ARCHAEOLOGICAL INVESTIGATIONS AT BELTON HOUSE BELTON, LINCOLNSHIRE

GEOPHYSICAL SURVEY AND EXCAVATION

(BEBH15)

work undertaken for

'Lest we forget Belton's bravest' team

on behalf of

The National Trust

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1. SUMMARY

A programme of archaeological training and supervision was undertaken as part of the National Trust's Heritage Lottery Fund Young Roots 'Lest we forget Belton's Bravest' project based at Belton House, Lincolnshire. The programme focussed on the Machine Gun Corps Camp established within the parkland during the First World War. A Kitchener army training camp, including a Royal Army Medical Corps hospital, had been established in the parkland in late 1914 which became the Base Depot and Head Quarters of the war-raised Machine Gun Corps in October 1915. The archaeological aspect of the project included support, training and supervision of the 'Lest we forget Belton's bravest' team to enable them to investigate the remains of the camp through geophysical survey and excavation.

The geophysical survey generally confirmed the layout of the camp (in four selected areas) as depicted on a plan dated to March 1915, with some discrepancies between features shown on the plan and anomalies revealed by the survey. Other anomalies indicated features which may predate the camp together with evidence of ridge and furrow cultivation. Three areas were excavated to examine the remains of barracks occupied by officers and the ranks, together with an area where a geophysics anomaly was recorded which differed from the camp plan.

The excavations did not encounter any foundations of the buildings, although, an associated pipe trench was revealed. The finds assemblage of the period did provide evidence for the presence of building in two of the trenches; particularly the quantities of window glass, nails, screws and washers resulting from the removal or demolition of the structures when the camp was cleared.

Other artefacts, including worked flint, ceramics and metalwork, provided evidence of activity dating from the prehistoric, Roman, medieval and post-medieval periods in the vicinity. This material was largely residual within undated deposits or was retrieved from the topsoil. In addition to possible remains associated with ridge and furrow cultivation, three features were identified but their date remains uncertain.

2. INTRODUCTION

2.1 Background

The National Trust at Belton House was awarded funding from the Heritage Lottery Fund Young Roots programme to work with young people aged between 14 and 19 years old. The programme (to be undertaken during 2015) was devised as a centenary project to remember the Machine Gun Corps at Belton House. As part of this project the 'Lest we forget Belton's bravest' team of young people were to be trained in archaeological techniques to undertake an archaeological investigation of the site of the First World War training camp within Belton's parkland.

Archaeological Project Services (APS) was commissioned by the National Trust to provide professional archaeological training and support during the project. The archaeological programme included a series of workshops and geophysical survey culminating in a week long excavation to be undertaken by the 'Lest we forget Belton's bravest' team at the site of the Machine Gun Corps Training Camp located in the parkland.

As part of the project the 'Lest we forget Belton's bravest' team investigated the history and layout of the camp using documentary, photographic and historic map resources and participated in an archaeological landscape survey of the site supported by National Trust staff and landscape archaeologists, Professor Stewart Ainsworth and Alistair Oswald. Archaeological Project Services facilitated introductory workshops on archaeological recording and finds identification to help support the team's selection of areas for further investigation by geophysical survey.

The geophysical survey fieldwork was undertaken on 13th and 14th June 2015. Following the field survey, workshops were held to set the research questions for the excavation, 24th June 2015, and to plan the forthcoming investigations, 1st July 2015.

The excavation was carried out between 23rd and 30th July 2015 and incorporated an additional phase of geophysical survey.

2.2 Site Location, Topography and Geology

Belton House and Park lie approximately 4km northeast of Grantham and 15km southwest of Sleaford, within the parish of Belton and Manthorpe (Fig. 1). The investigation area was located at the eastern part of the parkland at Belton at National Grid Reference SK 9401 3874 (Fig 2). It comprised part of the site of the Kitchener Camp, established in 1914, which subsequently (October 1915) became the Machine Gun Corps Training Depot and Head Quarters.

The trenches chosen for excavation by the 'Lest we forget Belton's bravest' team were located in the northern part of the camp (Fig. 5) lying immediately northeast of Old Wood, bounded on the north by East Avenue, on the east by the Londonthorpe Road and on the west by Five Gates Lane. The ground here slopes gently to the west at approximately 70m OD.

Local soils are of the Blackwood Association, typically slightly stony typical sandy gley soils (Hodge *et al*. 1984, 127). These overlie a drift geology of glacially derived sand and gravel of the Belton unit which in turn seals a solid geology of Jurassic Brant Mudstone Formation (BGS 1996).

2.3 Archaeological Setting

Belton Archaeology

Evidence of Mesolithic activity in the area has been indicated by the presence of worked flint microliths, cores and a micro-burin found on the Golf Course, southwest of the site. Flints dating to the Neolithic have also been found within the Park.

Antiquarian reports of tessellated pavements and walls 'in the neighbourhood of Belton' may indicate the presence of a Romano-British villa. Romano-British pottery has been recovered from several places in the vicinity and ditches of this date are also recorded within Belton Park.

Knives and a spearhead of Anglo-Saxon origin have been found in the garden of the Old Rectory in 1883 and it has been suggested they derive from an inhumation cemetery of the period (Meaney 1964, 152).

Belton is first mentioned in the Domesday Survey of *c*. 1086. Referred to as *Beltune*, the name is derived from the Old English and means 'the settlement or farmstead (*tūn*) on dry

ground in a fen' (Cameron 1998, 13). At the time of Domesday, Belton was held by the King, William de Aincurt, Guy de Reinbuedcurt, Guy de Craon and Colegrim and contained a church, five mills; 183 acres of meadow and 16 acres of underwood (Foster and Longley 1976). The principal manor, that of Walter de Aincurt, passed to St Mary's Abbey in York.

Earthwork remains of the deserted medieval village of Towthorpe lie on the western side of Belton Park. Towthorpe is mentioned in the Domesday Book of 1086 but is thought to date from much earlier as prehistoric and Saxon artefacts have been found in the area. Earthworks of ridge and furrow of the medieval field system can be traced throughout Belton Park.

The parish church of SS Peter and Paul is the only extant medieval building in Belton and dates from around 1200 with additions in the 14th century (Pevsner and Harris 1989, 134).

A full archaeological chronology and history of Belton is recorded in the 2012 Belton Parkland Management Plan (Hilary Taylor Landscape Associates, 2012).

Belton House and Park during the First World War

The Third Earl Brownlow offered the use of Belton's parkland, already used by the Lincolnshire Yeomanry for training, to the War Office at the start of the First World War for the training of soldiers. A tented training camp was established in the eastern part of the grounds in late 1914, to be replaced quickly by wooden framed huts.

Initially the camp was home to the newly formed 11th Division, who were joined by elements of the 30th Division, comprising the King's Liverpool, Manchester and South Lancashire Regiments. On the 14th October 1915, these Divisions left Belton for the Front Lines of Gallipoli. On the 15th October 1915 the Machine Gun Corps was formed. The newly formed corps took over use of the then vacant camp at Belton along with Harrowby Camp to the south (now the site of Alma Park industrial estate and housing). The camp became the training centre and Head Quarters for Machine Gun Corps. .

"*Almost at once thousands of men began to pour into the wooden huts which rapidly spread themselves over Lord Brownlow's Parklands at Belton Park. Thousands of horses, mules and vehicles appeared; and, with two weeks of wintry rain, the park was submerged beneath a sea of mud. The task of sorting and re-equipping all conditions of men, in every kind of uniform, some holding the rank of sergeant and corporal, from the various new (Kitchener) Army battalions from which they had been drafted, other regulars and special reserve soldiers from the regimental depots with much machine gun experience, would have tried the patience of a Job*" (Hutchinson 1937).

During the early 1920s the Machine Gun Corps' Head Quarters were moved to another camp before their disbandment in 1922. At this time the camp was dismantled and many of the buildings were sold off for use in the local community, some for agricultural use and some used as dwellings. The site of the former camp was reinstated and the land was returned to the estate.

Previous archaeological intervention at the investigation site.

Previous archaeological work at the camp included geophysical survey and trial trenching as part of a Time Team evaluation at the site (Wessex Archaeology 2013). Eight trenches were excavated, focussed on the training camp, confirming its basic layout as illustrated on a contemporary plan. Few structural elements were revealed, however, the artefact assemblage provided evidence of camp life.

3. RESEARCH QUESTIONS AND AIMS

Research questions were formulated by the 'Lest we forget Belton's bravest' team based on the results of documentary, landscape and geophysical surveys with the aim of enhancing our understanding of the significance and history of the site.

The questions posed concerned the construction, layout and status of the camp, specifically to investigate:

- how the buildings were constructed,
- the discrepancies between the 1915 plan of the camp and the results of the geophysical survey,
- the differences in types of buildings in different parts of the camp (particularly differences between the barracks for the officers and the ranks) and
- any evidence of differences in status between parts of the camp occupied by the officers and the ranks.

The overall aims of the programme were to:

- undertake further archaeological investigations of the site during the centenary year to increase the understanding of the site in terms of historical significance and conservation.
- work with young people providing an opportunity for training in (and practical experience of) a suite of archaeological techniques and to provide information and support to the team to enable them to plan and carry out the investigations.

The results of the archaeological investigation will help to further inform conservation policies and recommendations for the future management of the site.

4. METHODS

4. 1 Geophysical Survey

A geophysical survey was carried out in advance of the excavation. The geophysical survey areas were selected by the 'Lest we forget Belton's bravest' team based on their desk-based investigations and landscape survey at the site on 9th and 10th May 2015, subject to any on-site constraints. Four areas (A-D, Figure 4) were surveyed on 20th and 21st June 2015 supervised by APS archaeologists. See Appendix 1 for full detail of the geophysical survey methodologies.

4.2 Excavation

Three excavation trenches were selected by the 'Lest we forget Belton's bravest' team targeted on geophysical anomalies identified, together with the 1915 camp plan. The location of each trench was marked out using survey grade, differential GPS technology. Trenches 1 and 2 measured 5m x 4m and Trench 3 was 7m x 4m (Figure 5). Trench 3 was subsequently extended a short distance to the south to investigate the possible line of a pipe trench; however, this was abandoned due to ground contamination from asbestos.

The grass in the area of the trenches and their immediate surroundings was cut with a strimmer operated by a member of Belton House staff. The turf in each trench was cut into

approximately 30cm squares using a manual turf cutter, lifted and stored adjacent to the trenches. Turf and excavated spoil were stored on plastic sheeting.

The work was carried out in accordance with a Written Scheme of Investigation prepared by National Trust and under a Natural England Derogation. All archaeological excavation was undertaken by the 'Lest we forget Belton's bravest' team with training and supervision provided by experienced, professional archaeologists.

The soil was manually removed in spits, using trowels, and mattocks where appropriate, until archaeological features or natural deposits were encountered. Each deposit exposed during the excavation was allocated a unique reference number (context number) with an individual written description. A list of all contexts and their interpretations appears as Appendix 2. A photographic record was also compiled and sections were drawn at a scale of 1:10 and plans at 1:20. Recording of deposits encountered was undertaken according to standard Archaeological Project Services practice.

Following excavation, the records were checked and a stratigraphic matrix produced. Phasing was assigned based on the nature of the deposits and the recognisable relationships, and supplemented by artefact dating (Appendix 3).

On completion of the fieldwork, the trenches were backfilled manually and the turf re-instated.

5. RESULTS (Figs 6 - 8)

5. 1 Geophysical Survey

The geophysical survey largely agrees with the layout of the camp in the map of 1915, with the exception of Area A, where the map appears to be skewed when compared to the geophysical readings (Fig. 5). The strongest readings generally relate to service pipes, many of which correspond to those marked on the 1915 map, although several readings show probable pipes, not marked on the map. These have either been left off the map, were later additions to the camp or may relate to the land management of the estate prior to or after the First World War

Readings relating to the survival of building footprints within the areas were faint, where they survived at all. In Area C, a network of features is visible that is similar to other areas of the camp, but do not appear on the map, possibly showing a post-1915 extension. The results of the geophysical survey are described in full in Appendix 1.

5. 2 Excavation

The three excavation areas (Trenches 1 – 3) are described below by trench. The context numbers allocated in the field are given below in brackets () and described in Appendix 2.

Trench 1 (Figure 6)

Trench 1 was located to examine a possible discrepancy between the geophysical survey and the camp plan (Fig 5).

The earliest deposit encountered was firm, friable, light yellowish brown sandy silt and limestone brash (108) with areas where the limestone brash was more prominent than the

surrounding silts (113). This formed the natural deposits within the trench and occurred at an average height of 70.5m to 70.7m OD.

Overlying the natural, a deposit of mid yellow brown sandy silt (103), up to 0.1m thick, was recorded at the western and eastern sides of the trench. Evidence of a very shallow and patchy deposition of similar material was observed in the central part of the trench. The sandy silt (103) was thought to possibly represent the remains of cultivation; however, there was no clear evidence of a cut for a furrow. Finds recovered from deposit (103) included a sherd of pottery of Roman date, fragments of undated ceramic building material (CBM), and a fragment of animal bone (Appendix 3). Where the deposit was clearly evident, for example in the western part of the trench (Fig. 9, Section 103), it was cut by the features present ([104], [106], [109]).

Three cut features were identified within the trench. In the central part of the trench an irregularly shaped, short, linear feature with rounded termini [106] was revealed. Measuring 0.98m long and 0.24m wide, this feature had steep sides and an irregular base. With a depth of 0.11m, it was filled by a single deposit of firm, mid yellowish brown sandy silt with limestone fragments (107) (Fig. 9, Section 102). No finds were recovered from this feature.

Two features were revealed at the northern edge of the trench cutting deposit (103). A corner of a possibly rectangular pit [109] was exposed measuring 1.15m by 1m (as seen) with a depth of 0.3m. The basal fill (110) comprised a 0.1m thick deposit of dark brown silt with occasional limestone gravel. Overlying this was a 90mm thick layer of light brown sandy silt with frequent limestone fragments (111). The upper fill (112), a 0.1m thick, friable, mid greyish brown sandy silt with occasional limestone fragments (Fig. 9, Section 104), produced a single sherd of fragmentary Roman pottery (Appendix 3).

Immediately to the east of pit [109] part of an apparent east-west linear feature [104] was recorded, however, there was no discernible relationship between the two features. Possibly representing a ditch or gully, feature [104] measured 1.6m in length by 0.15m with a depth of 0.13m. The single fill (105) comprised soft, mid brown sandy silt with occasional limestone fragments and yielded a fragment of Roman pottery (Appendix 3).

The presence of the possible furrow(s), together with the later features, may have contributed to the geophysical survey readings which were originally interpreted as a possible small structure, which appeared to be offset from the building depicted on the camp plan (Fig. 5).

The features were sealed by a depth of topsoil (0.2m thick) which was excavated in spits following removal of the turf. The lower 0.1m of topsoil (102) was a compact mid brown layer of sandy silt with occasional stones and contained a range of finds including Bronze Age flint tools, pottery of Roman, medieval, post-medieval and modern date, fragments of CBM, clay pipes, 20th century glass and metalwork. The upper part of the topsoil (101) was less compact sandy silt containing 18th to 20th century pottery, Roman and modern CBM, animal bone, 20th century glass, concrete and metalwork.

Trench 2 (Figure 7)

Trench 2 was positioned to investigate an accommodation block in the officers' quarters, depicted on the camp plan, and a geophysical anomaly (a possible pipe trench) immediately to the north (Fig. 5). However, due to ground contamination only the southern half of the trench was investigated.

Natural deposits in the trench comprised firm, mid and light yellowish brown sandy silt and

limestone brash (203). In some areas the limestone brash fragments were considerably larger and were more prevalent than the silty deposits (204). These deposits were encountered between 69.16m OD and 69.32m OD. Overlying the natural was a 0.12m thick layer of topsoil (201) and turf (202). No archaeological features were present in this trench.

Finds recovered from the topsoil (201) included a large quantity of nails, pottery, animal bone, CBM, clay pipe, wood and glass. Notable among the finds were a strap end with a hook fitting, a window catch, a coat button and a belt strap-end, these probably all dating to about the time of the Machine Gun Corps camp, or a little earlier. In addition a medieval knife blade and prehistoric worked flint were recovered.

Trench 3 (Figure 8)

Trench 3 was positioned to allow investigation of one of the barracks occupied by the ranks. The trench was placed to intersect the line of a pipe trench, as recorded by geophysical survey, to resolve an apparent discrepancy in its location between the survey and the camp plan (Fig. 5).

The earliest deposit exposed in this trench was a firm, light yellow brown silty sand with gravel (304). A linear feature [307] with a width of 0.9m and a depth of 0.28m was located close to the northern edge of the trench (Fig. 8). Aligned east-west, this feature had vertical sides and a flat base and was a cut for a water or sewage pipe. The service trench was filled by a firm, light yellowish brown sandy silt and large fragments of concrete (303) and contained finds of glass and metal (Fig. 9, Section 301). It had been re-excavated, apparently, in order to remove the pipe and then backfilled. Alternatively the concrete within the trench may have been broken up in order to improve the drainage.

Following removal of the turf the topsoil (302, 301 and 300), a friable, mid brown sandy silt (0.2m thick) with occasional small stones, was excavated in spits. The lowest spit (302) contained a range of finds including prehistoric flint tools, post-medieval and modern pottery, modern glass and CBM, metalwork and concrete. The overlying spit (301) contained prehistoric worked flint, a sherd of Roman pot together with post-medieval sherds, a fragment of roof tile of uncertain date and glass and metalwork. The upper horizon (300) produced glass, metalwork and medieval to 20th century pottery sherds.

A wooden post (308), located approximately in the centre of the trench, appeared to have been driven through the topsoil deposit (no cut was apparent). The top of the post was decayed and was first identified within the topsoil.

6. DISCUSSION

The principal aim of the archaeological investigations was to uncover evidence relating to the Machine Gun Corps training camp based at Belton Park during the First World War. The three areas selected for excavation were based on their potential to address the 'Lest we forget Belton's bravest' team research questions to:

- investigate the type of construction and possible differences between buildings for officers and ranks,
- examine the apparent discrepancies between the 1915 plan of the camp and the geophysical survey results and
- investigate possible differences in status and use in different parts of the camp.

Each of the three trenches revealed evidence of occupation during the First World War and also provided an insight into earlier patterns of land use and activity within the immediate vicinity. Although none of the features can be conclusively dated to earlier periods, the wide range of artefacts recovered, largely from topsoil and subsoil deposits provide evidence of occupation from the prehistoric, through Roman, medieval and the post medieval to modern periods.

Prehistoric
Evidence of prehistoric activity in the area was recovered from each trench in the form of worked flint. The earliest pieces recovered dated from the late Mesolithic to the early Neolithic and were found in the topsoil in Trench 3. Neolithic to early Bronze Age flint was recovered from the topsoil of Trench 2 and Bronze Age flints were recovered from the lowest level of topsoil in Trench 1.

Roman
Pottery dating to the Roman period was recovered from Trenches 1 and 3. In Trench 1 single sherds of abraded Romano-British pottery were present in the remains of possible furrow (103) and also within the fills of a gully and a pit which post-dated the furrow. It is of note that the Roman pottery sherds were the only artefacts recovered from the features, however, all the material of this period is very fragmented and abraded and this suggests a high level of re-deposition.

Further sherds of Roman pottery were found within the overlying topsoil (102) together with a fragment of Roman (tegula) roof tile. Although this type of roof tile was occasionally reused (particularly during the medieval period) the presence of such items usually indicates that a structure of Roman date was located nearby. Trench 1, located on the higher ground, yielded the highest number of Roman period finds (seven of eight fragments recovered from the excavations). In comparison, only a single sherd of Roman Greyware was recovered from the topsoil in Trench 3.

Medieval
A shallow layer of sandy silt (103) in Trench 1 was thought to represent the remains of medieval ridge and furrow cultivation. Although not initially identified from the geophysical survey, re-examination in the light of the excavation results, might suggest faint readings (on a north - south alignment) which represent medieval cultivation which has been recorded across parts of the wider camp site. However, no dating evidence, other than redeposited Roman pottery, was retrieved from the furrow fill and therefore its date must remain tentative. Similarly, the other features within the trench, which all post-date the putative furrow, cannot be closely dated.

Pottery from the medieval period was recovered from the topsoil in Trench 1 including sherds dating from the 10th to 12th century as well as part of a drinking vessel that dated to around 15th century. In Trench 2 the topsoil yielded pottery dating from between the 12th and 15th century together with a knife blade, dating from 12th-14th century.

Post-medieval
The majority of the finds assemblage dates to the post-medieval and modern periods and was largely recovered from topsoil deposits across all three trenches. The artefact evidence that pre-dates the First World War camp includes a range of pottery, from the later 15th to 18th centuries, but mainly of 17th and 18th date. The assemblage is mainly domestic with evidence of higher status wares, such as Chinese export porcelain (Trench 1), and this could represent waste material from Belton House. It was noted that there was only a small quantity of 19th century ceramics suggesting, possibly, a change in land management or in the treatment of

domestic waste during this time.

20th century / Machine Gun Corps training camp
A plan of the camp had been produced in March 1915, principally to show the location of the water pipes as they existed at the time, it also depicted the layout of the camp accommodation, ancillary and service blocks, such as kitchens, and other buildings including the hospital complex. The results of the geophysical survey in four areas of the camp (Fig. 4) largely confirmed the general layout as depicted on the 1915 plan, although there was one area (Area A) where the original mapping was slightly skewed in relation to the geophysical survey. (A discrepancy between the plan and the location of earthwork remains when referenced to geographical features had already been noted during the landscape survey.)

It was clear from geophysical results that while the general layout was accurate not all pipes and buildings gave a magnetic signature and, equally, some anomalies detected during the survey and thought to relate to the camp did not appear on the plan of the period.

The trenches were placed to investigate the potential footprints of the barracks in the officers' quarters (Area A, Trench 2) and those for the ranks (Area B, Trench 3) and a possible structure in Area A (Trench 1) that did not appear to match the plan.

Some of the geophysical survey results closely matched the plan of individual buildings and suggested that traces of construction may have survived (in the form of foundations) in places. None of the trenches revealed building foundation trenches or footings, although adjacent service trenches were revealed.

The buildings may have been constructed on levelled or cleared ground and platforms had been identified during the landscape survey. Photographic evidence of the construction (Plate 1) demonstrates the huts were in some cases built directly over a grassed area and terraced into the existing ground level. The lightness of the frame, built onto timber posts is likely to have left little tangible evidence.

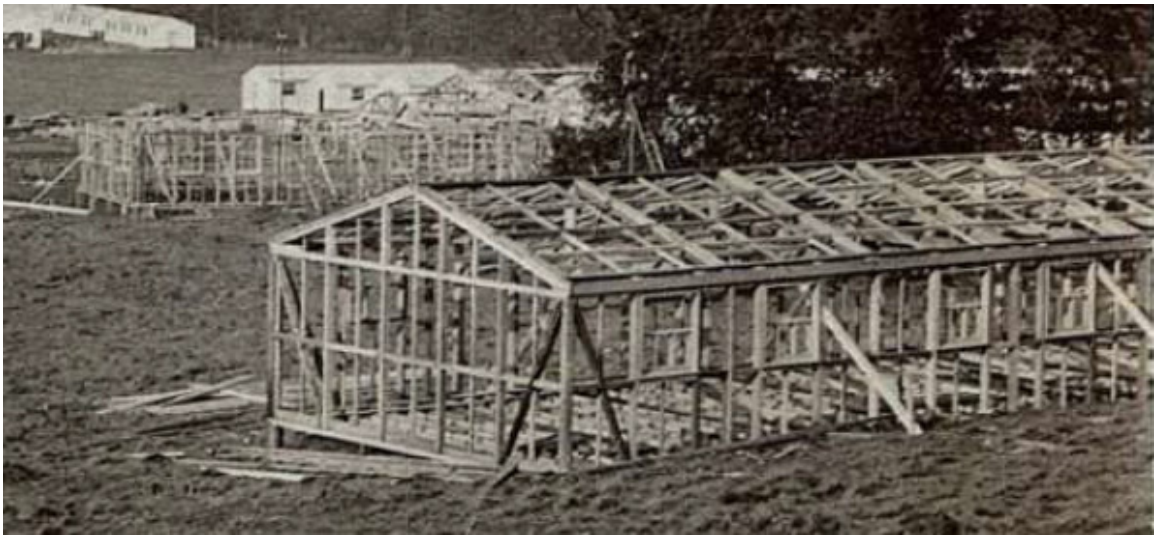

Plate 1. A view of the wooden huts under construction showing the lightness of their frame. Note that where built on uneven ground they have been made level using wooden posts (image courtesy of the National Trust/Belton House)

Despite the absence of construction features the artefact assemblage, including building materials, provided evidence for the presence of former structures, particularly in the

distribution of the large quantities of nails, screws and washers and window glass retrieved during the excavations.

Trench 1
No physical evidence for either the building as depicted on the plan or suggested by the geophysical survey readings was found in Trench 1. The features revealed in the trench did not relate to the camp or its use. Whilst Trenches 2 and 3 produced material from the demolition of the structures at these locations no nails or window glass dating to the period of the camp were recovered in Trench 1. This would suggest that if there was a building here it left no footprint and that, equally, its removal left no trace.

Trench 2
Trench 2 was positioned in the officers' quarters, over a building as it appeared on the plan and a possible pipe trench recorded by geophysical survey, parallel to the northern edge of the building. No evidence of building foundations was found within the trench and only a shallow topsoil overlay the natural. It is likely that the building had been constructed on a cleared or levelled platform.

Although there were no features within Trench 2, there was significant evidence in the form of building materials, for the demolition and/or removal of the building that had once occupied the site. The northern part of the trench was not excavated due to the presence of asbestos, which would have formed or been attached to the walls and/or ceiling of the huts. The area containing this material was not excavated and it was re-buried immediately, it was therefore not possible to confirm the presence of the possible pipe trench to the north of the building.

A large quantity of nails, screws and washers (739 items in total) was recovered from the topsoil, including several types of nails, which would have been used to attach corrugated metal sheets or other cladding to the wooden frame (Plate 2). Many of the nails were bent, presumably as a result of being drawn out as part of dismantling the hut and the large number of nails and other fixings found in this trench is suggestive of the building having been carelessly or rapidly dismantled with nails left where they fell. It is known that during the dismantling of the camp that many of the huts were dismantled, taken away and used elsewhere as village and church halls, farm buildings, homes and classrooms. Examples of several Belton Park Camp Huts can still be seen today in Fishtoft near Boston.

The vast majority of nails recovered during the excavations were concentrated in Trench 2. It may be that the large concentration of nails may have affected the strong gradiometer readings which were originally interpreted as a footprint, possibly a foundation cut, for the building. Alongside the concentration of nails a quantity of window glass (27 pieces) was found, again likely to represent demolition debris.

Plate 2 (left). A detail of the nails with washers that attach the corrugated outer to the building's timber frame as seen on an example removed from Belton Park and re-sited at Fishtoft.

Plate 3 (right) A selection of nails from Trench 3 showing some of the variety of types recovered.

Trench 3

Trench 3, targeted on the regular soldiers' barracks in Area A, showed little structural evidence for an actual building, although the service trench (shown on the plan and recorded in the geophysical survey) to the north of the building was found.

There was some discrepancy in Area A between the 1915 plan and the results of the geophysical survey. It appeared that, whilst there seemed to be a good overall correlation with the camp plan, the mapping of buildings and services in Area A was slightly skewed. The service pipe identified in the north part of Trench 3 confirmed that in this area the plan depicts features slightly to the south (Fig. 5) of their actual location.

The pipe trench on the north side of the building had been backfilled with broken concrete, apparently following the removal of the pipe; one of the concrete fragments showed the shape and dimension of the pipe it was poured around. The diameter of this pipe was compared to the dimensions recorded within the key of the March 1915 plan revealing it to be a ceramic sewer pipe. The1915 plan however marks a water pipe in this location suggesting perhaps a discrepancy, a subsequent change or that (although unusual) the same trenches were used for more than one service.

During excavation it was suggested (from landscape survey) that a further service trench may have been present just beyond the southern end of Trench 3. Neither the plan of the camp or the geophysical survey suggested the presence of a service trench in this location.

The trench was extended with the intention of locating further services and to help determine the width of the building. The extension area contained asbestos and was immediately re-buried, therefore it was not possible to determine the presence of any pipes or the width of the hut at this time. It may well be that the building was constructed on a frame on or raised above the existing ground as there was no clear indication that the ground was levelled or cleared in this area.

In common with Trench 2, a quantity of demolition debris and other artefacts recovered from the topsoil in Trench 3 demonstrates the former presence of a building. Thirty nails of various types were recovered (see example, Plate 3) together with 112 fragments of window glass.

Despite the lack of structural evidence for building footprints, a wealth of information was retrieved in the form of the artefacts for the occupation and use of the camp, chiefly in the form of building material as well as examples of fittings, such as a coat hook (Trench 3) and a window latch (Trench 2). Other artefacts relating to the use of the camp included cartridge cases, boot irons and fragments of glass vessels, although the assemblages were relatively small. In addition, it was noted that relatively few pottery items can be confidently dated to period when the camp was in use.

7. CONCLUSIONS

The programme of archaeological investigations at the First World War Machine Gun Corps Camp at Belton House were undertaken by the 'Lest we forget Belton's bravest' team as part of the wider Lest we forget Belton's bravest project supported by the Heritage Lottery Fund Young Roots program to provide opportunities for learning, understanding and communication.

The geophysical survey and foregoing work undertaken as part of the project (examining documentary resources and landscape survey) provided a basis for the 'Lest we forget Belton's bravest' team to learn about archaeological techniques and enable them to develop a suite of research questions to be addressed through the excavations. The questions posed related to the layout and construction of the camp and the potential to examine differences between the parts of the camp occupied by the officers and other ranks.

The geophysical survey largely confirmed the general layout of the camp as depicted on the 1915 map and excavation established that part of the plan was slightly skewed, based on the location of the service trenches (as excavated). There was no evidence for building foundations or footings in the excavation areas, even where the geophysical survey had detected what appeared to be 'footprints' of buildings. It is possible that the readings were affected by the large numbers of nails remaining from the demolition of the huts. In other instances the anomalies interpreted as possible structures may have been responses to features which pre-dated the camp.

Although no structural evidence for the buildings was identified, the artefact assemblage provides important evidence for the nature of the buildings: timber jointed by nails with cladding screwed to the frames and glass windows. Other artefacts reflected the use of the camp, such as cartridge cases, boot irons and glass vessels, although the assemblages were relatively small with, for example, few pottery items that could be confidently dated to the period when the camp was in operation. There was only limited evidence of possible differences between the various parts of the camp.

In addition to the camp remains, evidence was recovered of activity from the prehistoric through to the post-medieval period in the vicinity, again principally through the artefact assemblages. A few features were recorded which predate the camp, although these cannot be closely dated they are thought to be medieval and later.

The excavations were completed successfully by the 'Lest we forget Belton's bravest' team, who undertook the investigation and recording of the site under archaeological supervision, gaining a set of skills in a range of archaeological techniques. The results of their work as part of this programme will help inform subsequent and ongoing elements of the wider project and future conservation management of the site.

8. ACKNOWLEDGEMENTS

Archaeological Project Services would like to thank the National Trust, particularly Rachael Hall, National Trust East Midlands Archaeologist and Melissa Maynard, Learning Manager, Belton House for their organisation, support and participation throughout programme of archaeological work and particularly during the excavation week. Thanks are also extended to all those who participated, supported, visited and offered encouragement. Members of the teams who worked so enthusiastically and contributed to the fieldwork are detailed in 'Personnel' below.

Thanks are due to Janet Lambert, Natural England for her kind assistance with the Derogation.

A number of people including National Trust staff, partner organisations and others provided encouragement and support, particularly during the on-site work, and our thanks are extended to the following: Alec Gordon, General Manager; David Fitzer, Conservation Manager; Chris Shaw, Lead Ranger; Mark Parnaby, Maintenance Manager and Richard Shores, Gardener Belton House; Stewart Ainsworth, Landscape Archaeologist, University of Chester; Ian Barnes, National Trust, Head of Archaeology; Denise Foster, Visitor Experience Manager, Heelis, National Trust; Elaine Willett, Historic Environment Senior Adviser (Area 5 - East Midlands), Natural England; Catherine MacCarthy, Head of Midlands Conservation, National Trust; Tate Greenhalgh, National Specialist -Interpretation, National Trust; Fiona Bridges, Midlands Visitor Experience Consultant - Outdoors, National Trust; Sarah Grundy, Historic Environment Officer, Lincolnshire County Council and Catherine Pike, Lincolnshire Remembrance Project Officer, Lincolnshire County Council.

We are grateful to The Prince William of Gloucester Barracks in Grantham for the loan of the mess tent as part of the on-site welfare facilities.

9. PERSONNEL

Trench 1	**Trench 2**	**Trench 3**
'Lest we forget Belton's bravest' Team	*'Lest we forget Belton's bravest' Team*	*'Lest we forget Belton's bravest' Team*
Ben Fairbrother	Emily Walton	Abbie Thompson
Jonathan Lester	Harry Lord	Martyna Krzeminska
Cara White	Archie Naylor	Charlotte Cole
Sam Jackson	Saffron Scott	Eleanor Scott
	Kelly Turner	Matthew Slack
	Truan Randle	
Mentor	*Mentors*	*Mentor*
John Anderson	Debbi Rogers (Grantham Explorer Scouts Leader, Scouts Association) Katie Russell	Gerrie Tegerdine
APS Trench Supervisor	*APS Trench Supervisor*	*APS Trench Supervisor*
Jonathan Smith	Neil Parker	Ian Marshman

We would like also to thank the National Trust Conservation Guides: Ian Ross (Mentor), Jannette Mole, Ian Johnson, Michael Mann, , Hayley Whitworth, Joe Robinson, Michael Ellison, Carly Wright, Maureen Simon, Geoff Higley and Felix Higley for the assistance meeting and guiding visitors during the excavation week.

APS staff:
Project Coordinator: Denise Drury and Ian Marshman
Geophysical survey: Andrew Failes, Jonathan Smith
Finds: Alex Beeby, Denise Buckley
Excavation Supervisor: Neil Parker
Photographic reproduction: Neil Parker
CAD Illustration: Neil Parker, Jonathan Smith
Post-excavation Analyst: Neil Parker
Editing: Denise Drury and Gary Taylor.

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11. ABBREVIATIONS

APS Archaeological Project Services

BGS British Geological Survey

CBM Ceramic Building Material

CIfA Chartered Institute for Archaeologists

OD Ordnance Datum

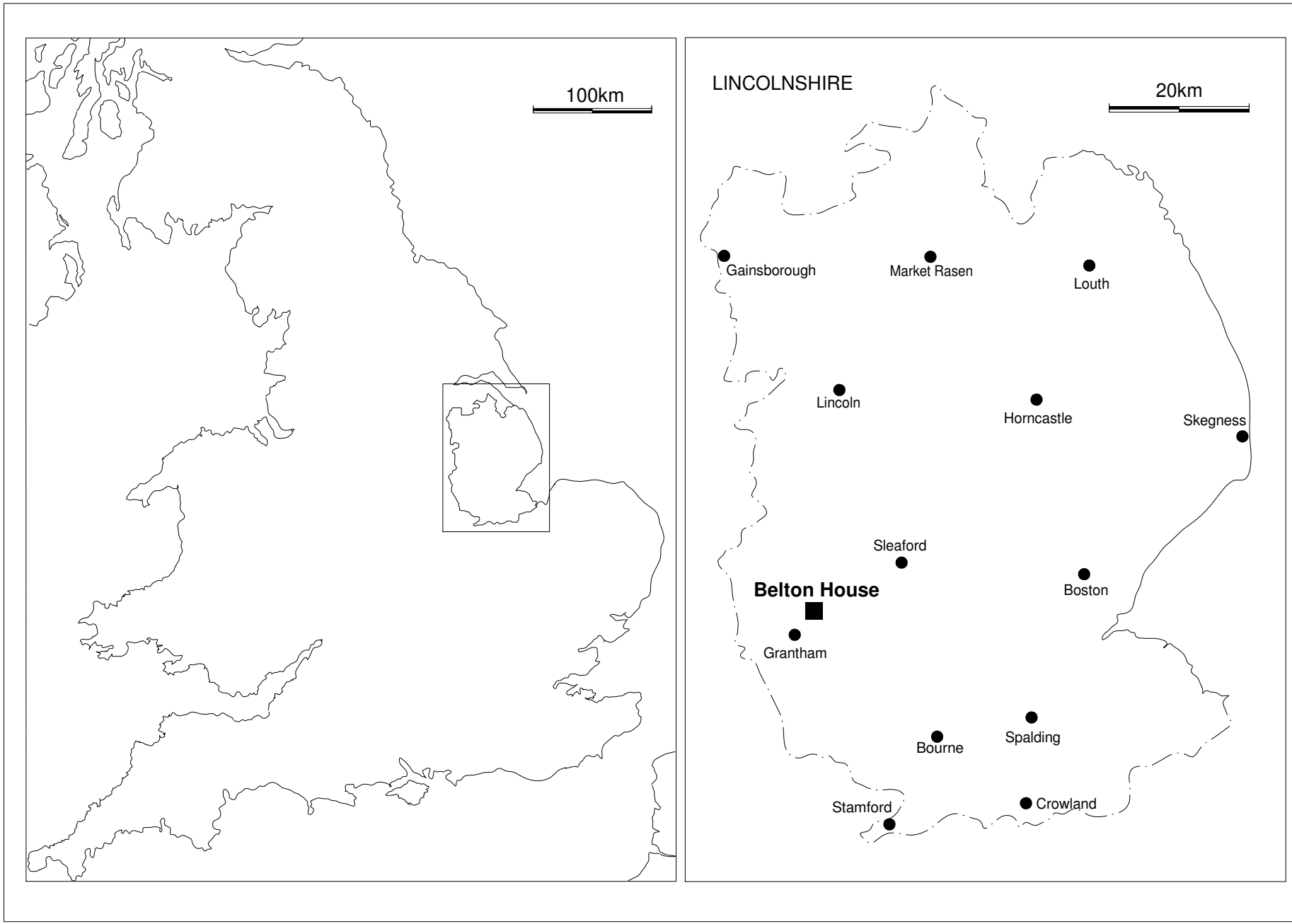
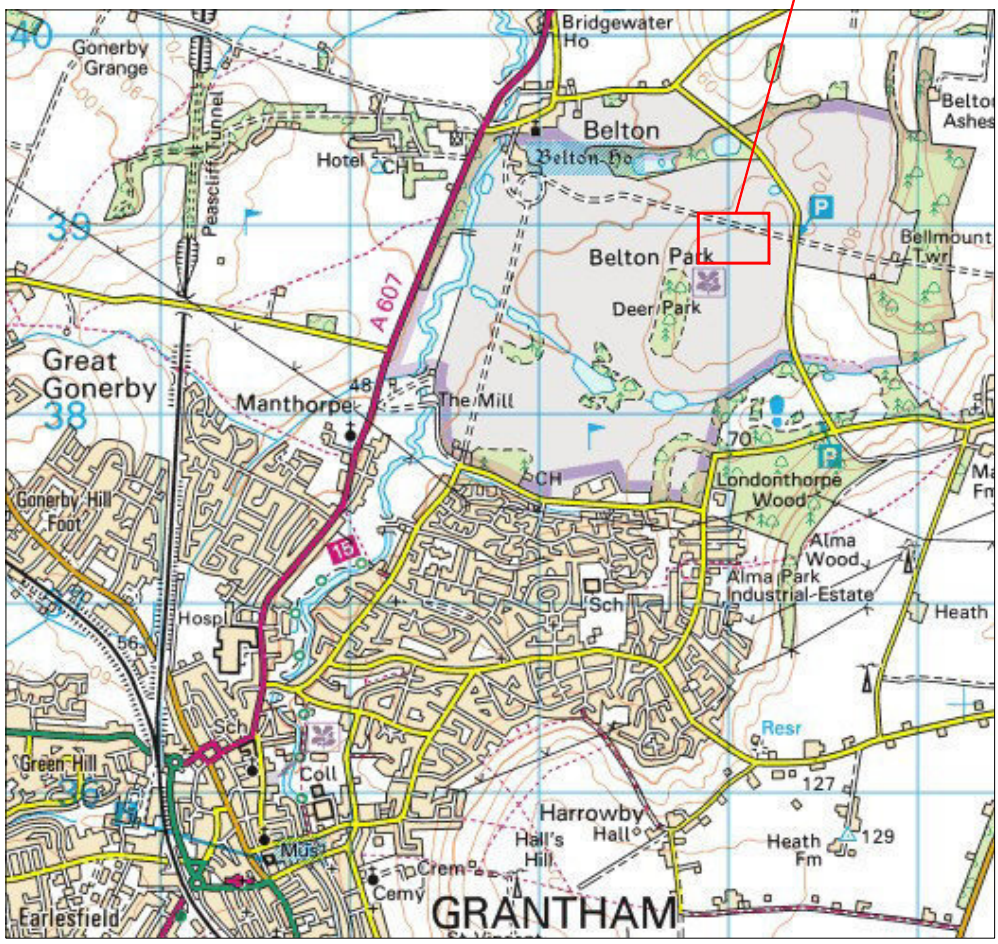
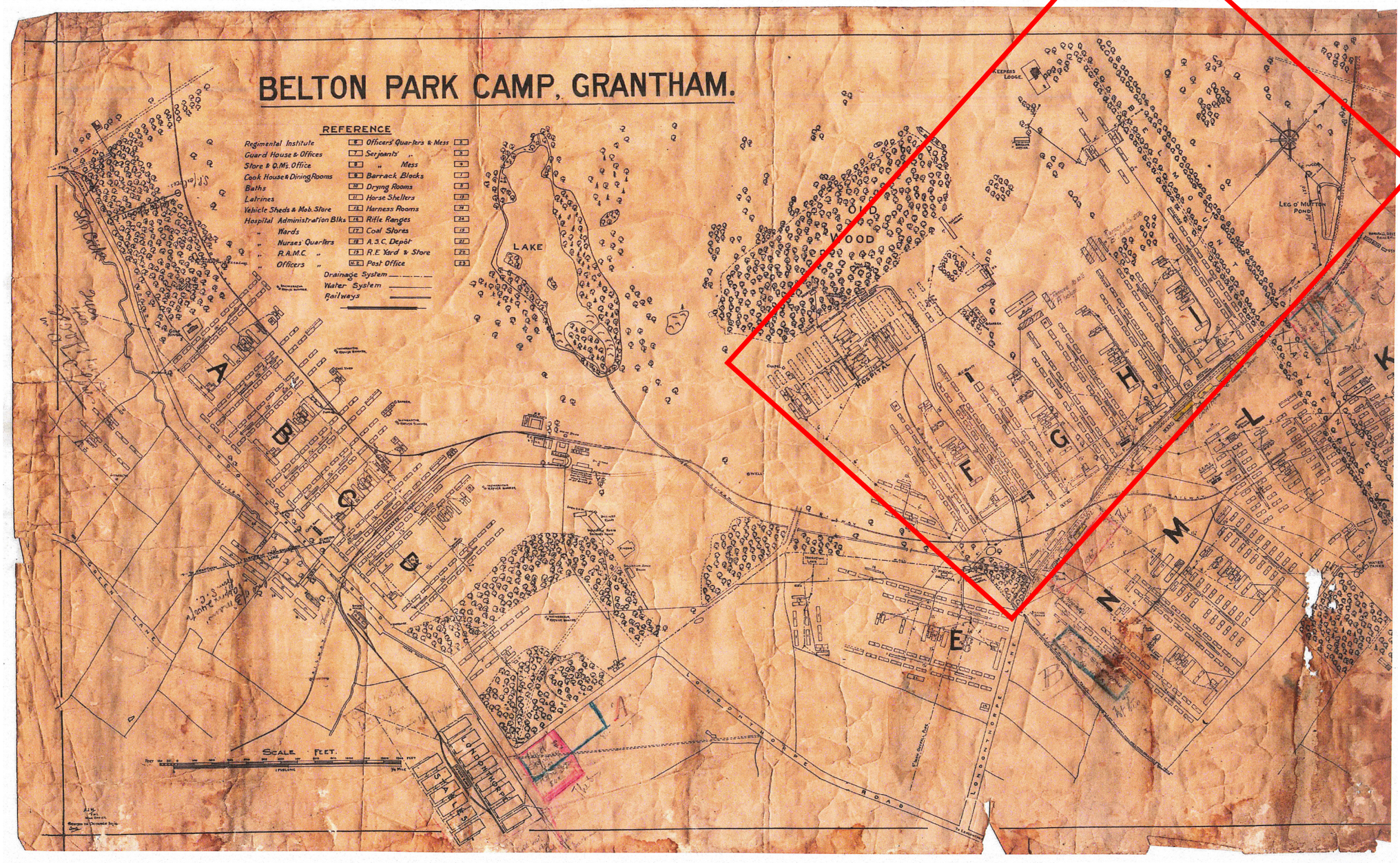


Figure 1: General Location Plan



Archaeological Project Services		
Project Name: Belton House, Belton		
Scale 1:40000	Drawn by: NP	Report No: 83/15

Figure 2 - Site location



0 500m

Area shown in Figure 4

Archaeological Project Services		
Project Name: Belton House, Belton		
Scale: 1:7,500	Drawn by: JS	Report No: 83/15

Figure 3 - 1915 Camp Map

Figure 4 - Geophysical Survey Areas

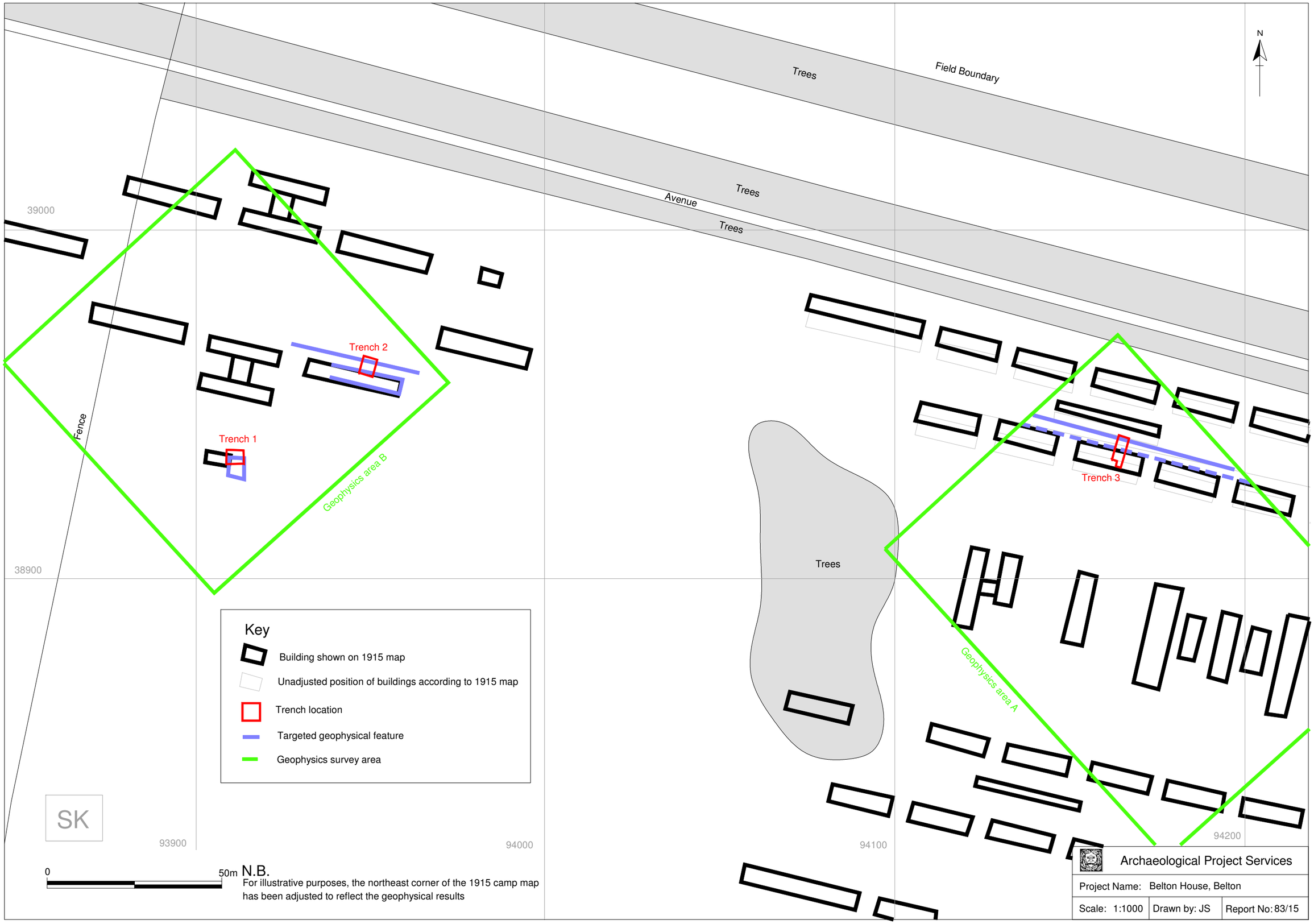
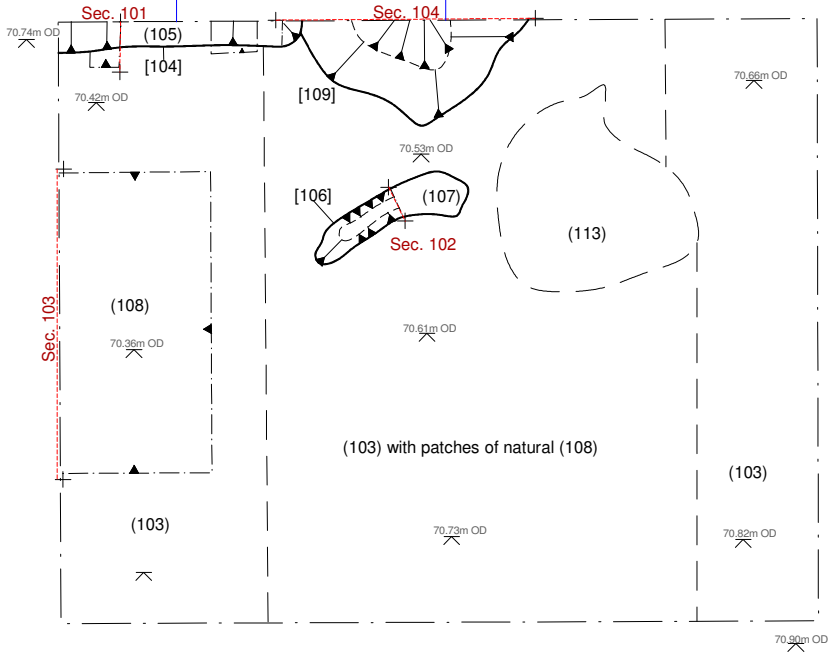


Figure 5 - Trench location and targeted geophysical anomalies

TRENCH 1



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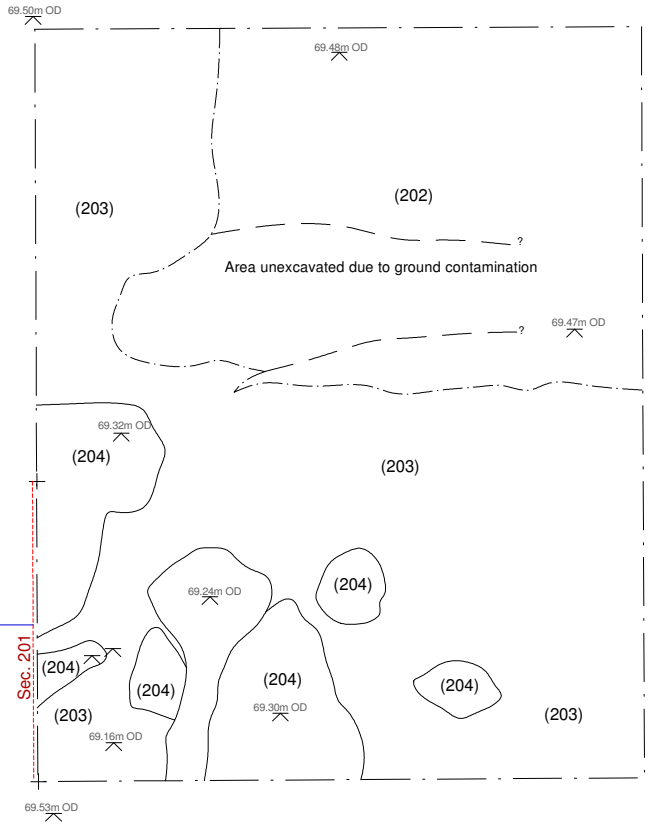
Archaeological Project Services		
Project Name: Belton House, Belton		
Scale 1:50	Drawn by:NP	Report No: 83/15

Figure 6 - Trench 1 Plan

Trench 2



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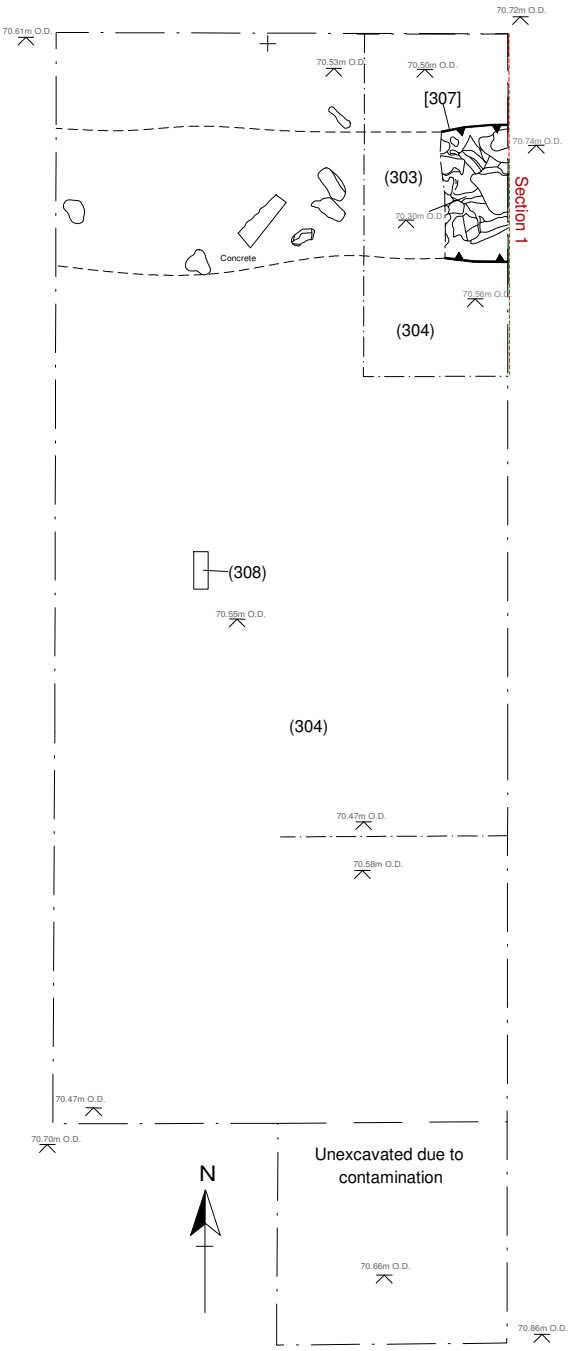
Archaeological Project Services		
Project Name: Belton House, Belton		
Scale 1:50	Drawn by: NP	Report No: 83/15

Figure 7 - Trench 2 Plan

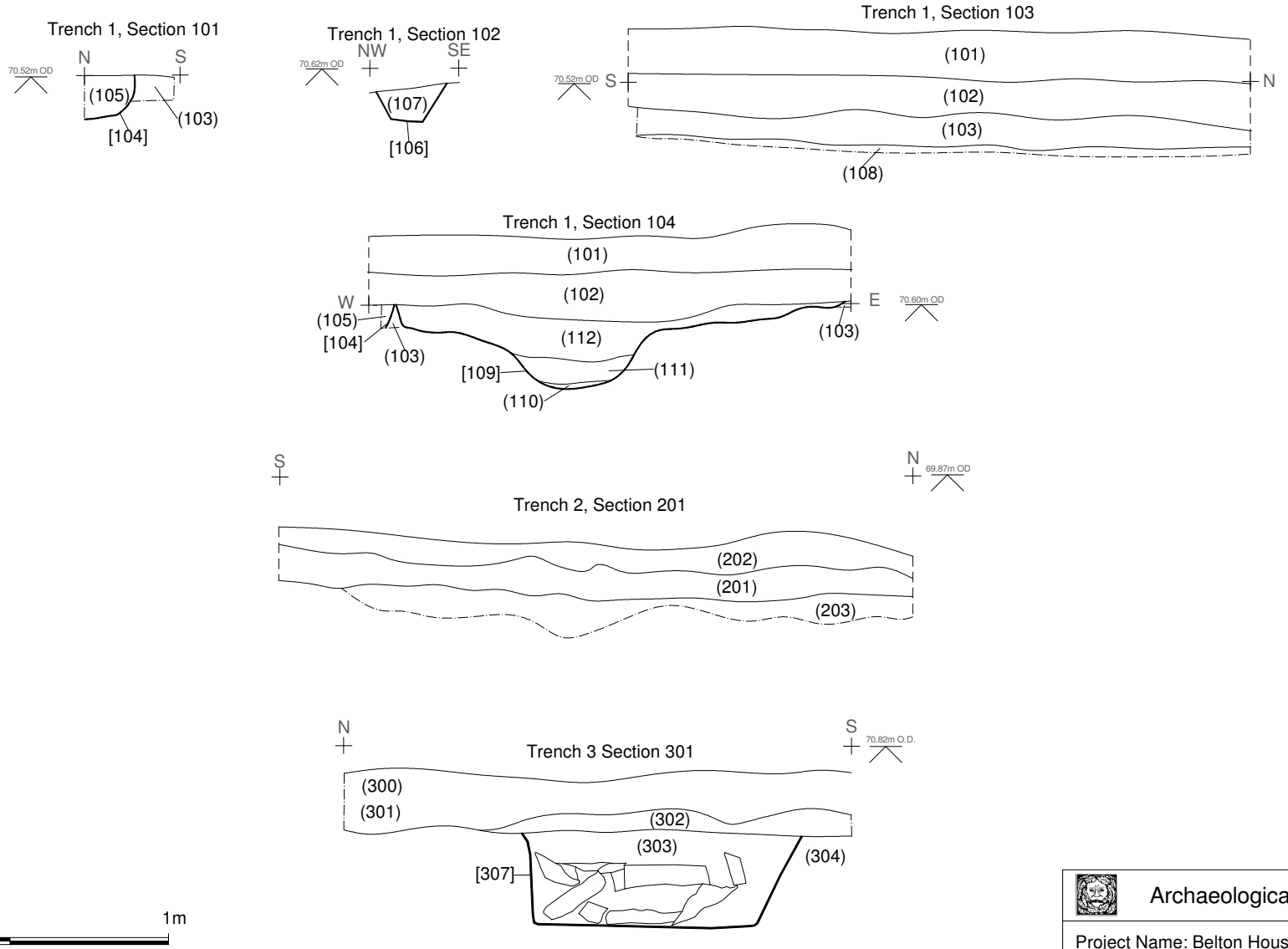


TRENCH 3

0 2m

Archaeological Project Services		
Project Name: Belton House, Belton		
Scale 1:50	Drawn by: NP	Report No: 83/15

Figure 8 - Trench 3 Plan



Archaeological Project Services		
Project Name: Belton House, Belton		
Scale 1:20	Drawn by: NP	Report No: 83/15

Figure 9 - Sections

PLATES

Showing members of the 'Lest we forget Belton's bravest' team engaged in geophysical survey and excavation

A team member carries out magnetometry under supervision.

A team member learns how to use a dumpy level

Recording in Trench 3

Recording in Trench 3

Recording in Trench 3

Team members discuss progress in Trench 2

Team members and staff clean Trench 3.

Backfilling Trench 3.

APPENDIX 1
GEOPHYSICAL SURVEY
By Jonathon Smith

Methods

The geophysical survey was targeted on 4 areas (Fig i) as decided by the 'Lest we forget Belton's bravest' Team. The four areas were:

Area A – The Barracks Block
Area B – Officers' Barracks
Area C – Open Area
Area D – Hospital

The survey was carried out by members of the 'Lest we forget Belton's bravest' Team under the supervision of experienced geophysical staff, in accordance with English Heritage (2008) and CIfA (2014) guidelines and codes of conduct.

The magnetic survey was carried out using a dual sensor Grad601-2 Magnetic Gradiometer manufactured by Bartington Instruments Ltd. This records subtle changes in the magnetic field resulting from differing features in the soil. Changes as small as 0.2 nanoTesla (nT) in an overall field strength of c. 49,000nT can be accurately detected using this instrumentation, although in practice instrument interference and soil noise can limit sensitivity.

The mapping of anomalies in a systematic manner allows interpretation of the type of material present beneath the surface. Strong magnetic anomalies are generated by buried iron-based objects or by kilns or hearths, usually resulting in a bipolar (positive/negative) response. More subtle positive anomalies representing pits and ditches can be seen where these contain more topsoil which is normally richer in magnetic iron oxides and provides a contrast with the natural subsoil (but this can vary depending on the nature of the underlying deposits). A negative anomaly may result from upcast bank material. Wall foundations can also show as negative anomalies where the stone is less magnetic than the surrounding soil, or as stronger positive and negative anomalies if of brick, but are not always responsive to the technique. It should be noted that not all features will be responsive and absence of anomalies does not necessarily indicate absence of archaeological features (Clark 1996).

Magnetometers measure changes in the Earth's magnetic field. With two sensors configured as a gradiometer the recorded values indicate the difference between two magnetic measurements separated by a fixed distance. The Grad601-2 consists of two high stability fluxgate gradiometers suspended on a single frame with a 1m separation between the sensing elements giving a strong response to deep anomalies.

Sampling interval and data capture

Readings were taken at 0.25m intervals along traverses 1m apart. This equates to 3600 sampling points in a full 30m x 30m grid. The Grad 601 has a typical depth of penetration of 0.5m to 1.0m although a greater range is possible where strongly magnetic objects have been buried in the site.

Readings are logged consecutively into the data logger which is downloaded daily either into a portable computer whilst on site or directly to the office computer. At the end of each job, data is transferred to the office for processing and presentation.

Processing and presentation of results
Processing is performed using specialist TerraSurveyor software. This can emphasise various aspects contained within the data that are often not easily seen in the raw data. Basic processing of the magnetic data involves flattening the background levels with respect to adjacent traverses and adjacent grids (Destripe or zero median traverse). Despiking is also performed to reduce the effect of the anomalies resulting from small iron objects often found on agricultural land. Further processing can then be carried out which may include low pass filtering to reduce 'noise' in the data and hence emphasise the archaeological or man-made anomalies.

The following are the processing techniques carried out on the gradiometer data used in this report:

1. DeStripe (sets the background median of each traverse within a grid to zero and is useful for removing striping effects)

2. Despike (useful for display and allows further processing functions to be carried out more effectively by removing extreme data values)
Parameters: X radius = 2; Y radius = 2; Threshold = 3SD; Spike replacement = mean

3. Clip (excludes extreme values allowing better representation of detail in the mid range): -20 to 20nT.

Results
The presentation of the data for the site involves a greyscale print-out of the minimally processed data (Figs ii, v, viii and xi; clipped for display but otherwise unprocessed). Typically this would be accompanied by a second plot of heavily processed data. However, in the case of this site the magnetic anomalies were so strong that further processing was deemed unnecessary. Magnetic anomalies have been identified and plotted onto an interpretative drawing (Figs iii, vi, ix and xii) and overlain with features from the historical map of the camp (Figs iii, vii, x and xiii).

The majority of anomalies identified fall into one of two categories; 'Positive linear anomalies' and 'bipolar linear anomalies.'

Positive linear anomalies are seen as dark lines in the survey and have been highlighted with red on the interpretive figures. These typically indicate cut features such as ditches and gullies filled with slightly more magnetic material than the surrounding natural (however, it must be noted that this interpretation was contradicted by the findings in Trench 2; see the discussion for more information).

Bipolar linear anomalies are marked by alternating clusters of black and white readings. These have been marked with green in the interpretive figures. These are caused by larger pieces of metal or concrete. These anomalies can be caused by rubble fills in ditches or intentionally laid pipes.

Area A (Figs ii, iii and iv)
The correct overlay position of the camp features in this area is ambiguous as a discrepancy was noticed between the March 1915 map and features on the ground. The position chosen in

Figure *iv* is based on the water pipe discovered in Trench 3 as probably representing the northern most water pipe shown on the March 1915 map.

In this area the northern most barrack block (1) is represented with subtle positive linear anomalies, although each row of buildings only has a single associated linear. The barrack block at the south of the area is a mirror image (2), although the camp map does not align so neatly; the discrepancy probably arises from slight errors in the hand drawn map.

The only other mapped features to appear with certainty are two pipes exiting the central kitchen block (3).

Several other magnetic features are apparent in the centre of the area, but are not relatable to specific features known from the map. However, they do cluster around known buildings and may be related to a different phase of the camp.

Area B (Figs v, vi, vii)
In this area a network of bipolar linears representing the water pipes on the March 1915 map are apparent. Some bipolar linears are keyed into the pipe network but do not appear on the map and may therefore be later additions.

One building is represented almost entirely by three positive linear anomalies, with the fourth wall probably masked by a stronger signal (4).

A further possible building defined by a diffuse positive linear is visible towards the south of the area. This does not align with any building on the map. Trench 1 is located over this anomaly.

To the south of the buildings an area of black speckling is visible (5). These are probably tree throws related to a wooded field boundary that is still extant to the east.

Area C (Figs viii, ix, x)
No features on the March 1915 map are visible magnetically. The majority of the area is dominated by east-west orientated ridge and furrow. In the north there are several subtle positive linear anomalies. These may predate the camp.

To the south there are several bipolar linears. One is diffuse and horseshoe shaped (6). No obvious function is apparent but given the context of the features it seems likely they are part of the First World War camp.

An unusual discrete negative feature is visible at the very north of the area (7). No archaeological feature can be suggested as the cause of this phenomenon. It may derive from a ferrous magnet in the soil.

Area D (Figs xi, xii, xiii)
In the hospital area four of the buildings shown on the March 1915 camp map are defined by one or more positive linear anomalies, with a further two buildings defined by bipolar linears. In addition, several water pipes are represented by bipolar anomalies.

Two positive linears are visible in the area and are off-alignment with the hospital buildings, suggesting they belong to a different time period.

At the hospital site, there is some background north to west orientated ridge and furrow visible. East of the hospital the orientation changes to be east to west.

Discussion

The geophysics largely agrees with the layout of the camp in the March 1915 map. The main exception is in Area A where the map appears to be slightly skewed so that the features depicted lie slightly to the south of their location as recorded by the geophysical survey.

Not every pipe or building shown on the map survives as a magnetic signature. In general the main water pipes traversing whole blocks are the most likely to be seen, with building footprints being the least likely and generally very faint when they do survive.

Typically a positive linear anomaly indicates a cut feature such as a gully. However, in the light of the excavation evidence from Trench 2, it seems that on this site a positive linear anomaly may be caused by a scatter of nails. Hence some of the building footprints seen in the geophysics may represent an episode of demolition rather than construction cuts or drip gullies.

Some features seen in the magnetometer survey are not on the March 1915 map. In many cases these are obviously water or sewage pipes keyed into the camp's network, which were either left off the map or were later additions. In the south of Area C a network of features are visible that are similar to other areas of the camp, but do not appear on the map. These may represent an extension laid down after 1915.

A few features have a different alignment to the camp and probably predate it. However, aside from ridge and furrow, these do not make any coherent features and their function and date is unknown.

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Abbreviations

CIfA Chartered Institute for Archaeologists

Figure i - Survey Areas

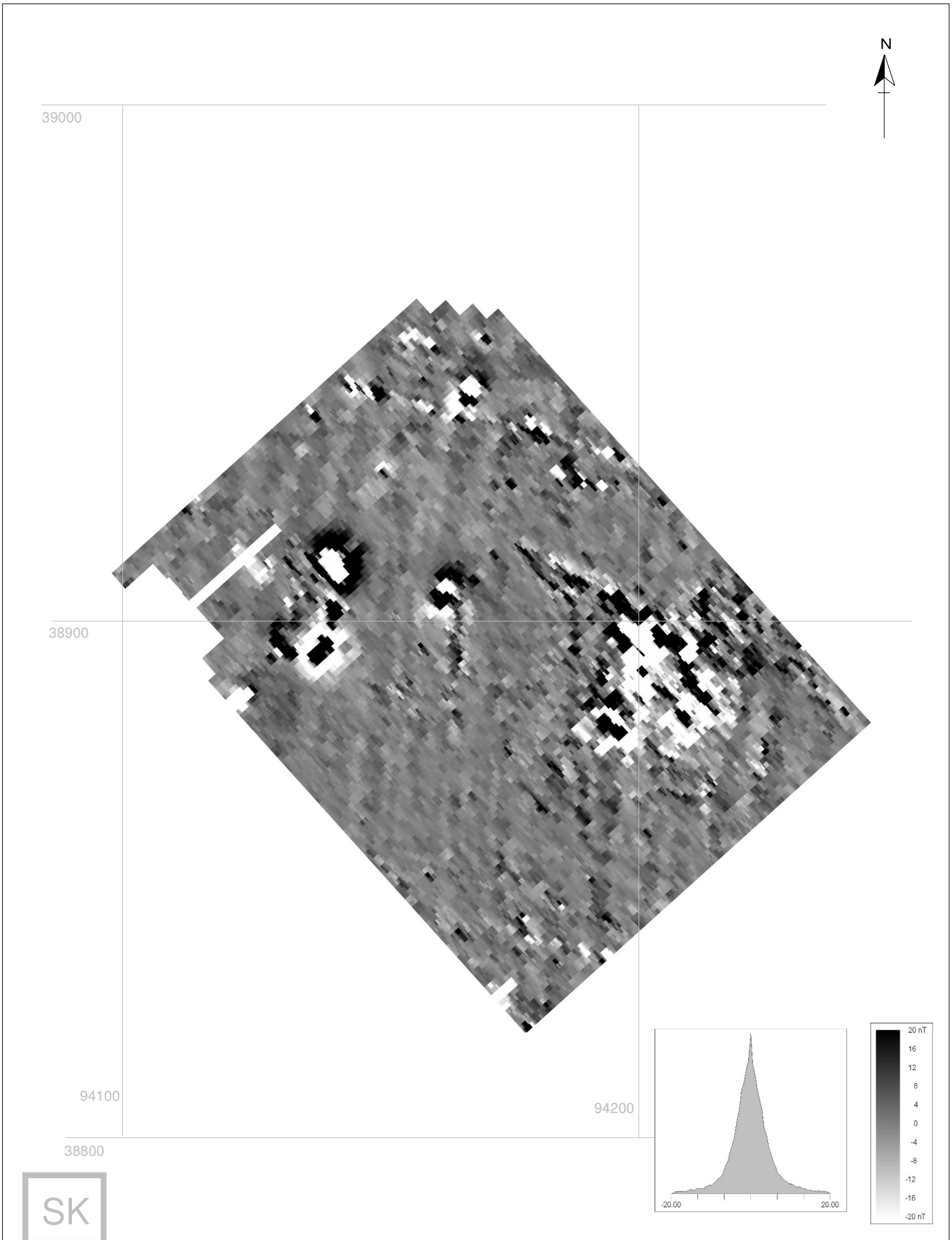

Figure ii - Area A greyscale plot

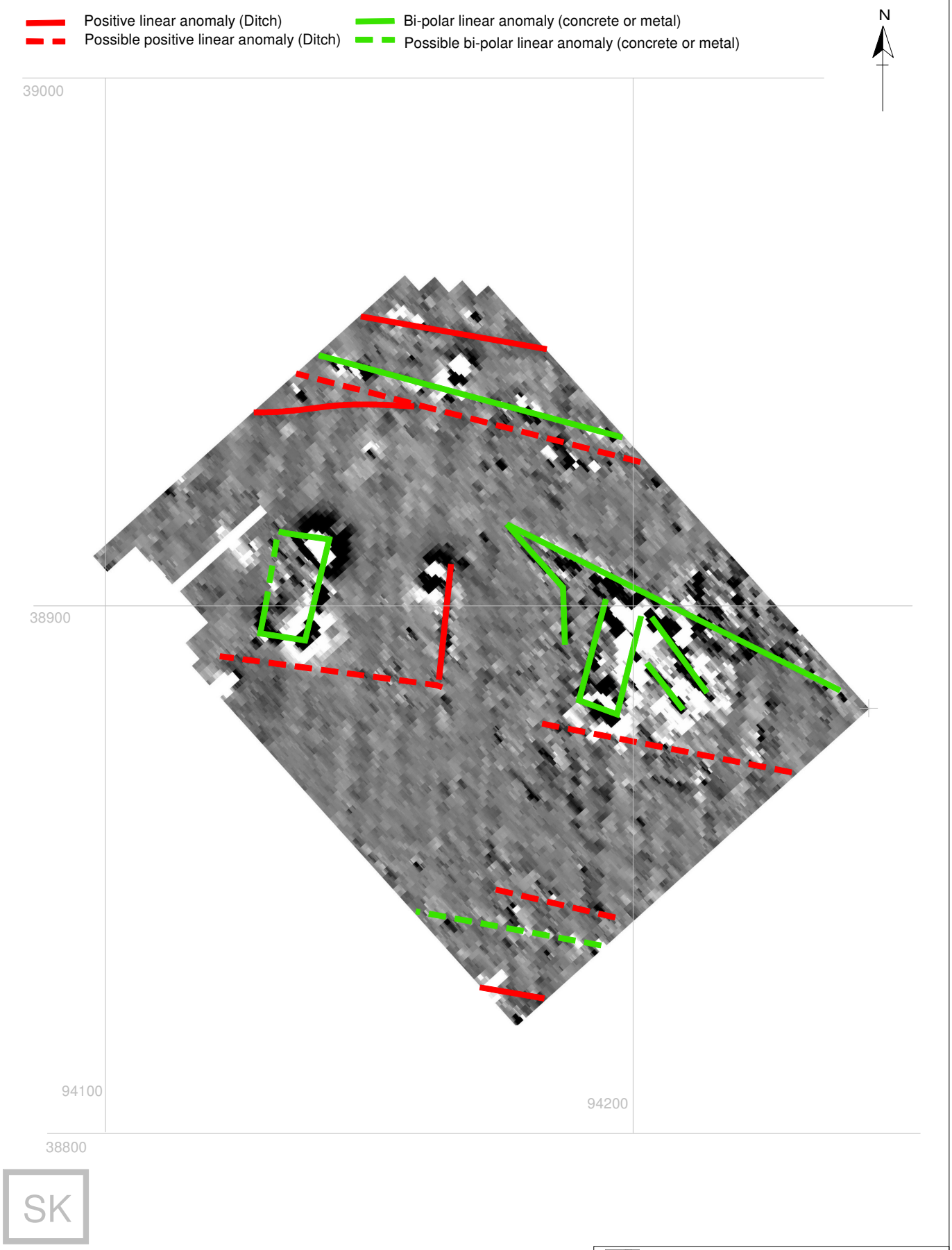

Figure iii - Area A

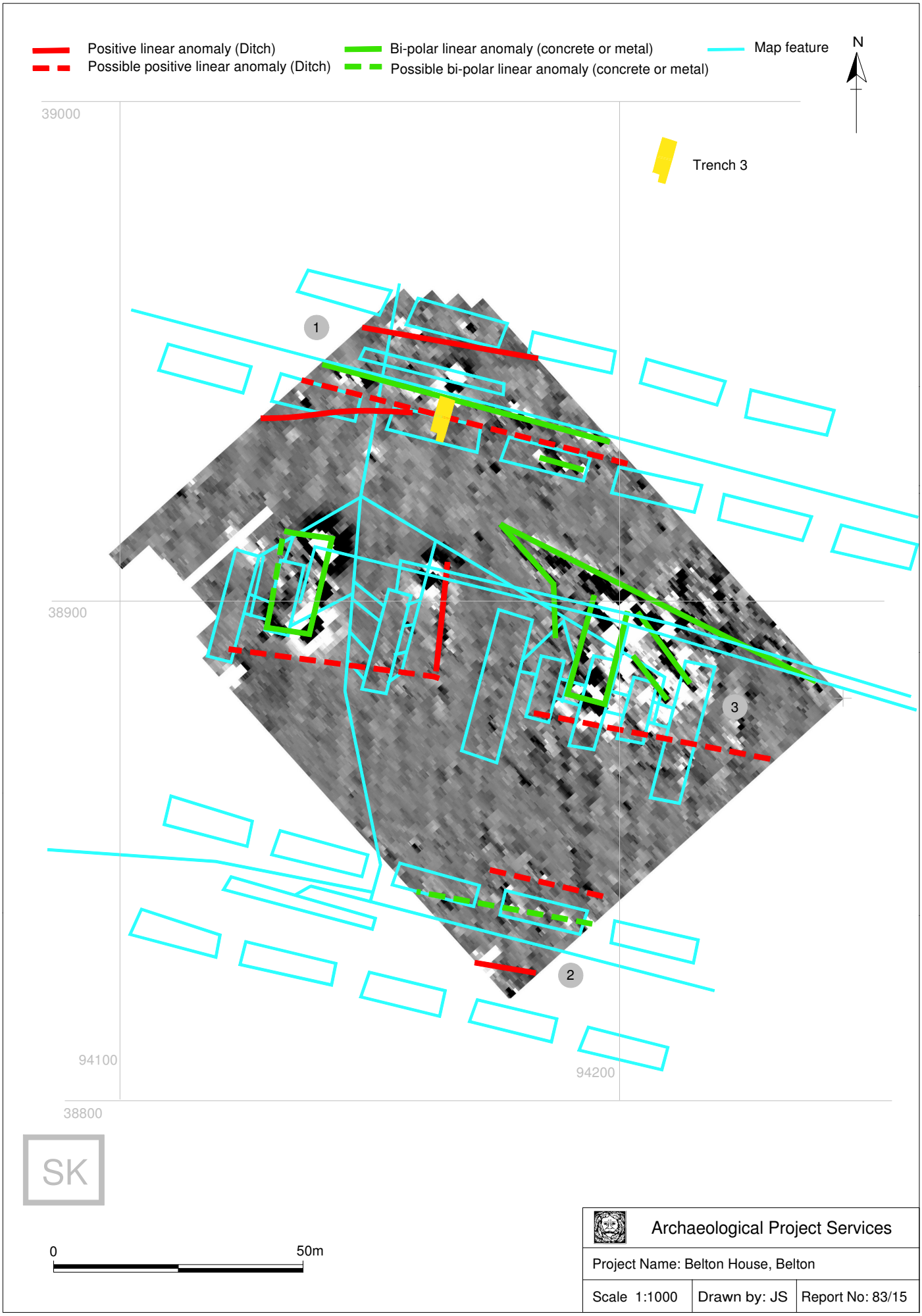

Figure iv - Area A map overlay

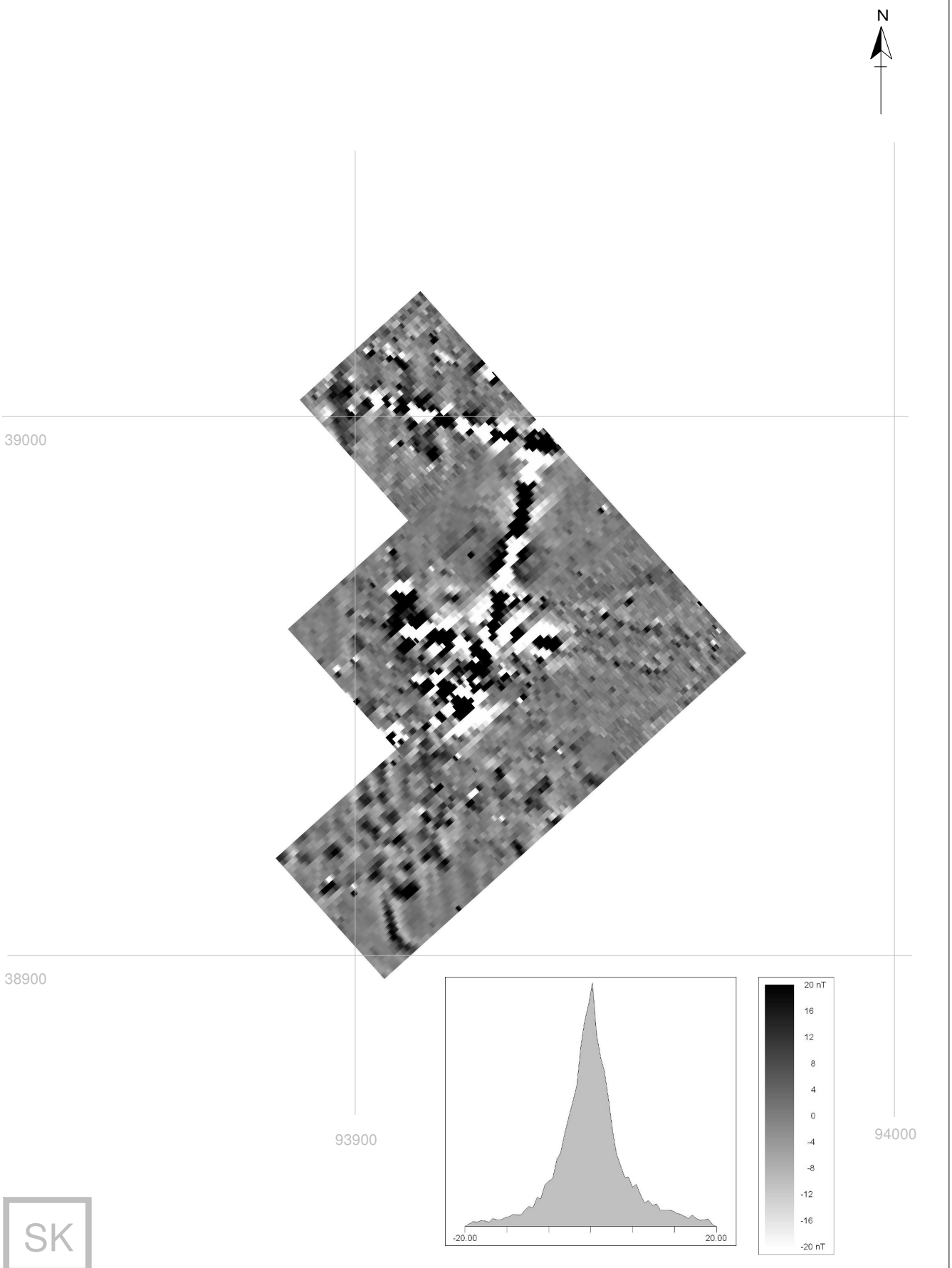

Figure v - Area B greyscale plot

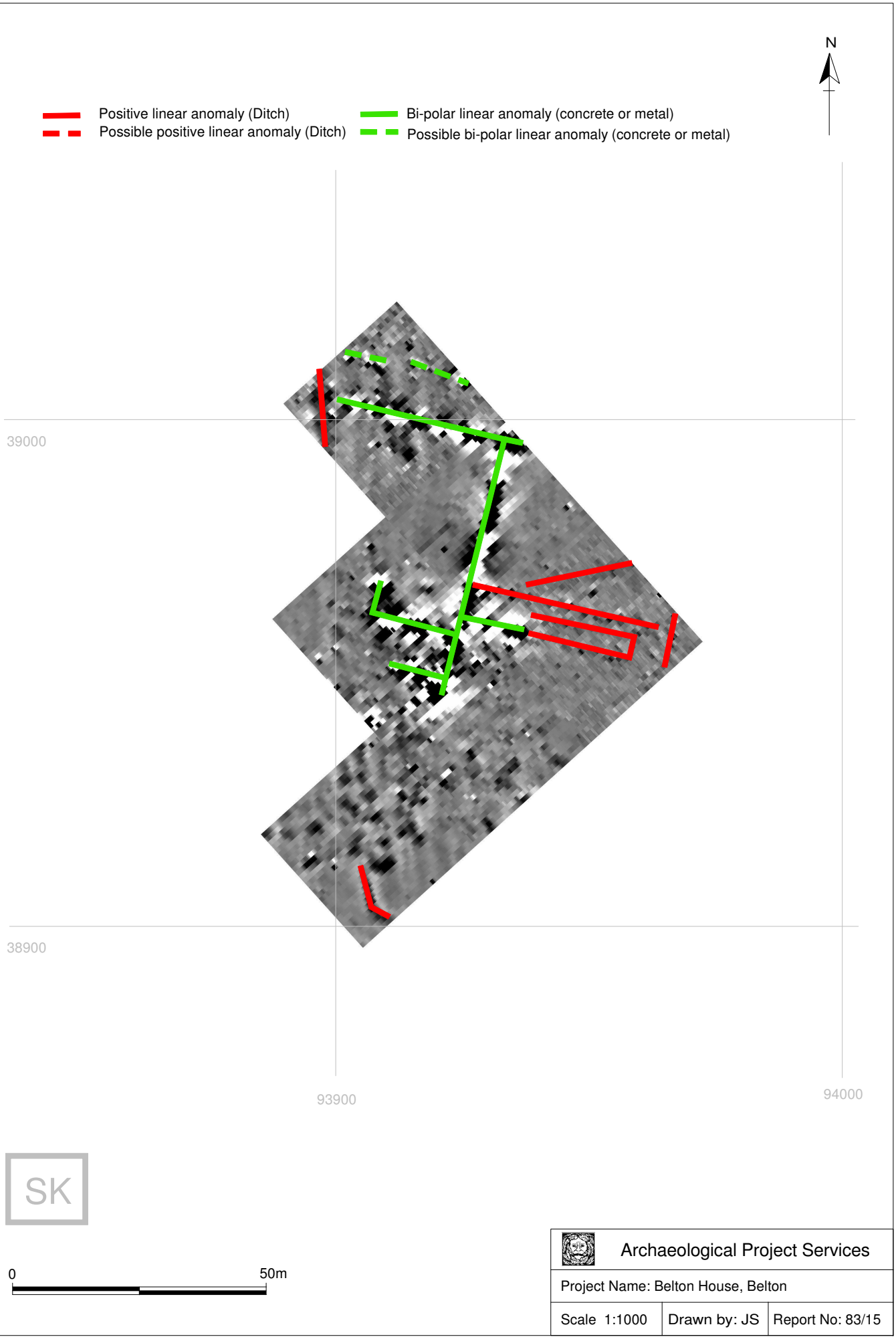

Figure vi - Area B Interpretation

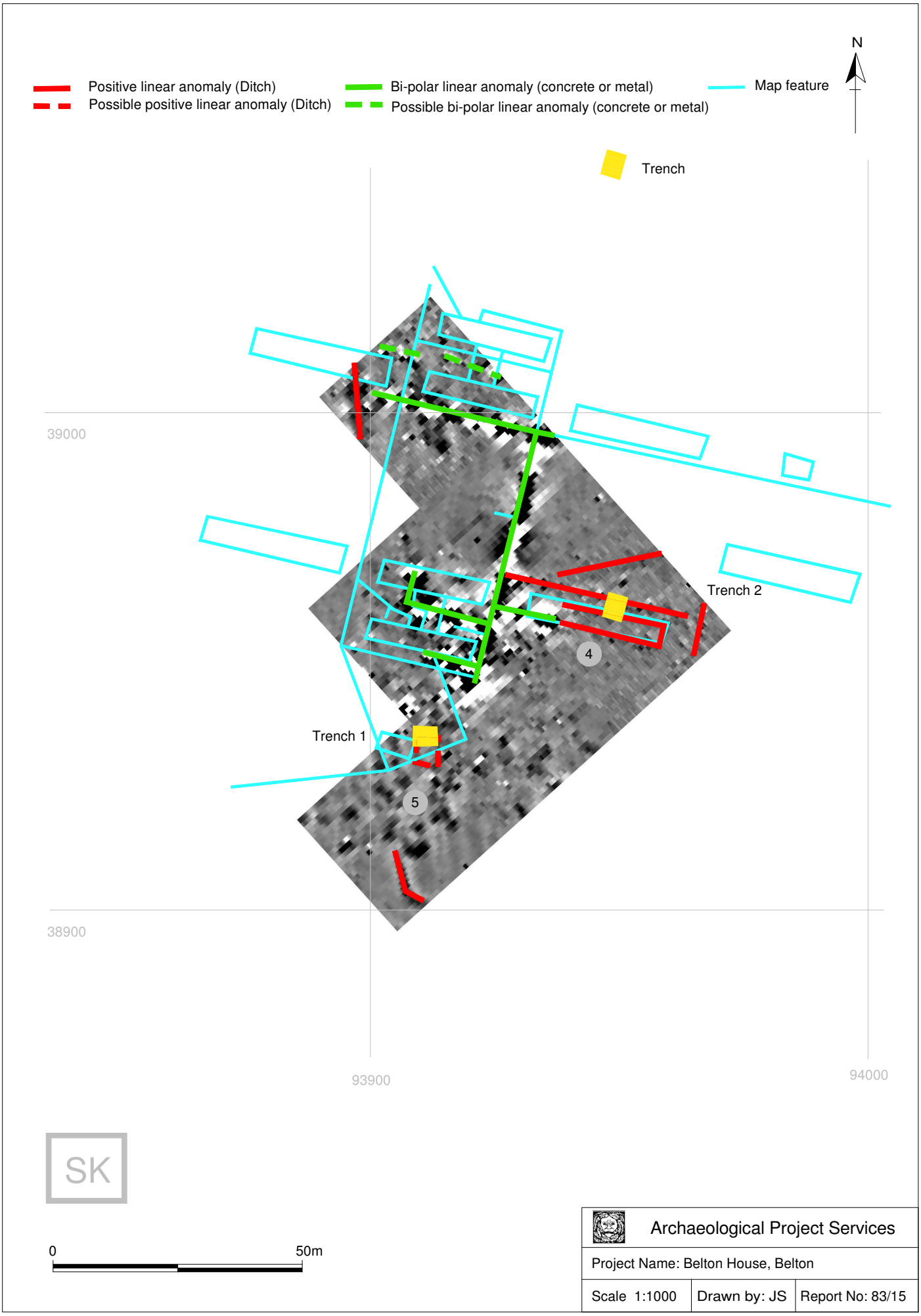

Figure vii - Area B map overlay

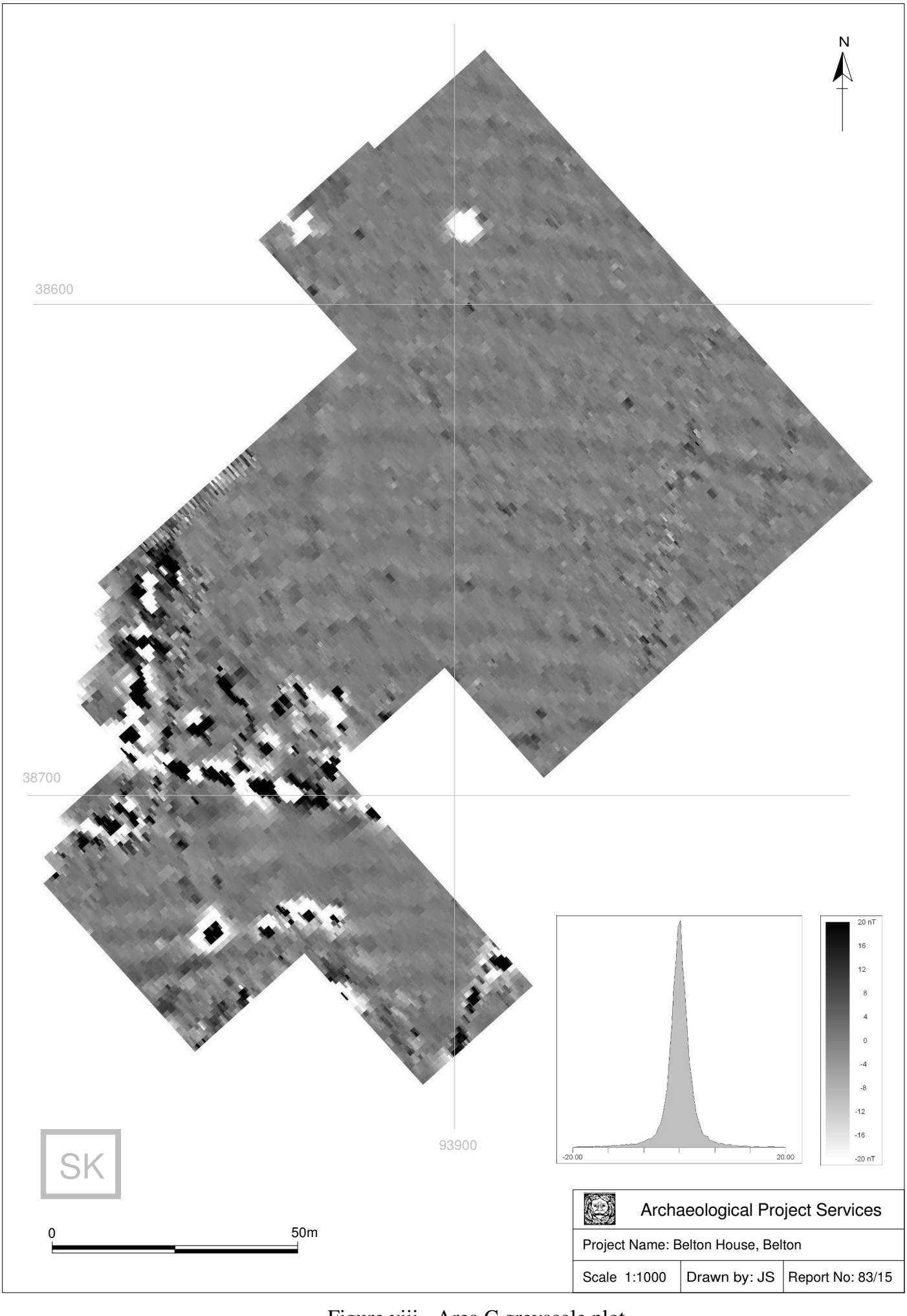

Figure viii - Area C greyscale plot

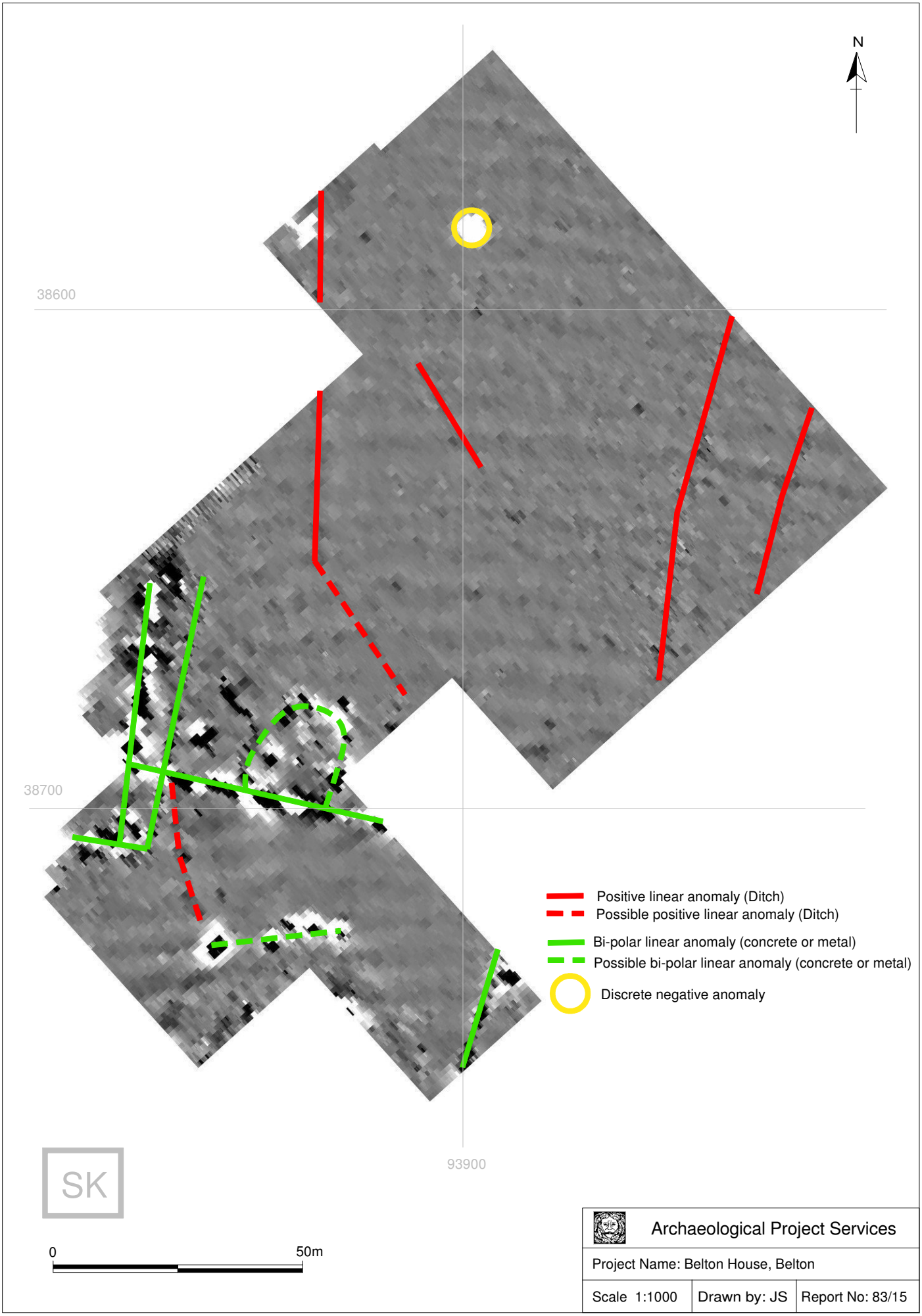

Figure ix - Area C interpretation

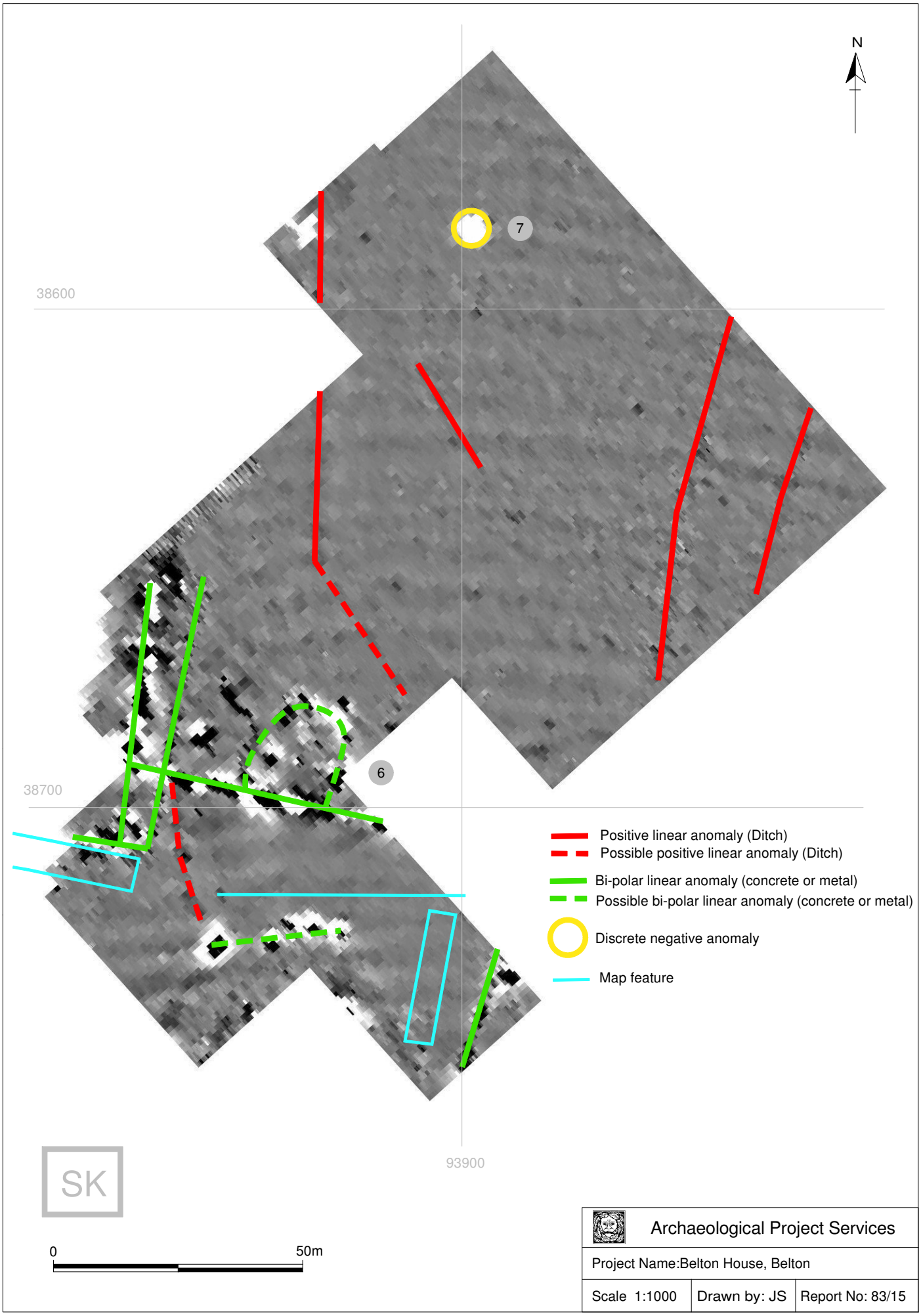

Figure x - Area C map overlay

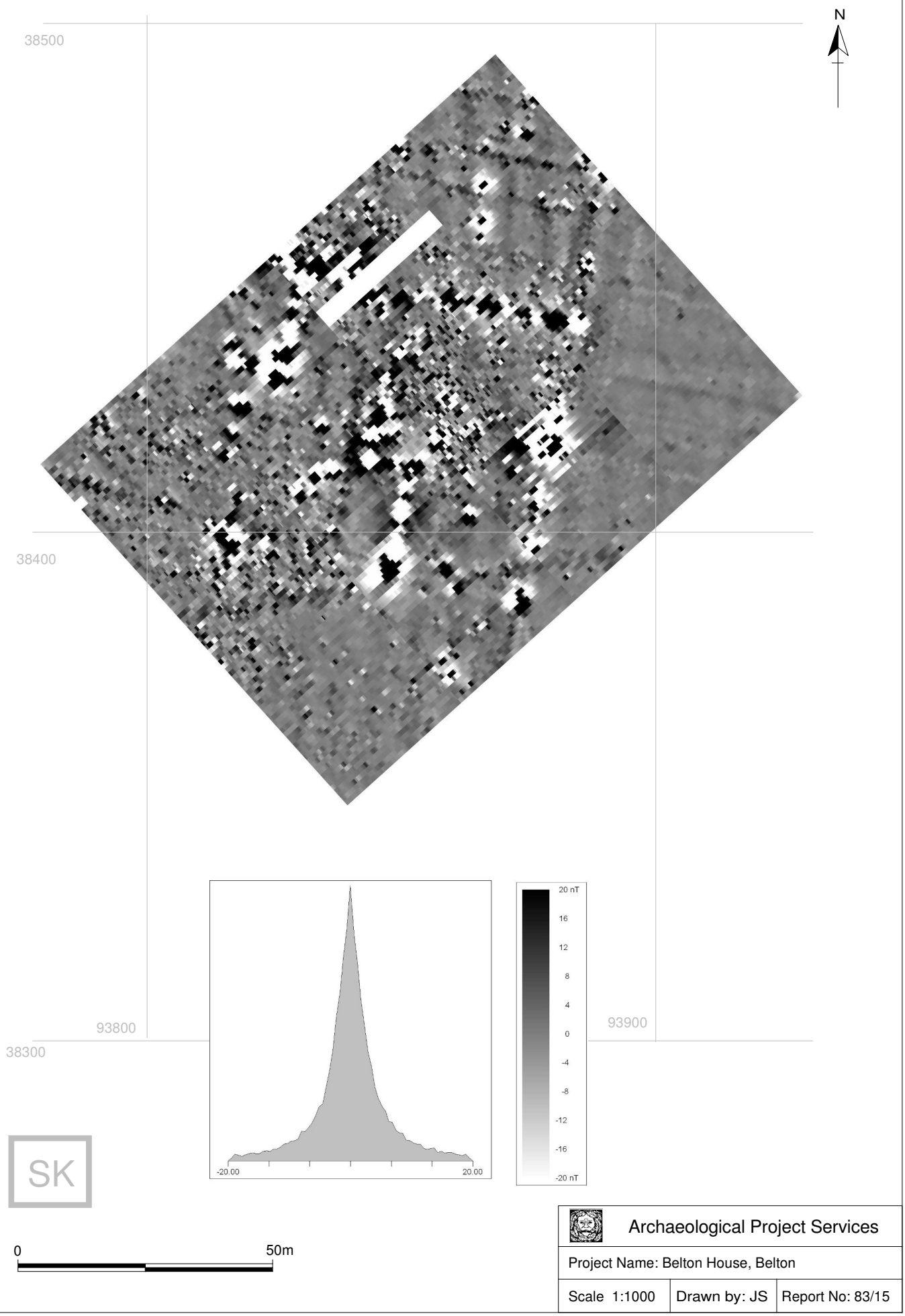

Figure xi - Area D

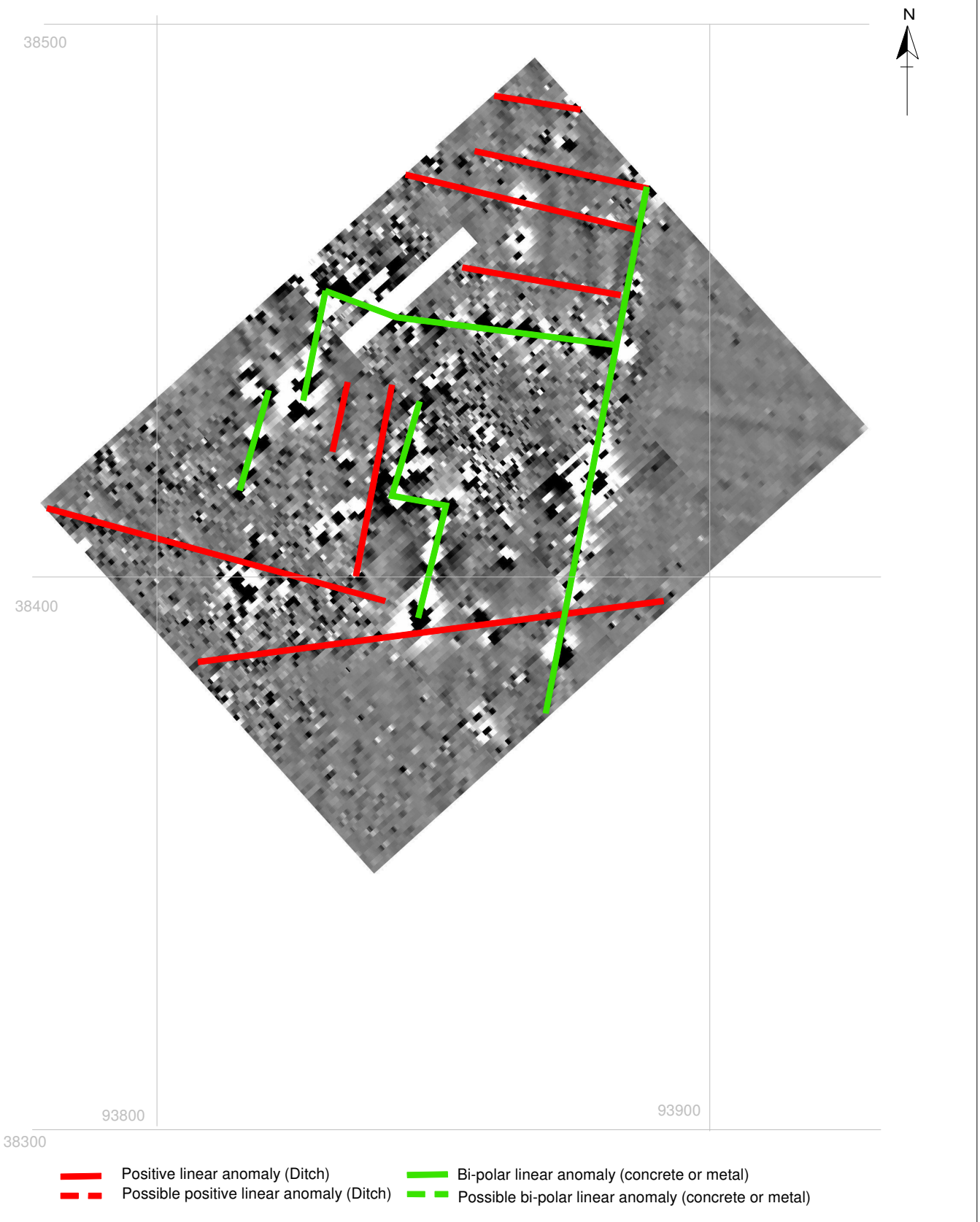

Figure xii - Area D Interpretation

Figure xiii - Area D map overlay

APPENDIX 2

CONTEXT SUMMARY

Context	Description	Interpretation
101	Soft, mid brown sandy silt with occasional small stones. 90mm thick	Topsoil
102	Firm, mid yellowish brown sandy silt with occasional small stones. 0.1m thick	Compacted lower topsoil
103	Friable, mid yellow brown sandy silt with occasional gravel. 0.1m thick	Possible fill of furrow
104	Linear cut feature. Exposed dimensions, 1.6m long, 0.15m wide. 0.13m deep with vertical sides. Aligned east-west	Ditch/gully
105	Soft, mid brown silty sand with occasional limestone pebbles	Single fill of [104]
106	Irregularly shaped, short linear feature with rounded termini. 0.98m long, 0.24m wide, 0.11m deep with steep sides and an irregular base. Aligned NE-SW	Feature of unknown function
107	Firm, mid yellowish brown sandy silt with limestone gravel.	Single fill of [106]
108	Firm, friable, light yellowish brown sandy silt and limestone brash	Natural
109	Possibly rectangular cut feature with straight and convex sides. Exposed dimensions, 1.15m long, 1m wide and 0.3m deep.	Pit
110	Firm, dark brown silt with occasional limestone gravel. 0.1m thick	Basal fill of [109]
111	Friable, light brown sandy silt with frequent limestone fragments. 90mm thick	Fill of [109]
112	Friable, mid greyish brown sandy silt with occasional limestone fragments. 0.1m thick	Upper fill of [109]
113	Limestone brash and sandy silt	Natural
201	Friable, mid brown sandy silt with occasional small stones. 0.12m thick	Topsoil
202	Soft and loose, dark grey brown sandy silt with frequent roots	Turf layer
203	Firm, mid and light yellowish brown silt and limestone.	Natural
204	Firm, yellowish brown limestone brash and silt	Natural brash outcrops
300 - 302	Friable, mid brown sandy silt with occasional small stones. 0.2m thick	Topsoil below turf
303	Firm, light yellowish brown sandy silt and large, broken concrete pieces	Single fill of [307]
304	Firm, light yellow brown silty sand and gravel	Layer
305	Void context	-
306	Void context	-
307	Linear cut feature, 0.9m wide x 0.28m deep with vertical sides and a flat base. Aligned east-west	Cut for pipe trench
308	Remains of vertically driven wood, may once have been square, now 140mm x 60mm, central between location of barrack walls	Post
309	Void context	-

Appendix 3

THE FINDS

ROMAN POTTERY

By Alex Beeby

Introduction

All the material was recorded at archive level in accordance with the guidelines laid out by Darling (2004) and to conform to Lincolnshire County Council's *Archaeology Handbook*. The pottery was recorded using the codes and system developed for the City of Lincoln Archaeological Unit (Darling and Precious, 2014). A total of eight sherds from eight vessels, weighing 52 grams were recovered from the site.

Methodology

The material was laid out and viewed in context order. Sherds were counted and weighed by individual vessel within each context. The pottery was examined visually and using x20 magnification. This information was then added to an Access database. An archive list of the pottery is included in Table 1 below.

Condition

The pottery is very fragmentary and every sherd is abraded. This suggests a high level of redeposition.

Results

Table 1, Roman Pottery Archive

Trench	Context	Cname	Full Name	Form	Alter	Comments	NoV	NoS	W(g)
1	102	GREY	Greyware	BEV	ABR	RIM	1	1	15
1	102	NVCC		BK	VABR	RIM?	1	1	1
1	102	OX	Oxidised ware	JBEV	VABR	BS	1	1	4
1	102	ZDATE				M2-4C			
1	103	GREY	Greyware	U	ABR	BS	1	1	1
1	103	ZDATE				ROMAN			
1	105	GREY	Greyware	J	ABR	BASE	1	1	23
1	105	ZDATE				ROMAN			
1	112	OXMIC	Oxidised micaceous ware	BK	ABR	BS	1	1	2
1	112	ZDATE				ROMAN			
1	114	IASA	Iron Age sandy ware	U	ABR	BS	1	1	5
1	114	ZDATE				IA			
3	301	GREY	Greyware	U	VABR	BS	1	1	1
3	301	ZDATE				ROMAN			
						Total	**8**	**8**	**52**

Provenance

All but one sherd was recovered from Trench 1, with pieces recorded from layers (102) and (103), as well as fills (105) in gully [104] and (112) in pit [109]. The single fragment from Trench 3 came from topsoil cleaning spit (301).

Range

There are four pieces of greyware (GREY), two oxidised fragments (OX, OXFIN), a sherd of Nene Valley colour coated ware (NVCC) and a further fragment of Iron Age sandy ware (IASA). These are common ceramic types, often associated with domestic activity. Subsoil layer (102) was the only context to produce more than one sherd. The fragment of Iron Age dated IASA is of particular note, as its presence here indicates activity on the site before the Roman period. Layer (103), gully [104] and pit [109] all gave small sherds. Interestingly, although the material is abraded and fragmentary, none of these features produced any pottery or ceramic building material dated later than the Roman period.

Summary
A total of eight pieces of pottery of Roman and Iron Age date were recovered. Some of this material is stratified, although all of the sherds are abraded and are likely to be redeposited.

POST ROMAN POTTERY

By Alex Beeby

Introduction

All the material was recorded at archive level in accordance with the guidelines laid out in Slowikowski *et al.* (2001) and to conform to Lincolnshire County Council's *Archaeology Handbook.* The pottery codenames (Cname) are in accordance with the Post Roman pottery type series for Lincolnshire, as published in Young *et al.* (2005). A total of 89 sherds from at least 48 vessels, weighing 339 grams were recovered from the site.

Methodology

The material was laid out and viewed in context order. Sherds were counted and weighed by individual vessel within each context. The pottery was examined visually and using x20 magnification. This information was then added to an Access database. An archive list of the pottery is included in Archive Catalogue 1, with a summary of fabrics shown in Table 2 below. The pottery ranges in date from the Saxo-Norman to the modern period.

Condition

The pottery is in a very fragmentary state. This is reflected by the extremely low average sherd weight of just 3.8 grams. A single fragment of Chinese export porcelain (CEP) has a hole drilled through the fabric, probably from a repair. Two fragments have external sooting, perhaps the result of usage over a hearth or fire.

Results

Table 2, Summary of the Post Roman Pottery

Period	Cname	Full Name	Earliest Date	Latest Date	NoS	NoV	W(g)
Saxo-Norman to early medieval	THETT	Thetford-type fabrics	900	1150	2	1	5
	ST	Stamford ware	970	1200	1	1	10
Early medieval to medieval	MEDLOC	Medieval local fabrics	1150	1450	1	1	3
	MEDX	Non local medieval fabrics	1150	1450	1	1	4
Medieval	NOTGL	Nottingham light bodied glazed ware	1220	1320	1	1	5
Post medieval	CIST	Cistercian-type ware	1480	1650	2	1	6
	PMLOC	Post-medieval local fabrics	1480	1700	3	1	21
	PMED	Post-medieval red earthenwares	1500	1800	21	3	63
	TGE	Tin-glazed earthenware	1550	1750	1	1	1
	BERTH	Brown glazed earthenware	1550	1800	9	8	61
	STSL	Staffordshire/Bristol slipware	1650	1780	1	1	8
	SWSG	Staffordshire white salt glazed stoneware	1700	1770	2	2	4
	CEP	Chinese export porcelain	1700	1850	4	3	16
Post medieval to early modern	ENGS	Unspecified English stoneware	1700	1900	7	4	23
	NOTS	Nottingham stoneware	1700	1900	1	1	1
	PORC	Porcelain	1700	1900	3	2	6
Early modern	CREA	Creamware	1770	1830	6	4	6
	PEARL	Pearlware	1770	1900	5	3	5
	MAJO	English Majolica	1850	1900	1	1	1
Early modern to modern	WHITE	Modern whiteware	1850		17	8	90

Period	Cname	Full Name	Earliest Date	Latest Date	NoS	NoV	W(g)
				Total	89	48	339

Provenance
Most of the pottery was recovered from topsoil layers, including (101) in Trench 1, (201) in Trench 2 and (300), (301) and (302) in Trench 3. Subsoil or trample layer (102), in Trench 1, also produced a large quantity of sherds.

Range
There is a wide range of pottery types, particularly Post Medieval and early modern varieties.

Saxo-Norman to early medieval (10th-12th century)
There are two flakes of Thetford type ware (THETT) and a single rim sherd from a jar in Stamford ware (ST). These are common types of the 10th to 12th centuries.

Medieval (M12th-15th century)
There are three pieces of medieval date. A fragment from a jug in Nottingham Light bodied glazed ware (NOTGL) is of 13th or early 14th century date, whilst two other fragments are too small and abraded to closely identify (MEDLOC, MEDX). Nottingham glazed wares are often recovered in the Grantham area, with the large industry there serving a wide area.

Post Medieval (Later15th-18th century)
Post medieval dated ceramics are well represented, with pottery dated to between the later 15th and 18th centuries making up around a third of the total number of sherds recovered. There is a mix, but the bulk were probably produced during the 17th and 18th centuries. Serving vessels, including Jugs, plates and drinking vessels are particularly well represented, with types such as Cistercian ware (CIST), Staffordshire white salt glazed stoneware (SWSG), Staffordshire type Slipware (STSL) and Tin glazed earthenware (TGE) all represented. Even so, larger cooking vessels in Black and brown glazed earthenwares are also present, suggesting that this is a domestic assemblage. Three fragments from at least two vessels in Chinese export porcelain (CEP) are of particular note, as these would have been relatively expensive items. Interestingly one of these pieces appears to have evidence of a repair.

This material is unlikely to derive from poor or socially lower class households and may even be waste from the house.

Early Modern and Modern (19th-20th century)
There is relatively little which can be closely dated to the 19th century, perhaps indicating that the land was entirely pastoral by that period. Pieces of Creamware (CREA) (six pieces from four vessels) and Pearlware (PEARL) (five pieces from three vessels) are probably of 19th century manufacture, although items in PEARL would still have been widely used in domestic situations at the outbreak of the First World War. Identifying pottery dating specifically to the period of the military camp is difficult. As well as Stoneware (ENGS) jam jar fragments from vessels current in the early 20th century, there are 17 fragments of modern whiteware (WHITE), and although none of these particular pieces are stamped or marked with a makers name or identifying mark, several appear to derive from undecorated, heavy and institutional type vessels of the type that would have been used by personnel on the camp. All of the modern whiteware fragments were recovered from the topsoil in trenches 2 and 3.

Summary
There is a wide range of pottery, including a small number sherds of Saxo-Norman and Medieval date. In addition to this there is a relatively large quantity of 17th to 18th century dated pottery, including some items which would have been relatively expensive when new. There is only a small quantity of 19th century dated material, the absence of which may reflect changes in land management, which could have changed the pattern of deposition on the site. Alternatively, domestic waste may have been treated differently by the 19th century meaning less ceramic material was deposited on the land. Identifying items in use during the military presence on the land is difficult although pieces of domestic stoneware, institutional type modern whiteware, and perhaps even porcelain, probably date to that period.

CERAMIC BUILDING MATERIAL

By Alex Beeby

Introduction

All the material was recorded at archive level in accordance with the guidelines laid out by the Archaeological Ceramic Building Materials Group (2002) and to conform to Lincolnshire County Council's *Archaeology Handbook*. A total of 28 fragments of ceramic building material, weighing 1971 grams were recovered from the site.

Methodology

The material was laid out and viewed in context order. Fragments were counted and weighed within each context. The ceramic building material was examined visually and using x20 magnification. This information was then added to an Access database. An archive list of the ceramic building material is included in Table 3 below.

Condition

The ceramic building material is in a fragmentary state. A large proportion of pieces are abraded.

Results

Table 3, Ceramic Building Material Archive

Tr	Cxt	Cname	Full Name	Fabric	Sub form	Description	Date	NoF	W(g)
1	101	TEG	Roman tegula	Oxidised; fine; mudstone	Flange profile 31	Tegula flange	Roman	1	25
1	101	MODERN CBM	Modern ceramic building material	Light firing		Single curved peice; ceramic pipe?; prob WW1	L19th-M20th	1	24
1	101	CBM	Ceramic building material	Oxidised; mudstone		Abraded; surfaceless flakes	Undated	3	12
1	102	CBM	Ceramic building material	Oxidised; mudstone		Surfaceless; abundant large mudstone grits up to 3mm	19th-M20th	4	18
1	102	CBM	Ceramic building material	Oxidised; fine		Single areas of sanded surface; fired clay object?	Undated	6	6
1	102	CBM	Ceramic building material	Oxidised; medium sandy		Very abraded	Undated	1	1
1	102	CBM	Ceramic building material	OX/R		Sanded base with stone impressions; Roman?; sooted over the break	Roman?	1	1
1	102	MODERN BRICK	Modern brick	Light firing		Modern pressed brick; virtually complete; measures 230mmx110x40mm; probably used for flooring/paving; no obvious wear prob WW1	L19th-M20th	3	1846
1	103	CBM	Ceramic building material	Oxidised; mixed light firing		Abraded; surfaceless; flakes	Undated	6	16
3	301	RTMISC	Miscellaneous roof tile	OX/R/OX; fine		Very abraded; possibly RTIL?;	Roman or Medieval to Post Medieval	1	15
3	302	MODERN BRICK	Modern brick	Oxidised		Pressed brick fragment	M19th-20th	1	7
							Total	**28**	**1971**

Provenance
Ceramic building material was recovered from three deposits/layers in Trench 1, including topsoil (101), subsoil or trample layer (102) and possible buried soil (103). All of the material from Trench 3 came from the topsoil here (301 and 302).

Range
Most of the ceramic building material is abraded and many pieces have no remaining surfaces; these fragments are largely undiagnostic.

Trench 1
The topsoil in Trench 1 (101) produced a single curved fragment from a modern ceramic object, possibly a drainage pipe, as well as a flange peice from a Roman tegula roof tile. The modern item probably dates to the period of the camp's operation. The recovery of Roman tile from this trench is very interesting, as although such tiles were occasionally reused, particularly during the medieval period, these items usually indicate the presence of nearby built structures of Roman date. Pottery of Roman date was also recovered from this trench. Subsoil or trample layer (102) produced a modern brick in the same fabric as the modern item from (101). This may have been used as flooring or paving brick and it most likely dates to the period of the military camp.

Trench 3
A fragment of modern brick and a piece of abraded roofing tile, possibly of Roman date, came from the topsoil in this trench (301/302).

Summary
A total of 28 pieces of ceramic building material were recovered during the excavation, with most pieces retrieved from Trench 1. A piece of Roman roofing tile is of particular note as well as at least two pieces likely to have been used within the infrastructure of the First World War military camp.

FAUNAL REMAINS
By Paul Cope-Faulkner

Introduction
A total of 14 (64g) fragments of animal bone were recovered from stratified contexts.

Methodology
The faunal remains were laid out in context order and reference made to published catalogues (e.g. Schmid 1972; Hillson 2003). All the animal remains were counted and weighed, and where possible identified to species, element and side. Also fusion data, butchery marks, 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 (mouse size), small (rabbit size), medium (sheep size) or large (cattle size).

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.

Provenance
The bone was retrieved from the topsoil (101 and 201) and from the fill of a furrow (103).

Condition
The overall condition of the remains was good to poor, averaging at grades 3-4 on the Lyman Criteria (1996).

Results
Table 4, Fragments Identified to Taxa

Cxt	Taxon	Element	Side	Number	W (g)	Comments
101	large mammal	vertebra	-	2	28	

	sheep/goat	molar	-	1	1	crown
103	large mammal	long bone	-	1	15	
201	medium mammal medium mammal bird	long bone skull long bone	- - B	7 1 2	8 7 5	

Summary
As a small assemblage, falling below the minimum count of *c*. 300 bones required for meaningful analysis, it has little potential. The mammal bone is too degraded to identify species, apart from sheep/goat. The bone from (101 and 201) could be discarded.

GLASS
By Gary Taylor

Introduction
A large quantity of glass, 205 pieces weighing a total of 363g, was recovered.

Condition
Although naturally fragile the glass is in good condition.

Results
Table 5, Glass Archive

Cxt	Description	NoF	W (g)	Date
101	Colourless glass, probable tumbler, 20th century	15	6	20th century
	Near-colourless vessel, probable drinking glass, 20th century	1	1	
	Pale green window glass, grozed edge, 18th century	1	1	
102	Very pale green bottle, base, embossed: B & Co Ld, K,1855', early 20th century	1	39	20th century
	Colourless vessel, possible tumbler, 20th century	1	1	
	Pale blue-green vessel, late 19th-early 20th century	1	1	
	Dark olive green vessel, probable bottle, late 19th-mid 20th century	1	1	
	Colourless window glass, 19th-early 20th century	1	1	
	Very pale green window glass, 18th-19th century	2	1	
	Green window glass, 18th-19th century	1	1	
201	Colourless window, 20th century	27	26	20th century
	Colourless rectangular blocks, *c*. 5mm x 1-2mm x up to 40mm; probable pendants from a lamp-shade fringe, or perhaps microscope slide mounts, 20th century	17	17	
	Colourless vessel, 20th century	3	3	
	Colourless bottle top, moulded for screw top, early-mid 20th century	1	3	
	Very pale blue-green vessels, 20th century	2	2	
	Pale green vessel, 19th-early 20th century	1	1	
	Pale olive green vessel, 19th-early 20th century	2	1	
	Pale green window, 18th-19th century	1	1	
	Colourless window with fine moulded ridges, 20th century	1	1	
300	Colourless window, 20th century	42	36	20th century
	Very pale green vessel, bottle? early 20th century	3	9	
	Colourless vessel, 20th century	2	1	
	Pale green medicine bottle, embossed dosage lines, early 20th century	3	5	
	Pale green vessel, early 20th century	1	1	
301	Colourless window, 20th century	49	114	20th century
	Very pale green bottle, late 19th-early 20th century	1	41	
	Pale blue-green vessel, bottle?, late 19th-early 20th century	3	6	

302	Colourless window	17	32	20th century
303	Colourless window	4	9	20th century
TOTALS		205	362	

Provenance
The glass was recovered from topsoil (101, 201, 300), a lower topsoil or subsoil (102), topsoil cleaning spits (301, 302), and the fill of a drain pipe trench (303). There is one piece with manufacturer's marks indicating it was made in Yorkshire.

Range
Much of the glass is from windows and mostly of 20th century date. However, there is distinct distributional bias in this window glass. Trench 3 yielded 112 pieces of such glass; Trench 2 had 27; while Trench 1 had only 1 fragment. It seems likely that this indicates that there were no buildings with windows in the area of Trench 1, though such structures were present at or around Trenches 2 and 3.

In addition to the recent window glass there are a few older fragments of perhaps 18th-19th century date. One such piece, probably from the 18th century, has grozed (chipped) edges. It is likely that these earlier fragments derive from Belton House or associated structures and that they were broken pieces incorporated in refuse that was spread on the land as manuring scatter.

Fragments from a variety of glass vessels were also recovered. These include pieces from drinking vessels, probably tumblers, and bottles. A bottle base with the embossed mark 'B & Co Ld, K, 1855' is a product of the Bagley & Company glassworks of Knottingley, West Yorkshire. Originally established in 1871 as Bagley, Wild & Co, the firm was reformed in 1898 as Bagley & Co. Bagley was once one of the main glass producers in Britain and produced utilitarian and decorative glass vessels and ornamental pieces. They changed their name to The Crystal Glass Company Ltd in 1912, and were taken over by the Jackson Glass Company in 1962. There is also part of a screw-top bottle and a medicine container with moulded lines indicating dosage amounts on the side.

Numerous small rectangular sections of glass were recovered from Trench 2, and this trench alone. These are all about 5mm wide and the largest fragment is 40mm long. The function of this glass is unknown at this time.

In addition to the above, a complete glass bottle was found by the river and, hence, is not recorded in the table. This bottle, of 1 pint volume, is marked: 'LINCOLN CO-OP, PASTEURISED MILK'. It is likely to be of mid 20th century date.

Potential
The glass is of moderate potential. Perhaps most significant is the clear distributional bias of varying types of glass. Window glass is abundant in Trenches 2 and 3 but virtually absent from Trench 1, suggesting where buildings were located or not present. In addition, the isolated presence of numerous rectangular glass strips from a single location is of note.

CLAY PIPE
By Gary Taylor

Introduction
Analysis of the clay pipes followed the guidance published by Davey (1981) and the material is detailed in the accompanying table.

Condition
The clay pipes are in good condition although they generally occur as small fragments. A few of the older pieces are worn, some of them significantly so.

Results

Table 6, Clay Pipes

Context no.	Bore diameter /64"					NoF	W(g)	Comments	Date
	8	7	6	5	4				
102					2	2	1	stems only	19th century
201				1	1	4	2	1x 17th century bowl fragment; 1x early-mid 19th century bowl fragment decorated with 'standing native' figure; 2x stems; mixed	19th century
300		1				1	10	Oswald type G5-6 bowl, very abraded	1640-80
301		1			1	2	5	stems only; 7/64" example very abraded	19th century
Totals		2		1	4	9	18		

Provenance

The clay pipes were recovered from a lower topsoil or subsoil (102), topsoil (201, 300), and topsoil cleaning spit (301). They are probably all fairly local products, with the later examples perhaps made in nearby Grantham, where pipe making took place until the 1920s (Wells 1979, 140-2). However, pipe making only seems to have commenced in Grantham in the 1820s (*ibid.*) and the earlier pieces, therefore, are likely to be at least regional imports, with one perhaps manufactured in Lincoln or Market Rasen.

Range

Most of the small assemblage of clay pipes is likely to be 19th or early 20th century in date. There are also a few examples of 17th century date and a couple of probably the 18th century. One of the 17th century pieces is a complete bowl of Oswald's General Type 5 or 6, dating from *c*. 1640-80 (Oswald 1975, 37-9). This date range coincides with the construction of Belton House in the 1680s.

In addition to the complete bowl there are two bowl fragments. One of these is also a 17th century type but the other is later, probably dating to *c*. 1830-50. This piece bears moulded decoration of a 'standing native'. Pipes with this form of decoration were popular in the early-mid 19th century and were made at Lincoln, Market Rasen, and other places. Manufacture of the type seems to have continued until the later 19th century (Mann 1977, 28-33).

The other pipe fragments are stems.

Potential

The clay pipes are of moderate potential. The earliest pieces date to the period when Belton House was being built and may be related to the construction and landscaping activities associated with the house. The 18th century fragments are probably just casual loss. However, the fragments of 19th (to early 20th) century date are likely to be associated with the occupants of the First World War camp.

WORKED FLINT

By Tom Lane

Introduction

A number of flints were submitted for identification.

Condition

All items are abraded. No special conservation measures are required for the items.

Results

Table 7, Flints

Cxt No	Description	No	Wt(g)	Date
102	Broken Flake. Some flake scar removal on dorsal surface. Poor quality flint likely to have caused breakage. 39 x 20 x 11	1	8	Bronze Age
	Broken Unfinished Scraper. Broken longitudinally, possibly during manufacture Narrow flake scars on dorsal surface. Retouch along unbroken edge. 52 x 14 x14	1	6	Bronze Age
201 SF204	Piercer or awl. Flake transformed into point for presumed use in hole-making. 23 x 13 x 8mm	1	2	Late Neolithic/Early Bronze Age
201 SF206	Small flake. 9 x 6 x 1mm	1	>1	Prehistoric
201 SF207	Broken Blade flake. Dorsal ridge. 9 x 7 x 2mm	1	>1	Early Neolithic
300	Unworked natural flake	1		
301	Unworked Natural Flake	1		
	Broken blade flake. Dorsal ridge. Heavily patinated. 13 x 10 x 2mm	1	>1	Meso/ early Neolithic
	Broken blade flake. Dorsal Ridge. Heavily patinated. Joins the piece described above. 22 x 11 x 3mm	1	1	Meso/Early Neolithic
302	Debitage. Small blade flake. 16 x 10 x 4mm	1	1	Late Meso/early Neo?
	Debitage. Small squat flake. 9 x 7 x 2	1	>1	Late Meso/Early Neo?
303	Unworked natural flake			

Provenance
The flints were recovered from a lower topsoil or subsoil (102), topsoil (201, 300), topsoil cleaning spits (301, 302), and the fill of a drain pipe trench (303).

Range
The collection includes tools and debitage from a range of periods from Late Mesolithic/early Neolithic, characterised by a blade-based industry and heavy patination to Bronze to Late Neolithic/Bronze Age. Pieces from the latter period include the only tools identified, a broken scraper, the break probably occurring during manufacture, and an awl/piercer, for hole-making. The Bronze Age items were made using flints of poor quality, probably locally sourced.

Potential
The items indicate a presence in the landscape of prehistoric communities intermittently over a long period of time and include evidence of flint tool production and flint working locally. Finds appear not to be densely situated.

Summary
A number of finds were collected and indicate sporadic flint working in the vicinity over a long period of time. The collection includes tools and the waste from flint working.

OTHER FINDS
By Gary Taylor and Denise Buckley

Introduction
A large quantity of other finds, 876 items weighing in excess of 5267g (2 heavy objects not weighed) were recovered.

Condition
The other finds are mostly in moderate condition, though the iron items are corroded.

Results

Table 8, Other Materials

Cxt	Material	Description	NoF	W (g)	Date
101	coal	coal, cinders	4	58	early 20th century
	concrete	concrete, very pebbly,	1	149	
	copper alloy	cartridge case, .303 calibre, fired, illegible headstamp, possibly 'B C 11', early 20th century	1	7	
	copper alloy	dummy drill cartridge case, .303 calibre, headstamp E.15, early 20th century	1	5	
	copper alloy	button, later 19th-early 20th century	1	1	
	asphalt?	sheet asphalt? 20th century	1	1	
	wood?	possible wooden bullet from dummy round?? early 20th century?	1	1	
102	copper alloy	cartridge case, .22 calibre, fired	1	1	20th century
	asphalt?	sheet asphalt? 20th century	3	1	
201	coal	coal, cinders	20	80	20th century
	stone?	cinder, burnt shale	2	22	
	slag	iron smithing slag	2	13	
	iron	probable shoe heel iron, 19th-20th century	1	30	
	iron	nails, flattened rectangular shafts, L-shaped heads	572	2312	
	iron	screws, dome-headed, most with washers	26	813	
	iron	nails and tacks (various sizes), round heads, most bent	86	766	
	iron	nail, rectangular shaft, inverted V-shaped head	1	4	
	iron	nail shafts	35	70	
	iron	washers, 24mm dia, 7mm dia perforation, 2 corroded together	9	40	
201 SF201	copper alloy	mount/strap end? 19th-20th century	1	4	
201 SF202	copper alloy	button, cut floral pattern, 19th century	1	1	
201 SF203	iron	knife, blade with whittle tang in line with straight back, 12th-14th century	1	5	
201 SF205	copper alloy?	strap end with hook fitting, possibly tinned, 20th century	1	1	
201 SF208	copper alloy	mount/fitting; rectangular strip with 2 counter-sunk holes and a central threaded flanged hole, 20th century	1	5	
300	coal	coal, cinders	37	106	20th century
	concrete	concrete, very pebbly	1	11	
	copper alloy	cartridge case, .303 calibre, fired, partially illegible headstamp, possibly 'G V 11', early 20th century	1	7	
	iron	coat hook, 20th century	1	92	
	iron	screws, dome-headed, with washers	4	76	
	iron	washer	1	4	
	iron	nails (1x 6", 3x 4"), round heads, all straight	4	84	
	iron	nails, flattened rectangular shaft, L-shaped head	1	2	
	iron	tack	1	2	
	iron	nail shaft	1	5	
301	coal	coal, cinders	15	85	early 20th century
	copper alloy	cartridge case, .303 calibre, un-fired, partially illegible	1	5	

		headstamp, possibly 'K V 11', early 20th century			
	iron	probable shoe toe/heel iron, 19th-20th century	1	27	
	iron	nails (1x 6", 5x 4"), round heads, all straight	6	103	
	iron	nails and tacks, various sizes, some (3) bent	7	27	
	iron	nail shaft	1	2	
302	cinder	cinder	1	3	19th-20th century
	concrete	concrete, very pebbly, 1 piece with 1 flat surface	8	147	
	iron	probable shoe toe/heel iron, 19th-20th century	1	38	
	iron	curved rectangular strip, 12mm x 50mm x 2-3mm, broken at one end, possible rivet hole at broken end	1	5	
303	coal	coal	1	36	early 20th century
	iron	nails/tacks	4	2	
	concrete	concrete, very pebbly, round-sectioned impression *c.* 10cms diameter on one side, domed surface on other, early 20th century	1	-	
	concrete	concrete, very pebbly, smooth flat face on one side, rectangular-sectioned impressions, early 20th century	1	-	
303 SF301	iron	circular disc, 24mm dia	1	4	
303 SF302	iron	circular disc, 24mm dia	1	4	
TOTALS			876	8	

Provenance
The other finds were recovered from topsoil (101, 201, 300), a lower topsoil or subsoil (102), topsoil cleaning spits (301, 302), and the fill of a drain pipe trench (303).

Range
Most of the other finds are of metal. A very large quantity of iron nails, screws and washers was recovered. By far the most abundant are smithed nails with rectangular shafts and L-shaped heads. These are probably structural nails, perhaps to fasten wall planking to the main upright posts. Moderately heavy screws, mostly still retaining washers, were fairly numerous, and several detached washers were also recovered. These may have been for connecting major structural timbers but it is perhaps more likely that they affixed cladding, such as corrugated iron or asbestos cement sheeting, to the walls of the barrack blocks. A variety of other nails were also recovered. These include 6 inch and 4 inch examples, as well as some of various other lengths, and tacks. Many of these nails are bent, indicating that they were drawn out of timber; perhaps in the dismantling of structures (using a claw hammer to extract nails produces a prominent bend in the shaft). It is possible that some of the 6 inch nails, at least, may be from later activities, such as affixing fencing posts and rails. One particularly unusual nail was retrieved from (201). This has an inverted V-shaped head. It is possible that this type of nail was used to fasten wire, perhaps barbed wire, to timber posts, the downward-facing arms of the head helping to clamp the wire to a wooden post.

There are distinct distributional biases with the nails/screws/washers. The great majority (739) were recovered from Trench 2, with a moderate amount (30) from Trench 3, while none were retrieved from Trench 1.

Several probable boot/show irons were recovered. These were affixed to the undersides of the toe and heel of footwear to increase the life of the shoe soles. A couple of buttons were also found.

Several partial cartridge cases were recovered. Most are of .303inch calibre, which was used is the Lee-Enfield rifle and also in rifle-calibre machine guns, including the Vickers and Lewis gun, and later the Bren gun. One of the examples, from (101) is a dummy drill cartridge. Used for training troops in the handling and use of the weapons, the cartridge lacked a detonator cap and had two pairs of holes drilled at right-angles to each other. Several types of dummy round had these characteristics, specifically the Mark III, IV and V types, with the holes first appearing in Mark III drill cartridges from 1905. The Mark III had a round-nosed wooden bullet inserted while the later Mark IV, approved in 1910, had a spitzer, or spire-point, wooden bullet. However, the Mark IV proved to be too fragile in use, with the point on the bullet frequently breaking, and was declared obsolete in 1913. Production of the Mark III resumed but this was found to be

unsuitable for the training of machine gunners and a new type, the Mark V, was approved in 1917. The headstamp 'E.15' on the recovered example may indicate the cartridge was produced in 1915, which perhaps further implies that it is a Mark III type. Several of the cartridges are stamped with the figures 'V11'. This indicates that the bullets are of Mark VII (7) type. The British Army began to replace its Mark VI cartridges with the new Mark VII rounds, which had spitzer projectiles, in 1910. One of the cartridges appears to also be marked with a 'K', which represents the Kynoch & Co. factory of Witton, Birmingham, which produced more than 2,373 million .303 cartridges during the First World War.

A .22 calibre cartridge case from (102) is from a small-bore weapon and was probably used for shooting small game or vermin (rabbits, pigeons, rats). A possible part of a wooden bullet point from a dummy round was also recovered from (101).

A small iron blade was retrieved from (201). This comprises a blade with whittle tang in line with a straight back. Similar knives, though with the tangs central to the blade, occur in 12th-14th century contexts in Norwich (Goodall 1993, 125-7) and London (Cowgill *et al*. 1987, 78-84). A London example with the tang in line with the back dates to the late 12th century (*op cit*, 78-9).

Other metal items included mounts including a possible strap end, and a coat hook. The coat hook is identical to examples in huts that were removed from Belton and re-erected in the Fishtoft area.

Trench 1 yielded a few pieces of possible asphalt sheet. This material may have been roof covering of barrack blocks or other structures.

Coal and cinders, probably indicating fires and stoves, were recovered. These materials were particularly abundant in Trenches 2 and 3 and although present in Trench 1 were much less common there. A couple of pieces of iron smithing slag from Trench 2 may indicate the activities of a blacksmith close to this area.

Several pieces of concrete were collected. One of the pieces, from (303), contains a concave tubular impression of approximately 10cms (4inches) diameter, probably indicating the removal of a drain pipe. A second block from the same contxt has a flat surface and rectangular impressions. This is perhaps a piece of flooring of foundation material, with the impression of an upright structural member.

Also recovered, but from near the river and not recorded above, was an iron gate-latch.

Summary
The other finds are of moderate significance and potential providing a variety of functional evidence. Of particular note are the common distribution patterns of window glass and structural nails, both fairly abundant in Trenches 2 and 3 but almost absent from Trench 1. The varied types of nails and screws imply differing functional uses and characteristics of the buildings at the site.

The presence of the cartridges in the 'domestic' areas of the camp is a little unusual but they may have been picked up at the firing ranges and deposited here.

The concrete probably represents drains, foundations and floors of buildings. The two large pieces from (303) are unlikely to have moved far from their initial use.

SPOT DATING

The dating in Table 9 is based on the evidence provided by the finds detailed above.

Table 9, Spot dates

Cxt	Date	Comments
101	19th-Early 20th	Topsoil
102	M19th-20th	
103	Roman	
105	Roman	

112	Roman	
114	Iron Age	
201	Mid 19th-20th	Topsoil
300	Late 19th-20th	Topsoil
301	Late 19th-20th	Topsoil
302	Mid 19th-20th	Topsoil
303	early 20th century	based on concrete

ABBREVIATIONS

ACBMG	Archaeological Ceramic Building Materials Group
BS	Body sherd
CBM	Ceramic Building Material
CXT	Context
NoF	Number of Fragments
NoS	Number of sherds
NoV	Number of vessels
PC/PCS	Piece/pieces
PMD	Press moulded dish
TR	Trench
W (g)	Weight (grams)

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ARCHIVE CATALOGUES

Archive catalogue 1, Post Roman Pottery

Tr	Cxt	Cname	Sub Fabric	Form	Decoration	Part	Description	Date	NoS	NoV	W(g)
1	101	CEP		Bowl	Hand painted floral design; blue on white	BS	Three friends of winter?; very fresh	19th?	1	1	11
1	101	ENGS		Straight sided jar		BS	Fluted sides	19th-E20th	2	1	3
1	101	PEARL		?		BS		19th	1	1	2
1	101	STSL		PMD		BS	Joggled; brown on yellow	L17th-18th	1	1	8
1	102	BERTH		?		BS		M16th-18th	1	1	4
1	102	BERTH		Jar or bowl		BSS		M16th-18th	2	2	22
1	102	BERTH		Drinking vessel		BS		M16th-18th	2	1	10
1	102	CEP		Flat	Hand painted blue on white	Rims	One pc very abraded; one sherd has small circular hole drilled through-repair?; one rim sherd with gold edging	18th-19th	3	2	5
1	102	CIST		Drinking vessel	Twisted handle	Handle; rim		L15th-16th	2	1	6
1	102	CREA		?		Base	Very small vesell; toy?; quite crude; ?ID Fabric; very crazed	L18th-M19th	1	1	2
1	102	CREA		?		BS		L18th-M19th	1	1	1
1	102	CREA		Flat		Rim		L18th-M19th	1	1	1
1	102	ENGS		?		BSS		18th-19th	2	1	5
1	102	MAJO		?	Moulded leaf/garland	BS		M19th-20th	1	1	1
1	102	PMED		Bowl		Rims	Fe slip	16th-18th	2	1	41
1	102	ST	A/D	Jar or pitcher		Rim	Patchy green glaze?; collared neck profile with lid seat	10th-12th	1	1	10

Tr	Cxt	Cname	Sub Fabric	Form	Decoration	Part	Description	Date	NoS	NoV	W(g)
1	102	SWSG		Plate	Moulded beading along edge	Rim		18th	1	1	1
1	102	TGE		?		BS		M16th-M18th	1	1	1
1	102	THETT		?		BSS	Flakes; ?ID - could be TORK	10th-M12th	2	1	5
2	201	BERTH		?		Base; BS	1 pc sooted	16th-18th	2	2	11
2	201	BERTH		Jug or Jar		Rim		16th-18th	1	1	9
2	201	CREA		Bowl?		Base; BSS	Three separate vessels?	L18th-EM19th	3	1	2
2	201	ENGS		Straight sided jar		Rim; BS	Jam jar type	19th-E20th	2	1	1
2	201	MEDLOC	Oxidised light firing; medium sandy	?		BS	Handmade?; sooted externally	12th-15th	1	1	3
2	201	NOTGL		Jug		BS	Abraded	13th-E14th	1	1	5
2	201	NOTS		?	Engine turned rouletting	Rim		18th-19th	1	1	1
2	201	PEARL		?		Base; BSS		L18th-19th	3	1	2
2	201	PMED		?		BSS	Flakes; at least 2 vessels; mostly from the same vessel?; some pieces are surfaceless and could derive from CBM	M15th-18th	19	2	22
2	201	PMLOC		?		BSS	Cream coloured earthenware with Fe; Grantham product?	M16th-18th	3	1	21
2	201	PORC		Flat		Rims		19th-20th	2	1	5
2	201	PORC		?		BS	?ID	19th-20th	1	1	1
2	201	SWSG		Flat		Base		18th	1	1	3

Tr	Cxt	Cname	Sub Fabric	Form	Decoration	Part	Description	Date	NoS	NoV	W(g)
2	201	WHITE		?		BSS	At least two vessels	M19th-20th	3	2	1
2	201	WHITE		Bowl		Rim		M19th-20th	1	1	1
2	201	WHITE		Flat		BS		M19th-20th	1	1	2
3	300	ENGS		Closed		BS		19th-20th	1	1	14
3	300	MEDX		Jug		BS	Cu glaze; oolite?; STANLY?	12th-15th	1	1	4
3	300	PEARL		?		BS		19th	1	1	1
3	300	WHITE		Bowl		Rims; BSS	Fresh; WW1?	L19th-20th	1	1	1
3	301	WHITE		Large bowl		Base; BSS	Fresh; institutional type ceramic; probably WW1	L19th-20th	7	1	81
3	301	WHITE		?		BSS	Burnt; stained	M19th-20th	3	1	3
3	302	BERTH		?		BS		16th-18th	1	1	5
3	302	WHITE		?		BS		M19th-20th	1	1	1

Appendix 4

GLOSSARY

Anglo-Saxon Pertaining to the period when Britain was occupied by peoples from northern Germany, Denmark and adjacent areas. The period dates from approximately AD 450-1066.

Bronze Age A period characterised by the introduction of bronze into the country for tools, between 2250 and 800 BC.

Context An archaeological context represents a distinct archaeological event or process. For example, the action of digging a pit creates a context (the cut) as does the process of its subsequent backfill (the fill). Each context encountered during an archaeological investigation is allocated a unique number by the archaeologist and a record sheet detailing the description and interpretation of the context (the context sheet) is created and placed in the site archive. Context numbers are identified within the report text by brackets, *e.g*. [004].

Cropmark A mark that is produced by the effect of underlying archaeological or geological features influencing the growth of a particular crop.

Cut A cut refers to the physical action of digging a posthole, pit, ditch, foundation trench, *etc*. Once the fills of these features are removed during an archaeological investigation the original 'cut' is therefore exposed and subsequently recorded

Domesday Survey A survey of property ownership in England compiled on the instruction of William I for taxation purposes in 1086 AD.

Fill Once a feature has been dug it begins to silt up (either slowly or rapidly) or it can be back-filled manually. The soil(s) that become contained by the 'cut' are referred to as its fill(s).

Geophysical Survey Essentially non-invasive methods of examining below the ground surface by measuring deviations in the physical properties and characteristics of the earth. Techniques include magnetometry and resistivity survey.

Intrusive Artefacts of later date found in deposits that must pre-date them are said to be intrusive. Such intrusive artefacts will usually be small and have worked down in the soil through cracks, or by root, worm or rodent action. Intrusive artefacts will generally be isolated and be distinctively later than a larger assemblage of earlier artefacts, for example, a single 19th century pottery fragment found in a large collection of medieval ceramics in a refuse pit.

Iron Age A period characterised by the introduction of Iron into the country for tools, between 800 BC and AD 50.

Layer A layer is an accumulation of soil or other material that is not contained within a cut

Manuring Scatter A distribution of artefacts, usually pottery, created by the spreading of manure and domestic refuse from settlements onto arable fields. Such scatters can provide an indication of the extent and period of arable agriculture in the landscape.

Medieval The Middle Ages, dating from approximately AD 1066-1500.

Mesolithic The 'Middle Stone Age' period, part of the prehistoric era, dating from approximately 11000 - 4500 BC.

Natural Undisturbed deposit(s) of soil or rock which have accumulated without the influence of human activity

Neolithic	The 'New Stone Age' period, part of the prehistoric era, dating from approximately 4500 - 2250 BC.
Norman	Architectural style current in the 11th-12th centuries. Also known as Romanesque.
Old English	The language used by the Saxon (*q.v.*) occupants of Britain.
Post hole	The hole cut to take a timber post, usually in an upright position. The hole may have been dug larger than the post and contain soil or stones to support the post. Alternatively, the posthole may have been formed through the process of driving the post into the ground.
Post-medieval	The period following the Middle Ages, dating from approximately AD 1500-1800.
Prehistoric	The period of human history prior to the introduction of writing. In Britain the prehistoric period lasts from the first evidence of human occupation about 500,000 BC, until the Roman invasion in the middle of the 1st century AD.
Redeposited	An artefact that is redeposited is one that has been removed in the past from its original place of deposition. Redeposition can introduce earlier artefacts into later deposits, ie. medieval or post-medieval ditch or pit digging may have invaded Roman levels, bringing Roman artefacts to the surface. When the medieval/post-medieval features are infilled the Roman artefacts become incorporated with those deposits; these Roman artefacts are said to be redeposited. If the age differences within an assemblage are not great it is sometimes difficult to determine if an artefact is redeposited or residual (*q.v.*).
Residual	Artefacts that are noticeably earlier than others in an assemblage are often described as residual. Residual artefacts may be ones that were used for a very long time, or items that were maintained as heirlooms/antiques. If the dates of artefacts within a group do not exhibit major differences it can be difficult to determine if an artefact is residual or redeposited (*q.v.*)
Ridge and Furrow	The remains of arable cultivation consisting of raised rounded strips separated by furrows. It is characteristic of open field agriculture.
Romano-British	Pertaining to the period dating from AD 43-410 when the Romans occupied Britain.
Saxon	Pertaining to the period dating from AD 410-1066 when England was largely settled by tribes from northern Germany, Denmark and adjacent areas.
Saxo-Norman	Pertaining to the period either side of the Norman Conquest of 1066, dating from about 1000-1100 AD.
Transformed	Soil deposits that have been changed. The agencies of such changes include natural processes, such as fluctuating water tables, worm or root action, and human activities such as gardening or agriculture. This transformation process serves to homogenise soil, erasing evidence of layering or features.
Unstratified	Not related to definable layers (strata).

Appendix 5

THE ARCHIVE

The excavation archive consists of:

3	Context register sheets
24	Context record sheets
3	Photographic record sheets
3	Section record sheets
3	Plan record sheets
1	Small finds record sheet
12	Sheets of scale drawings
2	Boxes of finds

All primary records are currently kept at:

Archaeological Project Services
The Old School
Cameron Street
Heckington
Sleaford
Lincolnshire
NG34 9RW

The ultimate destination of the project archive is:

Belton House Archive Store
Belton House
Grantham

Archaeological Project Services Site Code: BEBH15

OASIS Record No: archaeol1-222980

The discussion and comments provided in this report are based on the archaeology revealed during the site investigations. Other archaeological finds and features may exist on the development site but away from the areas exposed during the course of this fieldwork. *Archaeological Project Services* cannot confirm that those areas unexposed are free from archaeology nor that any archaeology present there is of a similar character to that revealed during the current investigation.

OASIS DATA COLLECTION FORM: England

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OASIS ID: archaeol1-222980

Project details

Project name	Archaeological investigations on the site of the former Machine Guns Corps camp, Belton House, Lincolnshire
Short description of the project	Archaeological investigations, including geophysical survey and small-scale excavations were undertaken on the site of the former Machine Guns Corps camp in the grounds of Belton House. Geophysical survey recorded drains and faint traces of barracks and hospital. The excavations revealed a drain and recovered large quantities of window glass and nails and screws from the camp buildings.
Project dates	Start: 13-06-2015 End: 30-07-2015
Previous/future work	Yes / Not known
Any associated project reference codes	BEBH15 - Sitecode
Type of project	Research project
Site status	National Trust land
Site status (other)	Historic Park and Garden
Current Land use	Grassland Heathland 2 - Undisturbed Grassland
Significant Finds	FLINTS Early Prehistoric
Significant Finds	FLINTS Late Prehistoric
Significant Finds	POTTERY Roman
Significant Finds	POTTERY Medieval
Significant Finds	POTTERY Modern
Significant Finds	GLASS Post Medieval
Significant Finds	GLASS Modern
Significant Finds	KNIFE Medieval
Significant Finds	NAILS Modern
Investigation type	'"Geophysical Survey"',"'Part Excavation"'
Prompt	Research
Solid geology (other)	Jurassic Brant Mudstone
Drift geology	GLACIAL SAND AND GRAVEL

Techniques	Magnetometry

Project location

Country	England
Site location	LINCOLNSHIRE SOUTH KESTEVEN BELTON AND MANTHORPE BELTON HOUSE
Study area	4.57 Hectares
Site coordinates	SK 9401 3874 52.937492582027 -0.601019688075 52 56 14 N 000 36 03 W Point

Project creators

Name of Organisation	Archaeological Project Services
Project brief originator	National Trust
Project design originator	Denise Drury
Project director/manager	Denise Drury
Project supervisor	Neil Parker
Project supervisor	Neil Jefferson
Type of sponsor/funding body	Heritage Lottery Fund

Project archives

Physical Archive recipient	National Trust
Physical Contents	"Animal Bones","Ceramics","Glass","Industrial","Metal","Wood","Worked stone/lithics","other"
Digital Archive recipient	National Trust
Digital Contents	"Ceramics","Survey"
Digital Media available	"Geophysics","Images raster / digital photography","Images vector","Survey"
Paper Archive recipient	National Trust
Paper Contents	"Animal Bones","Ceramics","Glass","Industrial","Metal","Stratigraphic","Survey","Wood","Worked stone/lithics","other"
Paper Media available	"Context sheet","Correspondence","Map","Matrices","Miscellaneous Material","Photograph","Plan","Report","Section","Survey "

Project bibliography 1

Publication type	Grey literature (unpublished document/manuscript)
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