

**Land off Thelnetham Road, Hopton
HPN 026**

Archaeological Evaluation Report

SCCAS Report No. 2014/126

Client: Pigeon Investment Management

Author: Simon Picard

November 2014

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Land off Thelnetham Road, Hopton HPN 026

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SCCAS Report No. 2014/126

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HER Information

Site Code: HPN 026

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Project Officer: Simon Picard

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Any opinions expressed in this report about the need for further archaeological work are those of the Field Projects Team alone. Ultimately the need for further work will be determined by the Local Planning Authority and its Archaeological Advisors when a planning application is registered. Suffolk County Council's archaeological contracting services cannot accept responsibility for inconvenience caused to the clients should the Planning Authority take a different view to that expressed in the report.

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Date: 04/12/2014

Approved By: John Craven

Position: Project Officer

Date: 04/12/2014

Signed:

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Summary

An archaeological evaluation involving the excavation of twenty trenches took place at Land off Thelnetham Road, Hopton prior to a planning application for development of the site for housing. The trenches revealed areas of modern disturbance and a single post-medieval ditch.

1. Introduction

An archaeological evaluation was carried out on land off Thelnetham Road in Hopton (Fig. 1) prior to a planning application for development of the site for housing. The work was carried out in accordance with a Brief issued by Dr. Matthew Brudenell of Suffolk County Council Archaeological Service Conservation Team (SCCAS/CT) and a Written Scheme of Investigation provided by John Craven of Suffolk County Council Archaeological Service Contracting Team (Appendix 1). The work was commissioned by Adrian Tindall of Archaeological Risk Management on behalf of Pigeon Investment Management Ltd. A previous geophysical survey, carried out by Britannia Archaeology (Appendix 4), had highlighted various anomalies which were tested by six targeted trenches with a further fourteen trenches excavated to a plan agreed by SCCAS/CT. It should be noted here that this report only applies to the southern portion of the development area, currently land under cultivation, and no work was carried out or interventions made in the northern area, currently playing field, village hall and associated parking.

2. Geology and topography

Hopton is mainly settled on a plateau of high ground at a height of c.35m above Ordnance datum overlooking the River Little Ouse to the north and Weston and Hopton Fens to the west and south-west. To the south of the settlement core is a shallow valley and it is on the south facing slope of this valley that the site is located. Bounded to the east by Bury Road and the south by a drainage channel the development area is a 2.7ha arable field sloping from c.32m down to c.27m above Ordnance datum.

The site geology consists of deep, fine, loamy soils (Ordnance Survey 1983) overlying superficial deposits of Lowestoft Formation chalky till on the high ground to the north and Head deposits of clay, silt sand and gravel on the slopes to the south. These in turn overlie undifferentiated chalk bedrock of the Lewes Nodular Chalk Formation, Seaford Chalk Formation, Newhaven Chalk Formation, Culver Chalk Formation and Portsdown Chalk Formation (British Geological Survey website). On site the geology presented itself as mid grey chalky boulder clay in the northern trenches becoming mid orange and mid yellow sand further down the slope with the trenches along the southern edge of the site being mid orange sand and gravel.

3. Archaeology and historical background

The site lies in an area of high archaeological potential and is situated in a topographically favourable position for early occupation. Extensive scatters of prehistoric, Anglo-Saxon, Roman and medieval pottery have been recorded on the Suffolk Historic Environment Record (HER) in fields to the west (HPN 010 and 011) with medieval pottery finds to the east (HPN 007). The site is located to the south of the historic core of the village (HPN 023), which includes the medieval All Saints church (HPN 009), and further medieval pottery finds at HPN 001 and 002. Also to the north kilns producing late medieval pottery have been excavated (HPN 005).

4. Methodology

The initial intention of the evaluation was, at predetermination stage, to excavate six 30m trenches, three of which were targeted on geophysical anomalies identified in a survey carried out in May 2014; this would equate to approximately 1% of the development area. The interpretive plot of the geophysical survey (Schofield 2014, Appendix 4) is included in the trench plan (Fig. 2). However, following the negative results of these trenches and direction from Dr. Brudenell (SCCAS/CT) a further fourteen trenches were excavated in order to assess the archaeological potential of the majority of the site at this predetermination stage in accordance with the Written Scheme of Investigation (Appendix 1). Again, it should be noted that no interventions were made in the playing field, village hall and car park to the north of the proposed development area and therefore these works do not provide a mitigation strategy for this part of the site.

In total 600m of trenching, at a width of 1.8m, was excavated by an eight tonne 360 degree tracked mechanical excavator using a toothless bucket under the constant observation of an experienced archaeologist. Overburden was removed until the first archaeological horizon or the top of the natural drift geology was encountered and all upcast material was examined for finds and metal detected. The trenches were located and levels above Ordnance datum recorded using a Leica RTK GPS.

Where necessary trenches were hand cleaned and potential archaeological deposits investigated through hand digging. In addition, soil profiles in each trench were cleaned

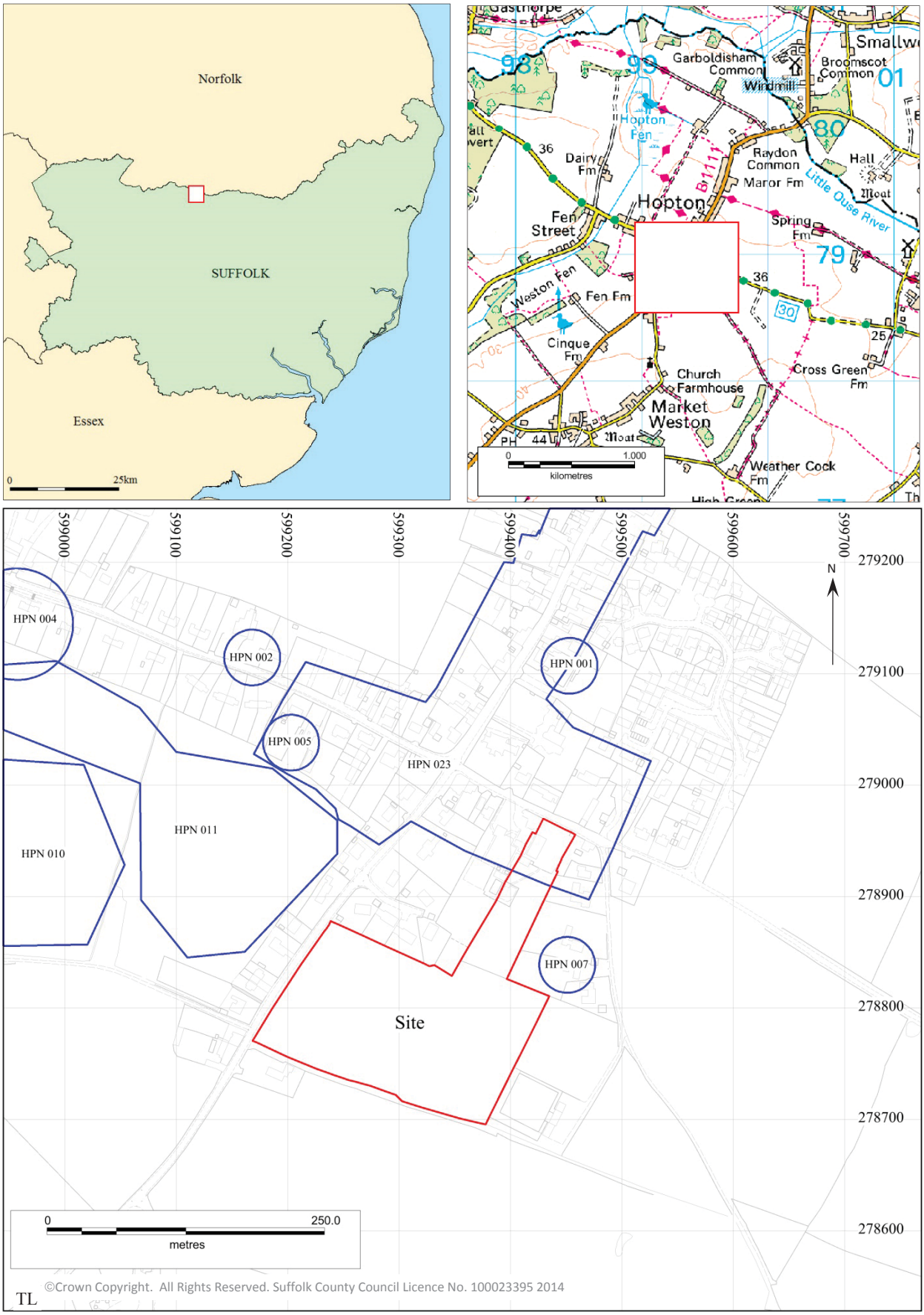


Figure 1. Site location (red) with HER listings (blue)



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Figure 2. Trench plan with geophysical interpretive plot

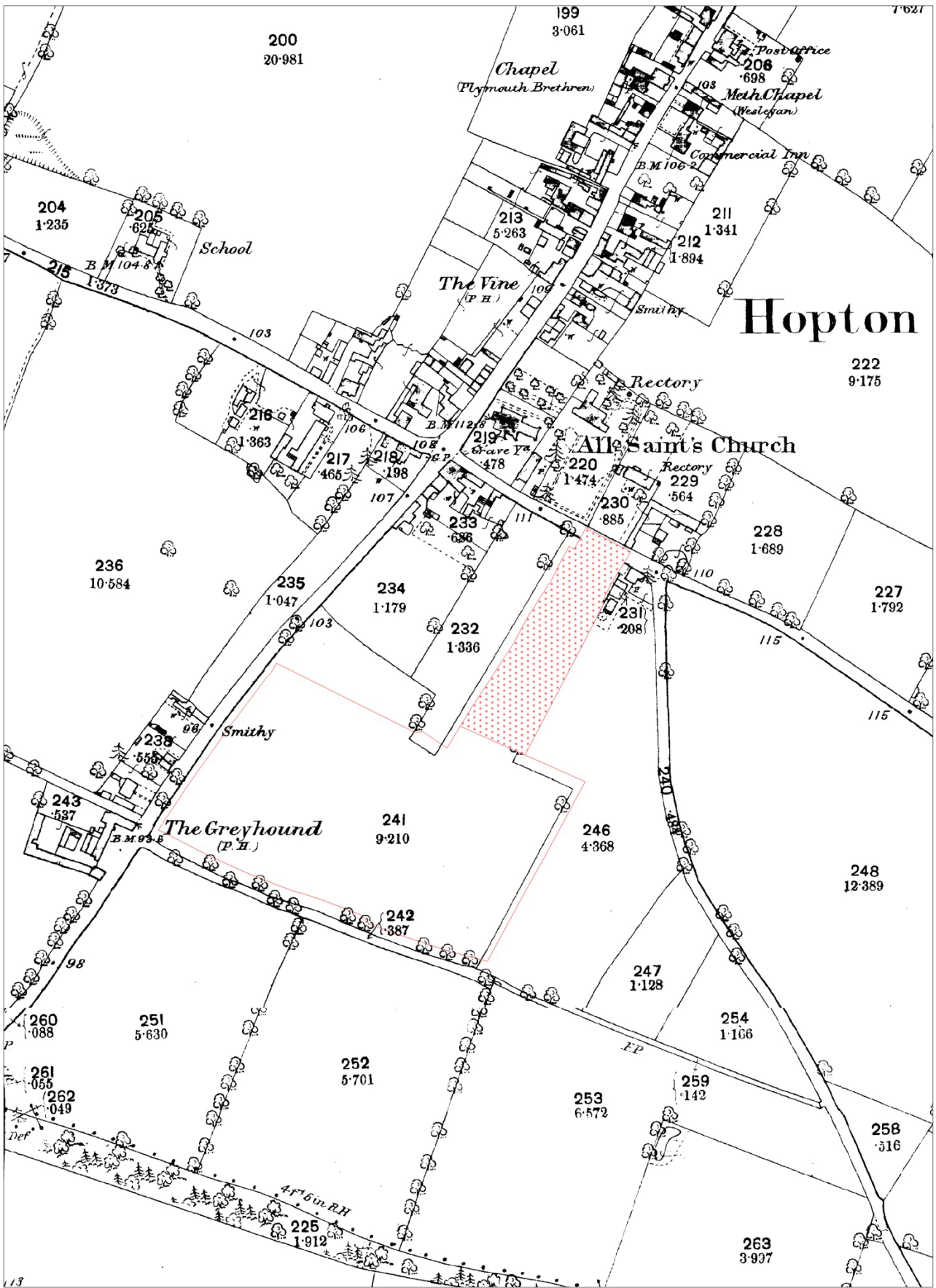


Figure 3. First edition Ordnance Survey map, 1885

and recorded. All recording was carried out using SCCAS pro forma sheets with all sections drawn at a scale of 1:20 and hand drawn plans at a scale of 1:50 on plastic drawing film. A photographic record was made using a high resolution digital camera.

Site data has been placed on an MS Access database (Appendix 2) and an OASIS form completed for the project (reference no. suffolkc1-178339, Appendix 3). A digital copy of this report submitted for inclusion on the Archaeology Data Service database (<http://ads.ahds.ac.uk/catalogue/library/greylit>). The site archive is kept in the main store of Suffolk County Council Archaeological Service at Bury St. Edmunds under the HER code HPN 026.

5. Results

5.1 Introduction

The three targeted trenches were, in general, successful in identifying deposits consistent with the interpretative geophysical plot with the exception of Trench 2, although these deposits were revealed, after investigation, to be modern. A single ditch, dated by pottery to the post-medieval period, in Trench 16 can be seen on the geophysical survey. The trench results show the build-up of colluvial material across the middle of the site and the changing nature of the underlying natural subsoil.

5.2 Trench results

Trench 1

Although this trench was part of the initial six trenches it was not targeted on any particular geophysical anomaly. Aligned west-northwest east-southeast the trench was 30m long and 1.8m wide and was 0.75m deep. Topsoil across the site was mid grey brown silty sand (0002) and here it was 0.32m thick. Below topsoil in this trench was a subsoil deposit present over most of the site (0007), with the exception of some of the trenches on the higher ground to the north. This deposit was mid orange brown silty sand, was 0.43m thick and overlaid mid yellow brown sand deposits. No archaeological features were observed in this trench.

Trench 2

This trench was also 30m long by 1.8m wide and aligned west-northwest east-southeast. Here topsoil was 0.3m thick and was directly over the natural mid grey yellow clay deposits. Trench 2 was positioned over two large oval potential features identified by geophysics. Of the two potential features only one was observed in the trench. This was amorphous, shallow and filled with material similar to topsoil. Investigation by hand digging found fragments of modern brick and glass which confirmed this to be a modern disturbance. No archaeological features were observed in this trench.

Trench 3

Trench 3 was aligned north-northeast south-southwest, 30m long, 1.8m wide and 0.3m deep. Topsoil lay directly over mixed orange and yellow sharp sand natural deposits. Similar to Trench 2 this trench was placed on top of a large oval anomaly which, as in Trench 2, was found to be a modern intrusion. No archaeological deposits were recognised in this trench.

Trench 4

To the southwest of Trench 3, roughly central of the site was Trench 4 (Pl. 1). This was aligned west-northwest east-southeast and was again 30m long and 1.8m wide with an overall depth of 1.5m. Here the topsoil was 0.4m thick overlying mid orange brown silty sand subsoil (0007) that was 0.66m thick. Below this was a layer 0.44m thick of compact pale grey brown silty sand with frequent small angular flints (0008) which produced two small sherds of handmade pottery and a piece of worked flint. Below this layer the natural geology was presented as pale yellow sand. No cut features were observed in this trench.

Trench 5

Trench 5 was the final trench to be located over a geophysical anomaly, this time a possible curvilinear feature. No deposits consistent with this potential feature were observed during excavation of this trench, indeed no archaeological deposits were recognised in this trench. This trench was again 30m by 1.8m and was north south

aligned. Topsoil here was 0.38m thick and was directly over the natural deposits of mid grey yellow clay with mid orange yellow sand patches.

Trench 6

In the extreme southwest of the site this was the last of the original six trenches to be excavated. 30m long and 1.8m wide this trench was 0.7m deep and aligned north-northeast south-southwest. Topsoil was 0.3m thick over subsoil 0007 which was 0.4m thick. No archaeological deposits were observed cutting the mid orange sand and gravel natural geology.



Plate 1. Trench 4 soil profile (2x1m scale, facing south)

Trench 7

To the north of Trench 6 this trench was aligned west-northwest east-southeast and was also 30m long and 1.8m wide. Topsoil was 0.3m thick and was again over subsoil 0007 which was 0.4m thick. Below subsoil was the same lower colluvial deposit seen in

trench 4, numbered here as 0009. This again produced two small sherds of handmade pottery and a piece of worked flint, this time a scraper. Again, no cut features were recognised in this trench.

Trench 8

This trench was aligned north-northeast south-southwest and was to the north of Trench 7 running downslope. This was also 30m long and 1.8m wide and varied in depth from 1m at its southern end to 0.85m at the north. Topsoil varied from 0.35m thick in the south to 0.5m in the north and was over subsoil 0007. This was thicker in the south than in the north, 0.45m and 0.35m respectively. At the southern end of the trench and for approximately 8m up the trench before fading out was the same lower colluvial deposit as seen in Trench 7, here assigned number 0011. No archaeological features were recognised in this trench.

Trench 9

This trench was in the northwest corner of the site and was aligned west-northwest east-southeast. Further modern disturbance was encountered in the trench which was 30m long, 1.8m wide and from 0.3 to 0.4m deep. Topsoil here was 0.3m thick and was over 0.1m of subsoil 0007 in its western end. This faded out as the trench sloped up to the east where topsoil was directly over the mid grey yellow clay natural geology. No archaeological deposits were encountered in this trench.

Trench 10

This trench was also aligned west-northwest east-southeast and was 30m long, 1.8m wide and 0.25m deep. No subsoil was present in this trench and no archaeological features were observed cutting the mid grey yellow clay natural deposits.

Trench 11

This trench was aligned west-northwest east-southeast along the southern site edge. Similar to Trench 6, the natural geology here was mid orange sand and gravel. The trench was 30m long, 1.8m wide and between 0.7 and 0.8m deep. Topsoil was 0.3m

thick and was over subsoil 0007 which varied in thickness from 0.4 to 0.5m. This trench contained no archaeological deposits.

Trench 12

To the east of Trench 11 along the southern boundary Trench 12 was aligned north-northeast south-southwest and sloped down to the north. 30m long and 1.8m wide this trench was 0.7m deep at its southern end and became 1.1m deep to the north. Topsoil was 0.35m thick and was over subsoil 0007 which was 0.35m thick in the south and 0.55m thick to the north. Approximately 14m from the north a lower subsoil (0012) similar to Trenches 7 and 8 appeared between subsoil 0007 and the natural deposits of sand and gravel. By the northern end of the trench this deposit was 0.2m thick. No deposits of an archaeological nature were observed in this trench.

Trench 13

Also north-northeast south-southwest aligned and close to the southern site boundary was Trench 13. This trench was 30m long, 1.8m wide and varied in depth from 0.55m to 0.9m as it sloped down to the north. Topsoil was 0.35m thick and overlaid subsoil 0007 which was 0.2m thick at the south and 0.55m thick at the north. As with the other trenches on this southern boundary the natural geology was mid orange sand and gravel and no archaeological deposits were present.

Trench 14

Aligned west-northwest east-southeast to the north of Trench 13 this trench was also 30m long and 1.8m wide. It was 1.05m deep with 0.35m thick topsoil over 0.4m of subsoil 0007. Below subsoil the same lower subsoil as in Trench 12 (0012) was present. This was over natural deposits of mid orange sand with patches of sand and gravel. Again, no archaeological features were uncovered in this trench.

Trench 15

In the north of the site and roughly parallel with the northern site edge, aligned west-northwest east-southeast, was Trench 15. This was 0.35m to 0.45m deep with topsoil

being 0.35m thick and subsoil 0007 only present in the east of the trench and up to 0.1m thick. This trench was 30m long and 1.8m wide and the exposed natural geology consisted of mid orange sand with mid yellow sand patches with no archaeological deposits present.

Trench 16

Also aligned west-northwest east-southeast, 30m long and 1.8m wide was Trench 16. The trench was 0.8m deep with 0.4m of topsoil overlying 0.4m of subsoil 0007. The natural geology in this trench was mid orange yellow sand. A single ditch, aligned north-northeast south-southwest, ran across this trench and was assigned the context number 0014 (Fig. 4). Cutting the subsoil this ditch had moderately steep concave sides which became steeper to a narrow concave base. The ditch had two filling deposits, an upper fill of mid grey brown silty sand (0015) which produced a single sherd of post-medieval pottery and two fragments of glass, one post-medieval the other a small residual fragment of late medieval window glass. The lower fill of the ditch (0016) was windblown pale grey slightly silty sand with few inclusions. This ditch was roughly aligned with an existing hedgerow to the north but does not appear on the 1885 First Edition Ordnance Survey map of the village (Fig. 3). This ditch can be seen as a linear anomaly on the interpretive geophysical plot.



Plate 2. Ditch 0014 in Trench 16 (1m scale, facing south)

Trench 17

This trench was aligned north-northeast south-southwest across the central area of the site. 30m long and 1.8m wide the trench varied in depth as it sloped down towards its centre and back up again to the north. At the southern end of the trench it was 1m deep with 0.4m thick topsoil over 0.5m of subsoil 0007 with 0.1m of lower colluvial material, the same as in deposit 0012, assigned number 0010 here. Centrally the trench was 1.4m deep with topsoil having become 0.5m thick, subsoil 0007 0.5m thick and lower subsoil 0010 0.4m thick. At the northern end of the trench the base of 0010 had risen so it was 0.3m thick with topsoil and subsoil 0007 not changing providing an overall depth of 1.3m. In the south of the trench the underlying geology was mid orange sand and gravel but this became sandier toward the north end of the trench. No archaeological features were observed in this trench.

Trench 18

Trench 18 was aligned north-northeast south-southwest and sloped down from the north. It was 30m long and 1.8m wide and varied in depth from 0.8m in the north to 1.3m in the south. Topsoil was 0.35m thick over subsoil 0007 which was 0.45m thick in the north and 0.6m thick at the southern end of the trench. Approximately 5m from the southern end of the trench lower subsoil 0013 (equivalent to 0012) appeared and the natural geology fell away sharply so by the end of the trench it was 0.35m thick. No archaeological features were observed in this trench.

Trench 19

In the southeast corner of the site was Trench 19. This was north-northeast south-southwest aligned, 30m long, 1.8m wide and from 0.55m deep in the south to 0.9m deep at its northern end. Topsoil was 0.35m thick and as the trench sloped down to the north subsoil 0007 became thicker, from 0.2m to 0.55m thick. As with the other trenches along the southern edge of the site the underlying geology was mid orange sand and gravel and there were no archaeological features present.

Trench 20

The final trench was also north-northeast south-southwest aligned and was in the northeast corner of the site. This trench was also 30m and 1.8m wide and varied in depth. Topsoil was 0.3m thick along the trench and for the majority of its length lay directly over the mid grey yellow chalky clay geology. Approximately 10m from the northern end of the trench the geology began to slope down and the subsoil which was the same as 0007 (numbered here 0017 in order to locate the single sherd of medieval pottery that was within it) faded in below the topsoil until it was 0.6m thick. No archaeological deposits were present in this trench.

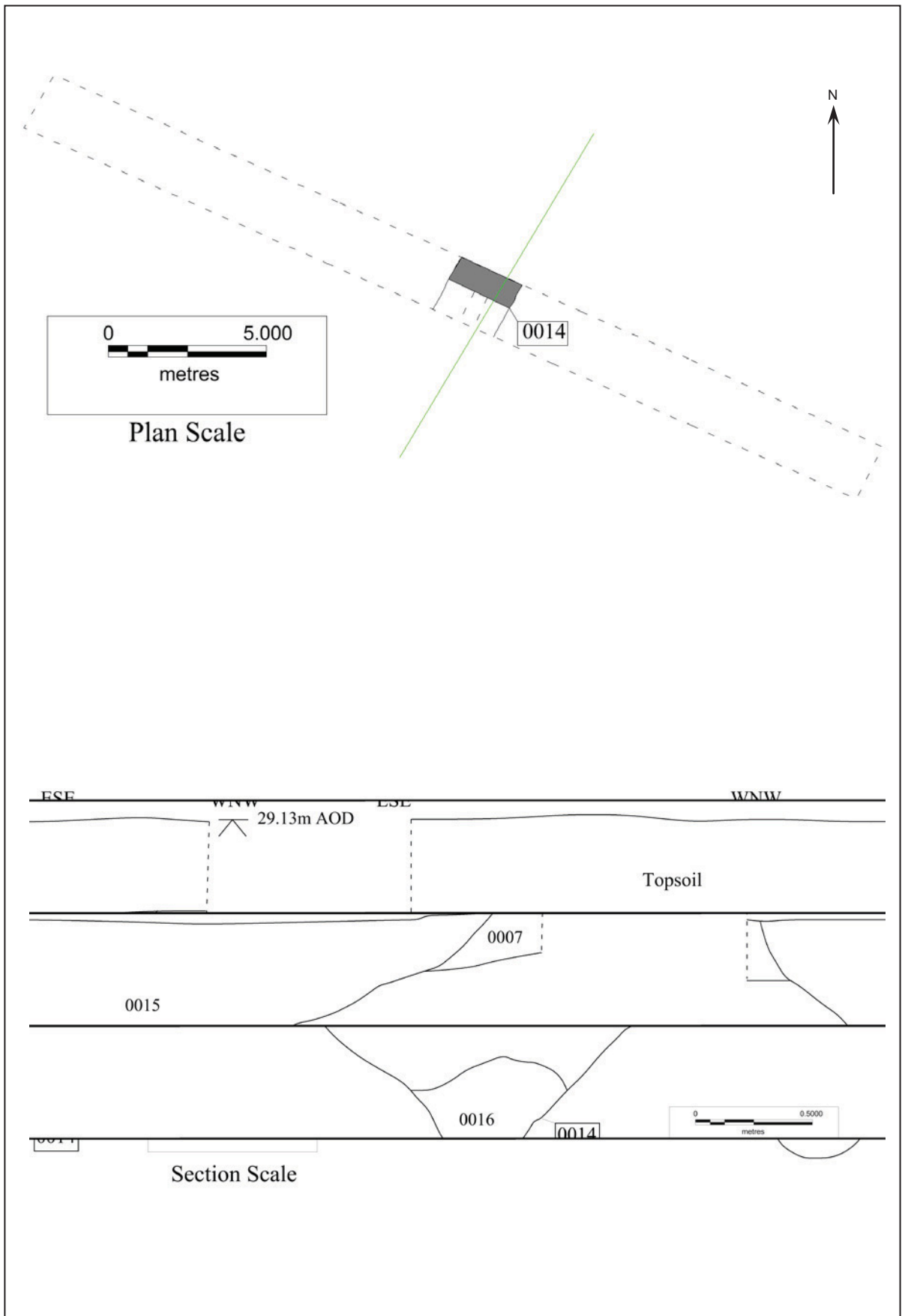


Figure 4. Trench 16 plan, including excerpt from interpretive geophysics plot, and ditch 0014 section

6. Finds and environmental evidence

Cathy Tester

6.1 Introduction

Finds were recovered from four contexts in Trenches 4, 7, 16 and 20 during the evaluation. The quantities by context and material type are shown in Table 1 below. Weights are shown in grammes.

Context	Trench	Pottery		Struck flint		Glass		Slag		Date range
		No	Wt	No	Wt	No	Wt	No	Wt	
0008	4	2	8	1	20					Prehistoric
0009	7	2	6	1	40			5	19	Prehistoric
0015	16	1	74			2	36			Med-PMed
0017	20	1	27							11th-12 c.
Total		6	115	2	60	2	36	5	19	

Table 1. Finds quantities by context

6.2 The Pottery

Six sherds of of prehistoric, medieval and post-medieval pottery were collected from four contexts.

Prehistoric pottery

Four sherds of hand-made pottery were recovered from subsoil layers 0008 and 0009 in Trenches 4 and 7. All are made of flint-tempered fabrics which contain common medium to coarse (5-8mm) angular flint and moderate rounded sand. The sherds are small and undiagnostic but may broadly date to the Late Bronze Age or Early Iron Age.

Medieval and post -medieval pottery

Richenda Goffin

A sagging base sherd of Yarmouth-type early medieval shelly ware (YAR) of 11th to 12th century date was collected from subsoil layer 0017 in Trench 20.

A single Glazed red earthenware (GRE) base sherd, possibly from a chamber pot, was found in the upper fill of ditch 0014 (0015) in Trench 16. The sherd is abraded with worn

orange glaze on the interior and exterior surfaces. It is made in a fine fabric with sparse red iron oxide or clay pellets and falls within the date range of 1675-1850 (Cotter 2000, 192).

6.3 Glass

Richenda Goffin

A small fragment (2g) of medieval or late medieval window glass and a fragment (34g) of post-medieval bottle glass were recovered from the upper fill ditch 0016 (0015) in Trench 16.

6.4 Slag (non-metallurgical residue)

A dark red brown fragment of vitrified quartz sand broken into five pieces weighing 19g altogether was recovered from Trench 7 subsoil layer 0009. It is probably the result of a non-metallurgical high temperature process which can be produced in oven or hearths where silica materials can be heated to sufficient high temperature to melt and become glassy and confused with the vitrified waste products of metallurgical processes (Bayley, et al 2001).

6.5 Struck flint

Two struck flints were recovered from the subsoil layers 0008 and 0009 in Trenches 4 and 7. The first, from layer 0008 is an irregular flake, unpatinated with cortex on one edge and retouch along another which includes a notch. It has several hinge-fractured flake removal scars. The second, from layer 0009, is a scraper, a thick unpatinated ovate flake with steep retouch of its distal end and cortex on 50% of its dorsal face. Neither piece is closely datable but both are consistent in character with a broad later prehistoric date.

6.6 Discussion of material evidence

The evaluation produced a small assemblage of finds which include prehistoric, medieval and post-medieval material recovered from four contexts in four evaluation trenches. Three contexts were from the subsoil layer in Evaluation Trenches 4, 7 and 20 and one was from an upper ditch fill in Trench 16.

The earliest finds are from the subsoil layers in Trenches 4 and 7 and include two pieces of struck flint which are later prehistoric (Later Neolithic, Bronze Age or Iron Age) as well as a few sherds of hand-made pottery which are later Bronze Age or earlier Iron Age.

Later finds include single fragments of early medieval pottery and medieval to late medieval window glass and post-medieval pottery and bottle glass.

7. Discussion

Little in the way of evidence for past land use has been uncovered by this evaluation with the only feature being a post-medieval field boundary ditch. The geophysical survey was successful in identifying features to the north of the site although these were shallow modern intrusions and may just be the consequence of routine farming activity on shallow and potentially wet topsoil. Elsewhere highlighted anomalies may be as a consequence of the changing nature of the natural geology and the varying depths of overburden. This evaluation has shown that colluvial deposits are present on the site and these mirror the changing nature of the natural strata. Across the north of the site there is a boulder clay ridge, accounting for the plateau of high ground the village occupies, with little overburden. As the ground levels begin to slope the geology becomes sand before rising slightly at the south where firmer sand and gravel has begun the rise up the far side of the valley. Consequently material has moved down from both sides of the valley and settled in a band across the centre of the site. Finds from within this lower layer and the depth of the overburden indicate that this movement of material has been a constant process since antiquity. The finds within the lower layers of subsoil suggest prehistoric activity in the vicinity of the site but they may well have travelled down the slope from the higher ground to the north outside the development area.

8. Conclusions and recommendations for further work

The results of this evaluation must conclude that there is little evidence for past land use on the site and that therefore no further work is recommended as being necessary with regard to the 2.7ha field with which this report is concerned. However, as stated

previously, this report is not concerned with the playing field, village hill and associated car parks and any work planned here would require a separate mitigation strategy.

9. Archive deposition

Paper and photographic archive: SCCAS Bury St Edmunds

Digital archive: SCCAS R:\Environmental Protection\Conservation\Archaeology\Archive\Hopton\HPN 026 Evaluation

Digital photographic archive: SCCAS R:\Environmental Protection\Conservation\Archaeology\Catalogues\Photos\HYA-HYZ\HYJ 43-99 and HYK 1-7

Finds and environmental archive: SCCAS Bury St Edmunds H / 89 / 3

10. Acknowledgements

The fieldwork was carried out by Simon Picard, Rebecca Smart and Hannah Cutler and directed by Simon Picard. Project management was undertaken by John Craven who also provided advice during the production of the report.

Post-excavation management was provided by Richenda Goffin. Finds processing was undertaken by Jonathan van Jennians. The specialist finds report was produced by Cathy Tester and Richenda Goffin.

The report illustrations were created by Simon Picard and the report was edited by Richenda Goffin.

11. Bibliography

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BGS, 2014, Information obtained from http://www.bgs.ac.uk/products/digital_maps/data_625k.html and reproduced with the permission of the British Geological Survey ©NERC. All rights Reserved

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**Land off Thelnetham Road, Hopton
HPN 026**

**Written Scheme of Investigation and Risk Assessment
Archaeological Evaluation**

Client: Pigeon Investment Management Ltd

Suffolk County Council Archaeological Service Field Team

Author: John Craven

May 2014

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Project details

Planning Application No:	Pre-application
Curatorial Officer:	Dr Matthew Brudenell (SCCAS/CT)
Grid Reference:	TL 993 789
Area:	3.2ha
HER Event No/Site Code:	HPN 026
Oasis Reference:	178339
Project Start date	TBC
Project Duration:	c.2 days
Client/Funding Body:	Pigeon Investment management Ltd
SCCAS/FT Project Manager	John Craven
SCCAS/FT Project Officer:	TBC
SCCAS/FT Job Code:	HOPTTHE002

1. Introduction

- A program of archaeological evaluation is required to assess the site of proposed residential development, on land off of Thelnetham Road, Hopton (Fig. 1), for heritage assets, prior to consideration of a future planning application, in accordance with paragraph 141 of the National Planning Policy Framework.
- The work required is detailed in a Brief (dated 03/04/2014), produced by the archaeological adviser to the Local Planning Authority (LPA), Dr Matthew Brudenell of Suffolk County Council Archaeological Service Conservation Team (SCCAS/CT).
- Suffolk County Council Archaeological Service Field Team (SCCAS/FT) has been contracted to carry out the project by Adrian Tindall (Archaeological Risk Management) on behalf of the client, Pigeon Investment Management Ltd. This document details how the requirements of the Brief and general SCCAS/CT guidelines (SCCAS/CT 2011) will be met, and has been submitted to SCCAS/CT for approval on behalf of the LPA. It provides the basis for measurable standards and will be adhered to in full, unless otherwise agreed with SCCAS/CT.

2. The Site

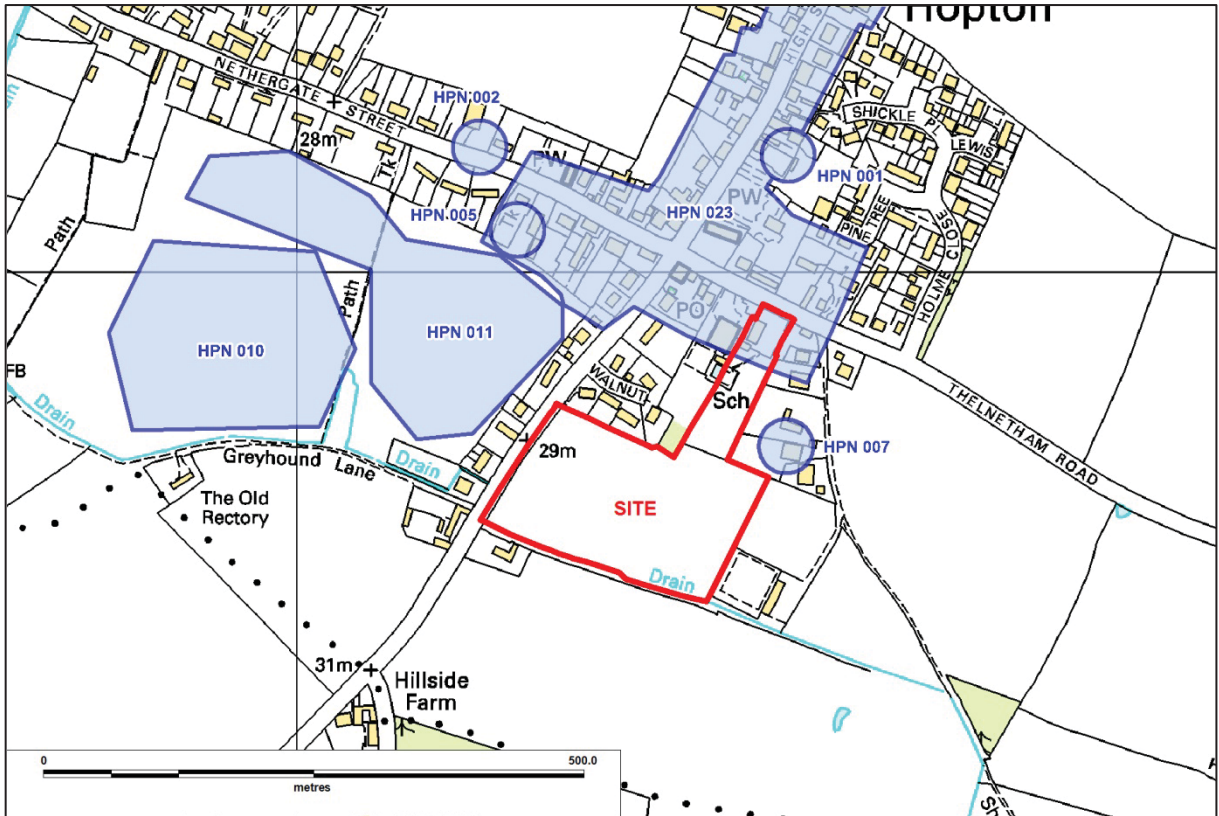
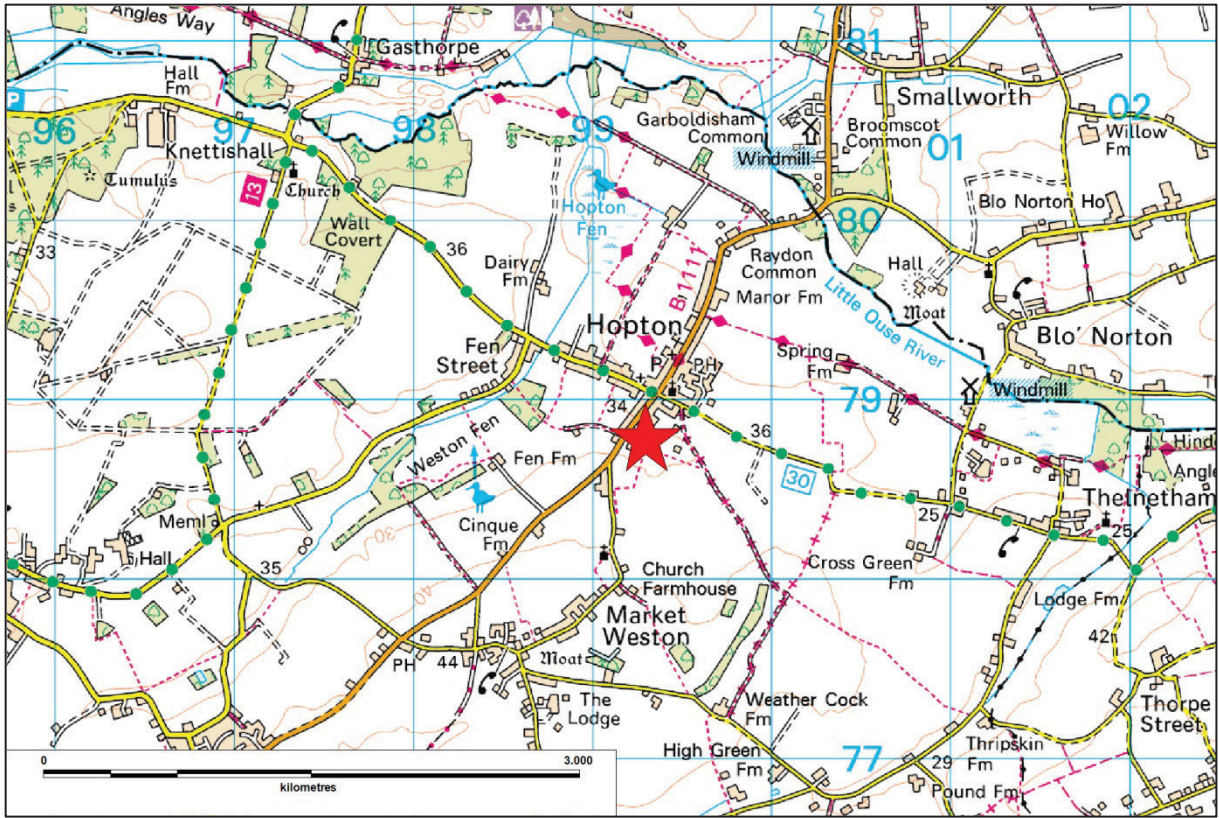
- The site lies on the southern edge of the settlement core of Hopton, to the south of Thelnetham Road and east of Bury Road. It primarily consists of a 2.7ha arable field bordering Bury Road, with the remainder of the area consisting of a small playing field, village hall and an associated carpark fronting onto Thelnetham Road. The proposed development comprises of a new community building with carparking, open space and play facilities in the northern area and centre, with residential properties to the south, east and west.
- The northern part of the site lies at a height of c.35m above Ordnance datum. The carpark and playing field are flat but this seems to be in keeping with the natural topography where the settlement core occupies a plateau of high ground

overlooking the River Little Ouse to the north and Weston and Hopton Fens to the south-west and west. The northern fringe of the field is similarly flat but groundlevels then descend a gentle south facing slope towards a drainage channel running east-west on the southern field edge. This drainage channel lies in the centre of a shallow valley to the south of Hopton which connects to the fen drainage systems to the west of the site, which in turn form a tributary of the Little Ouse.

- The site geology consists of deep, fine, loamy soils (Ordnance Survey 1983) overlying superficial deposits of Lowestoft Formation chalky till on the high ground to the north and Head deposits of clay, silt sand and gravel on the slopes to the south. These in turn overlie undifferentiated chalk bedrock of the Lewes Nodular Chalk Formation, Seaford Chalk Formation, Newhaven Chalk Formation, Culver Chalk Formation and Portsdown Chalk Formation (British Geological Survey website).

3. Archaeological and historical background

- The requirement for assessment has been placed as the site lies in an area of high archaeological potential, as indicated by information recorded on the Suffolk Historic Environment Record (HER). The Brief states that the site's location in the Little Ouse Valley overlooking Hopton Fen is topographically favourable for early occupation and that extensive scatters of prehistoric, Anglo-Saxon, Roman and Medieval pottery have been recorded in fields immediately to the west (HPN 010 and 011), and medieval pottery at HPN 007 to the east. The northern section of the site falls within the historic core of the village (HPN 023), and has potential for evidence of medieval settlement, medieval pottery having also been found at HPN 001, 002 and medieval kilns at HPN 005.
- The proposed residential development will involve significant ground disturbance and this could have a detrimental impact upon any archaeological deposits that exist.



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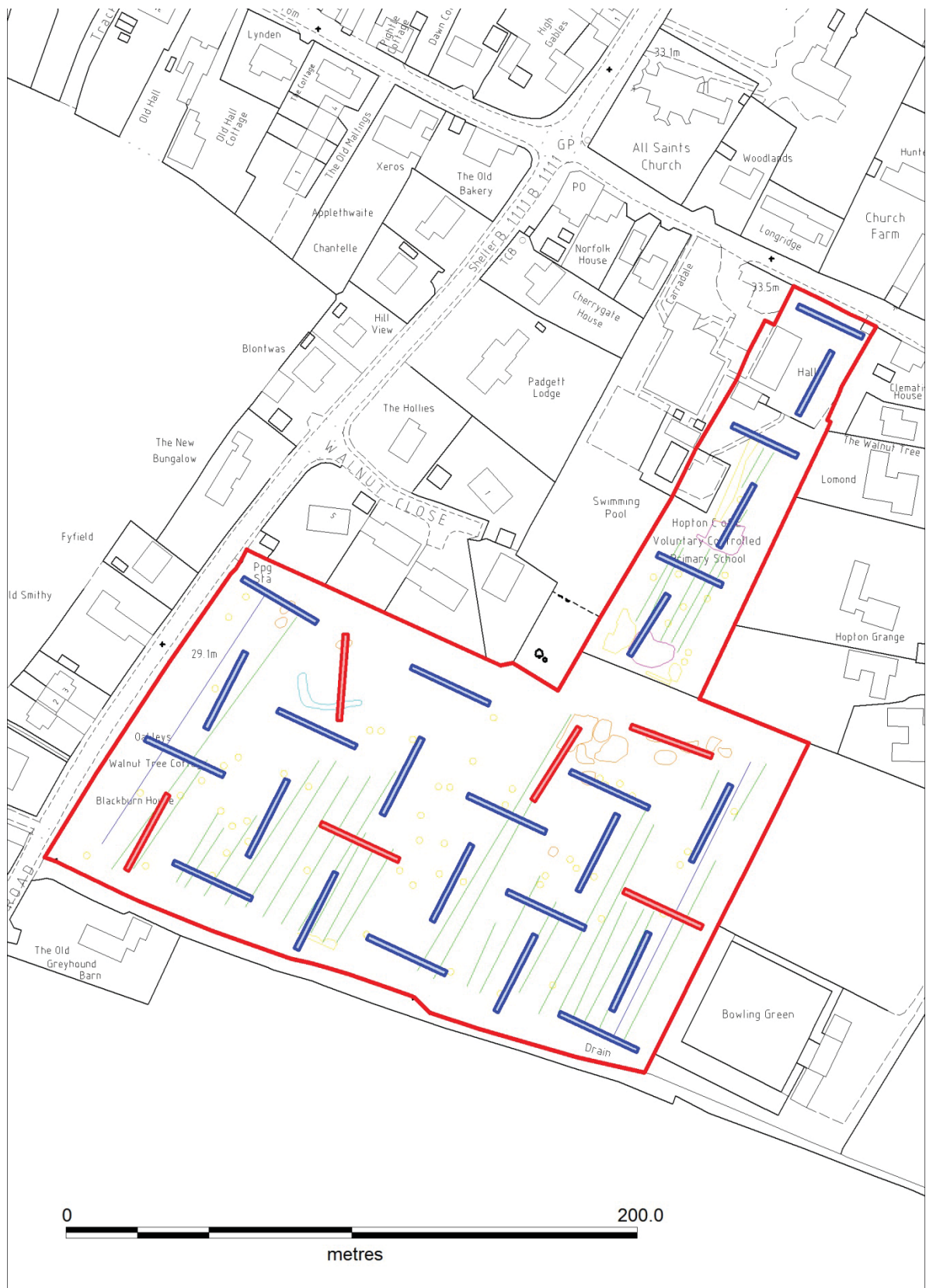
Figure 1. Location map

4. Project Objectives

- The project Brief has detailed the requirements for pre-determination evaluation and geophysical survey of the site, to assess the quality and extent of the sites archaeological resource, prior to determination of a planning application. The works required by the Brief however are not sufficient for the purposes of designing an appropriate mitigation strategy and SCCAS/CT will require a further programme of evaluation trial trenching by condition if consent is granted.
- A geophysical survey of the site has been completed by Britannia Archaeology (Schofield 2014). This identified sixteen positive discrete anomalies indicating possible archaeological features such as rubbish pits predominantly lying along the northern edge of the field and one weak positive curvilinear anomaly in the north-western corner of the field that may indicate a ring ditch. A wide range of dipolar responses and six larger areas of magnetic disturbance are probably due to modern ferrous material in the topsoil or extant features such as goalposts and nearby fences. The interpretative plot of the survey is included in the proposed trench plan below (Fig. 2).
- The 1% trial trench evaluation will:
 - Establish whether any archaeological deposits exist in the application area, with particular regard to any which are of sufficient importance to merit preservation *in situ*.
 - 'Ground-truth' the geophysical survey results.
 - Identify the date, approximate form and function of any archaeological deposits within the application area.
 - Establish the extent, depth and quality of preservation of any archaeological deposits within the application area.
 - Evaluate the likely impact of past land uses and whether masking alluvial or colluvial deposits are present.
 - Establish the potential for the survival of environmental evidence.
 - Provide sufficient information for SCCAS/CT to establish whether further assessment of the site is required, prior to development of a suitable

archaeological conservation strategy dealing with preservation or the further recording of archaeological deposits.

- Provide sufficient information for the client to establish time and cost implications for further assessment of the application areas heritage assets.



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Figure 2. Proposed trench plan in relation to outline geophysical survey results (1% trenching in red, with possible suggestions for later 5% trenching in blue. Geophysical survey results courtesy of Britannia Archaeology)

5. Archaeological method statement

5.1. Management

- The project will be managed by SCCAS/FT Project Officer John Craven in accordance with the principles of *Management of Research in the Historic Environment* (MoRPHE, English Heritage 2006).
- SCCAS/CT will be given ten days notice of the commencement of the fieldwork and arrangements made for SCCAS/CT visits to enable the works to be monitored effectively.
- Full details of project staff, including sub-contractors and specialists are given in section 6 below.

5.2. Project preparation

- An event number has been obtained from the Suffolk HER Officer (HPN 026) and will be included on all future project documentation.
- An OASIS online record has been initiated and key fields in details, location and creator forms have been completed.
- A pre-site inspection and Risk Assessment for the project has been completed.

5.3. Fieldwork

- Fieldwork standards will be guided by 'Standards for Field Archaeology in the East of England', EAA Occasional Papers 14, and the Institute For Archaeology's (IFA) paper 'Standard and Guidance for archaeological field evaluation', revised 2008.
- The archaeological fieldwork will be carried out by members of SCCAS/FT led by a Project Officer (TBC). The fieldwork team will be drawn from a pool of suitable staff at SCCAS/FT and will include an experienced metal detectorist/excavator.
- The project Brief requires 1% of the 3.2ha application area to be evaluated, with trenches positioned to samples all areas of the site, with both geophysical anomalies and blank areas from the survey report being targeted. This amounts to

c.180m of 1.8m wide trenches, or 320sqm, and a proposed trench plan is included above (Fig. 2). The excavation of six 30m trenches (highlighted in red) is designed to provide the 1% assessment of the site for purposes of determining the planning application. If necessary minor modifications to the trench plan may be made onsite to respect any previously unknown buried services, areas of disturbance/contamination or other obstacles.

- The geophysical plan did not highlight any potential archaeological features in the northern part of the site occupied by the playing field. In view of this areas current landuse and the pre-application stage of the project, it is proposed to limit the trenching to the arable field to avoid damaging the currently used public facilities. If required the playing field and car park can be included in a full 5% trenched evaluation in a later stage of assessment, if and when consent is granted. Figure 2 also shows a proposed layout (of twenty-five 30m trenches highlighted in blue) for this later trenching.
- The trench locations will be marked out by a RTK GPS system.
- The trenches will be excavated using a machine equipped with a back-acting arm and toothless ditching bucket (measuring at least 1.6m wide), under the supervision of an archaeologist. This will involve the removal of an estimated 0.3m-0.5m of ploughsoil until the first visible archaeological surface or natural surface is reached.
- Spoilheaps will be created adjacent to each trench and topsoil and subsoil will be kept separate if required. Spoilheaps will be examined and metal-detected for archaeological material.
- The trench sides, base and archaeological surfaces will be cleaned by hand as necessary to identify archaeological deposits and artefacts and allow decisions to be made on the method of further investigation by the Project Officer. Further use of the machine, i.e. to investigate thick sequences of deposits by excavation of test pits etc, may be undertaken as necessary after consultation with SCCAS/CT.
- There will be a presumption that a minimum of disturbance will be caused whilst achieving adequate evaluation of the site, i.e. establishing the period, depth and nature of archaeological deposits. Typically 50% of discrete features such as pits and 1m slots across linear features will be sampled by hand excavation, although

in some instances 100% may be removed, with the aim of establishing date and function. All identified features will be investigated by excavation unless otherwise agreed with SCCAS/CT. Significant archaeological features such as solid or bonded structural remains, building slots or postholes will be preserved intact if possible.

- Sieving of deposits using a 10mm mesh will be undertaken if they clearly appear to be occupation deposits or structurally related. Other deposits may be sieved at the judgement of the excavation team or if directed by SCCAS/CT.
- Any fabricated surface (floors, yards etc) will be fully exposed and cleaned.
- The depth and nature of colluvial or other masking deposits across the site will be recorded.
- Metal detector searches of trenches and archaeological deposits will take place throughout the evaluation by an experienced SCCAS/FT metal-detectorist.
- An overall site plan showing trench locations, feature positions, sections and levels will be made using an RTK GPS or Total Station Theodolite. Individual detailed trench or feature plans etc will be recorded by hand at 1:10, 1:20 or 1:50 as appropriate to complexity. All excavated sections will be recorded at a scale of 1:10 or 1:20, also as appropriate to complexity. All such drawings will be in pencil on A3 pro forma gridded permatrace sheets. All levels will refer to Ordnance Datum. Section and plan drawing registers will be maintained.
- All trenches, archaeological features and deposits will be recorded using standard pro forma SCCAS/FT registers and recording sheets and numbering systems. Record keeping will be consistent with the requirements of the Suffolk HER and will be compatible with its archive.
- A photographic record, consisting of high resolution digital images, will be made throughout the evaluation. A number board displaying site code and, if appropriate, context number and a metric scale will be clearly visible in all photographs. A photographic register will be maintained.
- All pre-modern finds will be kept and no discard policy will be considered until all the finds have been processed and assessed. Finds on site will be treated following appropriate guidelines (Watkinson & Neal 2001) and a conservator will be available for on-site consultation as required.

- All finds will be brought back to the SCCAS/FT finds department at the end of each day for processing, quantifying, packing and, where necessary, preliminary conservation. Finds will be processed and receive an initial assessment during the fieldwork phase and this information will be fed back to site to inform the on-site evaluation methodology.
- Environmental sampling of archaeological contexts will, where possible, be carried out to assess the site for palaeoenvironmental remains and will follow appropriate guidance (English Heritage 2011). In order to obtain palaeoenvironmental evidence, bulk soil samples (of at least 40 litres each, or 100% of the context) will be taken using a combination of judgement and systematic sampling from selected archaeological features or natural environmental deposits, particularly those which are both datable and interpretable. All samples will be retained until an appropriate specialist has assessed their potential for palaeoenvironmental remains. Decisions will be made on the need for further analysis following these assessments.
- If necessary, for example if waterlogged peat deposits are encountered, then advice will be sought from the English Heritage Regional Advisor for Archaeological Science (East of England) on the need for specialist environmental techniques such as coring or column sampling.
- If human remains are encountered guidelines from the Ministry of Justice will be followed. Human remains will be treated at all stages with care and respect, and will be dealt with in accordance with the law and the provisions of Section 25 of the Burial Act 1857. The evaluation will attempt to establish the extent, depth and date of burials whilst leaving remains *in situ*. If human remains are to be lifted, for instance if analysis is required to fully evaluate the site, then a Ministry of Justice license for their removal will be obtained in advance. In such cases appropriate guidance (McKinley & Roberts 1993, Brickley & McKinley 2004) will be followed and, on completion of full recording and analysis, the remains, where appropriate, will be reburied or kept as part of the project archive.
- In the event of unexpected or significant deposits being encountered on site, the client and SCCAS/CT will be informed. Such circumstances may necessitate changes to the Brief and hence evaluation methodology, in which case a new archaeological quotation will have to be agreed with the client, to allow for the

recording of said unexpected deposits. If an evaluation is aborted, i.e. because unexpected deposits have made development unviable, then all exposed archaeological features will be recorded as usual prior to backfilling and a report produced.

- Trenches will not be backfilled without the prior approval of SCCAS/CT. Trenches will be backfilled, subsoil first then topsoil, and compacted to ground-level, unless otherwise specified by the client. Original ground surfaces will not be reinstated but will be left as neat as practicable.

5.4. Post-excavation

- The post-excavation finds work will be managed by the SCCAS/FT Finds Team Manager, Richenda Goffin, with the overall post-excavation managed by John Craven. Specialist finds staff, whether internal SCCAS/FT personnel or external specialists, are experienced in local and regional types and periods for their field.
- All finds will be processed and marked (HER site code and context number) following Institute for Conservation (ICON) guidelines and the requirements of the Suffolk HER. For the duration of the project all finds will be stored according to their material requirements in the SCCAS Archaeological Stores at Bury St. Edmunds or Ipswich. Metal finds will be stored in accordance with ICON) guidelines, *initially recorded and assessed for significance* before dispatch to a conservation laboratory within 4 weeks of the end of the excavation. All pre-modern silver, copper alloy and ferrous metal artefacts and coins will be x-rayed if necessary for identification. Sensitive finds will be conserved if necessary and deposited in bags/boxes suitable for long term storage to ICON standards. All coins will be identified to a standard acceptable to normal numismatic research.
- All on-site derived site data will be entered onto a digital (Microsoft Access) SCCAS/FT database compatible with the Suffolk HER.
- Bulk finds will be fully quantified and the subsequent data will be added to the digital site database. Finds quantification will fully cover weights and numbers of finds by context and will include a clear statement for specialists on the degree of apparent residuality observed.

- Assessment reports for all categories of collected bulk finds will be prepared in-house or commissioned as necessary and will meet appropriate regional or national standards. Specialist reports will include sufficient detail and tabulation by context of data to allow assessment of potential for analysis and will include non-technical summaries.
- Representative portions of bulk soil samples will be processed by wet sieving and flotation in-house in order to recover any environmental material which will be assessed by external specialists. The assessment will include a clear statement of potential for further analysis either on the remaining sample material or in future fieldwork.
- All hand drawn site plans and sections will be scanned.
- All raw data from GPS or TST surveys will be uploaded to the project folder, suitably labelled and kept as part of the project archive.
- Selected plan drawings will then be digitised as appropriate for combination with the results of digital site survey to produce a full site plan, compatible with MapInfo GIS software.
- All hand-drawn sections will be digitised using autocad software.
- Digital photographs will be allocated and renumbered with a code from the Suffolk HER photographic index.

5.5. Report

- A full written report on the fieldwork will be produced, consistent with the principles of MoRPHE (English Heritage 2006), to a scale commensurate with the archaeological results. The report will contain a description of the project background, location plans, evaluation methodology, a period by period description of results, finds assessments and a full inventory of finds and contexts. The report will also include scale plans, sections drawings, illustrations and photographic plates as required.
- The objective account of the archaeological evidence will be clearly separated from an interpretation of the results, which will include a discussion of the results in

relation to relevant known sites in the region that are recorded in the Suffolk HER and other readily available documentary or cartographic sources.

- The report will include a statement as to the value, significance and potential of the site and its significance in the context of the Regional Research Framework for the East of England (Brown and Glazebrook, 2000, Medlycott 2011). This will include an assessment of potential research aims that could be addressed by the site evidence.
- The report will contain sufficient information to stand as an archive report should further work not be required.
- The report may include SCCAS/FT's opinion as to the necessity for further archaeological work to mitigate the impact of the sites development. The final decision as to whether any recommendations for further work will be made however lies solely with SCCAS/CT and the LPA.
- The report will include a summary in the established format for inclusion in the annual '*Archaeology in Suffolk*' section of the Proceedings of the Suffolk Institute of Archaeology and History.
- A copy of this Written Scheme of investigation will be included as an appendix in the report.
- The report will include a copy of the completed project OASIS form as an appendix.
- An unbound draft copy of the report will be submitted to SCCAS/CT for approval within 4 weeks of completion of fieldwork.

5.6. Project archive

- On approval of the report a printed and bound copy will be lodged with the Suffolk HER. A digital .pdf file will also be supplied, together with a digital and fully georeferenced vector plan showing the application area and trench locations, compatible with MapInfo software.
- The online OASIS form for the project will be completed and a .pdf version of the report uploaded to the OASIS website for online publication by the Archaeological Data Service. A paper copy of the form will be included in the project archive.

- An unbound copy of the report will be included with the project archive.
- A digital .pdf copy of the approved report will be supplied to the client, together with our final invoice for outstanding fees. Printed and bound copies will be supplied on request.
- The project archive, consisting of the complete artefactual assemblage, and all paper and digital records, will be deposited in the SCCAS Archaeological Store at Bury St Edmunds within 6 months of completion of fieldwork. The project archive will be consistent with MoRPHE (English Heritage 2006) and ICON guidelines. The project archive will also meet the requirements of SCCAS (SCCAS/CT 2010).
- All physical site records and paperwork will be labelled and filed appropriately. Digital files will be stored in the relevant SCCAS archive parish folder on the SCC network site.
- The project costing includes a sum to meet SCCAS archive charges. A form transferring ownership of the archive to SCCAS will be completed and included in the project archive.
- If the client, on completion of the project, does not agree to deposit the archive with, and transfer to, SCCAS, they will be expected to either nominate another suitable depository approved by SCCAS/CT or provide as necessary for additional recording of the finds archive (such as photography and illustration) and analysis. A duplicate copy of the written archive in such circumstances would be deposited with the Suffolk HER.
- Exceptions from the deposition of the archive described above include:
 - Objects that qualify as Treasure, as detailed by the Treasure Act 1996. The client will be informed as soon as possible of any such objects are discovered/identified and the find will be reported to SCCAS/CT and the Suffolk Finds Liaison Officer and hence the Coroner within 14 days of discovery or identification. Treasure objects will immediately be moved to secure storage at SCCAS and appropriate security measures will be taken on site if required. Any material which is eventually declared as Treasure by a Coroners Inquest will, if not acquired by a museum, be returned to the client and/or landowner. Employees of SCCAS, or volunteers etc present on site, will not eligible for any share of a treasure reward.

- Other items of monetary value in which the landowner or client has expressed an interest. In these circumstances individual arrangements as to the curation and ownership of specific items will be negotiated.
- Human skeletal remains. The client/landowner by law will have no claim to ownership of human remains and any such will be stored by SCCAS, in accordance with a Ministry of Justice licence, until a decision is reached upon their long term future, i.e. reburial or permanent storage.

6. Bibliography

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- Schofield, T., 2014, *Land off Thelnetham Road, Hopton, Suffolk. Detailed Magnetometer Survey*. Britannia Archaeology Report No. R1057.
- Watkinson, D. and Neal, V., 2001, *First Aid for Finds*. Third Edition, revised. Rescue/UKIC Archaeology Section, London.

Websites

British Geological Survey

<http://mapapps.bgs.ac.uk/geologyofbritain/home.html>

7. Project Staffing

Management

SCCAS/FT Manager Western Office	Dr Rhodri Gardner
SCCAS/FT Project Manager	John Craven
SCCAS/FT Finds Dept	Richenda Goffin

7.1. Fieldwork

The fieldwork team will be derived from the following pool of SCCAS/FT staff.

Name	Job Title	First Aid	Other skills/qualifications
John Craven	Project Officer		
Kieron Heard	Project Officer		
Simon Cass	Project Officer	Yes	
Robert Brooks	Project Officer	Yes	Surveyor
Andrew Beverton	Project Officer	Yes	Surveyor
John Sims	Supervisor	Yes	
Tim Carter	Project Assistant		Metal detectorist
Felix Reeves-Whymark	Project Assistant		Metal detectorist
Alan Smith	Project Assistant		Metal detectorist

7.2. Post-excavation and report production

The production of the site report and submission of the project archive will be carried out by the fieldwork project officer. The post-excavation finds analysis will be managed by Richenda Goffin. The following SCCAS/FT specialist staff will contribute to the report as required.

Graphics	Ellie Cox, Gemma Bowen, Beata Wieczorek-Olesky
Illustration	Donna Wreathall
Post Roman pottery and CBM	Richenda Goffin
Roman Pottery	Cathy Tester, Stephen Benfield
Environmental sample processing	Anna West
Finds Processing	Jonathan Van Jennians

SCCAS also uses a range of external consultants for post-excavation analysis who will be sub-contracted as required. The most commonly used of these are listed below.

Sue Anderson	Human skeletal remains	Freelance
Sarah Bates	Lithics	Freelance
Julie Curl	Animal bone	Freelance
Anna Doherty	Prehistoric pottery	Archaeology South-East
Val Fryer	Plant macrofossils	Freelance
SUERC	Radiocarbon dating	Scottish Universities Environmental Research Centre

Economy, Skills and Environment
9–10 The Churchyard, Shire Hall
Bury St Edmunds
Suffolk
IP33 1RX

**Brief for a Geophysical Survey and
Trenched Archaeological Evaluation**

AT

LAND OFF THELNETHAM ROAD, HOPTON

PLANNING AUTHORITY: St Edmundsbury Borough Council

PLANNING APPLICATION NUMBER: Pre-application

HER NO. FOR THIS PROJECT: To be arranged with the Suffolk HER Officer (email james.rolfe@suffolk.gov.uk)

GRID REFERENCE: TL 993 789

DEVELOPMENT PROPOSAL: Housing

AREA: c. 3.2

CURRENT LAND USE: Greenfield

THIS BRIEF ISSUED BY: Matthew Brudenell
Senior Archaeological Officer
Conservation Team
Tel. : 01284 741227
E-mail: matthew.brudenell@suffolk.gov.uk

Date: 03 April 2014

Summary

- 1.1 The applicant and Local Planning Authority (LPA) have been advised that the location of the proposed development could affect important archaeological deposits.
- 1.2 The applicant is required to undertake a preliminary archaeological field evaluation prior to consideration of the proposal, in accordance with a Written Scheme of Investigation. This information should be incorporated in the design and access statement, in accordance with the National Planning Policy Framework (paragraphs 128, 129 and 132), in order for the LPA to be able to take into account the particular nature and the significance of any below-ground heritage assets at this location.

- 1.3 This brief stipulates the minimum requirements for the archaeological investigation, and should be used in conjunction with the Suffolk County Council Archaeology Service Conservation Team's (SCCAS/CT) Requirements for Archaeological Evaluation 2012 Ver 1.1. These should be used to form the basis of the Written Scheme of Investigation (WSI).
- 1.4 The archaeological contractor, commissioned by the applicant, must submit a copy of their WSI to SCCAS/CT. Following acceptance by SCCAS/CT, it is the commissioning body's responsibility to submit the WSI to the LPA for formal approval. No fieldwork should be undertaken on site without the written approval of the LPA. Only the full implementation of the scheme, both completion of fieldwork and reporting (including the need for any further work following this evaluation), will enable SCCAS/CT to advise the LPA that requirement for this investigation have been met.
- 1.5 The WSI should be approved before costs are agreed with the commissioning client, in line with Institute for Archaeologists' guidance. Failure to do so could result in additional and unanticipated costs.
- 1.6 The WSI will *provide the basis for measurable standards* and will be used to establish whether the requirements of the planning condition will be adequately met. If the approved WSI is not carried through in its entirety (particularly in the instance of trenching being incomplete) the evaluation report may be rejected.

Archaeological Background

- 2.1 This site lies in an area of high archaeological potential as recorded by information held by the County Historic Environment Record (HER). The site is located in the Little Ouse Valley overlooking Hopton Fen in a location that was topographically favourable for early occupation of all periods. Extensive scatters of Prehistoric, Saxon, Roman and Medieval pottery have been recorded in fields immediately west (HER no. HPN 10-11), and the northern section of the site falls within the historic core of the village (HPN 023), where there is potential for Medieval roadside settlement.

Planning Background

- 3.1 In June 2012, the SCCAS/CT commented on the plot allocation (RV16a) as part of the consultation for the Bury Rural Vision 2013 Preferred Options Proposals. The following response was given:

‘This option should be subject to pre-determination archaeological evaluation to allow for preservation *in situ* of any sites of national importance that might be defined (and which are currently unknown).’
- 3.1 The programme of pre-determination evaluation outlined in this brief is not sufficient for the purposes of designing an appropriate mitigation strategy. The applicant should be aware that the SCCAS/CT will seek to secure a further programme of evaluation trial trenching by condition (up to a further 4% sample of the development area) if consent is granted.

Fieldwork Requirements for Archaeological Investigation

- 4.1 A geophysical survey and preliminary trenched evaluation is required of the development area to enable the archaeological resource, both in quality and extent, to be assessed prior to the determination of the planning application.
- 4.2 Trial Trenching is required to:
- ‘Ground-truth’ the geophysical results.
 - Identify the date, approximate form and purpose of any archaeological deposit, together with its likely extent, localised depth and quality of preservation.
 - Evaluate the likely impact of past land uses, and the possible presence of masking colluvial/alluvial deposits.
 - Establish the potential for the survival of environmental evidence.
 - Establish the suitability of the area for development.
- 4.4 Linear trial trenches are to be excavated to cover of total of 1% by area, which is c. 320m². These shall be positioned to sample geophysical anomalies and test ‘blank’ areas of the site. Trenches are to be a minimum of 1.80m wide unless special circumstances can be demonstrated; this will result in c. 180m of trenching at 1.80m in width.
- 4.5 When the geophysical survey results are available, a trench design should be prepared. This must be sent to SCCAS/CT for approval before trenching begins.

Arrangements for Archaeological Investigation

- 5.1 The composition of the archaeological contractor’s staff must be detailed and agreed by SCCAS/CT, including any subcontractors/specialists. Ceramic specialists, in particular, must have relevant experience from this region, including knowledge of local ceramic sequences. Metal detector users must have experience.
- 5.2 All arrangements for the evaluation of the site, the timing of the work and access to the site, are to be defined and negotiated by the archaeological contractor with the commissioning body.
- 5.3 The project manager must also carry out a risk assessment and ensure that all potential risks are minimised, before commencing the fieldwork. The responsibility for identifying any constraints on fieldwork (e.g. designated status, public utilities or other services, tree preservation orders, SSSIs, wildlife sites and other ecological considerations rests with the commissioning body and its archaeological contractor.
- 5.4 The archaeological contractor will give SCCAS/CT ten working days notice of the commencement of ground works on the site, in order that the work of the archaeological contractor may be monitored, signed off as satisfactory and in accordance with the WSI.

Reporting and Archival Requirements

- 6.1 The project manager must consult the Suffolk HER Officer to obtain an event number for the work. This number will be unique for each project or site and must be clearly marked on all documentation relating to the work.
- 6.2 An archive of all records and finds is to be prepared, consistent with the principles of *MoRPHE*. It must be adequate to perform the function of a final archive for deposition in the Archaeological Store of SCCAS/CT or in a suitable museum in Suffolk (see Archaeological Archives Forum: a guide to best practice 2007).
- 6.3 Finds must be appropriately conserved and stored in accordance with guidelines from *The Institute of Conservation* (ICON).
- 6.4 The project manager should consult the intended archive depository before the archive is prepared regarding the specific requirements for the archive deposition and curation, and regarding any specific cost implications of deposition. The intended depository must be prepared to accept the entire archive resulting from the project (both finds and written archive) in order to create a complete record of the project. A clear statement of the form, intended content, and standards of the archive is to be submitted for approval as an essential requirement of the WSI.
- 6.5 For deposition in the SCCAS/CT's Archaeological Store, the archive should comply with SCCAS Archive Guidelines 2010. If this is not the intended depository, the project manager should ensure that a duplicate copy of the written archive is deposited with the Suffolk HER.
- 6.6 A report on the fieldwork and archive must be provided. Its conclusions must include a clear statement of the archaeological value of the results, and their significance. The results should be related to the relevant known archaeological information held in the Suffolk HER.
- 6.7 An opinion as to the necessity for further evaluation and its scope may be given, although the final decision lies with SCCAS/CT. No further site work should be embarked upon until the evaluation results are assessed and the need for further work is established.
- 6.8 An unbound hardcopy of the report clearly marked DRAFT, must be presented to SCCAS/CT for comment and approval. Where a report fails to meet the required standards, a revised draft report should be submitted to SCCAS/CT. Following approval of the report by SCCAS/CT, a single hard copy of the report as well as a digital .pdf version of the report should be sent to the archaeological officer, who will deposit both with the HER.
- 6.9 SCCAS/CT supports the OASIS project, to provide an online index to archaeological reports. Before fieldwork commences, an OASIS online record <http://ads.ahds.ac.uk/project/oasis/> must be initiated and key fields completed on Details, Location and Creators forms. When the project is completed, all parts of the OASIS online form must be completed and a copy must be also included in the final report and also with the site archive.
- 6.10 Where positive results are drawn from a project, a summary report must be sent to the archaeological officer, suitable for inclusion in the annual 'Archaeology in Suffolk' section of the *Proceedings of the Suffolk Institute of Archaeology and History*. This summary should be included in the project report, or submitted to

SCCAS/CT by the end of the calendar year in which the work takes place, whichever is the sooner.

Standards and Guidance

Further detailed requirements are to be found in our Requirements for Trenched Archaeological Evaluation 2011 Ver 1.3. This can be downloaded from: <http://www.suffolk.gov.uk/libraries-and-culture/culture-and-heritage/archaeology/planning-and-countryside-advice/>

Standards, information and advice to supplement this brief are to be found in *Standards for Field Archaeology in the East of England*, East Anglian Archaeology Occasional Papers 14, 2003. This can be downloaded from: <http://www.eaareports.org.uk/Regional%20Standards.pdf>

The Institute for Archaeologists' *Standard and Guidance for archaeological field evaluation* (revised 2001) should be used for additional guidance in the execution of the project and in drawing up the report. This can be downloaded from: <http://www.archaeologists.net/codes/ifa>

Notes

There are a number of archaeological contractors that regularly undertake work in the County and SCCAS will provide advice on request. SCCAS/CT does not give advice on the costs of archaeological projects. The Institute for Archaeologists maintains a list of registered archaeological contractors (<http://www.archaeologists.net> or 0118 378 6446).

This brief remains valid for one year. If work is not carried out in full within that time this document will lapse; the brief may need to be revised and re-issued to take account of new discoveries, changes in policy and techniques.

Appendix 2. Context list

Context No	Feature No	Grid Sq.	Feature Type	Description	Length	Width	Depth	Small Finds	Cuts	Cut by	Over	Under	Finds	Sample	Group No	Phase	Spotdate
0001			Other	Unstrat finds									No	No			
0002			Layer	Mid grey brown silty sand topsoil						0015			No	No			
0003	0003		Pit Cut	Number assigned for site wide topsoil Amorphous/rough linear on n-s alignment "U" profile with flat base Modern, unable to differentiate between topsoil and fill									No	No			
0004	0003		Pit Fill	Mid grey brown friable silty sand. Exactly the same as topsoil, unable to differentiate between topsoil and fill. Contains modern brick and glass									No	No			
0005	0005		Pit Cut	Linear/amorphous, n-s aligned with shallow straight sides and flat base									No	No			
0006	0005		Pit Fill	Modern Mid to dark brown friable silty sand with infrequent flint									No	No			
0007			Layer	Mid orange brown silty sand. Present in most trenches, depth varies across site due to topography									No	No			
0008			Layer	Pale grey brown silty sand with frequent flint inclusions, compact. Mod charcoal flecks									Yes	No			
0009			Layer	Lower subsoil trench 4 Pale grey brown silty sand with frequent flint inclusions, compact. Mod charcoal flecks, contains small pot sherds and flint scraper									Yes	No			
0010			Layer	lower subsoil trench 7 Pale grey brown silty sand with frequent flint inclusions, compact. Mod charcoal flecks									No	No			
0011			Layer	Lower subsoil trench 17 Pale grey brown silty sand with frequent flint inclusions, compact. Mod charcoal flecks									No	No			
0012			Layer	Lower subsoil trench 8 Pale grey brown silty sand with frequent flint inclusions, compact. Mod charcoal flecks									No	No			
0013			Layer	Lower subsoil trench 12 Pale grey brown silty sand with frequent flint inclusions, compact. Mod charcoal flecks									No	No			
0014	0014		Ditch Cut	Lower subsoil trench 18 Linear n-s aligned with moderate steep concave sides which break to steep with a narrow flat base. Cuts subsoil 0007							0016		No	No			
0015	0014		Ditch Fill	Post med ditch in alignment with current hedgerow Mid grey brown loose silty sand with moderate subround stones							0016	0002	Yes	No			
0016	0014		Ditch Fill	Upper fill of ditch Light grey compact sand with chalk flecks, basal fill							0014	0015	No	No			

Context No	Feature No	Grid Sq.	Feature Type	Description	Length	Width	Depth	Small Finds	Cuts	Cut by	Over	Under	Finds	Sample	Group No	Phase	Spotdate
0017			Layer	CREATED VIA BULK FINDS ENTRY 'same as subsoil layer 0007 in Tr 20'									Yes	No			

Appendix 3. OASIS form

OASIS DATA COLLECTION FORM: England

[List of Projects](#) | [Manage Projects](#) | [Search Projects](#) | [New project](#) | [Change your details](#) | [HER coverage](#)
| [Change country](#) | [Log out](#)

Printable version

OASIS ID: suffolkc1-178339

Project details

Project name	Land off Thelnetham Road, Hopton
Short description of the project	An archaeological evaluation involving the excavation of 20 trenches took place at Land off Thelnetham Road, Hopton prior to a planning application for development of the site for housing. The trenches revealed areas of modern disturbance and a single post medieval ditch.
Project dates	Start: 03-11-2014 End: 07-11-2014
Previous/future work	Yes / Not known
Any associated project reference codes	HPN 026 - HER event no.
Any associated project reference codes	HPN 026 - Sitecode
Type of project	Field evaluation
Site status	None
Current Land use	Cultivated Land 2 - Operations to a depth less than 0.25m
Monument type	DITCH Post Medieval
Significant Finds	POTTERY Medieval
Significant Finds	POTTERY Post Medieval
Significant Finds	POTTERY Iron Age
Significant Finds	FLINT Late Prehistoric
Methods & techniques	"Sample Trenches"
Development type	Housing estate

Prompt Direction from Local Planning Authority - Direction 4

Position in the planning process Pre-application

Project location

Country England

Site location SUFFOLK ST EDMUNDSBURY HOPTON Land off Thelnetham Road, Hopton

Postcode IP22 2NU

Study area 2.70 Hectares

Site coordinates TL 9930 7880 52.3704641497 0.927947972579 52 22 13 N 000 55 40 E Point

Height OD / Depth Min: 26.00m Max: 32.00m

Project creators

Name of Organisation Suffolk County Council Archaeological Service

Project brief originator Local Authority Archaeologist and/or Planning Authority/advisory body

Project design originator Dr Matthew Brudenell

Project director/manager John Craven

Project supervisor Simon Picard

Type of sponsor/funding body Consultant on behalf of client

Name of sponsor/funding body Pigeon Investment Management

Project archives

Physical Archive recipient Suffolk County SMR

Physical Archive ID HPN 026

Physical Contents "Ceramics", "Glass", "Worked stone/lithics"

Digital Archive recipient Suffolk County SMR

Digital Archive ID HPN 026

Digital Contents "Stratigraphic", "Survey"

Digital Media available "Database", "GIS", "Geophysics", "Images raster / digital photography", "Text"

Paper Archive Suffolk County SMR

recipient

Paper Archive ID HPN 026

Paper Contents "Stratigraphic", "Survey"

Paper Media available "Context sheet", "Correspondence", "Drawing", "Map", "Plan", "Report", "Section", "Unpublished Text"

Project bibliography 1

Publication type Grey literature (unpublished document/manuscript)

Title Land off Thelnetham Road, Hopton

Author(s)/Editor(s) Picard, S.

Other bibliographic details SCCAS 2014/126

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Please e-mail [English Heritage](#) for OASIS help and advice

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Cite only: <http://www.oasis.ac.uk/form/print.cfm> for this page

Appendix 4. Geophysical survey



LAND OFF THELNETHAM ROAD, HOPTON, SUFFOLK

DETAILED MAGNETOMETER SURVEY



Report Number: 1057

May 2014



LAND OFF THELNETHAM ROAD, HOPTON, SUFFOLK

DETAILED MAGNETOMETER SURVEY

Prepared for:
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May 2014

Site Code	HPN 026	NGR	TL 993 789
Planning Ref.	-	OASIS	britanni1-178345
Approved By	Matt Adams	DATE	May 2014



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ABSTRACT

Detailed fluxgate gradiometer survey was undertaken by Britannia Archaeology Ltd over two fields (3.29 hectares) on the 12th - 13th May 2014. Despite the sites potential for encountering anomalies of possible prehistoric origin, only a relatively narrow range may be of an archaeological derivation.

Isolated dipolar responses were most numerous throughout the dataset and have probably been caused by the presence of modern ferrous cultural debris introduced into the topsoil through manuring and loss, rather than resulting from the presence of buried archaeological artefacts. Six areas of magnetic disturbance were recorded in the dataset, predominantly located in the north-eastern part of the larger field and within the football pitch to the north, caused by the presence of extant ferrous football posts and by the location of ferrous material and fences along the boundaries.

A series of weak positive linear trends have been recorded in both fields orientated north-east to south-west, they are potentially indicative of agricultural strip fields. Further recorded in the dataset were two negative linear trends that are likely to delineate the location of non-ferrous service runs, present near to the eastern and western boundaries of the larger field.

Sixteen positive discrete anomalies present predominantly within the northern half of the agricultural field are indicative of archaeological rubbish pits, however this area has been used for bonfires and quarrying which may explain the readings.

One weak positive curvilinear anomaly present in the north-western corner of the agricultural field may be indicative of a ring ditch, however equally this anomaly may have been caused by a natural change in the superficial geology.

Further targeted trial trenching to ground- test the hypotheses given in this report would be prudent.



1.0 INTRODUCTION

On the 12th and 13th May 2014 Britannia Archaeology Ltd (BA) undertook a detailed fluxgate gradiometer survey over 3.29 hectares of one agricultural field and land used by the school as a football pitch, in advance of a proposed residential development off Thelnetham Road, Hopton, Suffolk (TL 993 789).

The survey was commissioned by Mr John Craven of Suffolk County Council Archaeological Service Field Team in response to a design brief issued by Suffolk County Council Archaeology Service/Conservation Team (SCCAS/CT), (Brudenell. M, dated 03/04/2014).

2.0 SITE DESCRIPTION

The site is located to the south of Thelnetham Road and to the east of Bury Road in Hopton, Suffolk, in one agricultural field and a football pitch to the south and east of Hopton Primary VCP School. It lies at a height of c.30m AOD, bordered to the north by the school and a housing estate, to the east by a bowling green and to the south by an agricultural field.

Bedrock geology is described as Lewes Nodular Chalk, Seaford Chalk, Newhaven Chalk, and Culver Chalk Formation, deposited approximately 71 to 94 million years ago in the Cretaceous Period when the local environment was dominated by warm chalk seas (BGS, 2014).

Superficial geology is described as Lowestoft Formation Diamicton formed up to 2 million years ago in the Quaternary Period when the local environment was dominated by ice age glaciers, scouring the landscape depositing moraines of till with outwash sand and gravel from seasonal and post glacial meltwaters (BGS 2014).

3.0 PLANNING POLICIES

The geophysical survey is to be carried out on the recommendation of the county council (SCCAS/CT), following guidance laid down by the *National Planning and Policy Framework* (NPPF, DCLD 2012) which replaced *Planning Policy Statement 5: Planning for the Historic Environment* (PPS5, DCLG 2010) in March 2012. The relevant local development framework is *The Replacement St Edmundsbury Borough Local Plan (2016)*.

3.1 *National Planning Policy Framework (NPPF, DCLG March 2012)*

The NPPF recognises that 'heritage assets' are an irreplaceable resource and planning authorities should conserve them in a manner appropriate to their significance when considering development. It requires developers to record and advance understanding of the significance of any heritage assets to be lost (wholly or in part) in a manner



proportionate to their importance and the impact, and to make this evidence (and any archive generated) publicly accessible. The key areas for consideration are:

- The significance of the heritage asset and its setting in relation to the proposed development;
- The level of detail should be proportionate to the assets' importance and no more than is sufficient to understand the potential impact of the proposal on their significance;
- Significance (of the heritage asset) can be harmed or lost through alteration or destruction, or development within its setting. As heritage assets are irreplaceable, any harm or loss should require clear and convincing justification;
- Local planning authorities should not permit loss of the whole or part of a heritage asset without taking all reasonable steps to ensure the new development will proceed after the loss has occurred; and
- Non-designated heritage assets of archaeological interest that are demonstrably of equivalent significance to scheduled monuments, should be considered subject to the policies for designated heritage assets.

3.2 *The Replacement St Edmundsbury Borough Local Plan (2016).*

The relevant section in the local plan (9. Heritage and Conservation) states the following aims and objectives:

9.1 To maintain and improve the quality of the built environment

9.2 To achieve this aim, the objectives are to:

- a) retain and enhance the character and appearance of the historic environment and ensure that new development is sensitive to the character of the locality;
- b) safeguard listed buildings, conservation areas and parks and gardens of special historic or design interest and their settings from inappropriate development;
- c) protect and conserve the fabric of historic buildings, structures and other features, and the archaeological remains related to them; and
- d) protect and conserve sites of archaeological importance and their settings.

4.0 ARCHAEOLOGICAL BACKGROUND

This site is present within an area of high archaeological potential as recorded in the Suffolk County Historic Environment Record (SHER). It is located in the Little Ouse Valley overlooking Hopton Fen, an area that was topographically favourable for early occupation from all periods. Extensive pottery scatters of Prehistoric, Saxon, Roman and Medieval date have been recorded in fields immediately to the west (HER no. HPN 10-



11). There is also the potential for locating anomalies associated with Medieval roadside settlement because a proportion of the northern part of site is present within the historic core of the village (HPN 023).

5.0 PROJECT AIMS

A non-intrusive field survey by geophysical prospection is required of the area to determine the extent and significance of subsurface anomalies, followed by a subsequent trial trench evaluation, the aims and objectives are laid out as follows in Section 4 of the brief:

- 4.1 A geophysical survey and preliminary trenched evaluation is required of the development area to enable the archaeological resource, both in quality and extent, to be assessed prior to the determination of the planning application.
- 4.2 Trial Trenching is required to:
 - 'Ground-truth' the geophysical results.
 - Identify the date, approximate form and purpose of any archaeological deposit, together with its likely extent, localised depth and quality of preservation.
 - Evaluate the likely impact of past land uses, and the possible presence of masking colluvial/alluvial deposits.
 - Establish the potential for the survival of environmental evidence.
 - Establish the suitability of the area for development.

The trial trench evaluation phase of site work is to be undertaken by the SCCAS Field Team who will prepare a Written Scheme and trench design informed by the results of the geophysical survey.

6.0 METHODOLOGY

6.1 Instrument Type Justification

Britannia Archaeology Ltd employed a Bartington Dual Grad 601-2 fluxgate gradiometer to undertake the survey, because of its high sensitivity and rapid ground coverage. The surveyors noted that that the background magnetic susceptibility was relatively low, and therefore it was relatively simple to locate a suitable zero station.



6.2 Instrument Calibration

One hour was allowed in the morning for the magnetometers sensors to settle before the start of the first grid. The instrument was zeroed after every three to five grids to minimise the effect of sensor drift. An area with a relatively low magnetic reading was chosen to calibrate the instrument; this same point was used to zero the sensors throughout the survey providing a common zero point. The survey was undertaken in overcast conditions interspersed with occasional rain and long periods of sunshine over the two days which caused a degree of sensor drift, and the characteristic parallel traverse 'striping' in the raw dataset (Figure 2) that is prevalent throughout the raw dataset.

6.3 Sampling Interval and Grid Size

The sampling interval was set at 0.25m along 1m traverse intervals, providing 4 readings a metre, the magnetometer survey was undertaken on 20 x 20m grids.

6.4 Survey Grid Location

The survey grid was set out to the Ordnance Survey OSGB36 datum to an accuracy of $\pm 0.1\text{m}$ employing a Leica Viva Glonass Smart Rover GS08 real time kinetic (RTK) survey system. Data were converted to the National Grid Transformation OSTN02 and the instrument was regularly tested using stations with known ETRS89 coordinates. The grids were positioned on a north-west to south-east alignment (Figure 1).

6.5 Data Capture

Instrument readings were recorded on an internal data logger that were downloaded to a laptop at lunchtime and then also at the end of the day. The grid order was recorded on a BA pro-forma to aid in the creation of the data composites. Data were filed in job specific folders. These data composites were checked for quality on site by BA, allowing grids to be re-surveyed if necessary. The data were backed up onto an external storage device in the office and finally a remote server at the end of the day. A five metre exclusion zone was left between the boundaries and the survey area to reduce the amount of field boundary magnetic disturbance, which slightly reduced the area available.

6.6 Data Presentation and Processing

Data are presented in both raw and processed data plots in greyscale format (Figures 2 and 3). An XY trace plot of the processed data has also been included (Figure 4).

The raw data is presented with no processing, and was clipped to produce a uniform greyscale plot, processed data schedules are also displayed below.

Raw Data:

Data Clipping: 1.00 standard deviation.

Display Clipping: +/- 3 standard deviations.



Processed Data:

- De-spike:** X diameter = 3, Y diameter = 3, Threshold = 1, centre value=mean, replace with = mean;
De-stripe: Median Traverse: All;
Data Clipping: 1.00 standard deviation;
Display Clipping: +/- 3 standard deviations.

An interpretation plan characterising the anomalies recorded can be found at Figure 5, drawing together the evidence collated from both greyscale and XY trace plots (Figures 2, 3 and 4). All figures are tied into the National Grid and printed at an appropriate scale.

6.7 Software

Raw data were downloaded using DW Consulting's Archeosurveyor v2.0 and will be stored in this format as raw data. The software used to process the data and produce the composites was also DW Consulting's Archeosurveyor v2.0. Datasets were exported into AutoCAD and placed onto the local survey grid. Interpretation plots were then produced using AutoCAD.

6.8 Grid Restoration

Britannia Archaeology Ltd positioned no reference stations within the field however the grids can be relocated using the geo-referenced stations presented in Figure 1; these coordinates can also enable the accurate targeting of geophysical anomalies.

7.0 RESULTS & DISCUSSION

Isolated dipolar ('iron spike') responses were most numerous throughout the dataset and have probably been caused by the presence of modern ferrous cultural debris introduced into the topsoil through manuring and loss, rather than resulting from the presence of buried archaeological artefacts. These responses (yellow hatched circles) seem to be fairly evenly spaced throughout the field with no apparent concentration.

Six areas of magnetic disturbance (yellow/magenta hatching) were recorded in the dataset, predominantly located in the north-eastern part of the field and within the football pitch to the north. The two magenta areas record the presence of extant ferrous football posts. Those present on the sites periphery are caused by the location of ferrous material and fences along the boundaries.

Two negative linear trends (blue lines) located near to the eastern and western boundaries of the agricultural field are likely to delineate the location of non-ferrous service runs. Caution should be exercised when excavating below ground level in these areas.



A series of weak positive linear trends (green lines) have been recorded in both fields, all of which are orientated north-east to south-west, potentially indicative of agricultural strip fields. Further targeting of these anomalies would be prudent to test this hypothesis.

Sixteen positive discrete anomalies (orange hatching) are present predominantly within the northern half of the agricultural field. A cluster of ten are recorded in the north-eastern corner and are indicative of archaeological rubbish pits. However the landowner believes that this area has been used for bonfires, and that quarrying has also occurred here in the recent past, which may also explain the readings. Two weak positive discrete anomalies have been recorded towards the centre of the plot in the eastern half of the field, they may be indicative of archaeological pits however a geological origin cannot be ruled out. Further archaeological investigations would enable these anomalies to be quantified.

One weak positive curvilinear anomaly (cyan hatching) present in the north-western corner of the agricultural field may be indicative of a ring ditch, however it may have been caused by a natural change in the superficial geology. Targeted trenching to further evaluate this anomaly would be prudent.

8.0 CONCLUSION

The site has a relatively low background magnetic susceptibility, due to the nature of the underlying superficial geology, this provided good clarity between the magnetic background and the more magnetically susceptible readings of the anomalies. Despite the potential for recording anomalies of a potential archaeological origin, only a small degree of those recorded within the dataset are worthy of further archaeological investigation.

9.0 PROJECT ARCHIVE AND DEPOSITION

A full archive will be prepared for all work undertaken in accordance with guidance from the *Selection, Retention and Dispersion of Archaeological Collections*, Archaeological Society for Museum Archaeologists, 1993. Arrangements will be made for the archive to be deposited with the relevant museum/HER Office.

10.0 ACKNOWLEDGEMENTS

Britannia Archaeology Ltd would like to thank Mr John Craven of Suffolk County Council Archaeological Service Field Team for commissioning the project, and to Dr Mr Matthew Brudenell of Suffolk County Council Archaeological Service/Conservation Team for his advice throughout.



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APPENDIX 1 METADATA SHEETS

Raw Data

Filename	HOP Raw.xcp
Description	
Instrument Type	Grad 601-2 (Gradiometer)
Units	nT
Surveyed by	MB/TPS on 5/13/2014
Assembled by	TPS on 5/13/2014
Direction of 1st Traverse	45 deg
Collection Method	ZigZag
Sensors	2 @ 1.00 m spacing.
Dummy Value	32702.00
Dimensions	
Composite Size (readings)	880 x 240
Survey Size (meters)	220.00m x 240.00 m
Grid Size	20.00 m x 20.00 m
X Interval	0.25 m
Y Interval	1.00 m
Stats	
Max	9.32
Min	-5.84
Std Dev	2.87
Mean	2.03
Median	2.00
Composite Area	5.28 ha
Surveyed Area	2.30 ha
Program	
Name	ArcheoSurveyor
Version	2.5.16.0

Processed Data

Filename	HOP Pro.xcp
Description	
Instrument Type	Grad 601-2 (Gradiometer)
Units	nT
Surveyed by	MB/TPS on 5/13/2014
Assembled by	TPS on 5/13/2014
Direction of 1st Traverse	45 deg
Collection Method	ZigZag
Sensors	2 @ 1.00 m spacing.
Dummy Value	32702.00
Dimensions	
Composite Size (readings)	880 x 240
Survey Size (meters)	220.00m x 240.00 m
Grid Size	20.00 m x 20.00 m
X Interval	0.25 m
Y Interval	1.00 m
Stats	
Max	5.53
Min	-5.79
Std Dev	1.89
Mean	0.05
Median	0.00
Composite Area	5.28 ha
Surveyed Area	2.30 ha
Program	
Name	ArcheoSurveyor



Version	2.5.16.0
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Source Grids: 76	
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2	Col:0 Row:7 grids\02.xgd
3	Col:0 Row:8 grids\03.xgd
4	Col:0 Row:9 grids\04.xgd
5	Col:0 Row:10 grids\05.xgd
6	Col:0 Row:11 grids\06.xgd
7	Col:1 Row:6 grids\07.xgd
8	Col:1 Row:7 grids\08.xgd
9	Col:1 Row:8 grids\09.xgd
10	Col:1 Row:9 grids\10.xgd
11	Col:1 Row:10 grids\11.xgd
12	Col:1 Row:11 grids\12.xgd
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22	Col:3 Row:9 grids\22.xgd
23	Col:3 Row:10 grids\23.xgd
24	Col:3 Row:11 grids\24.xgd
25	Col:4 Row:6 grids\25.xgd
26	Col:4 Row:7 grids\26.xgd
27	Col:4 Row:8 grids\27.xgd
28	Col:4 Row:9 grids\28.xgd
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30	Col:4 Row:11 grids\30.xgd
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35	Col:5 Row:10 grids\35.xgd
36	Col:5 Row:11 grids\36.xgd
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52	Col:7 Row:11 grids\49.xgd
53	Col:8 Row:0 grids\53.xgd
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55	Col:8 Row:2 grids\55.xgd
56	Col:8 Row:3 grids\56.xgd



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74	Col:10	Row:8	grids\74.xgd
75	Col:10	Row:9	grids\75.xgd
76	Col:10	Row:10	grids\76.xgd



APPENDIX 2 – TECHNICAL DETAILS

Magnetometer Survey

The magnetometer differs from the 'active' magnetic susceptibility meter by being a 'passive' instrument. Rather than injecting a signal into the ground it detects slight variations in the Earth's magnetic field caused by cultural and natural disturbance (Clark).

Thermoremanent magnetism is produced when a material containing iron oxides is strongly heated. Clay for example has a high iron oxide content that in a natural state is weakly magnetic, when heated these weakly magnetic compounds become highly magnetic oxides that a magnetometer can detect.

The demagnetisation of iron oxides occurs above a temperature known as the Curie point; for example haematite has a Curie point of 675 Celsius and magnetite 565C. At the time of cooling the iron oxides become permanently re-magnetised with their magnetic properties re-aligned in the direction of the Earth's magnetic field (Gaffney and Gater). The direction of the Earth's magnetic field shifts over time and these subtle alignment differences can be recorded. Kilns, hearths, baked clay and ovens can reach Curie point temperatures, and are the strongest responses apart from large iron objects that can be detected. Other cultural anomalies that can be prospected include occupation areas, pits, ditches, furnaces, sunken feature buildings, ridge and furrow field systems and ritual activity (David, 2011). Commonly recorded anomalies include modern ferrous service pipes, field drainage pipes, removed field boundaries, perimeter fences and field boundaries.

Fluxgate Gradiometers

Fluxgate gradiometers are sensitive instruments that utilise two sensors placed in a vertical plane, spaced 1 metre apart. The sensor above reads the Earth's magnetic (background) response while the sensor below records the local magnetic field. Both sensors are carefully adjusted to read zero before survey commences at a 'zeroing' point, selected for its relatively 'quiet' magnetic background reading. When differences in the magnetic field strength occur between the two sensors a positive or negative reading is logged. Positive anomalies have a positive magnetic value and conversely negative anomalies have a negative magnetic value relative to the site's magnetic background. Examples of positive magnetic anomalies include hearths, kilns, baked clay, areas of burning, ferrous material, ditches, sunken feature buildings, furrows, ferrous service pipes, perimeter fences and field boundaries. Negative magnetic anomalies include earthwork embankments, plastic water pipes and geological features.

The instruments are usually held approximately 0.30m to 0.50m above the ground surface and can detect to a depth of between 1-2metres. Best practice dictates that the optimal direction of traverse in Britain is east to west.



Magnetic Anomalies

Linear trends

Linear trends can be both positive and negative magnetic responses. If they are broad, relatively weak or negative in nature they may be of agricultural or geological origin, for example periglacial channels, land drains or ploughing furrows. If the responses are strong positive trends they are more likely to be of archaeological origin. Archaeological settlement ditches tend to be rich in highly magnetic iron oxides that accumulate in them via anthropogenic activity and humic backfills. Conversely surviving banks will be negative in nature, the material is derived from subsoil deposits that is less likely to be positively magnetic. Curvilinear trends can also be recorded and are indicative of archaeological structures such as drip-gullies.

Discrete anomalies

Discrete anomalies appear as increased positive responses present within a localised area. They are caused by a general increase in the amount of magnetic iron oxides present within the humic back-fill of for example a rubbish pit.

'Iron spike' anomalies

These strong isolated dipolar responses are usually caused by ferrous material present in the topsoil horizon. They can have an archaeological origin but are usually introduced into the topsoil during manuring.

Areas of magnetic disturbance

An area of magnetic disturbance is usually associated with material that has been fired. For example areas of burning, demolition (brick) rubble or slag waste spreads. They can also be caused by ferrous material, e.g. close proximity to barbwire or metal fences and field boundaries, buried services, pylons and modern rubbish deposits.



APPENDIX 3 – OASIS FORM

OASIS ID: **britannia1-178345**

Project details

Project name

Land Off Thelnetham Road, Hopton, Suffolk: Detailed Magnetometer Survey.

Short description of the project

Detailed fluxgate gradiometer survey was undertaken by Britannia Archaeology Ltd over two fields (3.29 hectares) on the 12th - 13th May 2014. Despite the sites potential for encountering anomalies of possible prehistoric origin, only a relatively narrow range may be of an archaeological derivation. Isolated dipolar responses were most numerous throughout the dataset and have probably been caused by the presence of modern ferrous cultural debris introduced into the topsoil through manuring and loss, rather than resulting from the presence of buried archaeological artefacts. Six areas of magnetic disturbance were recorded in the dataset, predominantly located in the north-eastern part of the larger field and within the football pitch to the north, caused by the presence of extant ferrous football posts and by the location of ferrous material and fences along the boundaries. A series of weak positive linear trends have been recorded in both fields orientated north-east to south-west, they are potentially indicative of agricultural strip fields. Further recorded in the dataset were two negative linear trends that are likely to delineate the location of non-ferrous service runs, present near to the eastern and western boundaries of the larger field. Sixteen positive discrete anomalies present predominantly within the northern half of the agricultural field are indicative of archaeological rubbish pits, however this area has been used for bonfires and quarrying which may explain the readings. One weak positive curvilinear anomaly present in the north-western corner of the agricultural field may be indicative of a ring ditch, however equally this anomaly may have been caused by a natural change in the superficial geology. Further targeted trial trenching to ground- test the hypotheses given in this report would be prudent.

Project dates

Start: 12-05-2014 **End:** 13-05-2014

Previous/future work

No / Yes

Any associated project reference codes

P1060 - Contracting Unit No.
R1057 - Contracting Unit No.
HPN 026 - Sitecode

Type of project

Field evaluation

Site status

None

Current Land use

Cultivated Land 3 - Operations to a depth more than 0.25m

Monument type

NONE None

Significant Finds

NONE None

Methods & techniques

"Geophysical Survey"

Development type

Housing estate

Prompt

National Planning Policy Framework - NPPF

Position in the planning process

Pre-application

Solid geology (other)

Lewes Nodular, Seaford, Newhaven and Culver Chalk Formations

Drift geology (other)

Lowestoft Formation Sand and Gravel

Techniques

Magnetometry

Project location

Country

England

Site location

SUFFOLK ST EDMUNDSBURY THELNETHAM Land off Thelnetham Road, Hopton, Suffolk

Study area

3.29 Hectares

Site coordinates

TL 993 789 52.3713620835 0.928007399572 52 22 16 N 000 55 40 E
Point

Height OD / Depth

Min: 30.00m **Max:** 30.00m

Project creators

Name of Organisation

Britannia Archaeology Ltd

Project brief originator

Local Planning Authority (with/without advice from County/District Archaeologist)

Project design originator

Timothy Schofield

Project director/manager

Timothy Schofield



Project supervisor	Timothy Schofield
Type of sponsor/funding body	Archaeological Contractor
Name of sponsor/funding body	Suffolk County Council Archaeological Service
Project archives	
Physical Archive Exists?	No
Digital Archive recipient	Suffolk HER
Digital Contents	"Survey"
Digital Media available	"Geophysics", "Images raster / digital photography", "Images vector", "Survey", "Text"
Paper Archive recipient	Suffolk HER
Paper Contents	"Survey"
Paper Media available	"Plan", "Report", "Survey ", "Unpublished Text"
Project bibliography 1	
Publication type	Grey literature (unpublished document/manuscript)
Title	Land off Thelnetham Road, Hopton, Suffolk; Detailed Magnetometer Survey.
Author(s)/Editor(s)	Schofield, T.P
Other bibliographic details	R1057
Date	2014
Issuer or publisher	Britannia Archaeology Ltd
Place of issue or publication	Stowmarket
Description	A4 Bound Report with A3 fold-out Figures.
URL	www.britannia-archaeology.com
Entered by	Tim Schofield (tim@britannia-archaeology.com)
Entered on	4 June 2014



STATION	EASTING	NORTHING
01	599181.866	278788.035
02	599328.054	278723.006



Survey Grid
Site Boundary

MGR: TL 993 789
REPORT NUMBER: 1057

PROJECT:
LAND OFF THE LETHAM ROAD,
HOPTON, SUFFOLK

CLIENT:
 Suffolk
County Council

DESCRIPTION:
SITE, SURVEY GRID &
REFERENCING INFORMATION PLAN

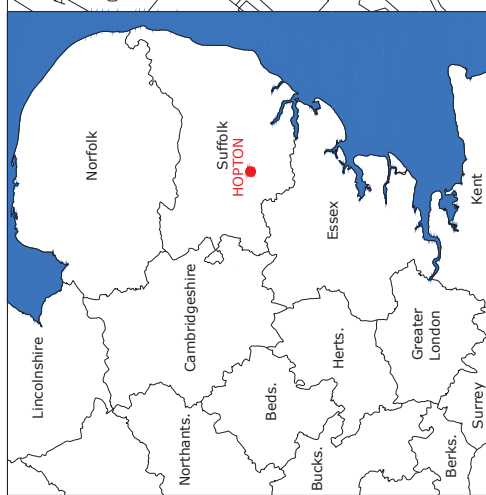
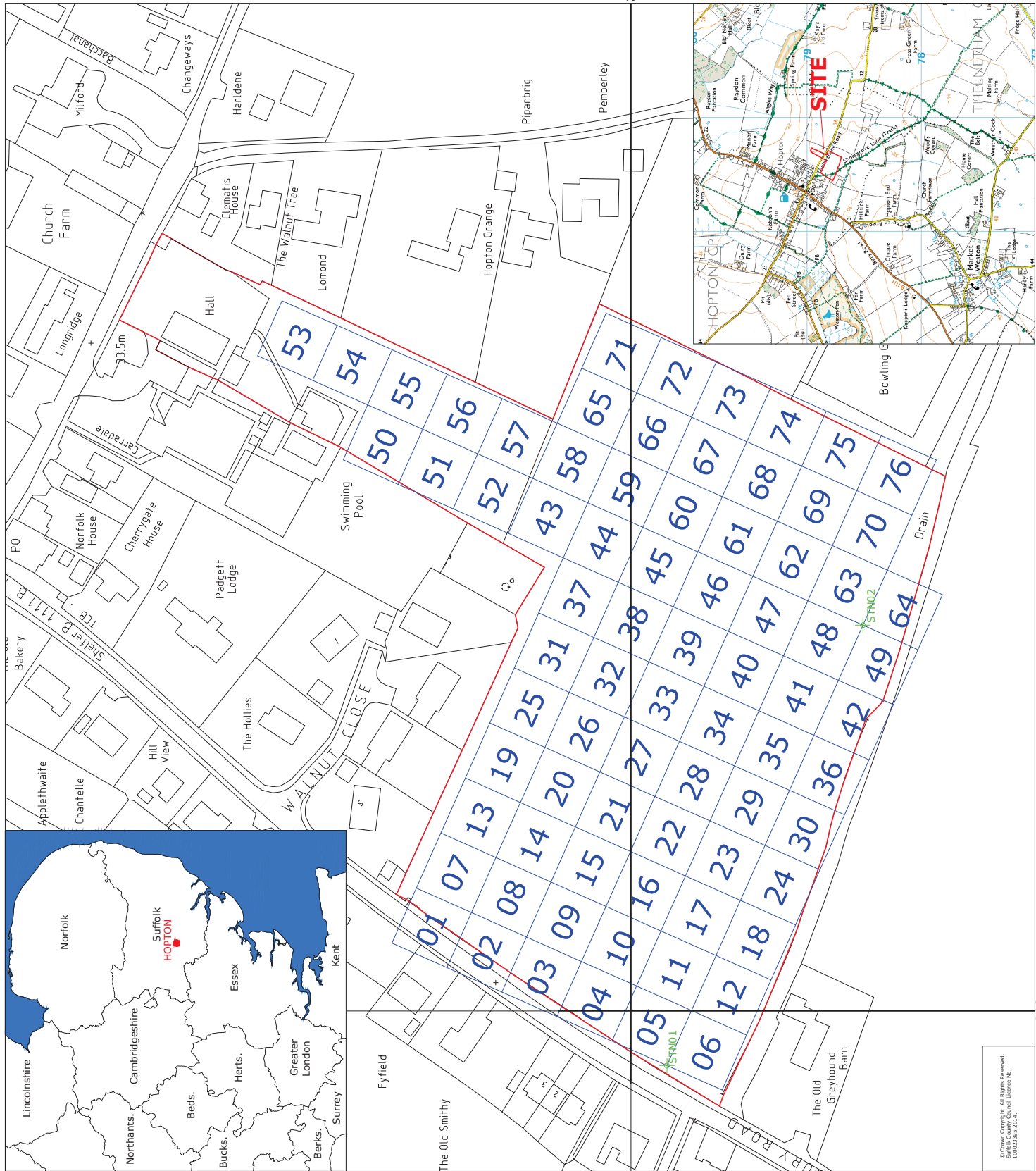
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SCALE: 1:1250
PLOT: A3
DATE: MAY 2014

APPROVED:	VERSION:
AUTHOR:	FIGURE:
MB	01
TPS	01



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599200



+9.32nT



-5.84nT



Site Boundary

NGR: TL 993 789

REPORT NUMBER:
1057

PROJECT:

LAND OFF THELNETHAM ROAD,
HOPTON, SUFFOLK

CLIENT:



DESCRIPTION:

RAW MAGNETOMETER
GREYSCALE PLOT

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SCALE:
1:1000



APPROVED:

MB

VERSION:
01

PLOT:
A3

AUTHOR:

TPS

DATE:
MAY 2014

FIGURE:
02



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Site Boundary

NGR: TL 993 789 REPORT NUMBER: 1057

PROJECT: LAND OFF THELNETHAM ROAD, HOPTON, SUFFOLK

CLIENT: Suffolk County Council

DESCRIPTION: PROCESSED MAGNETOMETER GREYSCALE PLOT

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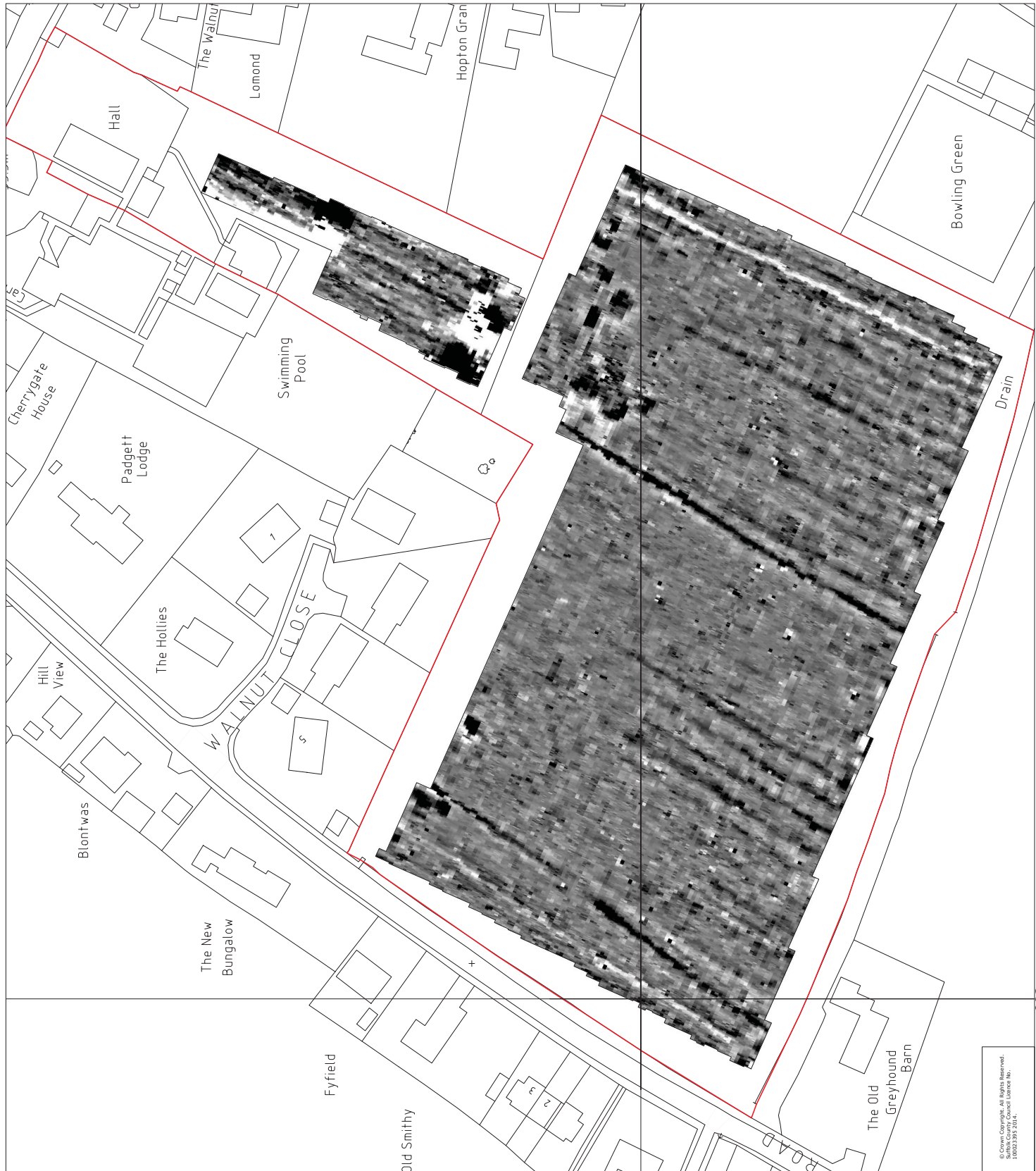
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SCALE: 1:1000 0 50m

APPROVED: MB VERSION: 01

PLOT: A3 AUTHORITY: TPS DATE: MAY 2014 FIGURE: 03



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40nT/cm Scale Interval

Site Boundary

NGR: TL 993 789
REPORT NUMBER: 1057

PROJECT:
LAND OFF THELNETHAM ROAD,
HOPTON, SUFFOLK

278800



CLIENT:

PROCESSED MAGNETOMETER XY
TRACE PLOT

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SCALE: 1:1000
0 50m

APPROVED: MB
PLOT: A3
VERSION: 01

AUTHOR: TPS
DATE: MAY 2014
FIGURE: 04





	Positive Discrete Anomaly, Archaeology?
	Weak Positive Curvilinear Anomaly, Geology?
	Positive Linear Trend, Agricultural.
	Negative Linear Trend, Service Trench Run
	Area of Magnetic Disturbance
	Isolated Dipolar Response
	Site Boundary

NGR: TL 993 789 REPORT NUMBER: 1057

PROJECT: LAND OFF THELNETHAM ROAD, HOPTON, SUFFOLK

CLIENT: Suffolk County Council

DESCRIPTION: INTERPRETATION PLOT OF MAGNETOMETER ANOMALIES

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SCALE: 1:1000	APPROVED: MB	VERSION: 01
0 50m	AUTHOR: TPS	FIGURE: 05
DATE: MAY 2014		



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