Northamptonshire County Council

Northamptonshire Archaeology

An archaeological investigation at

Knight's End Road, March

Cambridgeshire

June 2009

Event no. ECB 3201

Jason Clarke

July 2009

Report 09/89

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QUALITY CONTROL

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(Front cover: General view of the site from the southern corner, facing north-north-west)

OASIS report form

PROJECT DETAILS		
Project name	Archaeological Investigation at Knight's End Road, March, Cambridgeshire	
Short description	The investigation demonstrated that the proposed development site lies on March Gravels at the edge of March 'island', with degraded peat deposits, probably Nordelph Peat, occurring along its western edge. The peat overlay a layer of gleyed silt that may be the remnants of the former land surface prior to the onset of peat accumulation. An extensive network of silt-filled channels (roddons) has been mapped on the fenland to the west of the site. On the higher ground, at the edge of March 'island', there is an extensive pattern of ridge and furrow, dating to the medieval and post-medieval periods. Undated cropmarks lie to the north of the site. Within the site, features detected by the geophysical survey were shown by excavation to be related to post-medieval ploughing, modern land drainage and the demolition of modern agricultural buildings.	
Project type	Geophysical survey, air photo mapping and trial trenching	
Site status	None	
Previous work	None	
Current land use	Arable	
Future work (yes, no, unknown)	No	
Monument type/ period	-	
Significant finds	None	
PROJECT LOCATION		
County	Cambridgeshire	
Site address	Knight's End Road, March	
Development area	2.1ha	
OS Easting & Northing	54026 29481	
Height OD	2m	
PROJECT CREATORS		
Organisation	Northamptonshire Archaeology (NA)	
Project brief originator	Cambridgeshire County Council	
Project Design originator	Simon Carlyle (NA)	
Director/Supervisor	Jason Clarke (NA)	
Project Manager	Simon Carlyle (NA)	
Sponsor or funding body	Stepnell Ltd	
PROJECT DATE		
Start date	15/6/09	
End date	16/6/09	
ARCHIVES	**Location (Accession no.)**	**Content (eg pottery, animal bone etc)**
Physical		None
Paper		Site records and photographs
Digital		Photographs, digital report copies
BIBLIOGRAPHY	Journal/monograph, published or forthcoming, or unpublished client report (NA report)	
Title	Archaeological Investigation at Knight's End Road, March, Cambridgeshire	
Serial title & volume	09/89	
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Page numbers	13 text, 5 figs, 3 plates	
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AN ARCHAEOLOGICAL INVESTIGATION AT

KNIGHT'S END ROAD, MARCH

CAMBRIDGESHIRE

JUNE 2009

Event no. ECB 3201

Abstract

In June 2009, Northamptonshire Archaeology carried out an archaeological investigation of land off Knight's End Road, March, Cambridgeshire. The investigation comprised three parts: geophysical survey; air photo mapping and interpretation; and trial trench excavation. The investigation demonstrated that the proposed development site lies on March Gravels at the edge of March 'island', with degraded peat deposits, probably Nordelph Peat, occurring along its western edge. The peat overlay a layer of gleyed silt that may be the remnants of the former land surface prior to the onset of peat accumulation. An extensive network of silt-filled channels (roddons) has been mapped on the fenland to the west of the site. On the higher ground, at the edge of March 'island', there is an extensive pattern of ridge and furrow, dating to the medieval and post-medieval periods. Undated cropmarks lie to the north of the site. Within the site, features detected by the geophysical survey were shown by excavation to be related to post-medieval ploughing, modern land drainage and the demolition of modern agricultural buildings.

1 INTRODUCTION

In May and June 2009, Northamptonshire Archaeology (NA) carried out an archaeological investigation of a plot of arable land off Knight's End Road, March, Cambridgeshire (NGR: TL 4026 9481; Fig 1). There were three components to the investigation: geophysical survey; air photo mapping and interpretation; and trial trench excavation.

The archaeological investigation was commissioned by Stepnell Ltd and was carried out in response to a condition attached to planning consent for the construction of a crematorium on the site, comprising a single-storey building with associated landscaping and car parking (planning reference: F/YR09/0043/F). The condition was requested by Cambridgeshire Archaeology Planning and Countryside Advice (CAPCA) in order to determine the impact of the development on buried archaeological remains, should they be present within the development area, and to devise a suitable archaeological mitigation strategy.

The scope of works was set out in a project design prepared by NA (2009) in accordance with the *Brief for Archaeological Evaluation* issued by CAPCA (2009). This report presents the findings of the investigation and complies

with Appendix 4 of the English Heritage procedural document *Management of Archaeological Projects 2* (EH 1991), relevant sections of *Management of Research Projects in the Historic Environment* (EH 2006), and appropriate national standards and guidelines, as recommended by the Institute for Archaeologists (IfA).

2 SITE BACKGROUND

2.1 Topography and geology

The site is situated on the western edge of March 'Island', *c* 2km to the south-west of March town centre. The proposed development area, a triangular plot of land covering *c* 2.1 hectares, is bounded by Knight's End Road to the north and a modern drainage ditch to the south-east; the western edge of the site was marked out with a line of pegs. At the time of the evaluation, the field was under crop.

The ground slopes gently to the west, from an approximate height of 2m to 0.5m aOD, and levels off at the fen edge. The underlying geology comprises calcareous clay of the West Walton Formation overlain by March Gravels, with peat deposits occurring along the western edge of the site (BGS 1989). Overlying the March Gravels, on the eastern part of the site, the soils belong to the Peacock (872a) soil association, comprising calcareous clayey soils. To the west, over the peat, the soils are stoneless, humose and clayey in character and belong to the Downholland 1 (851a) soil association (SSEW 1983).

2.2 Archaeological and historical background

The Cambridgeshire Historic Environment Record (HER) was consulted online (www.heritage-gateway.org.uk) and supplemented with information from ADS:ArchSearch (www.ads.ahds.ac.uk), to identify archaeological and historical sites within a 2km radius of the site.

The range of natural environments and the rich food and material resources to be found at the fen edge has attracted settlement and activity since prehistoric times. In the general area, cropmarks to the south-west of the site indicate the presence of a possible Bronze Age burial mound (HER 03881) and to the east an Icenian coin hoard, comprising 872 silver coins, was unearthed at Field Baulk Farm, March (NMR 1331971; Potter 1996). Iron Age and Roman remains have been excavated at 9 Church Street, March (NMR 1360979; O'Brien *et al* 2002) and more extensive remains, largely dating to the Roman period but including evidence for some Iron Age activity, were investigated in advance of residential development at 23-33 Wimblington Road, March (NMR 1374386; Cooper 2003). The latter comprised a large number of enclosure ditches, pits and post holes, possibly associated with a currently unlocated Roman villa. A medieval moated site, now levelled, lies to the north of Knight's End (NMR 372369) and extensive remains of a medieval open field system has been mapped in the general area (Deegan, this report). There are no known archaeological sites and no previous archaeological work has been carried out within the proposed development area.

3 GEOPHYSICAL SURVEY by Adrian Butler

3.1 Introduction and methodology

The geophysical survey was carried out on 26th May 2009. It was conducted with Bartington Grad 601-2, twin sensor array, vertical component fluxgate gradiometers (Bartington and Chapman 2003). These are standard instruments for archaeological survey and can resolve magnetic variations as slight as 0.1 nanotesla (nT).

The 2.1ha site was divided into a single network of 23 contiguous, whole and partial, 30m x 30m grid squares. These were within the triangular area, boundaries parallel to the road, north, and drain, east (Fig 1). All grids were set out manually by tape measure and optical square, and were tied in by measurement to the field boundaries. The instruments were carried at a brisk but steady pace through each grid, collecting data along 1m spaced traverse lines. Measurements were automatically triggered every 0.25m along the traverses, giving a total of 3600 measurements per grid.

All fieldwork was carried out in accordance with the guidelines issued by English Heritage and by the Institute for Archaeology (EH 2008; Gaffney, Gater and Ovendon 2002).

The majority of the data was processed using Geoplot 3.00u software. Striping, occasionally caused by slight mismatches in sensor balance, was removed using the 'Zero Mean Traverse' function (ZMT) and destaggering of the data was performed as necessary.

The processed data is presented in this report in the form of a greyscale plot (scale +4nT to -4nT black ~ white). This has been scaled, rotated and resampled (georectified) for display against the Ordnance Survey base mapping. An interpretative plot has been produced and is shown overlain onto the data in Figure 3.

3.2 Survey results

A series of broadly parallel positive linear magnetic anomalies was identified orientated north to south across the majority of the site (Fig 3). Further linear anomalies were detected on an east to west alignment across the southern half of the area. As a group, these were likely to reflect a field drainage system. A further set of three positive linear magnetic anomalies, possibly buried ditches, were also detected within the area of the 'drains', and apparently crossed by them. The anomalies formed a right-angle orientated with one linear north-west to south-east and the other two diverging from the north-east to south-west.

Numerous 'dipolar' anomalies (paired intense positive-negative) were detected across the field, indicating random ferrous debris within the topsoil. Considerable magnetic noise – confused positive and negative signal – was encountered in the southern tip of the area. It is likely that the readings stem from various magnetised debris such as may have been dumped from drain clearance. A discrete, highly magnetic anomaly was identified within the noisy

area, almost certainly a large ferrous object such as an inspection cover. A similar ferrous anomaly was located in the north of the field.

3.3 Conclusion

Geophysical survey has been carried out over an area of approximately 2.1ha. Evidence of half of a possible ditched enclosure was revealed in the form of an L-shaped ditch on a north-east to south-west alignment. If indeed a rectilinear enclosure it would likely exceed 170m in length. Prospection revealed a series of likely field drains, possibly of an earlier date superseded by the more major drainage system surrounding the site. Noisy results in the south of the field suggest dumping of material, possibly from drain clearing.

4 AIR PHOTO MAPPING AND INTERPRETATION by Alison Deegan

4.1 Introduction

The client, Northamptonshire Archaeology, required the mapping of levelled and upstanding archaeological features that are visible on the available air photographs at a scale of 1:2500.

Air photographs taken in appropriate conditions can record crop marks, soilmarks and earthworks of archaeological origin. Crop marks result from variations in leaf and stalk colour and plant height and vigour. Crop marks occur where there are anomalies below the ground: in-filled hollows, palaeochannels, frost cracks, archaeological pits, ditches, surfaces and banks or modern disturbances such as land drains. Crop marks can also be created by variations in the treatment of the topsoil and ground cover, for example the uneven application of fertilizers, pesticides and herbicides or damage.

Crop marks that delineate buried and levelled archaeological features are the effect of differential growth and ripening between the vegetation on the archaeological deposits and that on surrounding undisturbed ground. Variations in growth and ripening are most visible when there is a significant difference in the water and nutrient availability between the archaeological and natural deposits. Crop marks can form at any stage from germination to ripening but the optimal conditions are during periods when precipitation is exceeded by transpiration. This results in potential soil moisture deficit (SMD) and water-stressed plants (Jones and Evans 1975). Prolonged periods of SMD halt plant growth and then cause wilting of the plant leaves, stem and finally root. Water-stress is exacerbated by free-draining sub-surface deposits such as archaeological walls or road surfaces but mitigated by rich and humic ditch and pit deposits. Even after ripening, differences in crop height and bulk can indicate the presence of buried features where there are no tonal differences. Crop marks can be seen most clearly in large areas of homogenous, fast-growing plants such as cereal crops and, less frequently, in root crops and grass. Crop marks produced in arable and grass at times of significant moisture stress, usually over buried structures or other highly permeable archaeological deposits, are often referred to as parch marks.

Soilmarks are the colour and tonal differences between archaeological deposits and the plough or subsoil. The action of ploughing, which can penetrate the ground to a depth of 45cm, brings to the surface previously buried material. The rotation of the plough exposes the cut surface uppermost. Where the plough cuts buried and infilled archaeological features such as banks and ditches it brings to the surface slices of these deposits. If these slices are sufficiently differentiated from the natural plough or subsoil they can be visible from the air.

Archaeological earthworks that are visible on the ground can also be seen from the air. Detection and recording of earthworks from the air is determined by their survival and visibility. The survival of earthworks depends on past and present land use; natural erosion processes, deliberate destruction and ploughing can all reduce upstanding features to ground level. Earthworks can be revealed by the pattern of sunlight and shadow, differential frost or snow cover or the distribution of standing and flood water. Large and subtle variations in ground relief are further accentuated when viewed stereoscopically. Most stereo images are vertical photographs taken in long, regular sorties but stereo-overlapping can also be achieved from correctly set-up oblique views.

4.2 The survey area

The air photo survey area (hereon the Survey Area) comprises a site off Knight's End Road, approximately 2.1 hectares centred at TL 4026 9481, and its environs, a total area of over 115 hectares (Fig 1).

The site lies on the west side of March in the county of Cambridgeshire, a little to the south-west of the junction between Knight's End Road and the A141 Isle of Ely Way. March sits on a gravel and clay island surrounded by peaty fen (BGS 1979). The Survey Area spans the south-western edge of the island and fen and lies approximately 2km south of the River Nene (Old Course). The land is generally flat and low-lying but in the east rises slightly onto the March 'island'. Ground water is controlled by open ditches and buried land drains.

Three soil associations are present within the Survey Area, DOWNHOLLAND 1 in the west, PEACOCK through the middle and ASHLEY to the east (SSEW 1983). Each is heavy and slow to drain; DOWNHOLLAND 1 and PEACOCK are peaty, ASHLEY is derived from chalky till.

Recent land use within the Survey Area appears to be mixed with the site and land north of Knight's End Road under cereal and oil seed rape cultivation and some areas of pasture to the east. Gault Wood, which lies to the south-west of the site, was planted in 1994-95 for the Woodland Trust (Woodland Trust website).

In general, although the soils are a little slow to drain, this area is amenable to this type of investigation.

4.3 Methodology

Data sources
The air photo collections of English Heritage's National Monuments Record (NMR), the Unit for Landscape Modelling (ULM) and Cambridgeshire Archives and Local Studies (CALS) were consulted for this survey. Lists of the individual air photographs consulted are provided in Appendix 1.

The digital photographic images delivered online by Google Earth were also examined. A list of the websites consulted is provided in the Bibliography.

Air photo rectification and mapping
This assessment was undertaken according to the guidelines set out in the Institute of Field Archaeologists Technical Paper "Uses of aerial photography in archaeological evaluations" (Palmer & Cox 1993).

All the available air photographs were systematically examined, using x2 magnification where necessary and stereoscopically where possible. Selected prints were then photographed with a hand-held digital camera.

Current Google Earth imagery was captured and georectified using Airphoto 3.44. Historical Google Earth imagery was captured by screen-dump.

The copies of photographs and historical Google Earth images were rectified to ground control points derived from the Ordnance Survey 1:2500 scale map supplied by NA. The Google Earth images that were georectified by Airphoto 3.44 provided supplementary control.

Image transformation was undertaken using the Bradford Aerial Photographic Rectification Programme, AERIAL5.14. Archaeological features were mapped to a scale of 1:2500 in accuracy and detail. The Ordnance Survey published tolerances at 1:2500 scale are ±0.96m (95% degree of confidence). AERIAL5.14 gives error readings for each control point, where 5 or more control points are used. In all cases errors of within ±3m were achieved for the control points. However this may not reflect the on-the-ground positional accuracy of the features mapped since these tend to lie between rather than at the control points.

The rectified images were collated in MAPINFO Professional 7.5 and then the archaeological features were digitised and data pertaining to each feature was recorded in the MapInfo table.

4.4 Results

The air photographs
The NMR holds 41 vertical photographs from 17 different sorties flown between 1946 and 1996. Together these cover the whole Survey Area and provide good coverage for most decades, except the 1980s. These vertical photographs were taken by the Royal Air Force, Meridian Airmaps Ltd and Ordnance Survey for military, civil engineering and cartographic purposes rather than to record archaeological sites. However, many of these photographs also record earthwork, soilmark and crop-marked archaeological features.

The Unit for Landscape Modelling collection holds 5 vertical air photographs of the Survey Area, which were taken between 1972 and 1982. Neither the NMR nor ULM holds any oblique photographs of the site or Survey Area. Cambridgeshire Archives and Local Studies also hold some vertical photographs; these are duplicated in the NMR. Google Earth provides imagery for the Survey Area dating from 1999 to 2007 and so is a valuable record of recent land use and monument condition.

The archaeological features and other observations

The results of this survey are catalogued in Appendix 2 and illustrated in Figure 2. In the absence of direct archaeological evidence all attributions of date and type are open to re-interpretation. The following is a brief discussion of the results within the site itself followed by a period summary for the rest of the Survey Area. Catalogue numbers are reference in bold text.

Within the site the air photographs show traces of post-medieval narrow ridge and furrow (9), but little else of archaeological significance. They do show crop marks running north-east to south-west and north-west to south-east across the site but these are probably buried land drains of recent date.

The southern tip of the site clips an area marked as Dairy Farm on the Ordnance Survey map of 1926. The earliest photographs show a group of structures at Dairy Farm but these have all now been removed (10). Some of the structures did not appear on earlier Ordnance Survey maps and overall it seems unlikely that the complex was earlier than 19th century in date. There is however a group of undated, and now-levelled earthworks approximately 50m west of the southern tip of the site.

In the wider Survey Area perhaps the earliest archaeological features are the remains of possible medieval or post-medieval ridge and furrow (4 & 5) and short sections of ditch (7). The latter may continue unseen along the northern edge of the site. Both may be associated with medieval and/or later settlement east of the Survey Area at Knight's End, and perhaps the now-levelled moated site centred at TL 408 951 (NMR monument 372369). These features are located on the slightly higher ground on the edge of the March 'island'.

To the west, in so far as it is visible on the air photographs, most of the ridge and furrow is straight, narrow and probably created after the extensive drainage of the fens in the 17th century (6, 9, 11 & 14).

Most of the straight drainage ditches observed as crop marks and earthworks on recent air photographs are also of probable post-medieval date (in 5, 12 & 14), indeed some appear to have still been in use on the 1940s photographs. Also of probable post-medieval date are a shallow hollow and a ditch on the east of the site, both of which are now levelled.

Approximately 100m north-east of the site there is a Second World War Royal Observer Corps monitoring post (3; NMR monument 1412381).

Of considerable significance are the silted-up water courses or roddens that show as soilmarks over the western part of the survey area but dissipating around the edge of March 'island' (1 & 13). By the Roman period these

provided slightly-elevated and well-drained corridors through the resource rich fens and were heavily exploited as such.

Narrow, dark crop marks are visible along the middle of some sections of the roddens. It is not clear if these reflect interleaved material that is perhaps more humic than the rest of the rodden silt, or whether these are archaeological ditches.

Also of uncertain origin are a small group of crop marks lying approximately 90m north of the site (2). This perpendicular arrangement of linear features may be of archaeological origin but a natural cause cannot be ruled out.

4.5 Conclusion

The air photo evidence suggests that the site lies at the interface between the rodden/fen landscape to the west and March 'island' to the east.

There may be archaeological remains of post-medieval narrow ridge and furrow and a possible 19th century dairy complex within the site. It should be noted that levelled ridge and furrow may conceal or mask underlying features. Furthermore, the absence of crop mark, soilmark or earthwork evidence in any part of the Survey Area should not be interpreted as the absence of archaeological features.

5 TRIAL TRENCHING

5.1 Introduction

Six trenches, with a total length of 245 linear metres (490m^2), were excavated (Fig 3). The trench locations were approved by CAPCA and targeted areas of development impact or geophysical anomalies.

5.2 Methodology

The trench locations were surveyed off a baseline using 50m hand tapes, with measurements taken from scale plans. The trench locations have been related to the Ordnance Survey National Grid. Under archaeological supervision, the topsoil, subsoil and non-structural post-medieval and later deposits were removed by a 360^o tracked mechanical excavator, fitted with a 2m wide ditching bucket, to reveal significant archaeological remains or, where these were absent, the natural substrate. The topsoil was stacked separately from the subsoil and other deposits. All archaeological features were examined by hand to determine their nature, date and state of preservation. Recording followed standard Northamptonshire Archaeology procedures (NA 2003). All archaeological features were given a separate context number and were described on *pro-forma* context sheets, which included details of the context, its relationships, interpretation and associated finds. A photographic record was maintained using black and white and colour slide film, supplemented by digital photographs.

All works were conducted in accordance with the Project Design prepared by NA (2009) and the Institute for Archaeologists' (IfA) *Code of Conduct* (2008a) and *Standards and Guidance for Archaeological Evaluation* (2008b).The work was monitored by CAPCA.

5.3 The excavated evidence

General stratigraphy

The solid geology was March Gravels, which became more clayey with depth as they approached the interface with the calcareous clays of the underlying West Walton Formation. On the higher ground and on the slope at the edge of March 'island', in the central and eastern part of the site (in Trenches 1, 2, 5 and 6, and the eastern part of Trench 4), the March Gravels occurred as predominately flint and limestone gravel in a mid reddish-brown sandy clay matrix. Beneath the peat (in Trench 3 and the western part of Trench 4), they had become reduced (gleyed), the matrix occurring as light to mid bluish-grey sandy clay. Along the western edge of the site, at the fen edge, there were deposits of peat and alluvial clay; these are described in detail below. The subsoil, which was *c* 0.2m thick, was typically mid brown silty clay and the ploughsoil was mid to dark greyish brown humic clayey silt, approximately 0.3m thick.

Trench 1

Located in the north-east corner of the field, close to the entrance off Knight's End Road, this trench was 30m long and aligned north-west to south-east (Fig 4). It was positioned to investigate a diffuse linear anomaly detected by the geophysical survey. The geophysical anomaly, which ran parallel to the drain and track running down the south-east edge of the field, probably relates to surface compaction caused by farm machinery. There was no evidence for any sub-surface linear features.

Two small postholes, 105 and 107, neither of which contained any artefactual dating evidence, were identified within the trench. Posthole 105, which lay near the centre of the trench, had a diameter of approximately 0.6m, a depth of 0.20m and was filled with reddish brown sandy silt (106) with occasional pebbles and charcoal (Fig 4, Section 1; Plate 1). Posthole 107, which lay 13m to the north-west, had a similar diameter, although it was deeper at 0.35m, and was filled with dark brown silty clay (108) (Fig 4, Section 2). The trench was crossed by three field drains, one of which cut posthole107.

Trench 2

Trench 2, which was 50m long and aligned north to south, targeted the proposed site for the crematorium building, in the north-eastern half of the field. It joined the centre of Trench 6 at its northern end.

Close to the junction with Trench 6 there was a shallow, linear feature, 207, which was aligned east to west and measured *c* 1.0m wide and 0.3m deep (Fig 5, Section 4; Plate 2). It had relatively steep, irregular sides and a flat

base and was filled with loose, dark grey, almost black slightly organic silt (206). The position and alignment of the ditch corresponds with a linear geophysical anomaly to the west of the trench, which forms part of series of parallel, relatively regularly-spaced anomalies across the field. It is likely that they are post-medieval furrows, probably dating to the period when the surrounding land was drained in the 17th century.

Approximately 11m to the south of the ditch was a shallow feature, 205, with a width of 0.9m and a depth of 0.18m (Fig 5, Section 3). The fill (204) was identical to the fill of the ditch, 207, and is probably of the same date. This feature may be a shallow pit or the truncated remnant of a furrow, similar to 207.

Trench 3

Located close to the western edge of the site and aligned roughly north to south, Trench 3 was 30m long and was positioned to investigate fen edge deposits that had been encountered by the geotechnical survey (Ground Engineering 2009).

Excavation of two sondages at either end of the trench exposed a sequence of natural deposits (Fig 5, Section 5; Plate 3). The upper part of the West Walton Formation, occurring as light to mid bluish-grey clay with light yellowish brown mottles (307), was exposed at a depth of *c* 0.9m. This was overlain by March Gravels, comprising a layer, approximately 0.15m thick, of gravel in a light brown silty sand matrix (306), succeeded by a layer of a similar thickness of brownish grey sandy clay (305). Overlying these deposits was a layer of gleyed mid grey silt (303), probably the remains of the former land surface prior to the accumulation of peat deposits in the region. The peat (302), which was dark brown to black in colour, was between 0.1m and 0.2m thick and was heavily degraded and very desiccated. The peat was overlain by topsoil (301), which was *c* 0.3m thick.

Trench 4

Trench 4 was located near the centre of the site and was positioned to investigate the transitional zone at the fen edge, where the western edge of March 'island' descends to the flat expanse of the surrounding fenland. It measured 60m long and was aligned east to west.

The natural substrate (406) was March Gravels merging into the underlying clays of the West Walton Formation to the west (Fig 4, Section 7). At the western, lower end of the trench the clay was overlain by a sequence of fen edge deposits that extended *c* 26m to the east before petering out against the slope. Lying over the clay was a layer of leached, light greyish brown silty clay (405), up to 0.16m thick, succeeded by a horizon of degraded, desiccated dark brown peat (404), up to 0.26m thick (equivalent to layers (305) and (304) in Trench 3). The peat was overlain by mottled mid bluish-grey alluvial clay (403) of a similar thickness.

Towards the eastern end of the trench there was a shallow ditch, 407, that corresponded with a linear anomaly shown on the geophysical survey plot. The ditch, which was aligned north-east to south-west, measured 1.0m wide

by 0.26m deep and was filled with loose, dark brown silt (408) containing occasional charcoal flecks and decayed roots (Fig 4, Section 8). The modern ditch, which cut the subsoil, probably marks the line of a former hedgerow that enclosed a rectangular paddock or field.

Trench 5

Trench 5, which was 25m long and aligned east to west, was positioned in the southern corner of the site to investigate an extensive area of disturbance shown on the geophysical survey plot. Excavation demonstrated that the anomaly was caused by ground disturbance and building rubble mixed into the ploughsoil, the rubble deriving from dairy buildings that once stood on the site.

Within the trench, March Gravels formed a relatively steep, west-facing slope at the fen edge, with alluvial bluish-grey clay occurring at the base of the slope at its extreme western end. Modern land drains crossed the trench from north to south.

Trench 6

Trench 6, which was located in the northern part of the field and ran parallel and approximately 40m to the south of its northern boundary, was 50m long and aligned east to west. Trench 2 extended southwards from the centre of the trench. No archaeological remains were encountered in the trench and the only features were modern field drains which crossed the trench from north to south.

6 DISCUSSION

Although no significant archaeological remains were encountered within the proposed development area, the investigation was successful in placing the site within its archaeological and topographical context and provided an opportunity to investigate the sequence of Flandrian deposits at the fen edge.

The site is located on marine gravels (March Gravels) on the western edge of March ‘island’, with degraded peat deposits, probably Nordelph Peat, occurring along its western edge. The peat overlay a thin layer of gleyed silt that may be the remains of the former land surface prior to the onset of peat accumulation. Radiocarbon dates for samples obtained from the base of the Nordelph Peat has shown that at the earliest, peat growth commenced at the beginning of the first millennium BC, although in some locations it did not commence until the Roman period (BGS 1989). The peat was overlain in places by a thin layer of clay, probably derived from episodes of localised flooding prior to the land being drained. An extensive network of silt-filled channels (roddons) has been mapped on the fenland to the west.

On the higher ground, at the edge of March ‘island’, there is an extensive pattern of ridge and furrow, dating to the medieval and post-medieval periods. The later ridge and furrow probably dates to the 17th century, when the

surrounding fenland was drained. Undated cropmarks lie to the north of the site. Within the site, features detected by the geophysical survey were shown by excavation to be related to post-medieval ploughing, modern land drainage and the demolition of 19th century dairy buildings that once occupied the southern end of the site.

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http://www.pastscape.org.uk/hob.aspx?hob_id=372369. Accessed 30/06/09

Woodland Trust website: http://www.woodlandtrust.org.uk/en/our-woods/Pages/wood-details.aspx?wood=4602&site=Gault-Wood

Northamptonshire Archaeology
A service of Northamptonshire County Council 8th July 2009

APPENDIX 1

Sources consulted

National Monuments Record.

English Heritage, National Monuments Record Centre (NMRC), Kemble Drive, Swindon, SN2 2GZ. Enquiry reference no. AP 39957. The following vertical air photographs were consulted at the NMRC on the 12th June 2009.

Sortie number & camera position	Frame no.	Date	Scale 1:
RAF/106G/UK/1634	3287	09/07/1946	10000
RAF/106G/UK/1634	3288	09/07/1946	10000
RAF/106G/UK/1634	5286	09/07/1946	10000
RAF/CPE/UK/2045	3002	29/04/1947	9840
RAF/CPE/UK/2045	3003	29/04/1947	9840
RAF/58/1337 F21	214	11/01/1954	10000
RAF/58/1337 F21	215	11/01/1954	10000
RAF/58/1337 F21	215	11/01/1954	10000
RAF/58/1337 F21	216	11/01/1954	10000
RAF/540/1778 F22	161	16/01/1956	9999
RAF/540/1778 F22	162	16/01/1956	9999
RAF/82/1476 F21	15	30/08/1956	10000
RAF/82/1476 F21	16	30/08/1956	10000
RAF/58/2062 F22	133	22/11/1956	10000
RAF/58/2062 F22	134	22/11/1956	10000
RAF/58/2119	4	22/03/1957	14300
RAF/58/2119	5	22/03/1957	14300
RAF/543/2409	52	16/09/1963	10000
RAF/543/2409	53	16/09/1963	10000
MAL/68019	96	08/04/1968	10500
MAL/68019	97	08/04/1968	10500
OS/68029	56	08/04/1968	7500
OS/68029	57	08/04/1968	7500
MAL/69059	21	10/06/1969	10500
MAL/69059	54	10/06/1969	10500
MAL/69059	55	10/06/1969	10500
MAL/71056	162	18/05/1971	3000
MAL/71056	164	18/05/1971	3000
MAL/71056	178	18/05/1971	3000

Sortie number & camera position	Frame no.	Date	Scale 1:
MAL/71056	180	18/05/1971	3000
OS/75237	262	11/06/1975	7500
OS/75237	263	11/06/1975	7500
OS/75237	292	11/06/1975	7500
OS/75237	293	11/06/1975	7500
OS/90154	6	13/07/1990	7500
OS/90154	7	13/07/1990	7500
OS/93379	80	13/08/1993	7700
OS/93379	81	13/08/1993	7700
OS/96589	43	04/06/1996	7800
OS/96589	44	04/06/1996	7800
OS/96590	164	04/06/1996	7800
RAF/106G/UK/1634	3287	09/07/1946	10000
RAF/106G/UK/1634	3288	09/07/1946	10000
RAF/106G/UK/1634	5286	09/07/1946	10000
RAF/CPE/UK/2045	3002	29/04/1947	9840
RAF/CPE/UK/2045	3003	29/04/1947	9840
RAF/58/1337 F21	214	11/01/1954	10000
RAF/58/1337 F21	215	11/01/1954	10000
RAF/58/1337 F21	215	11/01/1954	10000
RAF/58/1337 F21	216	11/01/1954	10000
RAF/540/1778 F22	161	16/01/1956	9999
RAF/540/1778 F22	162	16/01/1956	9999
RAF/82/1476 F21	15	30/08/1956	10000
RAF/82/1476 F21	16	30/08/1956	10000
RAF/58/2062 F22	133	22/11/1956	10000
RAF/58/2062 F22	134	22/11/1956	10000
RAF/58/2119	4	22/03/1957	14300
RAF/58/2119	5	22/03/1957	14300
RAF/543/2409	52	16/09/1963	10000
RAF/543/2409	53	16/09/1963	10000
MAL/68019	96	08/04/1968	10500
MAL/68019	97	08/04/1968	10500
OS/68029	56	08/04/1968	7500
OS/68029	57	08/04/1968	7500
MAL/69059	21	10/06/1969	10500

Sortie number & camera position	Frame no.	Date	Scale 1:
MAL/69059	54	10/06/1969	10500
MAL/69059	55	10/06/1969	10500
MAL/71056	162	18/05/1971	3000
MAL/71056	164	18/05/1971	3000
MAL/71056	178	18/05/1971	3000
MAL/71056	180	18/05/1971	3000
OS/75237	262	11/06/1975	7500
OS/75237	263	11/06/1975	7500
OS/75237	292	11/06/1975	7500
OS/75237	293	11/06/1975	7500
OS/90154	6	13/07/1990	7500
OS/90154	7	13/07/1990	7500
OS/93379	80	13/08/1993	7700
OS/93379	81	13/08/1993	7700
OS/96589	43	04/06/1996	7800
OS/96589	44	04/06/1996	7800
OS/96590	164	04/06/1996	7800
RAF = Royal Air Force, OS = Ordnance Survey MAL = Meridian Airmaps Ltd.			

Unit for Landscape Modelling, University of Cambridge

(Formerly know as CUCAP). Sir William Hardy Building, Tennis Court Road, Cambridge CB2 1QB. The following vertical air photographs of the Survey Area were consulted on the 18th June 2009.

Film & frame	Date	Scale 1:
RC8AB 61	29/03/1972	14480
RC8AB 62	29/03/1972	14480
RC8AN 139	06/04/1974	14500
RC8ED 227	24/03/1982	10000
RC8ED 228	24/03/1982	10000

Cambridgeshire Archives and Local Studies (CALS)

Cambridgeshire County Council, Castle Hill, Cambridge, CB3 0AP. The following vertical air photographs of the Survey Area were consulted on the 18th June 2009.

Cambridge Archives Identifier	Original Sortie	Original Frame	Date
1969 269	MAL/69059	21	10/06/1969
1969 270	MAL/69059	22	10/06/1969
1969 300	MAL/69059	54	10/06/1969
1969 302	MAL/69059	55	10/06/1969

Google Earth Imagery and other online resources

The following resources were consulted between 05/06/09 and 30/06/09

Resource	Link	Date(s)	Description and comment
Google Earth	http://earth.google.com/	31/12/99 16/10/03 31/12/06 12/05/07 31/12/07	Current and historical images were accessed

APPENDIX 2, Catalogue of features (see Figure 2)

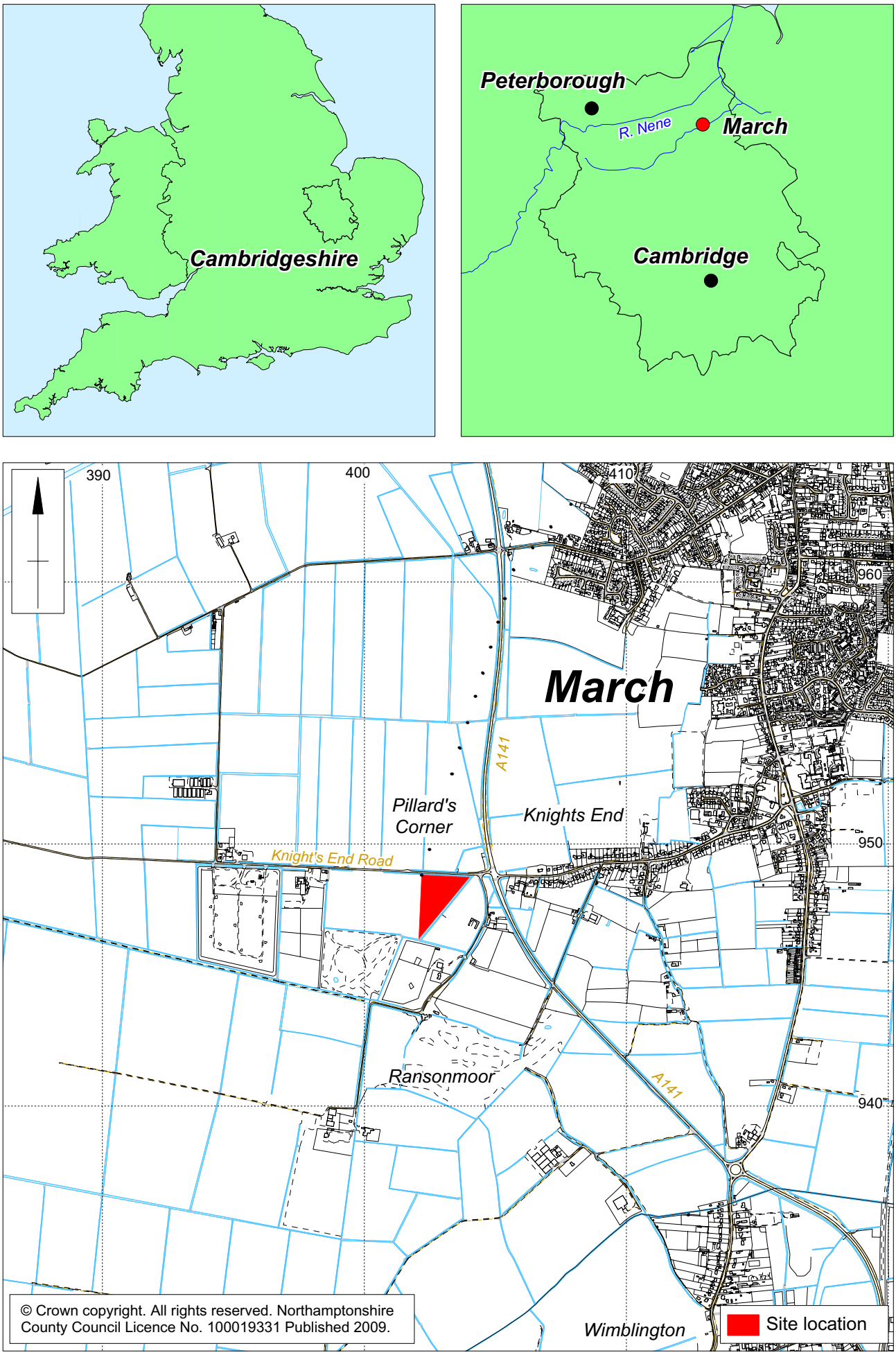
Feature id.	NGR	Type (s)	Period	Description of features	Principal photo source(s)
1	TL 400 951	RODDEN DITCH	PREHISTORIC UNCERTAIN	Roddens north of Knight's End Road, some appear to be cut by possible ditches of uncertain date. These features are visible as soilmarks.	RAF/58/2119 5 (22/03/1957) RAF/540/1778 F22 0161 (16/01/1956) OS/68029 56 (08/04/1968)
2	TL 402 949	DITCH NATURAL FEATURE	UNCERTAIN	A perpendicular arrangement of possible ditches or natural features visible as crop marks. This area is also cut by modern buried land drains.	OS/96589 43 (04/06/1996)
3	TL 404 949	OBSERVATION POST	SECOND WORLD WAR	A second world war Royal Observer Corps monitoring post (NMR 1412381). A small concrete structure is visible on 1946 photos and is still extant 2007 Google Earth images, but most of this site is concealed beneath ground.	RAF/106G/UK1634 3287 (09/07/1946) GOOGLE EARTH (12/05/2007)
4	TL 406 951	RIDGE AND FURROW	MEDIEVAL POST MEDIEVAL	Medieval or post medieval ridge and furrow is visible as soilmarks on 1968 photographs. This area is also cut by modern buried land drains.	OS/68029 56 (08/04/1968) GOOGLE EARTH (12/05/2007)

Feature id.	NGR	Type (s)	Period	Description of features	Principal photo source(s)
5	TL 405 945	DITCH DRAIN RIDGE AND FURROW	MEDIEVAL POST MEDIEVAL	Medieval or post medieval ridge and furrow and post medieval drainage ditches or field boundaries are visible on air photographs. Most of the ridge and furrow survived as earthworks in 1946 and some of the ditches were extant at that time. as soilmarks on 1968 photographs. Some vestigial earthworks appeared to survived on 2007 Google Earth photography, although some sections had been truncated by the A141 Isle of Ely Way.	RAF/106G/UK1634 3287 (09/07/1946) MAL/69059 21 (10/06/1969) MAL/71056 164 (18/05/1971) GOOGLE EARTH (31/12/2007)
6	TL 404 944	NARROW RIDGE AND FURROW	POST MEDIEVAL	Narrow ridge and furrow of probable post medieval date survived as earthworks on 1956 air photographs but now appears to have been levelled.	RAF/106G/UK1634 3287 (09/07/1946) RAF/540/1778 F22 161 (16/01/1956) GOOGLE EARTH (12/05/2007)
7	TL 404 948	DITCH	MEDIEVAL POST MEDIEVAL	Possible medieval or post medieval ditches run along the southern edge of Knight's End Road. They are slightly sinuous but the longest of the three sections is only visible over a distance of 90m. They are partially truncated by the A141 Isle of Ely Way and Grange Road and any remaining sections appear to have been levelled.	RAF/40/1778 F22 0161 (16/01/1956) GOOGLE EARTH (12/05/2007)

Feature id.	NGR	Type (s)	Period	Description of features	Principal photo source(s)
8	TL 403 947	HOLLOW DITCH TRACKWAY	POST MEDIEVAL	An amorphous hollow and a ditch or trackway, all of probable post medieval date. These features survived as earthworks in 1946, but now appear to have been levelled.	RAF/106G/UK1634 3287 (09/07/1946) RAF/40/1778 F22 0161 (16/01/1956) MAL/71056 164 (18/05/1971) GOOGLE EARTH (12/05/2007)
9	TL 402 948	NARROW RIDGE AND FURROW	POST MEDIEVAL	Post medieval narrow ridge and furrow, visible as soilmarks on 1956 photographs. These features appear to be cut by modern buried land drains.	RAF/40/1778 F22 0161 (16/01/1956)
10	TL 401 946	BANK BARN DAIRY DITCH	POST MEDIEVAL 19TH CENTURY 20TH CENTURY	A group of buildings and an arrangement of parallel banks and ditches are visible on air photographs. The buildings were all extant in 1946 but have now been levelled, as have the earthworks. The Ordnance Survey map of 1887-1888 depicts a building at approximately TL4015 9466, though this is smaller and simpler than the one visible at the same location in 1946. The building at TL4025 9466 is marked on the 1926 Ordnance Survey map and at this point the group is labelled "Dairy Farm". The date and function of the earthworks at TL4016 9467 is unclear and these may be earlier than the buildings.	RAF/106G/UK1634 3287 (09/07/1946) RAF/540/1778 F22 0161 (16/01/1956) GOOGLE EARTH (12/05/2007)

Feature id.	NGR	Type (s)	Period	Description of features	Principal photo source(s)
11	TL 402 945	NARROW RIDGE AND FURROW	POST MEDIEVAL	Post medieval narrow ridge and furrow. Visible as earthworks on 1946 photographs but now levelled.	RAF/106G/UK1634 3287 (09/07/1946) RAF/540/1778 F22 0161 (16/01/1956) GOOGLE EARTH (31/12/2006)
12	TL 401 947	DRAINAGE DITCH	POST MEDIEVAL	A pair of post medieval parallel drainage ditches. These features appear to have been extant in 1946 but appear as soilmarks on 2007 Google Earth photography.	RAF/106G/UK1634 3287 (09/07/1946) RAF/540/1778 F22 0161 (16/01/1956) GOOGLE EARTH (31/12/2006)
13	TL 399 948	RODDEN DITCH	PREHISTORIC UNCERTAIN	Roddens south of Knight's End Road, some appear to be cut by possible ditches of uncertain date. These features are visible as soilmarks.	US/7GR/LOC351 3015 (27/05/1944)
14	TL 397 948	FIELD BOUNDARY NARROW RIDGE AND FURROW	POST MEDIEVAL	Post medieval field boundaries and narrow ridge and furrow appears as soilmarks on 1956 air photographs and as crop marks on 2007 Google Earth photography. These features cut across some of the roddens (**13**)	RAF/540/1778 F22 0161 (16/01/1956) GOOGLE EARTH (12/05/2007)

NB. The Feature no. Type, Period and Principal photo sources are attached to individual features in the APMAPPING KNIGHTS END Mapinfo table.



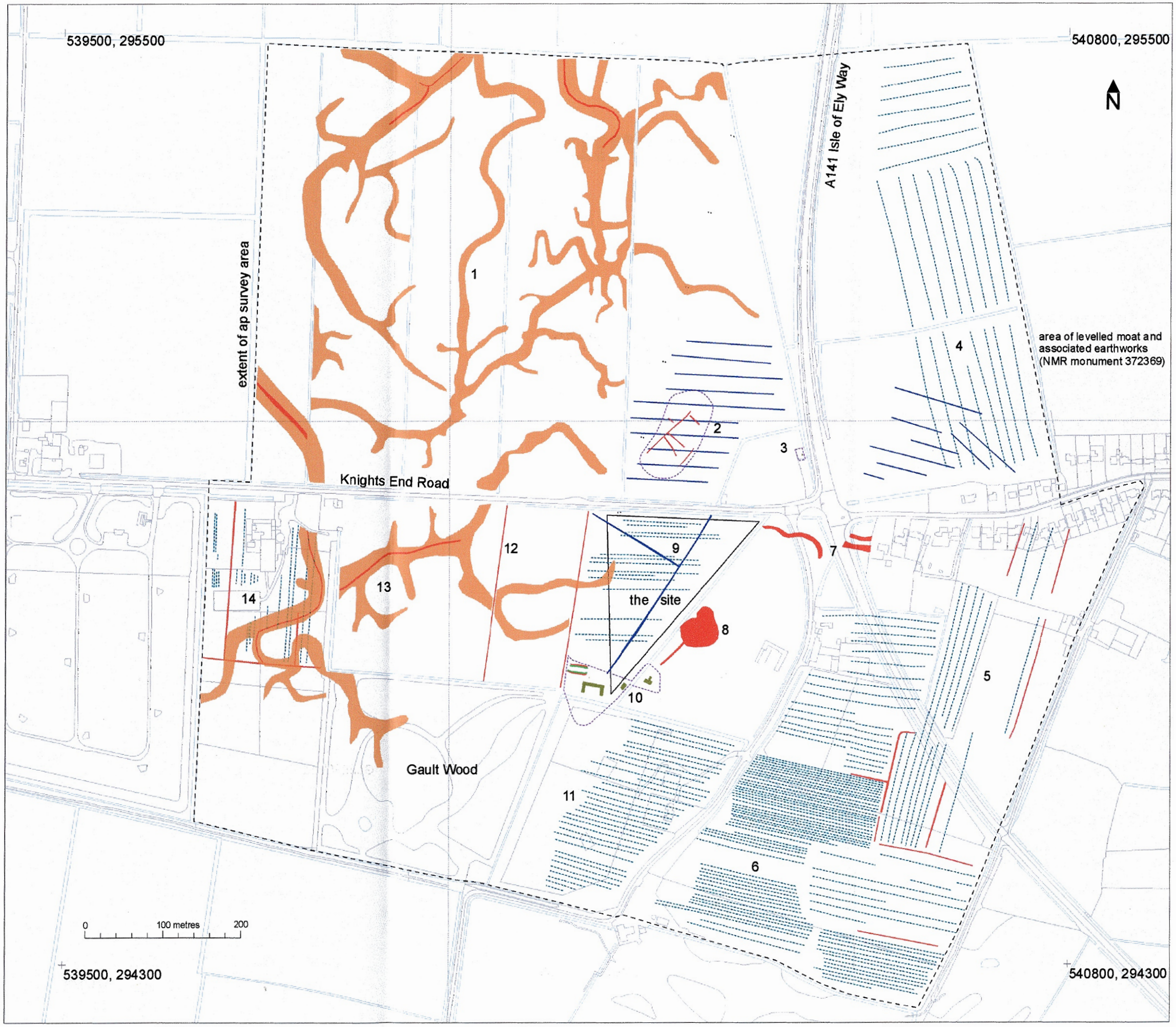
Scale 1:20,000

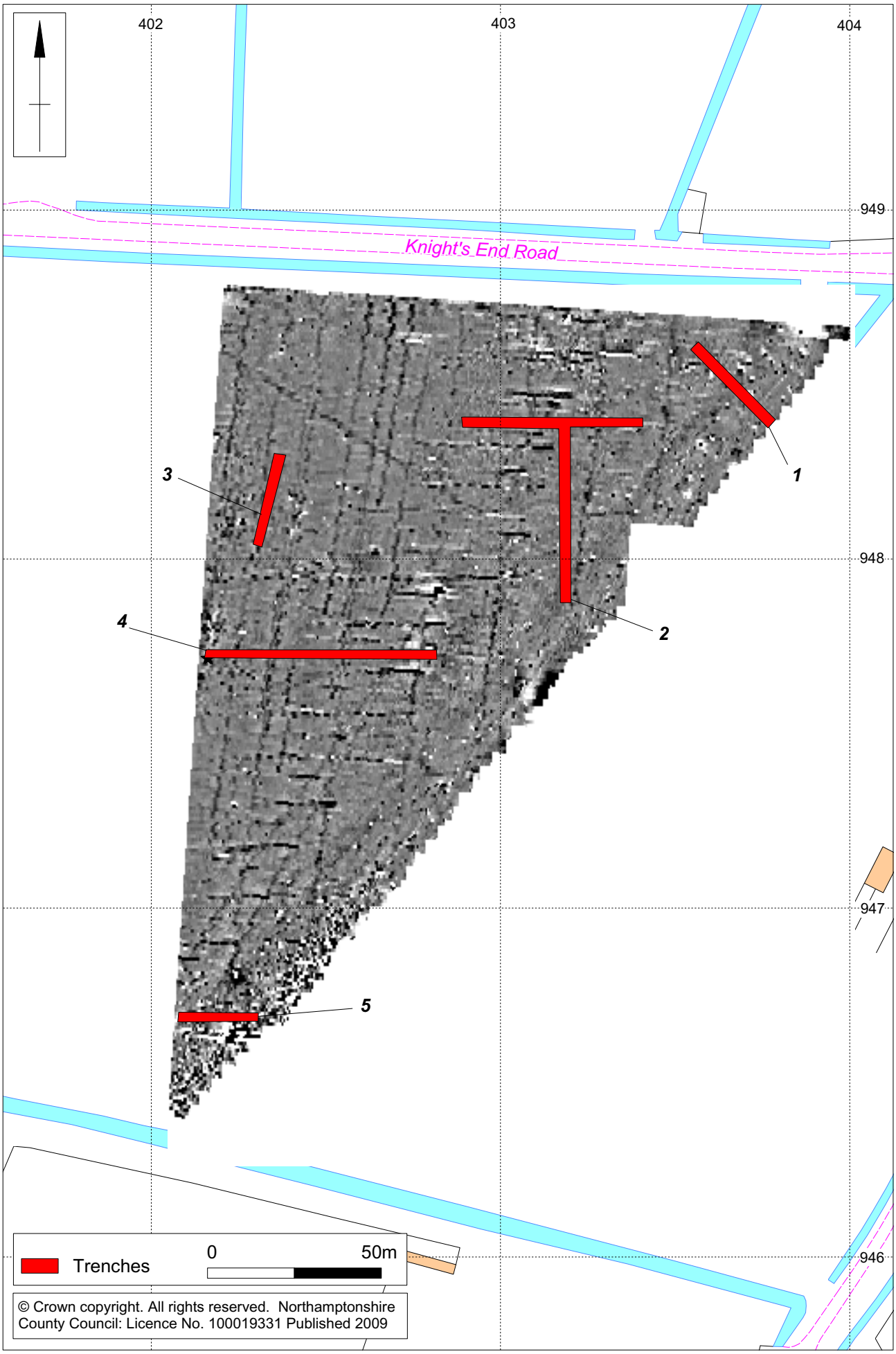
Site location Fig 1

Title
Figure 2. Results of the air photo mapping and interpretation for the site off Knight's End Road, March, Cambs (1:5000 scale)
Project number
0910003
Author
Alison Deegan BSc MIFA
Client
Northamptonshire Archaeology
Date
June 2009
Original mapping scale
1:2500
Original sources
air photos held by the NMR, ULM and CALS

Key to air photo mapping

- Ridge and furrow
- Modern feature
- Archaeological ditch
- Archaeological structure
- Archaeological bank
- Extent of feature(s)
- Natural features





1:1500

Trench locations and geophysical survey results Fig 3

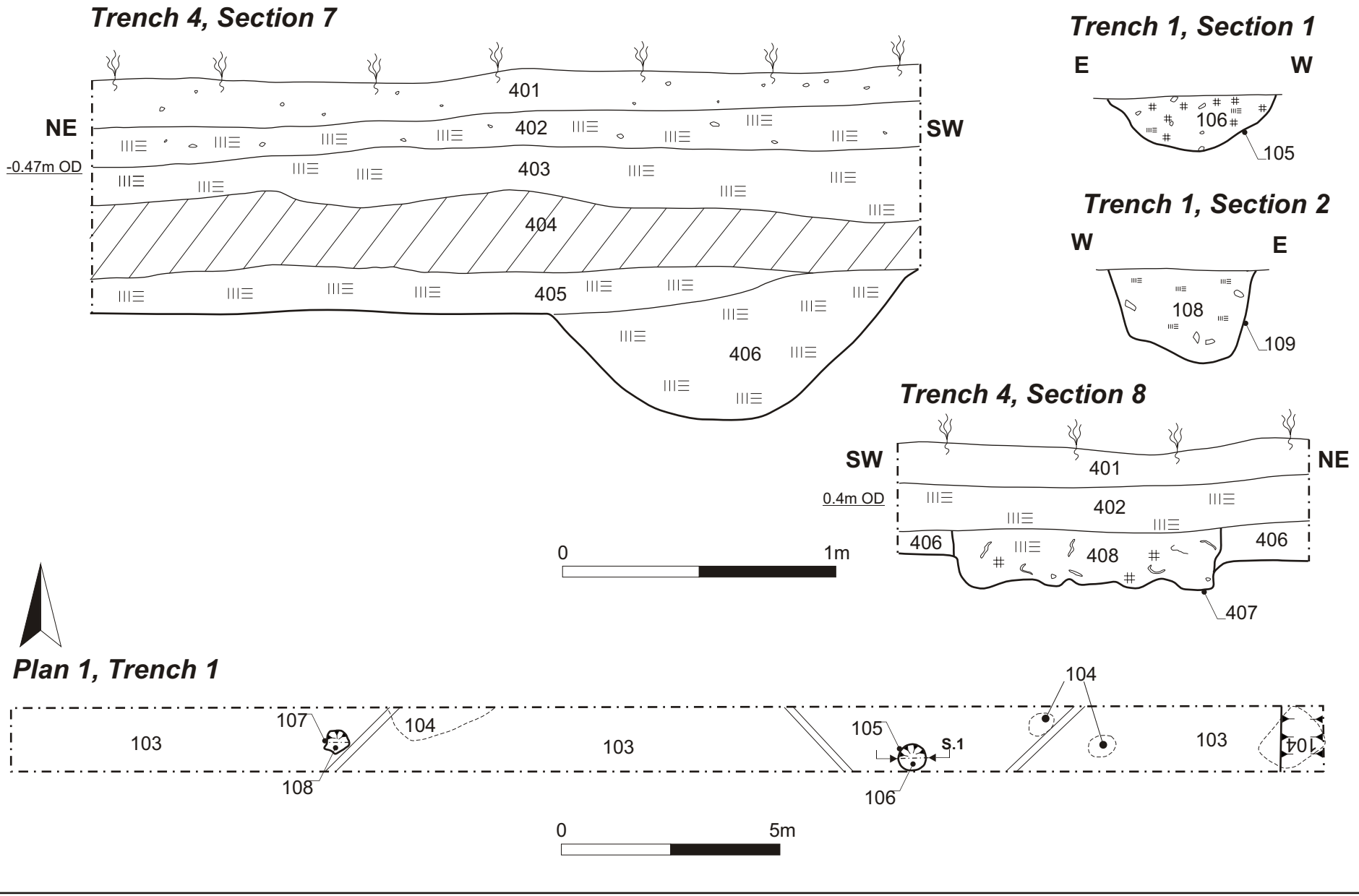

Trench 4, Section 7
NE
SW
-0.47m OD
401
402
403
404
405
406
Trench 1, Section 1
E
W
106
105
Trench 1, Section 2
W
E
108
109
Trench 4, Section 8
SW
NE
0.4m OD
401
402
406
408
406
407
0
1m
Plan 1, Trench 1
103
107
104
108
103
105
S.1
106
104
103
104
0
5m

Fig 4

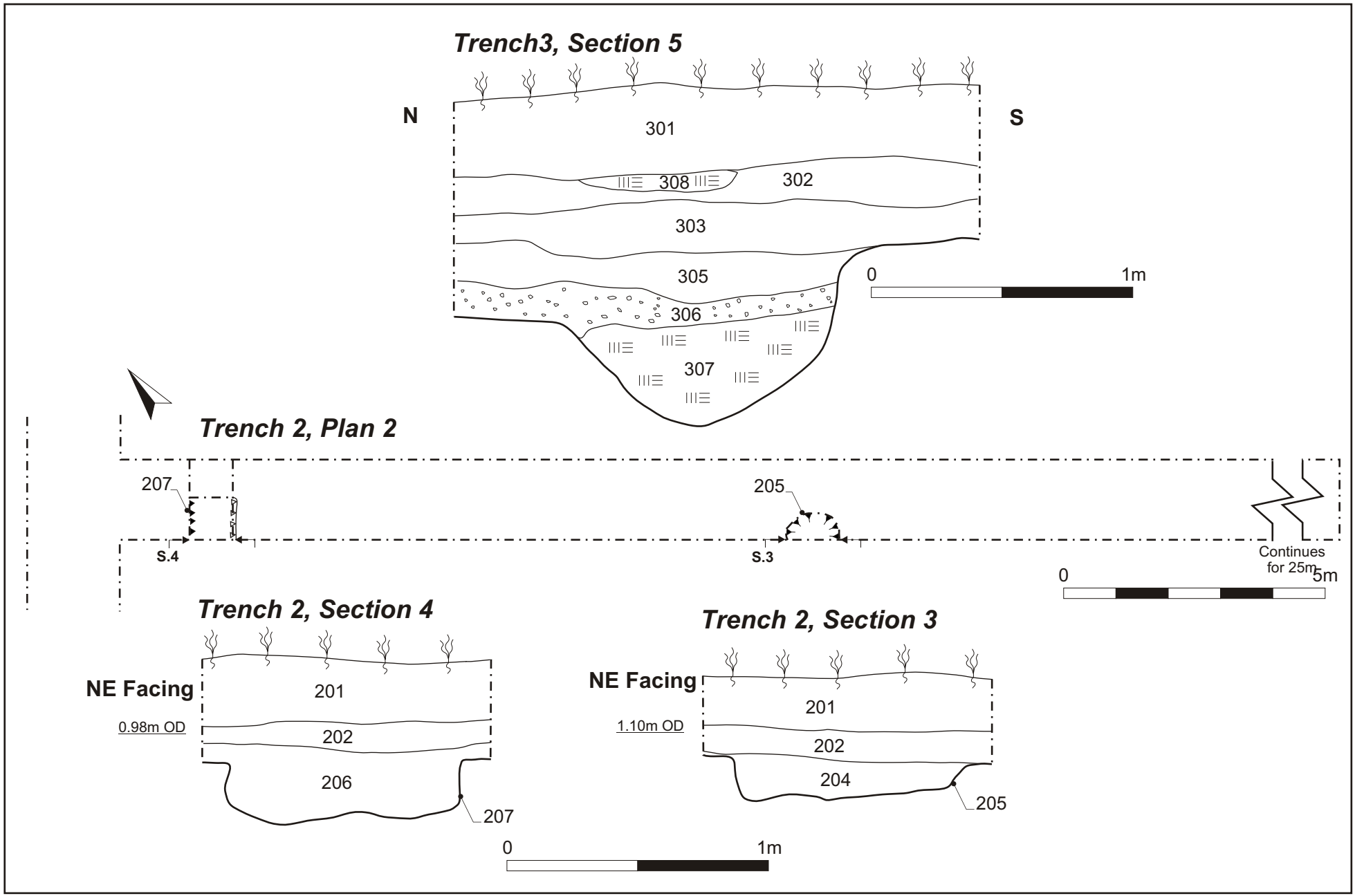

Trench3, Section 5
N
S
301
308
302
303
305
306
307
0
1m
Trench 2, Plan 2
207
205
S.4
S.3
Continues for 25m
0
5m
Trench 2, Section 4
NE Facing
0.98m OD
201
202
206
207
0
1m
Trench 2, Section 3
NE Facing
1.10m OD
201
202
204
205

Fig 5

Plate 1: Posthole 105, Trench 1, facing south-west.

Plate 2: Probable post-medieval furrow 207, Trench 2, facing west.

Plate 3: Peat (302) overlying remnant land surface (grey silt horizon) (303), Trench 3.