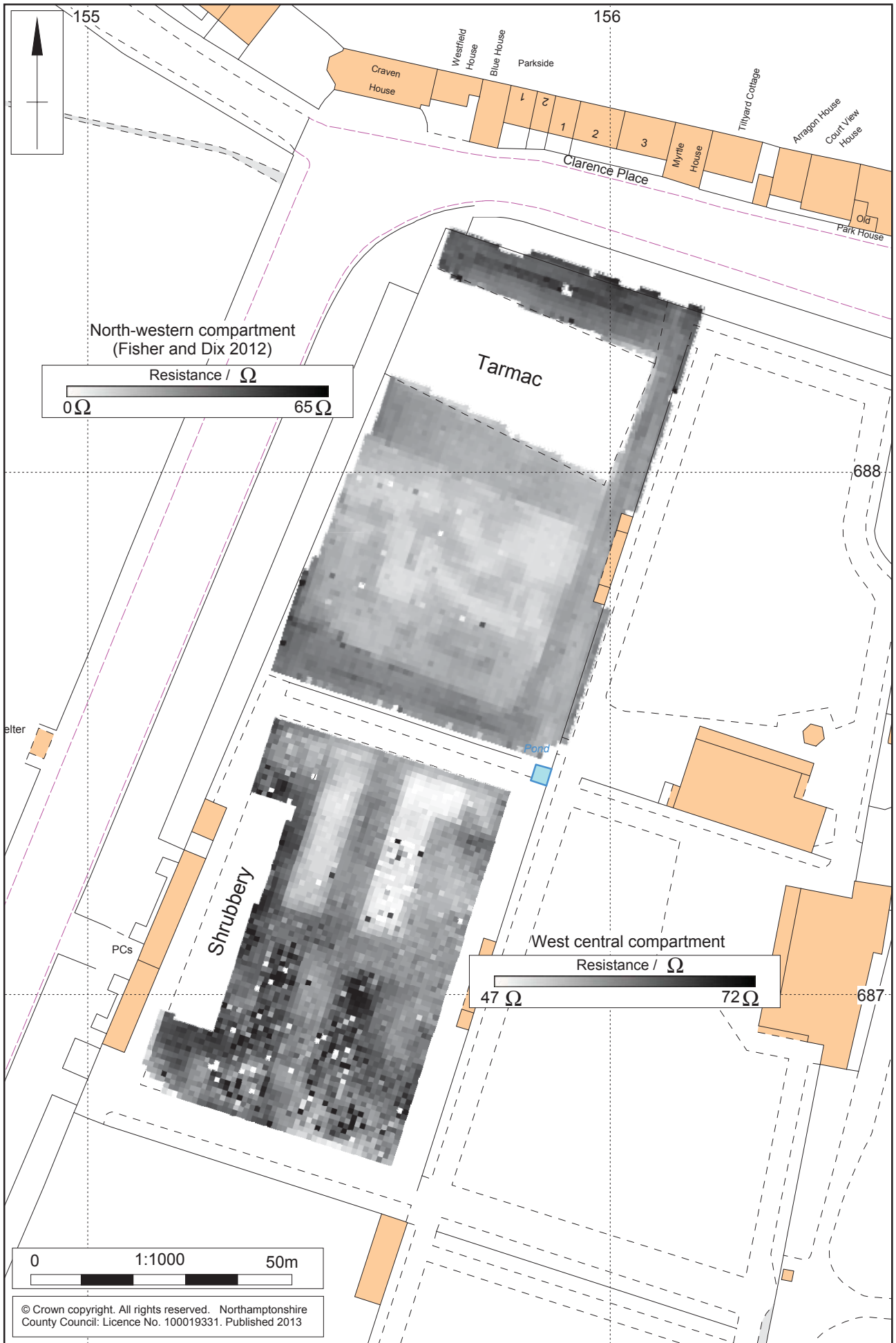
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Scale 1:10,000 (A4)

Site Location Fig 1







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