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WOOL HALL FARM, WYKEHAM, TF275250 – TF284249, LINCOLNSHIRE:

AERIAL PHOTOGRAPHIC ASSESSMENT

REPORT No: 2003/19

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Commissioned by:
Archaeological Project Services
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Archaeological consultant for aerial photographic interpretation, accurate mapping and oblique aerial photography

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WOOL HALL FARM, WYKEHAM, TF275250 – TF284249, LINCOLNSHIRE: AERIAL PHOTOGRAPHIC ASSESSMENT

SUMMARY

This assessment of aerial photographs examined an area surrounding the route of a proposed access road some 900m in length in order to identify and accurately map archaeological and natural features.

No archaeological features were found within, or closely adjacent to, the Development Area.

The few features mapped to the north are unlikely to be of archaeological origin.

Original photo interpretation was at 1:2500 level with mapping at 1:10000 scale.

WOOL HALL FARM, WYKEHAM, TF275250 – TF284249, LINCOLNSHIRE:

AERIAL PHOTOGRAPHIC ASSESSMENT

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INTRODUCTION

This assessment of aerial photographs was commissioned to examine the route of a proposed access road some 900m in length (between TF275250 and TF284249) in order to identify and accurately map archaeological and natural features and thus provide a guide for field evaluation. Because this part of the Fens is relatively uninformative from the air, a large Study Area was examined area in the hope of identifying parts of more extensive past systems of land division that may be projected into the Development Area. The level of interpretation and mapping was to be at 1:2500 if relevant.

ARCHAEOLOGICAL AND NATURAL FEATURES FROM AERIAL PHOTOGRAPHS

In suitable cultivated soils, sub-surface archaeological features – including ditches, banks, pits, walls or foundations – may be recorded from the air in different ways in different seasons. In spring and summer these may show through their effect on crops growing above them. Such indications tend to be at their most visible in ripe cereal crops, in June or July in this part of Britain, although their appearance cannot accurately be predicted and their absence cannot be taken to imply evidence of archaeological absence. In winter months, when the soil is bare or crop cover is thin (when viewed from above), features may show by virtue of their different soils. Upstanding remains, which may survive in unploughed grassland, are also best recorded in winter months when vegetation is sparse and the low angle of the sun helps pick out slight differences of height and slope.

Natural faults and deposits can cause similar differences in crop growth and may also appear as colour differences in bare winter soils. Within this assessment area we may expect indications of former watercourses – which may be mistaken for archaeological ditches – and of deposits of different soils. Both can affect the growth of crops and become visible at the same times as archaeological features. The visible edges and extents of different soil areas tend to vary from year to year with the amount of ground moisture content.

The most immediately informative aerial photographs of archaeological subjects tend to be those resulting from specialist reconnaissance. This activity is usually undertaken by an experienced archaeological observer who will fly at seasons and times of day when optimum results are expected. Oblique photographs, taken using a hand-held camera, are the usual product of such investigation. Although oblique photographs are able to provide a very detailed

view, they are biased in providing a record that is mainly of features noticed by the observer, understood, and thought to be of archaeological relevance. To be able to map accurately from these photographs it is necessary that they have been taken from a sufficient height to include surrounding control information.

Vertical photographs cover the whole of Britain and can provide scenes on a series of dates between (usually) 1946-7 and the present. Unfortunately these older vertical surveys have not necessarily flown at times of year that are best to record the crop and soil responses that may be seen above sub-surface features. Vertical photographs are taken by a camera fixed inside an aircraft and adjusted to take a series of overlapping views that can be examined stereoscopically. They are often of relatively small scale and their interpretation requires higher perceptive powers and a more cautious approach than that necessary for examination of obliques. Use of these small-scale images can also lead to errors of location and size when they are rectified or re-scaled to match a larger map scale.

PHOTO INTERPRETATION AND MAPPING

Photographs examined

Cover searches were obtained from the Cambridge University Collection of Aerial Photographs (CUCAP) and the National Monuments Record: Air Photographs (NMRAP), Swindon. Photographs were all from routine vertical surveys.

Photographs consulted are listed in the Appendix to this report.

Base maps

Base maps at a scale of 1:10000 and 1:2500 were provided by the client but the latter did not include a sufficiently large area to allow its use as a background for transformation.

Study area

Photographs were examined in detail for an area extending one modern field beyond the Development Area.

Photo interpretation and mapping

All photographs were examined by eye and under slight (2x) magnification, viewing them as stereoscopic pairs when possible. Interpretations, made at 1:2500 level, were marked on overlays to individual prints following procedures described by Palmer and Cox (1993). These overlays were then scanned and transformed to match the 1:10000 base map using Irwin Scollar's AirPhoto program (Scollar 2002). Transformed files were set as background layers in AutoCAD Map, where features were overdrawn using standard conventions. Layers from this final drawing have been used to prepare the figures in this report and the complete drawing has been provided in digital form to the client.

Accuracy

AirPhoto computes values for mismatches of control points on the photograph and map. In all transformations prepared for this assessment the mean mismatches were less than ±2.50m. These mismatches can be less than the survey accuracy of the base maps themselves and users should be aware of the published figures for the accuracy of large scale maps and thus the need to relate these mismatches to the Expected Accuracy of the Ordnance Survey maps from which control information was taken (OS 2003). Mapping originally undertaken at 1:10000 does not have the inherent accuracy to be used to locate features on the ground with precision.

COMMENTARY

Soils

The Soil Survey of England and Wales (SSEW 1983) shows the area to be covered with marine alluvium (soil association 813g: Wallasea 2). The maps published by Phillips (1970, Maps 1-4) show that this deposit is one on which archaeological features are not usually visible, and this lack of evidence was confirmed by Hayes and Lane (1992, *passim*).

Possible archaeological features

All possible archaeological features identified are north of the proposed access road and have been recorded by chance in fields in which conditions were suitable on the dates of photography.

To the west of Lord's Drain the figure shows a number of parallel and perpendicular linear ditches that were recorded as dark lines in bare soil. These may indicate distant-past use of the land but it is more probable that they remain from more recent land drainage. At the time of photography these features were visible against the lighter-toned silt but it is possible that they cover a larger area.

East of Lord's Drain in 1946 and 1947 was a small pasture field in which the mapped features remained in earthwork form. They seem likely to include a recent field division (creating a small near-rectangular field on the west side) and others of uncertain origin although the feature making an apparent enclosure within the western field may be a loop of former watercourse which is continued by the broken linear features to its east. This small field was in arable use by 1965.

Well to the west of the Development Area are two slightly curving parallel features that may indicate a former track. It is possible, but unlikely, that this meandered sufficiently to extend into the Development Area.

Non-archaeological features

Light tones on some of the photographs show what are likely to be silt deposits. That to the west of Lord's Drain appears to be part of a former watercourse and includes short lengths of a

central channel (mapped in blue). Land east of Lord's Drain has never been recorded with such clarity and shows only a mass of lighter-toned deposit.

Land use

Most fields were in arable use on all dates of photography. Exceptions are the small pasture field mapped and noted above that lay south of White House Farm and two fields adjacent to Wool Hall. On the west side of Cross Gate was a small field that was grass in 1965 and 1966 and extended to include the pavilion shown on the OS map. This field appeared to be in arable use in 1946 and 1947 and had reverted back to arable by 1985. The field immediately south of Wool Hall was pasture in 1985.

REFERENCES

Hayes, P. P. and Lane, T. W., 1992. *The Fenland Project Number 5: Lincolnshire Survey, the South-West Fens. East Anglian Archaeology* **55**.

OS, 2003. http://www.ordnancesurvey.gov.uk/productpages/landline/positional-background.htm

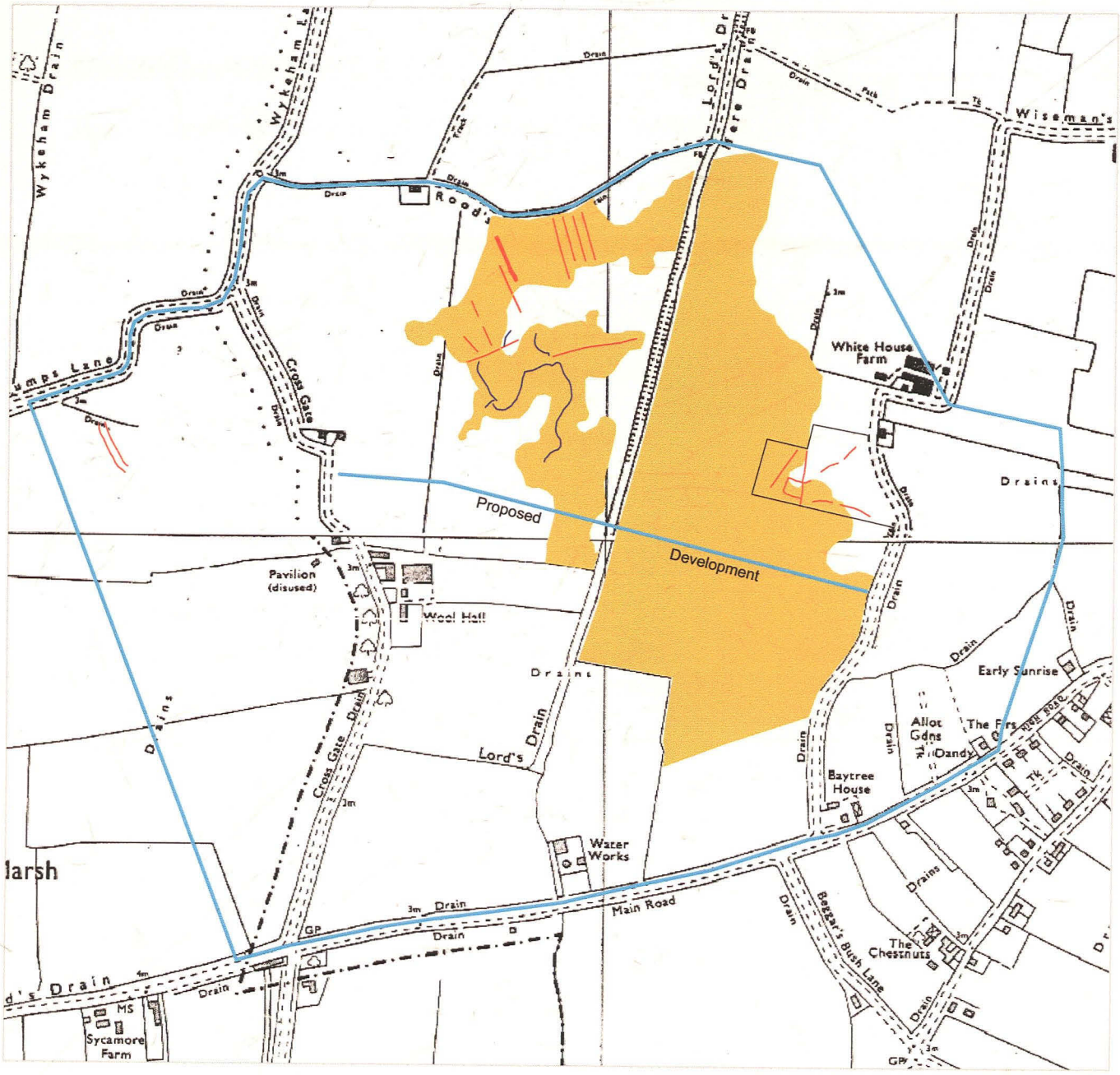
Palmer, R. and Cox, C., 1993. *Uses of aerial photography in archaeological evaluations. IFA Technical Paper* **12**.

Phillips, C. W. 1970. *The Fenland in Roman Times, Royal Geog. Soc. Res. Ser.* **5**.

Scollar, I., 2002. Making things look vertical, in Bewley, R.H. and Rączkowski, W., (ed). *Aerial archaeology: developing future practice*. NATO Science Series, Vol **337**, 166-172.

SSEW, 1983. *Soils of England and Wales: sheet 4: Eastern England (1:250,000)*. Soil Survey of England and Wales, Harpenden.

Wool Hall Farm, Wykeham, Lincolnshire:
Features identified from aerial photographs.



Study Area

Archaeological features

Possible ditch

Natural features

Former watercourse

Area of silt

Recent features

Former boundary

Original photo interpretation at 1:2500 level for mapping at 1:10000.
Based on photographs at CUCAP and NMRAP.
October 2003.
Air Photo Services, Cambridge.
Drawing: 0319Wykem.dwg

APPENDIX

Aerial photographs examined

Source: Cambridge University Collection of Aerial Photographs

Oblique photographs

None

Vertical photographs

RC8-AT 157-158	17 March 1975	1:13650
RC8-EW 158-159	24 November 1982	1:10000

Source: National Monuments Record: Air Photographs

Specialist collection

None

Vertical collection

106G/UK/1489: 3041-3042	9 May 1946	1:9800
106G/UK/1717: 3075-3077	6 September 1946	1:9800
CPE/UK/2005: 3017	15 April 1947	1:10000
OS/65097: 5-6	4 June 1965	1:7500
OS/66249: 70-72	16 September 1966	1:7500
OS/66254: 173-175	19 September 1966	1:7500
OS/85231: 4634-4635	24 October 1985	1:7500
OS/85231: 4654-4655	24 October 1985	1:7500

Most informative photographs

RC8-EW 158
106G/UK/1717: 3076

TERMS AND CONDITIONS

Air Photo Services have produced this assessment for their clients, Archaeological Project Services, subject to the following conditions:

Air Photo Services will be answerable only for those transcriptions, plans, documentary records and written reports that it submits to the clients, and not for the accuracy of any edited or re-drawn versions of that material that may subsequently be produced by the clients or any other of their agents.

That transcriptions, documentation, and textual reports presented within this assessment report shall be explicitly identified as the work of Air Photo Services.

Air Photo Services has consulted only those aerial photographs specified. It cannot guarantee that further aerial photographs of archaeological significance do not exist in collections that were not examined.

Due to the nature of aerial photographic evidence, Air Photo Services cannot guarantee that there may not be further archaeological features found during ground survey which are not visible on aerial photographs or that apparently 'blank' areas will not contain masked archaeological evidence.

We suggest that if a period of 6 months or more elapses between compilation of this report and field evaluation new searches are made in appropriate photo libraries. Examination of any newly acquired photographs is recommended.

That the original working documents (being interpretation overlays, control information, and digital data files) will remain the property of Air Photo Services and be securely retained by it for a period of three years from the completion date of this assessment after which only the digital files may be retained.

It is requested that a copy of this report be lodged with the relevant Sites and Monuments Record within six months of the completion of the archaeological evaluation.