University of Leicester

Archaeological Services

Topographic Earthwork Survey, Clements Gate, Diseworth, Leicestershire.
NGR: SK 45702449 centre

James Harvey

ULAS Report No 2010-015

A Topographic Earthwork Survey

At Clements Gate, Diseworth,

Leicestershire.

NGR: SK 4570 2449 centre

James Harvey

For: Lychgate Homes Ltd.
Planning Code: HB/09/01145/FUL (CLE6017)

Approved by

Signed:  **Date**: 25/1/2010.

Name: R.J. Buckley….

University of Leicester

Archaeological Services

University Rd., Leicester, LE1 7RH

Tel: (0116) 2522848 Fax: (0116) 2522614

ULAS Report Number 2010-015

[X.A8.2010]

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INFORMATION REQUIRED	
Project Name	Clements Gate, Diseworth
Project Type	Topographic Earthwork Survey
Project Manager	Richard Buckley
Project Supervisor	James Harvey
Previous/Future work	Unknown
Current Land Use	Disused
Development Type	Housing
Reason for Investigation	PPG16
Position in the Planning Process	As a condition
Site Co ordinates	SK 4570 2449 (centre)
Start/end dates of field work	20/01/2010
Archive Recipient	Leicester Museums (LMARC)
Study Area *	0.8ha

A Topographic Earthwork Survey Clements Gate, Diseworth, Leicestershire. NGR: SK 4570 2449 centre

James Harvey

1. Summary

A topographic survey of an area of ridge and furrow was undertaken to fulfil a condition of planning permission granted on land north of Clements Gate, Diseworth. The system was found to be spaced at around 4.9m, and is probably medieval in origin. Evidence suggesting pre-parliamentary enclosure of the land was also recorded on the site along with a possible hollow way and related pond feature.

The archive will be held by Leicestershire County Council Museums Service under the accession number X.A8.2010

2. Introduction

Conditional Planning Permission has been granted by North-West Leicestershire District Council for the erection of six new affordable homes on land north of Clements Gate, Diseworth (Planning Code HB/09/01145/FUL). The implementation of a programme of archaeological work was a condition of the consent, and a written scheme of investigation (**WSI**) was issued by ULAS (Buckley 2010). The application area contains known earthworks of ridge and furrow, and a topographic survey of these remains which would be partly destroyed by the development, was required by the Senior Planning Archaeologist (SPA) at Leicestershire County Council. A topographic survey of the area was undertaken by ULAS on the 21st January 2010.

3. Geology and Topography

The Ordnance Survey Geological Survey of Great Britain Sheet Loughborough 141 indicates that the underlying geology of the site is likely to consist of Gunthorpe Member Mudstone, red-brown, with subordinate dolomitic siltstone and fine-grained sandstone, greenish grey, common gupsum veins and nodules.

The assessment area is a rectangular shaped piece of land within a larger field, consisting of *c*.0.3ha. It is bounded to the south and west by hedges and fencing and lies at a height of c.66m OD at Clement Lane, gradually sloping upwards to *c*.70m OD at the northern extent of the development.

The land is currently under pasture although livestock have been recently relocated. The grass was reasonably short allowing good visibility of the existing earthworks.

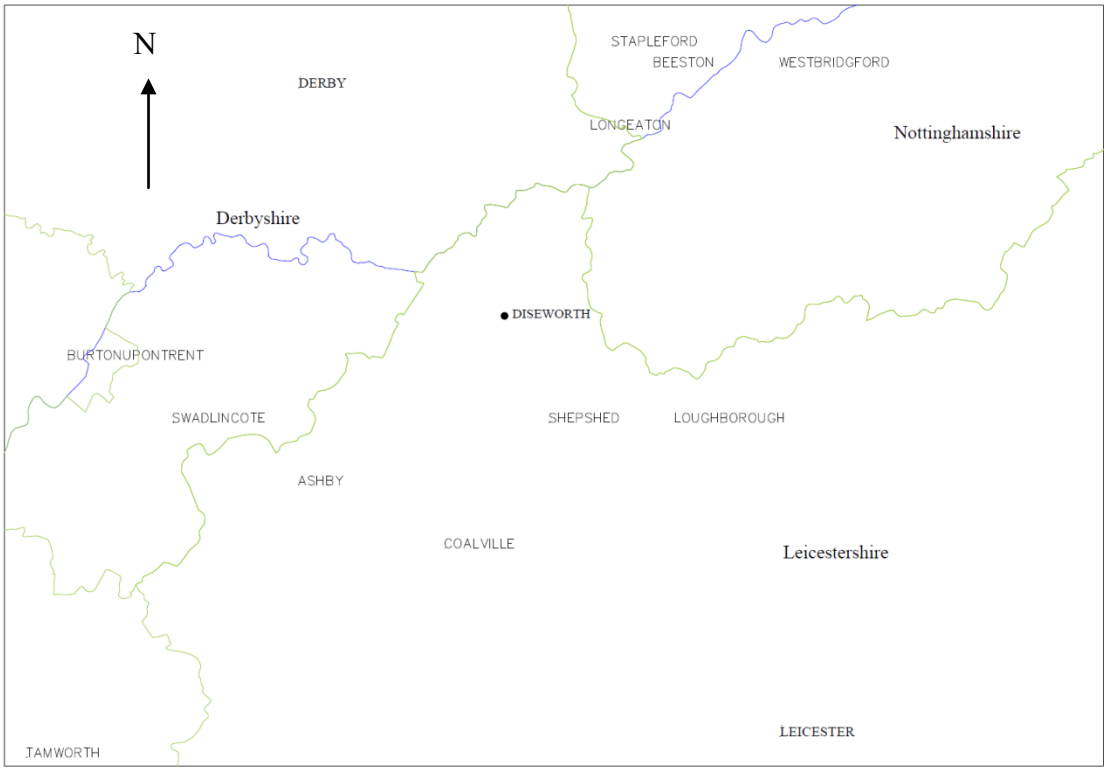

Figure 1: Diseworth in relation to the River Trent, neighbouring counties, towns and cities (not to scale)

4. Historical and Archaeological Background

The place-name Diseworth translates from the Old English of 'Enclosure of a man called 'Digoth'. (Mills. 2003) A record of the village in included in the Domesday Book of 1086 that states William Loveth holds of the king 3 carucates of land of *disewort*. There is land for 3 ploughs. In demesne is 1 [plough]; and 6 villans with 6 bordars have 2 ploughs. It was worth 10s; now 30s. This would suggest that Diseworth had prospered after the Norman Conquest.

Cartographic Evidence provides little evidence of the landscape history of the site. The First Edition Ordnance Survey 1887 does show a north-south division within the field that extended from an existing field boundary in fields to the north. Half way down this boundary a pond is also recorded. The pond had disappeared by the production of the 1975 Ordnance Survey map but the field boundary remained beyond the 1993 Ordnance Survey map.

An archaeological evaluation was undertaken on the site by Trent and Peak Archaeology (TPA) which concluded that little or no evidence of archaeological deposits were located within the proposed development area. However, the surviving earthwork remains are indicative of a former medieval-post medieval strip field system (ridge and furrow). These remains are not noted within the landscape maps produced by Robert Hartley (Hartley 1984) but their presence are not a surprise given the good preservation of ridge and furrow within this part of the county, in particular the immediate fields surrounding the village of Diseworth.

5. Aims and Objectives

The objective of the survey was to provide preservation by record of the remains; the specific aim of the work was to create an adequate record of the surviving earthworks, including the identification and delineation of individual features so to enable better understanding of the ridge and furrow system.

6. Earthwork Survey

Assessment of the field indicated that an area of 90m x 65m on the western side of the field had earthworks of archaeological significance. Around 50% of the surviving earthworks were located within the proposed development area. It was decided that all visible earthworks on the western side of the field would be mapped in order to better place the affected earthworks within their immediate setting.

6.1.1 Methodology

6.1.1 Survey

A Topcon Hiper Pro GPS base station was established centrally within the survey area. The base station recorded available satellites for some 3hrs. A Topcon Hiper Pro Rover receiver with FC 100 data recorded was used to log points.

The following Data Sets were recorded:

1. Data was recorded at regular intervals along the apexes of ridges and the bases of the furrows.
2. Data was recorded at 0.3m intervals along three profiles which transected the line of the ridge and furrow as well as two further profiles that mapped plough headland and a possible hollow way.
3. Sufficient field boundaries were recorded were also recorded to facilitate tying of the survey to the National Grid in the event of errors in coordinate reduction.

6.1.2 Processing

1. Base station data was processed using Topcon Tools (7.1) and the survey processed and adjusted using Topcon Link (7.1).
2. Coordinate points and codes were loaded into n4ce (2.00) and further exported as points and/or dxf files for further interpretation and presentation in TurboCad15.
4. The recorded profiles are reproduced without further processing.

Figure 2: Location of survey and proposed pitch (based on supplied information)

7. Results (Figures 3 and 4)

Two separate sets of ridge and furrow were surveyed within the study area. These consisted of a northern set of eleven furrows and ten ridges and a southern set consisting of seven ridges and furrows. They were separated by a hollowed linear earthwork that measured between *c.* 4.5 to 5m in width.

The northern set of furrows were spaced at intervals between 3.94 and 8.15m. The mean (average) distance between the recorded furrows was 4.99m, and the median (central value) distance was 4.67m. The southern set of furrows were slightly more regularly spaced between 4.08 and 5.78m. The mean distance between these furrows was 4.90m, and the median distance was 4.91m. The system is mostly straight, and it is not possible to ascertain any curve in the ploughing line from the short length of system recorded.

From the recorded profiles (Figure 4), the minimum depth between furrow base and ridge top for the northern set was 0.06m and the maximum 0.52m. The southern set of ridge and furrow was generally shallower; the minimum depth between furrow base and ridge top was 0.09m and the maximum 0.23m.

A clear plough headland exists at the northern extent of earthworks, measuring 37m in length and between 8m to 12.5m in width. The recorded profile showed that the headland measured 1.02m in height from the adjacent furrow base (Figure 4: Profiles across the earthworks showing recorded points both at uniform scale and with exaggerated vertical scale.

As stated previously, the division between the two sets of earthworks consisted of a depression that measured between *c*. 4.5-5m, extending for *c*. 65m from the northwest corner of the site. The feature had a clear bank on its northern side within the northwest corner of the site that became incorporated into the first ridge of the field system. The height from the bottom of the bank to the top measured 0.61m (Figure 4: Profiles across the earthworks showing recorded points both at uniform scale and with exaggerated vertical scale. D). This bank continued against the northern set of earthworks but levels off against the southern set.

All the earthworks expire on their eastern side at the junction with a fossilised field boundary that exists as a shallow depression running north-south across the field. An in-filled pond was also recorded against this field boundary.

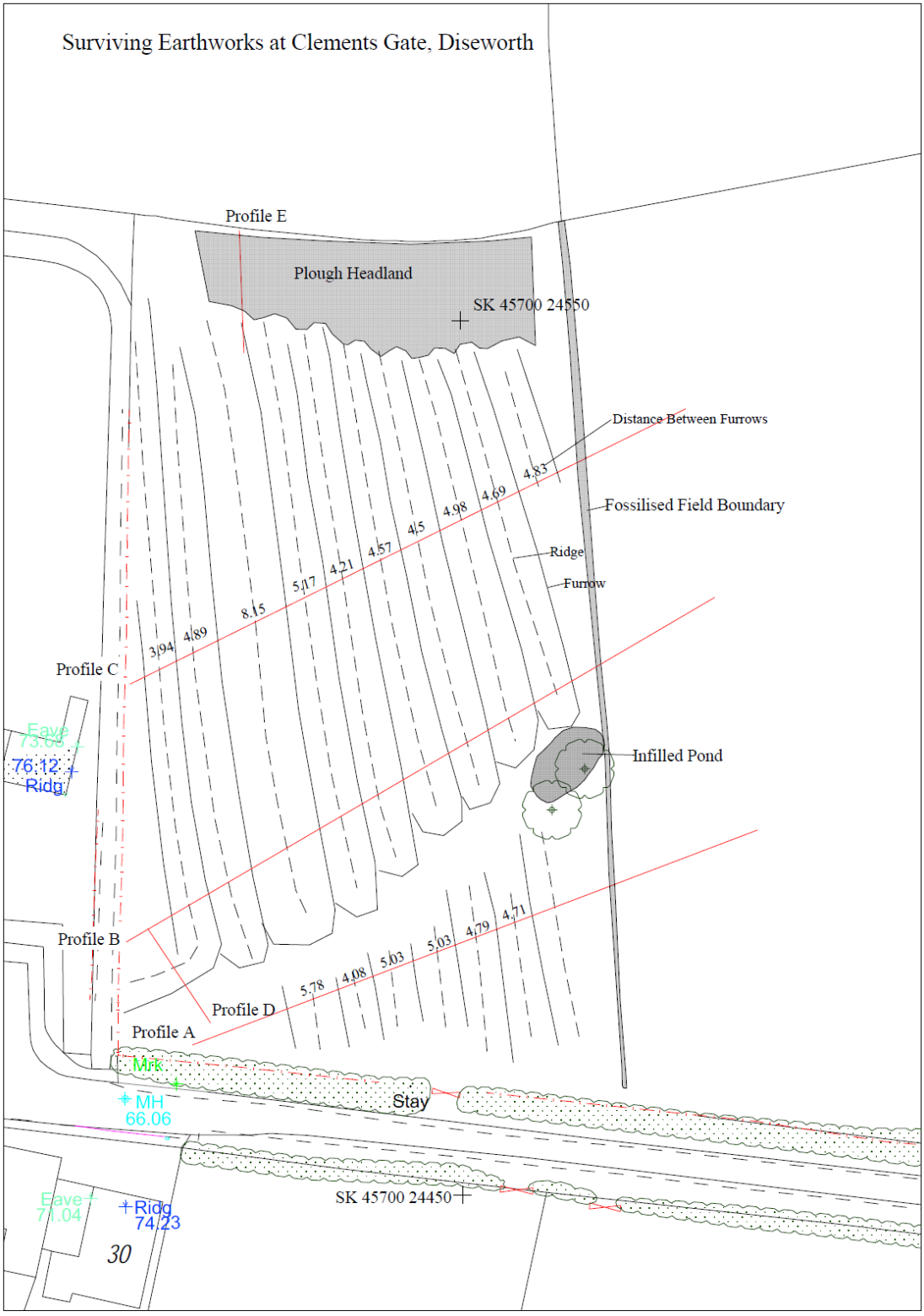

Figure 3: Furrows and Ridges with distances between furrow bases in metres.

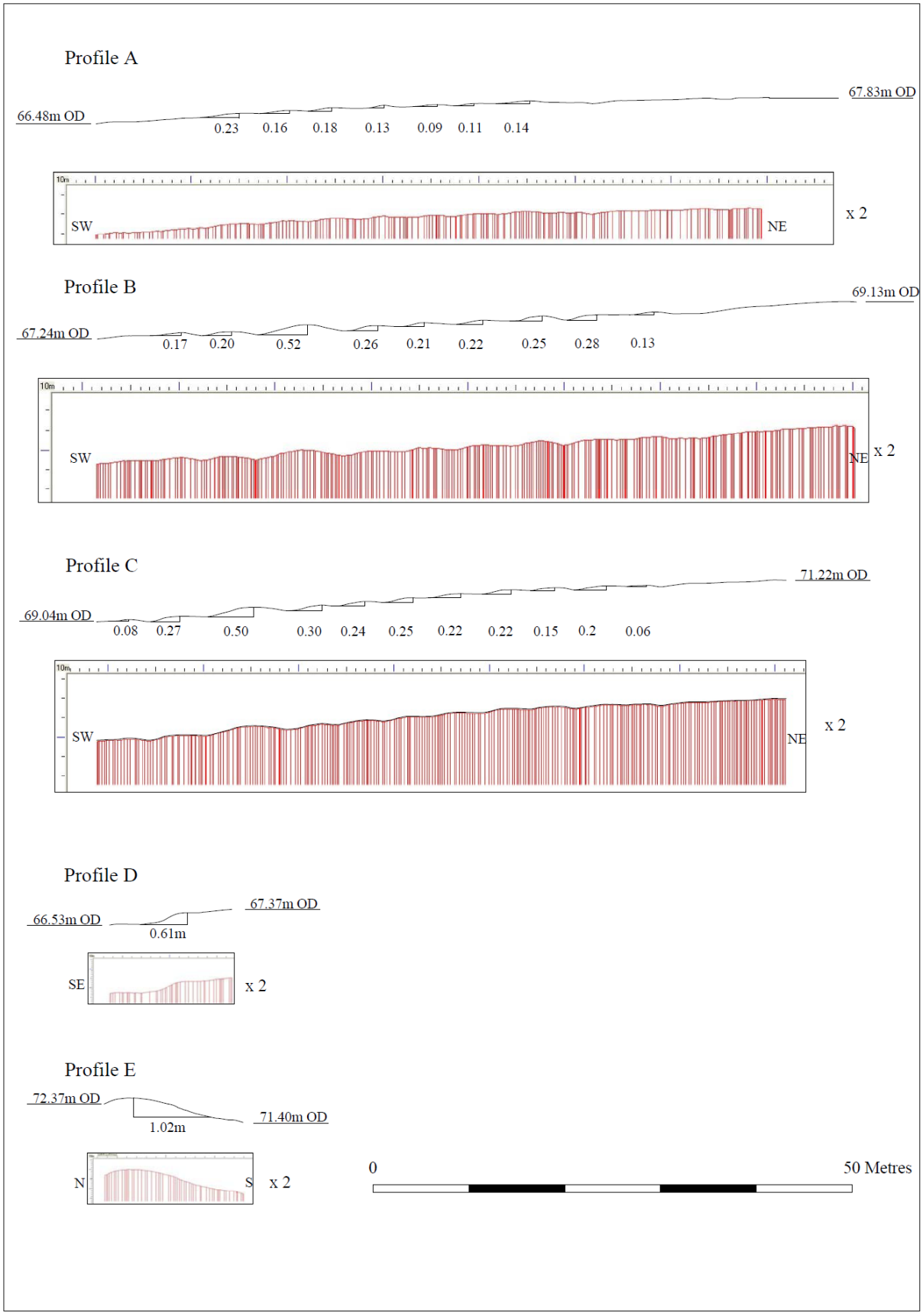

Figure 4: Profiles across the earthworks showing recorded points both at uniform scale and with exaggerated vertical scale.

8. Discussion.

The ridge and furrow earthworks are a partly eroded example of medieval and post medieval strip cultivation. The vertical difference between furrow and ridge may have been up to 1m in height (Hall 1982, 6) when at their maximum. There was differential survival of the earthworks within the field. The northern set is still relatively clear whereas the southern set is virtually flattened and the earthworks completely disappear beyond a fossilised field boundary towards the east. It is probable that land to the east has been cross ploughed in the 20th Century leading to the complete flattening of the ridges into the furrows.

Ridge and Furrow was formed within the cultivation strips of medieval Open Fields, and several studies have been made (Hall 1982, 1998, Astill 1988). Medieval villages or townships within the Open Field system were surrounded by two or three substantial fields of cultivated land which could be several kilometres across. The ridges, interpreted as intentionally created free-draining seed beds, with the furrows acting as open drains (Hall 1998), were created by ploughing in a clockwise spiral with a plough constantly throwing soil to the right, over many years. Later medieval ploughs were reversible and threw soil in both directions. The fields of a system were usually cultivated on a three year rotation comprising cereals, legumes, and a fallow year. In the fallow year, the ridges were slightly lowered by ploughing in an anticlockwise direction, to prevent infertile subsoil being ploughed up from the furrows the following year (Hall 1998, 1).

The width of the recorded system on this site was around 4.9m. The average width of medieval ridge and furrow is about 7m (Hall 1982, 5). The length of the system is unclear although clear headland exists at the northern end of the field. It is debatable whether the separation in the two sets of ridge and furrow is original or whether it represents a later truncation through a single field system. It does seem likely that that the land was separated along this line given the differential preservation of the earthworks. Also there are slight variations in widths and alignments between the two sets that suggest they could be separate field systems (although questionable given the differential survival). However given the location of the plough headland immediately to the north, it would mean that the northern field system would have existed as a small triangular parcel of land at this time that this seems unlikely. Also there is no evidence of a *head* at the southern end of the ridges. It is likely this division in the land represents enclosure of land next to the village that predates parliamentary enclosure. The wide depression along its length would indicate that not only did it act as a boundary but also as a route way from the village. The orientation of the bank created against the southern side of first ridge in the northern set of earthworks is still visible in the property boundaries further down Clements Gate suggesting the presence of a hollow way predating the Long Holden trackway. This is supported by the continuation of a similarly north-south aligned field system that has been recorded immediately south of Clements Gate/Long Holden (Hartley 1984, 56) Linking up the recorded ridge and furrow on both sides of the road would provide a length of the *land* (the cultivation strip) of around 180m that compares well with the average length in the Midlands region (Hall 1982, 5). The linear nature of Long Holden may suggest that the track is relatively modern in origin (although certainly dating as far back as the enclosure map of 1792). The depression/hollow way is only visible as far as the fossilised field boundary so it is unclear how far it extended but it is possible that the

route did end at this point, directly relating to the unfilled pond that was located against the field boundary. The pond is present on the First Edition Ordnance Survey and its location halfway down the field boundary would seem unusual. It is possible that the pond predates the enclosure of the field and the route way gave the village access to this water source.

9. Conclusion

The remains of surviving earthwork ridge and furrow and later features at Clements Road, Diseworth have been recorded by GPS Survey.

10. References

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Hartley, R. F., *The Medieval Earthworks of North-West Leicestershire: A Survey*. Leicestershire Museums, Art Galleries and Records Service Archaeological Report No. 9:

Mills, A. D. 2003. 'Diseworth' *A Dictionary of British Place-Names.* Oxford University Press, 2003. Oxford Reference Online. Oxford University Press. University of Leicester. Date accessed 15 December 2009. URL: http://www.oxfordreference.com/views/ENTRY.html?entry=t40.e4432&srn=1&ssid=1258221945#FIRSTHIT

11. Acknowledgements

The work was commissioned by Mr Dan Strugess. The survey was undertaken by the author and managed by Richard Buckley.

James Harvey
ULAS
University of Leicester
University Road
Leicester LE1 7RH

Tel: 0116 252 2848

Fax: 0116 252 2614
Email: jrh20@le.ac.uk

25.01.2010

Figure 5: The ridge and furrow, looking north-east.

Figure 6: Possible hollow way looking southwest

Figure 7: Plough headland looking northeast

Appendix 1 Design Specification

UNIVERSITY OF LEICESTER ARCHAEOLOGICAL SERVICES

Design Specification for archaeological work

Clements Road, Diseworth, Leicestershire
(SK 4570 2449)

Written scheme of investigation for Topographical Survey

LYCHGATE HOMES LTD

1. Introduction

1.1 This document sets out a Written Scheme of Investigation (WSI) to record earthwork remains at Clements Road, Diseworth, Leicestershire in advance of a proposed housing development.

1.3 The site has been highlighted as an area of archaeological potential from information held in the Leicestershire and Rutland Historic Environment Record (HER). Subsequently an archaeological evaluation was undertaken on the site by Trent and Peak Archaeology (TPA) which concluded that little or no evidence of archaeological deposits were located within the proposed development area. However, the surviving earthwork remains are indicative of a former medieval-post medieval strip field system (ridge and furrow).

1.4 As a consequence the Senior Planning Archaeologist (SPA) has recommended the need for a professional topographic survey of the surviving earthworks prior to the development of the site.

1.5 This proposal has been prepared following consultation with Mr Richard Clark, Environment and Heritage Services, Leicestershire County Council.

2. Geology and topography

2.1 The Ordnance Survey Geological Survey of Great Britain Sheet Loughborough 141 indicates that the underlying geology of the site is likely to consist of Gunthorpe Member Mudstone, red-brown, with subordinate dolomitic siltstone and fine-grained sandstone, greenish grey, common gupsum veins and nodules. The assessment area is a rectangular shaped piece of land within a larger field, currently under pasture and consisting of *c.*0.3ha. It is bounded to the south and west by hedges and fencing and lies at a height of *c.*66m OD at Clement Lane, gradually sloping upwards to *c.*70m OD at the northern extent of the development.

3. Survey objective and methods

3.1 The objective of the survey would be the creation of detailed records of surface features in order to better understand the nature of a medieval ridge and furrow system.

3.2 Topographic survey would involve site measurement using either Differential Global Positioning System (DGPS) equipment or/and a total station.

3.3 Topographic survey requires the collection of accurate positional data relating to physical features visible on the site and altitude changes that may or may not be visible. The recognition and interpretation of surface features is a critical factor in accurate topographic survey and will rely to a large degree on the experience of the survey team.

3.4 Archaeological Surveys carry out topographic work with guidance from the Royal Commission on the Historical Monuments of England (RCHME) publication – *Recording Archaeological Field Monuments: A Descriptive Specification* (1999).

3.5 Data collection would be carried out using survey grade DGPS equipment manufactured by TopCon.

3.6 The visible ridges and bases (furrows) will be surveyed at close intervals in order to accurately map the surviving earthworks. Suitable locations will also be selected in order to create long profile sections across the ridge and furrow. Points will be measured at *c.*0.1m intervals to provide an accurate representation of the profile.

3.7 All points will be recorded using equipment accurate to 15mm + 1.0 ppm (vertical) and 10 mm + 1.0 ppm (horizontal).

3.8 The survey would be referenced to the Ordnance Survey National Grid (OSGB1936) and Ordnance Datum Newlyn (ODN).

3.9 DGPS data would be collected using TopCon GIS software in the field that will be exported to DXF format for manipulation using TurboCad 15.

3.10 Photographs may also be taken to aid any interpretation made in the field.

4 Presentation

4.1 Topographic survey data consisting of points and vectors would be edited in N4ce and TurboCad. Survey data would also be made available in SHP or DXF format on disk. If appropriate, a surface model may be created using N4ce and displayed from a series of viewing angles on paper or as bitmap files on disk.

4.2 It is proposed that the survey will be undertaken in January 2010.

5. Liaison/Monitoring

5.1 Unlimited access to monitor the project will be available to the Derbyshire Planning Archaeologists, the client and his representatives subject to the health and safety requirements of the site.

5.2 Internal monitoring procedures will be undertaken including visits to the site by the project manager, as appropriate. These will ensure that project targets are met and professional standards are maintained.

6. Report

6.1 A report on the fieldwork will be provided following analysis of the survey. It will be distributed to

- The client
- Leicestershire County Council, Planning Archaeologist
- Leicestershire County Council, (HER)

6.2 The report will contain sufficient detail to enable the results of the survey to be interpreted without recourse to the site archive.

6.3 The report will include the following:

- Non-technical summary
- Introduction (Site location and description, archaeological background, nature and location of the survey)
- Method statement detailing methods and equipment used, results and conclusions.
- Illustrated Summary of results and significance

6.4 The report will contain an accurate site plan showing the surveyed areas, raw data and interpretation of the principal features revealed. The data will be presented in map form on the OS digital map base, on A3 or A4 sheets at an appropriate scale; usually no scale smaller than 1:1000 is used. Maps will be constructed using TurboCad 15 and contain north arrows, scale-bar, scale, title, figure number, key and date. Adjacent areas will also be included on the plan to allow the site to be accurately located as well as the grid co-ordinates used.

7 Health and Safety

7.1 ULAS is covered by and adheres to the University of Leicester Statement of Safety Policy and uses the ULAS Health and Safety Manual (revised 2007) with appropriate risks assessments for all archaeological work. A draft Health and Safety statement for this project is in the Appendix. The relevant Health and Safety Executive guidelines will be adhered to as appropriate.

8 Insurance

8.1 All ULAS work is covered by the University of Leicester's Public Liability and Professional Indemnity Insurance. The Public Liability Insurance is with St Pauls Travellers Policy No. UCPOP3651237 while the Professional Indemnity Insurance is with Lloyds Underwriters (50%) and Brit Insurances (50%) Policy No. FUNK3605.

9. Bibliography.

IFA, 2006 *Code of Conduct*

RCHME, 1999 – *Recording Archaeological Field Monuments: A Descriptive Specification* Royal Commission on the Historical Monuments of England

Richard Buckley
Director
ULAS
University of Leicester

University Road
Leicester LE1 7RH

Tel:0116 252 5041
Fax: 0116 252 2614
Email: rjb16@le.ac.uk

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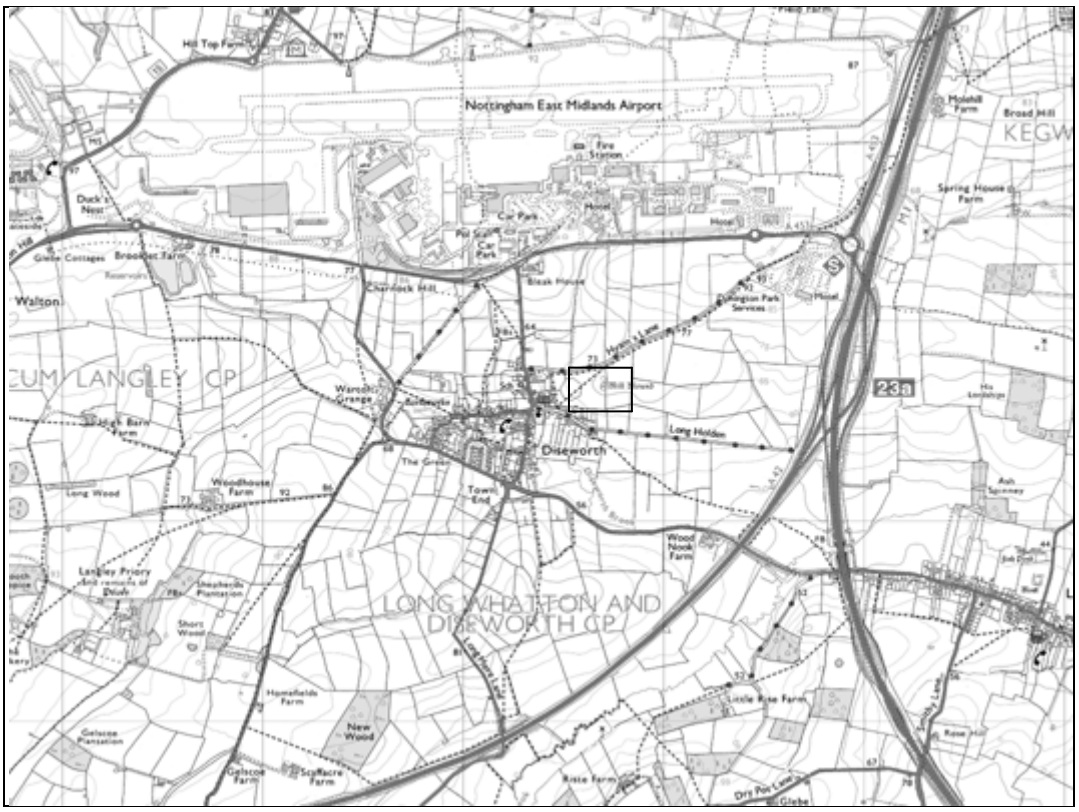

Figure 1. Location of survey area

Figure 2 Topographical survey with development area highlighted

Figure 3 Plan of proposed development

Contact Details

Richard Buckley or Patrick Clay
University of Leicester Archaeological Services (ULAS)
University of Leicester,
University Road,
Leicester LE1 7RH

T: +44 (0)116 252 2848
F: +44 (0)116 252 2614
E: ulas@le.ac.uk
w: www.le.ac.uk/ulas

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