

**ARCHAEOLOGICAL EVALUATION REPORT:
TICKENCOTE LODGE FARM, TICKENCOTE, RUTLAND**

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on behalf of Tickencote Estate

By
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Cover image: Areas A and B, looking southeast

Executive Summary

- Allen Archaeology Ltd was commissioned by King West, on behalf of Tickencote Estate, to undertake evaluation trenching on land at Tickencote Lodge Farm, Tickencote, Rutland. The aim of the investigation was to identify the nature and extent of archaeological remains and to help inform plans for a Higher Level Stewardship Scheme (HLS).
- A trenching strategy was agreed with Leicestershire County Council for twenty 10m long trenches to be excavated across the site. The purpose of the works was to provide detailed information that will aid the determination of the nature and extent of the potential archaeological resource.
- The evaluation trenching revealed a ring barrow ditch with a possible inner ring, probably dating to the Bronze Age. Anglo-Saxon pottery was found in the upper fills of the ditches and it is likely this is from a nearby settlement, identified during the construction of a pipeline in 1990.
- The site was assessed in four areas: Areas A and D were found to be at least risk because of the buffer provided by subsoil above the archaeological horizon. However, the remains and ground conditions found in Areas B and C mean that they are at moderate risk if current agricultural practices continue.

1.0 Introduction

- 1.1 Allen Archaeology Ltd (AAL) was commissioned by King West, on behalf of Tickencote Estate, to undertake evaluation trenching on land at Tickencote Lodge Farm, Tickencote, Rutland. The aim of the investigation was to identify the nature and extent of archaeological remains and to help inform plans for a Higher Level Stewardship Scheme (HLS).
- 1.2 All fieldwork and reporting conform with current national guidelines as set out in the Chartered Institute for Archaeologists '*Standard and guidance for archaeological field evaluation*' (CIfA 2014), the English Heritage document '*Management of Research Projects in the Historic Environment*' (English Heritage 2006) and using principles outlined in the Conservation of Scheduled Monuments in Cultivation (COSMIC) handbook (Natural England 2006; Oxford Archaeology 2006).

2.0 Site Location and Description

- 2.1 Tickencote is situated approximately 5km northwest of Stamford and 13km east of Oakham, in the county of Rutland (Figure 1). The site itself comprises a block of agricultural land of approximately 0.77 hectares, located 500m west of the centre of the village of Tickencote, north of the River Gwash.
- 2.2 The local geology comprises bedrock predominantly of Whitby Mudstone Formation with areas of Northampton Sand Formation, Grantham Formation and Lower Lincolnshire Limestone. No superficial geology is recorded; however, tufa and river terrace deposits have been noted immediately to the south of the site (British Geological Survey 2016).

3.0 Planning Background

- 3.1 The proposed works do not fall within the planning process. The site has been entered into an HLS with Natural England (Agreement reference AG00494769). The purpose of the current works is to provide detailed information that will aid the determination of the nature and extent of the potential archaeological resource within the agreed site boundaries.
- 3.2 A non-intrusive fieldwalking and geophysical survey was conducted in 2014 (AAL 2015). In addition to this, a scheme of archaeological trial trenching was outlined to fully assess the level of risk to the archaeological resource, as set out in a brief provided by Leicestershire County Council Historic and Natural Environment Team (Leicestershire County Council 2014).

4.0 Archaeological and Historical Background

- 4.1 The site is located within Tickencote Lodge Farm and evidence for archaeological activity has been identified on the site and nearby from cropmarks, geophysical survey, fieldwalking and previous excavations. A probable Early Bronze Age barrow is situated along the northern edge of the site, and evidence for Anglo-Saxon settlement, in the form of two sunken-featured buildings, to the south (LAU 1990).
- 4.2 For a full description of the archaeological and historical background relating to the site see the archaeological and historical background section in Appendix 9.

5.0 Methodology

Fieldwork

- 5.1 The trial trenching methodology entailed the excavation of 20 trenches, each measuring 10m long by 1.6m wide (Figure 2). The fieldwork was undertaken by a team of experienced field archaeologists over a period of ten working days, from Monday 8th August to Friday 19th August 2016.
- 5.2 The trenches were accurately located using a Leica survey grade GPS. In each trench the topsoil, subsoil and underlying non-archaeological deposits were removed, in spits no greater than 100mm thick, using a 3CX JCB excavator fitted with a smooth ditching bucket. The process was repeated until the first archaeologically significant or natural horizon was exposed, with all machine excavation monitored at all times by an experienced field archaeologist.
- 5.3 Where trenching exposed archaeological features or deposits, these were recorded in plan and carefully hand cleaned to look for evidence for plough and subsoiling damage at the boundary between topsoil/subsoil horizons and the uppermost surface of the archaeological deposit.
- 5.4 The soil profile overlying archaeological deposits was recorded so as to examine the relationship of the ploughsoil with the remains, and to allow a comparison with the data provided by previous test pits.
- 5.5 The methodology also required any exposed enclosure ditches be hand augured to record the depth of survival of the feature, although on this occasion no enclosure ditches were identified. Where other features were encountered, a selection were to be half-sectioned to also provide information on their depth of survival.
- 5.6 Any artefactual material recovered during the works (e.g. pottery, animal bone, metalwork) will be assessed to provide further data on the character and potential of the site.
- 5.7 A full written record of the archaeological deposits was made on standard AAL trench recording sheets and context recording sheets. Archaeological deposits were drawn at an appropriate scale (usually 1:20 or 1:50), with Ordnance Datum heights being displayed on each class of drawing. Full colour photography formed an integral part of the recording strategy, with scales, an identification board and directional arrow included as appropriate.
- 5.8 Each deposit, layer or cut was allocated a three digit unique identifier (context number), and accorded a written description. A summary of these are included in Appendix 7. Three digit numbers within square brackets represent cut features (e.g. ditch [116]).

Assessment

- 5.9 This report comprises a textual summary of the results of evaluation trenching. It informs the calculation of Total Risk Scores, as outlined in COSMIC (Oxford Archaeology 2006; Natural England 2006), and allows for recommendations of the highest priority areas, upon which management measures should be targeted.
- 5.10 The Total Risk has been assessed using the following factors:
 1. Management factors

- Cropping patterns and rotation
- Cultivation methods, depths and timing
- Depth of current ploughsoil and extent/thickness of any previous cultivation soils, colluvium and alluvium overlying archaeological remains

2. Site intrinsic factors

- Soil characteristics
- Issues of slope influencing the likelihood of erosion

3. Archaeological factors

- Archaeological survival and vulnerability
- Archaeological significance

5.11 Each factor was scored out of five based on the level of risk to the archaeological resource, with a score of one representing a minimal risk and a score of five a serious risk. These totals have then been adjusted so that high scores carry more weight and low ones less.

5.12 Total Risk Scores are out of 100. Management factors account for 50 of those points, erosional factors 30 points and archaeological factors 20 points. In addition to this, each score is assigned a confidence grade (A, B or C, with A being of the highest confidence and C the lowest).

5.13 The Total Risk Score determines the Risk Level, as illustrated in Table 1. Sites considered to be of moderate, high or serious risk will need consideration of options to reduce this risk.

Total Risk Score	Risk Level
0 – 30	Minimal risk
30 – 40	Low risk
40 – 50	Moderate risk
50 – 59	High risk
60+	Serious risk

Table 1: Risk levels

6.0 Results

6.1 A brief summary of the results is presented in this section followed by the Final Risk Scores. The completed COSMIC assessment sheets, outlining the management and site intrinsic factors for each trench and their scores can be found in Appendix 8, and a more detailed list of the deposits in Appendix 7.

6.2 For the purpose of this assessment the site has been split into four areas (A, B, C and D) (Figure 3). Although many of the risk factors are the same across the whole site, such as crop regime and soil groups, a number of differences were observed and recorded. These are summarised in Table 2 and discussed more fully below.

Area	Buffer zones	Cultivation depth	Slope	Survival	Significance
A	Deep buffer	Deep ploughing	Gentle	Minimum	No obvious significance
B	No buffer	Deep ploughing	Gentle	Medium	County significance
C	Shallow buffer	Very deep ploughing	Level ground	Minimum	No obvious significance
D	Shallow buffer	Deep ploughing	Gentle	Minimum	No obvious significance

Table 2: Site areas and variable factors

Impact depths

- 6.3 Ploughsoil was the uppermost deposit encountered in all 20 trenches, ranging in depth between 0.24m and 0.36m. For each area assessed, an average depth has been taken from the trenches and used to calculate the risk. Where no trenches were excavated in Area D it is assumed to have been deep ploughed because this is the depth topographically similar areas (A and B) were recorded as having been ploughed to.
- 6.4 Buffer zones represent deposits between the bottom of the ploughsoil layer and the top of the archaeological horizon. In this case subsoil was found below the ploughsoil in seven of the evaluation trenches (Trenches 1, 2, 11, 12, 17, 18 and 19), situated in three locations across the site. As with ploughsoil depths, an average has been taken from the trenches within each area.
- 6.5 Trenches 1 and 2, in Area A, were the two lowest-lying trenches and were positioned downslope, northwest of the centre of the site, targeting a faint circular anomaly on the geophysical survey. The subsoil was recorded to an average depth of 0.20m and is likely to have accumulated through a combination of ploughing and natural hillwash, forming a deep buffer between the base of the current cultivation levels and archaeologically sensitive remains. None of the anomalies identified in the geophysical survey were found within the trench; it is possible that this is because it is a false positive in the data or that the survey recorded magnetic readings that no longer exist as cut archaeological features.



Plate 1: East-facing representative section of Trench 2 ploughsoil and subsoil, scales 1m and 0.5m

- 6.6 Subsoil found in Trenches 11 and 12, in Area C, was also an average of 0.20m deep. These two trenches were located on the highest point of the site along the northern field margin, which

accounts for the increased subsoil depth. Thinner layers of subsoil were also encountered in Area C in Trenches 17, 18 and 19; however, they were not found in Trenches 16 and 20, to the east and west of this group respectively, suggesting only a shallow buffer exists here.

Erosional factors

- 6.7 The site lies on the south-facing slope of the Gwash valley and the steepness of slope varies. The eastern half and the southwestern part of the site lie on gentle slopes while the central area occupies more level ground, towards the top of the slope. Areas A, B and D occupy parts of the site that are gently sloping, whereas Area C is positioned at the top of the slope, on relatively level ground.
- 6.8 The soils have been classified as being moderately susceptible to water erosion: the ploughsoil comprised firm, dark greyish brown sandy clay in Trenches 1 to 7 and firm, dark orange brown clayey silt across the rest of the site. This variation is likely to be the result of differences in the underlying geology.

Archaeological survival

- 6.9 Archaeological features were found in two of the 20 trenches excavated (Figure 5).
- 6.10 Trench 4 contained a curvilinear ditch, 2.68m wide and 0.58m deep with moderately steep sides and a concave base. The ditch was oriented northwest to southeast, corresponding with the northeast side of a circular anomaly identified from the geophysical survey (Figure 2). Ditch [402] was filled by three deposits: context 405 was the earliest fill, which was overlain by context 404 and finally filled by context 403. No finds were recovered from any of the fills of this ditch.
- 6.11 Trench 5 was located to the south of Trench 4 targeting the same circular geophysical anomaly. This large ditch, [510], was found in the southeast end of the trench and was aligned roughly northeast to southwest (Plate 2). It measured 2.00m wide and 1.30m deep and was filled by four contexts; four sherds of Anglo-Saxon pottery dating from the 5th to 8th century AD and four fragments of cattle bone were recovered from the final fill, 511. Running parallel with this ditch, on its northwest side, was ditch [508], a 1.00m wide and 1.09m deep feature with steep sides and a concave base. Two contexts filled the ditch; three small sherds of pottery dating to either the Iron Age or Anglo-Saxon period, were found within the latest fill, 509. Semi-circular feature [502] was found on the northern side of ditch [508]. It measured 1.00m long, 0.44m wide and 0.30m deep and produced 97 pieces of animal bone, predominantly from cattle, and two small sherds of Iron Age or Anglo-Saxon pottery.



Plate 2: Southwest-facing section of ditches [508] and [510], scales 2m and 0.5m

7.0 Total Risk Scores

7.1 The Total Risk Scores were calculated and are presented in Table 3 with a confidence rating and the overall Risk Level, which is illustrated in Figure 4.

Area	Total Risk Score	Confidence	Risk Level
A	24.5	B	Minimal risk
B	47	A	Moderate risk
C	42	B	Moderate risk
D	27.5	C	Minimal risk

Table 3: Total Risk Scores, confidence and Risk Level

Minimal risk

7.2 Area A, to the east of the site, is characterised by land on a gentle, east-facing slope with a deep layer of subsoil sealing the archaeological horizon. No archaeological features were found during trenching but any surviving remains in this area would lie below the depth of current ploughing.

7.3 Area D was located in the southwest corner of the site and lay on a gentle, southwest-facing slope. No evaluation trenches were excavated in this area but it shared many of the same characteristics as Area A.

7.4 Areas A and D are considered to be at minimal risk. This means that new damage to the potential archaeological resource is highly unlikely now or in the future (Natural England 2006).

Moderate risk

7.5 Area B is considered to be the area of site most at risk. Within it was found a ring barrow ditch with a possible inner ring, probably dating to the Bronze Age. Anglo-Saxon pottery was found in the upper

fills of the ditches and it is likely this is from a nearby settlement, identified during the construction of a pipeline in 1990.

- 7.6 No archaeological remains were found in Area C; however the depth of ploughing was recorded as being very deep, probably the result of its location on the highest, most exposed part of the site where soil is constantly at risk of erosion and unlikely to accumulate subsoil.
- 7.7 Areas B and C are considered to be at moderate risk. This means that these areas have been eroding gradually since they were first put under modern cultivation and that, if the current cultivation regime continues, the archaeological resource will be steadily eroded and eventually destroyed (Natural England 2006).

8.0 Discussion and Conclusions

- 8.1 All archaeological remains found during trenching were associated with the ring ditch identified in the geophysical survey. Ditches [402] and [510] represent the outer ring ditch of a, probably Early Bronze Age, barrow and ditch [508] a possible inner ring. No diagnostic Bronze Age finds were recovered, but Anglo-Saxon pottery from the uppermost fills of both ditches suggests activity in the near vicinity and that the prehistoric monument still existed as an earthwork into this period. This is unsurprising as two sunken-featured buildings of a similar date were found in the same field during the laying of a pipeline (LAU 1990).
- 8.2 With regards to the artefactual material, especially the ceramics, there was evidence of abrasion potentially caused by plough damage over time. The animal bone assemblage was also in a poor condition, although it is acknowledged that this may be a result of local soil conditions. The palaeoenvironmental samples however did not exhibit any signs of contamination that might be present from later plough damage of deposits.
- 8.3 The Total Risk Scores and Risk Levels for the four areas reflect the likely future truncation of the site in relation to the archaeological remains encountered. Areas A and D are at least risk because of the buffer provided by subsoil onto the archaeological horizon, from which no remains were found. On the other hand, remains were found in Area B and there was no protective subsoil layer, resulting in a higher Risk Level.

9.0 Effectiveness of Methodology

- 9.1 The COSMIC risk assessment has proved useful in identifying areas of the site most at risk of agricultural damage. It has shown that archaeological features are preserved in Areas B and C in the centre of the site, and that they are at moderate risk if agricultural practices continue as they have been.

10.0 Acknowledgements

- 10.1 Allen Archaeology Limited would like to thank the client King West for this commission, and tenant farmer Mr Richard Parkinson for allowing access to the site. Richard Clark, Principal Planning Archaeologist at Leicestershire County Council is also thanked for provided helpful advice during this project.

11.0 References

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Appendix 1: Roman Pottery

By I M Rowlandson

Eleven sherds of possibly Roman pottery (93g, RE0.13) were presented to this author for study by Jane Young. A necked jar in a Nene Valley Grey ware fabric from context 400 was the only distinctive form present. A Nene Valley colour-coated sherd from context 509 and a mixed gritted native tradition sherd from context 1201 were also of Roman date with the rest of the material more difficult to attribute a Roman date with certainty due to the abraded condition of the oxidised fabrics (OW5 and WW). The group suggests some Roman activity in the area and the presence of Nene Valley type products amongst the group was typical of assemblages from Rutland (Cooper 2000).

The pottery has been archived using count and weight as measures according to the guidelines laid down for the minimum archive by The Study Group for Roman Pottery (Darling 2004) using the database format developed by the City of Lincoln Archaeological Unit- CLAU (see Darling and Precious 2014) and the fabric and form series developed for Leicestershire (Pollard 1999; Clark 1999). Rim equivalents (RE) have been recorded and an attempt at a 'maximum' vessel estimate has been made following Orton (1975, 31). A tabulated sherd archive is presented below (Table 4). The dates provided represent the pottery recorded here: the main text of the report and other specialist contributions should be consulted to ascertain the overall date attributed to each context.

Roman pottery sherd data												
Context	Fabric	Form	Decoration	Vessels	Alt	Drawing	Comments	Join	Sherd	Weight	Rim diam	Rim eve
0400	GW4	2A		1			RIM; NENE VALLEY GREY WARE NECKED JAR; 2-3C AD		4	39	14	8
0509	C2	-		1	VAB		BODY SHERD; VERY ABRADED; NENE VALLEY COLOUR-COAT; PROBABLY A BOWL; L2-4C AD		1	22	0	0
0800	OW5	-		1	ABR		BODY SHERDS; ABRADED THIN WALLED OXIDISED WARE; ROMAN?		2	2	0	0
1201	MG1	-		1	ABR		BODY SHERDS; ABRADED; MIXED GRIT INCLUDING FOSSIL SHELL; MID1-2C AD		1	2	0	0
B03	OW5	-		1	ABR		BODY SHERD; ABRADED; MISC OXIDISED; ROMAN?		1	5	0	0
D01	OW5	-		1	ABR		RIM; ABRADED; MISC OXIDISED; BOWL? ROMAN?		1	14	25	5
D02	WW	-		1			BASE; MISC WHITE WARE; POSSIBLY ROMAN		1	9	0	0

Table 4: Roman pottery sherd data

References

- Clark, R, 1999, The Roman Pottery, in Connor A, and Buckley, R, *Roman and Medieval Occupation in Causeway Lane, Leicester*, Leicester: Leicester Archaeology Monographs No. 5, 95 – 164
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Appendix 2: Post-Roman Pottery and Roman Ceramic Building Material

By J Young

Introduction

Thirty-three sherds of pottery from 30 different vessels and a fragment of Roman tile were submitted for examination. The identifiable pottery recovered ranges in date from the Anglo-Saxon to early modern periods. The pottery assemblage was quantified by three measures: number of sherds, weight and vessel count within each context. Fabric identification of some of the pottery was undertaken by x20 binocular microscope. Reference has been made to the post-Roman Leicestershire Pottery Type Series held at Leicester University. The building material was quantified by fragment count and weight. The ceramic data was entered on an Access database using Lincolnshire fabric codenames (Young *et al.* 2005) with a concordance with Leicestershire codenames (see Table 1). Recording of the post-Roman assemblage was in accordance with the guidelines laid out in Slowikowski *et al.* (2001) and a Standard for Pottery Studies in Archaeology (Barclay *et al.* 2016).

Condition

The ceramic material is mostly in an abraded to very abraded condition with sherd size mainly falling into the small to medium size range (between 1g and 23 g). A single sherd represents all but one of the pottery vessels.

Overall Chronology and Source

A range of 13 identifiable pottery types, six miscellaneous vessels and a Roman tile were identified; the type and general date range for these fabrics are shown in Table 5. The identifiable pottery ranges in date from the Anglo-Saxon to early modern periods and includes local and regionally imported wares. A limited range of form types is identifiable with most sherds probably coming from jars, bowls or jugs. The single fragment of building material recovered is of Roman date.

Lincolnshire codename	Leicestershire codename	Full name	Earliest date	Latest date	Total sherds	Total vessels
BERTH	EA2	Brown glazed earthenware	1550	1800	1	1
BOU	BO1	Bourne ware (Fabric D)	1350	1650	1	1
CHARNT	SX	Charnwood-type ware	450	800	1	1
ECHAF	SX	Early to mid-Anglo-Saxon chaff-tempered ware	450	800	2	2
IA/AS	MISC	Iron-Age or Anglo-Saxon Handmade	-	-	8	6
LERTH	EA	Late Earthenwares	1750	1900	1	1
MEDLOC	MS	Medieval local fabrics	1150	1450	1	1
MEDX	MS	Non Local Medieval Fabrics	1150	1450	2	2
MP	MP	Midlands Purple ware	1380	1600	2	2
NOTGL	NO3	Light Bodied Nottingham Green Glazed ware	1220	1320	1	1
PEARL	EA9	Pearlware	1770	1900	2	2
SST	SX	Early to mid-Saxon sandstone-tempered	550	800	2	2
ST	ST2	Stamford Ware (Fabrics G & B)	970	1200	4	4
ST	ST7	Stamford Ware (Fabric A)	970	1200	2	2
STANLY	LY4	Stanion/Lyveden ware (shell-tempered Fabric A)	1150	1250	3	2
TEG	-	Tegula	Roman	Roman	1	1

Table 5: Ceramic codenames and date ranges with total quantities by sherd and vessel count

The pottery was recovered from trenching and fieldwalking investigations with material coming from twelve deposits in ten trenches and six findspots during fieldwalking. The abraded fragment of Roman Tegula (TEG) was recovered from Trench 5.

Anglo-Saxon

Five handmade sherds in three fabric types are most probably of Anglo-Saxon 5th to 8th century date. The sherds all weigh between 1g and 5g and are in a poor condition making absolute dating impossible. A minute very abraded flake found in ring ditch [510] (fill 511) in Trench 5 is in a Charnwood-type fabric. This deposit also produced a small sherd from a Chaff- or Vegetal-tempered jar or bowl with a burnished external surface. Another Chaff-tempered sherd was recovered from layer 1700 in Trench 17. The fabric of this sherd also contains quartz grains and moderate to common coarse iron-rich grains. Two very abraded sherds also found in ring ditch [510] (fill 511) are in Sandstone-tempered fabrics. The smallest of the sherds appears to come from a jar. Eight further very abraded handmade sherds from six vessels are of Anglo-Saxon or Iron Age date. These sherds could not conclusively identify as being of pre-Roman or post-Roman date by the author or Ian Rowlandson. The sherds were recovered from Trenches 5 and 14.

Saxo-Norman

Six sherds recovered from Trenches 2, 16 and 17 and fieldwalking findspot D03 are of Saxo-Norman type and date to between the late 10th and 12th centuries. Two sherds in Fabric A date to between the late 10th and mid 12th centuries. One of the three sherds in early/mid 11th to mid 12th century Fabric G is from a flanged-rim bowl whilst a glazed sherd is from a jar or a pitcher. Another glazed jar or pitcher sherd is in post-conquest mid/late 11th to late 12th century Fabric B.

Medieval to post-medieval

Six of the vessels recovered from the site are of medieval 12th to 15th century types. Most of the sherds are highly abraded making attribution to a production source difficult. A small sherd from a Nottingham Light-bodied jug with a reduced glaze is of 13th to early/mid 14th century date. The sherd was recovered from layer 900 in Trench 9. Three abraded shell-tempered sherds come from two Stanion/Lyveden-type jars or bowls of mid 12th to 14th century date. The sherds were recovered from Trenches 1 and 11. An un-trimmed base from a jar or pipkin in an oxidised medium sandy fabric is likely to be from a local production site (MEDLOC). The vessel, which was recovered from fieldwalking (findspot B04), dates to between the 13th and 15th centuries. The other two vessels found in Trench 16 (MEDX) comprise a light-firing basal sherd in a quartz and oolitic-tempered fabric and a very abraded sherd from a glazed jug, jar or pitcher in an oxidised micaceous fabric. The light firing basal sherd is probably from a jug of 13th to 14th century date. Similar fabrics are found in South Lincolnshire especially in the Stamford area. The other micaceous sherd could date to anywhere between the 12th and 14th centuries.

Four sherds are of late medieval to post-medieval type. The two Midlands Purple ware sherds found in Trench 10 and during fieldwalking at findspot D10 are of mid 15th to 16th century date. The larger sherd from Trench 10 is from a jug or a jar whilst the other sherd is from a small jug. A small Late Medieval to early Post-medieval Bourne-type sherd found in Trench 13 is from a jug or jar of mid 15th to 16th century date. A Brown-glazed earthenware sherd recovered from fieldwalking (findspot B02) is from a small vessel of late 17th to 18th century date.

Site Sequence

The post-Roman pottery and Roman building material were recovered from nine trenches and six fieldwalking findspots. Three further sherds of pre- or post-Roman date were recovered from Trench 14. In Trench 1 layer 101 produced two sherds from a shell-tempered Stanion/Lyveden-type jar or bowl of mid 12th to 14th century date. A folded rim sherd from an un-glazed flanged-rim bowl in Stamford Fabric G was recovered from layer 201 in Trench 2. The bowl is of early/mid 11th to mid 12th century date. Ring ditch

[510] (fill 511) in Trench 5 produced a small group of four abraded sherds of probable 5th to 8th century Anglo-Saxon date. This feature also produced a small and abraded fragment from a Roman Tegula. Three small and very abraded handmade sherds in a fine sandstone-tempered fabric were recovered from ring ditch [508] (fill 509). The sherds come from a single vessel of Iron Age or Anglo-Saxon date (IA/AS). Pit [502] (fill 503) contained two further very abraded handmade sherds of uncertain date. These sherds are in erratic-tempered fabrics. A sherd from a Nottingham Light-bodied Medieval Glazed ware jug of 13th to early/mid 14th century date was found in layer 900 in Trench 9. In Trench 10 layer 1000 contained a sherd from a mid 15th to 16th century Midlands Purple ware jug or jar. A rim sherd from a shell-tempered Stanion/Lyveden-type jar or bowl of mid 12th to 14th century date was recovered from layer 1100 in Trench 11. In Trench 13 layer 1300 produced a mid 15th to 16th century late medieval to early post-medieval Bourne ware jug or jar. Layer 1400 in Trench 14 produced three small and very abraded sherds of uncertain date (IA/AS). The sherds are all in fine quartz-tempered fabrics. One tiny sherd appears to have a burnished external surface. A small group of four sherds of mixed date were recovered from layer 1600 in Trench 16. Two sherds are in Saxo-Norman Stamford ware Fabrics A and G. These vessels are of late 10th to mid 12th and early/mid 11th to 12th century date respectively. The other two sherds are from unknown non-local production centres. One sherd is likely to date to between the 12th and 14th centuries whilst the other is probably from a 13th or 14th century jug produced in South Lincolnshire. Three small sherds were recovered from layer 1700 in Trench 17. The earliest sherd is from an Anglo-Saxon Chaff- or Vegetal-tempered vessel of 5th to 8th century date. The other two sherds are from glazed Stamford ware jars or pitchers. One sherd is from an early/mid 11th to mid 12th century vessel in Fabric G whereas the other one is from a post-conquest mid/late 11th to 12th century vessel in Fabric B.

Trench	Iron-Age or Anglo-Saxon	Anglo-Saxon	Saxo-Norman	Medieval	Late medieval to early post-medieval	Total vessels
Trench 01	0	0	0	1	0	1
Trench 02	0	0	1	0	0	1
Trench 05	3	4	0	0	0	7
Trench 09	0	0	0	1	0	1
Trench 10	0	0	0	0	1	1
Trench 11	0	0	0	1	0	1
Trench 13	0	0	0	0	1	1
Trench 14	3	0	0	0	0	3
Trench 16	0	0	2	2	0	4
Trench 17	0	1	2	0	0	3
Total vessels	6	5	5	5	2	23

Table 6: Post-Roman pottery by ceramic period with total quantities by vessel count

Few post-Roman sherds were recovered from the fieldwalking and these are summarised in Table 7. The sherds range in date from the Anglo-Saxon to early modern periods.

Findspot	Lincolnshire codename	Leicestershire codename	Date	Total vessels
B02	BERTH	EA2	late 17th to 18th	1
B04	MEDLOC	MS	13th to 15th	1
B05	PEARL	EA9	early to mid 19th	2
D03	ST	ST7	late 10th to mid 12th	1
D04	LERTH	EA	19th to 20th	1
D10	MP	MP	mid 15th to 16th	1
Total vessels				7

Table 7: Ceramic codenames and date ranges for fieldwalking pottery with total quantities by vessel count

Summary and Recommendations

The post-Roman pottery recovered from this site suggests that there was possibly activity in the area under investigation from the Anglo-Saxon through to the early modern periods. Most of the pottery recovered is well-abraded and of small size indicative of plough damage.

The early modern material has been discarded but the remaining assemblage should be kept for future study.

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Trench	Context	Lincolnshire cname	Leicestershire cname	Sub fabric	Form type	Sherds	Vessels	Weight	Decoration	Part	Action	Description	Date
Fieldwalk	B02	BERTH	EA2	fine light orange	small hollow	1	1	4		BS		int spalling dark brown glaze; ext orange slip; late 17th to 18th	late 17th to 18th
Fieldwalk	B04	MEDLOC	MS	oxid med sandy	jar/pipkin	1	1	23		base		untrimmed base; comm mixed round to subround quartz; abraded	13th to 15th
Fieldwalk	B05	PEARL	EA9		hollow	1	1	1	blue banded	BS	discarded		early to mid 19th
Fieldwalk	B05	PEARL	EA9		small hollow	1	1	1		BS	discarded		early to mid 19th
Fieldwalk	D03	ST	ST7	Fabric A	Jar?	1	1	4		BS		unglazed; slightly odd fabric	late 10th to mid 12th
Fieldwalk	D04	LERTH	EA	fine red	flower pot	1	1	2		BS	discarded	very abraded	19th to 20th
Fieldwalk	D10	MP	MP	purple	Small jug?	1	1	7		BS		purple glaze	mid 15th to 16th
Trench 01	101	STANLY	LY4	Fabric A	jar/bowl	2	1	5		BS		abraded; ?ID	mid 12th to 14th
Trench 02	201	ST	ST2	Fabric G	flanged rim bowl	1	1	13		rim		very abraded; unglazed; folded rim	early/mid 11th to mid 12th
Trench 05	503	IA/AS	MISC	erratic	?	1	1	1		BS		tiny very abraded handmade sherd with an erratic-tempered fabric	Iron Age/Anglo-Saxon
Trench 05	503	IA/AS	MISC	erratic	?	1	1	1		BS		tiny very abraded handmade sherd with an erratic-tempered fabric	Iron Age/Anglo-Saxon
Trench 05	509	IA/AS	MISC	sandstone	?	3	1	11		BS		tiny very abraded handmade sherds with a fine sandstone-tempered fabric	Iron Age/Anglo-Saxon
Trench 05	511	SST	SX		?	1	1	3		BS		very abraded; abundant fine quartz some aggregated sandstone; ?ID	5th to 8th

Trench	Context	Lincolnshire cname	Leicestershire cname	Sub fabric	Form type	Sherds	Vessels	Weight	Decoration	Part	Action	Description	Date
Trench 05	511	CHARNT	SX		?	1	1	1		BS		very abraded flake; ?ID	5th to 8th
Trench 05	511	ECHAF	SX		jar/bowl	1	1	5		BS		abraded; thick walled; burnished; ?ID	5th to 8th
Trench 05	511	SST	SX		Jar?	1	1	1		BS		very abraded; abundant fine quartz some aggregated sandstone; ?ID	5th to 8th
Trench 09	900	NOTGL	NO3		jug	1	1	3		BS		very abraded; reduced glaze	13th to early/mid 14th
Trench 10	1000	MP	MP	OX/R/OX	jug/jar	1	1	17		BS		grey surfaces; traces purple glaze	15th to 16th
Trench 11	1100	STANLY	LY4	Fabric A	jar/bowl	1	1	7		rim		abraded	mid 12th to 14th
Trench 13	1300	BOU	BO1	oxid fine sandy + ca	jug/jar	1	1	5		BS			mid 15th to 16th
Trench 14	1400	IA/AS	MISC	fine sandy	?	1	1	1		BS		burnished ext surface; tiny very abraded handmade sherd with an OX/R?OX fabric containing moderate fine quartz	Iron Age/Anglo-Saxon
Trench 14	1400	IA/AS	MISC	fine sandy	?	1	1	8		BS		very abraded handmade sherd with an OX/R fabric containing abundant fine quartz	Iron Age/Anglo-Saxon
Trench 14	1400	IA/AS	MISC	fine sandy	?	1	1	1		BS		tiny very abraded handmade sherd with an OX/R?OX fabric containing moderate fine quartz	Iron Age/Anglo-Saxon
Trench 16	1600	MEDX	MS	light firing quartz & oolite	Jug?	1	1	12		base		very abraded; light firing; quartz & oolite in fabric; probably South Lincolnshire	13th to 14th

Trench	Context	Lincolnshire cname	Leicestershire cname	Sub fabric	Form type	Sherds	Vessels	Weight	Decoration	Part	Action	Description	Date
Trench 16	1600	ST	ST2	Fabric G	?	1	1	4		BS		very abraded	early/mid 11th to mid 12th
Trench 16	1600	ST	ST7	Fabric A	?	1	1	1		BS		very abraded; traces of ext glaze; ?ID	late 10th to mid 12th
Trench 16	1600	MEDX	MS	oxid fne sandy	jar/jug/pitch er	1	1	2		BS		very abraded; traces of reduced glaze; micaceous with abundant fine quartz	12th to 14th
Trench 17	1700	ST	ST2	Fabric B	jar/pitcher	1	1	1		BS		glaze; abraded	late 11th to 12th
Trench 17	1700	ECHAF	SX		?	1	1	3		BS		very abraded; fabric incl comm quartz & moderate to comm coarse Fe; ?ID	5th to 8th
Trench 17	1700	ST	ST2	Fabric G	jar/pitcher	1	1	3		BS		glaze	early/mid 11th to mid 12th

Table 8: Pottery archive

Trench	Context	Cname	Fabric	Frag	Weight (g)	Description	Date
Trench 05	511	TEG	OX/R/OX fine sandy	1	17	very abraded	Roman

Table 9: Tile archive

Appendix 3: Animal Bone

By J Wood

Introduction

A total of 106 (438g) refitted fragments of animal bone were recovered by hand during a program of archaeological works undertaken by Allen Archaeology Ltd taken place at Tickencote Lodge Farm, Tickencote, Rutland. The remains were recovered from pit [502], outer ring ditch [510] and topsoil deposit 1201.

Methodology

For the purposes of this assessment the entire assemblage has been fully recorded into a database archive. Identification of the bone was undertaken with access to a reference collection and published guides. All animal remains were counted and weighed, and where possible identified to species, element, side and zone (Serjeantson 1996). Also fusion data, butchery marks (Binford 1981), gnawing, burning and pathological changes were noted when present. Ribs and vertebrae were only recorded to species when they were substantially complete and could accurately be identified. Undiagnostic bones were recorded as micro (rodent size), small (rabbit size), medium (sheep size) or large (cattle size). The separation of sheep and goat bones was done using the criteria of Boessneck (1969) and Prummel and Frisch (1986) in addition to the use of the reference material. Where distinctions could not be made the bone was recorded as sheep/goat (S/G).

The condition of the bone was graded using the criteria stipulated by Lyman (1996). Grade 0 being the best preserved bone and grade 5 indicating that the bone had suffered such structural and attritional damage as to make it unrecognisable.

The quantification of species was carried out using the total fragment count, in which the total number of fragments of bone and teeth was calculated for each taxon. Where fresh breaks were noted, fragments were refitted and counted as one.

Tooth eruption and wear stages were measured using a combination of Halstead (1985), Grant (1982) and Levine (1982), and fusion data was analysed according to Silver (1969). Measurements of adult, that is, fully fused bones were taken according to the methods of von den Driesch (1976), with asterisked (*) measurements indicating bones that were reconstructed or had slight abrasion of the surface.

Results

Condition

The overall condition of the bone was poor, averaging at grade 4 on the Lyman criteria (1996). The remains recovered from deposit 1201 were of a slightly better condition, averaging at grade 3 (Lyman 1996). The poor condition and high fragmentation of the remains limits the observable traits on the remains.

No evidence of butchery, working or gnawing was noted on the remains.

Burning

A single fragment of burnt bone was recovered from pit [502]. The fragment was fully calcined suggesting the bone was burnt at a high temperature or for burned for a prolonged period of time.

Pathology

No evidence of pathological conditions was noted within the assemblage.

Species Representation

Context	Cut	Taxon	Element	Side	Number	Weight (g)	Comments
503	502	Large Mammal Size	Unidentified	X	1	10	Burnt white
		Large Mammal Size	Long Bone	X	10	80	
		Cattle	Metacarpal	L	1	52	Distal condyles in two pieces.
		Cattle	Metatarsal	L	1	30	Proximal articulation Bp=41mm
		Cattle	Mandible	R	1	23	Mental eminence, no teeth
		Cattle	Mandible	L	1	16	Mental eminence, no teeth
		Cattle	Mandible	R	1	20	Mandibular condyle
		Cattle	Atlas	B	1	56	Caudal articulation in 5 pieces
		Medium Mammal Size	Long Bone	X	15	13	
		Pig	Phalanx II	L	1	1	
		Large Mammal Size	Humerus	R	1	15	Distal condyle fragment
		Cattle	Tooth	R	1	5	Lower PM fragment
		Unidentified	Unidentified	X	46	45	
		Large Mammal Size	Long Bone	X	4	25	
		Cattle	Phalanx II	L	1	8	Proximal and distal articulations
		Medium Mammal Size	Rib	X	4	4	Blade fragments
		Unidentified	Unidentified	X	7	10	
		511		Large Mammal Size	Long Bone	X	4	5	Shaft fragments
	Cattle		Tooth	R	1	10	Upper PM
1201		Large Mammal Size	Long Bone	X	4	10	Shaft fragments

Table 10: Taxon summary, by context

As can be seen from Table 10, cattle remains were the most predominant remains identified within the assemblage, with a single fragment of pig also identified. The remaining fragments were unidentifiable beyond size category.

Discussion of Potential

The assemblage is too small at this stage to provide detailed data on the dietary economy, animal utilisation or husbandry practices taking place on site. The assemblage predominantly represents skeletal elements associated with butchery discard.

Significance of the Data

Due to the nature of the assemblage and the depositional contexts, the significance of the assemblage is limited.

No further work is recommended on this assemblage.

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Appendix 4: Lithics

By J T Hogue

Introduction

This report concerns seven worked flints recovered during an archaeological evaluation at land at Tickencote Lodge Farm, Tickencote, Rutland. The assemblage has a number of pieces that are broadly consistent with Mesolithic technology and indicate general activities in the area. However, many do not appear to have been recovered from later deposits. In addition, two unstruck pieces were submitted for assessment and have been discarded.

Method

A catalogue of finds was compiled using standardisation terminology outlined elsewhere (Butler 2005; Inizan 1999). Table 11: Lithic report catalogue

Results

All seven chipped-stone artefacts were found in different contexts. One of each of the following were identified: microscraper, unclassifiable scraper, retouched flake, flake, flake fragment, bladelet fragment and core fragment. The majority of finds (five) had small nicks along the edges consistent with having been trampled or artefact movement. Most of the artefacts show differential levels of patination and this is likely to reflect different localised soil conditions and depositional histories. A number of pieces appeared be datable to a particular era, principally the Mesolithic. A microscraper of possible Mesolithic age was recovered from D05, although similar pieces are utilised during the early Bronze Age these tend to be much more well-made and rounded. A bladelet and core fragment of possible Mesolithic age were also identified from topsoil horizons in Trenches 16 and 20. In addition, a flake with dorsal surface morphology consistent with being from the roughing out an axe or adze was recovered from D09 and could date from the Mesolithic or Neolithic. A full description of each is given in Table 11.

Context	Type	Burnt	Patination	Mass(g)	Cortex	Edge damage	Date	Notes
D05	Microscraper	N	N	3.3	N	Y	Meso?	V. small scraper; semi-abrupt/abrupt retouch extending around 75% of the edge; part of left edge & butt unretouched; not particularly well-made & less rounded than typical early Bronze Age thumbnail scrapers, poss. Mesolithic? Small nicks on edge, poss. indicating trampling or artefact movement; 19.8x17.0x7.9mm. HH struck; same material as D07.
D07	Retouched flake	N	Y	0.9	Y	N	-	Small distal trimming flake; SH struck; partial semi-abrupt inverse retouch along left edge; mod. Patina; translucent light to mid brown; cortex 1mm thick & buff coloured; 17.0x16.0x3.0mm.
D09	Flake	N	Y	9.8	N	Y	-	large broken flake; faceted butt; dorsal scars morphology consistent with roughing out of axe/adze; fresh break at distal removing patina, prob. result of trampling; white heavy patina, fresh broken surface indicating original colour translucent mid brown flint; earlier patina break along right edge, possibly contemporary with removal; >48mm long.
509	Unclassifiable scraper	N	Y	50.8	N	N	-	Scraper on large distal flake frag with thermal fracture; semi-abrupt retouch extending around <25% of the edge; retouch creates convex corner; not well-made; opaque light grey chert w/macrofossils; fresh chip off one corner also in find bag, certainly retouch of post-recovery damage; 53.8x64.4x16.5mm.
515	Unworked flint	-	-	-	-	-	-	Unworked; discarded.

Context	Type	Burnt	Patination	Mass(g)	Cortex	Edge damage	Date	Notes
515	Unworked flint	-	-	-	-	-	-	Unworked; discarded.
1201	Flake fragment	N	Y	0.7	N	Y	-	Partial flake frag; small nicks present on edge, poss. indicating trampling or artefact movement; v.light speckled patina; same material as D07.
1600	Bladelet frag	N	Y	0.4	N	Y	Meso?	blt broken at dist; parallel margins and arises; small nicks present on both margins, prob. indicating trampling or artefact movement. punctiform butt; SH struck; heavy patina; >19.0x7.6x2.5mm.
2000	Core fragment	N	Y	19.2	Y	Y	Meso?	Core frag, prob. single platform bladelet core; at least 3 blt removals; abraded edge of core. thermally fractured; light patina; same material as D07.

Table 11: Lithic report catalogue

Potential

The small assemblage indicates some prehistoric activity in the area. None of the pieces were of wider significance and as such no further work is required.

References

Butler, C, 2005, Prehistoric flint work, Stroud: The History Press

Inizan, M-L, Reduron-Ballinger, M, Roche, H, and Tixier, J, 1999, *Technology and terminology of knapped stone*, Nanterre: Cercle de Recherches et d'Etudes Préhistoriques

Appendix 5: Charred Plant Macrofossils and Other Remains

By V Fryer

Introduction and Method Statement

Excavations at Tickencote, undertaken by Allen Archaeology Ltd, recorded a limited number of features of possible Roman or later date. Samples for the retrieval of the plant macrofossil assemblages were taken from pit [502] (sample 1), from inner ring ditch [508] (sample 2) and from outer ring ditch [510] (samples 3, 4 and 5).

The samples were processed by manual water flotation/washover and the flots were collected in a 300 micron mesh sieve. The dried flots were scanned under a binocular microscope at magnifications up to x 16 and the plant macrofossils and other remains noted are listed below in Key: x = 1-10 specimens, xx = 11-50 specimens, xxx = 100+ specimens, b = burnt, IRD/ORD = inner/outer ring ditch

Table 12. Nomenclature with the table follows Stace (2010). All plant remains were charred. Modern roots and seeds are also recorded.

Results

All five assemblages are small (i.e. <0.1 litres in volume) and limited in composition. However, charcoal/charred wood fragments are recorded, and it is noted that in most instances, this material has a very distinctive flaked appearance, which is probably indicative of very high temperatures of combustion. Other plant macrofossils are extremely scarce, although the assemblage from sample 1 includes a possible fragment of hazel (*Corylus avellana*) nutshell whilst sample 2 contains a very poorly preserved cereal grain. Other remains are also scarce, although sample 1 does include a number of severely abraded fragments of bone.

Conclusions and recommendations for further work

In summary, it would appear most likely that the few remains which are recorded are derived from scattered/wind-dispersed detritus, much of which was probably accidentally incorporated within the feature fills. Some high temperature combustion was almost certainly occurring within the near vicinity, but the exact nature of this activity remains unclear.

As none of the assemblages contain a sufficient density of material for quantification (i.e. 100+ specimens), no further analysis is recommended.

Reference

Stace, C, 2010, *New Flora of the British Isles*. 3rd edition, Cambridge: Cambridge University Press

Sample No.	1	2	3	4	5
Context No.	503	509	512	514	513
Feature No.	502	508	510	510	510
Feature type	Pit	IRD	ORD	ORD	ORD
Charcoal <5mm	xxxx	xxx	xxxx	xxxx	xx
Charcoal >5mm	x	x	xx	x	-
Charred root/stem	-	x	x	-	-
Indet. seed/capsule fg.	X	-	-	-	-
Black porous material	-	-	-	x	-
Bone		xx xb	x	-	x
Small coal frags.	x	x	x	-	x
Sample volume (litres)	30	30	30	30	30
Volume of flot (litres)	<0.1	<0.1	<0.1	<0.1	<0.1
% flot sorted	100%	100%	100%	100%	100%

Key: x = 1-10 specimens, xx = 11-50 specimens, xxxx = 100+ specimens, b = burnt, IRD/ORD = inner/outer ring ditch

Table 12: Environmental sample results

Appendix 6: Other Finds

By M Wood

Introduction

A mixed collection of glass and metal was collected during archaeological evaluation on the Tickencote Estate in Rutland. The material collected during the 2014 non-intrusive works has also been included in this report and is identified by alpha-numeric context codes i.e.: A01.

Methodology

The material was counted and weighed in grams, then examined visually to identify any diagnostic pieces and the overall condition of the assemblage. A summary of the glass is recorded in Table 13 and the metal in Table 14.

Assemblage

Context	Form	Colour	Date	Shds	Weight (g)	Comments
B.01	Bottle	Blue	19 th -20 th	1	11	Fragment of vivid blue bottle neck.
D.08	Wine bottle	Dark glass	18 th -19 th	1	29	Weathered and heavily discoloured 'black glass' wine bottle neck fragment.

Table 13: Glass

Context	Material	Object	Date	Measurements	No.	Weight (g)	Comments
D.06	Cu alloy	Button	Post-med	22m diam by 2mm	1	4	Circular plain button with lipped back.
201	Fe	Slag	Undated	-	2	72	Tap slag fragments. Dense with distinctive flowing appearance.
400	Pb	Shot	Post-med	15x14x17	1	20	Slightly squashed lead shot with remains of moulding spur. Approximately 0.5 inch shot.
400	Pb	Spill	Undated	-	1	24	Sf: 3. Lead spill.
500	Pb	Plug	Undated	18x16x8	1	21	Sf: 10. Flattened lead plug with a central depression around the girth, suggesting it was poured into a cavity and flattened on both sides.
511	Fe	Slag	Undated		2	70	Furnace slag. Dense and blocky.
600	Fe	Unid	Undated	22x10x30	1	31	Sf: 2 corroded ferrous lump.
600	Fe	Bar	Undated	55x10x8	1	12	Sf. 1 corroded length of slightly curved iron bar.
900	Fe	Bar	Undated	63x7x6	1	12	Sf. 5 corroded length of slightly curved iron bar, sim to sf 1.

Context	Material	Object	Date	Measurements	No.	Weight (g)	Comments
1200	Cu alloy	Coin	1912	31x1.5	1	10	George V One Penny. Heaton Mint 1912.
1200	Pb alloy	Button	Post-med	15x8	1	2	Cast domed dress button, the shank was added a separate piece and is now broken.
1201	Cu alloy	Fitting	Post-med	24x22x6	1	4	Cast brass hooked fitting with a flared concave terminal to the hook, the other terminal is snapped.
1400	Pb	shot	Post-med	14x13x14	1	18	Spherical shot, slight flattening from impact. Approximately 0.5 inch shot.
1600	Fe	Slag	undated		1	32	Tap slag fragment.

Table 14: Metal

Discussion

The assemblage contains a mixture of artefacts largely relating to the post-medieval and modern period including bottle glass, lead shot and a George V penny.

The glass assemblage comprises two relatively modern bottles, both collected from topsoil during the non-intrusive phase of works. The earliest example of glass is the shard of abraded wine bottle of a probable squat cylindrical form of 18th or 19th century date (Dumbrell 1983).

Metalwork from the site was generally recovered from topsoil or subsoil and to be of post-medieval or later date and represents casual loss from this period, with both lead balls having been fired and struck a flat surface.

Of most interest is the presence of iron production slag from contexts 201, 511 and 1600. Whilst the tap slag from contexts 201 and 1600 is essentially unstratified in subsoil and ploughsoil respectively, the material from 511 was recovered from the fill of a large curvilinear ditch identified as a probable prehistoric barrow ring ditch on cropmarks and previous geophysical survey.

Ceramics recovered from this same deposit in the ring ditch have been identified as being of 5th-8th century AD, whilst other fills of the ditch produced a low level of ceramics of Roman and possible Iron Age date. This suggests the feature is most likely a prehistoric feature re-used in the Saxon period with artefacts from this period present in the upper fills. As such accurately dating the slag is difficult and it would not be out of place at any point within this rather broad date range (Dungworth et al 2012).

Recommendations for further work

Such a limited assemblage offers little opportunity for further study, with the post-medieval, modern and much of the undated material suitable for discard or return to the landowner. The slag is of interest may be suitable for archive or to be passed into a suitable reference collection.

References

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Appendix 7: Context Summary

Trench 1

Context	Type	Description	Interpretation
100	Layer	Firm, dark greyish brown sandy clay with occasional charcoal and moderate chalk, 0.28m thick; seals 101	Ploughsoil
101	Layer	Firm, moderate orangey brown sandy clay with occasional burnt stone and moderate chalk, 0.16m thick; sealed by 100, seals 102	Subsoil
102	Layer	Compact, light yellowish brown chalky clay with frequent chalk, 0.30m thick; sealed by 101	Superficial geology

Trench 2

Context	Type	Description	Interpretation
200	Layer	Firm, dark greyish brown sandy clay with occasional charcoal, 0.28m thick; seals 201	Ploughsoil
201	Layer	Firm, moderate orangey brown sandy clay with occasional charcoal, 0.24m thick; sealed by 200, seals 202	Subsoil
202	Layer	Compact, light yellowish brown chalky clay with frequent chalk, 0.18m thick; sealed by 201	Superficial geology

Trench 3

Context	Type	Description	Interpretation
300	Layer	Firm, dark greyish brown sandy clay with frequent chalk and moderate ironstone, 0.24m thick; seals 301 and 303	Ploughsoil
301	Layer	Compact, dark brownish orange sandy clay with frequent ironstone, 0.12m thick; sealed by 301, cut by [302]	Superficial geology
302	Cut	Linear shape in plan, E-W orientated with moderate/gradual sloping edges, leading to slightly concaved base, 2.70 wide x 0.35m deep; filled by 303, cuts 301	Cut of field boundary
303	Fill	Compact, mid yellowish grey silty clay, 0.35m thick; sealed by 300, fill of [302]	Fill of field boundary [302]

Trench 4

Context	Type	Description	Interpretation
400	Layer	Firm, dark greyish brown sandy clay with occasional charcoal, 0.30m thick; seals 406	Ploughsoil
401	Layer	Compact orange brown sandy clay, 0.28m thick; cut by [402]	Superficial geology
402	Cut	Curvilinear shape in plan, NW-SE orientated with moderately steep straight sides with gradual break of slope and concave base, 2.68m wide x 0.58m deep; filled by 403, 404 and 405, cuts [401]	Cut of ditch [402]
403	Fill	Firm, dark yellowish orange silty sand with moderate charcoal and occasional small sub-angular stones, 0.35m thick; uppermost fill of [402], sealed by 406, seals 404	Fill of [402]
404	Fill	Firm, orangey brown silty sand with occasional small sub-angular stones, 0.18m thick; fill of [402], sealed by 403, seals 405	Fill of [402]

Context	Type	Description	Interpretation
405	Fill	Compact, mid orangey brow, silty clay with occasional small sub-angular and sub rounded stones, 0.32m thick; basal fill of [402], sealed by 404	Fill of [402]
406	Layer	Firm, mid orangey brown silty sand with frequent small and medium sub-angular ironstone, 0.30m thick; sealed by 400, seals 403	Redeposited natural, possible barrow material

Trench 5

Context	Type	Description	Interpretation
500	Layer	Firm, dark greyish brown sandy clay with moderate pebbles, 0.25m thick; seals 516	Ploughsoil
501	Layer	Compact, orangey brown sandy clay with frequent inclusions of ironstone, 0.35m thick; cut by [503], [508] and [510].	Superficial geology
502	Cut	Semi-circular shape in plan with gradual sloping edges, base unexcavated, 1.00m wide x 0.30 deep; filled by 503, cuts 501	Cut of pit [502]
503	Fill	Firm, dark greyish brown sandy clay with moderate inclusions of charcoal and small ironstone, 0.30m thick; sealed by 500, fills [502]	Fill of Pit [502]
504	VOID	VOID	VOID
505	VOID	VOID	VOID
506	VOID	VOID	VOID
507	VOID	VOID	VOID
508	Cut	Curving linear shape in plan, NE-W orientated with steep rounded sides and concaved base, 1.00m wide x 1.09m deep; filled by 509 and 515, cuts 501	Cut of inner ring ditch [508]
509	Fill	Compact, orangey brown sandy clay with frequent, medium ironstone/pebbles and infrequent charcoal, 0.50m thick; uppermost fill of [508], seals 515	Fill of inner ring ditch [508]
510	Cut	Curving linear shape in plan, NE-SW orientated with steep stepped sides and concaved base, 2.00m wide x 1.30m deep; filled by 511, 512, 513, 514 and 515, cuts 501	Cut of outer ring ditch [510]
511	Fill	Compact, orangey brown sandy clay with frequent inclusions of small-medium ironstone/pebbles and occasional charcoal flecks, 0.50m thick; uppermost fill of [510], sealed by 516, seals 513	Fill of outer ring ditch [510]
512	Fill	Very compacted, mid brownish orange silty clay with concentrated deposit of charcoal and small amount of iron pan, 0.35m thick; fill of [510], sealed by 513, seals 514	Fill of outer ring ditch [510]
513	Fill	Very compacted, light greyish orange silty clay with frequent iron pan and occasional flecks of charcoal, 0.20m thick; fill of [510], sealed by 511, seals 512	Fill of outer ring ditch [510]
514	Fill	Very compacted, dark greyish orange silty clay with small amounts of charcoal and occasional iron pan, 0.10m thick; basal fill of [510], sealed by 512	Fill of outer ring ditch [510]
515	Fill	Very compacted, mid brownish orange silty clay with frequent iron pan build up mostly in bottom northern corner, 0.25m thick; basal fill of [508], sealed by 509	Fill of inner ring ditch [508]

Trench 6

Context	Type	Description	Interpretation
600	Layer	Firm, dark greyish brown sandy clay with occasional charcoal, 0.24m thick; seals 601	Ploughsoil
601	Layer	Compact, dark brownish orange sandy clay with frequent ironstone and occasional unworked flint, 0.18m thick; sealed by 600	Superficial geology

Trench 7

Context	Type	Description	Interpretation
700	Layer	Firm, dark greyish brown sandy clay with occasional rounded pebbles, 0.26m thick; seals 701	Ploughsoil
701	Layer	Compact, dark brownish orange sandy clay with frequent ironstone and moderate small sub-angular stones, 0.12m thick; sealed by 700	Superficial geology

Trench 8

Context	Type	Description	Interpretation
800	Layer	Firm, dark orange brown clayey silt with frequent small to medium ironstone fragments, 0.32m thick; seals 801	Ploughsoil
801	Layer	Friable, mid orangey brown ironstone geology with mid orange brown silt patches, 0.10m thick; sealed by 801	Superficial geology

Trench 9

Context	Type	Description	Interpretation
900	Layer	Firm, dark orange brown clayey silt with small to medium ironstone, 0.35m thick; seals 901	Ploughsoil
901	Layer	Firm, mid yellowish brown clayey silt with small to medium ironstone fragments, 0.36m thick; sealed by 900	Superficial geology

Trench 10

Context	Type	Description	Interpretation
1000	Layer	Firm, dark orange brown clayey silt with small to medium iron inclusions, 0.36m thick; seals 1001 and 1002	Ploughsoil
1001	Layer	Firm, mid yellowish brown clayey silt with small inclusions of medium ironstone fragments, 0.22m thick; sealed by 1000	Superficial geology
1002	Layer	Limestone brash with small fragments of ironstone; sealed by 1000	Superficial geology

Trench 11

Context	Type	Description	Interpretation
1100	Layer	Firm, dark orangey brown clayey silt with small to medium ironstone, 0.26m thick; seals 1101	Ploughsoil

Context	Type	Description	Interpretation
1101	Layer	Firm, mid orangey brown clayey silt with occasional small to medium limestone fragments, 0.24m thick; sealed by 1100, seals 1102	Subsoil
1102	Layer	Small to large limestone fragments, 0.26m thick; sealed by 1102	Superficial geology

Trench 12

Context	Type	Description	Interpretation
1200	Layer	Firm, dark orangey brown clayey silt with small to medium ironstone, 0.30m thick; seals 1201	Ploughsoil
1201	Layer	Firm, mid yellowish brown clayey silt, 0.16m thick; sealed by 1200, seals 1202	Subsoil
1202	Layer	Firm, orangey brown tabular limestone brash; sealed by 1201	Superficial geology

Trench 13

Context	Type	Description	Interpretation
1300	Layer	Firm, dark orangey brown clayey silt with occasional small to medium ironstone, 0.36m thick; seals 1300	Ploughsoil
1301	Layer	Firm, mid yellow brown clayey silt with infrequent ironstone, 0.10m thick; sealed by 1301	Superficial geology

Trench 14

Context	Type	Description	Interpretation
1400	Layer	Firm, dark orangey brown clayey silt with moderate ironstone, 0.31m thick; seals 1401	Ploughsoil
1401	Layer	Mid orangey brown silt with frequent ironstone, 0.32m thick; sealed by 1400	Superficial geology

Trench 15

Context	Type	Description	Interpretation
1500	Layer	Mid dark orangey brown clayey silt with frequent ironstone fragments, 0.26m thick; seals 1501	Ploughsoil
1501	Layer	Mid orangey brown silt with frequent ironstone frequent, 0.36m thick; sealed by 1500	Superficial geology

Trench 16

Context	Type	Description	Interpretation
1600	Layer	Mid dark orangey brown grey clayey silt, with frequent ironstone, 0.30m thick; seals 1601	Ploughsoil
1601	Layer	Friable, dark orangey brown fragmented ironstone with a bit of silt, 0.50m thick; sealed by 1600	Superficial geology

Trench 17

Context	Type	Description	Interpretation
1700	Layer	Dark orangey brown grey clayey silt with frequent ironstone fragments, 0.30m thick; seals 1701	Ploughsoil
1701	Layer	Firm, mid orangey brown clayey silt with moderate ironstone fragments, 0.11m thick; sealed by 1700, seals 1702	Subsoil
1702	Layer	A mix of silty sand to clay patches and ironstone brash, 0.20m thick; sealed by 1700	Superficial geology

Trench 18

Context	Type	Description	Interpretation
1800	Layer	Firm, dark orangey brown grey clayey silt, with frequent ironstone, 0.24m thick; seals 1801	Ploughsoil
1801	Layer	Firm, mid orangey brown clayey silt with frequent ironstone, 0.16m thick; sealed by 1800, seal 1802	Subsoil
1802	Layer	A mix of silty sand to clay patches and ironstone brash, 0.10m thick; sealed by 1801	Superficial geology

Trench 19

Context	Type	Description	Interpretation
1900	Layer	Firm, dark orangey brown clayey silt with moderate to frequent small to medium ironstone, 0.36m thick; seals 1901	Ploughsoil
1901	Layer	Firm, orangey brown silty sand with frequent ironstone, 0.18m thick; sealed by 1900, seals 1901	Subsoil
1902	Layer	light orangey brown clayey silt with small fragments of ironstone and medium patches of ironstone, 0.28m thick; sealed by 1902	Superficial geology

Trench 20

Context	Type	Description	Interpretation
2000	Layer	Firm dark orangey brown grey clayey silt with moderate to frequent ironstone fragments, 0.32m thick; seals 2001	Ploughsoil
2001	Layer	Mid orangey brown ironstone brash, 0.30m thick, sealed by 2000	Superficial geology

COSMIC Assessment Sheet – Area A

Management Factors						
LIKELIHOOD OF IMPACT	Serious Risk Score 5	High Risk Score 4	Medium Risk Score 3	Low Risk Score 2	Minimum Risk Score 1	Score + confidence grade (CF)*
Buffer zones: previous cultivation depth/ extent in relation to archaeology	No buffer	Shallow buffer (< 10cm)	Moderate buffer (10-15cm)	Deep buffer (16-25cm)	Deeply buried (> 25cm)	A B ..2... C.....
Cultivation method and depth	Very deep ploughing (>30cm)	Deep ploughing, deep rotavating, stone cleaning etc (26-30cm)	Normal ploughing, chisel ploughing (20-25cm)	Shallow minimum cultivation methods. Shallow ploughing (10-19cm)	Direct drilling with no subsoiling (<10cm)	A..... B ..4... C.....
Cropping regime	Cropping includes potatoes/sugar beet	Cropping includes other root/tuber crops	Cropping includes cereals, non-root crops		Cropping includes long term grass ley (or set-aside) > 5 years	A ..3... B..... C.....
Compaction and drainage	Regular subsoiling (< 3 yrs)	Regular or occasional subsoiling/pan busting (3-6 years)	Rare subsoiling required; moling and drains (7-15 years)	No subsoiling		A ..2... B..... C.....
Management factor initial score (total of scores above)						Initial Score: 11
Management factor weighting	Any at Serious Risk = 2.5 Any at High Risk = 1.5 Any at Minimum Risk = 0.5					Weighting: 1.5
Initial score multiplied by management factor weighting <i>(NB. Only apply one weighting – use the highest weighting value).</i>			.....11..... x .....1.5.....		Result = Final Score (may be graded A,B,C*) A B ..16,5... C	

* CF is Confidence rating. Rate scores according to the quality of the supporting evidence:
A = Good evidence; B = Some evidence; C = Poor evidence, mainly assumption

Site Intrinsic Factors								
Susceptibility of cultivated soil to water erosion factors								
Average annual rainfall =622.3....mm								
Slope	Steep slopes (>7° top of slope)		Moderate slopes (3°-7° /middle of slope)		Gentle slopes (2°-3° /middle of slope)		Level ground (Flat ground/bottom of slope)	Score + CF*
Main Soil Group	Rainfall more than 800mm	Rainfall less than 800mm	Rainfall more than 800mm	Rainfall less than 800mm	Rainfall more than 800mm	Rainfall less than 800mm		
Light soils	Serious Score 5	High Score 4	High Score 4	Medium Score 3	Medium Score 3	Low Score 2	Minimal Score 1	A.. 2.... B..... C.....
Moderate soils	High Score 4	Medium Score 3	Medium Score 3		Low Score 2		Minimal Score 1	
Heavy soils	Low Score 2		Minimal Score 1		Minimal Score 1		Minimal Score 1	
Susceptibility to deeper cultivation through soil movement by wind erosion								
Main soil group	Peats	Sands/Silts	Loams	Sandy clays/silty clay	Clay	Score+ CF*		
Likelihood of occurrence	Serious Score 5	High Score 4	Medium Score 3	Low Score 2	Minimal Score 1	A.. 2.... B..... C.....		
Susceptibility to deeper cultivation through soil loss during harvesting								
Crop type	Potatoes/sugar beet	Other root/tuber crops	Combinable crops	Not under cultivation		Score + CF)		
Likelihood of occurrence	Serious Score 5	High Score 4	Medium Score 3	Minimal Score 1		A.. 3.... B..... C.....		
Site Intrinsic factor initial score (total of scores above)							Initial Score	
Site Intrinsic Factor Weighting	Any of above in grey shaded box = 2 Any black shaded box = 0.5						Weighting	
Initial score multiplied by site intrinsic factor weighting:				.....7..... x/.....		Result = Final Score (may be graded A,B,C*) A.. 7..... B..... C.....	

Archaeological Factors						
Scale of Archaeological Risk	Serious Score 5	High Score 4	Medium Score 3	Low Score 2	Minimum Score 1	Score + (CF)*
Archaeological survival and quality of evidence [Other evidence: e.g. -Documentary (HER records, fieldwork reports) -Oral (information from farmers etc) -Material (artefacts in museums or private collections)]	- Upstanding earthworks/structures -Well-preserved deposits demonstrated by excavation -Other evidence indicating well-preserved deposits - Dense, discrete, and/or diagnostic deposits relevant to national research agendas (demonstrated by excavation or indicated by cropmarks/anomalies) -Other evidence of nationally significant deposits	-Positive and negative features demonstrated by excavation - Positive and negative features indicated by cropmarks/anomalies -Other evidence indicating good preservation -Dense, discrete, and/or diagnostic deposits relevant to regional research agendas (demonstrated by excavation or indicated by cropmarks/anomalies) -Less dense, discrete, or diagnostic deposits relevant to national research agendas (demonstrated by excavation or indicated by cropmarks/anomalies) -Other evidence of highly significant deposits	-Negative features demonstrated by excavation -Negative features indicated by cropmarks/anomalies -Ploughsoil scatters derived from buried deposits - Dense, discrete, or, diagnostic deposits relevant to county research agendas (demonstrated by excavation or indicated by cropmarks/anomalies) -Less dense, discrete, or diagnostic deposits relevant to regional research agendas (demonstrated by excavation or indicated by cropmarks/anomalies) - Dense, discrete, or diagnostic ploughsoil scatters - Other evidence of significant deposits	-Truncated negative features demonstrated by excavation -Negative features indicated by cropmarks/anomalies -Ploughsoil scatters derived from buried deposits -Other evidence indicating truncation -Sparse or undiagnostic deposits relevant to local research agendas (demonstrated by excavation or indicated by cropmarks/anomalies) - Diffuse or undiagnostic ploughsoil scatters -Other evidence distinguishing between sites of low and minimum significance	- Heavily truncated negative features demonstrated by excavation -Negative features indicated by cropmarks/anomalies -Ploughsoil scatters derived from buried deposits -Other evidence indicating heavy truncation -Sparse or undiagnostic deposits demonstrated by excavation or indicated by cropmarks/anomalies - Diffuse or undiagnostic ploughsoil scatters	A B C ...1...
Archaeological significance	National significance	Regional significance	County significance	Clear local significance	No obvious significance	A B C ...1...
Archaeological Factor Initial Score (total of scores above)						Initial Score
						2
Archaeological Factor weighting	For score of 9-10 use weighting factor = 2; For score of 8-7 use weighting factor = 1.5; For score of 6 use weighting factor = 1.3; For score of 5-4 use weighting factor = 1; For score of 2-3 use weighting factor = 0.5.					Weighting
						0.5
Initial score multiplied by archaeological factor weighting:			.....2..... x .....0.5.....		Result = Final Score (may be graded A,B,C*)	
					A B C.....1.....	

Add together the results 'final scores' for the three main sections to produce the total risk score

Management factors final score (out of 50)	16.5	Confidence Grade (CF)	B
Erosion factors final score (out of 30)	7	Confidence Grade (CF)	A
Archaeological Weighting final score (out of 20)	1	Confidence Grade (CF)	C
Total risk score (out of 100)	24.5	Overall Confidence Grade	B

Risk Levels

Total Risk Score	Risk Level
0-30	Minimal risk
30-40	Low risk
40-50	Moderate risk
50-59	High risk
60+	Serious risk

Sites scoring 40 or over will need consideration of mitigation and management options to reduce this risk.

COSMIC Assessment Sheet – Area B

Management Factors						
LIKELIHOOD OF IMPACT	Serious Risk Score 5	High Risk Score 4	Medium Risk Score 3	Low Risk Score 2	Minimum Risk Score 1	Score + confidence grade (CF)*
Buffer zones: previous cultivation depth/ extent in relation to archaeology	No buffer	Shallow buffer (< 10cm)	Moderate buffer (10-15cm)	Deep buffer (16-25cm)	Deeply buried (> 25cm)	A B ..5... C
Cultivation method and depth	Very deep ploughing (>30cm)	Deep ploughing, deep rotavating, stone cleaning etc (26-30cm)	Normal ploughing, chisel ploughing (20-25cm)	Shallow minimum cultivation methods. Shallow ploughing (10-19cm)	Direct drilling with no subsoiling (<10cm)	A B ..4... C
Cropping regime	Cropping includes potatoes/sugar beet	Cropping includes other root/tuber crops	Cropping includes cereals, non-root crops		Cropping includes long term grass ley (or set-aside) > 5 years	A ..3... B C
Compaction and drainage	Regular subsoiling (< 3 yrs)	Regular or occasional subsoiling/pan busting (3-6 years)	Rare subsoiling required; moling and drains (7-15 years)	No subsoiling		A ..2... B C
Management factor initial score (total of scores above)						Initial Score: 14
Management factor weighting	Any at Serious Risk = 2.5 Any at High Risk = 1.5 Any at Minimum Risk = 0.5					Weighting: 2.5
Initial score multiplied by management factor weighting (NB. Only apply one weighting – use the highest weighting value).			.....14..... x .....2.5.....		Result = Final Score (may be graded A,B,C*) A B ..35..... C	

* CF is Confidence rating. Rate scores according to the quality of the supporting evidence:
A = Good evidence; B = Some evidence; C = Poor evidence, mainly assumption

Site Intrinsic Factors								
Susceptibility of cultivated soil to water erosion factors								
Average annual rainfall =622.3....mm								
Slope	Steep slopes (>7° top of slope)		Moderate slopes (3°-7° /middle of slope)		Gentle slopes (2°-3° /middle of slope)		Level ground (Flat ground/bottom of slope)	Score + CF*
Main Soil Group	Rainfall more than 800mm	Rainfall less than 800mm	Rainfall more than 800mm	Rainfall less than 800mm	Rainfall more than 800mm	Rainfall less than 800mm		
Light soils	Serious Score 5	High Score 4	High Score 4	Medium Score 3	Medium Score 3	Low Score 2	Minimal Score 1	A.. 2.... B..... C.....
Moderate soils	High Score 4	Medium Score 3	Medium Score 3		Low Score 2		Minimal Score 1	
Heavy soils	Low Score 2		Minimal Score 1		Minimal Score 1		Minimal Score 1	
Susceptibility to deeper cultivation through soil movement by wind erosion								
Main soil group	Peats	Sands/Silts	Loams	Sandy clays/silty clay	Clay	Score+ CF*		
Likelihood of occurrence	Serious Score 5	High Score 4	Medium Score 3	Low Score 2	Minimal Score 1	A.. 2.... B..... C.....		
Susceptibility to deeper cultivation through soil loss during harvesting								
Crop type	Potatoes/sugar beet	Other root/tuber crops	Combinable crops	Not under cultivation		Score + CF)		
Likelihood of occurrence	Serious Score 5	High Score 4	Medium Score 3	Minimal Score 1		A.. 3.... B..... C.....		
Site Intrinsic factor initial score (total of scores above)							Initial Score	
Site Intrinsic Factor Weighting	Any of above in grey shaded box = 2 Any black shaded box = 0.5						Weighting	
Initial score multiplied by site intrinsic factor weighting:				.....7..... x/.....		Result = Final Score (may be graded A,B,C*) A..7..... B..... C.....	

Archaeological Factors						
Scale of Archaeological Risk	Serious Score 5	High Score 4	Medium Score 3	Low Score 2	Minimum Score 1	Score + (CF)*
Archaeological survival and quality of evidence [Other evidence: e.g. -Documentary (HER records, fieldwork reports) -Oral (information from farmers etc) -Material (artefacts in museums or private collections)]	<ul style="list-style-type: none"> - Upstanding earthworks/structures -Well-preserved deposits demonstrated by excavation -Other evidence indicating well-preserved deposits - Dense, discrete, and/or diagnostic deposits relevant to national research agendas (demonstrated by excavation or indicated by cropmarks/anomalies) -Other evidence of nationally significant deposits 	<ul style="list-style-type: none"> -Positive and negative features demonstrated by excavation - Positive and negative features indicated by cropmarks/anomalies -Other evidence indicating good preservation -Dense, discrete, and/or diagnostic deposits relevant to regional research agendas (demonstrated by excavation or indicated by cropmarks/anomalies) -Less dense, discrete, or diagnostic deposits relevant to national research agendas (demonstrated by excavation or indicated by cropmarks/anomalies) -Other evidence of highly significant deposits 	<ul style="list-style-type: none"> -Negative features demonstrated by excavation -Negative features indicated by cropmarks/anomalies -Ploughsoil scatters derived from buried deposits - Dense, discrete, or, diagnostic deposits relevant to county research agendas (demonstrated by excavation or indicated by cropmarks/anomalies) -Less dense, discrete, or diagnostic deposits relevant to regional research agendas (demonstrated by excavation or indicated by cropmarks/anomalies) - Dense, discrete, or diagnostic ploughsoil scatters - Other evidence of significant deposits 	<ul style="list-style-type: none"> -Truncated negative features demonstrated by excavation -Negative features indicated by cropmarks/anomalies -Ploughsoil scatters derived from buried deposits -Other evidence indicating truncation -Sparse or undiagnostic deposits relevant to local research agendas (demonstrated by excavation or indicated by cropmarks/anomalies) - Diffuse or undiagnostic ploughsoil scatters -Other evidence distinguishing between sites of low and minimum significance 	<ul style="list-style-type: none"> - Heavily truncated negative features demonstrated by excavation -Negative features indicated by cropmarks/anomalies -Ploughsoil scatters derived from buried deposits -Other evidence indicating heavy truncation -Sparse or undiagnostic deposits demonstrated by excavation or indicated by cropmarks/anomalies - Diffuse or undiagnostic ploughsoil scatters 	A..2... B C.....
Archaeological significance	National significance	Regional significance	County significance	Clear local significance	No obvious significance	A..3... B..... C.....
Archaeological Factor Initial Score (total of scores above)						Initial Score 5
Archaeological Factor weighting	For score of 9-10 use weighting factor = 2; For score of 8-7 use weighting factor = 1.5; For score of 6 use weighting factor = 1.3; For score of 5-4 use weighting factor = 1; For score of 2-3 use weighting factor = 0.5.					Weighting 1.3
Initial score multiplied by archaeological factor weighting:			.....5..... X .....1.3.....		Result = Final Score (may be graded A,B,C*) A .....6.5..... B C	

Add together the results 'final scores' for the three main sections to produce the total risk score

Management factors final score (out of 50)	35	Confidence Grade (CF)	B
Erosion factors final score (out of 30)	7	Confidence Grade (CF)	A
Archaeological Weighting final score (out of 20)	5	Confidence Grade (CF)	A
Total risk score (out of 100)	47	Overall Confidence Grade	A

Risk Levels

Total Risk Score	Risk Level
0-30	Minimal risk
30-40	Low risk
40-50	Moderate risk
50-59	High risk
60+	Serious risk

Sites scoring 40 or over will need consideration of mitigation and management options to reduce this risk.

COSMIC Assessment Sheet – Area C

Management Factors						
LIKELIHOOD OF IMPACT	Serious Risk Score 5	High Risk Score 4	Medium Risk Score 3	Low Risk Score 2	Minimum Risk Score 1	Score + confidence grade (CF)*
Buffer zones: previous cultivation depth/ extent in relation to archaeology	No buffer	Shallow buffer (< 10cm)	Moderate buffer (10-15cm)	Deep buffer (16-25cm)	Deeply buried (> 25cm)	A B..4.. C.....
Cultivation method and depth	Very deep ploughing (>30cm)	Deep ploughing, deep rotavating, stone cleaning etc (26-30cm)	Normal ploughing, chisel ploughing (20-25cm)	Shallow minimum cultivation methods. Shallow ploughing (10-19cm)	Direct drilling with no subsoiling (<10cm)	A..... B..5.. C.....
Cropping regime	Cropping includes potatoes/sugar beet	Cropping includes other root/tuber crops	Cropping includes cereals, non-root crops		Cropping includes long term grass ley (or set-aside) > 5 years	A..3.. B..... C.....
Compaction and drainage	Regular subsoiling (< 3 yrs)	Regular or occasional subsoiling/pan busting (3-6 years)	Rare subsoiling required; moling and drains (7-15 years)	No subsoiling		A..2.. B..... C.....
Management factor initial score (total of scores above)						Initial Score: 14
Management factor weighting	Any at Serious Risk = 2.5 Any at High Risk = 1.5 Any at Minimum Risk = 0.5					Weighting: 2.5
Initial score multiplied by management factor weighting (NB. Only apply one weighting – use the highest weighting value).			.....14..... x .....2.5.....		Result = Final Score (may be graded A,B,C*) A B ..35..... C	

* CF is Confidence rating. Rate scores according to the quality of the supporting evidence:
A = Good evidence; B = Some evidence; C = Poor evidence, mainly assumption

Site Intrinsic Factors								
Susceptibility of cultivated soil to water erosion factors								
Average annual rainfall =622.3.....mm								
Slope	Steep slopes (>7° top of slope)		Moderate slopes (3°-7° /middle of slope)		Gentle slopes (2°-3° /middle of slope)		Level ground (Flat ground/bottom of slope)	Score + CF*
Main Soil Group	Rainfall more than 800mm	Rainfall less than 800mm	Rainfall more than 800mm	Rainfall less than 800mm	Rainfall more than 800mm	Rainfall less than 800mm		
Light soils	Serious Score 5	High Score 4	High Score 4	Medium Score 3	Medium Score 3	Low Score 2	Minimal Score 1	A. 1..... B..... C.....
Moderate soils	High Score 4	Medium Score 3	Medium Score 3		Low Score 2		Minimal Score 1	
Heavy soils	Low Score 2		Minimal Score 1		Minimal Score 1		Minimal Score 1	
Susceptibility to deeper cultivation through soil movement by wind erosion								
Main soil group	Peats	Sands/Silts	Loams	Sandy clays/silty clay	Clay	Score+ CF*		
Likelihood of occurrence	Serious Score 5	High Score 4	Medium Score 3	Low Score 2	Minimal Score 1	A. 2..... B..... C.....		
Susceptibility to deeper cultivation through soil loss during harvesting								
Crop type	Potatoes/sugar beet	Other root/tuber crops	Combinable crops	Not under cultivation		Score + CF)		
Likelihood of occurrence	Serious Score 5	High Score 4	Medium Score 3	Minimal Score 1		A. 3..... B..... C.....		
Site Intrinsic factor initial score (total of scores above)							Initial Score	
Site Intrinsic Factor Weighting	Any of above in grey shaded box = 2 Any black shaded box = 0.5						Weighting	
Initial score multiplied by site intrinsic factor weighting:				.....6..... x/.....		Result = Final Score (may be graded A,B,C*) A...6..... B..... C.....	

Archaeological Factors						
Scale of Archaeological Risk	Serious Score 5	High Score 4	Medium Score 3	Low Score 2	Minimum Score 1	Score + (CF)*
Archaeological survival and quality of evidence [Other evidence: e.g. -Documentary (HER records, fieldwork reports) -Oral (information from farmers etc) -Material (artefacts in museums or private collections)]	<ul style="list-style-type: none"> - Upstanding earthworks/structures -Well-preserved deposits demonstrated by excavation -Other evidence indicating well-preserved deposits - Dense, discrete, and/or diagnostic deposits relevant to national research agendas (demonstrated by excavation or indicated by cropmarks/anomalies) -Other evidence of nationally significant deposits 	<ul style="list-style-type: none"> -Positive and negative features demonstrated by excavation - Positive and negative features indicated by cropmarks/anomalies -Other evidence indicating good preservation -Dense, discrete, and/or diagnostic deposits relevant to regional research agendas (demonstrated by excavation or indicated by cropmarks/anomalies) -Less dense, discrete, or diagnostic deposits relevant to national research agendas (demonstrated by excavation or indicated by cropmarks/anomalies) -Other evidence of highly significant deposits 	<ul style="list-style-type: none"> -Negative features demonstrated by excavation -Negative features indicated by cropmarks/anomalies -Ploughsoil scatters derived from buried deposits - Dense, discrete, or, diagnostic deposits relevant to county research agendas (demonstrated by excavation or indicated by cropmarks/anomalies) -Less dense, discrete, or diagnostic deposits relevant to regional research agendas (demonstrated by excavation or indicated by cropmarks/anomalies) - Dense, discrete, or diagnostic ploughsoil scatters - Other evidence of significant deposits 	<ul style="list-style-type: none"> -Truncated negative features demonstrated by excavation -Negative features indicated by cropmarks/anomalies -Ploughsoil scatters derived from buried deposits -Other evidence indicating truncation -Sparse or undiagnostic deposits relevant to local research agendas (demonstrated by excavation or indicated by cropmarks/anomalies) - Diffuse or undiagnostic ploughsoil scatters -Other evidence distinguishing between sites of low and minimum significance 	<ul style="list-style-type: none"> - Heavily truncated negative features demonstrated by excavation -Negative features indicated by cropmarks/anomalies -Ploughsoil scatters derived from buried deposits -Other evidence indicating heavy truncation -Sparse or undiagnostic deposits demonstrated by excavation or indicated by cropmarks/anomalies - Diffuse or undiagnostic ploughsoil scatters 	A B C ..1...
Archaeological significance	National significance	Regional significance	County significance	Clear local significance	No obvious significance	A B ..1.. C
Archaeological Factor Initial Score (total of scores above)						Initial Score 2
Archaeological Factor weighting	For score of 9-10 use weighting factor = 2; For score of 8-7 use weighting factor = 1.5; For score of 6 use weighting factor = 1.3; For score of 5-4 use weighting factor = 1; For score of 2-3 use weighting factor = 0.5.					Weighting 0.5
Initial score multiplied by archaeological factor weighting:			.....2..... x .....0.5.....		Result = Final Score (may be graded A,B,C*) A.....1..... B C	

Add together the results 'final scores' for the three main sections to produce the total risk score

Management factors final score (out of 50)	35	Confidence Grade (CF)	B
Erosion factors final score (out of 30)	6	Confidence Grade (CF)	A
Archaeological Weighting final score (out of 20)	1	Confidence Grade (CF)	C
Total risk score (out of 100)	42	Overall Confidence Grade	B

Risk Levels

Total Risk Score	Risk Level
0-30	Minimal risk
30-40	Low risk
40-50	Moderate risk
50-59	High risk
60+	Serious risk

Sites scoring 40 or over will need consideration of mitigation and management options to reduce this risk.

COSMIC Assessment Sheet – Area D

Management Factors						
LIKELIHOOD OF IMPACT	Serious Risk Score 5	High Risk Score 4	Medium Risk Score 3	Low Risk Score 2	Minimum Risk Score 1	Score + confidence grade (CF)*
Buffer zones: previous cultivation depth/ extent in relation to archaeology	No buffer	Shallow buffer(< 10cm)	Moderate buffer (10-15cm)	Deep buffer (16-25cm)	Deeply buried (> 25cm)	A B..... C..4..
Cultivation method and depth	Very deep ploughing (>30cm)	Deep ploughing, deep rotavating, stone cleaning etc (26-30cm)	Normal ploughing, chisel ploughing (20-25cm)	Shallow minimum cultivation methods. Shallow ploughing (10-19cm)	Direct drilling with no subsoiling (<10cm)	A..... B..4.. C.....
Cropping regime	Cropping includes potatoes/sugar beet	Cropping includes other root/tuber crops	Cropping includes cereals, non-root crops		Cropping includes long term grass ley (or set-aside) > 5 years	A ..3.. B..... C.....
Compaction and drainage	Regular subsoiling (< 3 yrs)	Regular or occasional subsoiling/pan busting (3-6 years)	Rare subsoiling required; moling and drains (7-15 years)	No subsoiling		A ..2.. B..... C.....
Management factor initial score (total of scores above)						Initial Score: 13
Management factor weighting	Any at Serious Risk = 2.5 Any at High Risk = 1.5 Any at Minimum Risk = 0.5					Weighting: 1.5
Initial score multiplied by management factor weighting (NB. Only apply one weighting – use the highest weighting value).			.....13..... x .....1.5.....		Result = Final Score (may be graded A,B,C*) A B ..19,5... C	

* CF is Confidence rating. Rate scores according to the quality of the supporting evidence:
A = Good evidence; B = Some evidence; C = Poor evidence, mainly assumption

Site Intrinsic Factors								
Susceptibility of cultivated soil to water erosion factors								
Average annual rainfall =622.3.....mm								
Slope	Steep slopes (>7° top of slope)		Moderate slopes (3°-7°/middle of slope)		Gentle slopes (2°-3°/middle of slope)		Level ground (Flat ground/bottom of slope)	Score + CF*
Main Soil Group	Rainfall more than 800mm	Rainfall less than 800mm	Rainfall more than 800mm	Rainfall less than 800mm	Rainfall more than 800mm	Rainfall less than 800mm		
Light soils	Serious Score 5	High Score 4	High Score 4	Medium Score 3	Medium Score 3	Low Score 2	Minimal Score 1	A..2.... B..... C.....
Moderate soils	High Score 4	Medium Score 3	Medium Score 3		Low Score 2		Minimal Score 1	
Heavy soils	Low Score 2		Minimal Score 1		Minimal Score 1		Minimal Score 1	
Susceptibility to deeper cultivation through soil movement by wind erosion								
Main soil group	Peats	Sands/Silts	Loams	Sandy clays/silty clay	Clay	Score+ CF*		
Likelihood of occurrence	Serious Score 5	High Score 4	Medium Score 3	Low Score 2	Minimal Score 1	A..2.... B..... C.....		
Susceptibility to deeper cultivation through soil loss during harvesting								
Crop type	Potatoes/sugar beet	Other root/tuber crops	Combinable crops	Not under cultivation		Score + CF)		
Likelihood of occurrence	Serious Score 5	High Score 4	Medium Score 3	Minimal Score 1		A..3.... B..... C.....		
Site Intrinsic factor initial score (total of scores above)							Initial Score	
Site Intrinsic Factor Weighting	Any of above in grey shaded box = 2 Any black shaded box = 0.5						Weighting	
Initial score multiplied by site intrinsic factor weighting:				.....7..... x/.....		Result = Final Score (may be graded A,B,C*) A..7..... B..... C.....	

Archaeological Factors						
Scale of Archaeological Risk	Serious Score 5	High Score 4	Medium Score 3	Low Score 2	Minimum Score 1	Score + (CF)*
Archaeological survival and quality of evidence [Other evidence: e.g. -Documentary (HER records, fieldwork reports) -Oral (information from farmers etc) -Material (artefacts in museums or private collections)]	<ul style="list-style-type: none"> - Upstanding earthworks/structures -Well-preserved deposits demonstrated by excavation -Other evidence indicating well-preserved deposits - Dense, discrete, and/or diagnostic deposits relevant to national research agendas (demonstrated by excavation or indicated by cropmarks/anomalies) -Other evidence of nationally significant deposits 	<ul style="list-style-type: none"> -Positive and negative features demonstrated by excavation - Positive and negative features indicated by cropmarks/anomalies -Other evidence indicating good preservation -Dense, discrete, and/or diagnostic deposits relevant to regional research agendas (demonstrated by excavation or indicated by cropmarks/anomalies) -Less dense, discrete, or diagnostic deposits relevant to national research agendas (demonstrated by excavation or indicated by cropmarks/anomalies) -Other evidence of highly significant deposits 	<ul style="list-style-type: none"> -Negative features demonstrated by excavation -Negative features indicated by cropmarks/anomalies -Ploughsoil scatters derived from buried deposits - Dense, discrete, or, diagnostic deposits relevant to county research agendas (demonstrated by excavation or indicated by cropmarks/anomalies) -Less dense, discrete, or diagnostic deposits relevant to regional research agendas (demonstrated by excavation or indicated by cropmarks/anomalies) - Dense, discrete, or diagnostic ploughsoil scatters - Other evidence of significant deposits 	<ul style="list-style-type: none"> -Truncated negative features demonstrated by excavation -Negative features indicated by cropmarks/anomalies -Ploughsoil scatters derived from buried deposits -Other evidence indicating truncation -Sparse or undiagnostic deposits relevant to local research agendas (demonstrated by excavation or indicated by cropmarks/anomalies) - Diffuse or undiagnostic ploughsoil scatters -Other evidence distinguishing between sites of low and minimum significance 	<ul style="list-style-type: none"> - Heavily truncated negative features demonstrated by excavation -Negative features indicated by cropmarks/anomalies -Ploughsoil scatters derived from buried deposits -Other evidence indicating heavy truncation -Sparse or undiagnostic deposits demonstrated by excavation or indicated by cropmarks/anomalies - Diffuse or undiagnostic ploughsoil scatters 	A B C ..1.....
Archaeological significance	National significance	Regional significance	County significance	Clear local significance	No obvious significance	A B C ..1.....
Archaeological Factor Initial Score (total of scores above)						Initial Score 2
Archaeological Factor weighting	For score of 9-10 use weighting factor = 2; For score of 8-7 use weighting factor = 1.5; For score of 6 use weighting factor = 1.3; For score of 5-4 use weighting factor = 1; For score of 2-3 use weighting factor = 0.5.					Weighting 0.5
Initial score multiplied by archaeological factor weighting:			.....2..... x .....0.5.....		Result = Final Score (may be graded A,B,C*) A..... B..... C.....1.....	

Add together the results 'final scores' for the three main sections to produce the total risk score

Management factors final score (out of 50)	19.5	Confidence Grade (CF)	B
Erosion factors final score (out of 30)	7	Confidence Grade (CF)	A
Archaeological Weighting final score (out of 20)	1	Confidence Grade (CF)	C
Total risk score (out of 100)	27.5	Overall Confidence Grade	C

Risk Levels

Total Risk Score	Risk Level
0-30	Minimal risk
30-40	Low risk
40-50	Moderate risk
50-59	High risk
60+	Serious risk

Sites scoring 40 or over will need consideration of mitigation and management options to reduce this risk.

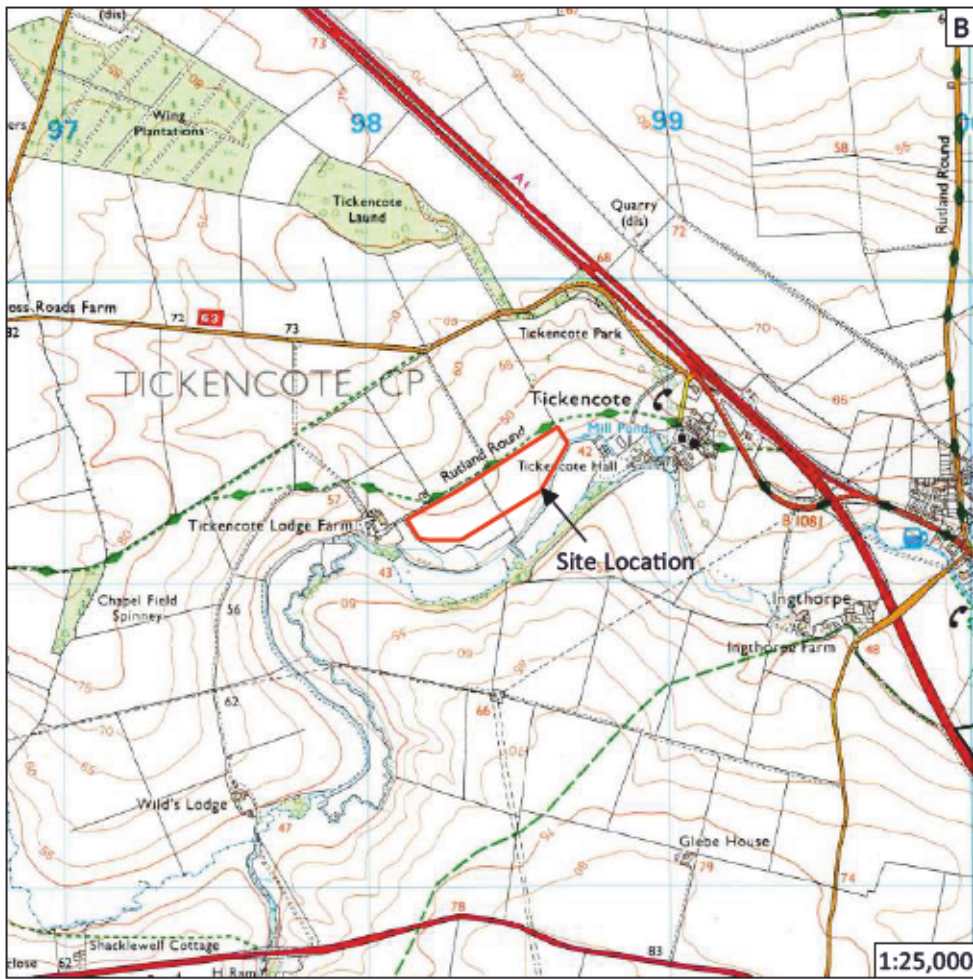
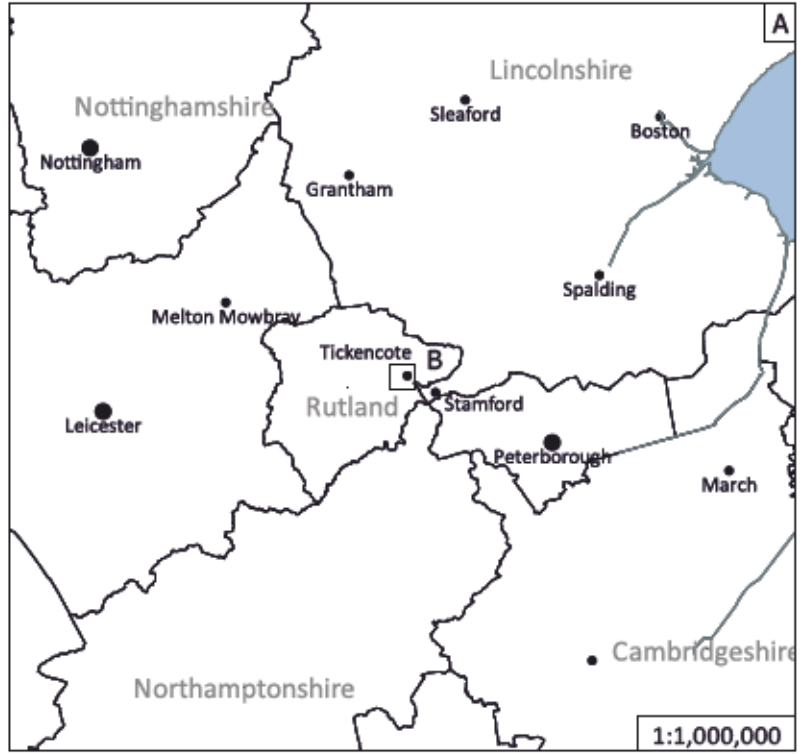


Figure 1: Site location outlined in red

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Site Code	TICK 14
Scale	1:10,000,000 1:1,000,000 1:25,000 @ A4
Drawn by	C Casswell
Date	24/10/16

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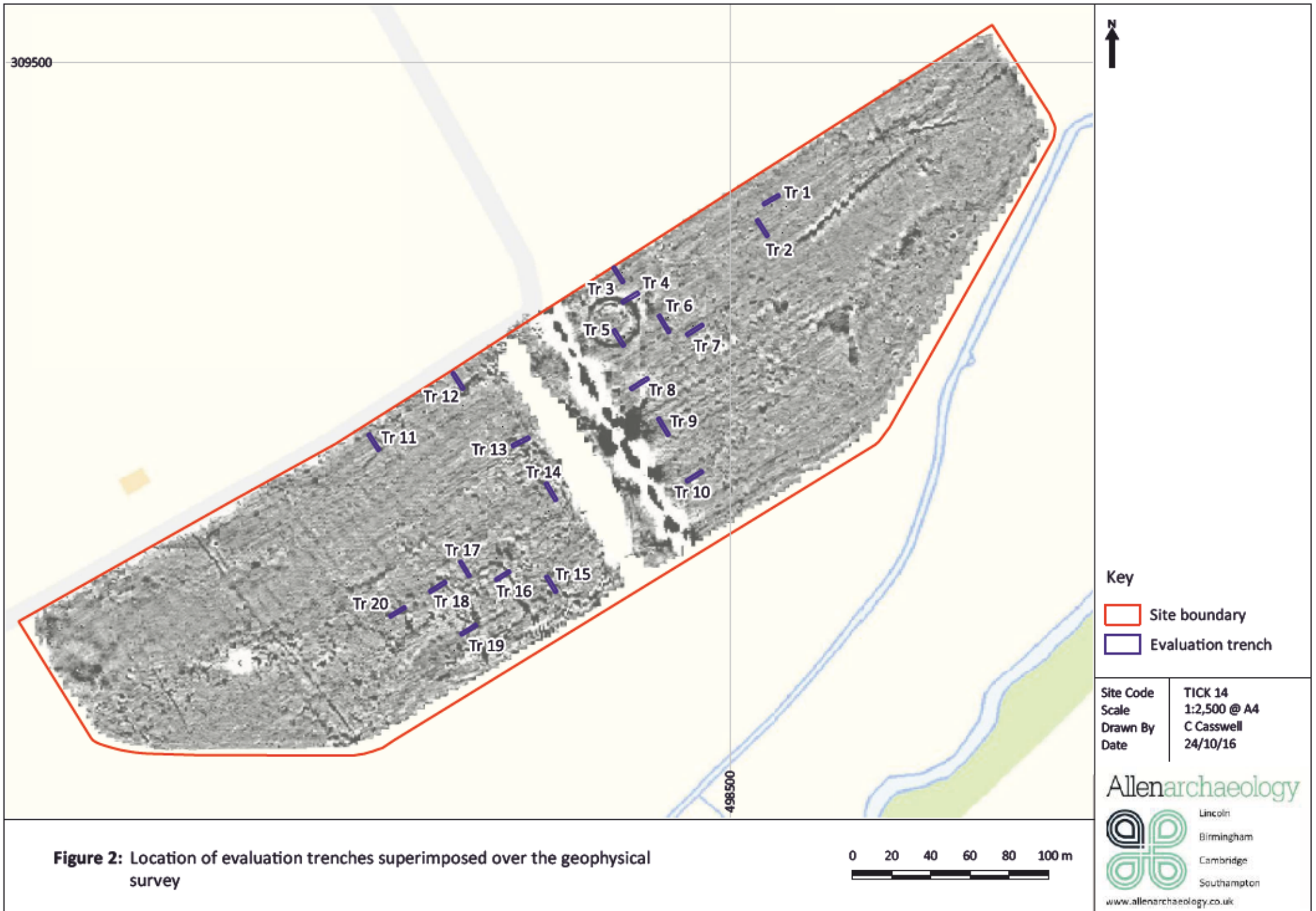


Figure 2: Location of evaluation trenches superimposed over the geophysical survey

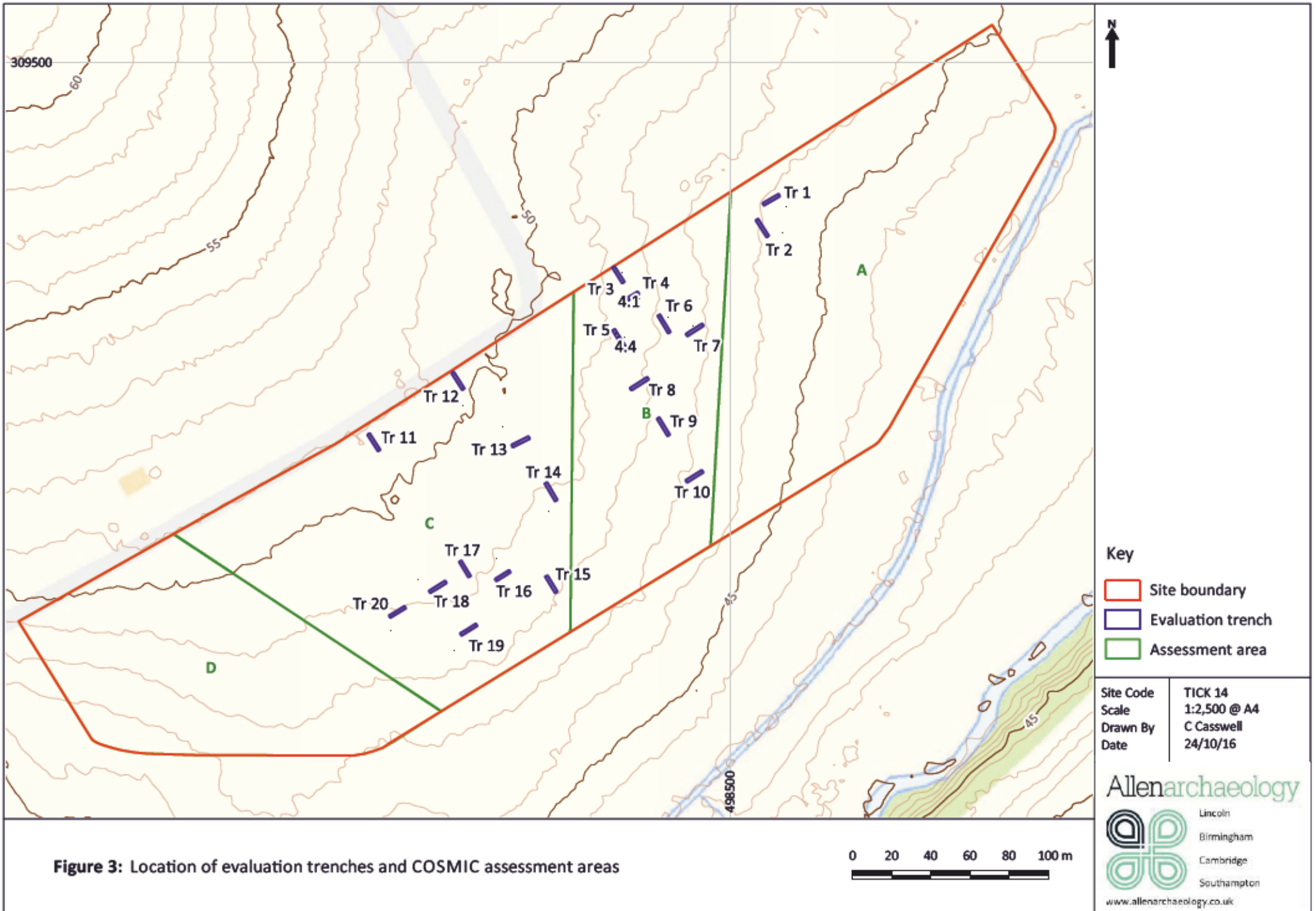


Figure 3: Location of evaluation trenches and COSMIC assessment areas

Key

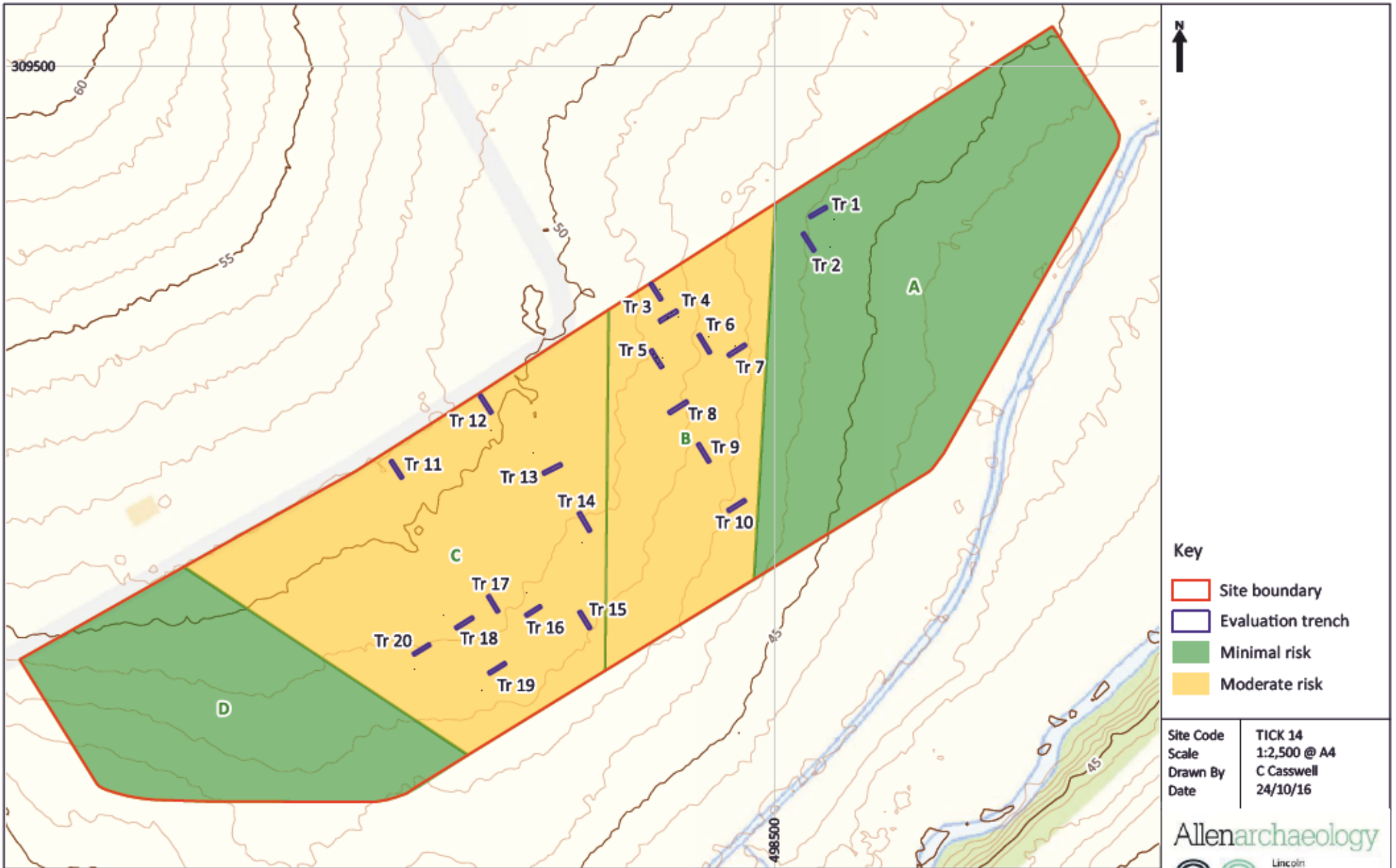
- Site boundary
- Evaluation trench
- Assessment area

Site Code	TICK 14
Scale	1:2,500 @ A4
Drawn By	C Casswell
Date	24/10/16

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Key

- Site boundary
- Evaluation trench
- Minimal risk
- Moderate risk

Site Code	TICK 14
Scale	1:2,500 @ A4
Drawn By	C Casswell
Date	24/10/16

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Figure 4: Risk Levels



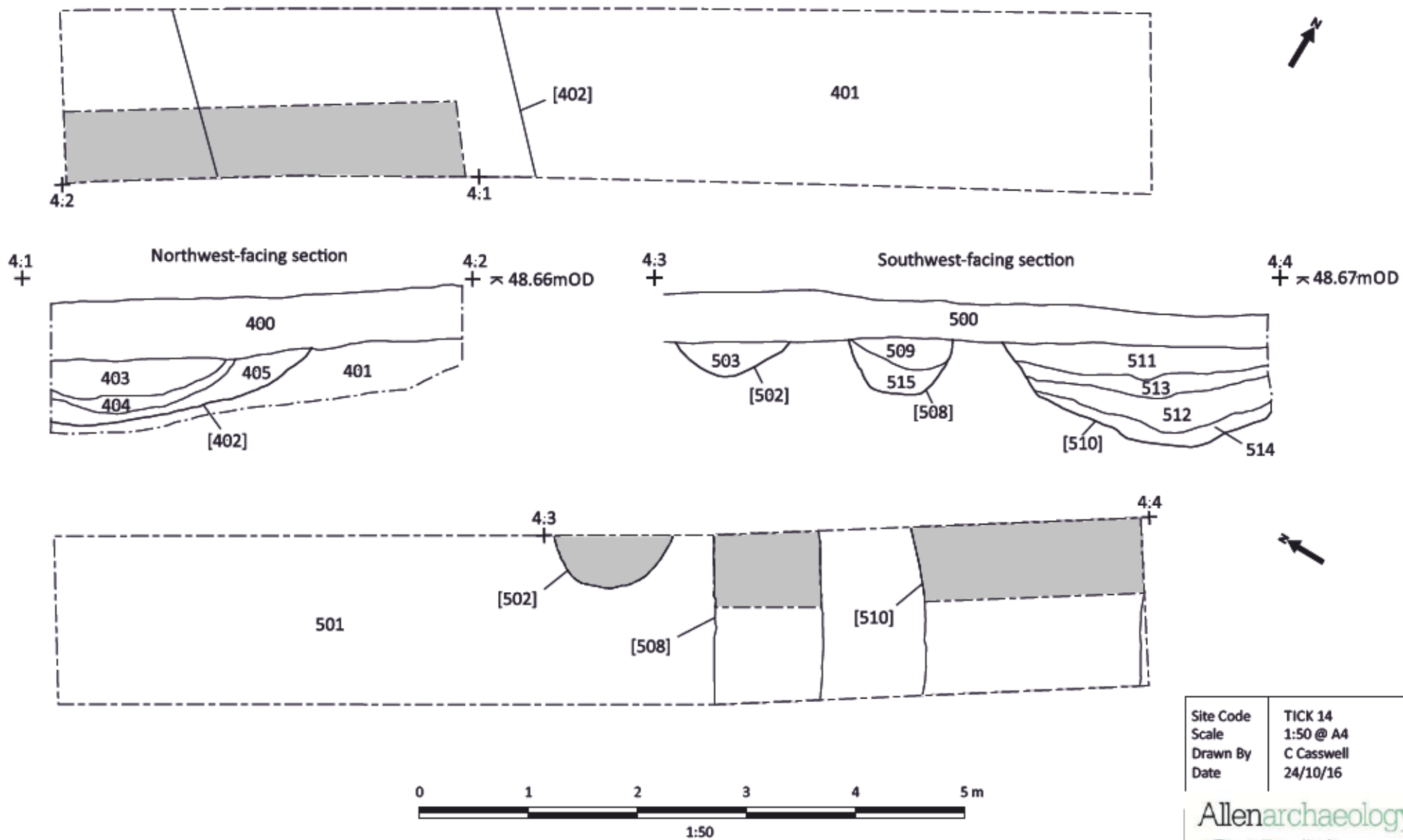


Figure 5: Plans and sections of Trenches 4 and 5

**ARCHAEOLOGICAL EVALUATION REPORT:
GEOPHYSICAL SURVEY BY MAGNETOMETRY AND FIELDWALKING ON LAND AT
TICKENCOTE LODGE FARM, TICKENCOTE, RUTLAND**

NGR: SK 9845 0931
AAL Site Code: TICK 14
OASIS Reference Number: allenarc1-198902



Report prepared for King West, on behalf of Tickencote Estate

By
Allen Archaeology Limited
Report Number AAL 2015071

May 2015



Allenarchaeology



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Cover Image: View of the site taken from the northeast corner looking southwest

Executive Summary

- Allen Archaeology Ltd (hereafter AAL) was commissioned by King West, on behalf of Tickencote Estate, to undertake a geophysical survey and fieldwalking on land at Tickencote Lodge Farm, Tickencote, Rutland.
- Land to the west of Tickencote, forming part of Tickencote Lodge Farm has been entered into a Higher Level Environmental Stewardship Scheme (HLS) with Natural England (Agreement reference AG00494769). The purpose of the current works is to provide detailed information that will aid the determination of the nature and extent of the potential archaeological resource within the site, and the effects of the current agricultural regime upon the archaeological resource.
- The geophysical survey identified a number of potential archaeological features across the site. These include a possible Bronze Age ring ditch mentioned in the Historic Environment Record (HER Reference MLE5792), as well as another fainter example of a possible prehistoric ring ditch, along with a number of linear and curvilinear features which may represent former paths, ditches or trackways and a scattering of positive amorphous features which may represent former pits, ponds or filled in hollows. A concentration of these features towards the central part of the site may relate to the Anglo-Saxon activity previously identified on the site.
- The Bronze Age ring ditch is of specific interest as it appears to have a number of internal features and may represent the remains of a former prehistoric barrow. Given its proximity to the known Anglo Saxon settlement (LHER Reference MLE5796), there is the possibility of Saxon graves being cut into the mound.
- A small assemblage of artefacts was collected during the fieldwalking survey (Figure 4), the assemblage comprised ten sherds of pot, three fragments of flint, two shards of glass and one metal object. These ranged in date from the prehistoric to post-medieval periods. Of particular interest are the three sherds of Roman pottery, which were all located within close proximity to one another and to the site of the Anglo-Saxon settlement identified in the HER (Reference MLE5796).

1.0 Introduction

- 1.1 Allen Archaeology Ltd (hereafter AAL) was commissioned by King West, on behalf of Tickencote Estate, to undertake a geophysical survey and fieldwalking on land at Tickencote Lodge Farm, Tickencote, Rutland. The aim of the survey was to identify any potential buried archaeological remains and to help inform plans for a higher level stewardship scheme.
- 1.2 The site works and reporting conform to current national guidelines, as set out in '*Geophysical Survey in Archaeological Field Evaluation*' (English Heritage 2008), '*The Use of Geophysical Techniques in Archaeological Evaluations*' (Gaffney et al 2002) and the Chartered Institute for Archaeologists '*Standard and guidance for archaeological geophysical survey*' (CIfA 2011).

2.0 Site Location and Description

- 2.1 Tickencote is situated in Rutland, approximately 5.2km northwest of Stamford and 40.5km east of Leicester. The site comprises an irregular shaped block of land of approximately 10 hectares, located just to the east of Tickencote Lodge Farm and centred on NGR SK 9845 0931.
- 2.2 The local geology comprises bedrock geology predominantly of Whitby Mudstone Formation with areas of Northampton Sand Formation, Grantham Formation and Lower Lincolnshire Limestone. No superficial geology has been recorded; however Tufa and River Terrace Deposits have been noted immediately to the south of the site (<http://mapapps.bgs.ac.uk/geologyofbritain/home.html>). The ground cover is currently recently planted low crop.

3.0 Planning Background

- 3.1 The proposed works do not fall within the planning process. Land to the west of Tickencote, forming part of Tickencote Lodge Farm has been entered into a Higher Level Environmental Stewardship Scheme (HLS) with Natural England (Agreement reference AG00494769). The purpose of the current works is to provide detailed information that will aid the determination of the nature and extent of the potential archaeological resource within the agreed site boundaries.
- 3.2 This will take the form of an archaeological risk assessment, which will inform the Higher Level Stewardship Scheme AG00494769. The comprises staged investigations including non-intrusive fieldwalking, geophysical survey and evaluation trenching, as set out in a brief provided by Leicestershire County Council Historic and Natural Environment Team (LCC 2014).
- 3.3 The assessment will use the Conservation of Scheduled Monuments in Cultivation (COSMIC) Risk Assessment methodology, which was developed by Oxford Archaeology with funding from DEFRA and English Heritage (Oxford Archaeology 2006, Natural England October 2006).

4.0 Archaeological and Historical Background

- 4.1 The site is located within Tickencote Lodge Farm and evidence for archaeological activity has been identified on the site and in the immediate vicinity from cropmarks and previous excavations. Towards the northern edge of site is a circular cropmark of a probable Early Bronze Age round barrow (Leicestershire and Rutland HER (hereafter LHER) Reference

MLE5792) and to the south, evidence of an Anglo-Saxon settlement including at least two grubenhauser or sunken-featured buildings has been identified (LHER Reference MLE5796).

- 4.2 During works for the laying of a pipeline in 1990, excavations uncovered evidence of an Anglo-Saxon settlement. Along with hearths, ditches and pits, two sunken-featured buildings were excavated. The first sunken-featured building included fifty stakeholes, three post holes and a hearth; the second building only contained one possible post hole. Both, however, contained significant quantities of Saxon pottery positively dating the features to the Anglo-Saxon period (Sharman 1990).
- 4.3 To the east of the site are various other cropmarks including three more possible ring ditches and a large curvilinear ditch (LHER Reference MLE17202), which can be seen on aerial photographs taken in 2006.
- 4.4 Tickencote is recorded in the Domesday Book of 1086 as *Tichecote*, possibly from the Saxon *Ticcen* and *Cote* meaning goats and kids, perhaps suggesting goatherding (Cox 1994).
- 4.5 To the west of the site is the Grade II Listed Tickencote Lodge Farmhouse (Listing Reference 187257). The farmhouse was built in the late 18th century of coursed, squared rubble with ashlar dressings, Collyweston stone slate roofs and stone end stacks. It has a double pile plan, two storeys and attic. Three steps lead up to a central four-panel door. Above the door is a rectangular fanlight, with glazing bars in a lozenge pattern.
- 4.6 Approximately 500m to the northeast of the site is the Grade I Listed Church of St. Peter (LHER Reference MLE57871). The church is of 12th century origin, but was restored, partly rebuilt and added to 1792 in Norman style by S P Cockerell, the nave being re-roofed and re-seated 1872. The church is bordered by the Grade II Listed churchyard wall and lychgate (LHER Reference MLE19364). These are constructed of rubble stone and timber, the lychgate having a Collyweston stone slate roof, clay ridge tiles and small iron cross above. It is Arts-and-Crafts Gothic in style inscribed "Blessed are the dead which die in the Lord".

5.0 Methodology

Geophysical survey

- 5.1 The geophysical survey consisted of a detailed gradiometer survey of the maximum available area of the development site, extending to approximately 6.9 ha.
- 5.2 The fieldwork was carried out over a period of four working days, Tuesday 4th to Friday 7th November 2014, by a team of two experienced geophysicists. The site was divided into 30m by 30m grids, established on site with reference to local fixed boundaries and accurately tied into the National Grid with Ordnance Survey base mapping using a survey grade Leica GS08 Netrover receiving RTK corrections.
- 5.3 The survey was undertaken using a Bartington Grad601-2 Dual Fluxgate Gradiometer with onboard automatic DL601 data logger. This instrument is a highly stable magnetometer which utilises two vertically aligned fluxgates, one positioned 1m above the other. This arrangement is then duplicated and separated by a 1m cross bar. The 1m vertical spacing of the fluxgates provides for deeper anomaly detection capabilities than 0.5m spaced fluxgates. The dual arrangement allows for rapid assessment of the archaeological potential of the site. Data

storage from the two fluxgate pairs is automatically combined into one file and stored using the onboard data logger.

- 5.4 Data collection was undertaken in a zigzag traverse pattern, using a sample interval of 0.25m and a traverse interval of 1m.

Summary of Survey Parameters

5.5 Fluxgate Magnetometers

Instrument 1:	Bartington Grad601-2 Dual Fluxgate Gradiometer
Sample interval:	0.25m
Traverse interval:	1.00m
Traverse separation:	1.00m
Traverse method:	Zigzag
Resolution:	0.1 nT
Processing software:	Terrasurveyor 3.0.25.1
Surface conditions:	Stubble
Area surveyed:	6.9 ha
Date surveyed:	Tuesday 4 th to Friday 7 th November 2014
Geophysical Surveyor:	Iain Pringle
Survey Assistant:	Tom Whitfield
Data interpretation:	Iain Pringle

Data Collection and Processing

- 5.6 The grids were marked out using pre-programmed coordinates on the Leica GS08 Net rover. The collection of magnetic data using a north-south traverse pattern is preferable as the fluxgate gradiometer is set up and balanced with respect to the cardinal points. Since the data is plotted as north-south traverses there is considerable merit sampling the north-south response of a magnetic anomaly with as many data points as is possible, this is accomplished as the density collected along the traverse line is greater than that between traverses (Aspinall et al. 2008). On this occasion magnetic data was collected on a north-south alignment, due to the orientation of the development area.

- 5.7 The data collected from the survey has been analysed using the current version of Terrasurveyor 3.0.25.1. The resulting data set plots are presented with positive nT/m values and high resistance as black and negative nT/m values and low resistance as white.

- 5.8 The data sets have been subjected to processing using the following filters:

- De-stripe
- Clipping
- De-staggering

- 5.9 The de-stripe process is used to equalise underlying differences between grids or traverses. Differences are most often caused by directional effects inherent to magnetic surveying instruments, instrument drift, instrument orientation (for example off-axis surveying or

heading errors) and delays between surveying adjacent grids. The de-stripe process is used with care however as it can sometimes have an adverse effect on linear features that run parallel to the orientation of the process.

- 5.10 The clipping process is used to remove extreme data point values which can mask fine detail in the data set. Excluding these values allows the details to show through.
- 5.11 The de-staggering process compensates for data correction errors caused by the operator commencing the recording of each traverse too soon or too late. It shifts each traverse forward or backwards by a specified number of intervals.
- 5.12 Plots of the data are presented in processed linear greyscale (smoothed) with any corrections to the measured values or filtering processes noted, and as separate simplified graphical interpretations of the main anomalies detected.

Fieldwalking

- 5.13 The purpose of such survey was to retrieve artefacts, such as worked flint or pottery, whose spatial distribution could indicate areas of potential archaeological interest below the plough zone.
- 5.14 The fieldwalking survey was carried out on Tuesday 4th November 2014, on land which had been recently harvested (leaving stubble in situ) (Plate 1) and with vegetation beginning to regrow (Plate 2). The ground conditions were therefore reasonable giving a visibility of approximately 60%.



Plate 1: View of stubble within western field, looking south



Plate 2: East facing view of eastern field showing vegetation regrowth

- 5.15 The fieldwalking survey was undertaken by a team of two experienced field archaeologists. The collection comprised a 20% sample of the areas available for survey, achieved by means of a series of 2m wide collection traverses at 10m spacing.
- 5.16 In each collection traverse, artefacts were collected from the ground surface and placed within self seal plastic bags which were marked with a unique, sequential, numerical identifier. The location of each find spot was recorded by handheld GPS (a Garmin eTrex10).
- 5.17 A selective artefact recovery policy was adopted based on the following criteria. All pottery sherds, excluding obviously modern or post-19th century fabrics were retained. All worked flints and worked stone was retained. Modern brick, tile and ceramic land drain was not retained.
- 5.18 All metal objects were collected, other than obviously modern material.

6.0 Geophysical Survey Results

- 6.1 For the purposes of interpreting the anomalies, the survey data has been processed to the values of -3 to 3 nT/m (Figure 3). This enhances faint anomalies that may otherwise not be noted in the data. The survey results revealed a number of anomalies across the data set, and these are discussed in turn and noted as one and two digit numbers in square brackets.
- 6.2 Immediately noticeable are the large areas of magnetic noise [1] around the edges of site and covering a number of areas within the site. The magnetic noise produced varying readings across the site, generally between -20 to 20nT/m, although there were some areas of higher readings. Through the centre of the site the magnetic noise is likely to be related to the trees and fencing, which separate the two areas and the areas within the site are most likely associated with scattered detritus in the ploughsoil.
- 6.3 Also very clear within the data is the line of dipolar responses [2]. This gave readings between -3000 to 3000nT/m. These readings are the result of a service pipe which is orientated northwest-southeast through the site.

- 6.4 Scattered randomly throughout the site are a number of strong and weak dipolar responses [3], which gave readings averaging -30 to 40nT/m. The characteristic dipolar response of pairs of positive and negative 'spikes' suggest near surface ferrous metal or other highly fired material in the soil. The larger dipolar response towards the southwest corner of site is the result of a telegraph pole [4].
- 6.5 Dispersed throughout the site are a number of positive amorphous anomalies [5], producing readings of 4 to 8nT/m. These may represent pits, former ponds or filled in hollows.
- 6.6 Orientated northwest – southeast across the site are a series of positive linear anomalies [6]. These produced readings of between 2 and 8nT/m and are likely to represent modern land drains. This is also, most likely, the case for the positive linear features in the northeast corner of site which gave readings of 4 to 6nT/m, [7], although an earlier origin as boundary features of potential archaeological interest cannot be entirely discounted.
- 6.7 Towards the northern edge of the eastern part of the site is a positive curvilinear feature [8], producing readings of 2 to 6nT/m, with some internal features also apparent. This is mentioned in the Leicestershire and Rutland Historic Environment Record as being a possible Bronze Age ring ditch (LHER Reference MLE5792). Due to its similar size and shape this may also be the case for a fainter circular anomaly to the east-northeast [9].
- 6.8 In the western part of the site, along the southern edge, are a number of positive linear and curvilinear features [10]. These produced readings of 6 to 8nT/m and may be represent a series of former enclosures, with some internal pit like features.
- 6.9 Aligned north-south throughout the site are a series of faint linear anomalies [11]. These produced readings of -4 to 4nT/m and are the result of modern cultivation trends.
- 6.10 The area in the centre of the site, which has not been surveyed [12], is due to the hedge line separating the two areas and an area of fenced off game cover.

7.0 Fieldwalking Results

- 7.1 The ground conditions and visibility were fair within all of the surveyed fields. The fields had been harvested, with crop stubble remaining, giving a visibility of approximately 60%. A small number of artefacts were collected during the survey (Figure 4). The assemblage comprised ceramics, flint, glass and metal objects, ranging in date from the prehistoric to post medieval periods. Of particular interest are the three sherds of Roman pottery, which were all located within close proximity to each other and to the site of the Anglo-Saxon settlement identified in the HER (LHER Reference MLE5796).
- 7.2 Despite the presence of known Anglo Saxon heritage assets no Anglo Saxon artefacts were recovered.
- 7.3 Fieldwalking finds represent a general low density across the site.

8.0 Discussion and Conclusions

- 8.1 The surveys identified a number of potential archaeological features across the site. These include the probable Bronze Age ring ditch mentioned in the Historic Environment Record (LHER Reference MLE5792), as well as another similar feature to its northeast. This produced a

much fainter magnetic signature and as such may have been more truncated by ploughing than the previously documented example to the southwest. The more clearly defined of the two Bronze Age ring ditches is of specific interest as it appears to have a number of internal features (Figure 3). This feature may represent the remains of a former prehistoric barrow, and given its proximity to the known Anglo-Saxon settlement to the south, there is the possibility of Saxon graves being cut into the mound. Re-use of earlier monuments has been noted in other areas of the country but are uncommon in Leicestershire and Rutland. To date the most significant of these is at Cossington 40km to the west where there were a series of Bronze Age barrows, one of which (Barrow 3) was overlain by an early Saxon burial site with an associated nearby settlement (Thomas 2008).

- 8.2 A number of linear and curvilinear features which may represent former enclosures, paths, ditches or trackways and a scattering of positive amorphous features which may represent former pits, ponds or filled in hollows were also identified in the geophysical survey. Of particular interest is anomaly group [10], located to the west of where Anglo-Saxon activity was recorded during excavations for the pipeline running through the centre of the site. These features may represent further associated activity, although no dateable Anglo-Saxon material was recovered from the fieldwalking programme.
- 8.3 Fieldwalking finds were sparse, but a small quantity of possible worked flint was recovered from the site, as well as three sherds of Roman pottery found close to the possible Anglo-Saxon settlement site and tentatively indicating Roman activity in the area. A small handful of later finds is likely to represent domestic waste being used for the manuring of outlying fields.

9.0 Effectiveness of Methodology

- 9.1 The non-intrusive evaluation methodology employed was particularly appropriate to the scale and nature of the site to be surveyed. Magnetometry was the prospection technique best suited to the identification of archaeological remains on the site, and has provided a clear indication of the distribution of potential archaeological features across the site, to provide a basis for any further intrusive investigation.

10.0 Acknowledgements

- 10.1 Allen Archaeology Limited would like to thank King West and Tickencote Estate for this commission.

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Appendix 1: Finds Summary

Name	Easting	Northing	Material	Spot Date
B01	498557	309427	Glass	Post Medieval
B02	498385	309335	Pottery	Post Medieval
B03	498412	309280	Pottery	Roman
B04	498225	309226	Pottery	Medieval
B05	498199	309250	Pottery	Post Medieval
D01	498636	309486	Pottery	Medieval
D02	498479	309373	Pottery	Roman
D03	498476	309358	Pottery	Roman
D04	498537	309381	Pottery	Medieval
D05	498560	309309	Flint	Prehistoric
D06	498359	309188	Copper Alloy	Post Medieval
D07	498273	309159	Flint	Prehistoric
D08	498334	309257	Glass	Post Medieval
D09	498335	309257	Flint	Prehistoric
D10	498189	309232	Pottery	Medieval

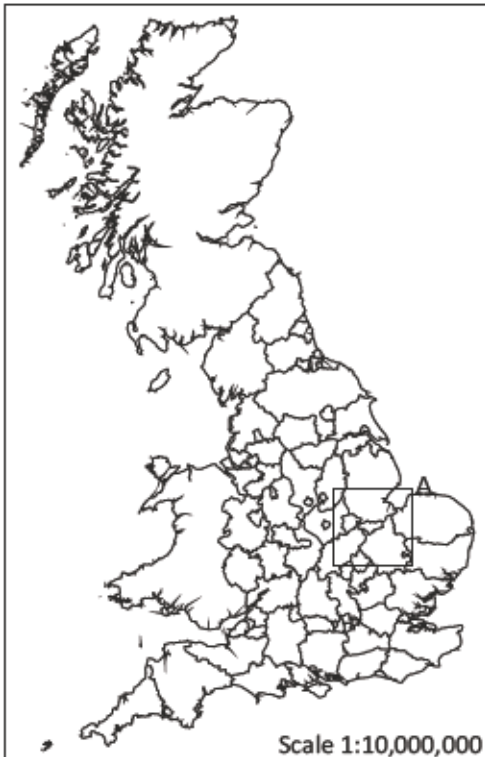


Figure 1: Site location outlined in red
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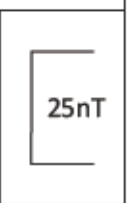
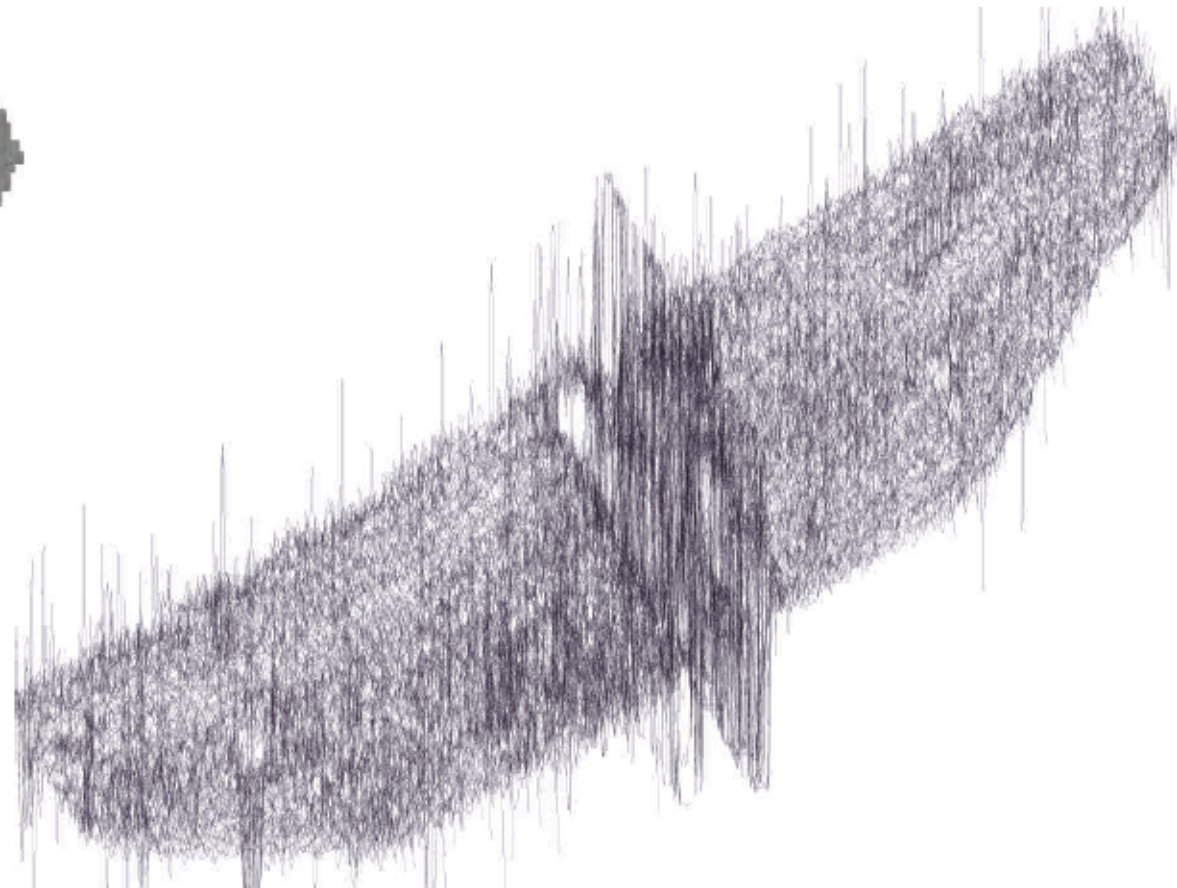
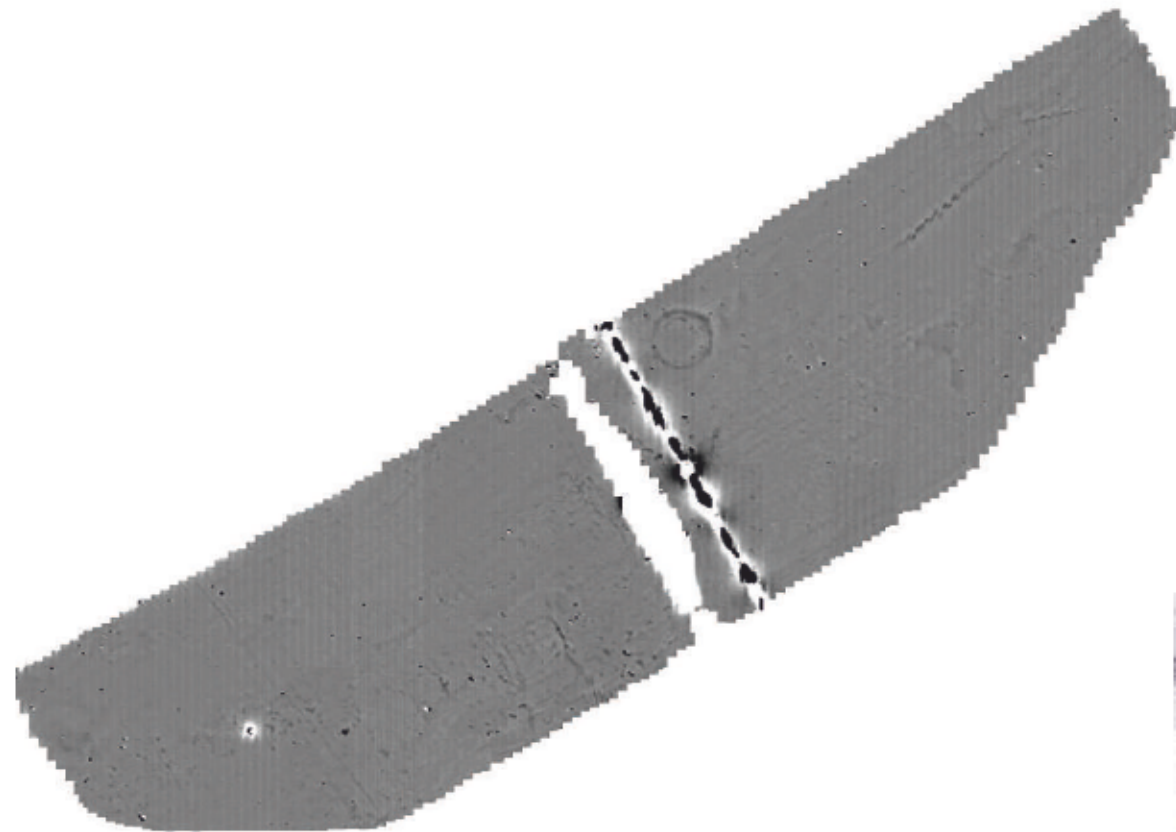
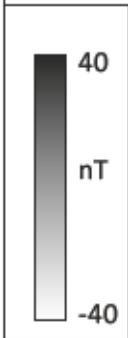
Site Code TICK 14
 Scales 1:10,000,000
 1:1,000,000
 1:25,000 @ A4
 Drawn by I Pringle
 Date 19/05/2015

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Raw data (clipped to +/- 40 nT)

Trace Plot (ZMT and clipped to +/- 25nT)



Site Code	TICK 14
Scale	1:5,000 @ A3
Drawn by	I Pringle
Date	19/05/15

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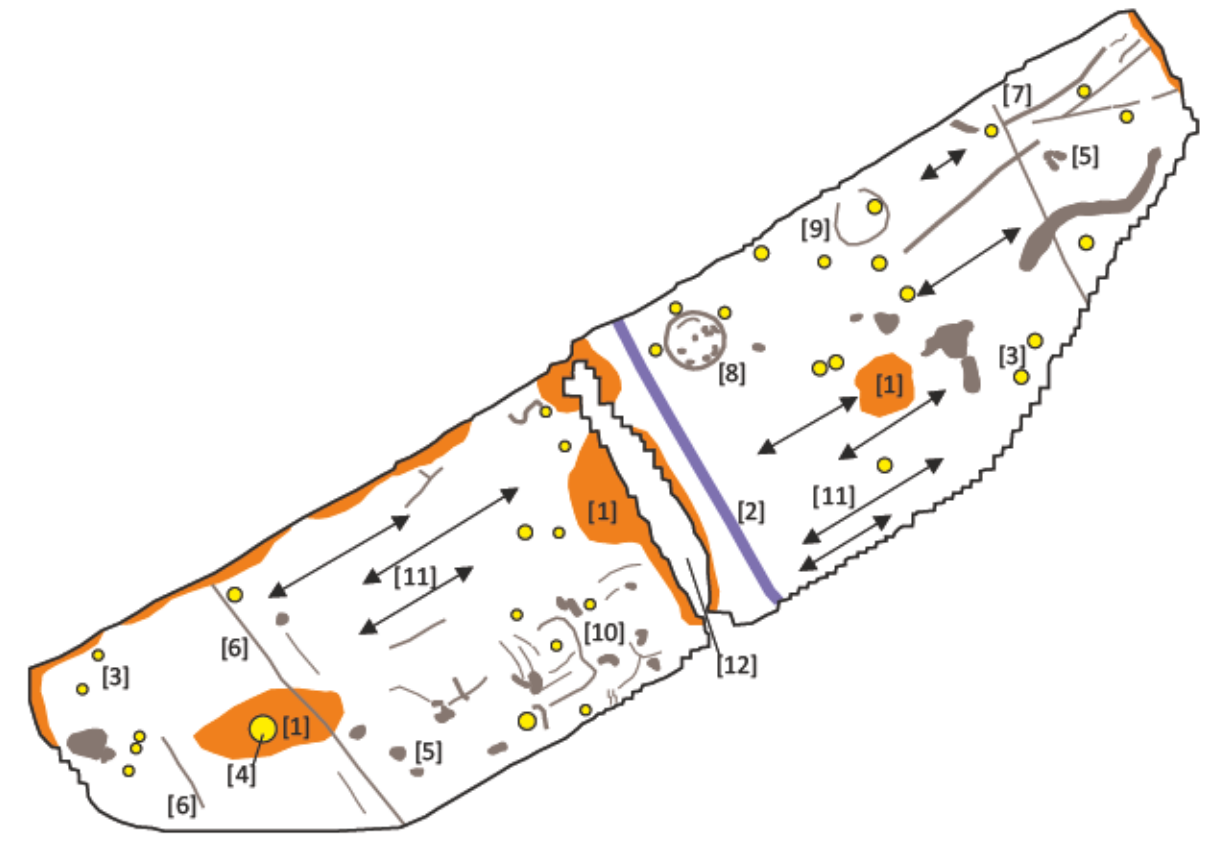
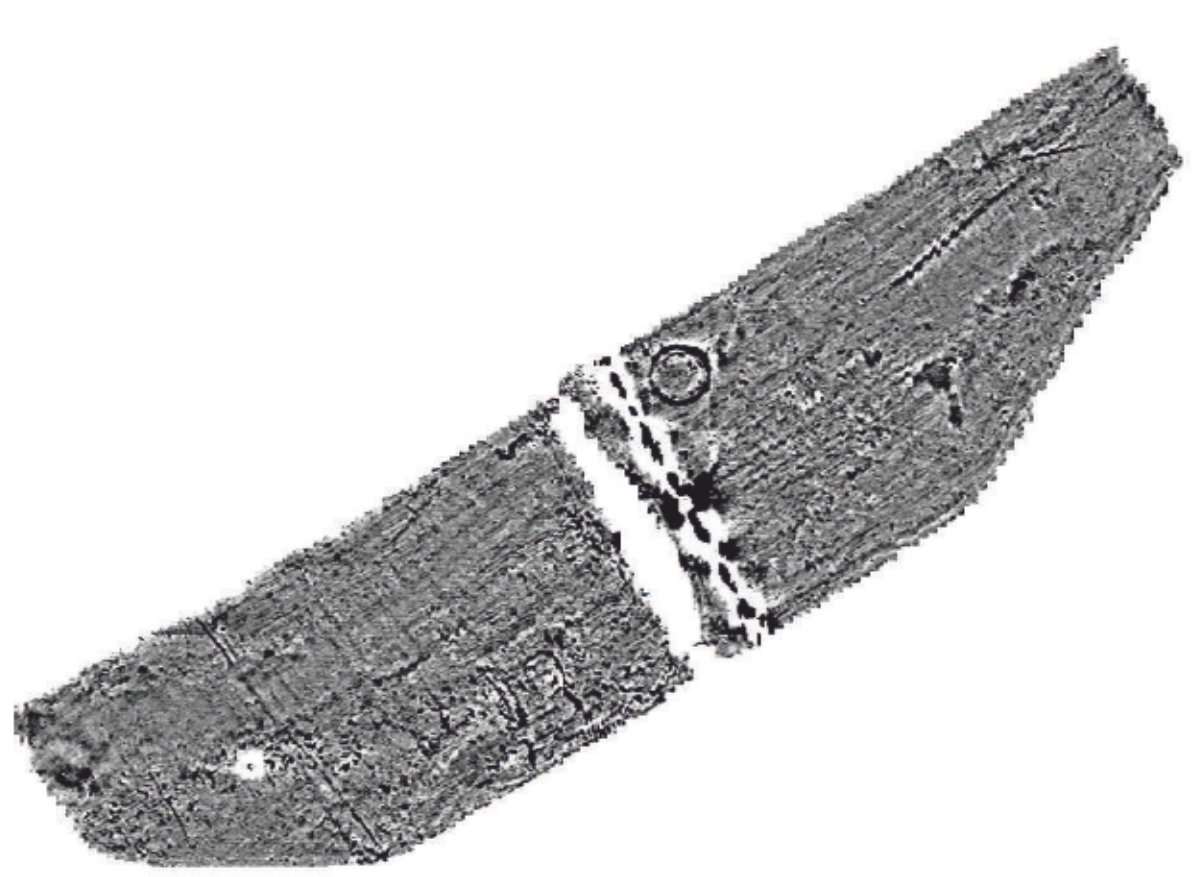
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Figure 2: Greyscale raw data and processed trace plot

Processed (ZMT and clipped to +/- 3 nT)

Interpretation of Survey Results



Key

-  Positive magnetic anomaly
-  Area of magnetic noise
-  Dipolar linear anomaly
-  Current ploughing trend
-  Examples* of individual dipolar responses
Indicative of ferrous or highly fired material
*smaller responses omitted for clarity



Site Code	TICK 14
Scale	1:3,000 @ A3
Drawn by	I Pringle
Date	19/05/15

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Figure 3: Processed greyscale plot of survey area with geophysical interpretation

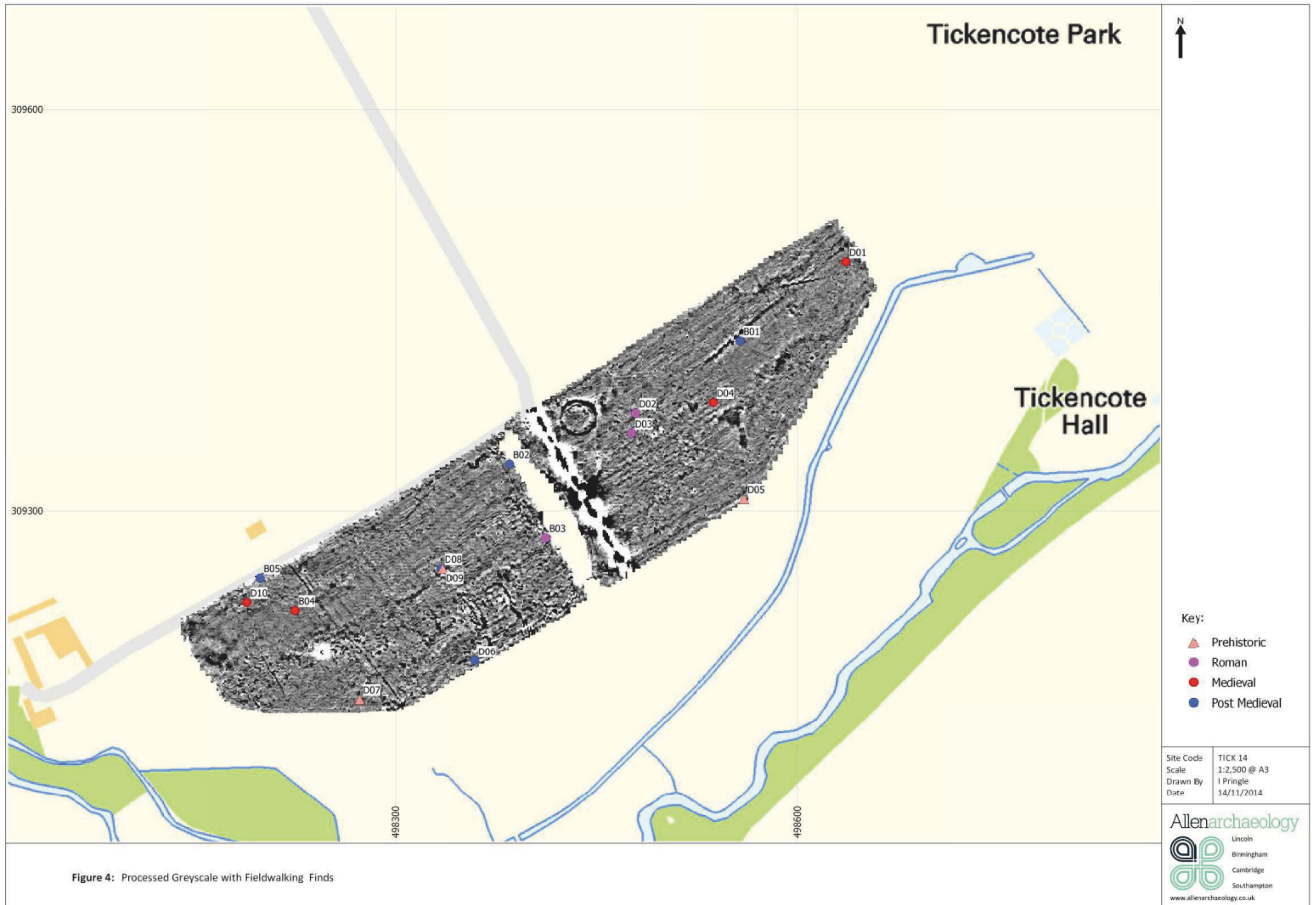
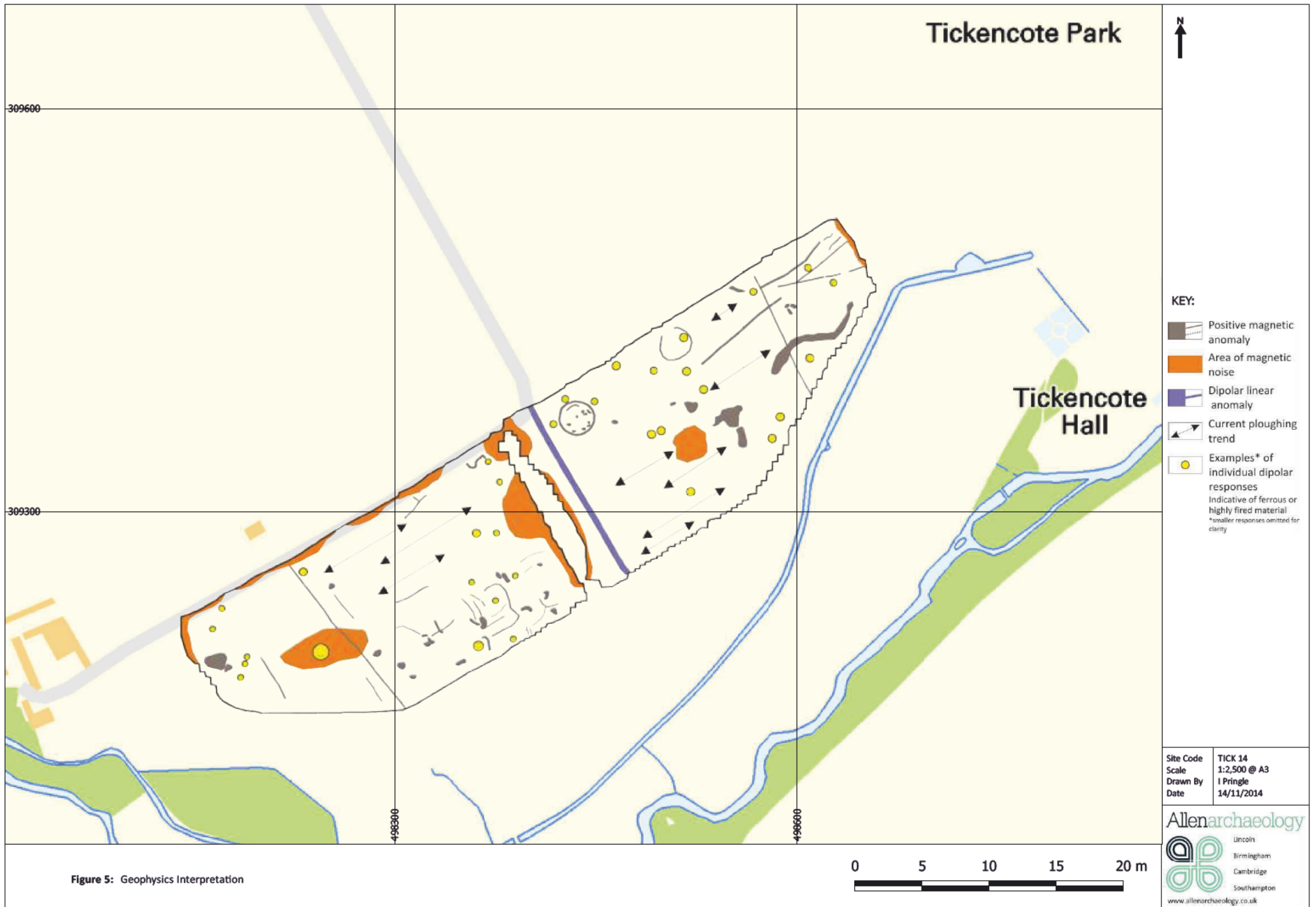


Figure 4: Processed Greyscale with Fieldwalking Finds





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