



Burystead Closes, Witcham An Archaeological Survey

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Cover Picture: The site looking West, Autumn 2018, showing the remains of the northern boundary ditch of the manorial enclosure.

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Burystead Closes, Witcham - An Archaeological Survey

SUMMARY

Archaeology Cambridgeshire East were approached by Mrs Finn to assist in the exploration and evaluation of a portion of a site known as the Burystead Closes in her possession, which lie 850 metres NEE of Witcham parish church.

1. Site description, topography and geology

The Burystead Closes (figure 1.) lie to the east of Witcham village alongside an ancient track leading between Witcham and Wardy Hill. Immediately south of the closes is the Catchwater Drain, the line of which marked the northern extent of the medieval open fields prior to the 13th century. By the end of the 13th century the fen skirt between Witcham and Wardy Hill was probably dry all year round and this drain, while only just over 4m wide, was probably used as a way of transporting goods (wheat & barley etc) to the west end of Ely, and the fen skirt was brought in to use as pasture.

Topographically, the manor lies on the northern slope of a ridge running east / west (figure 1.1), the majority of the site being on a gentle slope between 4 and 10m OD.

2. Historical and Archaeological Background

The site, on the eastern edge of the village was the site of the medieval manor of Witcham, known to exist before 1086, when it was already in the hands of the monastery of Ely. When it was granted to the monastery is not known. With the formation of the see in 1109 the manor remained with the priory until the dissolution of the monastery in 1539. It was transferred to the Dean and Chapter of Ely in 1541.

Medieval documents show that this was not a valuable manor. Of its buildings, records show that upon the site was a manor house, a dovecote and a number of barns, including one known as the great barn. A dovecote recorded as needing repairs in the mid 14th century,¹ and a mill is also recorded as being held by the manor. As with other manors in the area Witcham was mentioned in a grant of free warren in 1252, had its manorial rights confirmed in 1417. The manor was kept in hand during the Middle Ages and details of receipts and costs occur in the account rolls. Following the dissolution of Ely Priory the manor and its lands were granted to the Dean and Chapter of Ely by the crown in 1541. In 1649, the lands of the Dean and Chapter, which had been abolished, were taken by parliament and sold to raise money to pay the army. Prior to the sale the lands were surveyed by surveyors working for parliament, and these surveyors recorded the site of the manor house which had stood within a 3.25 acre close. They used the term site to indicate that the house had been demolished. Their report stated:

¹ T D Atkinson, Ethel M Hampson, E T Long, C A F Meekings, Edward Miller, H B Wells and G M G Woodgate, 'South Witchford Hundred: Witcham', in *A History of the County of Cambridge and the Isle of Ely: Volume 4, City of Ely; Ely, N. and S. Witchford and Wisbech Hundreds*, ed. R B Pugh (London, 2002), pp. 172-175.

All that the scyte of the mannor of Wicham with in the Isle of Ely & County of Cambridge consisting of one barne built with tymber & covered with thatch, containing in length 60 foote of assize and in breadth twenty & fower foote & standing in one close of pasture called or knowne by the name of the Berry Sted abutting S upon a comon drove way called Greate Berry Way & north upon part of a pasture called Broad Marsh & containing by estimacon.²

After the return of the crown in 1660 the manorial site and all its lands were restored to the Dean and Chapter of Ely. During the 18th century the Wright family were tenants. The demesne was 67 acres of arable, 60 of pasture, 10.5 acres of old enclosure and 191 acres of Byall and Widden Fens. Witcham was enclosed by Act of Parliament in 1838.³ The Burystead closes were not included in the awards made by the enclosure commissioners because the land was already enclosed, being referred to as “old enclosures”^{4 5}

3. Aims and Objectives

Aims

1. Defining the extent and orientation of fragmentary features visible on the ground.
2. Defining the extent of other features within the area.
3. Defining targeted areas for geophysical survey.
4. Identifying sub-surface features using geophysical methods.

Objectives

1. To contribute to our knowledge of the manor of Witchford.
2. To inform areas for further study, such as field-walking and excavation.

4. Methodology

Following a search of Environment Agency archived data, aerial LiDAR data at 1m resolution was downloaded in ASCII file format from the Open Data web portal

(<http://environment.data.gov.uk/ds/survey#/download?grid=TL48>)

The Digital Terrain Model (DTM) filtered files were used for this study. The filtered data has had obstructions such as buildings and vegetation removed to provide a 'bare earth' model. If the removal of any obstruction left

² Cambridge University Library EDC 8A/1/34b Draft Survey 1649

³ Pugh, R.B. (1953) The Victoria County of Cambridgeshire and the Isle of Ely, Volume 4., P.173

⁴ Cambridgeshire Archives 152/P21 Draft Inclosure Map.

⁵ Cambridgeshire Archives P182/26/1 Inclosure Award and Map.

a gap in the surface data this gap was interpolated by the EA (using an undisclosed algorithm) to provide a continuous surface.

All available aerial photographs and old maps were considered as part of the methodology and field visits undertaken.⁶ During field visits the site was mapped, recording all visible features. This was followed by both resistivity and magnetometry surveys.

4.1 Aerial photography

Google provides historical aerial photographs. These were studied to identify features such as building platforms, ditches, ridge and furrow etc.

4.2 LiDAR Data Processing

Most operations were conducted in QGIS version 2.18. The Relief Visualisation Toolbox which enables the rapid output of multiple hillshade, slope analysis, relief model and sky view analysis was also used.⁷

4.3 Creation of Hillshade Layers

To aid feature identification, four basic hillshade layers were generated for each LiDAR flight. ‘Hillshades’ are a data processing method available in most GIS which allows an artificial sun to be shone from any chosen compass bearing and from any angle above the horizon onto a Digital Elevation Model (DEM). This process helps identify ground features by casting an artificial shadow behind changes in elevation (for a full discussion of the process see Bewley et al 2005).⁸

4.4 Sky-view Factor Analysis

‘Sky-View Factor’ (SVF) analysis was also applied to the LiDAR data (Zakšek et al 2011). This method, instead of applying false shadows to a surface, calculates the volume of sky visible from a given position, a position at the bottom of a ditch affords a lower level of visibility to one atop a mound. This method produces a raster layer showing the volume of sky visible from each position within the raster which can highlight subtle archaeological features. The SVF images were then also interrogated and potential features recorded in the same manner as is detailed above for the initial feature identification process.

4.5 Low Light Shading and other techniques

Low light shading, openness (positive and negative), which quantifies the degree of unobstructedness of a location were applied to the LiDAR data but are not reported here as the results offered nothing of value to the Sky View Factor analysis.

⁶ Maps identified and used in this study include, Clare College CCAD/3/3/43/4/2 1792 map of St John's estate in Witcham, Cambridgeshire Archives 152/P21 - 1839 Draft Inclosure Map, P182/26/1 1840 Witcham Inclosure Award & Map, TNA IR 30/4/91 1841 Witcham Tithe Map.

⁷ Zakšek, K., Oštir, K. & Kokalj, Ž. (2011) Sky View Factor as a Relief Visualisation Technique. *Remote Sensing* 2011(3), 398-415.

⁸ Bewley, R.H., Crutchley, S.P. & Shell, C.A., (2005) ‘New light on an ancient landscape: LiDAR survey in the Stonehenge World Heritage Site’. *Antiquity* 79 636-647.

4.6 Simple Local Relief Modelling (SLRM)

The SLRM represents local, small-scale elevation differences after removing the large-scale landscape forms from the data. SLRM greatly enhances the visibility of small-scale, shallow topographic features irrespective of the illumination angle and allows their relative elevations as well as their volumes to be measured directly. This makes SLRM an improved basis for spatially extensive archaeological prospection over a wide range of landscapes.

4.7 Feature Identification

The hillshade layers that had been generated were systematically analysed for potential archaeological features, working from north to south and west to east. This was achieved by working through each of the Hillshade, Sky View Factor and Local Relief Model layers individually.

5.0 Results

5.1 Aerial photography

Aerial photography when compared with the details of the 1649 survey and 19th century maps showed that the monastic grange had lay within a 3.5 acre enclosure. The site had been divided in the 20th century, the primary area of this study concentrating on the eastern half of the original enclosure, part of which retained an area of ridge and furrow. Ridge and furrow was also observed on aerial photography in three areas surrounding the site and the original manor site. That to the north-west was truncated by a curving feature (figure 3).

To the west of the site and on both sides of the track known as Burystead Lane, leading to the site and Wardy Hill, large ponds were noted.

5.2 LiDAR

Part of the north and north-western portion of the original manorial enclosure was noted to have the remains of a ditch and bank. There were suggestions of the bank on other areas surrounding the manorial enclosure. On the Hillshade analysis the outline of the footings of a building was clearly visible. This was digitally measured and agreed with the measurements of the great barn measured and described by the parliamentary surveyors in 1649. No other building features were noted. As this lay within a neighbouring property no further work was done on this feature.

In the northern side of the manorial enclosure a large pond was noted, straddling the part of the site under investigation, and that of the neighbouring field. This feature, considered by Hall to be a medieval pond⁹, has been greatly enlarged since 1886 by the animal activity.

⁹ Hall, D.N. (1996) The Fenland Project, Number 10: Cambridgeshire Survey, the Isle of Ely and Wisbech. East Anglian Archaeology Report No. 79.

5.3 Fieldwork

The eastern part of the manorial enclosure and the two closes immediately north and east of it were the subject of an earthwork survey. While in general the site has a consistent gradient dipping towards the north, from the Burystead track a raised bank on a lower graded incline was noted. This extended from the field boundary to approximately half way along the eastern side of the original enclosure. This appears to overlay the original boundary bank. To the west of this a large hollow was noted. To the south lie two shallow gullies running east west. The southerly one went up to a soil bank on the northern side of the pond. The northerly gully, wider than its neighbour goes into the western half of the site and probably formed either a boundary ditch, or was part of a watercourse coming off the catchwater drain, which is known to have been used for the transportation of goods to Ely, a public wharf lying alongside the drain to the west of the site and below the village.

The ridge and furrow observed on aerial photography and LiDAR was easily observable on the ground immediately east of the manorial enclosure. In its south west it is cut by a modern pond and in its centre is a small depression, noted as a pond on the 1886 first series 25" Ordnance Survey map.

A magnetometer survey was undertaken in May 2019 using a Geoscan FM256 magnetometer. This revealed no buried structures.

5.5 Resistivity

An initial resistivity survey was undertaken on the lower half of the site in 2018. This included a Wenner section across the northern ditch. The survey just touched upon the large depression on the north-western end of the site and the raised bank. Resistivity on the edge of the depression showed an anomaly, initially thought to be the end of a building, while nothing was noted in the bank.

The Wenner section showed the northerly ditch to be approximately 4m wide and 1.85m deep. The smaller southerly ditch being cut into it, possibly a recut to drain the pond when full (figure 6).

In May 2019 the northern part of the site was surveyed using the same grids as for the magnetometry. On this occasion the resistivity meter was used in tomography mode. No features were identified on the bank. The depression showed a complete mass of low resistance readings down below 1.5m. The readings were largely consistent across the depression confirming its likelihood as a quarry.

6.0 Discussion

The site of the medieval manor of Witcham, held by the church of Ely before the Norman conquest and by the priory of Ely from 1190 to 1539 and later, from 1541, by the Dean and Chapter has remained as enclosed meadowland since at least the early 1600s. The use of the former open field arable surrounding the site as enclosed pasture has fossilised and preserved ridge and furrow.

In the 19th century a brick works existed between the site and the village and extraction of clay for brick making has destroyed some of the ridge and furrow remains as well as much of the manorial enclosure, leaving only the site of the great barn and a section of bank and ditch in situ. A raised bank along the eastern edge of the original manorial enclosure probably represents a cart way into the site, the gradient of which is less than the natural slope from the Burystead track. The pond, previously considered to be medieval may be another quarry.

Figure 1. The Burystead Closes, Manorial Enclosure and Site



Figure 2. Topography of Witcham

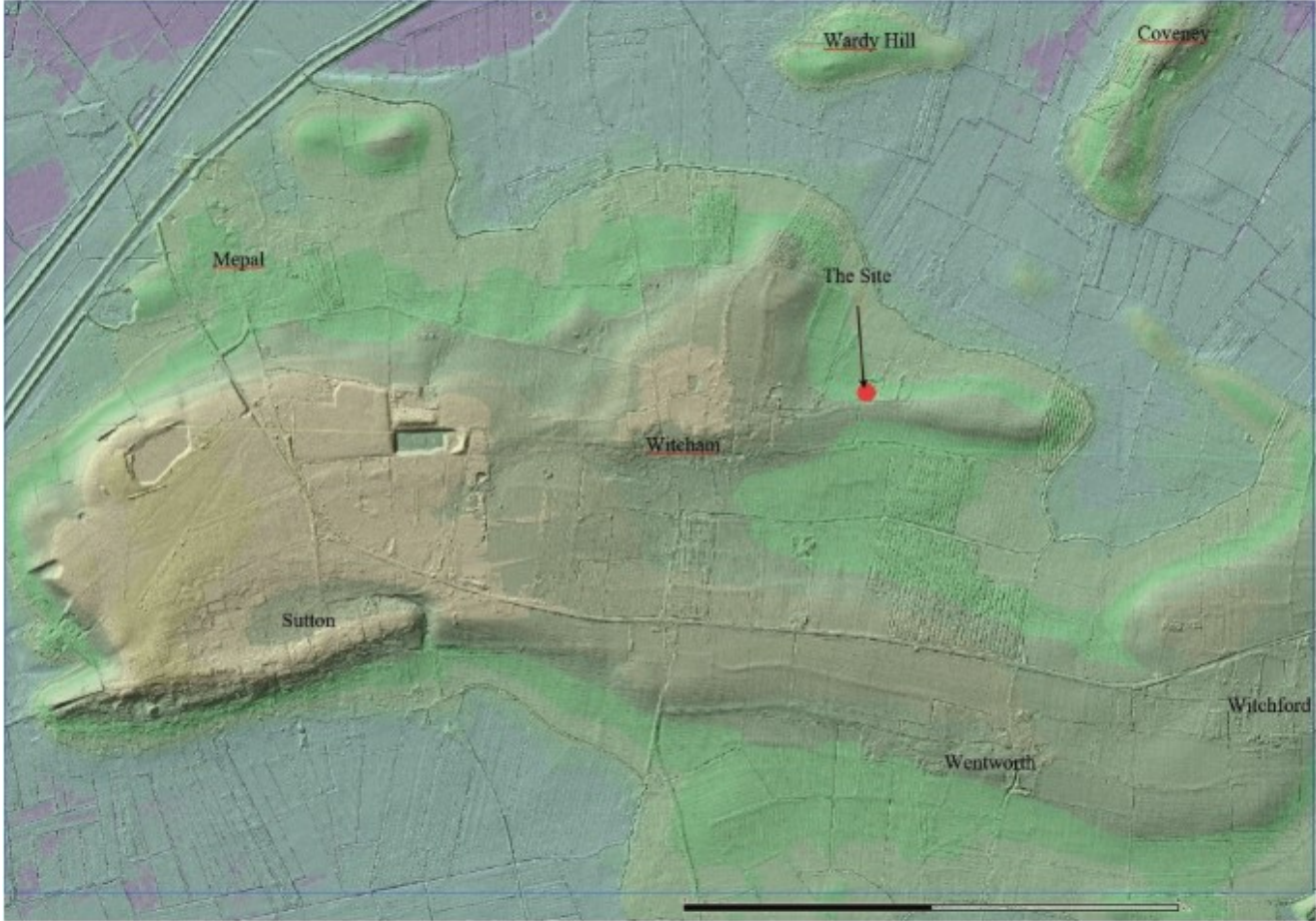


Figure 3. Burystead Closes 1838.



Figure 4 Extent of Clay Quarrying along Burystead Lane

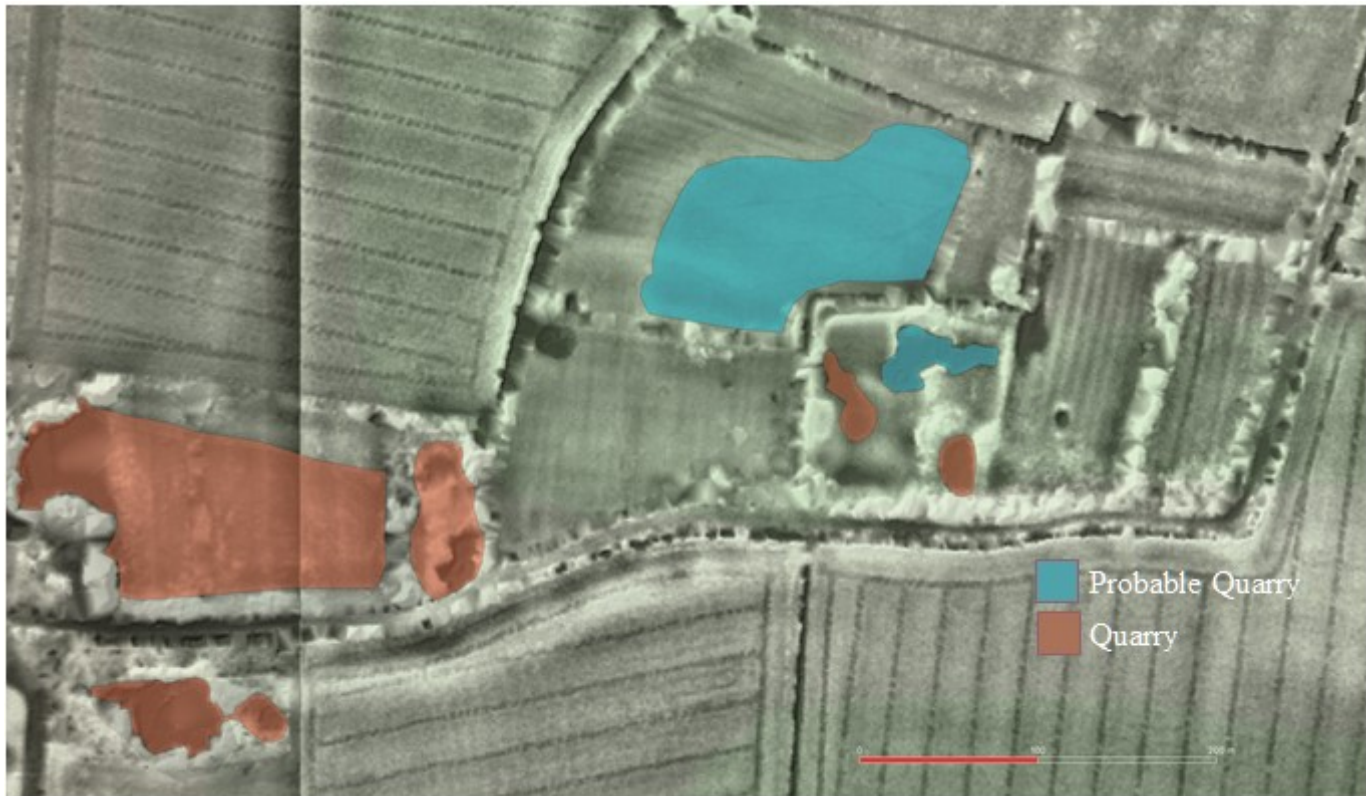
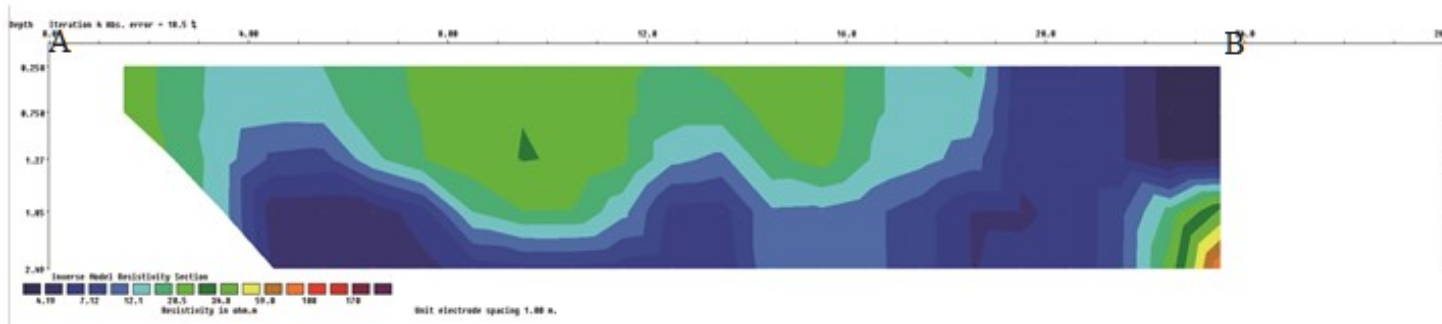


Figure 5. Resistivity (Tomography) Results overlaid onto LiDAR



Figure 6. Resistivity - Wenner Section



Oasis ID: archaeol33-351848

Project details

Project name	Archaeological Survey of Burystead Closes, Witcham, Cambridgeshire
Short description of Project	A portion of land, known as Burystead Closes at Witcham was subject to investigation by Archaeology Cambridgeshire East during 2018 and 2019. The site comprised of one-third of an enclosure, formerly a manorial farm belonging to Ely Priory and later the Dean and Chapter of Ely. Following studying of LiDAR and aerial photography for the site, a geophysical survey using Resistivity, Magnetometry and Vertical Electrical Sounding was carried out. The results were combined with evidence from historical documents and maps.
Project dates	Start: 29-05-2018 , End: 05-05-2019
Future work	No
Associated project reference codes	ECB5746 - HER event no.
Associated project reference codes	WTCMS18 - site code.
Type of Project	Research project
Current Land Use	Pasture Land Manor Medieval
Monument type Significant finds	
Investigation type	Aerial Photography - interpretation, Geophysical Survey
Prompt	Voluntary/self-interest
Solid geology	AMPTHILL AND KIMMERIDGE CLAY
Drift geology (other)	Diamicton
Techniques	Magnetometry - GEOSCAN FM256
Survey Area	0.11 Hectares
Transverse Separation	1
Interval Reading	1
Instrument Type	Fluxgate
Instrument Setup	Single
Resolution	1
Techniques	Resistivity - area - TR/CIA Resistance Meter Mk2
Survey Area	0.36 Hectares
Transverse Separation	2
Interval Reading	1

Electrode Configuration	Wenner
Electrode separation	1
Electrode Separation Qualifier	Constant Separation
Techniques	Resistivity Profile - TR/CIA Resistance Meter Mk2
Survey Area	10 meters
Transverse Separation	0
Interval Reading	0.5
Electrode Configuration	Vertical Electrical Sounding
Electrode Separation	1
Electrode separation qualifier	Expanded separation
Techniques	Resistivity - area - TR/CIA Resistance Meter Mk2
Survey Area	0.11 Hectares
Transverse Separation	1
Interval Reading	1
Electrode Configuration	Tomography
Electrode separation	1
Electrode Separation Qualifier	Constant Separation
Site Status	None
Current Land Use	Grassland - undisturbed
Monument Type	Manor - Medieval
Project Location	
Site location	CAMBRIDGESHIRE EAST CAMBRIDGESHIRE WITCHAM Bury Lane (TROd byway), Witcham, East Cambridgeshire
Country	England
Postcode	CB6 2LP
Study area	2.09 Hectares
Site coordinates	TL 4737 8029 LL - 52.400833333333 0.165 (decimal) LL - 52 24 03 N 000 09 54 E (degrees)
Project Creators	
Name of Organisation	Archaeology Cambridgeshire East
Project brief originator	Landowner
Project design originator	William Franklin
Project Manager	William Franklin

Project Supervisor Mrs Donna Martin

Project Archives

Physical Archive No

Digital Archive Recipient Cambridgeshire County Council Archaeology Archives

Digital Archive ID ECB 5746

Paper Archive Recipient Soham Museum

Paper Archive ID WTHMS18

Project Bibliography

Title Archaeological Survey of Burystead Closes, Witcham, Cambridgeshire

Author(s) / Editor(s) William Franklin

Date 2019

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Description A4 report pamphlet, pictorial front page containing aerial photographs, LiDAR images and Enclosure map.