



Northamptonshire
County Council

Northamptonshire Archaeology

Geophysical survey
at Wothorpe Towers
Cambridgeshire
February 2008



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Report 08/28

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NORTHAMPTONSHIRE ARCHAEOLOGY
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GEOPHYSICAL SURVEY
AT WOTHORPE TOWERS,
PETERBOROUGH
DECEMBER 2007

Report 08/028

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QUALITY CONTROL

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OASIS REPORT FORM

PROJECT DETAILS		
Project name	Geophysical Survey at Wothorpe Towers, Cambridgeshire, December 2007	
Short description	Northamptonshire Archaeology conducted an earth resistance geophysical survey at Wothorpe Towers, Peterborough in December 2007. A total of 1.03ha were surveyed in two separate locations: the area of the former Great Garden and the area of the former Bowling Green. The survey of the Great Garden revealed a series of high and low resistance anomalies representing features associated with the 17 th -century garden. Of great interest was the potential rediscovery of a zigzag water feature along the centre of the garden. The survey of the Bowling Green did not reveal any archaeologically significant anomalies.	
Project type	Geophysical Survey	
Site status	Adjacent to Scheduled Ancient Monument and Listed buildings	
Previous work	No	
Current Land use	Pasture	
Future work	Unknown	
Monument type/ period	Post-medieval gardens and courtyards	
Significant finds	No	
PROJECT LOCATION		
County	Peterborough	
Site address	Wothorpe Towers, Wothorpe-on-the-Hill, Stamford, Cambridgeshire, PE9 3JG	
Study area	1.03ha	
OS Easting & Northing	TF 02540526	
Height OD	65m OD	
PROJECT CREATORS		
Organisation	Northamptonshire Archaeology	
Project brief originator		
Project Design originator		
Director/Supervisor		
Project Manager	Steve Parry	
Sponsor or funding body	Mr and Mrs P Griffin	
PROJECT DATE		
Start date	December 2007	
End date	December 2007	
ARCHIVES	Location (Accession no.)	Content (eg pottery, animal bone etc)
Physical		
Paper		
Digital		
BIBLIOGRAPHY		
Journal/monograph, published or forthcoming, or unpublished client report (NA report)		
Title		
Serial title & volume		
Author(s)		
Page numbers		
Date		

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GEOPHYSICAL SURVEY AT WOTHORPE TOWERS,

PETERBOROUGH

DECEMBER 2007

ABSTRACT

Northamptonshire Archaeology conducted an earth resistance geophysical survey at Wothorpe Towers, Peterborough in December 2007. A total of 1.03ha were surveyed in two separate locations: the area of the former Great Garden and the area of the former Bowling Green. The survey of the Great Garden revealed a series of high and low resistance anomalies representing features associated with the 17th century garden. Of great interest was the potential rediscovery of a zigzag water feature along the centre of the garden. The survey of the Bowling Green did not reveal any archaeologically significant anomalies.

1 INTRODUCTION

Northamptonshire Archaeology conducted geophysical survey, in December 2007 at Wothorpe Towers, Peterborough (NGR TF 02540526, Fig 1). The work was undertaken on behalf of the owners Mr and Mrs P Griffin.

The survey targeted two separate locations: the area of the former Great Garden to the north-east of the former house, now known as the Towers and the area of the former Bowling Green to the south west. The survey covered a total area of approximately 1.03ha.

The purpose of this survey was to investigate the potential for the survival of buried archaeological remains of gardens known to have been laid out around the buildings during the seventeenth and eighteenth centuries.

At the time of the survey the areas of the survey were laid to grass. The weather was very cold, leading to the ground freezing at night and barely thawing in the mornings.

This report also includes, as an addendum, a short note relating to Spot Height Levels taken in the areas of the former West and South courts and the Bowling Green to establish historic ground levels, where known, and present soil levels.

2 **ARCHAEOLOGICAL BACKGROUND**

Wothorpe House, now called the Towers, was built between 1615 and 1620 by Thomas Cecil, first Earl of Exeter whose main house was nearby Burghley. Around the house at Wothorpe were built a series of walled enclosures to provide courtyards and gardens which were probably both pleasure and horticultural in form and use. These walled enclosures may in part relate to an earlier building on the site. A survey of 1615 reveals that the area to the east of the former house, here called the Great Garden, contained what appears to be a highly unusual zigzag water feature which drained out of the garden into a mill pond to the north (Fig 4). There appears, on the same survey to be a terrace or other type of wall separating an area of ground at the southern end of the garden from the remainder. The water feature appears on this survey to lie within both sections.

The house was occupied until the middle of the eighteenth century when it was largely demolished, probably at the instigation of Lancelot “Capability” Brown, who was at the time undertaking a scheme of building and landscape design works at Burghley to where it is thought that large amounts of stonework were then taken for re-use, and possibly also burnt for lime, in the new stables. It seems that the four towers which give the property its present name were deliberately left to form a romantic ruin in the landscape as they serve no other purpose. A survey of the estate, dated 1772, shows the house to be partially demolished with the two north and south projecting accommodation ranges surviving between the turrets which formerly sat within the angles (Fig 5). The east and west projecting ranges have gone and the West Court and north and south service ranges are not shown. A trackway is indicated from the gateway at the south end of the South Court leading to the group of buildings to the north-west.

The towers are a Scheduled Ancient Monument (SAM PE 202) and listed Grade I. The other buildings are listed Grade II*. The walled enclosures and earthworks are not listed on the English Heritage Parks and Gardens Register (Cambridgeshire) although the ornamental gateway in the Great Garden east wall is listed Grade I.

A survey of the earthworks around the towers was undertaken in 1994 (Taylor 1997). No further archaeological work has been carried out until the current owners began works to restore the standing buildings from 2004. During this time an archaeological watching brief has been carried out on all groundworks by Northamptonshire Archaeology. At the same time the various enclosures have been cleared and work started on the repair and reconstruction of their surrounding walls.

3 TOPOGRAPHY AND GEOLOGY

The Great Garden was a relatively flat, grassed area surrounded by a bank on the north-east, south-east and south-west sides. The garden was enclosed by walls, the towers on the south-west and a raised track on the north-west. The towers were surrounded by Herras fencing and significant amounts of rubble were deposited adjacent to the north-east of the garden walls and gate. Most of the site is on Northampton Sand with Ironstone although the underlying Upper Lias Clay is exposed in the small valley to the north-east of the house (Taylor 1997).

4 METHODOLOGY

All fieldwork was carried out in accordance with English Heritage and the Institute of Field Archaeologists Guidelines (EH 1995 & Gaffney, Gater and Ovendon 2002).

Prospection by earth resistance was carried out utilising a Geoscan Research RM15 resistance meter in a 0.5m spaced 'Twin Probe' electrode array. Both areas were divided into contiguous individual 20m grid-squares. Each of the grid square was then examined along 1.0m separated traverses with readings (in Ohms, Ω) taken at 1.0m intervals.

The data was analysed using Geoplot 3.00u software. Low resistances are shown as white and high resistance as black in the resultant greyscale plots (Figs 2 and 3). The resistance data grids were each matched so that the background levels were consistent across the survey. Extreme data values caused by the presence of frozen and very stony ground were excised from the data set. The final images have been interpolated to 0.5m x 0.5m to produce a smoother appearance.

The processed data is presented here in the form of greyscales highlighting the resistance anomalies with a scale of 65-120 Ω in the Bowling Green and 30-80 Ω in Great Garden (Fig 2). Interpretive plots (Fig 3) have been generated from the result and both figures are referred to directly in the following Survey Results section.

5 SURVEY RESULTS

Great Garden

The survey in the area of the Great Garden produced a number of archaeologically significant anomalies, including possible walls, drains and earth cut features (Fig 2). Their form, alignment and character would suggest that they relate to or are part of the earlier formal garden (Fig 3).

A a linear, north-east to south-west aligned, high-resistance anomaly. This response is the wall

revetting the track on the northern boundary to the Great Garden.

- B** an amorphous low-resistance anomaly which may represent an earth-cut feature running along the base of anomaly 'A'.
- C** three discrete areas of high resistance which simply represent isolated areas of buried rubble.
- D** a linear north-west to south-east aligned anomaly. At its southern end it turns eastwards, possibly heading towards well 'J'. At its north-west end it turns slightly towards the north. Its form and location suggests it could be interpreted as a drain or culvert .
- E** a series of high-resistance linear anomalies, perhaps representing boundaries to the former garden, possibly terrace walls.
- F** a linear anomaly, possibly a wall aligned north-east to south-west.
- G** a sinuous anomaly, although of relatively low resistance, still higher than the surrounds suggesting an earth-fast structure, perhaps a gravel-filled trench. The shape and location accords well with a zigzag feature shown on the 1615 map of the garden, interpreted as water feature (Taylor 1997).
- H** a low-resistance, roughly circular anomaly located towards the centre of the survey area. The nature of the anomaly is undetermined, but its position in the lowest part of the garden, at the base of a bank and around a possible drain, suggests a naturally water-saturated area.
- I** An area of high resistance situated under the embanked south-west of the Great Garden, probably representing a buried rubble core.
- J** the location of an existing pair of well caps.
- K** is a low-resistance linear anomaly aligned north-east to south-west, a putative metal pipeline in a trench. This feature appears associated with well 'J'.
- L** a linear high-resistance anomaly representing a known conduit feeding well 'J'.
- M** a low-resistance anomaly. This comprises two curvilinear features joining an oval anomaly.

Bowling Green

The detection of resistance anomalies in this area was less successful, whether due to the frozen state of the ground, great build up of overburden, or simple lack of features. The survey of the former Bowling Green revealed only one significant anomaly:

N an area of high-resistance readings on the slope down north-east towards the boundary wall, possibly indicating buried rubble.

6 CONCLUSION

The survey within the Great Garden has revealed what appears to be very good evidence of the survival of the zigzag water feature indicated on the map of 1615 (Fig 3, G). Associated with it appears to be a series of regular walls laid out either parallel or perpendicular to each other suggesting the presence of retaining or terrace walls (Fig 3, E). Other features may relate to water culverts for the supply of water to or from the garden (Fig 3, D and L).

Closer to the former house a number of anomalies are at present less easy to interpret. Linear features (Fig 3, F) may be related to either contemporary or later features. Large areas of what could be rubble may be from either the construction or demolition of the building (Fig 3, I).

There are no features within the area of the Bowling Green which can be related to features depicted in that area on the 1772 Estate map. At the period at which this was laid out it is most likely that the diagonal and cross paths would have been laid to grass which will not leave detectable traces. No indications of planting pits for the trees are present either.

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ADDENDUM-SPOT HEIGHT LEVELS

1 INTRODUCTION

A visit was made to Wothorpe Towers on 21 November 2007 when a series of spot-height levels were taken across selected areas (Walled Garden, West Court and South Court). A benchmark situated in the village to the west of the site was not located and therefore the levels taken are to an arbitrary base and not related to Ordnance Datum. In order to prevent confusion in the future by giving the temporary datum mark, placed on the window sill of the south-west tower, a height approximating to the Ordnance Datum, the lowest point on this survey will be called 0.00m and all other levels will therefore be heights above that point. The site lies roughly at 80m OD but there are parts which are considerably higher and lower than this figure.

The lowest point recorded on the present survey was that within the West Court situated immediately to the west of the remains of Wothorpe House, now called the Towers (Fig 1). Excavation by the owners has revealed the foundations of a flight of steps which formerly allowed access between the West Court and the Walled Garden (Plate 1). The footing of the steps comprises local limestone blocks, some dressed others rubble pieces, set in a soft lime mortar and indicate that the steps were rectangular in plan 6.88m x 2.40m (22 feet 7 inches x 7 feet 10 inches) at foundation size. None of the treads remain *in situ* nor does the paved West Court surface, however, a single piece of stone lying horizontal close to the base of the lowest step foundation may represent a fragment of *in situ* paving. The exposed surface on which the paved court must have been laid comprises a compact layer of sandy marl-like material mixed with small fragments of limestone. The upper surface of this levelling layer will be given the value 0.00. All levels in this document refer to that point.

2 SPOT-HEIGHT LEVELS

The West Court.

The West Court was formerly an entrance courtyard situated immediately to the west of the house; the western side was bordered by a low wall surmounted by a stone balustrade (which also formed the eastern side of the adjacent Walled Garden), the north and south sides by two service ranges and the east side by the house itself (Fig 6). Its low floor level, apparently below that of the floor of the house (which is currently not exposed), was almost certainly a deliberate creation to emphasise the height of the west entrance front. From the sub-base level of 0.00 to the upper surface of the possible *in situ* paving fragment is 0.12m (4 ¾ inches).

The upper surface of the step foundations from this point upwards are:

0.19m (7 ½ inches)

0.29m (11 ½ inches)

0.43m (17 inches)

0.55m (21 ½ inches)

0.65m (25 ½ inches)

0.75m (29 ½ inches)

0.94m (37 inches)

Given that the remains exposed are simply the foundations and some places retain thick deposits of mortar the height of the risers can be indicative only but suggest a riser height of *c* 0.125m (5 inches). The uppermost level of 0.94m (37 inches) suggest an approximate height of around 3 feet for the level of the base of a stone balustrade which is known to have surmounted the west wall of the court from contemporary depictions. This wall and flight of steps precludes this side from being a principal entrance way for carriages and horses which, if they had access to the West Court, must have entered the area either through the south or north service ranges. It seems that the south service is the most likely as it is served by the large and well paved South Court, in turn served by a roadway which led from Burghley House (see below).

The step foundations and the exposed sub-base of the courtyard floor are buried beneath a fairly homogeneous layer comprising rubble fragments, some of which is dressed stone but largely undressed pieces, in a mid brown loamy soil to an approximate depth of 0.70m-0.90m, although this layer is much thinner towards the south-west where it is probably only 0.25m-0.40m thick. The homogeneous layer with rubble is clearly a deliberate infilling of the courtyard following the demolition of the house during the 1750s. Approximately halfway between the western edge of the former courtyard and the Towers a raised trackway has been created, almost certainly during the mid/latter part of the nineteenth century, although a track is depicted in this position on the 1772 estate map (Fig 5). The raised trackway appears to be composed of soil, rubble and some modern material such as tarmac, and at its highest point is approximately 1.25m-1.40m above the floor of the courtyard.

The Walled Garden.

The walled garden lies immediately to the west of the West Court and is surrounded on three sides (the north, south and west) by high stone walls, that to the east has largely now collapsed and what remains is a later construction as it is not aligned on the original foundations (which survive along the west side of the West Court) but veers slightly towards the west at the northern end and now connects with the corner of a later small building (Fig 6 and Plate 2). The garden rises gently to the west where a stone revetment wall indicates the position of a terrace 4.17m wide (13 feet 8 inches) along the western side of the garden. A currently blocked doorway in the south wall at the southern

end of the terrace indicates that there was a connection with the Bowling Green which lies to the south, although the ground level in that area is considerably higher (Plate 3). What appears to be the remains of another doorway survives in the west wall, central to the garden which suggests a second entrance (aligned on the steps to the West Court and main front of the Towers) to the area to the west, now occupied by the nineteenth-century octagonal building. There are at present no indications of steps, but these would have been necessary if the present soil levels represent historic ones, as the soil level in the area of the octagonal building is considerably higher than those in the Walled Garden.

The following heights are all values above the level of the sub-base in the West Court. The numbers in brackets refer to the locations on Figure 6.

Floor of Walled Garden immediately to the west of the West Court (1)

1.35m (4 feet 5 inches)

Floor of Walled Garden (2)

1.84m (6 feet)

Floor of garden at the base of the terrace at the west side of the Walled Garden (3)

2.46m (8 feet 1 inch)

Top of terrace at west side of Walled Garden (4)

3.21m (10 feet 6 inches)

Soil level in the area containing the octagonal building (5)

4.66m (15 feet 3 ½ inches)

The South Court.

The South Court lies on the southern side of the former house and is walled on the east, south and west sides, the north side was formerly enclosed by a service range connected to the house but which was demolished with it. At present the court is grassed over and there are two modern timber and corrugated iron sheds at the south-east and south west corners (Plate 4). A double width gateway in the south wall appears to be a later re-modelling, though in the position of an original entrance. This gateway gave access to a road which led to and from Burghley House and which still remains as a track. An area of pitched stone paving has been exposed by the owners and this seems to indicate that much, if not all, of the court was paved in this fashion (Plate 5). Within the paving the direction in which the stones are laid indicate that there was a curving roadway which led to the south side of

the former service range. The court falls towards the house and the levels are as follows, all above 0.00 at the sub-base of the West Court:

Gateway sill in south wall (6)

3.08m (10 feet 1 inch)

Pitched stone surface (7)

2.24m (7 feet 4 inches)

Pitched stone surface (8)

1.79m (5 feet 10 inches)

Pitched stone surface (9)

1.48m (4 feet 10 inches)

Pitched stone surface (10)

1.02m 3 feet 4 inches)

The soil overlying the surface deepens towards the north (the end nearest the former house) though throughout it appears to be a rich humic soil with little or no evidence of rubble or other dumping. At the southern end this soil is approximately 0.10-0.15m deep, at the northern end it is approximately 0.7m deep. It is not known at present the depth of soil adjacent to, or over, the remains of the former service range since this has not been exposed.

A small number of levels taken from a separate Temporary Bench Mark in the courtyard adjacent to the stables revealed no more than a build-up of material, both natural and deliberately deposited, over fragments of courtyard surface comprising pitched stone and cobbles. Some of this may be original but the majority appears to be later. A low wall and evidence of a shallow flight of steps at the southern end corresponds with a feature shown on the 1772 Estate map.

3 CONCLUSION

The levels taken reveal a sequence of varying depths of soil influenced by different post-demolition treatments in separate parts of the property. The originally sunken West Court was apparently deliberately backfilled to form a level surface to the west of the former house, presumably since it was then easier to utilise this area in relation to the stables, barns and cottages still in use to the west.

This appears to have been undertaken before 1772 when the track appears on a map of that date. The present raised trackway seems to be a later modification of the same route by raising the surface to make it more level. This raising appears, from limited investigation of exposed soils, to most likely date to the second half of the nineteenth century. It is not clear how much remains of the two flanking service ranges on the north and south sides of this court.

The Walled Garden appears not to have been either reduced or increased appreciably though until test pits or other archaeological investigation is undertaken this cannot be proved. It is uncertain how much the area has been disturbed by cultivation or other disturbance. At the west side the remains of a terrace wall indicate that the enclosure was part of a formal garden scheme, originally probably linked to the Bowling Green on the south side via a now blocked doorway. A further doorway in the west wall almost certainly allowed access on that side though at present the exact arrangement is uncertain. The present east wall is a later addition and aligns with a nineteenth-century stone store building at the north-east corner. The original line of the east wall of this area is partially exposed and lies perpendicular to the surviving north and south walls. It has on its eastern face the *in situ* foundations for the steps which led down into the West Court.

The South Court appears to have accumulated debris such as leaf mould and wind blown elements by natural means and there is at present no evidence of deliberate levelling within the southern and central part. However, the areas so far uncovered are small and there may be evidence in other parts of the court to indicate otherwise. Towards the northern end there is certainly some deliberate filling as part of the creation of the raised trackway which forms a level route towards the building complex to the northwest. It seems probable that close to the former house there will be some demolition debris and the remains of the south service range.

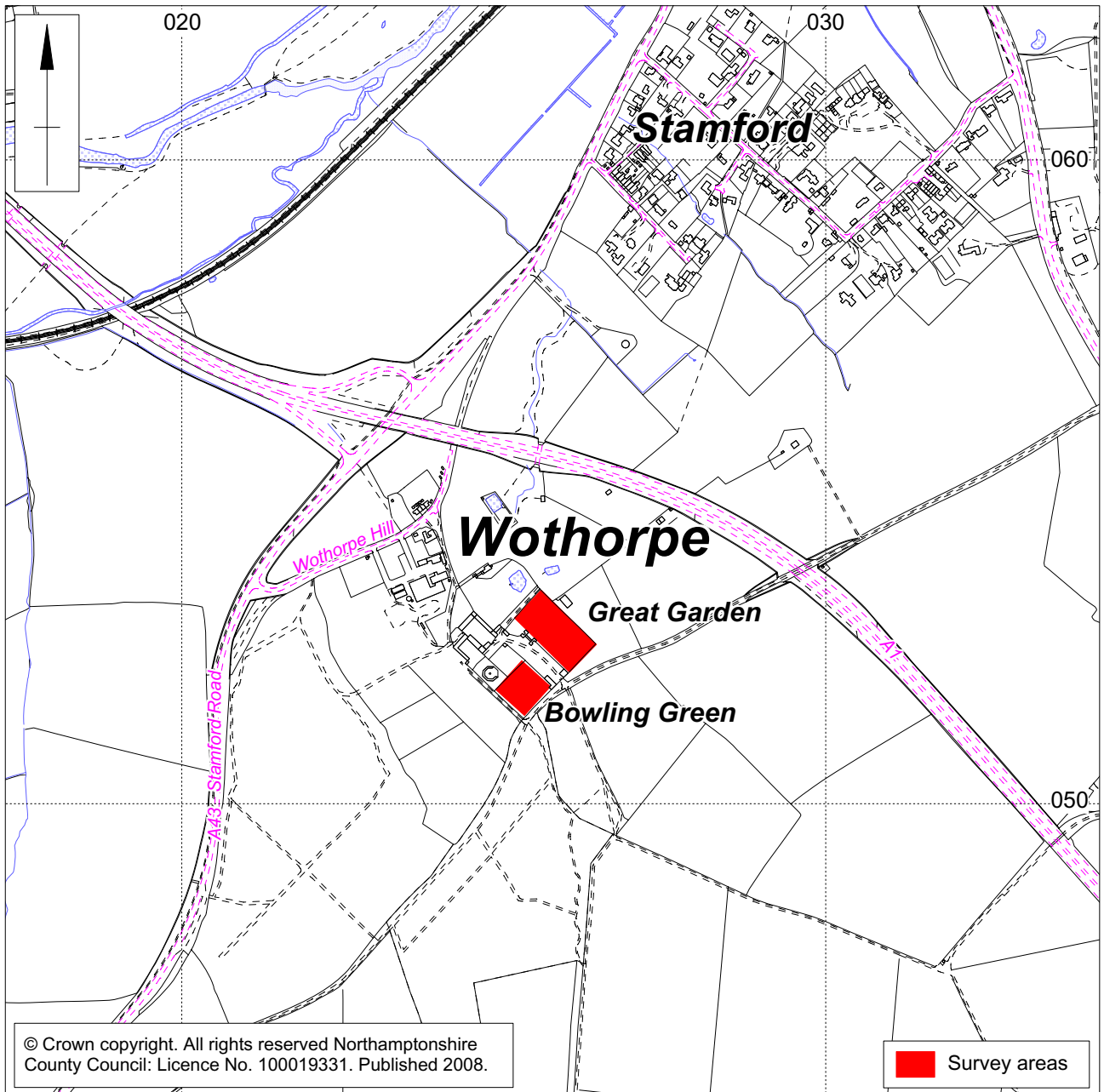
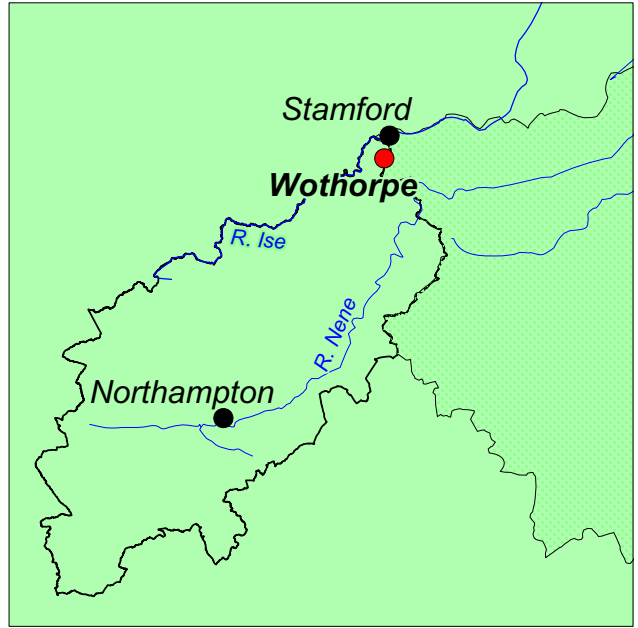
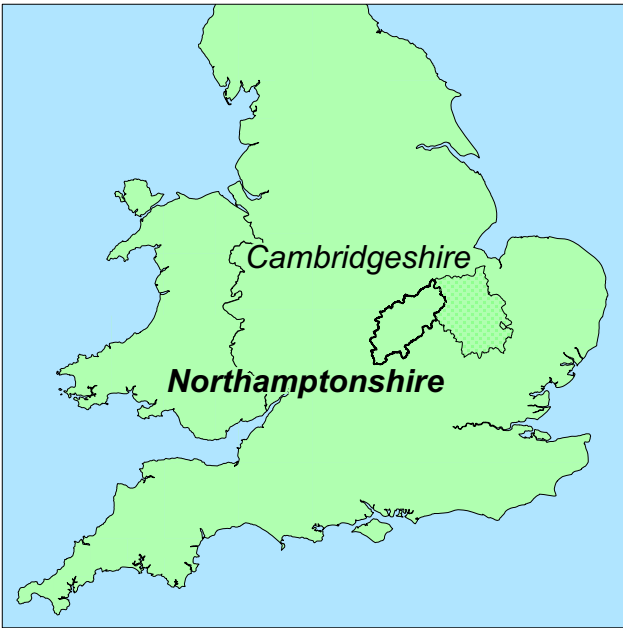
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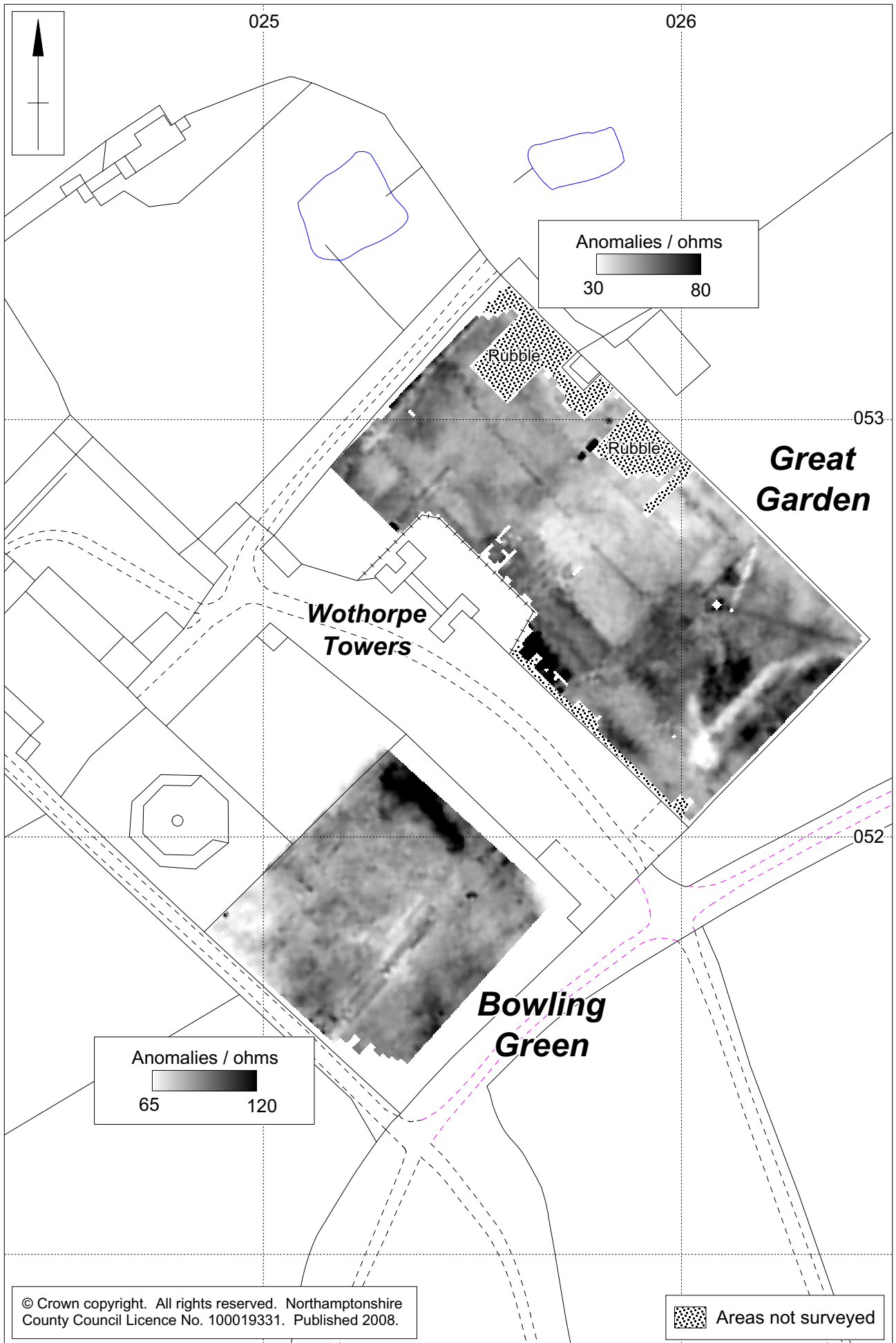
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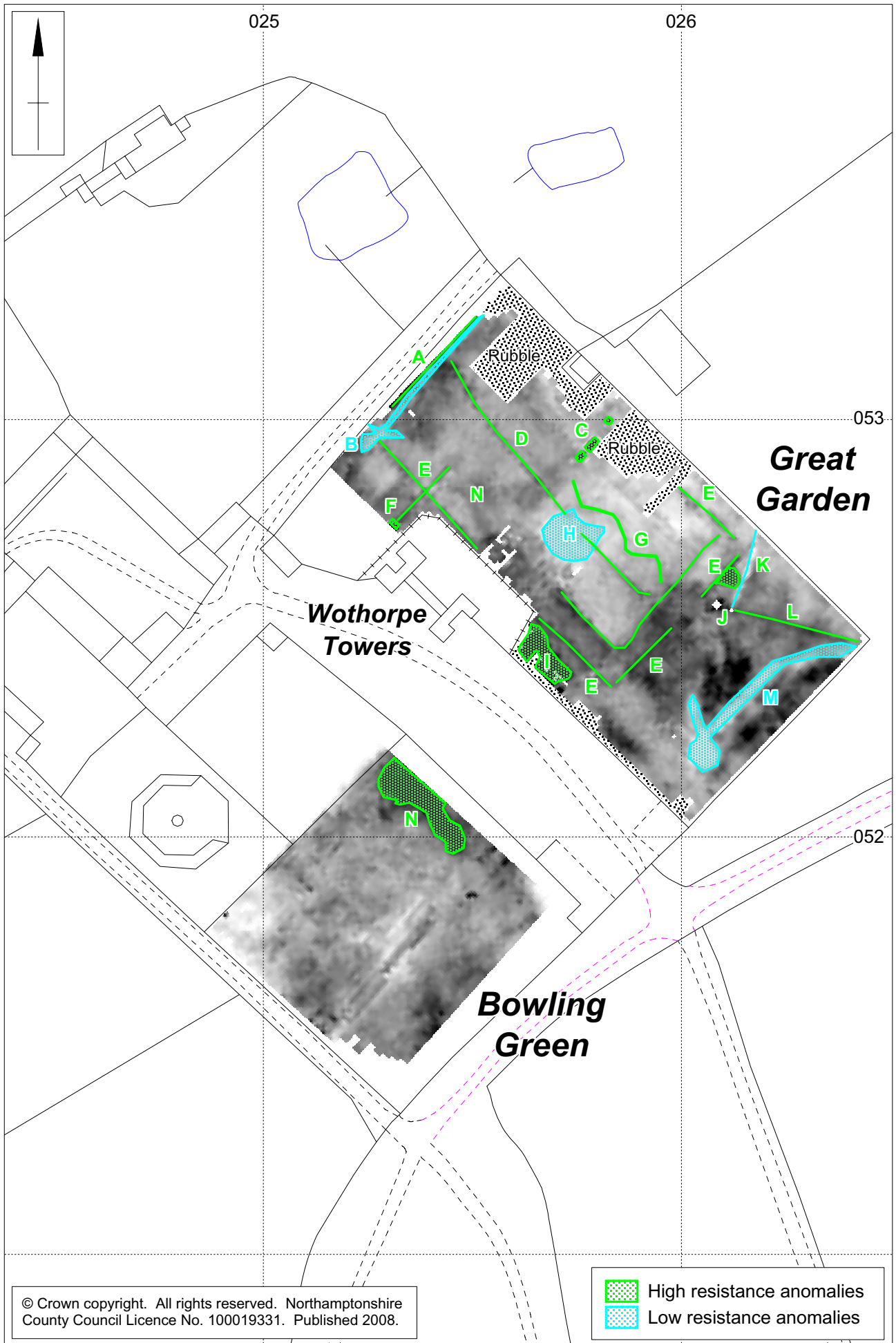
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Site location Fig 1



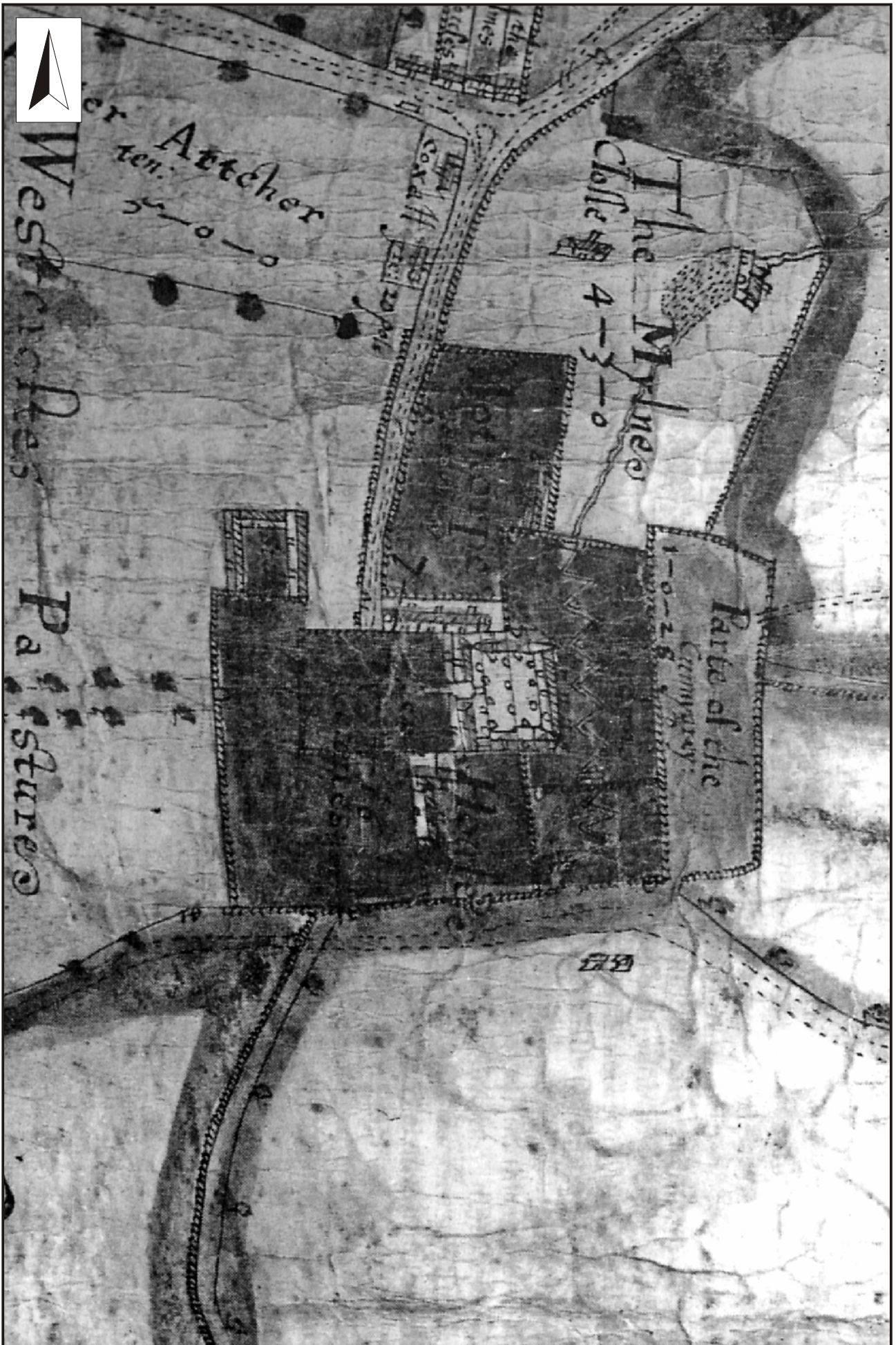
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Geophysical Survey Results Fig 2

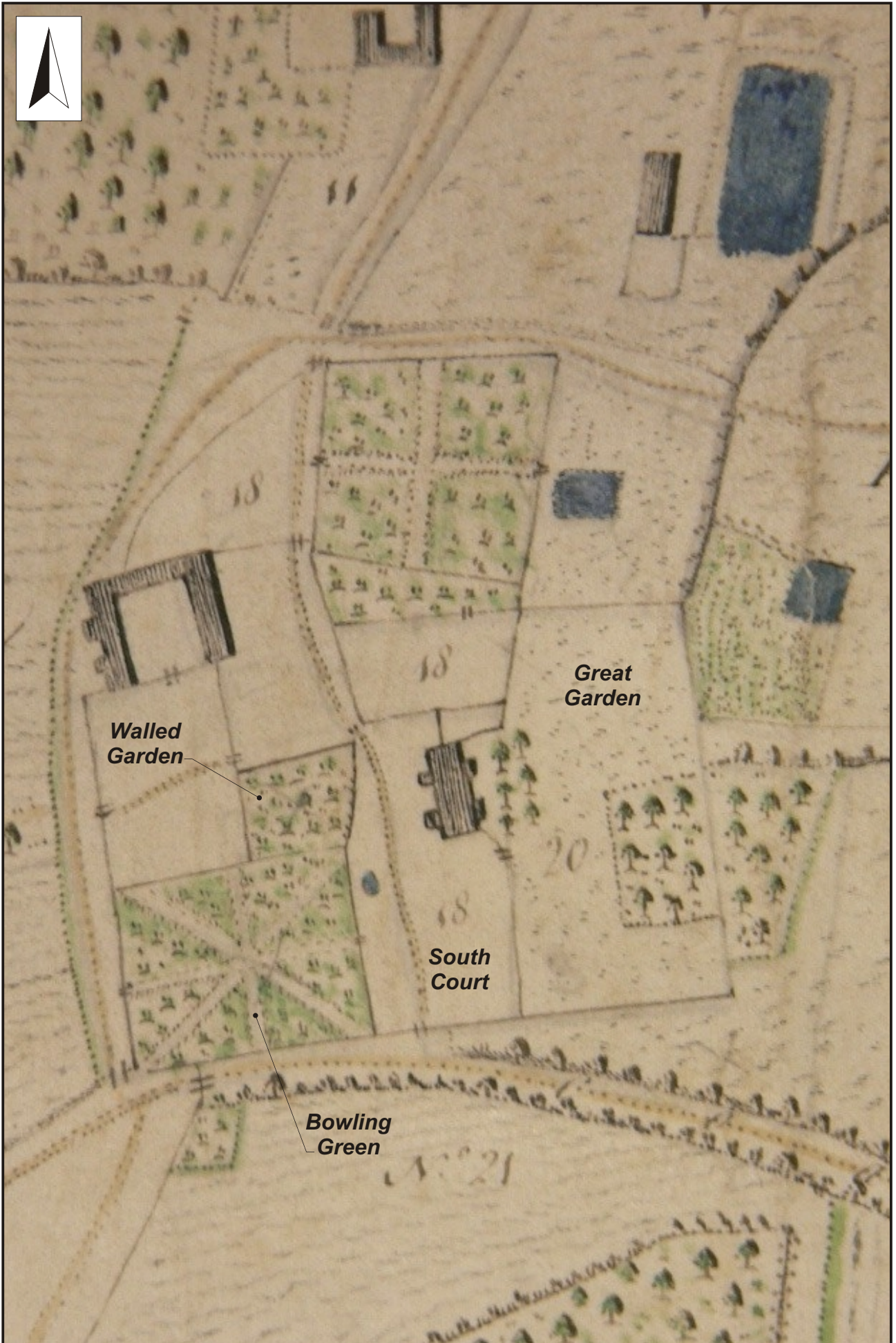


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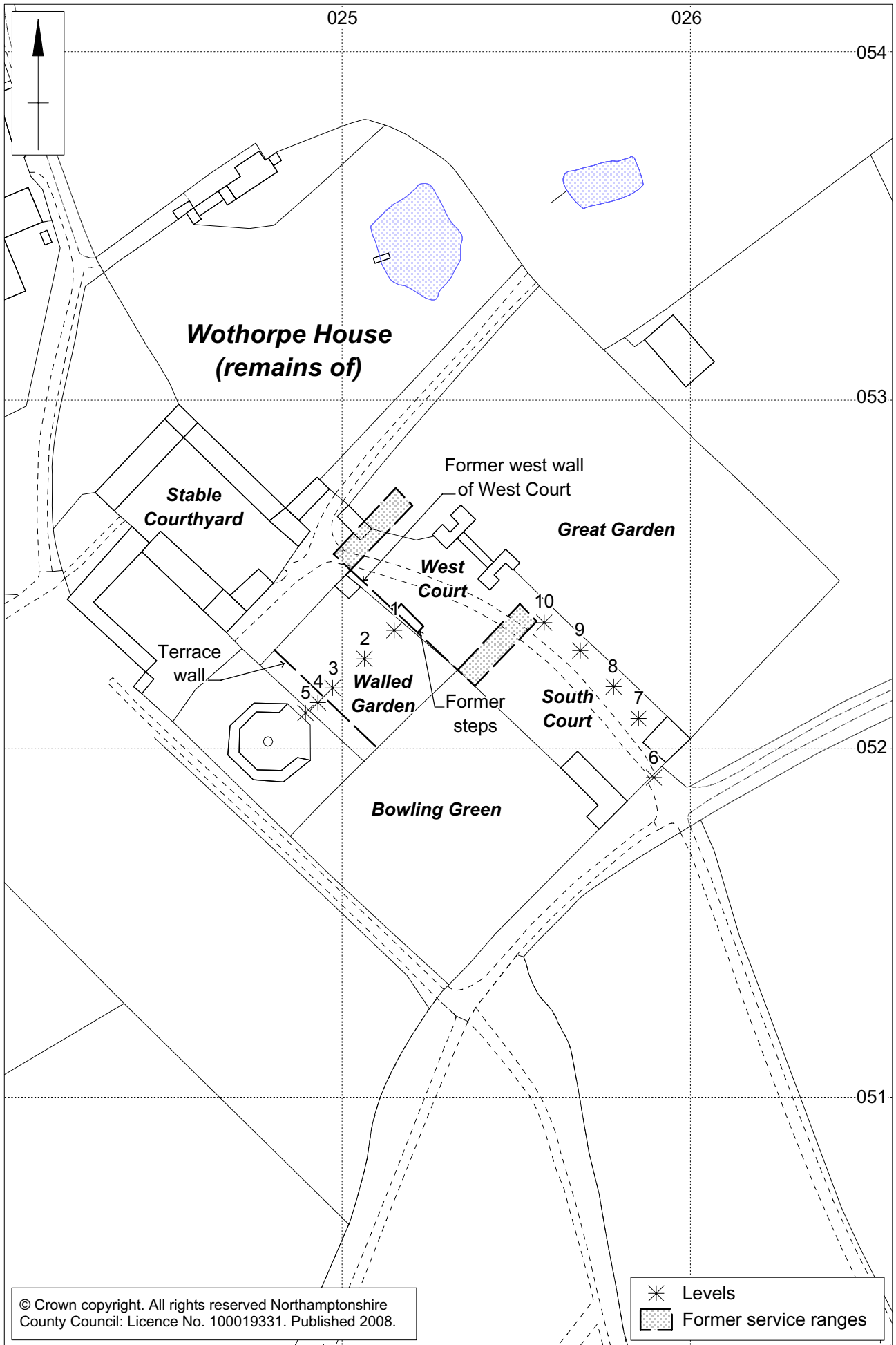
Geophysical Survey Interpretation Fig 3



Detail of a plan of Wothorpe, 1615, Burghley Estate Archives Fig 4



Beo Estate map, 1772, Burghley Estate Archives Fig 5



Scale 1:1500

Spot-height levels location Fig 6



Plate 1: The steps on the west side of the West Court, looking west.



Plate 2: The Walled Garden, looking east towards the Towers.



Plate 3: The west wall of the Walled Garden, the terrace within it (to the left) and the blocked doorway at the southern end of the terrace formerly leading to the Bowling Green beyond.



Plate 4: The South Court, looking south (the two sheds are modern).



Plate 5: The pitched-stone surface in the South Court, looking north.