Post-medieval Ditches and Furrows and Undated Postholes Bennell Farm Comberton Cambridgeshire

Archaeological Evaluation Report

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Client: Pegasus Group on behalf of Mr R.W.S. and Mrs S.E. Arnold

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Archaeological Evaluation Report

Post-medieval Ditches and Furrows and Undated Postholes, Bennell Farm, Comberton, Cambridgeshire

Archaeological Evaluation

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Summary

Between the 23rd and 28th of November 2015, Oxford Archaeology East conducted an archaeological evaluation at Bennell Farm, on the western edge of Comberton in the parish of Toft (TL 3748 5622). The trenching was undertaken in advance of the determination of planning application S/2204/15/OL, and followed on from a desk-based assessment (Atkins 2015), aerial photographic assessment (Cox 2015) and geophysical survey (Masters 2015).

A total of 14 trenches were excavated across the site (3.88 ha). These revealed parts of an extensive north-south and east-west aligned system of ditches and furrows relating to the post-medieval and possibly medieval agricultural use of the site. A small number of undated, probably modern, postholes were also excavated in the centre and the west parts of the site.

Finds recovered from the evaluation included included fragments of post-medieval and modern pottery, dating from the 16th-19th centuries, a clay pipe stem and a Jetton dated c.1500-1650. A residual Mesolithic flint blade and four small abraded sherds of of Late Iron Age and Roman were also recovered.

1 INTRODUCTION

1.1 Location and scope of work

1.1.1 An archaeological evaluation was conducted at Bennell Farm, Comberton (in the parish of Toft; Fig. 1).

1.1.2 This archaeological evaluation was undertaken in accordance with a Brief issued by Gemma Stewart of Cambridgeshire County Council Historic Environment Team (Stewart 2015; Planning Application S/2204/15/OL), supplemented by a Written Scheme of Investigation prepared by OA East (Brudenell 2015).

1.1.3 The work was designed to define the character and extent of any archaeological remains within the proposed redevelopment area, in accordance with the guidelines set out in *National Planning Policy Framework* (Department for Communities and Local Government March 2012). The results will enable decisions to be made by CCC, on behalf of the Local Planning Authority, with regard to the treatment of any archaeological remains found.

1.1.4 The site archive is currently held by OA East and will be deposited with the appropriate county stores in due course.

1.2 Geology and topography

1.2.1 The site is located to the west of the present village of Comberton, Cambridgeshire, centred on TL 3748 5622. It is *c*.1km to the east of Toft village and is directly to the north of the main road – West Street (B1046) – from Toft to Comberton. The site covers 3.88ha and is located on flat ground at *c*.30.6m OD. It is currently used as pasture fields, with four fenced paddocks.

1.2.2 The bedrock geology of the site is clay of the Gault Formation, overlain by Drift geology comprising Till: chalky, sandy, stony clay of the Lowestoft Formation. Gault mudstone lies directly to the south of the site and River Terrace Deposits to the east (British Geological Survey (BGS) 2001).

1.2.3 The evaluation trenches demonstrated the presence of Till on the northern half of the site, with only Gault clay across the south.

1.3 Archaeological and historical background

1.3.1 An archaeological desk-based assessment was prepared for this site by OA East, and has already been submitted in support of the planning application (Atkins 2015). An aerial photography survey has also been undertaken by Air Photo Services Ltd (Cox 2015), and a geophysical survey of the site has been conducted by Cranfield University (Masters 2015). Both are included in the appendices of this report (Appendix F and G).

1.3.2 The following summarises findings from the desk-based assessment (Atkins 2015; Fig. 2).

Prehistoric

1.3.3 A possible Bronze Age round barrow was recorded on the Ordnance Survey 1" map. It was subsequently excavated but reportedly nothing was found (Gentleman's Magazine Library 1887). Air photographs suggest there may be a ring ditch at TL 3766 5552 (CHER 03317), which is likely to be the barrow recorded by Walker (1910, 171), *c*.700m to the south of the site.

Romano-British

1.3.4 Apart from two Roman find spots found by metal-detectorists, *c*.1km to the south-east of the site (MCB16725-26), the only evidence for Roman activity comprises a scatter of 110 pottery sherds dating to the 2nd to 4th century found by CAFG *c*.1km to the north at TL 3778 5707 (Atkins 2015)

Saxon and medieval

1.3.5 Two manors are recorded in Comberton (CHER 01101 and 01102), *c*.800m to the north-east and south-east respectively. An 'ancient stone cross' lay *c*.700m to the east (CHER 03415) and a few Saxo-Norman pottery sherds (CHER 07761) were found *c*.500m to the south-east.

1.3.6 Ridge and furrow aligned north-south has previously been recorded *c*.200m to the north and south of the site, with east-west aligned ridge and furrow identified *c*.500m to the northwest. In Comberton parish, ridge and furrow was recorded abutting the southern section of Comberton Road, *c*.100m to the southeast.

Post-medieval and modern

1.3.7 A windmill is recorded *c*.400m to the west (CHER 03337) of the site on both the 1815 Enclosure map and the 1845 map. Many post-medieval listed buildings lie along the four roads which make up Comberton village to the east. The nearest two listed buildings (DCB 4922 and 6072) lie more than 250m to the east of the site and are houses which date from the early 17th century and *c*.1660 respectively.

1.3.8 The 1812 pre-Enclosure map for area shows that most of the site was part of a field owned by John Bennett while the remainder formed section of common, with a north-south drain running through it. The western and eastern boundaries of the field have not changed in the last 200 years. The whole area of the field (including common etc.) was recorded as totalling18a/2p/10r.

1.3.9 The Enclosure map of the same year shows the removal of the common. The field was still owned by John Bennett and the size given as 18a/2p/10r. Details for Enclosure survive in a copy of the award (CRO R56/20/13/1).

1.3.10 The 1846 Tithe map shows the eastern side of the site divided into two (plots 169 and 170), both described in the Allotment as arable fields. By the publication of the 1887 1st Edition OS map, Bennell Lodge had been built to the north of the site, and the field division on the eastern side of the site had been removed. The basic layout of the site has not changed since.

Geophysical survey summary

1.3.11 A magnetometer survey was conducted in November 2015 (Masters 2015). There were few results, with much of the site obscured by modern ferrous fencing surrounding the trees dotted across the fields (Fig. 3). Curvilinear alignments in the west of the site correspond to the 1812 pre-enclosure field boundaries (Atkins 2015, Fig. 2). A strong linear anomaly was identified across the north-east part of site, and did not appear to represent a modern service. Known modern services and drains were also detected.

Aerial photographic survey summary

1.3.12 An assessment of aerial photographs of the area was conducted in October 2015 (Cox 2015). A complex of enclosure ditches was recorded 200-300m north of the site, along with a complex of linear features (Fig. 4). Although undated at present, on morphological grounds, some of these are likely to be of later prehistoric origin. The

cropmark enclosures (MCB19601) have been fieldwalked by the Cambridge Archaeological Field Group (CAFG) and produced no pre-modern pottery.

1.3.13 The aerial photograph survey also identified residual ridge and furrow patterns were also detected surrounding the site extending into its western and northeastern edges.

LIDAR

1.3.14 The Evnironment Agency's 1m LIDAR DSM was consulted prior to excavation but did not improve upon the information provided by the geophysical and aerial photographic surveys (Fig. 4).

1.4 Acknowledgements

1.4.1 The author would like to thank Greg Shaw of Pegasus Group for commissioning the work, and Robert Arnold of Beechwood Estates and Development Limited for funding the project. The mechanical excavation was performed by Ross Waters of Anthill Networks Ltd under supervision of the author. Archaeological excavation was undertaken by Andy Greef, Emily Abrehart and Richard Higham of Oxford Archaeology East under the management of Matt Brudenell. Gemma Stewart of CCC HET monitored the site. Specialists reports were written by Katie Anderson, Matt Brudenell, Carole Fletcher and James Fairbairn.

2 Aims and Methodology

2.1 Aims

2.1.1 The objective of this evaluation was to determine as far as reasonably possible the presence/absence, location, nature, extent, date, quality, condition and significance of any surviving archaeological deposits within the development area. More specific project aims were identified as follows:

- 'Ground truth' the geophysical survey results by testing a range of anomalies of likely archaeological origin, and areas where no anomalies registered.
- Provide sufficient coverage and exposure to enable excavation to establish the approximate form, date and purpose of any archaeological deposits, together with extent, localised depth and quality of preservation.
- Provide sufficient coverage and exposure to evaluate the likely impact of past land uses, and the possible presence of masking deposits.
- Provide sufficient coverage and exposure to provide information to construct an appropriate archaeological conservation/mitigation strategy, dealing with preservation, the recording of archaeological deposits, working practices, timetables and order of cost.
- Set results in the local, regional, and national archaeological context.

2.2 Methodology

2.2.1 Fourteen 40m long by 1.8m wide trenches were excavated at the site, totalling 560m of linear trenching. These were positioned to address the aims of section 2.1, and avoid buried services and existing trees.

2.2.2 The site survey was carried out using a Leica 1200 RTK GPS.

2.2.3 Spoil, exposed surfaces and features were scanned with a metal detector. All metal-detected and hand-collected finds were retained for inspection.

2.2.4 Bucket sampling (90L) of the topsoil at trench ends was undertaken, but no finds were retrieved.

2.2.5 All archaeological features and deposits were recorded using OA East's *pro-forma* sheets. Trench locations, plans and sections were recorded at appropriate scales. Colour and monochrome photographs were taken of all relevant features and deposits.

2.2.6 Four bulk environmental samples were taken from the site. These were selected in consultation with Gemma Stewart of the Cambridgeshire County Council Historic Environment Team.

2.2.7 Conditions on site varied from wet to sunny. Numerous systems of field drains had been installed across the field, both within modern furrows and at angles to them. This lead to some areas of trenches flooding. Where damaged by excavation, drains were repaired using modern subsoil drain pipe.

3 Results

3.1 Introduction

3.1.1 Fouteen evaluation trenches were excavated across the proposed development area (Fig. 5). Linear features, comprising ditches and furrows were observed and recorded in all the trenches. Discrete features, compromising postholes, were confined to Trenches 2, 3, 4, 7 and 11. All discrete features were excavated, together with a representative sample of ditches and furrows; sufficient to characterise their nature and date.

3.1.2 Results are discussed by trench order. Feature dimensions are mentioned where pertinent and full dimensions are recorded in Appendix A.

3.1.3 The topsoil (1) across the site was between 0.15m and 0.35m thick, and comprised of mid to dark brown silty clay. Subsoil was encountered in all trenches and was up to 0.4m thick (mostly between 0.15m and 0.3m thick). The subsoil comprised a pale brown silty clay sealing all the features.

3.2 Trench 1

3.2.1 Trench 1 was located in the north-west corner of the site, and was aligned north-east to south-west across (Fig. 6). The topsoil was between 0.25-0.30m thick, and the subsoil was between 0.20-0.30m thick.

3.2.2 Five shallow furrows were revealed in the trench (**77**, **79**, **81**, **83**, **85**) aligned north-northeast to south-southwest. These measured between 1.65-2.9m in width and 0.11-0.13m in depth, and were filled with subsoil.

3.2.3 No finds were recovered from the furrows.

3.3 Trench 2

3.3.1 Trench 2 was located to the south of Trench 1, towards the north-west corner of the site (Fig. 6). The trench was aligned east-west with topsoil measuring 0.25m thick, and the subsoil 0.30m thick.

3.3.2 Four postholes (**45**, **47**, **49**, **75**), four linear features (**53**, **69**, **71**, **73**) and a tree throw (**51**) were revealed in the trench. Postholes **47** and **49** were 0.45m in diameter and 0.06m and 0.12m deep respectively (Fig. 10, Sections 21-22). They lay close to the southern baulk and both had a silty fill. Possible posthole **45** (0.45m diameter, 0.12m deep) lay close to the western end of the trench but may in fact be a natural feature, having unclear edges and a pale grey silty clay fill (46; Fig. 10, section 20). Posthole **75** (0.5m in diameter, 0.1m deep) lay toward the centre of the trench, and had a similar fill to posthole **54**. Environmental sampling of posthole **47** produced no plant remains.

3.3.3 An oblong, irregular feature (**51**) to the east of Posthole **49** may represent a tree throw.

3.3.4 East of feature **51** was a field boundary ditch (**53**), possibly that shown on the 1812 pre-Enclosure map (Fig.11). The ditch was 2.6m wide and 0.5m deep (Fig. 10, Section 24), displaying steep sides and a flat base. It was filled with brown silt clay and yielded a Nuremberg Jetton (see Appendix B.1).

3.3.5 The ditch was possibly cut by a furrow (**69**) on its western side, aligned north-south parallel to the modern field boundaries (although the relationship was unclear due to a field drain within the furrow). Two further furrows (**71** and **73**) were on the same alignment to the east. Collectively, the furrows measured 1.5-1.6m in width and 0.1-0.2m in depth, and were filled with subsoil. Furrow **73** is probably the same features as

furrow **93** in Trench 3, and registered on the plot of the geophysical survey (Fig. 3) Furrow **71** may be the same features as Furrow **97** in Trench 3, and is also registered on the plot of the geophysical survey (Fig. 3).

3.3.6 No finds were recovered from the furrows.

3.4 Trench 3

3.4.1 Trench 3 was located to the south of Trench 2 and was aligned north-east to south-west (Figs. 6-7). The trench topsoil was 0.2m thick, and the subsoil was between 0.3-0.35m thick.

3.4.2 Nine linear features (six labelled as **87**, **89**, **91**, **93**, **95**, **97**) and a modern posthole (**99**) were revealed in the trench. Five of the linear features were north-south aligned, subsoil filled furrows (including **93** and **97**) spaced 4-8m apart (centre to centre). These were 1.5-2m wide, with the excavated example (**97**) being 0.04m deep. Furrow **97** was cut by a modern posthole (**99**) on its eastern side. This was 0.1m in diameter and 0.1m deep, filled with dark grey-brown silty clay (100).

3.4.3 Furrows **93** and **97** are probably the same features as furrows **73** and **71** in Trench 2 (see above). Furrow **97** registered on the plot of the geophysical survey, as did the unlabelled furrow in the centre of the trench, west of **93** (Fig. 3). The geophysical survey plot suggests that this feature also corresponds to the westernmost furrow in Trench 4 (see below). No finds were recovered from the furrows.

3.4.4 Two of the four ditches within the trench were aligned east-west (**87** and **91**; Fig. 10, Section 17). The ditches were 0.6-0.8m wide, 0.1-0.25m deep and displayed gently sloping sides and concave bases. Both were filled with single deposits of grey-brown silty clay, and yielded no finds. These ditches may correspond to a series of east-west linear features identified in the aerial photographic survey (Fig 2). Their close alignment with the modern fields suggests they relate to it, although ditch **91** was cut by a furrow **93**.

3.4.5 An additional ditch (**95**) lay at the north-eastern end of the trench. The ditch was similar in dimensions, profile and fill to **87** and **91** (measuring 0.7m wide and 0.1m deep), but was was aligned north-west to south-east, and had no clear relationship to the pre-enclosure or later systems. It contained no finds.

3.4.6 Towards the centre of the trench was ditch **89**, thought to be the same features as post-medieval ditch **53** in Trench 2. As the trench was flooded here during excavation, the ditch was not fully excavated. The upper fill of the ditch was a backfill of gravel, though a clear band of darker, lower fill (90) was visible on its western side, and was subject to environmental sampling.

3.4.7 The sample produced a quantity of spelt grains and chaff, uncharacteristic of the post-medieval period (see Appendix C.1). It is tentatively suggested, therefore, that the upper gravel backfill, overlying the sampled material may in fact fill a later recut along the same line as an earlier, possibly Roman or Iron Age boundary. Alternatively, the grains may be residual from such a feature nearby, cut by the post-medieval ditch. No artefacts were recovered from the ditch.

3.5 Trench 4

3.5.1 Trench 4 was located to the south of Trench 3 and was aligned north-west to south-east (Fig. 7). The trench topsoil was 0.2m thick and the subsoil was 0.3m thick. Four features were identified in the trench comprising three north-south aligned linear

features (one labelled as **67**), all likely to be furrows, and a single possible posthole (**65**).

3.5.2 The possible posthole (**65**) was excavated towards the east of the trench. It was 0.35m in diameter and 0.10m deep. The status of the feature is uncertain, and may represent a natural variation in the clay, owing to its indistinct edges and pale fill (66) of blue-grey clay.

3.5.3 The linear features measured 0.8-1.4m wide, and were all filled with subsoil. Furrow or possible ditch terminus **67** was recorded at the eastern end of the trench, and was 0.95m wide and 0.1m deep. The furrow towards the western end of the trench registered on the plot of the geophysical survey (Fig. 3). The plots suggest that this feature corresponds with the furrow in the centre of Trench 3 to the north (see above). The other possible furrows registering on the geophysical survey plot were not identified in Trench 4.

3.6 Trench 5

3.6.1 Trench 5 was located in the south-west corner of the site, and was aligned north-south (Fig. 7). The trench topsoil was 0.25m thick and the subsoil was 0.25m thick.

3.6.2 A single ditch (**55**) aligned east-west, 0.7m wide and 0.35m deep, crossed the northern half of the trench. It had steep sides meeting at a rounded V-shaped base and was filled with grey-brown silty clay. The ditch broadly corresponds to the Common boundary shown on the 1812 pre-Enclosure map (Fig. 11). It also lies parallel with ditches **87** and **91** in Trench 3, and may be part of the same system.

3.7 Trench 6

3.7.1 Trench 6 was located at the northern end of the site and was aligned north-south (Fig. 8). The trench was targeted on a strong geophysical anomaly running from west south-west to east north-east, gradually fading in strength (Fig. 3). The trench topsoil was 0.25m thick and the subsoil was 0.25m thick.

3.7.2 A small shallow ditch/gully (**43**; 0.6m wide, 0.15m deep, with shallow sides and concave base, filled with light grey-brown silty clay) was excavated in the southern half of the trench. This was aligned east-west and could be related to the boundary system revealed in Trenches 3 and 5 (see above). No finds were recovered from ditch **43**.

3.7.3 No cut features corresponding to the geophysical anomaly were recorded in the trench. However, modern gravel metalling was observed in the topsoil extending from the field gate, and this is likely to account for the anomaly on the plot.

3.8 Trench 7

3.8.1 Trench 7 was located at the northern end of the site, east of Trench 6 (Fig. 8). The trench was aligned east-west, with the topsoil measuring 0.25m thick and the subsoil 0.20m thick.

3.8.2 Near the centre of the trench, a possible posthole (**57**; 0.3m diameter, 0.12m deep) was excavated but produced no finds. To the west, three furrows (**59**, **61**, **63**) were also excavated. These were aligned north-south and were 1.4-2.0m wide, 0.1m deep and filled with subsoil. Furrow **63** corresponds with the plot of linear features (furrows) identified in the aerial photographic survey (Fig. 2).

3.8.3 No finds were recovered from the furrows.

3.9 Trench 8

3.9.1 Trench 8 was located at the northern end of the site, east of Trench 7 (Fig. 8). The trench was aligned north-south, with the topsoil measuring 0.30m thick and the subsoil 0.20m thick.

3.9.2 Silty variations in the natural till were tested in the trench, but proved not to be archaeological. Along the western baulk was a north-south aligned field drain, which appeared to be sitting in the eastern edge of a furrow (observed in the trench section, and representing the continuation of furrow **17** in Trench 9).

3.10 Trench 9

3.10.1 Trench 9 was located at the south of Trench 8 (Fig. 8). The trench was aligned east-west, with the topsoil measuring 0.30m thick and the subsoil 0.20m thick.

3.10.2 Four north-south aligned furrows were excavated within the trench (**13**, **17**, **19**, **21**), spaced 5.0-6.5m apart. The furrows were 1-2.5m in width and 0.1-0.15m in depth, filled with subsoil. The line of furrow **17** was traced in the western bulk of Trench 8 (see above), and all four furrows corresponded with the plot of linear features identified in the aerial photographic survey (Fig. 2). It is likely that furrows **13**, **17** and **19** are the same features revealed towards the western end of Trench 12 (see below).

3.10.3 No finds were recovered from the furrows.

3.11 Trench 10

3.11.1 Trench 10 was located toward the centre of the site, south of Trench 6 (Fig. 9). The trench was aligned east-west, with the topsoil measuring 0.20m thick and the subsoil 0.20-0.25m thick.

3.11.2 Six furrows crossed the trench aligned north-south (excavated examples labelled **23**, **25**, **27**). The furrows varied in width from 1.1m-2.6m, with the excavated examples measuring 0.11-0.19m in depth, all filled with subsoil. The spacing of the furrows was uneven, but the alignment was similar to furrows in surrounding trenches. It is possible that furrow **23** corresponds to the westernmost furrow in Trench 11 (unlabelled), whilst furrow **25** corresponds to the easternmost furrow in Trench 14 (unlabelled, see below).

3.11.3 A sherd of slipped and glazed kitchen ware (192g) and a plain stem fragment of a clay pipe (3g) were recovered from fill 26 of furrow **25**. Both are dated to the 19th century. No other finds were recovered from the furrows.

3.12 Trench 11

3.12.1 Trench 11 was located to the south-east of Trench 10 (Fig. 9). The trench was aligned north-east to south-west, with the topsoil measuring 0.30m thick and the subsoil 0.15-0.40m thick. Eight features were revealed in the trench. These comprised a series of five undated postholes (**1**, **3**, **5**, **7**, **9**) and three furrows (one excavated example labelled **11**).

3.12.2 The postholes all lay at the south-western end of the trench. They were shallow (under 0.11m deep) and varied in diameter from 0.25m to 0.55m (Fig. 10, Sections 1-5); all filled with blueish-grey silty clay. Posthole **9** was in excess of 0.7m wide and may represent a 'double' posthole. Samples taken from postholes **3** and **9** failed to yield any environmental remains (see Appendix C.1).

3.12.3 Three furrows crossed the trench aligned north north-west to south south-east. The furrows were 1.7-2.25m wide, with one excavated example (**11**) being 0.14m deep. The alignment of the furrow was broadly similar to those in surrounding trenches.

3.12.4 No finds were recovered from features in the trench.

3.13 Trench 12

3.13.1 Trench 12 was located toward the south-east comer of site, and was aligned east-west (Fig. 9). The topsoil measured 0.15m thick and the subsoil 0.20-0.30m thick.

3.13.2 A series of six north-south furrows crossed the trench, and were probably aligned with those in Trench 9. A field boundary ditch (**41,** 0.26m deep) was partially exposed at the western end of the trench, and was also recorded in Trench 13 to the south (see below).

3.13.3 No finds were recovered from features in the trench.

3.14 Trench 13

3.14.1 Located in the south-east of site, Trench 13 was the closest part of the evaluation to the core of Comberton village and West Street/B1046 to the south of site (Fig. 9). The trench was aligned north-west to south-east with topsoil measuring 0.15-0.20m thick and the subsoil 0.25-0.35m thick.

3.14.2 Seven linear features were revealed in the trench (**29**, **31**, **33**, **25**, **37**, **39**, **41**): four aligned broadly east-west (**29**, **33**, **35**, **39**), and three later features aligned broadly north-south (**31**, **37**, **41**).

3.14.3 Ditch **29** was the northernmost linear feature on an east-west alignment, located at the northern end of the trench. The ditch was 2.8m wide and 0.45m deep. It had shallow sloping sides and a gradual break of slope. Its single fill of grey-brown silty clay (30) produced four small abraded sherds (14g) of Late Iron Age and Roman date (see Appendix B.2). Given the condition of the finds, it is thought they are residual and that this ditch may be medieval in date.

3.14.4 On the same alignment to the south were linear features **33**, **35** and **39** (Fig. 10, Section 10). These ranged from 1.25-1.56m wide and 0.11-0.23m deep, each filled with grey-brown silty clay. Feature **33** contained a clay field drain, whilst **35** yielded a residual Mesolithic flint blade (see Appendix B.2). Features **35** and **39** are likely to be furrows, and are evenly spaced in relation to ditch **29**.

3.14.5 The three north-south aligned features in the trench (**31**, **37**, **41**) cut the east-west linear features. Ditches **31** and **41** were 0.7-1.0m in width and 0.25m in depth. Ditch **31** aligns with the field boundary recorded on the 1812 pre-Enclosure map (Fig. 11). Its grey-brown silty clay fill (32) yielded an abraded post-medieval redware base sherd (33g) dated *c*.AD 1550-1800 (see Appendix B.2). Ditch **41** was also partially exposed at the western end of Trench 12 to the north (see above).

3.14.6 Ditch **37** was located between Ditches **31** and **41**. The ditch was more substantial at 1.9m wide and 0.35m deep. No finds were recovered from it.

3.15 Trench 14

3.15.1 Trench 14 was located toward the southern end of the site, and was aligned north-west to south-east (Fig. 9). The topsoil measured 0.35m thick and the subsoil 0.25-0.35m thick.

3.15.2 Two north-south aligned furrows were recorded in the trench (0.6-0.9m in wide), both filled with subsoil. The furrows appear to correspond to faint geophysical anomalies (Fig. 3).

3.15.3 No finds were recovered from the furrow

3.16 Finds Summary

3.16.1 Six sherds of pottery (242g), a worked flint (2g), a clay tobacco pipe stem (3g) and a copper-alloy Jetton were recovered from the evaluation. The worked flint is a residual, heavily patinated Early Mesolithic blacked-blade with abrupt retouch applied from the ventral surface. The pottery assemblage consists of sherds dated to the Late Iron Age (6g), Roman (11g), and post-medieval periods (225g). Most sherds are small and abraded, with the Iron Age and Roman material considered to be residual. The clay pipe is likely to be of 18-19th century origin, whist the Jetton dates from *c*.1500-1650.

3.17 Environmental Summary

A.1.1 Four bulk samples were taken from postholes **3**, **9**, **47** and ditch **89**. All of the samples taken from the postholes were devoid of artefacts and preserved plant remains other than modern rootlets.

A.1.2 Sample 4 from ditch **89** contains a significant assemblage of charred plant remains that is comprised predominately of spelt (*Triticum spelta*) wheat chaff with occasional grains. The chaff component consists primarily of spelt glume bases with frequent rachis fragments and less frequent spikelet forks and awn fragments. Three of the grains show evidence of germination and occasional detached sprouts are also present.

A.1.3 No faunal remains were recovered from the evaluation.

4 Discussion and Conclusions

4.1 Introduction

4.1.1 Fourteen trenches were excavated across the site revealing a system of ditches and furrows relating to the post-medieval and possibly medieval agricultural use of the land, together with a small number of undated, probably modern, postholes.

4.1.2 Some of the ditches and furrows can be correlated with cropmarks recorded from the aerial photographic survey, anomalies on the geophysical survey plot or field boundaries depicted on the historic maps, particularly the 1812 pre-Enclose map and 1846 Tithe map. However, most features failed to registered in the pre-evaluation trenching surveys, probably owing to the character of the site's heavy clay soils, and the shallow nature of the features.

4.2 Prehistoric and Roman

4.2.1 Although no features at the site are attributed to the prehistoric period, a single Mesolithic blade was recovered from linear feature **35** in Trench 13, together with two sherds of abraded Late Iron Age pottery (6g) from ditch **29**, Trench 13. The latter also yielded two abraded Roman sherds (11g), although all these finds are considered residual.

4.2.2 Further hints of an Iron Age and/or Roman presence are suggested by the recovery of spelt grains and chaff in the environmental sample from ditch **89**, Trench 4. This was unexpected, since the alignment and character of this feature implied a post-medieval date, and was assumed to be a continuation of ditch **53** in Trench 3 (which yielded a 16th/17th century Jetton). The content of the charred remains from **89** is nevertheless inconsistent with a post-medieval attribution, and is more likely to derive from an Iron Age or Roman context (see Appendix C.1). The deposit could be residual, or alternatively, the sample may have been taken from the earlier ditch, largely but not completely re-cut by a post-medieval boundary on the same alignment. This is not beyond the bounds of possibility, since Susan Oosthuizen has traced the fossilization of ancient regular field systems in the Bourn valley (in which the site sits) into medieval and pre-Enclosure systems (2006, 89).

4.2.3 Either way, the combined evidence for occupation at the site during the prehistoric and Roman periods is limited, with the focus of settlement likely to lie to *c.*200-300m to the north where a systems of cropmark are recorded.

4.3 Medieval and post-medieval

4.3.1 The evaluation revealed an extensive system of shallow ditches and furrows relating to the agricultural use of the land. Linear features were revealed in every trench, and although subtle differences in orientation were recorded (partly reflecting the reconfiguration and sub-division of plots over time), a basic distinction between north-south aligned features, and east-west aligned features can be observed.

4.3.2 On the eastern side of the site the trenching uncovered a system of shallow north-south aligned furrows, often spaced at 5-7m intervals (where surviving). The pattern and spacing is most evident (and best preserved) in Trenches 7, 9, 10 and 12. The furrows in Trench 7 and 9 correspond with the cropmarks recorded from the aerial photographic survey, enabling the system to be traced north beyond the site for at least another 125m.

4.3.3 Furrows on a broadly similar alignment were recorded on the western side of the site in Trenches 1-4. Although the pattern and spacing of these features was more irregular when compared to those further west, the furrows in Trenches 2-4 correspond well with anomalies plotted by the geophysical survey.

4.3.4 By contrast, linear features on an east-west alignment were relatively limited, and confined to Trenches 3, 5, 6 and 13. None of the features registered in the geophysical survey, though those in Trench 3 broadly align on the features plotted by the aerial photography survey to the west.

4.3.5 More significantly, where stratigraphic relationships were observed between features on the east-west or north-south alignment (Trenches 3 and 13), those orientated east-west were cut by those aligned north-south. This suggests that the east-west system had earlier origins, though no corroborating dating evidence was recovered (other than the residual Iron Age and Romans sherds from ditch **29**, Trench 13). Three features on the north-south alignment did, however, yield a small number of post-medieval artefacts (ditch **53,** Trench 3; furrow **25**, Trench 10; feature **31**, Trench 13) with dates ranging from the 16th-19th centuries (see Appendix B).

4.3.6 Ultimately, dating is limited, but both systems are likely to have components that are medieval in origin, with elements of the east-west system appearing to be slightly earlier. Furthermore, several of the linear of features can be matched with boundaries depicted on the historic maps, suggesting these axis were long-lived. Of note is east-west aligned ditch **55,** Trench 5, which corresponds to the Common boundary depicted on the 1812 pre-Enclosure map, and the north-south aligned ditch **31**, Trench 13, which corresponds with a field boundary on the same map (Fig. 11). More generally, it is evident that the alignment of the north-south system of furrows is extant in the modern field layouts.

4.4 Undated

4.4.1 Twelve possible postholes were recorded across Trenches 2, 3, 4, 7 and 11. The postholes were all shallow, and yielded no finds. During the 1970s, paddocks were set out on the land for horses (Robert Arnold, *pers. comm*.), and it is therefore possible that some or all of the postholes are of recent date. Environmental samples did not aid in dating or characterising the postholes.

Appendix A. Context Summary

Context	Cut	Trench	Category	Feature Type	Function	Width/diameter	Depth
1	1	11	cut	post hole		0.25	0.01
2	1	11	fill	post hole		0.25	0.08
3	3	11	cut	post hole		0.55	0.09
4	3	11	fill	posthole		0.55	0.09
5	5	11	cut	post hole		0.45	0.11
6	5	11	fill	post hole		0.45	0.11
7	7	11	cut	post hole		0.3	0.07
8	7	11	fill	post hole		0.3	0.07
9	9	11	cut	post hole		0.7	0.11
10	9	11	fill	post hole		0.7	0.11
11	11	11	cut	ditch	furrow	1.7	0.14
12	11	11	fill	ditch			
13	13	9	cut	ditch	furrow	1.05	0.15
14	13	9	fill	ditch			
15	15	9	cut	modern drain			
16	15	9	fill	modern drain			
17	17	9	cut	ditch	furrow	1.7	0.1
18	17	9	fill	ditch			
19	19	9	cut	ditch	furrow	2.1	0.1
20	19	9	fill	ditch			
21	21	9	cut	ditch	furrow	2.6	0.15
22	21	9	fill	ditch			
23	23	10	cut	ditch	furrow	2.16	0.11
24	23	10	fill	ditch			
25	25	10	cut	ditch	furrow	1.92	0.19
26	25	10	fill	ditch			
27	27	10	cut	ditch	furrow	1.66	0.14
28	27	10	fill	ditch		1.66	0.14
29	29	13	cut	ditch	ditch (medieval)	2.7	0.36
30	29	13	fill	ditch			0.36
31	31	13	cut	ditch	post-medieval ditch	0.9	0.28
32	31	13	fill	ditch		0.9	0.28
33	33	13	cut	ditch	field drain	1.25	0.15
34	33	13	fill	ditch			0.15
35	35	13	cut	ditch	furrow (medieval)	1.56	0.23
36	35	13	fill	ditch			0.23
37	37	13	cut	ditch	post-medieval field boundary	1.86	0.45
38	37	13	fill	ditch			0.45
39	39	13	cut	ditch	furrow (medieval)	1.3	0.11
40	39	13	fill	ditch			0.11
41	41	13	cut	ditch	post medieval ditch	0.64	0.26
42	41	13	fill	ditch			0.26

Context	Cut	Trench	Category	Feature Type	Function	Width/diameter	Depth
43	43	6	cut	ditch		0.54	0.15
44	43	6	fill	ditch		0.54	0.15
45	45	2	cut	posthole/ natural feature?		0.45	0.12
46	45	2	fill	posthole/ natural feature?			0.12
47	47	2	cut	posthole		0.4	0.07
48	47	2	fill	posthole		0.4	0.07
49	49	2	cut	posthole		0.5	0.13
50	49	2	fill	posthole		0.5	0.13
51	51	2	cut	natural	tree throw	0.6	0.2
52	51	2	fill	natural		0.6	0.2
53	53	2	cut	ditch	post-medieval boundary	2.6	0.5
54	53	2	fill	ditch		2.6	0.5
55	55	5	cut	ditch	post-medieval ditch	0.7	0.35
56	55	5	fill	ditch			0.35
57	57	7	cut	posthole		0.32	0.12
58	57	7	fill	posthole		0.32	0.12
59	59	7	cut	ditch	furrow	1.4	0.1
60	59	7	fill	ditch		1.4	0.1
61	61	7	cut	ditch	furrow	1.6	0.1
62	61	7	fill	ditch		1.6	0.1
63	63	7	cut	ditch	furrow	1.8	0.1
64	63	7	fill	ditch			0.1
65	65	4	cut	posthole		0.35	0.1
66	65	4	fill	posthole		0.35	0.1
67	67	4	cut	ditch	furrow	0.95	0.1
68	67	4	fill	ditch			
69	69	2	cut	ditch	furrow	1.5	0.01
70	69	2	fill	ditch		1.5	0.01
71	71	2	cut	ditch	furrow	1.6	0.02
72	71	2	fill	ditch			0.02
73	73	2	cut	ditch	furrow	1.6	0.01
74	73	2	fill	ditch			0.01
75	75	2	cut	posthole		0.5	0.01
76	75	2	fill	posthole		0.5	0.01
77	77	1	cut	ditch	furrow	2.65	0.11
78	77	1	fill	ditch		2.65	0.11
79	79	1	cut	ditch	furrow	1.65	0.13
80	79	1	fill	ditch		1.65	0.13
81	81	1	cut	ditch	furrow	2.55	0.13
82	81	1	fill	ditch		2.55	0.13
83	83	1	cut	ditch	furrow	2.9	0.11
84	83	1	fill	ditch		2.9	0.11
85	85	1	cut	ditch	furrow	2.25	0.13
86	85	1	fill	ditch		2.25	0.13

Context	Cut	Trench	Category	Feature Type	Function	Width/diameter	Depth
87	87	3	cut	ditch	post-med ditch	0.8	0.25
88	87	3	fill	ditch		0.8	0.25
89	89	3	cut	ditch	post-med boundary ditch		
90	89	3	fill	ditch			
91	91	3	cut	ditch	post-med ditch	0.6	0.1
92	91	3	fill	ditch		0.6	0.1
93	93	3	cut	ditch	furrow		
94	93	3	fill	ditch			
95	95	3	cut	ditch	ditch		0.1
96	95	3	fill	ditch		0.7	0.1
97	97	3	cut	ditch	furrow		0.04
98	97	3	fill	ditch			0.04
99	99	3	cut	posthole			0.1
100	99	3	fill	posthole			0.1

APPENDIX B. FINDS REPORTS

B.1 Metal finds

By James Fairbairn

B.1.1 An incomplete and worn post-Medieval copper-alloy Nuremberg jetton (SF 1) of an uncertain issuer (*c*. 1500-*c*. 1650) was recovered from ditch **53**. Obverse: Illegible; Reverse: Imperial orb surmounted by a cross pattée within a tressure of three arches within a circle, a pair of annulets in each angle. Diameter: 20mm. Weight: 0.4g.

B.1.2 Jettons were first used in Europe in the 13th century to simplify arithmetical calculations and avoid some of the difficulties that people of the times encountered with the rather clumsy Roman numerals. To make the arithmetic easier the discs (usually of copper or brass but occasionally of gold or silver), were used in conjunction with a counting board divided into squares or chequers and worked like the ancient abacus.

B.1.3 Most of the earlier Jettons were produced in France, but in the late 15th century the German town of Nuremberg began to issue similar reckoning pieces. By the end of the 16th century. Nuremberg had become the principal supplier to government departments, bankers and merchants in many European countries. The face designs on many jettons resembled coinage of the time and most included some form of inscription. Frequently, the inscriptions were wrongly spelt and meaningless but occasionally, they bore pious mottoes such as '*Ave Maria Plena Gratia*' (Hail Mary Full of Grace).

B.1.4 Many of the Nuremberg *rechenpfennige* (reckoning pieces) show the name of the maker, e.g. Hans Schultes (*c*.1550-74), Hans Krauwinckel (*c*. 1580-1600) and Conrad Laufer (*c*. 1660). The Laufer family became one of the main jetton manufacturers and continued to strike brass counters until the 19th century.

B.2 Pottery, worked flint and clay pipe

By Matt Brudenell with identification by Katie Anderson, Carole Fletcher and Antony Haskins

Introduction

B.2.1 Six sherds of pottery (242g), a single work flint (2g) and a clay pipe stem (3g) were recovered during the evaluation. The material derived from four contexts relating to features in Trenches 10 and 13. The material from each context is described below.

Context 26

B.2.2 A sherd of slipped and glazed kitchen ware (192g) and a plain stem fragment of a clay pipe (3g) were recovered from fill 26, furrow **25**, Trench 10. Both are dated to the 19th century.

Context 30

B.2.3 Four sherds of pottery (17g) were recovered from fill 30, ditch **29**, Trench 13. The earliest sherds comprise two fragments (6g) of handmade quartz-sand tempered pottery. The sherds derive from the same vessel and have combed exterior surfaces. The character of the fabrics and the manner of surface treatment suggest a Late Iron Age date, ***c.*** 50 BC – AD 50.

B.2.4 The remaining two sherds are Roman in date, *c*. AD 50-150. They comprise an abraded buff sandy coarseware (10g) and a small fragment of greyware (1g).

Context 32

B.2.5 An abraded post-medieval redware base sherd (33g) was recovered from the fill 32, ditch **31,** Trench 13. The sherd is dated *c*. AD 1550-1800.

Context 36

B.2.6 A single heavily patinated Early Mesolithic blacked-blade (2g) was recovered from fill 36, furrow **35**, Trench 13**.** The flint blade has abrupt retouch applied from the ventral surface.

APPENDIX C. ENVIRONMENTAL REPORTS

C.1 Environmental samples

By Rachel Fosberry

Introduction

C.1.1 Four bulk samples were taken from features within the excavated areas at Bennell Farm, in order to assess the quality of preservation of plant remains and their potential to provide useful data as part of further archaeological investigations.

C.1.2 Features sampled include undated postholes **3**, **9** and **47** and ditch **89**.

Methodology

C.1.1 For this initial assessment, a single bucket (approximately 10L) of each bulk sample was processed by water flotation (using a modified Siraff three-tank system) for the recovery of charred plant remains, dating evidence and any other artefactual evidence that might be present. The floating component (flot) of the samples was collected in a 0.25mm nylon mesh and the residue was washed through 10mm, 5mm, 2mm and a 0.5mm sieve. Both flot and residues were allowed to air dry. A magnet was dragged through each residue fraction prior to sorting for artefacts. Any artefacts present were noted and reintegrated with the hand-excavated finds. The dried flots were subsequently sorted using a binocular microscope at magnifications up to x 60 and a complete list of the recorded remains are presented in Table 1. Identification of plant remains is with reference to the *Digital Seed Atlas of the Netherlands* and the authors' own reference collection. Nomenclature is according to Zohary and Hopf (2000) for cereals and Stace (1997) for other plants. Carbonized seeds and grains, by the process of burning and burial, become blackened and often distort and fragment leading to difficulty in identification. Plant remains have been identified to species where possible. The identification of cereals has been based on the characteristic morphology of the grains and chaff as described by Jacomet (2006).

Quantification

C.1.1 For the purpose of this initial assessment, items such as seeds, cereal grains and legumes have been scanned and recorded qualitatively according to the following categories

= 1-10, ## = 11-50, ### = 51+ specimens #### = 100+ specimens

Results

C.1.2 All of the samples taken from post holes are devoid of artefacts and preserved plant remains other than modern rootlets.

C.1.3 Sample 4, fill 90 of ditch **89** contains a significant assemblage of charred plant remains that is comprised predominately of spelt (*Triticum spelta*) wheat chaff with occasional

grains. The chaff component consists primarily of spelt glume bases with frequent rachis fragments and less frequent spikelet forks and awn fragments. Three of the grains show evidence of germination and occasional detached sprouts are also present.

Sample No.	Context No.	Cut No.	Feature Type	Volume processed (L)	Flot contents	Residue contents
1	4	3	Posthole	9	No preserved remains	No finds
3	10	9	Posthole	9	No preserved remains	No finds
4	90	89	Ditch	8	Spelt grains ##, spelt chaff ####	Small pottery fragment, charred grain
5	48	47	Posthole	5	No preserved remains	No finds

Table 1: Environmental samples from Bennell Farm, Comberton

Discussion

C.1.1 The charred assemblage of spelt that was recovered from Ditch **89** is not consistent with a post-medieval date for this feature. Spelt is a hulled wheat that was cultivated in this region from the Bronze Age through to the Roman period. It was particularly favoured during the later Iron Age and throughout the Roman period and charred processing waste is commonly encountered on archaeological sites of these dates. Spelt was stored in spikelets until required (Wilkinson and Stevens 2003, 200) and it would then be processed by parching and/or pounding to remove the grain from the brittle outer chaff. The resultant chaff was broken in the process into spikelet forks, glume bases and rachis fragments and was subsequently valued as kindling and used as fuel, The inclusion of charred grains, some of which have clearly germinated, may be the result of the disposal of 'spoilt' grain or may be evidence of the use of spelt for malting. No weed seeds of straw fragments are present which substantiates the interpretation of this assemblage originating from a stored supply of spikelets.

C.1.2 The ditch was originally thought to be post-medieval in date and it is possible that the assemblage is residual through the re-working of earlier deposits. It is evidence that there is the potential for the recovery of charred plant remains from this site which should be taken into consideration if there is further work required on this site.

Appendix D. Bibliography

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APPENDIX E. OASIS REPORT FORM

All fields are required unless they are not applicable.

Project Details

OASIS Number	oxfordar3-233679		
Project Name	Post-medieval Ditches and Furrows and Undated Post holes, Bennel Farm, Toft		
Project Dates (fieldwork) Start	23-11-2015	Finish	28-11-2015
Previous Work (by OA East)	Yes	Future Work	Unknown

Project Reference Codes

Site Code	COMBNF15	Planning App. No.	S/2204/15/OL
HER No.	ECB4583	Related HER/OASIS No.	

Type of Project/Techniques Used

Prompt	Direction from Local Planning Authority - PPG16
Development Type	Housing Estate

Please select all techniques used:

☒ Aerial Photography - interpretation	☐ Grab-Sampling	☐ Remote Operated Vehicle Survey
☐ Aerial Photography - new	☐ Gravity-Core	☒ Sample Trenches
☒ Annotated Sketch	☐ Laser Scanning	☐ Survey/Recording Of Fabric/Structure
☐ Augering	☒ Measured Survey	☒ Targeted Trenches
☐ Dendrochronological Survey	☒ Metal Detectors	☐ Test Pits
☐ Documentary Search	☐ Phosphate Survey	☐ Topographic Survey
☒ Environmental Sampling	☐ Photogrammetric Survey	☐ Vibro-core
☐ Fieldwalking	☐ Photographic Survey	☐ Visual Inspection (Initial Site Visit)
☒ Geophysical Survey	☐ Rectified Photography	

Monument Types/Significant Finds & Their Periods

List feature types using the NMR Monument Type Thesaurus and significant finds using the MDA Object type Thesaurus together with their respective periods. If no features/finds were found, please state "none".

Monument	Period	Object	Period
Ditch	Post Medieval 1540 to 1901		Select period...
Furrow	Post Medieval 1540 to 1901		Select period...
Ditch	Medieval 1066 to 1540		Select period...

Project Location

County	Cambridgeshire	Site Address (including postcode if possible)	
District	S. Cambridgeshire		
Parish	Toft		
HER	Cambridgeshire		
Study Area	5.6ha	National Grid Reference	TL 3748 5622

Project Originators

Organisation	OA EAST
Project Brief Originator	Cambridgeshire Historic Environment Team
Project Design Originator	OA East
Project Manager	Matt Brudenell
Supervisor	Stuart Ladd

Project Archives

Physical Archive	Digital Archive	Paper Archive
OA East	OA East	OA East
COMBNF15	COMBNF15	COMBNF15

Archive Contents/Media

	Physical Contents	Digital Contents	Paper Contents
Animal Bones	☐	☐	☐
Ceramics	☒	☐	☐
Environmental	☒	☐	☐
Glass	☐	☐	☐
Human Bones	☐	☐	☐
Industrial	☐	☐	☐
Leather	☐	☐	☐
Metal	☐	☐	☐
Stratigraphic		☐	☒
Survey		☒	☐
Textiles	☐	☐	☐
Wood	☐	☐	☐
Worked Bone	☐	☐	☐
Worked Stone/Lithic	☒	☐	☐
None	☐	☐	☐
Other	☐	☐	☐

Digital Media	Paper Media
☒ Database	☐ Aerial Photos
☒ GIS	☒ Context Sheet
☒ Geophysics	☐ Correspondence
☒ Images	☐ Diary
☒ Illustrations	☒ Drawing
☐ Moving Image	☐ Manuscript
☐ Spreadsheets	☐ Map
☐ Survey	☐ Matrices
☒ Text	☐ Microfilm
☐ Virtual Reality	☐ Misc.
	☐ Research/Notes
	☐ Photos
	☒ Plans
	☒ Report
	☒ Sections
	☐ Survey

Notes:

Appendix F. Geophysical Survey Report

Cranfield UNIVERSITY

GEOPHYSICAL SURVEY OF LAND AT BENNELL FARM, WEST STREET, COMBERTON, CAMBRIDGESHIRE

ECB4584

Cranfield Forensic Institute Report No. 128

Peter Masters

November 2015

CONTENTS

ILLUSTRATIONS

ABSTRACT

A geophysical survey was carried out on land at Bennell Farm, West Street, Comberton, Cambridgeshire. The work was undertaken in October 2015. The purpose of the survey was to identify any archaeological remains as part of the pre-planning requirements for this site.

The fluxgate gradiometer survey produced no significant anomalies of an archaeological nature. A series of parallel linear anomalies were recorded denoting the pre-enclosure field system of ridge and furrow in fields A and C. A linear negative anomaly running diagonally across Field C denotes the presence of the outfall pipe from Bennell Farm. A linear dipolar anomaly was detected in Field A denoting the presence of telephone cables.

Other anomalies detected were modern ferrous disturbances especially around the enclosed copses of wood.

No other anomalies of archaeological significance were recorded.

1.0 INTRODUCTION

On behalf of Mr R.W.S and Mrs S.E. Arnold, Oxford Archaeology East commissioned the Centre for Archaeological and Forensic Analysis, Cranfield Forensic Institute, Cranfield University to undertake a gradiometer survey of land at Bennell Farm, West Street, Comberton, Cambridgeshire (Fig 1). This work was carried out in October 2015.

The purpose of the survey was to locate the extent and nature of any archaeological remains.

The survey methodology described in this report was based upon guidelines set out in the Historic England (formerly English Heritage) document '*Geophysical Survey in Archaeological Field Evaluation'* (HE 2008).

2.0 LOCATION AND DESCRIPTION

The information contained within sections 2 and 3 of this report is based on information supplied by Oxford Archaeology East (Atkins 2015).

The site is located on the western edge of Comberton village which lies on the south-west side of Cambridge (NGR TL 37470 56168).

The area of investigation comprises of three fields of varying sizes covering an area of approximately 6ha (Fig 1). The site is currently under pasture cultivation at the time of the survey. The fields are relatively flat whilst Field A shows slight earthwork remains of ridge and furrow with low amplitude.

The underlying geology of the site is comprised of Mudstone Gault Formation overlain by superficial deposits of Diamicton Oadby Member (Geological Map Data ©NERC 2015). The magnetic susceptibility of these types of geologies is generally average.

3.0 BACKGROUND INFORMATION

The Cambridgeshire Historic Environment Record (HER) shows that the application site lies within an area with a potential for the presence of archaeological remains particularly dating to the Prehistoric and Roman periods (Atkins 2015).

The Prehistoric period is represented by a possible Bronze Age barrow, which was recorded on the 1 inch Ordnance survey map. It was subsequently excavated but nothing was found. Aerial photographs suggest there may be a barrow nearby (CHER 03317). Other prehistoric remains recorded in the area include three undated enclosures (CHER 09569; MCB20133; MCB 19601).

Only one Roman site is known within 1km of the area of interest. A moderate scatter of 110 Roman pottery sherds dating to the 2nd to 4th centuries, c. 1km to the north of the area centred on TL 3778 5707.

To the south-east of the site of interest, a Roman villa was found in 1842 between Comberton church and the Bourn Brook and more than 1km to the west seven skeletons with part of a Roman lamp and metal plate were found by labourers digging gravel in 1851 between the church in Toft and the Bourn Brook.

Medieval remains in the area include two manors (CHER 01101 and 01102), a village cross (CHER 03415) and a number of Saxo-Norman pottery sherds (CHER 07761) were found c. 500m to the south-east. Ridge and furrow has been recorded within the neighbouring vicinity of the area of investigation.

The post-medieval is represented by a windmill recorded c.400m to the west (CHER 03337) and depicted on both the 1815 Enclosure map and the 1845 map. Numerous post-medieval buildings lie along the four roads that make up the village of Comberton to the east.

Historic maps show the area to be poorly represented with the earliest dating from the early 19th century. The 1812 pre-Enclosure map depicts the area as largely being partly owned by John Bennett and partly with the common to Solders' Way to the north. The map shows the eastern and western boundaries have not altered in the last 200 years. The 1812 Enclosure map shows only the removal of the common and routeway through it otherwise the area of interest remains largely unchanged.

The 1845 Tithe map shows the area being divided into two by a north to south boundary. By the time of the First Edition Ordnance map of 1887 the site has become part of a large field covering 22.25 acres in size and that Bennell Lodge has been built sometime between 1845 and 1887. The later editions of the Ordnance Survey maps illustrate very few changes to the field boundaries.

4.0 METHODOLOGY

Gradiometry

Gradiometry is a non-intrusive scientific prospecting technique used to determine the presence/absence of some classes of sub-surface archaeological features (eg pits, ditches, kilns, and occasionally stone walls). By scanning the soil surface, geophysicists identify areas of varying magnetic susceptibility and can interpret such variation by presenting data in various graphical formats and identifying images that share morphological affinities with diagnostic archaeological as well as other detectable remains (Clark 1990; Gaffney and Gater 2003).

The use of gradiometry is used to establish the presence/absence of buried magnetic anomalies, which may reflect sub-surface archaeological features.

The area survey was conducted using a Bartington Grad 601 dual fluxgate gradiometer with DL601 data logger set to take 4 readings per metre (a sample interval of 0.25m). The zigzag traverse method of survey was used, with 1m wide traverses across 30m x 30m grids. The sensitivity of the machine was set to detect magnetic variation in the order of 0.1 nanoTesla.

The data was processed using *TerraSurveyor v3*. The results are plotted as greyscale and trace plot images (Figs. 3-5).

The enhanced data was processed by using zero-mean functions to correct the unevenness of the image in order to produce a smoother graphical appearance. It was also processed using an algorithm to remove magnetic spikes, thereby reducing extreme readings caused by stray iron fragments and spurious effects due to the inherent magnetism of soils. The data was also clipped to reduce the distorting effect of extremely high or low readings caused by discrete pieces of ferrous metal.

5.0 INTERPRETATION AND ANALYSIS OF RESULTS (Figs. 2-6)

Gradiometer Survey

A detailed fluxgate gradiometer survey covering an area of c. 6ha over three fields produced few signifcant archaeological anomalies.

Generally, a series of isolated individual anomalies were detected (Figs 3 and 6, examples outlined in pink) that reflect areas of modern ferrous litter, which lie just below or on the surface of the ground.

Field A (west)

A series of faintly magnetic parallel linear anomalies (Figs 3 and 6, **green dash lines**) were detected denoting the presence of the pre-enclosure field system of ridge and furrow. During the survey, traces of the ridge and furrow could be seen in the field

with low amplitude. A dipolar linear anomaly (Figs 3 and 6, **dark blue line**) running in a north-south direction denotes the presence of telephone cables. At approximately two-thirds of the way up the field, a square shaped high magnetic anomaly (Figs 3 and 6, **1**) was detected possibly associated with the phone cables or former water trough base.

Field B (east)

A single curvilinear anomaly (Figs 4 and 6, **solid green line**) was recorded in this field that may reflect the presence of a headland or may resolve as a former track.

No other anomalies of archaeological significance were recorded in this field.

Field C (east)

A series of ephemeral parallel linear anomalies (Figs 5 and 6, **dashed green lines**) were detected in the western half of the field denoting the presence of the pre-enclosure field system of ridge and furrow. An ephemeral negative linear anomaly (Figs 5 and 6, **light blue line**) was detected running in a diagonal direction from the north-west corner to the south-eastern part of the field denotes the outfall pipe to the main sewer in West Street.

No further anomalies were detected of archaeological significance.

6.0 CONCLUSIONS

The survey has identified no significant archaeological anomalies in the area of investigation. The majority of anomalies recorded appear to be of modern origin with the exception of traces of the pre-enclosure field system of ridge and furrow in Fields A and C.

Based on the survey results, it can be concluded that the site possesses archaeological remains of low potential.

7.0 ACKNOWLEDGEMENTS

Cranfield Forensic Institute, Cranfield University would like to thank Dr Matthew Brudenell for this commission.

8.0 BIBLIOGRAPHY

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Clark, A. J. 1990 *Seeing Beneath the Soil* London, Batsford

H.E. 2008 *Geophysical Survey in Archaeological Field Evaluation.* London, Historic England: Research & Professional Guidelines No.1. 2nd Edition

Gaffney, C. & Gater, J. 2003 *Revealing the Buried Past – Geophysics for the Archaeologist,* Tempus publishing.

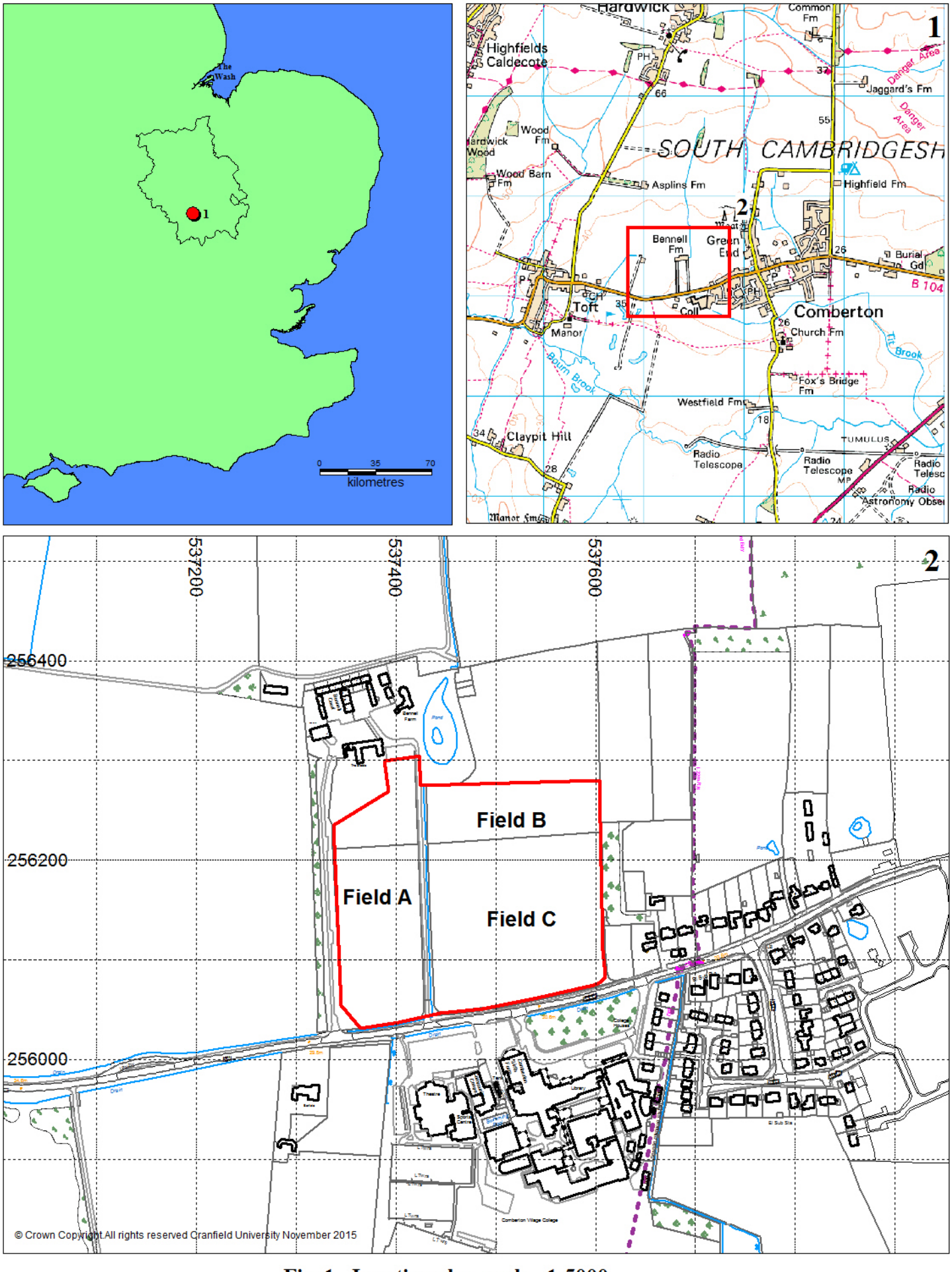


Fig. 1 - Location plan, scale - 1:5000

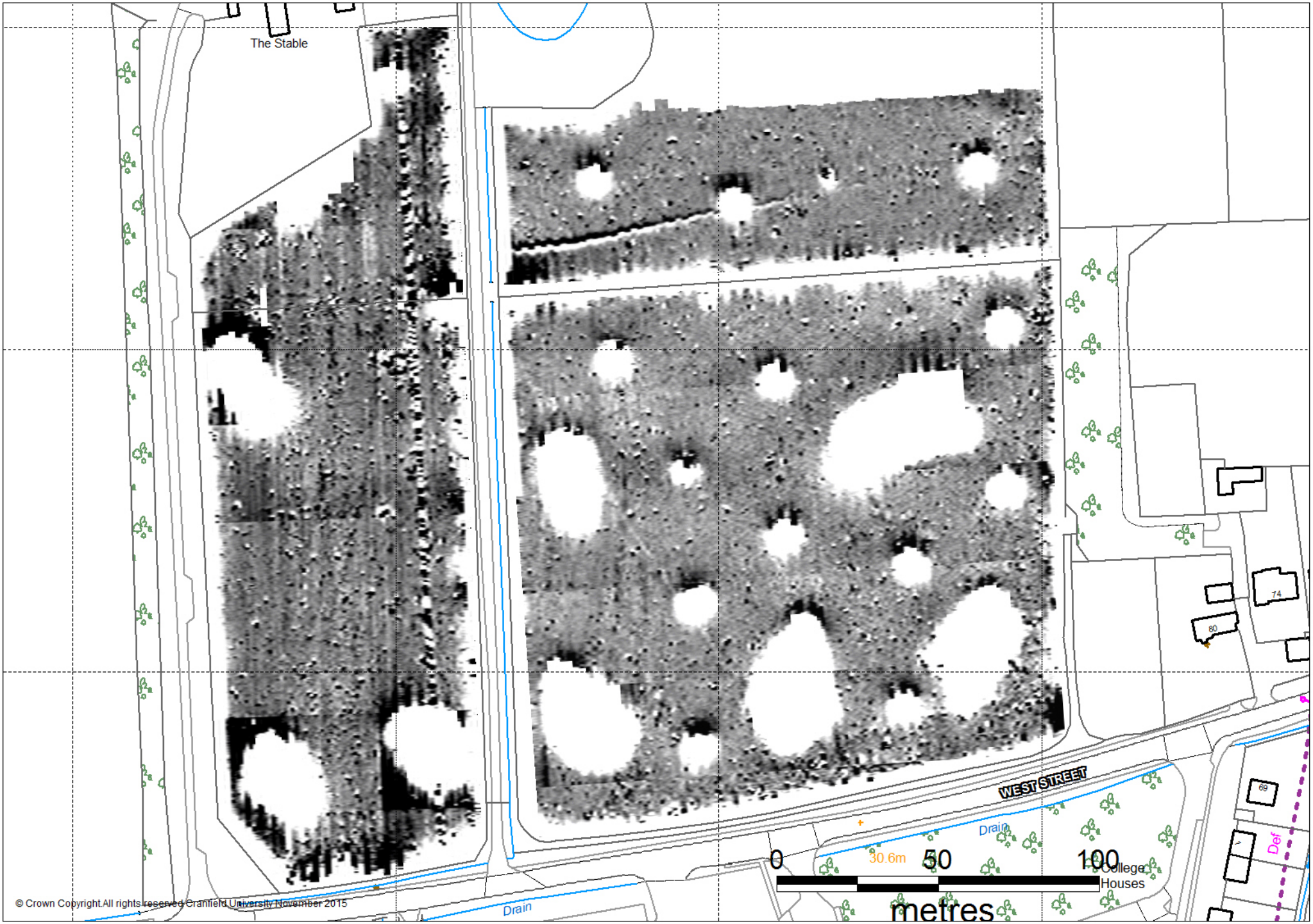


Fig 2 - Location of gradiometer survey, scale - 1:1500

RAW DATA

TRACE PLOT

ENHANCED PLOT

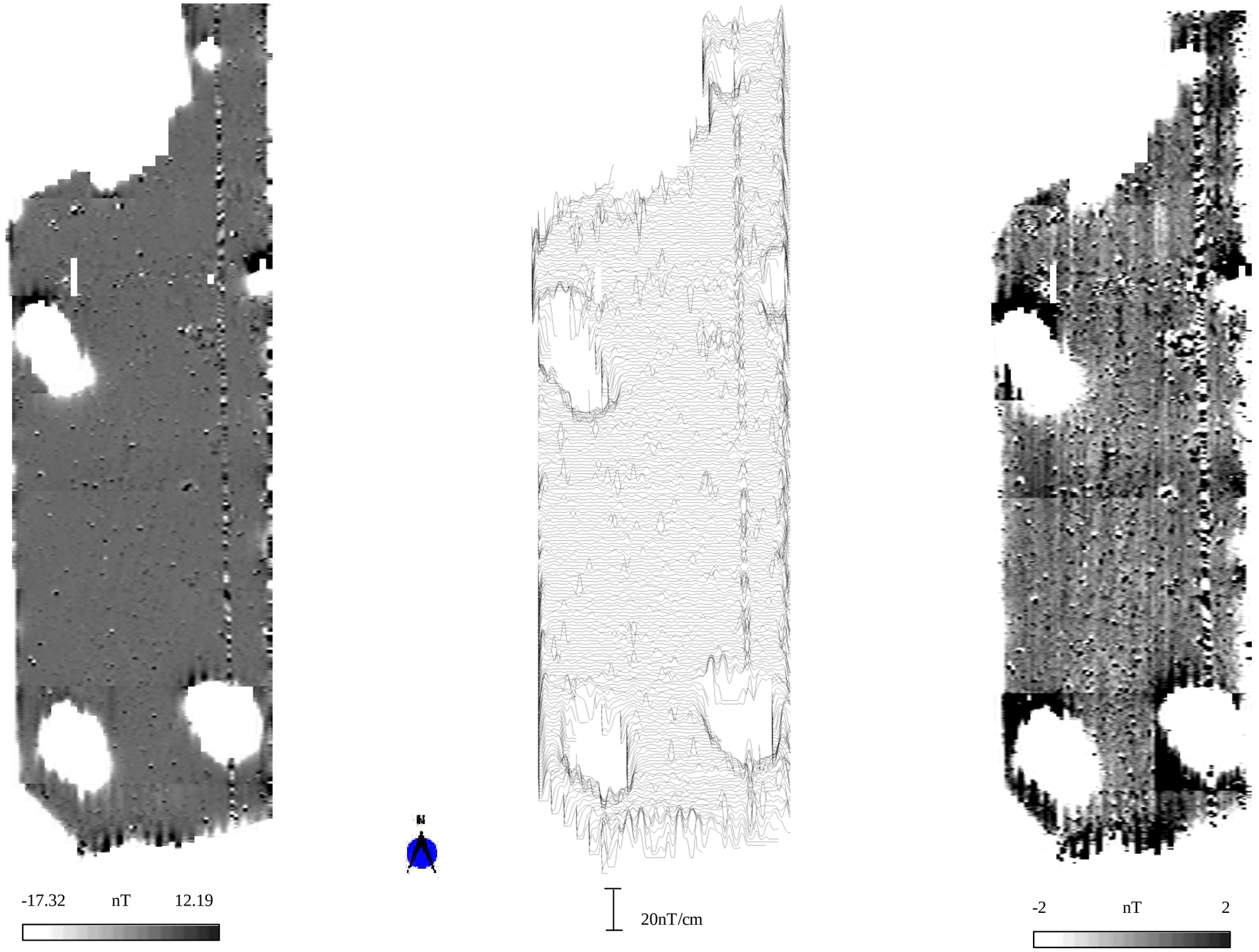
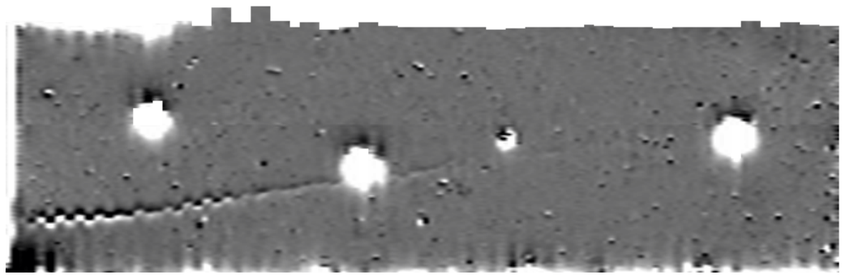


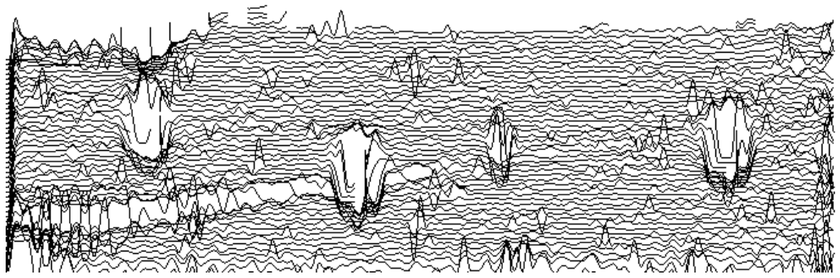
FIG. 3: Field A – Grey scale and trace plots of raw and enhanced data, scale – 1:1250

RAW DATA



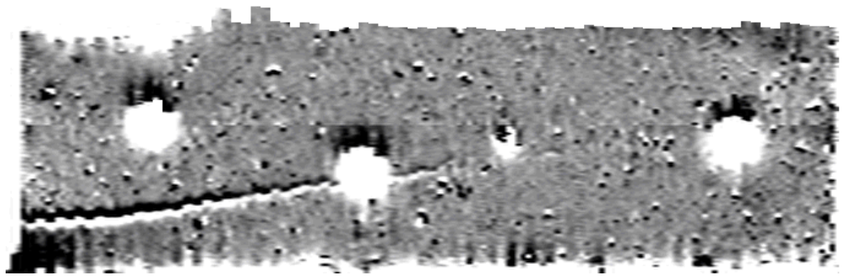
-11.75 nT 8.80

TRACE PLOT



20nT/cm

ENHANCED PLOT



-2 nT 2.50

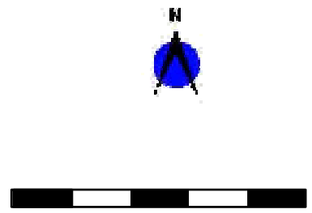
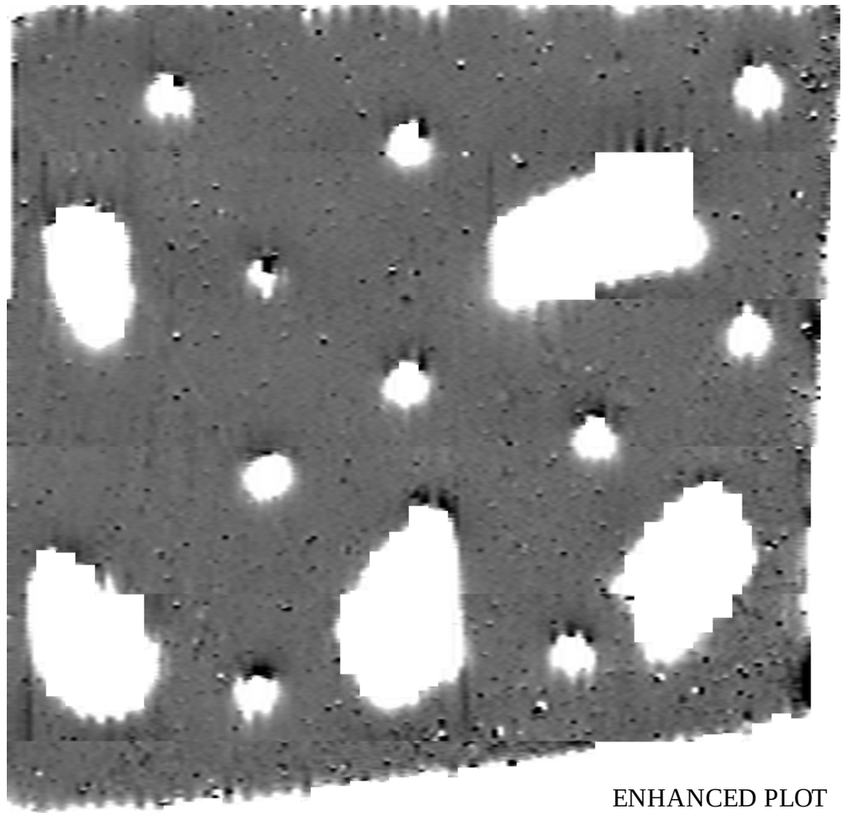


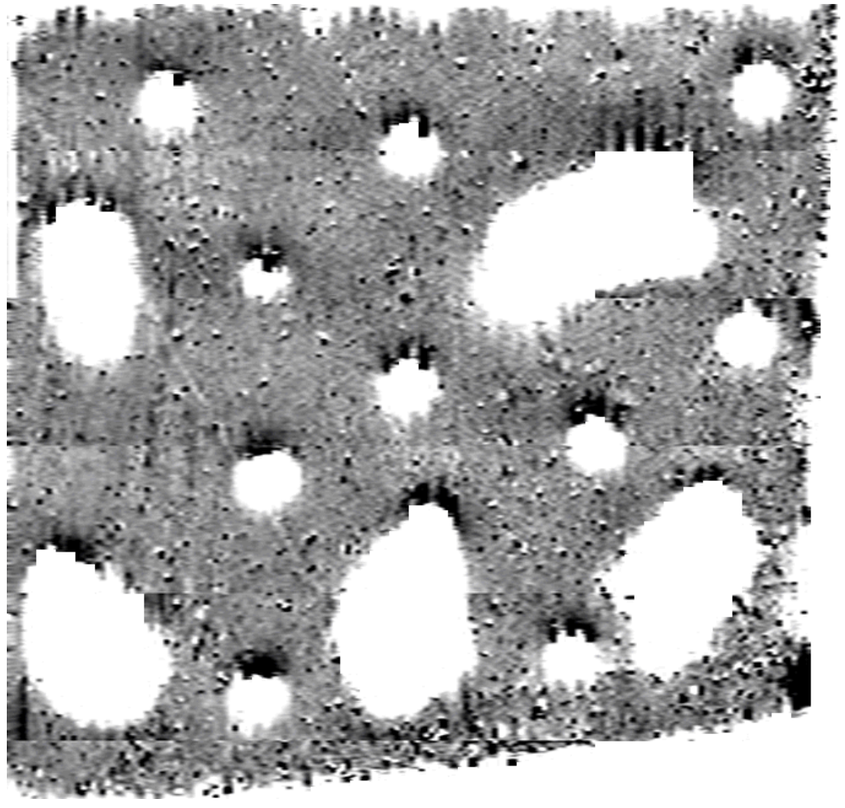
FIG. 4: Field B – Grey scale and trace plot of raw and enhanced data, scale – 1:1250

RAW DATA



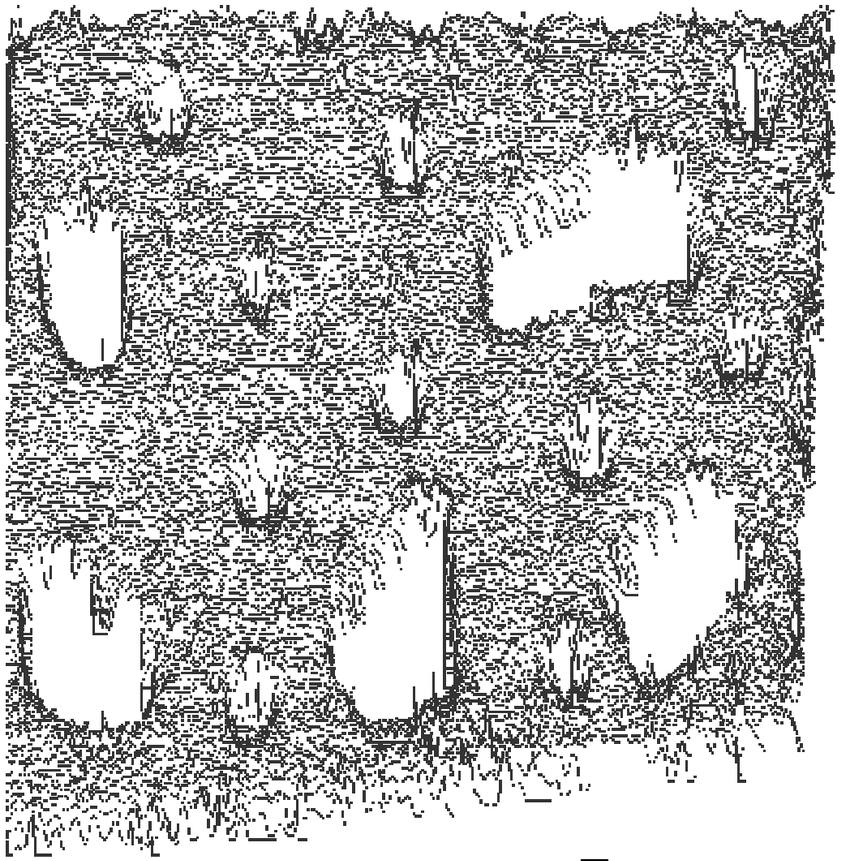
-12.81 nT 8.90

ENHANCED PLOT



-2 nT 2.50

TRACE PLOT



20nT/cm

60m

FIG. 5: Field C– Grey scale and trace plots of raw and enhanced data, scale – 1:1250

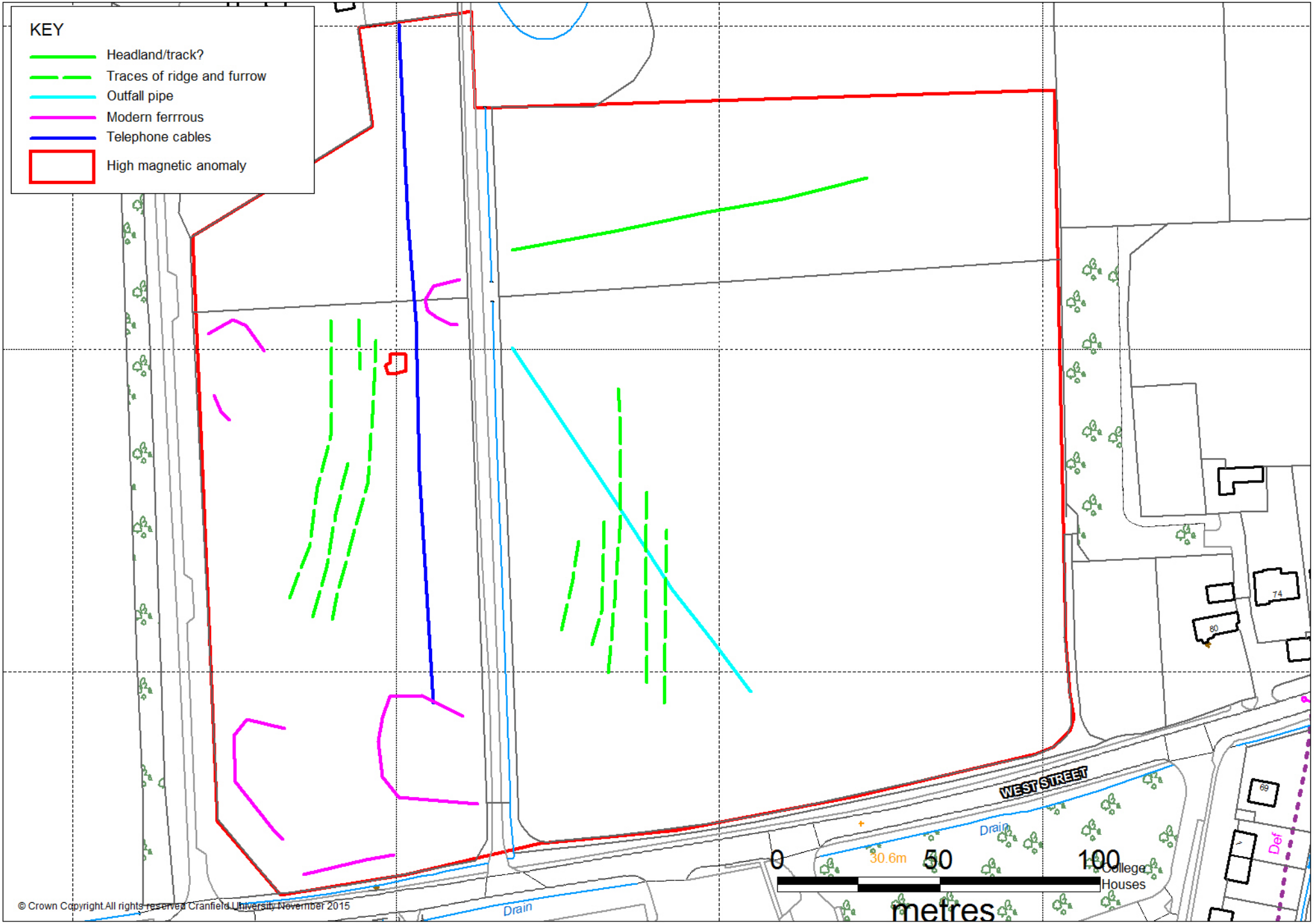


Fig.6 - Interpretation of results, scale - 1:1500

Appendix G. Aerial Photography Report

AIRPHOTO SERVICES

Archaeology ▪ Research ▪ Law ▪ Environment ▪ Planning

Land at Bennell Farm, Comberton, Cambridgeshire

NGR 5374 2563

Planning application: S/2204/15/OL

Assessment of Aerial Photographs for Archaeology

October 2015

Air Photo Services Ltd.
The Shaftesbury Centre, Percy Street, Swindon SN2 2AZ 01666 511646 www@airphotoservices.co.uk
Directors: Chris Cox MA MCIfA FSA and Rog Palmer MA MCIfA Associate David Lang BA CELTA
Company No. 5248188 Registered Office The Shaftesbury Centre SN2 2AZ

Land at Bennell Farm, Comberton, Cambridgeshire

Assessment of Aerial Photographs for Archaeology

Client: Oxford Archaeology East on behalf of Mr R.W.S. and Mrs S.E. Arnold

Document Reference: 215 10 01/ 1

Project Number: APS 215 10 01

HER Event number: ECB4582

Version:	1.0 Final
Date:	26th October 2015
Prepared by:	Chris Cox MCIfA FSA

Contents

SUMMARY

S1 This assessment of aerial photographs was commissioned by Oxford Archaeology East on behalf of Mr R.W.S. and Mrs S.E. Arnold to support a planning application for development at the site. It was undertaken in response to section 2.5 of a brief for archaeological evaluation issued by Gemma Stewart at the Cambridgeshire Historic Environment Team (CHET 2015).

S2 The object of the assessment was to provide information on the location and nature of archaeological features which are visible on aerial photographs within and immediately adjacent to the site.

S3 The site contains traces of ridge and furrow which indicates that the site lay within an agricultural area in the Medieval period. Further eroded ridge and furrow is present in the wider environs (CHER MCB 4199). Land use within the site has been intermittently pastoral and arable, whilst heavier ploughing has totally eroded ridge and furrow areas to the north and west of the site which now show as marks in crops.

S4 Buried ditched enclosures, linear ditches and some potential ditched enclosures are visible as marks in crops to the immediate north and west of the site, and are partially recorded on the Cambridgeshire Historic Environment Record (CHER MCB 19601). Further possible features were recorded from vertical aerial photographs to the immediate west of the site.

S5 Whilst these features lie outside the site, their proximity indicates potential within the site for buried features which are likely to pre-date the medieval landscape. The enclosures are likely to form part of a pre-modern settlement and farming landscape.

S7 Original photo interpretation and mapping was at 1:2500 scale.

1 INTRODUCTION

1.1 This assessment of aerial photographs was commissioned by Oxford Archaeology East on behalf of Mr R.W.S. and Mrs S.E. Arnold to support planning application S/2204/15/OL for development at the site. It was undertaken in response to section 2.5 of a brief for archaeological evaluation issued by Gemma Stewart at the Cambridgeshire Historic Environment Team (CHET 2015).

1.2 The object of this assessment was to provide information on the location and nature of any archaeological sites and areas which are visible on aerial photographs within and adjacent to the site.

1.3 It is important to note that aerial photographs usually only show part of the horizontal and vertical extent of buried and upstanding features. Their capacity to reveal features as crop marks, vegetation marks, soil marks or as the shadows cast by banks, ditches and walls, depends upon a number of environmental and agricultural factors prevalent at the time of the photographic survey.

1.4 These features have been mapped at a 1:2500 scale level to a digital Ordnance Survey map base.

2 THE ASSESSMENT AREA

Location

2.1 The site is located on agricultural land to the northwest of Comberton Village in Cambridgeshire, UK. The southern side of the site is bordered by a modern road whilst arable land lies to its north east and west.

2.2 The site is centred at National Grid Reference (NGR) 53748 25622.

2.3 **Plan 1** shows the extent of the site and the archaeological features recorded from aerial photographs within and adjacent to it.

Topography, geology and soils

2.4 The site lies on level ground at c.30m Above Ordnance Datum (AOD), over Gault clay formations to the north west of the village of Comberton (SSEW 1983).

2.5 Sites which lie on clay soils were previously considered to be less responsive to the formation of crop marks and less attractive to former settlers than more well drained formations. However, intensive reconnaissance from the air at times of drought has produced results of extensive areas of past settlement and land use on clay soils.

2.6 On aerial photographs taken at times when crops are responsive to sub surface variation in soil depth, clear marks in crops are visible in this area over buried features where heavy ploughing has totally eroded the overlying ridge and furrow.

Previously recorded heritage assets

2.7 A brief for archaeological evaluation works, issued by the Cambridgeshire Historic Environment Team (2015), describes the known heritage assets of all periods within and in the environs of the site. The Cambridgeshire Historic Environment Record (CHER) identifies crop marked enclosures to the north and west of the site at record number MCB 19601, alongside several known areas of eroded ridge and furrow (MCB 4199).

2.8 Medieval moated sites have also been recorded in the vicinity.

3 ARCHAEOLOGICAL AND NATURAL FEATURES FROM AERIAL PHOTOGRAPHS

3.1 In suitably cultivated soils, sub-surface features – including archaeological ditches, banks, pits, walls or foundations – may be recorded from the air in different ways in different seasons. In spring and summer these may show through their effect on crops growing above them.

3.2 Such indications tend to be at their most visible in ripening cereal crops, in June or July in this part of Britain, although their appearance cannot accurately be predicted and their absence cannot be taken to imply evidence of archaeological absence. In winter months, when the soil is bare or crop cover is thin (when viewed from above), features may show by virtue of their different soils. Upstanding remains, which may survive in unploughed grassland, are also best recorded in winter months when vegetation is sparse and the low angle of the sun helps pick out slight differences of height and slope.

Limitations of the data

3.3 Aerial photographic evidence is limited by seasonal, agricultural, meteorological and environmental factors which affect the extent to which either buried or upstanding archaeological features can be detected from the air. The visibility of archaeological features may differ from year to year, dependent on the type of crop or land use, prevailing weather and levels of moisture in the soil over the crop growing season.

3.4 Individual photographs often thus record only a small percentage of the actual extent of buried or upstanding features, and a wide range of photos taken over a long timescale may be needed to reveal the extent of buried features from the air.

3.5 It is thus advantageous to be able to examine a range of photos taken under a variety of environmental conditions in order to build up a comprehensive interpretation of the archaeological landscape.

3.6 In this instance, vertical aerial photos have recorded features adjacent to the site as crop marks, and these have been examined and mapped for this assessment. The 2006 timeline at Google Earth Pro showed clear evidence for ditched enclosures outside the site, and photographs taken by Rog Palmer at Air Photo Services showed further elements of buried enclosures which lie to the immediate north of the site boundary.

4 AIR PHOTO INTERPRETATION AND MAPPING

4.1 The most immediately informative aerial photographs of archaeological subjects tend to be those resulting from observer-directed flights.

4.2 This activity is usually undertaken by an experienced archaeological observer who will fly at seasons and times of day when optimum results are expected.

4.3 Oblique aerial photographs, taken using a hand-held camera, are the usual products of such investigation. Although oblique photographs are able to provide a very detailed view, they are biased in providing a record that is mainly of features noticed by the observer, understood, and thought to be of archaeological relevance. To be able to map accurately from these photographs it is necessary that they have been taken from a sufficient height to include surrounding control point information to match fixed points on both the photograph and the ground.

4.4 Vertical aerial photographs have been taken over the whole of Britain and provide information on a series of dates between (usually) 1946–7 and the present. Many of these vertical surveys were not flown at times of year that are best to record the archaeological features sought for this assessment and may have been taken at inappropriate dates to record crop and soil responses that may be seen above sub-surface features.

4.5 Vertical photographs are taken by a camera fixed inside an aircraft and with its exposures timed to take a series of overlapping views that can be examined stereoscopically. They are often of relatively small scale and their interpretation requires higher perceptive powers and a more cautious approach than that necessary for examination of obliques.

4.6 Use of these small-scale images can also lead to errors of location and size when they are rectified or re-scaled to match a larger map scale.

4.7 Aerial photographic cover searches were obtained from the Cambridge University Collection of Aerial Photographs (CUCAP), the Historic England Archive and from Rog Palmer at Air Photo Services.

4.8 Photographs used for the assessment included those resulting from observer-directed flights and routine vertical surveys.

4.9 The ortho-rectified mosaics of vertical aerial photographs at Google Earth (www.earth.google.com) were consulted online for this assessment in October 2015. These sites displayed photographs which the website states were taken (or accessioned to the site) between 1945 and 2008.

4.10 Aerial photos used for this assessment are detailed in Appendix 1.

Methodology

4.11 All photographs were interpreted and mapped at a level compatible with a 1:2500 scale base map.

4.12 The photographs were closely examined by eye and under 1.5x and 3x magnification and interpreted with the aid of a mirror stereoscope where appropriate, or in detail on screen when consulted as digital files.

4.13 Aerial photographs were digitally rectified to an OS map base using QGIS 2.10 (Pisa) software in order to remove perspective distortion and ensure correct rectification of aerial photographs to the OS map. Images from Google Earth were also interpreted and rectified to OS map bases (Scollar and Palmer 2008).

4.14 The mismatch values of control points taken from the photos and the map base were in all cases minimal. In all transformations prepared for this assessment the mean mismatches were less than ± 1.5m.

4.15 The rectified files were set as layers in QGIS where features were interpreted and drawn over the rectified photographs and saved as individual SHP files.

4.16 Layers from this final drawing have been used to prepare the illustration for this report and are provided digitally for import to a Geographic Information System, in ESRI Shapefile format.

5 RESULTS

Plan 1

Features recorded within the site

5.1 The land has been under pastoral use for the majority of occasions of aerial photography. Residual medieval ridge and furrow is recorded on parts of the site.

Features outside but adjacent to the site

5.2 A group of rectilinear and more 'sinuous' ditched enclosures is recorded to the immediate north and west of the site. These features are recorded on the CHER as MCB 19601 and they were mapped from images displayed at the 2006 timeline of Google Earth Pro and oblique aerial photos taken by Rog Palmer. They are likely to be the buried remains of eroded ditched settlement or stock enclosures and the extent of the features is likely to be wider than depicted by the crop marked record. They are overlain by the crop marked eroded remains of medieval fields.

5.3 Vertical Aerial photographs taken by Meridian Airmaps Ltd for Cambridgeshire Council in July 1969 show further areas of eroded ridge and furrow and some potential ditched enclosures and other possible boundary ditches to the immediate north and west of the site.

5.4 It is likely that similar buried features may be present within the site but are presently masked by residual ridge and furrow and unsuitable land use for the visibility of crop marks.

6 CONCLUSION

6.1 This assessment has demonstrated the presence of past settlement and agricultural features in the immediate environs of the site.

6.2 The site lay within an agricultural area in the medieval period.

6.3 It is likely that the site will contain further archaeological features which are not visible on aerial photographs, beneath the residual ridge and furrow, due to the proximity of visible buried archaeological sites to its boundaries.

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CHET 2015	*Brief for Archaeological Evaluation, Bennell Farm, West Street, Toft*. October 2015.
Scollar I and Palmer R 2008	Using Google Earth Imagery. *AARGnews 37*, 15-21.
SSEW 1983	Soil Survey of England and Wales, Sheet 4 Eastern *England*. 1:250000 scale. Harpenden.

www.landis.org.uk

APPENDIX

Aerial photographs consulted for this assessment

Historic England Archive, enquiry reference 96504. Photographs indicated as N in the 'held' column are held as negatives only and were not examined.

Sortie number	Library number	Camera position	Frame number	Held	Centre point	Run	Date	Sortie quality	Scale 1:	Focal length (in inches)	Film details (in inches)	Film held by
RAF/106G/UK/1490	326	RP	3034	N	TL 370 566	1	09 MAY 1946	AB	10000	20	Black and White 8.25 x 7.5	NMR
RAF/106G/UK/1490	326	RP	3035	N	TL 376 567	1	09 MAY 1946	AB	10000	20	Black and White 8.25 x 7.5	NMR
RAF/106G/UK/1490	326	RP	3036	N	TL 382 567	1	09 MAY 1946	AB	10000	20	Black and White 8.25 x 7.5	NMR
RAF/106G/UK/1718	463	RP	3096	P	TL 375 568	6	06 SEP 1946	AB	9800	20	Black and White 8.25 x 7.5	NMR
RAF/106G/UK/1718	463	RP	3097	P	TL 368 569	6	06 SEP 1946	AB	9800	20	Black and White 8.25 x 7.5	NMR
RAF/CPE/UK/2024	607	RS	4005	P	TL 380 560	7	24 APR 1947	AB	9800	20	Black and White 8.25 x 7.5	NMR
RAF/CPE/UK/2024	607	RS	4006	P	TL 375 559	7	24 APR 1947	AB	9800	20	Black and White 8.25 x 7.5	NMR
RAF/CPE/UK/2024	607	RS	4007	P	TL 369 558	7	24 APR 1947	AB	9800	20	Black and White 8.25 x 7.5	NMR

RAF/58/1983	1737	F21	104	P	TL 369 570	4	20 APR 1956	A	10000	20	Black and White 8.25 x 7.5	MOD
RAF/58/1983	1737	F21	105	P	TL 369 563	4	20 APR 1956	A	10000	20	Black and White 8.25 x 7.5	MOD
RAF/58/1983	1737	F21	106	P	TL 368 555	4	20 APR 1956	A	10000	20	Black and White 8.25 x 7.5	MOD
RAF/540/957	3041	V	5025	P	TL 383 549	4	01 DEC 1952	A	15000	6	Black and White 9 x 9	NMR
RAF/540/957	3041	V	5027	P	TL 390 551	5	01 DEC 1952	A	15000	6	Black and White 9 x 9	NMR
MAL/68038	5152	V	187	P	TL 381 554	8	02 JUN 1968	A	11000	6	Black and White 9 x 9	NMR
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MAL/68038	5152	V	192	P	TL 367 570	9	02 JUN 1968	A	11000	6	Black and White 9 x 9	NMR
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MAL/69053	5415	V	147	P	TL 379 567	9	08 JUN 1969	A	10500	6	Black and White 9 x 9	CAM
MAL/69053	5415	V	148	P	TL 367 567	9	08 JUN 1969	A	10500	6	Black and White 9 x 9	CAM
MAL/69070	7126	V	68	P	TL 377 554	3	22 JUL 1969	A	10500	6	Black and White 9 x 9	CAM
MAL/69070	7126	V	69	P	TL 366 554	3	22 JUL 1969	A	10500	6	Black and White 9 x 9	CAM
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MAL/69070	7126	V	74	P	TL 377 570	4	22 JUL 1969	A	10500	6	Black and White 9 x 9	CAM
OS/72233	10304	V	79	P	TL 369 567	4	16 JUL 1972	A	7000	12	Black and White 9 x 9	NMR
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OS/92379	14149	V	5	P	TL 381 567	1	29 JUL 1992	A	8200	12	Black and White 9 x 9	NMR
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RAF/58/807	15635	Vp2	5094	P	TL 382 563	7	25 OCT 1951	AC	7800	12	Black and White 9 x 9	NMR
OS/94165	22088	V	51	N	TL 374 566	3	13 JUN 1994	A	7500	12	Black and White 9 x 9	NMR
OS/94165	22088	V	80	N	TL 375 555	4	13 JUN 1994	A	7500	12	Black and White 9 x 9	NMR
OS/97238	22340	V	68	N	TL 379 564	2	14 SEP 1997	A	7300	12	Black and White 9 x 9	NMR
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OS/98631	22754	V	71	N	TL 374 564	2	20 JUL 1998	A	6900	12	Black and White 9 x 9	NMR

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OS/03951	24273	V	1524	N	TL 372 570	2	12 JUL 2003	A	6000	12	Colour 9 x 9	NMR
OS/03951	24273	V	1525	N	TL 377 570	2	12 JUL 2003	A	6000	12	Colour 9 x 9	NMR
OS/03951	24273	V	1574	N	TL 377 560	3	12 JUL 2003	A	6000	12	Colour 9 x 9	NMR
OS/03951	24273	V	1575	N	TL 372 560	3	12 JUL 2003	A	6000	12	Colour 9 x 9	NMR
ADA/038(Z)	26050	V	15	N	TL 369 560	1	01 JUL 1981	A	10000	3.25	Black and White 9 x 9	NMR
ADA/038(Z)	26050	V	16	N	TL 369 570	1	01 JUL 1981	A	10000	3.25	Black and White 9 x 9	NMR
ADA/044	26058	V	1	N	TL 371 555	1	13 JUN 1981	A	10000	6	False Colour Infrared 9 x 9	NMR
ADA/044	26058	V	2	N	TL 371 563	1	13 JUN 1981	A	10000	6	False Colour Infrared 9 x 9	NMR
									Total Sorties		17	
									Total Frames		45	

Air Photo Services, Cambridge.

Oblique aerial photographs by Rog Palmer, 17th July 2015
0098-1
0100-1
0101-1
0102-1
0104-1

Cambridge University Collection of Aerial Photographs

Photo Id	*Date*	*Subject*	*Eastings*	*Northings*
RC8JM101	30/06/1987	South Cambridgeshire District Survey	536716	256998
RC8JM102	30/06/1987	South Cambridgeshire District Survey	537594	257009
RC8JM104	30/06/1987	South Cambridgeshire District Survey	539640	256988
RC8JM154	30/06/1987	South Cambridgeshire District Survey	538890	255449
RC8JM155	30/06/1987	South Cambridgeshire District Survey	538003	255337
RC8JM156	30/06/1987	South Cambridgeshire District Survey	537202	255321
RC8JP001	02/07/1987	South Cambridgeshire District Survey	538790	256986
RC8JP002	02/07/1987	South Cambridgeshire District Survey	538009	256940
RC8JP003	02/07/1987	South Cambridgeshire District Survey	537090	256866
RC8JQ024	21/08/1987	South Cambridgeshire District Survey	537018	255401
RC8JQ025	21/08/1987	South Cambridgeshire District Survey	537843	255410
RC8knBF060	12/06/1988	Cambridgeshire	537938	255090
RC8knBF104	12/06/1988	Cambridgeshire	536941	256978
RC8knBF106	12/06/1988	Cambridgeshire	538567	257142
ZknOW438	02/08/2003	South Cambridgeshire	537491	256050

Google Earth Pro, viewed in October 2015

Timeline images from:

1945, provided by The Geoinformation Group
2000 provided by Infoterra and Bluesky
2002 & 2003 provided by Digital Globe Satellite
2008 provided by Infoterra and Bluesky

Most informative aerial photographs for this assessment

Google Earth Pro 2006 provided by Getmapping plc
Oblique aerial photographs by Rog Palmer, 17th July 2015
0098-1
0100-1
0101-1
0102-1
0104-1

HE archive MAL 7069 frames 73 & 74 taken on 22nd July 1969

TERMS AND CONDITIONS

Air Photo Services has produced this assessment for their client Oxford Archaeology East subject to the following conditions:

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

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

- Air Photo Services has consulted only the aerial photographs specified. It cannot guarantee that further aerial photographs of archaeological significance do not exist in collections which it is not aware of or has not examined.

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

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

- The original working documents, being interpretation notes, overlays, copies, photographs, control information and digital data files will remain the property of Air Photo Services and be securely retained by it for 3 years from the completion date of this assessment after which only the digital data files may be retained.

- It is requested that a copy of this report be lodged with the Cambridgeshire Historic Environment Record (CHER) within 6 months of completion of the archaeological evaluation if appropriate to the nature of the project.

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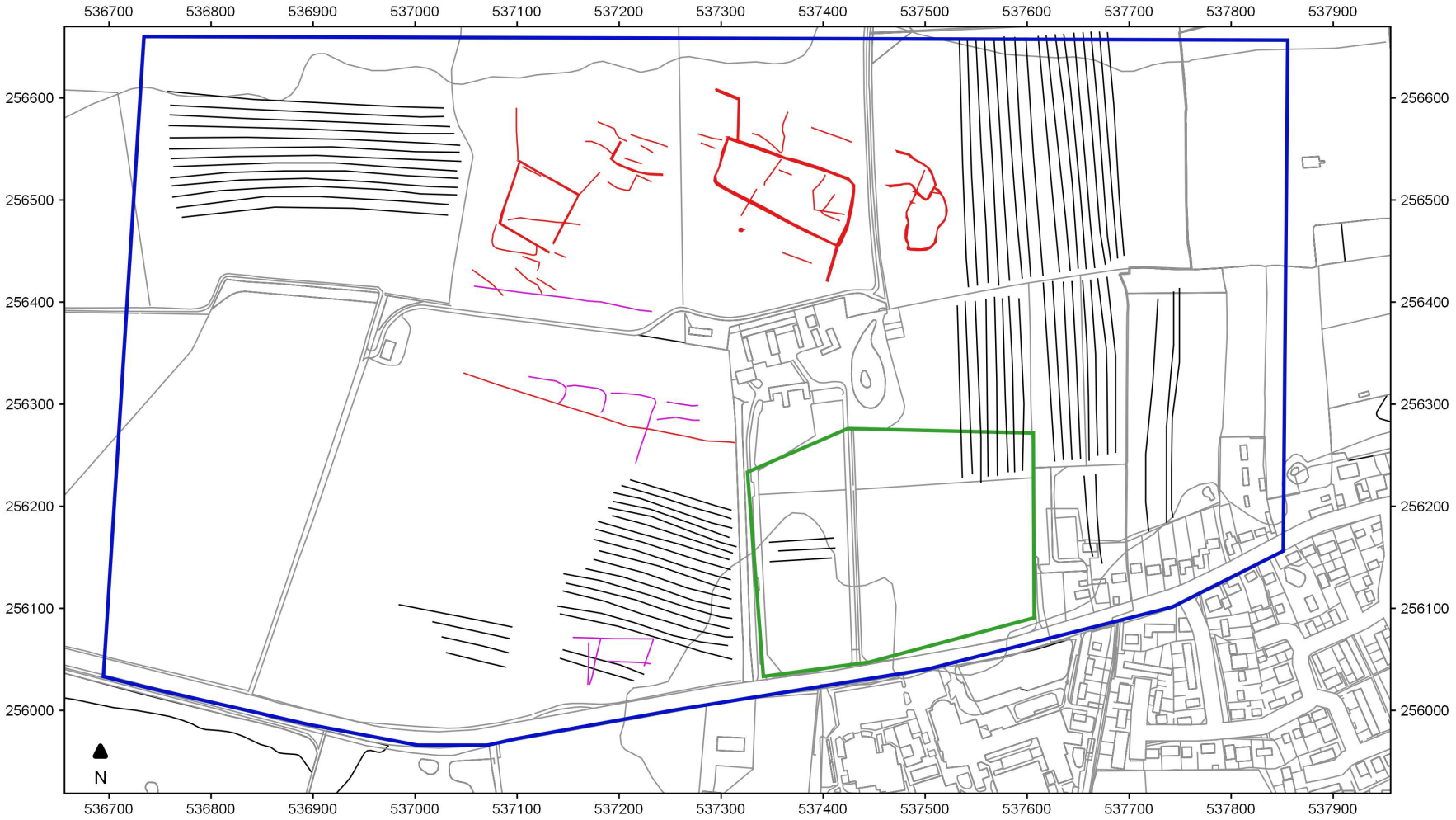
- We reserve the right to use or publish any material resulting from this assessment, but only with the permission of the client and with respect to the nature of the project.

Plan 1 Assessment of aerial photographs for archaeology



Plan 1 Assessment of aerial photographs for archaeology

Bennell Farm Comberton

Client: Oxford Archaeology East on behalf of Mr R.W.S and Mrs S.E. Arnold
AP Sources: Air Photo Services Cambridge, HE Archive,
CUCAP, Google Earth Pro to October 2015

- Study area
- The site
- Buried ditches
- Possible cut features
- Eroded ridge and furrow

0 100 200 m

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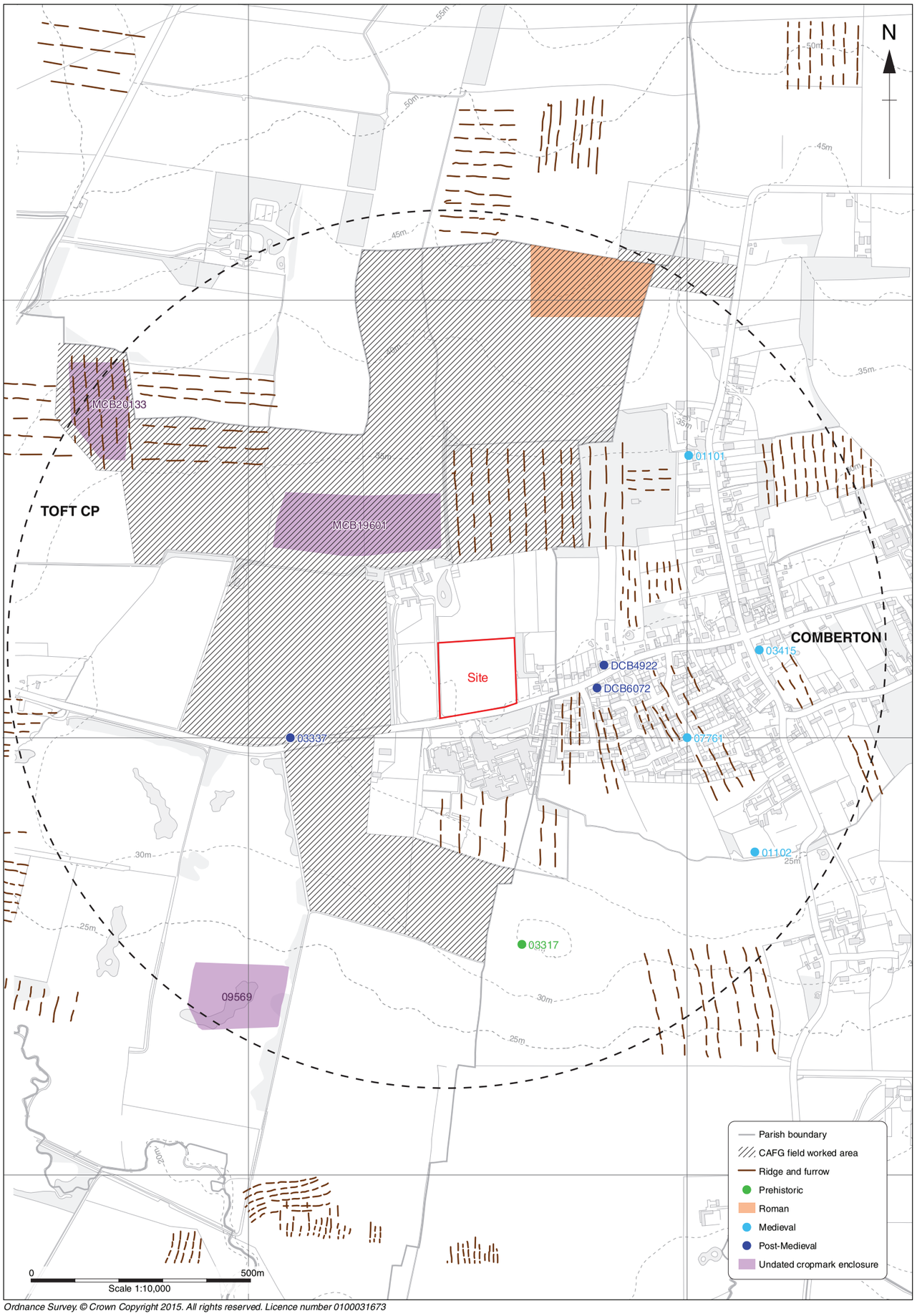
www.airphotoservices.co.uk
07827 810361

Figure 1: Proposed development area (red) showing evaluation trenches (black)



Ordnance Survey. © Crown Copyright 2015. All rights reserved. Licence number 0100031673

Figure 2: Selected CHER records within 1km of development area

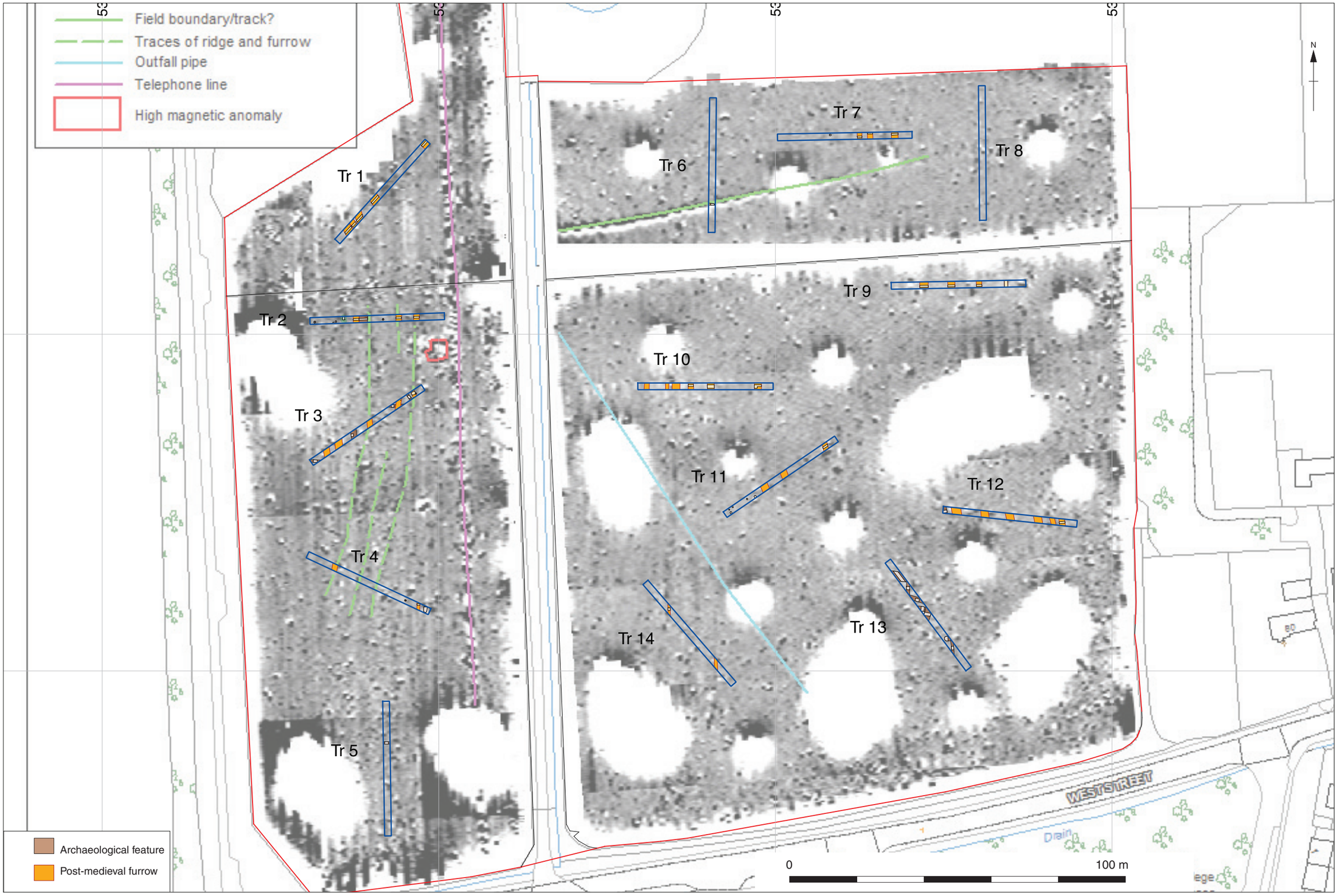


Figure 3: Plan of evaluation trenches overlain geophysics results

Figure 4: Trench layout showing all features, aerial photographic survey results and LIDAR data.

Figure 5: Plan of evaluation trenches 1-14. Scale 1:900

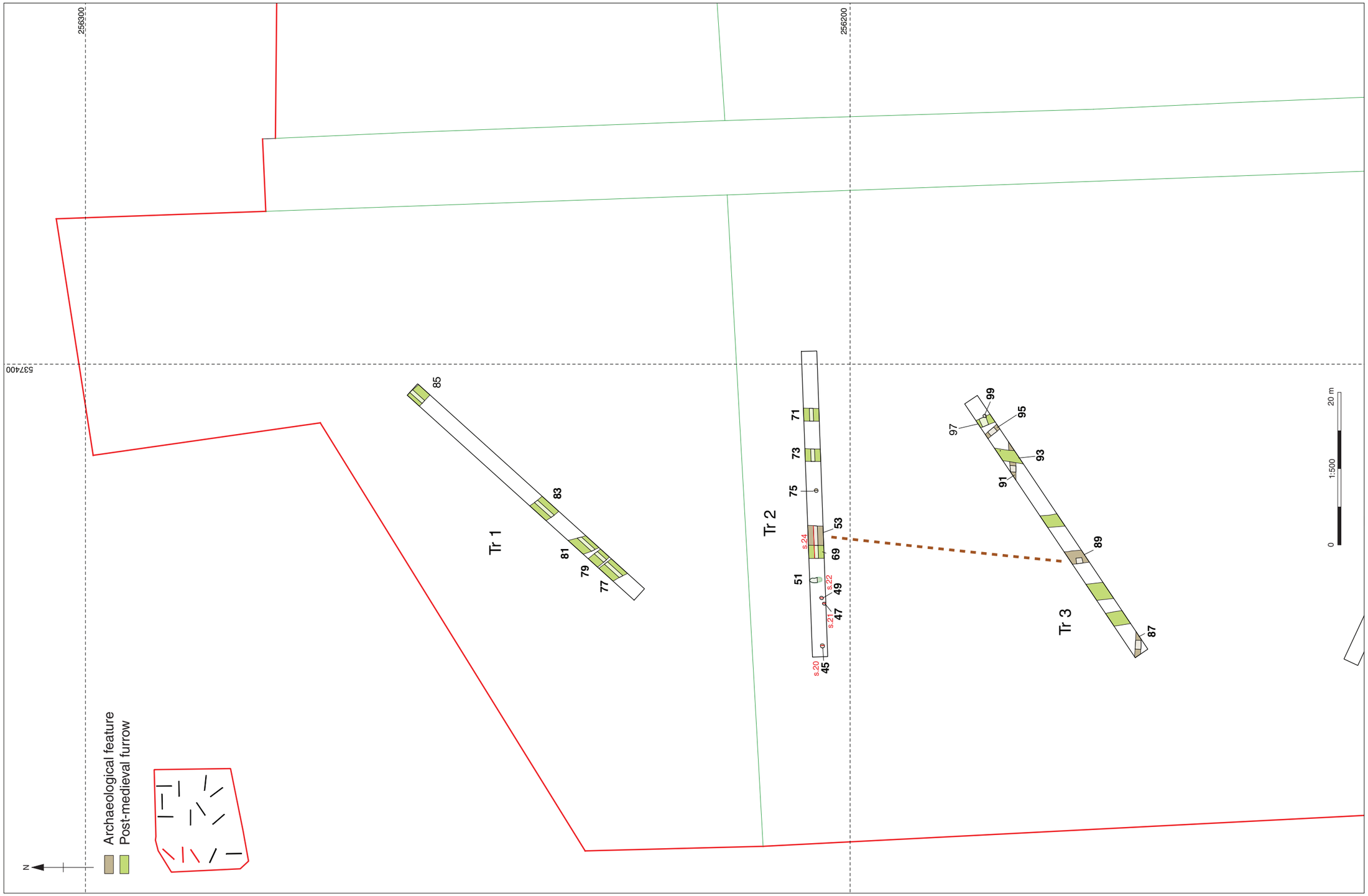


Figure 6: Plan of evaluation trenches 1-3. Scale 1:500

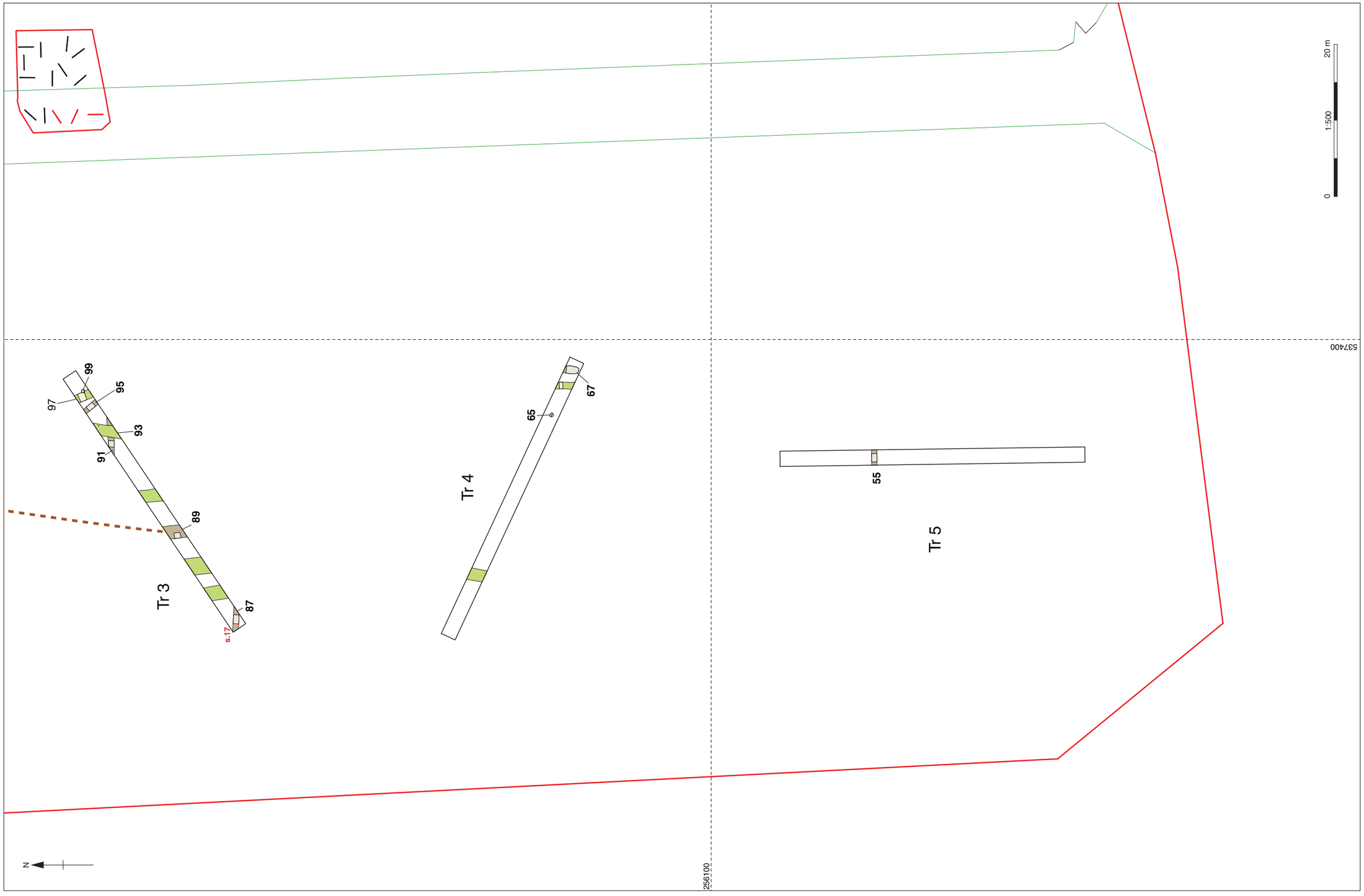


Figure 7: Plan of evaluation trenches 4-5. Scale 1:500

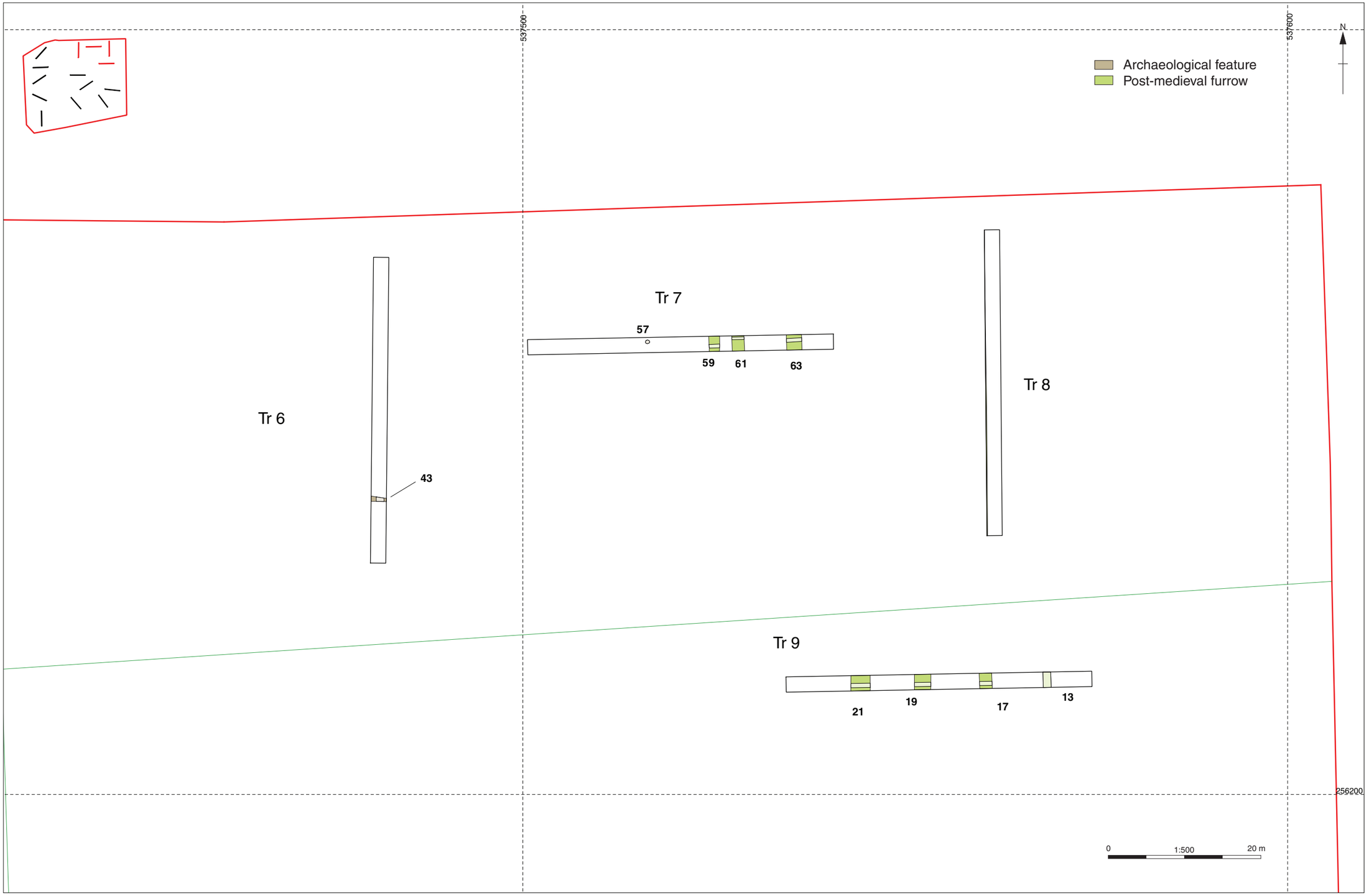


Figure 8: Plan of evaluation trenches 6-10. Scale 1:500

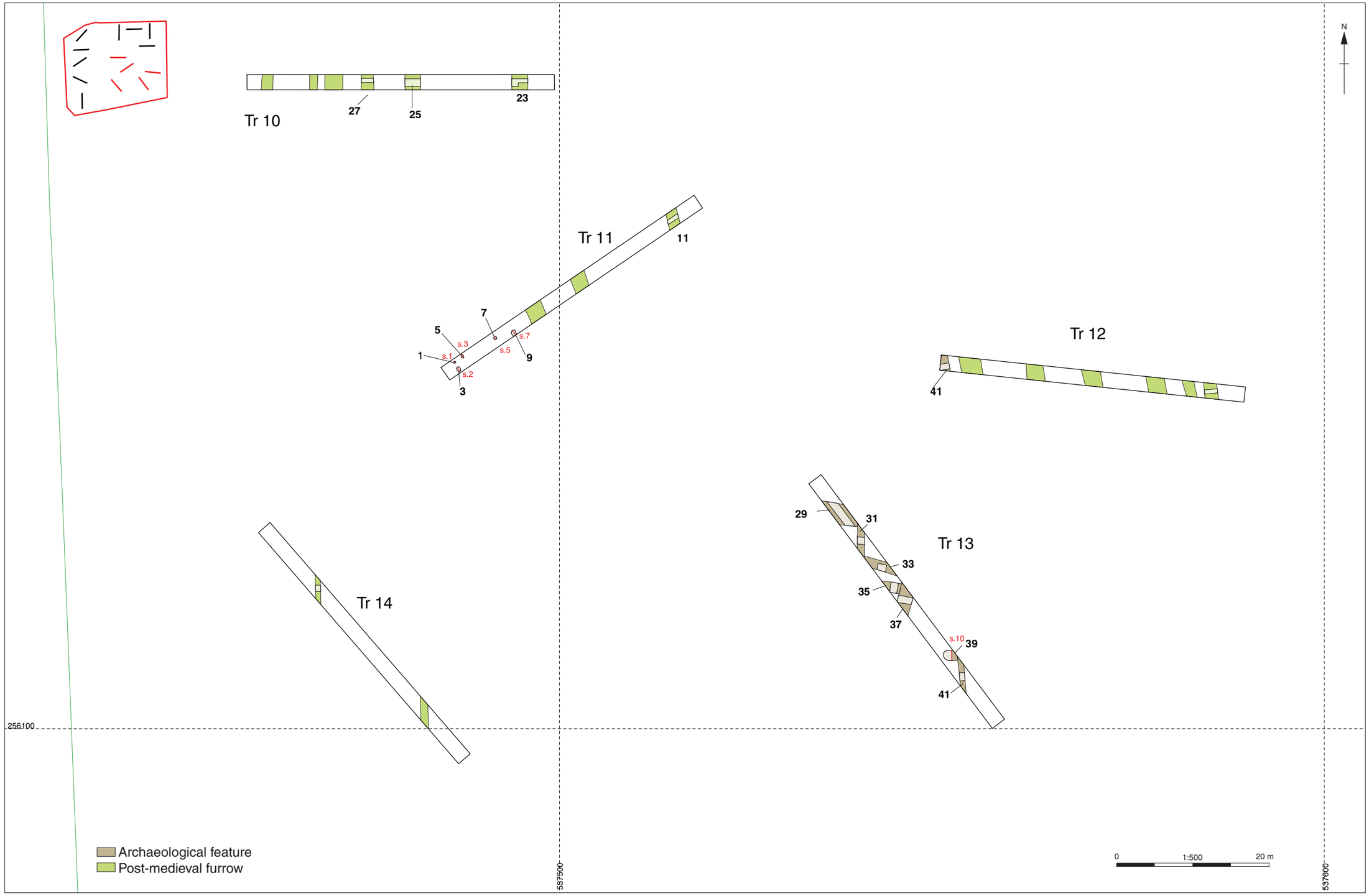


Figure 9: Plan of evaluation trenches 11-14. Scale 1:500

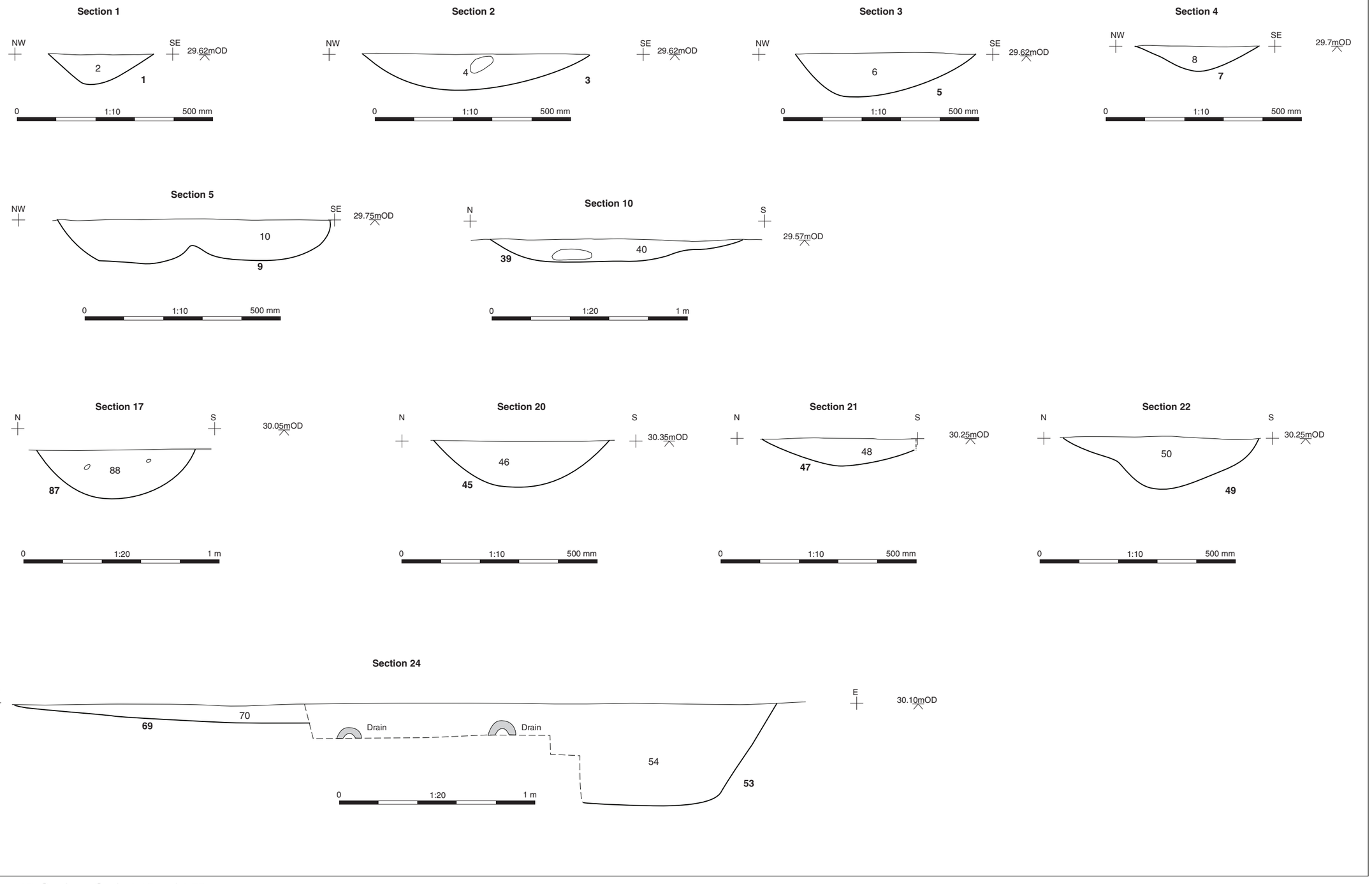


Figure 10: Sections. Scale 1:10 and 1:20

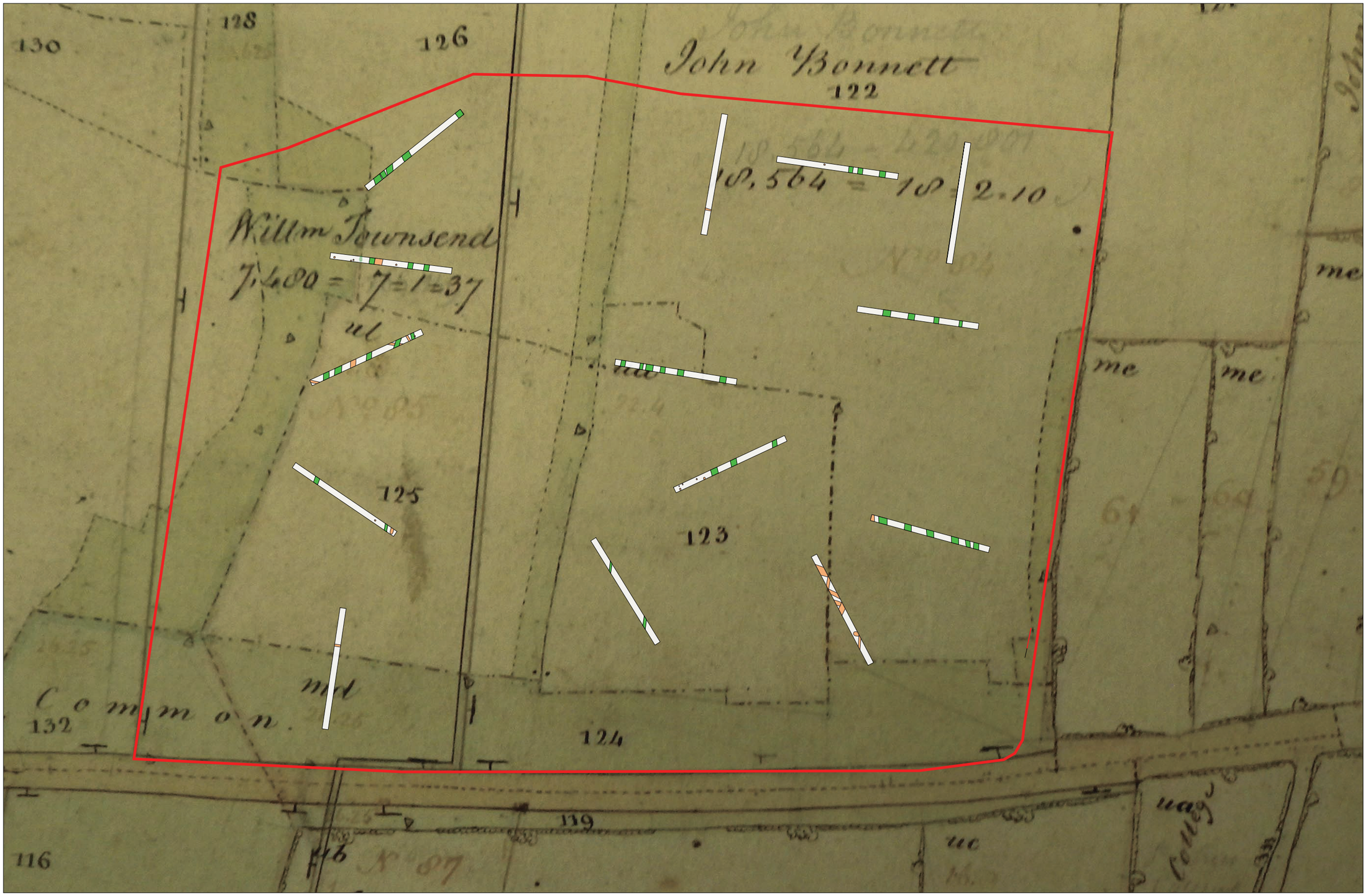


Figure 11: Trench results overlain on 1812 pre-Enclosure map (CRO 124/P80)

Figure 12: Trench results overlaid on 1846 Tithe map (CRO P/157/27/1)

Plate 1: Trench 2, showing postholes **45**, **47** and **49**. View east.


Plate 2: Ditch **53** (right) and Furrow **69** (left), Trench 2. View north.

Plate 3: Postholes **7** and **9**, Trench 11. View northeast.

Plate 4: Furrow **11**, Trench 11. View northwest.

Plate 5: Ditch **29**, Trench 13. View east.

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