University of Leicester

Archaeological Services

An Archaeological Evaluation on land off Pulford Drive, Scraptoft and Thurnby, Leicestershire NGR: SK 651 048

Jon Coward

ULAS Report No 2010-212.

An Archaeological Evaluation on land off Pulford Drive, Scraptoft and Thurnby, Leicestershire

NGR: SK 651 048

Jon Coward

For: Jelson Ltd

Approved by:

Signed: … 

Date: 18.11.2010.(revised 07.03.2011)

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ULAS Report Number 2010-212

X.A186.2010

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An Archaeological Evaluation on land off Pulford Drive, Scraptoft and Thurnby, Leicestershire SK 651 048

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1. Summary

An archaeological evaluation by trial trenching was carried out by ULAS in October and November 2010 for Jelson Ltd on land off Pulford Drive, Scraptoft and Thurnby, Leicestershire SK 651 048. Although most of the trenches were negative, a linear anomaly located during the geophysical survey was confirmed to be a ditch, several post-holes or pits were revealed in a tight cluster and features typical of a Bronze Age Burnt mound were revealed next to an original course of a watercourse in the north-western edge of the area. No dating evidence was recovered. The archive will be deposited under accession code X.A186.2010 with LMARS in due course.

2. Background

This document reports on an archaeological field evaluation by trial trenching on land adjacent to Pulford Drive, Scraptoft, Leicestershire, in advance of proposed residential development. An Archaeological Desk Based Assessment and fieldwalking survey has been undertaken (Coward 2010a and b), followed by a Geophysical Survey (Smalley 2010). The proposed development area covers an area of approximately 12.6ha within which Jelson Ltd are proposing a scheme of residential development, to incorporate 112 dwellings.

The application area (Figure 1) is in the parishes of Scraptoft and Thurnby, to the south of Scraptoft and the north of Bushby. It lies in farmland on the edge of the built up area. It is bisected by Thurnby Brook, which runs east-west while an un-named stream enters the north-west edge of the application area. The land either side of Thurnby Brook slopes gently down towards it; at the north and north-east of the application area, the land rises sharply up as it approaches the ridge and Covert Lane.

The British Geological Survey indicates that the application area is mostly Mercia Mudstone, with some alluvial cover either side of Thurnby Brook.

3. Historical Background

3.1 The desk-based assessment

The summary of the desk-based assessment (Coward 2010a) concluded that no archaeological remains were known from the application area; however immediately to the north there were rich multi-period sites known to date from the Roman, Anglo-Saxon and medieval periods. The application area appeared to have changed little in modern times, nor seen much activity apart from agricultural use. Therefore, there was moderate potential for archaeological remains from prehistoric, Roman, Anglo-Saxon and medieval periods to be present within the proposed development site.

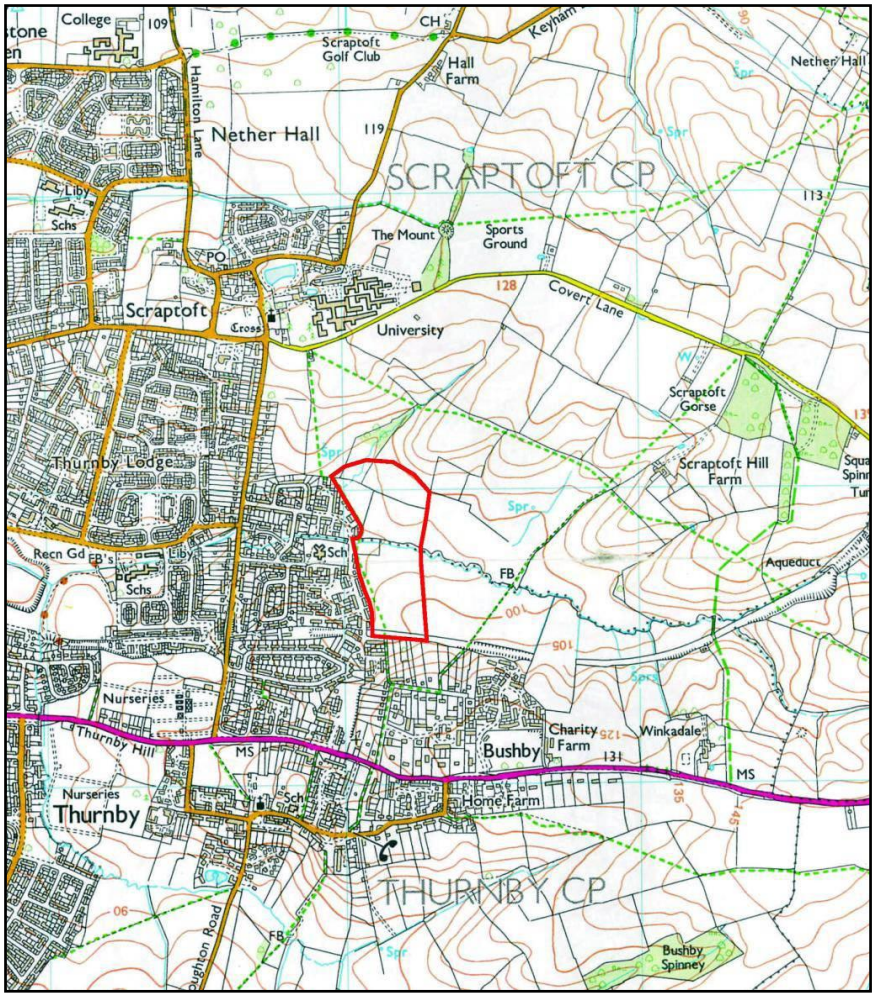

Figure 1 Area of interest.

3.2 Fieldwalking

Fieldwalking (Coward 2010b) located very few artefacts including flints (six pieces to the north and centre) and Roman pottery (one sherd to the north of the area).

3.3 The Geophysical Survey

A gradiometer survey was undertaken by Stratascan in October 2010 with readings taken at 0.25m centres along traverses 1m apart, with a penetration depth of between 0.5m-1m.

Three parallel positive linear anomalies were evident just to the north of the stream (between the middle and southern fields), which were postulated as possible ditch features.

Positive linear anomalies, indicative of ridge and furrow were located throughout the survey area.

A number of discrete positive anomalies can be noted within the survey area, possibly evidence of pits (see Figure 2, with results on Figure 7).

Figure 2 Geophysical survey and trench positions. NTS

4. Aims

The overall aim of the survey was to gather sufficient information to establish the extent, condition, character and date (as far as circumstances permitted) of any archaeological features and deposits within the area targeted for evaluation.

5. Methods

Following the geophysical survey (Figure 2) a programme of targeted trial trenching was implemented, agreed in advance with the Senior Planning Archaeologist at LCC as advisor to the planning authority.

The methodology follows the *Design Specification for Archaeological Work*, prepared by ULAS in advance of the fieldwork (Appendix 4).

The trenching was to comprise a 1% sample c.1200 sq m., the equivalent of c. 22 30m by 2m trenches excavated by a large tracked excavator fitted with a 2m wide flat toothed ditching bucket. Full trench summaries are shown in Appendix 1.

As archaeological features were discovered at the northern edge of Trench 09, this was extended slightly to the north to reveal the complete feature.

The topsoil was removed in spits by the machine under full supervision, until archaeological deposits or undisturbed substrata were encountered. The location of the trenches was surveyed using a hand-held GPS, except where potential archaeological deposits were encountered in which cases an Electronic Distance Measurer (EDM) linked to a Psion hand held computer was used for precise location tied into the National Grid.

Any archaeological deposits located were hand cleaned and planned as appropriate to address the aims and objectives of the evaluation. Samples of any archaeological deposits were hand excavated. Measured drawings of all archaeological features were made and tied into an overall site plan. Excavated sections were drawn, levelled and tied into the Ordnance Survey datum. All trenches were recorded along one baulk with *pro-forma* recording sheets.

6. Results

6.1 The southern field

The geology and soils seen in the trenches in the southern portion of the south field were very similar. In trenches **1,2,3,7,8,10** and **17**, topsoil was a mid-brown clay loam, over a lighter brown silt/clay subsoil. Natural strata were encountered at a depth of between 50-70cm below ground level, consisting of mixed clays with areas of sandy clay and pebbles. In trenches **10** and **17** the subsoil was considerably thinner and in places non-existent, presumably having been ploughed down-slope, and natural substrata were correspondingly higher at 30-40cm below ground level.

Due to overhead high voltage power lines, trenches **1** and **2** were moved to the north, and thus the anomaly running east-west across the south edge of the field could not be tested. It was noted that a footpath ran under the lines, in the rough position of the anomaly, although a path would not normally be expected to cause magnetic variation. Whether the power lines would themselves cause the anomaly is unclear.

No finds or archaeological features were encountered in trenches **1, 2, 3, 7,** and **8**. In trench **17**, where the geophysical survey suggested a linear anomaly, nothing on that alignment was present; however there was an ill-defined narrow gully-like linear feature (not illustrated) running east-west along the trench. Slots through this displayed inconsistent profiles and fills, and it was noted that the remains of a burnt crop were in the fill in some stretches.

Running north-north-east to south-south-west in trench **10** was a linear ditch **[4]** (Figure 4, 4a and 5: Section 1) of *c.* 2m in width by 0.6m in depth, with a gently bowled base and single fill **(3).** The silty clay fill was clean and sterile (see Appendix 3: Assessment of environmental potential). This feature corresponded well with an anomaly recorded during on the geophysical survey.

The northern part of the field displayed subtly different geology. Trenches **4** and **5** were sterile, displaying clean, relatively stone-free topsoil and subsoil with yellowish sand and sandy-silt natural substrata with abundant pebbles. Trenches **18** and **6** were straddling the base of the slope, with their north ends in the flatter ground adjacent to the brook and their southern ends rising up the slope southwards. The geophysical survey shows the medieval ridge and furrow to respect this transition, together with a series of discrete anomalies running along the base of the slope. These anomalies were observed in both trenches. Investigation showed them to be slightly darker areas of silty clay on a boundary between the yellow/grey mixed clay natural substrata common across the southern part of the field, and a beige silty clay substrata to the flatter area to the north. A sondage cut into the base of trench 18 into one of these darker areas showed no real definition of edges, extent or base, with the darker material merging imperceptibly into the beige silt clay northwards. Some flecks of charcoal were noted but nothing of any definite archaeological origin. In trench 18**,** an 'extra' bluish yellow clay substrata layer was seen lying over the beige silty clay for several metres north of the anomaly; this layer was not noted in any of the other trenches. It had the appearance of a possible colluviation layer derived from the clay component of the soils upslope.

Figure 3 Ditch cut 4 in trench 10

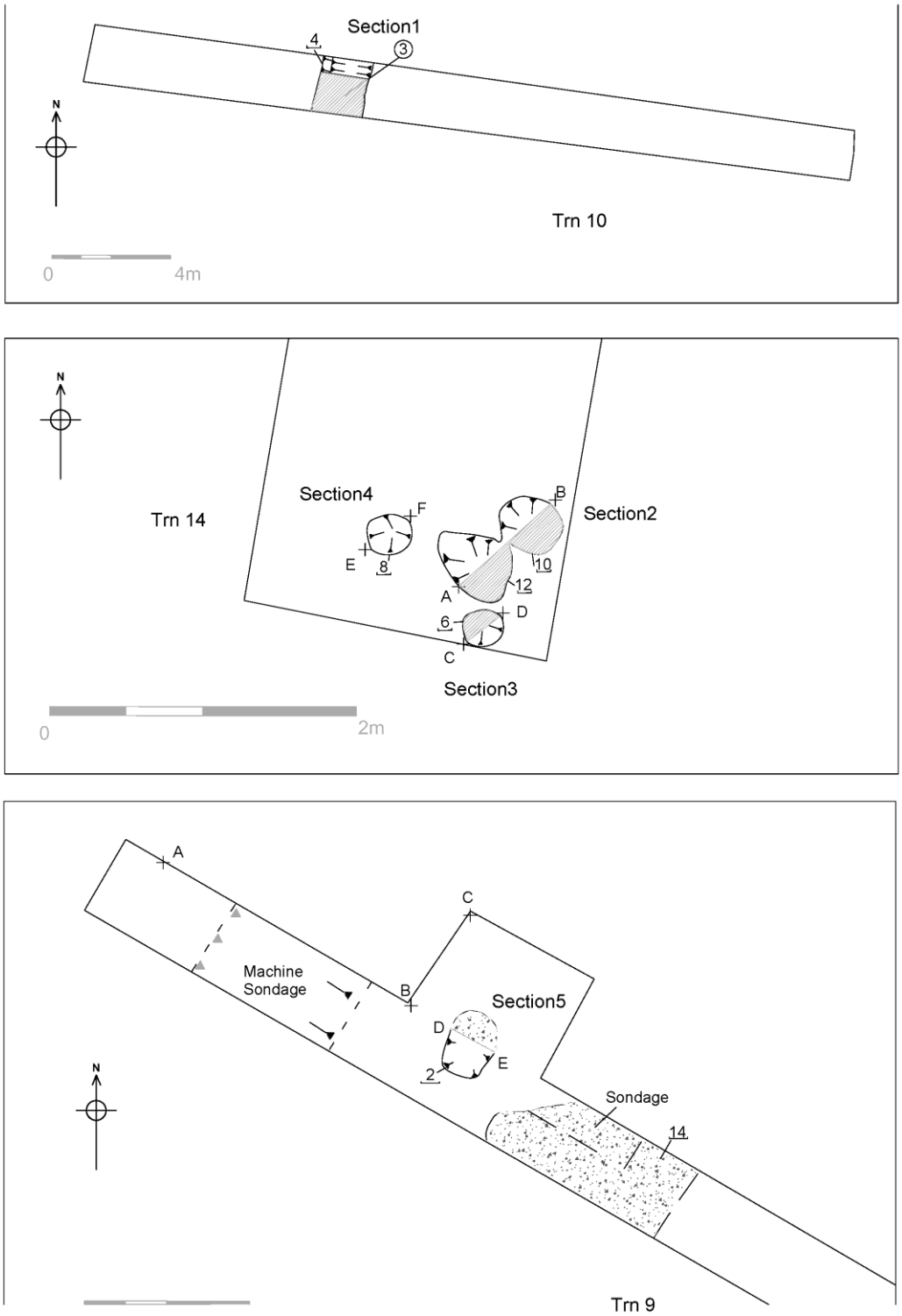

Figure 4 Post-excavation plan of Trenches 9, 10 and 14.

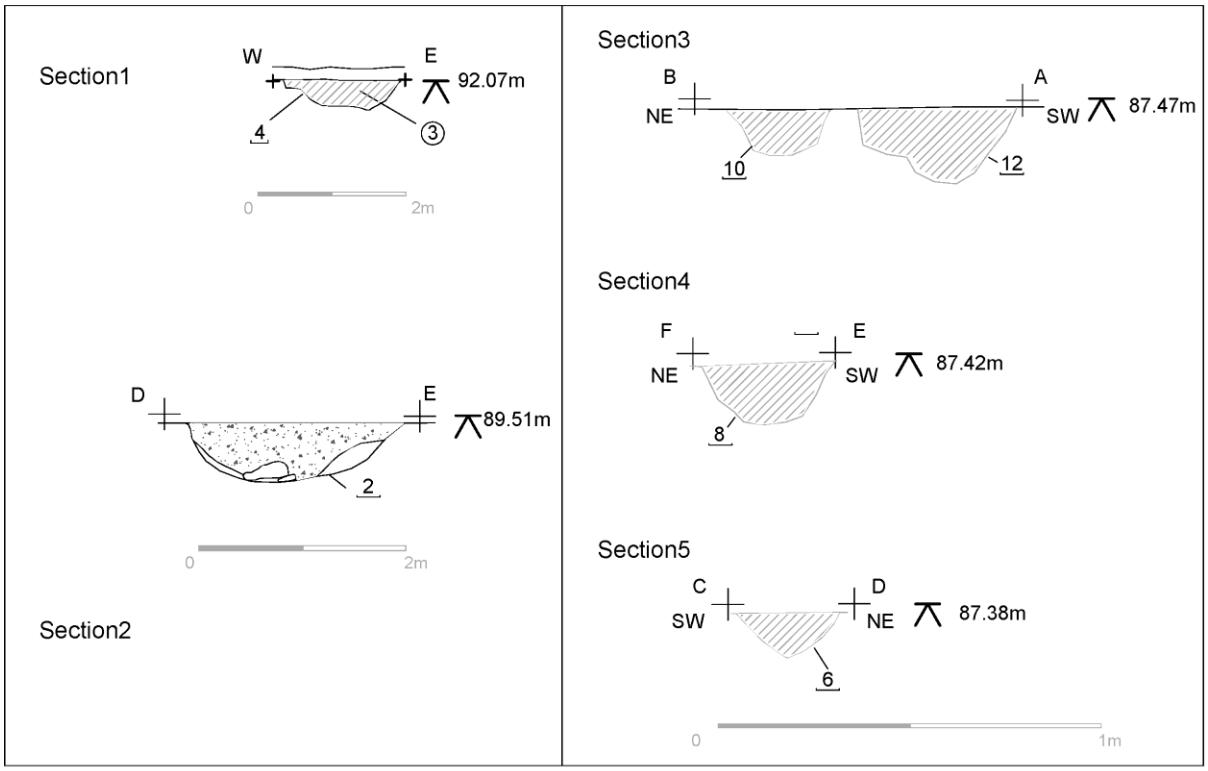

Figure 5: Sections within Trenches 9, 10 & 14

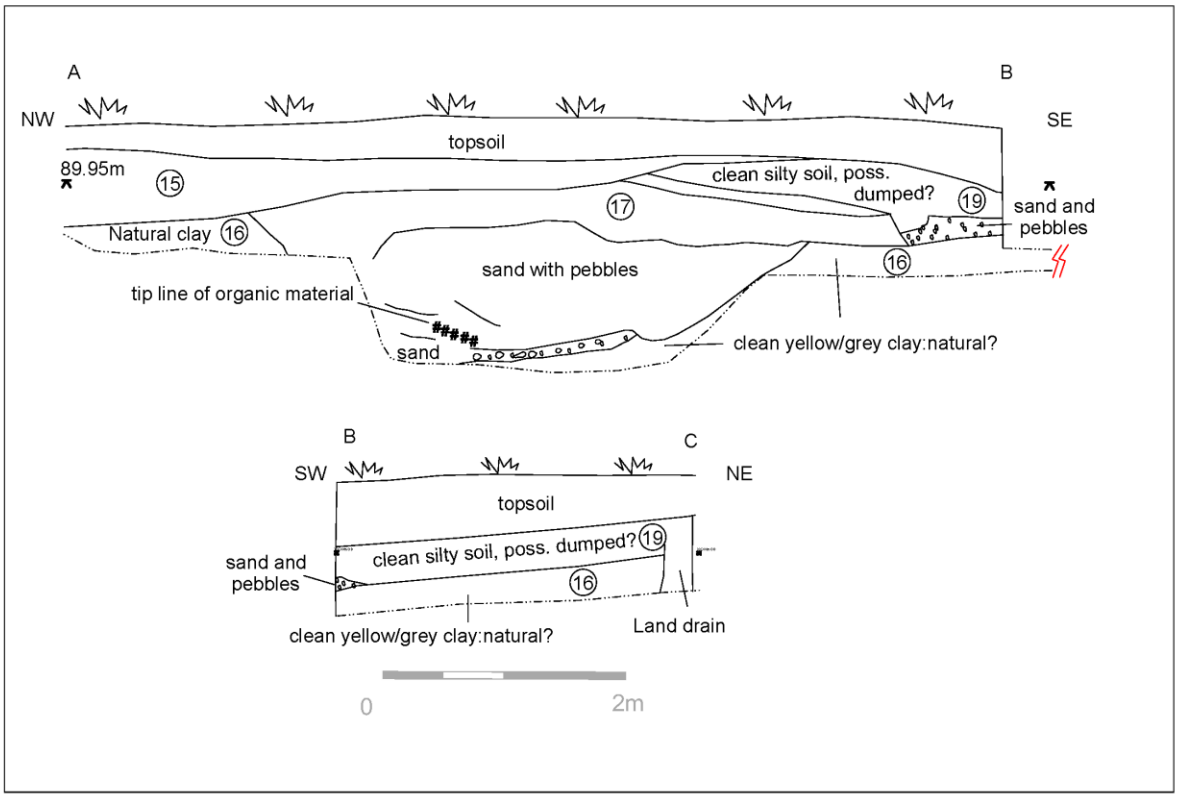

Figure 6 Baulk sections west of the pit in trench 9

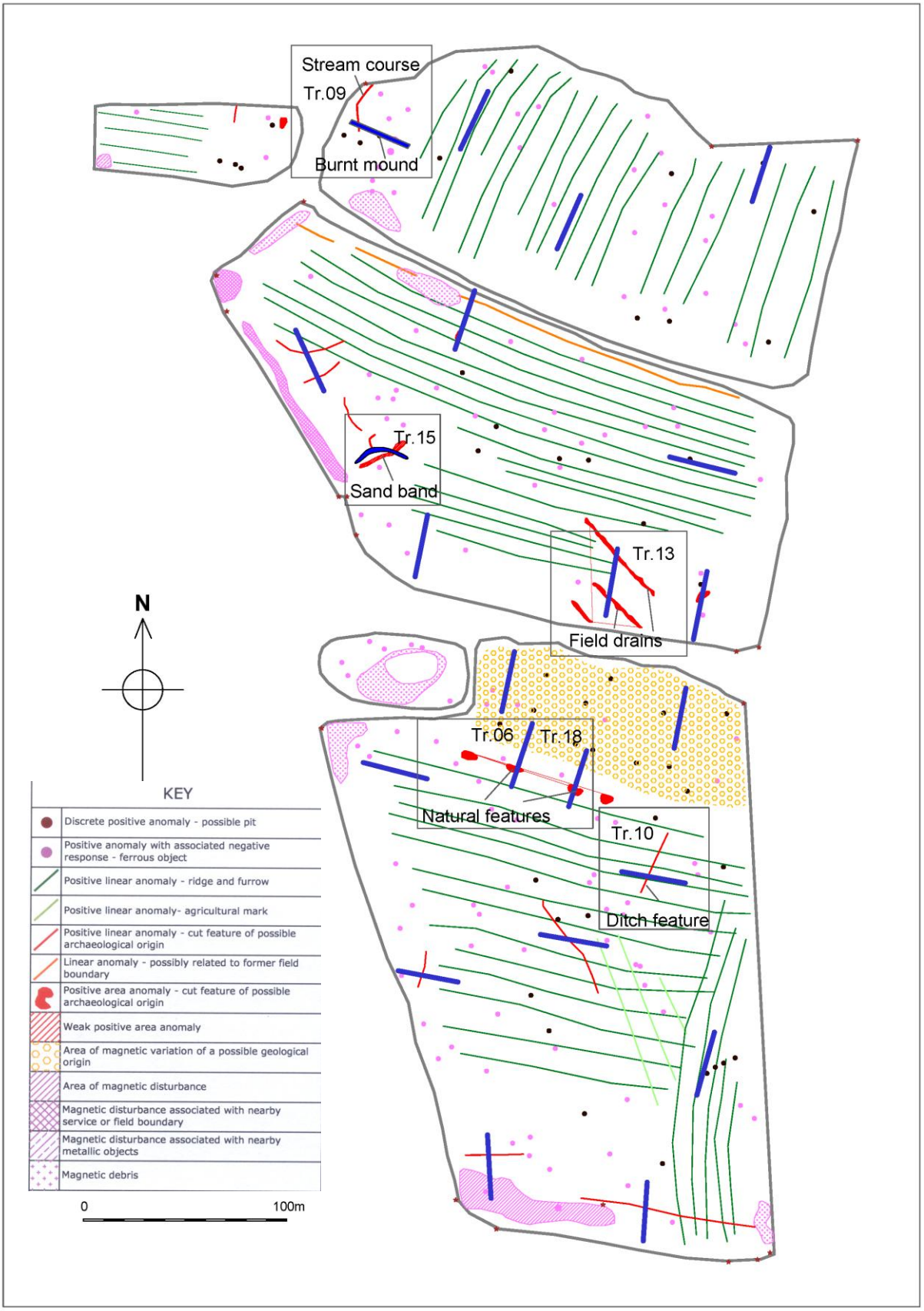

Figure 7: Geophysical interpretation and trenches with features associated with anomalies

6.2 The middle field

All the trenches in the middle field displayed a clay loam topsoil of *c.* 30-45cm depth, over a clay-silt subsoil which was not present in all trenches. Natural substrata varied across the field. Trenches **11**, **12**, **13** and **16** contained no plausible archaeological features, the geophysical anomalies in trench **13** were slit trenches for modern plastic land drains, backfilled with stone chippings. Trench **19** was thought to contain a possible post-hole at its east end and so was extended slightly at right angles to see if any other features were associated; however subsequent excavation showed the potential feature to be very nebulous.

Trench **14** (Figure 44b) was thought to be sterile on initial excavation, but a re-examination and removal of a silty patch at the extreme southern end revealed a tight cluster of four post-holes or pits (cuts 6, 8, 10, 12: see Figure 5: Sections 3-5 & Figure 9). These had similar dark charcoal stained silty-clay fills, and were of a similar size, being between 30 - 40cm in diameter and 10 - 20cm depth. There was a noticeable component of calcined bone in several of the fills (see Appendix 3: Assessment of environmental potential). No dating evidence was recovered.

A tree on the line of the planned position of trench **15** necessitated bending the trench around the tree root system to avoid damage. The clear geophysical anomaly was seen to be a broad band of pure dark orange sand. Regular natural clean sand banding was visible in the natural substrata of both trench 15 and 16, yet this was unusual in its width, sharp definition, and also that there was no subsoil between it and the topsoil.

6.3 The northern field

Trenches **20, 21, 22** exhibited a clay loam topsoil of 25-35cm depth, with a clay-silt subsoil beneath. Natural substrata at *c.*45-55cm below present ground level were similar to that in the higher part of the south field, being mixed clays with silt and pebble components. Trench **20** was initially machined to 1m depth to check for the presence of any colluvial cover derived from the slope above, but no evidence for this was seen.

Below the topsoil, trench **9** exhibited very unusual strata deposition at its west end, adjacent to which was a discrete sub-circular feature (Figure 4c, Figure 5: Section 2) full of blackened stone fragments, and a spread of similar stone fragments extending eastwards along the trench (Figure 10). The subcircular pit (cut 2) measured *c.*1.75m north-south by 1.45m east west. A half section showed it to have a depth of *c.* 35cm with a homogenous fill of fire-cracked river pebbles and stone fragments (13) in a black silty clay matrix, the amount of stone increasing towards the base. Some of the pebbles were quite large, the maximum size being 20cm by 20cm. The pit did not seem to exhibit any evidence that the stones had been burned in situ.

Adjacent, a spread of fire-damaged stone fragments (14) extended about 5m away from the pit before petering out. A sondage showed this spread to have a maximum thickness of *c.*35cm. Above the spread and eastwards, the trench geology exhibited a more standard topsoil/subsoil/natural progression in comparison to the very mixed strata to the west of the pit feature. No finds were recovered from any of the deposits.

The opportunity was taken to excavate a machine sondage through the unusual deposit formation at the west end of the trench (Figure 6). This showed that the deposits appear to be

an original course of the stream channel which has now been straightened and moved to the west. The higher deposits visible in the baulk section (contexts (14)-(16) & (18) & (20) may have been created by earth-moving machinery, as the 1967 OS map shows the stream course to have been largely in its original position. Overlaying the geophysical survey greyscale plot onto the first edition OS map (Figure 8) shows that the original stream course (the centre line of the greyed-out map, arrowed) at that time running within a spinney, corresponds very well with the linear anomaly on the greyscale. There is also a line of anomalies running north-north-east to south-south-west which run down the original spinney boundary, including a high response area which could be ferrous rubbish. No features were found within the trench itself that might have been related to these anomalies.

7. Conclusion

Ill-defined linear features were identified in Trench 10 and 17 in the southern field. These features are likely to be of recent agricultural origin rather than archaeological, perhaps the remnant of deep ploughed stubble burning, which was a relatively common practise until its ban in 1993. The linear feature identified by the geophysical survey in the area covered by Trench 17 was not located; this may be geological in origin.

The linear 'ditch' feature, context [4], discovered in Trench 10 did correspond to a strong linear feature shown on the Geophysical Survey. This is undoubtedly archaeological in origin, but no finds were recovered from the feature during excavation that could closely date it.

Trenches 6 and 18 at the base of the slope in the southern field were placed over areas defined as positive features identified by the Geophysical Survey. Excavation of these features showed no real definition of edges, extent or base, with the darker material merging imperceptibly into the beige silt clay northwards. Some flecks of charcoal were noted but nothing of any definite archaeological origin.

Quite what the anomalies represent is uncertain, but potentially they are some by-product of alluviation and terrace cutting of the brook. It is noticeable that they all lie on the same contour line, at a break of slope; they may be remnant early alluviation deposits which have not been fully removed by later terrace cutting. This might explain their differing magnetic response, as they may be derived from different geological parent material than either the higher clays to the south, or the potentially later alluvial deposits to the north.

Four small pits containing dark fills (Features [6], [8], [10] and [12]), within Trench 14 in the middle field, also contained a noticeable component of calcined animal bone in several of the fills.

If these represent part of archaeological structures of some kind, it is noticeable that they are very close to the brook; however the ridge and furrow recorded on the geophysical survey also extends much closer to the north bank of the brook than the south, and given that ridge and furrow can often be taken as an indication of the extent of normal flood episodes, this may have been a relatively secure site.

A large linear anomaly was targeted by the curved Trench 15 in the middle field. This appeared to have been a wide sandy band. There is a recently removed hedgerow shown on some maps at in this area, but on a slightly different alignment to that of the anomaly, and the origin of this sand band is unclear, although the lack of any subsoil formation may indicate that it has been artificially introduced in the recent past, perhaps during the removal of the hedgerow.

The pit [2] of burnt bone in Trench 9 in the northern field contained no dating evidence along with the large amount of heat affected stones and thus the features cannot be dated with any certainty, but based on the features' typology, there seems little doubt that it represents a burnt mound. The majority of dated examples of these are of Bronze Age date although there is a broadly even distribution between the mid 3rd millennium (Neolithic) and the second quarter of the 1st millennium BC (later Bronze Age; Beamish 2009, 158)). Burnt mounds are variously interpreted as cooking sites or saunas (Darvill 1988) using burnt stones to heat water in a trough. The pit [2] may have served as a trough while burnt stones were present to the east. Stream or riverside examples of these structures are increasingly being identified in the East Midlands (Clay 2006, 81) while Leicestershire examples include sites at Birstall and Castle Donington (Ripper 1997; 2004; Coward and Ripper 1998).

A number of similar anomalies were identified by the geophysical survey just to the south-west of Trench 9 which may represent similar features.

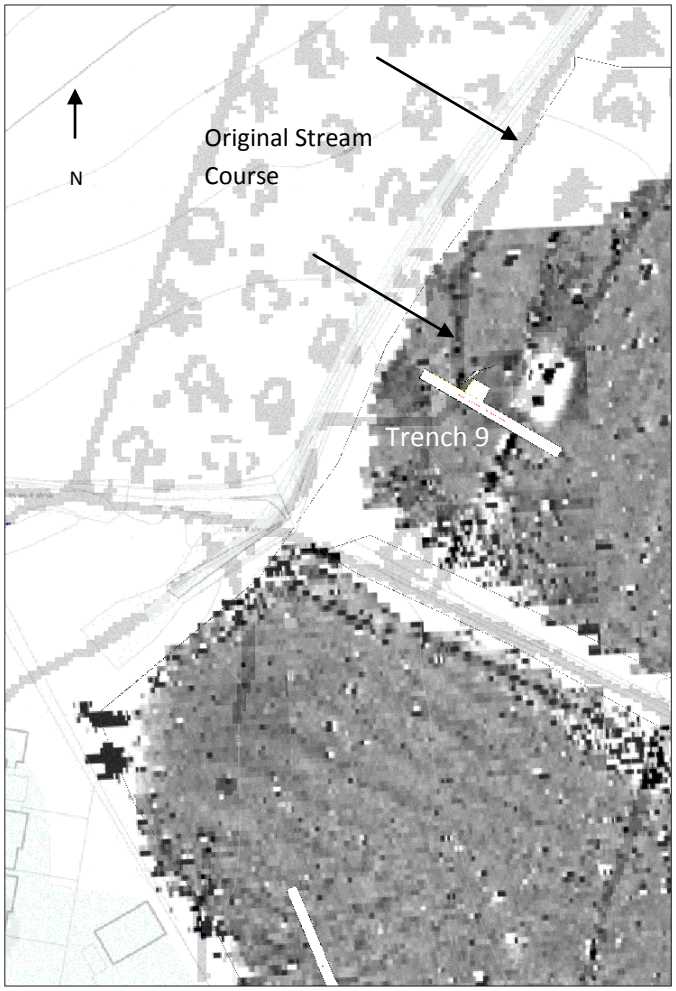

Figure 8 Detail of greyscale overlain onto OS First Edition map. NTS

Figure 9: Cluster of pits, [6], [8], [10] & [12] in Trench 14

Figure 10 Pit with fire-cracked stone looking north-east, with spread to the south-east.

8. Archive

The archive consists of

3 sheets of scaled drawings on permagraph
1 sheet context index
10 context sheets
1 sheet photographic index
22 trench recording sheets
Monochrome negatives and contact sheets
Digital photo contact sheet
Digital images on CD

It will be deposited with LMARS under acc code X.A186.2010 in due course. The report will be listed on the Online Access to the Index of Archaeological Investigations (OASIS) held by the Archaeological Data Service at the University of York.
Available at: http://oasis.ac.uk/ .

OASIS Record

INFORMATION REQUIRED	**EXAMPLE**
Project Name	Scraptoft off Pulford Drive
Project Type	Evaluation
Project Manager	Patrick Clay
Project Supervisor	Jon Coward
Previous/Future work	DBA/Fieldwalking/Geophysical
Current Land Use	Arable
Development Type	Housing
Reason for Investigation	PPG16
Position in the Planning Process	As a condition
Site Co ordinates	SK 651 048
Start/end dates of field work	Oct/Nov 2010
Archive Recipient	LMARS
Height min/max	89-107m
Study Area *	12.6ha
Finds	N/A

* Particularly important as this information cannot be found elsewhere

9. Acknowledgements

The project was directed by Jon Coward with the assistance of Leon Hunt and Gerwyn Richards. Project management was by Patrick Clay. ULAS would like to thank Rob Thorley and Catherine Mumby of GVA Grimley and Terry McGreal and Paul Moran of Jelson Ltd for their assistance in the course of the project.

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17.11.2010
Revised
07.03.2011

Appendix 1: Trench summaries

Trench 1

Orientation: N-S

Dimensions: 30m x 2.1m

Topsoil: Mid brownish grey friable clay loam, with occasional pebbles

Subsoil: Light brown clumpy silty clay with occasional medium pebbles

Natural: Yellowish brown sandy clay; grey clay with pieces of common chalk and gypsum fragments. Occasional large stone

Interval	**1 (S)**		**15**		**30 (N)**
Topsoil Depth	0.25m	0.23m	0.20m	0.20m	0.20m
Subsoil Depth	0.60m	0.55m	0.50m	0.50m	0.50m
Base of Trench	0.85m	0.90m	1.00m	0.90m	0.80m

Contexts: None

Trench 2

Orientation: N-S

Dimensions: 30m x 2.1m

Topsoil: Mid brownish grey friable clay loam, with occasional pebbles

Subsoil: Light brown clumpy silty clay with occasional medium pebbles

Natural: Greyish yellow clay with some pebbles and larger stones

Soils measured from top of trench:

Interval	**1 (S)**		**15**		**30 (N)**
Topsoil Depth	0.30m	0.30m	0.30m	0.25m	0.20m
Subsoil Depth	0.70m	0.65m	0.60m	0.70m	0.80m
Base of Trench	1.00m	0.95m	0.90m	1.00m	1.10m

Contexts: None

Trench 3

Orientation: N-S

Dimensions: 30m x 2.1m

Topsoil: Mid brownish grey friable clay loam, with occasional pebbles

Subsoil: Light brown clumpy silty clay with occasional medium pebbles

Natural: Pebbly yellow clay, with patches of grey clay and gypsum fragments

Soils measured from top of trench:

Interval	**1 (S)**		**15**		**30 (N)**
Topsoil Depth	0.35m	0.30m	0.20m	0.25m	0.30m
Subsoil Depth	0.50m	0.40m	0.30m	0.35m	0.35m
Base of Trench	0.70m	0.55m	0.40m	0.50m	0.60m

Contexts: none

Trench 4

Orientation: N-S

Dimensions: 30m x 2.1m

Topsoil: Mid grey friable clay loam

Subsoil: Light brown clumpy silty clay

Natural: Yellow sandy silt with common pebbles

Soils measured from top of trench:

Interval	1 (S)		15		30 (N)
Topsoil Depth	0.35m	0.30m	0.25m	0.25m	0.25m
Subsoil Depth	0.60m	0.55m	0.50m	0.55m	0.60m
Base of Trench	1.00m	0.80m	0.70m	0.70m	0.75m

Contexts: None

Trench 5

Orientation: N-S

Dimensions: 30m x 2.1m

Topsoil: Greyish brown friable silty clay

Subsoil: Mid-light brown friable silty clay, with very occasional small pebbles, getting more abundant at northern end

Natural: Yellow sand and sandy clay with abundant pebbles, plus grey clay

Soils measured from top of trench:

Interval	1 (S)		15		30 (N)
Topsoil Depth	0.25m	0.30m	0.35m	0.35m	0.35m
Subsoil Depth	0.80m	0.85m	0.90m	0.90m	0.90m
Base of Trench	0.85m	0.95m	1.10m	1.00m	1.05m

Contexts: None

Trench 6

Orientation: SSW-NNE

Dimensions: 30m x 2.1m

Topsoil: Greyish brown friable silty clay

Subsoil: Mid-light brown friable silty clay, with very occasional small pebbles, getting more abundant at northern end

Soils measured from top of trench:

Interval	**1 (NNE)**		**15**		**30 (SSW)**
Topsoil Depth	0.40m	0.35m	0.30m	0.30m	0.30m
Subsoil Depth	0.70m	0.75m	0.80m	0.50m	0.40m
Base of Trench	0.95m	0.90m	0.90m	0.70m	0.50m

Contexts: None

Trench 7

Orientation: WNW-ESE

Dimensions: 30m x 2.1m

Topsoil: Mid-Grey clay loam with some pebbles

Subsoil: Mid brown friable silty clay, with rear small pebbles

Natural: Beige clay with tiny white fragments (gypsum?) with some orange/beige clay

Soils measured from top of trench:

Interval	**1 (WNW)**		**15**		**30 (ESE)**
Topsoil Depth	0.30m		0.20m		0.30m
Subsoil Depth	0.50m		0.40m		0.45m
Base of Trench	0.60m		0.60m		0.55m

Contexts: None

Trench 8

Orientation: WNW-ESE

Dimensions: 30m x 2.1m

Topsoil: Mid brownish grey friable clay loam, with occasional pebbles

Subsoil: Light brown clumpy silty clay with occasional medium pebbles

Natural: Beige/ yellow clay. Beige grey clay has bands of stone & pebbles. Chalky –looking stone to east end

Soils measured from top of trench:

Interval	**1 (WNW)**		**15**		**30 (ESE)**
Topsoil Depth	0.25m	0.25m	0.30m	0.30m	0.30m
Subsoil Depth	0.90m	0.80m	0.70m	0.75m	0.80m
Base of Trench	1.05m	1.00m	0.90m	0.90m	0.90m

Contexts: None

Trench 9

Orientation: E-W

Dimensions: 30m x 2.1m

Topsoil: Mid greyish brown friable clay loam

Subsoil: Mid brown plastic silty clay

Natural: Orangey grey clay

Soils measured from top of trench:

Interval	1 (E)	5	10	15(W)
Topsoil Depth	0.30m	0.30m	0.30m	0.30m
Subsoil Depth	0.80m	0.90m	0.75m	0.95m
Base of Trench	1.05m	1.00m	1.05m	1.05m

Contexts: Burnt stone pit: (2)

Trench 10

Orientation: E-W

Dimensions: 30m x 2.1m

Topsoil: Mid greyish brown friable clay loam with small pebbles

Subsoil: Mid to light brown silty clay with rare small pebbles

Natural: Beige clay with pebbles

Soils measured from top of trench:

Interval	1 (E)		15		30 (W)
Topsoil Depth	0.30m	0.30m	0.30m	0.30m	0.30m
Subsoil Depth	0.50m	0.40m	0.40m	-	0.45m
Base of Trench	0.55m	0.50m	0.50m	0.45m	0.45m

Contexts: (3) & [4] Linear

Trench 11

Orientation: NNE-SSW

Dimensions: 30m x 2.1m

Topsoil: Mid greyish brown friable clay loam with small pebbles

Subsoil: Mid yellowish brown silty clay (N) and silty sand (S) with rare small pebbles

Natural: Mottled yellow and beige silty clay with bands of sand

Soils measured from top of trench:

Interval	**1 (NNE)**		**15**		**30 (SSW)**
Topsoil Depth	0.36m	0.34m	0.32m	0.34m	0.36m
Subsoil Depth	0.48m	0.52m	0.54m	0.57m	0.60m
Base of Trench	0.56m	0.65m	0.72m	0.76m	0.82m

Contexts: None

Trench 12

Orientation: N-S

Dimensions: 30m x 2.1m

Topsoil: Mid grey friable clay loam

Subsoil: Yellowish brown silty clay

Natural: Orangey brown sand; beige grey clay and some orange sand bands with pebbles

Soils measured from top of trench:

Interval	**1 (S)**		**15**		**30 (N)**
Topsoil Depth	0.30m	0.32m	0.32m	0.32m	0.32m
Subsoil Depth	0.44m	0.46m	0.48m	0.55m	0.62m
Base of Trench	0.59m	0.68m	0.85m	0.80m	0.75m

Contexts: None

Trench 13

Orientation: N-S

Dimensions: 30m x 2.1m

Topsoil: Mid grey friable clay loam

Subsoil: Yellowish brown silty clay

Natural: Grey clay; beige clay and beige silty clay

Soils measured from top of trench:

Interval	**1 (S)**		**15**		**30 (N)**
Topsoil Depth	0.26m	0.32m	0.37m	0.36m	0.35m
Subsoil Depth	0.43m	0.54m	0.66m	0.58m	0.48m
Base of Trench	0.43m	0.60m	0.79m	0.70m	0.64m

Contexts: None

Trench 14

Orientation: N-S

Dimensions: 30m x 2.1m

Topsoil: Mid grey friable clay loam

Subsoil: Yellowish brown silty clay

Natural: Orangey sand with bands of beige clay

Soils measured from top of trench:

Interval	**1 (S)**		**15**		**30 (N)**
Topsoil Depth	0.25m	0.26m	0.28m	0.27m	0.26m

Subsoil Depth	0.57m	0.55m	0.53m	0.48m	0.44m
Base of Trench	0.57m	0.55m	0.70m	0.68m	0.65m

Contexts: Pits (5),[6], (7), [8],(9) [10], (11), [12]

Trench 15

Orientation: SW-SE (curved)

Dimensions: 30m x 2.1m

Topsoil: Mid grey friable clay loam

Subsoil: Yellowish brown silty clay (very intermittent)

Natural: Brownish Orangey sand

Soils measured from top of trench:

Interval	**1 (SW)**		**15**		**30 (SE)**
Topsoil Depth	0.26m	0.34m	0.40m	-	0.40m
Subsoil Depth	-	-	0.56m	-	0.52m
Top of natural	0.26m	-	-	-	-
Base of Trench	0.40m		0.76m		0.59m

Contexts: None

Trench 16

Orientation: NW-SE

Dimensions: 30m x 2.1m

Topsoil: Mid grey friable clay loam

Subsoil: Yellowish brown silty clay (intermittent)

Natural: Sand & clay in bands

Soils measured from top of trench:

Interval	**1 (SE)**		**15**		**30 (NW)**
Topsoil Depth	0.24m	0.26m	0.28m	0.27m	0.27m
Subsoil Depth	0.30m	0.38m	-	-	
Top of natural			0.28m	0.28m	0.27m
Base of Trench	0.54m	0.58m	0.62m	0.58m	0.56m

Contexts: None

Trench 17

Orientation: ESE-WNW

Dimensions: 30m x 2.1m

Topsoil: Mid greyish brown friable clay loam with small pebbles

Subsoil: Mid to light brown silty clay with rare small pebbles (intermittent)

Natural: Orangey beige clay with occasional small pebbles with clean light grey patches.

Soils measured from top of trench:

Interval	**1 (ESE)**		**15**		**30 (WNW)**
Topsoil Depth	0.30m	0.26m	0.28m	0.27m	0.27m
Subsoil Depth	0.40m	-	-	0.40m	0.55m
Top of natural	-	0.30m	0.30m	-	-

Base of Trench	0.60m	0.60m	0.60m	0.60m	0.65m

Contexts: None

Trench 18

Orientation: NNE-SSW

Dimensions: 30m x 2.1m

Topsoil: Greyish brown friable clay loam, with a few sub-angular and sub-rounded stones

Subsoil: Yellowish brown soft silty clay with few rounded stones

Natural: Bluish yellow clay (middle to S end); beige silty clay (at N end)

Soils measured from top of trench:

Interval	**1 (NNE)**	**2**	**4**	**6**	**10**	**12**	**14**	**20**	**30 (SSW)**
Topsoil Depth	0.30m	0.34m	0.40m	0.36m	0.40m	0.40m	0.30m	0.30m	0.30m
Subsoil Depth	0.50m	0.49m	0.52m	0.62m	0.50m	0.90m	0.80m	0.45m	0.50m
Top of natural (base of clay band)	-	0.70m	0.68m	0.72m	1.00m	-	-	-	-
Base of Trench	0.59m	0.78m	0.89m	0.91m	1.00m	1.10m	1.00m	0.60m	0.60m

Contexts: None

Trench 19

Orientation: E-W

Dimensions: 30m x 2.1m

Topsoil: Mid brownish grey friable clay loam, with common pebbles

Subsoil: Mid brown silty clay with rare small pebbles

Natural: Beige clay, beige & grey with chalky granules

Soils measured from top of trench:

Interval	**1 (E)**		**15**		**30 (W)**
Topsoil Depth	0.35m		0.30m		0.35m
Subsoil Depth	0.60m		0.50m		0.50m
Base of Trench	0.70m		0.60m		0.60m

Contexts: (1) Natural pit-like feature

Trench 20

Orientation: N-S

Dimensions: 30m x 2.1m

Topsoil: Mid-brownish grey friable clay loam with common small pebbles

Subsoil: Mid-light brown plastic clayey silt, with common small pebbles

Natural: Yellowish grey clay with small chalk (?) granules

Soils measured from top of trench:

Interval	**1 (N)**	**7.5**	**15**	**22**	**30 (S)**
Topsoil Depth	0.30m	0.30m	0.32m	0.31m	0.25m
Subsoil Depth	0.45m	0.43m	0.45m	0.47m	0.45m
Base of Trench	0.55m	0.50m	0.55m	0.70m	0.90m

Contexts: None

Trench 21

Orientation: N-S

Dimensions: 30m x 2.1m

Topsoil: Mid-brownish grey friable clay loam with common small pebbles

Subsoil: Mid-light brown plastic clayey silt, with common small pebbles

Natural: Yellowish grey clay with small chalk (?) granules

Soils measured from top of trench:

Interval	**1 (N)**	**7.5**	**15**	**22**	**30 (S)**
Topsoil Depth	0.30m	0.27m	0.30m	0.32m	0.30m
Subsoil Depth	0.50m	0.45m	0.45m	0.45m	0.45m
Base of Trench	0.70m	0.67m	0.65m	0.65m	0.60m

Contexts: None

Trench 22

Orientation: N-S

Dimensions: 30m x 2.1m

Topsoil: Mid-brownish grey friable clay loam with common small pebbles

Subsoil: Mid-light brown plastic clayey silt, with common small pebbles

Natural: Yellow clay; silty clay with pebbles; sandy silt bands; bluish grey clay patches

Soils measured from top of trench:

Interval	**1 (N)**	**7.5**	**15**	**22**	**30 (S)**
Topsoil Depth	0.30m	0.32m	0.30m	0.35m	0.30m
Subsoil Depth	0.55m	0.55m	0.50m	0.55m	0.60m

Base of Trench	0.75m	0.65m	0.60m	0.70m	0.80m

Contexts: None

Appendix 2: The finds

Unusually, no finds of any antiquity were recovered from any of the trenches. Although occasional modern pottery was encountered, this was not retained.

Appendix 3: Assessment of environmental potential

Anita Radini

Six samples were taken from the features including ditch (cut 4), small pits/post-holes, and one possible burnt mound. No pottery fragments were found to help with the dating of the features. In order to assess the potential for environmental analysis, a sub sample of 500ml of each sample was examined. All samples consisted mainly of clayey soils with different proportions of sand, but almost all of them had high content of charcoal, charcoal flakes and burnt bones, and a few had remains resembling cereal grains. A few samples had small modern root fragments, suggesting a degree of bio-disturbance. Results of the assessment for potential of environmental analysis are shown below in Table 1.

Table 1.

Sample	Context	Cut	feature	Amt	Ch	Ch Rm	Rt	Br Bn	Clay	Potential
1	Tr 10 3	4	ditch	40litres					brown clay	low
2	Tr 14 9	10	pit	5 litres	xxx	x	x	xx	x	good
3	Tr 14 11	12	pit	5 litres	xxx	x		xx	x	good
4	Tr 14 5	6	pit	5 litres	xxx		x	x	x	good
5	Tr 14 7	8	pit	5 litres	xx		x	x	x	good
6	Tr 9 13	2	burnt mound pit	40 litres	xx	x		xx	x	high

x=present xx=common xxx=abundant
Ch=charcoal
Ch Rm=charred remains (such as seeds and nuts)
Rt=modern root fragments
Br Bn=burnt bone (animal bones)

Sample **1** (3) consisted of a mid-brown clay, no remains of charcoal or bones were visible. This sample has therefore low potential for the recovery of plant remains.
Sample **2** (9), **3** (11) and **6** (13) had visible remains of possible cereal grains.
The samples examined from the site would be productive for environmental analysis. It is therefore very important that appropriate environmental samples will be taken in any future excavation in the area, which might provide evidence of food production and consumption.

The burnt bone fragments from Trench 14 (9), (11) (5), (7) (Samples 2-5), and Trench 9 (13) (Sample 6) were examined by Harriet Jacklin (human osteologist) and Jennifer Browning (osteologist). None of the samples was identifiable as to species but were all animal bone from various different species. No human bone was present.

Appendix 4: The Design Specification

UNIVERSITY OF LEICESTER ARCHAEOLOGICAL SERVICES

Design Specification for archaeological work

Land adjacent to Pulford Drive, Scraptoft, Leicestershire, (NGR: SK 651 048).

Written scheme of investigation for Geophysical Survey and targeted trial trenching

For: Jelson Ltd

1. Introduction

1.1 This document sets out a Written Scheme of Investigation (WSI) to evaluate potential archaeological deposits at land adjacent to Pulford Drive, Scraptoft**,** Leicestershire, (NGR: SK 651 048) in advance of proposed residential development. An Archaeological Desk Based Assessment and fieldwalking survey has been undertaken (Coward 2010a and b).
1.2 The proposed development area is located adjacent to Pulfor Drive, Scraptoft Leicestershire, (SK 651 048) and covers an area of approximately 4.26ha within which Jelson Ltd are proposing a scheme of residential development, to incorporate 112 dwellings.

1.3 The Historic Environment Record (HER) for Leicestershire and Rutland records that a number of archaeological sites have been identified in the vicinity of the development area. Fieldwalking located a very few artefacts including flint (6 to the north and centre) and Roman pottery (1 to the north of the area).

2. Geology and topography

The application area is in the parishes of Scraptoft and Thurnby, to the south of Scraptoft and the north of Bushby. It lies in farmland on the edge of the built up area. It is bisected by Thurnby brook, which runs east-west. An un-named stream enters the north-west edge of the application area. The land either side of Thurnby brook slopes gently down towards it; at the north and north-east of the application area, the land rises sharply up as it approaches the ridge and Covert Lane.

The British Geological Survey indicates that the application area is mostly Mudstone, with some alluvial cover either side of Thurnby brook.

3. Aim of the Survey

3.1 The overall aim of the survey is to gather sufficient information to establish the extent, condition, character and date (as far as circumstances permit) of any archaeological features and deposits within the area targeted for evaluation. A detailed gradiometry survey will be undertaken.

4. Survey Methodology

4.1 General Methodology

4.1.1 A geophysical and survey is required over the area in order that an assessment can be made of the presence and extent of any archaeological deposits.
4.1.2 The geophysical survey will be sub-contracted to Stratascan, a registered organisation with the IfA. Suitable equipment will be used by a qualified archaeologist specialising in geophysical survey to cover an area as indicated in Figures 1 and 2. The results will then be interpreted and reported in a way that will give as much clarity as possible to the surveyed results enabling an informed decision on the nature of the archaeology. The specifications of the equipment and detailed methodology are outlined in Appendix 1.
4.1.3 The land for evaluation is mostly farmland. Access will be agreed with the landowner prior to access.

4.1.4 All geophysical survey work will adhere to guidance set out in English Heritage *Research and Professional Services Guideline No.1: Geophysical survey in archaeological field evaluation* (2008) and *Geophysical Data in Archaeology: A Guide to Good Practice* (Archaeology Data Service).
4.1.5 The surveys will be committed to the standards and codes of conduct set out by the Institute for Archaeologists.

4.2 Setting out of survey grids

4.2.1 The survey grids will be set out using a Global Positioning Satellite receiver. Partial grids shall be avoided wherever possible. Survey pegs will be set out in field boundaries and where possible be left in place. All survey grids will be plotted onto the OS digital base map with National Grid co-ordinates to enable the accurate location of trial trenches over anomalies.

4.3 Specific Methodology: Geophysical survey

4.3.1 The equipment used for the magnetic survey will be carried out using a dual sensor Grad601-2 Magnetic Gradiometer manufactured by Bartlington Instruments Ltd. The Grad601-2 consists of two high stability fluxgate gradiometers suspended on a single frame. Each sensor has a 1m separation between the sensing elements increasing the sensitivity to small changes in the Earth's magnetic field.

4.3.2 The equipment will be zeroed and balanced at a 'magnetically quiet' location with the use of a non-magnetic tripod. The balancing point will be accurately laid out using a compass. The gradiometer will be switched on for a period of at least 30 minutes prior to balancing and placed outside to allow stabilisation of temperature. Metal objects and compasses will be removed to at least 50m from the balancing position. Balancing with the Grad601-2 is an automated process using electronic adjustments and is only required prior to the start of each survey session (usually 2 per day).

4.3.3 Magnetometry Readings will be taken at 0.25m centres along traverses 1m apart. This equates to 3600 sampling points in a full 30x30m grid.

4.4 Depth of scan and resolution

4.4.1 Magnetometry - The Grad601-2 has a typical depth penetration of 0.5 – 1.0m. This would be increased in the presence of buried, strongly magnetic objects. The collection of

data at 0.5m centres provides an appropriate methodology for balancing cost and time with resolution.

4.7 Data Capture

4.7.1 Magnetometry Readings will be logged consecutively into the data logger which in turn is daily downloaded into a portable computer on site. At the end of each stage, data will be transferred to the office for processing and presentation. An initial assessment of the data quality will be carried out by the survey team. After each survey session a site record sheet will be completed or updated as appropriate.

4.8 Processing of data

4.8.1 Magnetometry Processing is performed using specialist software (e.g. Geoplot *3).* Details of the software used and processing techniques should be provided by the Geophysical Survey Contractor.

4.8.2 All survey results will be plotted at an appropriate scale on an OS digital base map.

4.9 Timetabling

4.9.1 It is proposed that the geophysical survey will be undertaken in October 2010.

5 Trial Trenching.

5.1 Following the geophysical survey a programme of targeted trial trenching will be implemented. The scope of this will depend on the results of the geophysical survey and will be agreed in advance with the Senior Planning Archaeologist at LCC as advisor to the planning authority.
5.2 The topsoil will be removed in spits by machine with a toothless ditching bucket (or similar) under full supervision, until archaeological deposits or undisturbed substrata are encountered. The location of the trenches will be surveyed using an Electronic Distance Measurer (EDM) linked to a Psion hand held computer.

5.3 Any archaeological deposits located will be hand cleaned and planned as appropriate to address the aims and objectives of the evaluation. Samples of any archaeological deposits located will be hand excavated. Measured drawings of all archaeological features will be prepared at a scale of 1:20 and tied into an overall site plan of 1:100. All plans will be tied into the National Grid using an Electronic Distance Measurer (EDM).

5.4 Particular attention will be paid to the potential for buried palaeosols in consultation with ULAS's environmental officer. Deposits which may provide radiocarbon dating evidence will be sampled.

5.5 All excavated sections will be recorded and drawn at an appropriate scale, levelled and tied into the Ordnance Survey datum. Spot heights will be taken as appropriate.

5.6 Any human remains encountered will only be removed under a Ministry of Justice Licence and in compliance with relevant environmental health regulations. The clients, Derbyshire County Council and the coroner will be informed immediately on their discovery.

5.7 All finds recovered from site will be described and quantified in the field. Retained finds will be cleaned, marked, catalogued and packed in materials, as appropriate for long term storage. Analysis of finds will be undertaken as necessary by suitably qualified specialists.

5.8 Depending on the results of this and any subsequent trial trenching, a mitigation strategy may need to be formulated. This will be in consultation with the Leicestershire County Council Senior Planning Archaeologist and the Client.

6. Recording Systems

6.1 Individual descriptions of all archaeological strata and features excavated or exposed will be entered onto prepared pro-forma recording sheets.

6.2 A site location plan based on a current Ordnance Survey map at an appropriate scale (reproduced with the permission of the Controller of HMSO) will be prepared. This will be supplemented by detailed plans of the location of the areas investigated.

6.3 A record of the full extent in plan of all archaeological deposits encountered will be made on drawing film, related to the OS grid and at an appropriate scale. Elevations and sections of individual layers of features should be drawn where possible. The OD height of all principal strata and features will be calculated and indicated on the appropriate plans.

6.4 An adequate photographic record of the investigations will be prepared. This will include black and white prints and colour digital images illustrating in both detail and general context the principal features and finds discovered. The photographic record will also include 'working shots' to illustrate more generally the nature of the archaeological operation undertaken.

6.5 This record will be compiled and fully checked during the course of the excavation.

6.6 All site records and finds will be kept securely.

7. Report and Archive

7.1 Upon completion of the fieldwork and analysis of the records and materials, reports will be produced following IfA guidelines and submitted to the Local Planning Authority, LCC curatorial staff and the HER.

7.2 The report should include as a minimum

- Non-technical summary
- Introductory statement
- Aims and purpose of the project
- Methodology
- An objective summary statement of the results
- Conclusion, including a confidence statement.
- Supporting illustrations at appropriate scales
- Supporting data – tabulated or in appendices including as a minimum a basic quantification of all artefacts, ecofacts and structural data.
- Index to archive and detail of archive location

- References

7.3 The copyright of all original finished documents shall remain vested in ULAS and ULAS will be entitled as of right to publish any material in any form produced as a result of its investigations.

7.4 Arrangements will be made from the outset of the project for a full copy of the archive as defined in Brown (2008) to be deposited with Leicestershire County Council. This archive will include all written, disk-based, drawn and photographic records relating directly to the investigations undertaken.

8. Liaison/Monitoring

8.1 Unlimited access to monitor the project will be available to the Leicestershire County Council, Planning Archaeologists, the client and his representatives subject to the health and safety requirements of the site.

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

9 Health and Safety

9.1 ULAS is covered by and adheres to the University of Leicester Statement of Safety Policy and uses the FAME Health and Safety Manual 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.

10 Insurance

10.1 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.

11. Bibliography.

ADS *Geophysical Data in Archaeology: A Guide to Good Practice* (Archaeology Data Service)

EH, 2008 *Geophysical survey in archaeological field evaluation* (English Heritage 2008)

Coward, J., 2010a *An Archaeological Desk-based Assessment for land off Pulford Drive, Scraptoft, Leicestershire SK 651 048* ULAS Report 2010-062

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IfA, 2006 *Code of Conduct*

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21.09.2010

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