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TEMPVS REPARATVM

Archaeological and Historical Associates

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ARCHAEOLOGICAL EVALUATION (STAGE 3)

SP505E

RECREATION GROUND
BLACKBIRD LEYS
OXFORD

SP5509 0231

TR 31128DFG

ON BEHALF OF:

C Crawford
Estates
Oxford City Council
Town Hall
St Aldate's
Oxford
OX1 1BX

TEMPVS REPARATVM
FIELD SERVICES DEPARTMENT

November 28 1995





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ARCHAEOLOGICAL EVALUATION (STAGE 3)

In connection with development proposals

**RECREATION GROUND
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On behalf of:

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**TEMPVS REPARATVM
FIELD SERVICES DEPARTMENT**

Prepared by:
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November 28 1995

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ACKNOWLEDGEMENTS

Tempvs Reparatum would like to express its thanks to the Oxford City Council for funding the necessary archaeological evaluation of the proposed Recreation Ground Site. Gratitude should also be expressed to Mr. Peter Gibson, tenant farmer of the land under consideration. The project was supervised by Robert Armour-Chelu under the Direction of Andrew Richmond. The pottery was analysed by Paul Booth of the Oxford Archaeology Unit and the illustrations were drawn by Julian Bingley.

1.0 PROLEGOMENA

1.1 Tempvs Reparatvm

- 1.1.1 Tempvs Reparatvm is a private limited company concerned with many aspects of archaeology and history including consultancy, field evaluation and excavation.
- 1.1.2 Tempvs Reparatvm works on a national basis. It is an approved contractor in many English and Welsh counties including Oxfordshire.
- 1.1.3 Since its formal incorporation in 1988, the Company has represented a wide range of clients, both corporate and individual, undertaking both large-scale and small-scale projects.
- 1.1.4 Tempvs Reparatvm is the publisher of British Archaeological Reports, a prestigious international series of monographs and conference proceedings, and of other books and pamphlets on archaeological and historical subjects.

1.2 Company practice

- 1.2.1 Tempvs Reparatvm is committed to ensuring that the client receives a cost-effective service while itself maintaining the highest professional standards. The Company only employs specialists and technicians whose work and expertise match the quality requirements of the Company.
- 1.2.2 All projects are managed in accordance with, and in the light of English Heritage's MAP2 guidelines, the recommendations of PPG16 and the Institute of Field Archaeologists' guidelines.

1.3 Personal qualifications

- 1.3.1 Andrew Richmond is Manager of Field Services at Tempvs Reparatvm. Prior to joining Tempvs Reparatvm he was Field Projects Manager of the organisation The Heritage Network. He holds a Bachelor of Arts degree in Archaeology and Classical History and is a Member of the Institute of Field Archaeologists (MIFA). He is currently nearing completion of his PhD thesis at Reading University.

2.0 BACKGROUND

2.1 The commission

- 2.1.1 Tempvs Reparatvm was commissioned by Oxford City Council to carry out an archaeological evaluation of the proposed Recreation Ground Site, Blackbird Leys, Oxford (Figure 1).
- 2.1.2 The evaluation of the area consisted of a geophysical analysis followed by the positioning of five trenches on the basis of the geophysical results. No fieldwalking took place.

2.2 In connection with the commission

- 2.2.1 The work described herein comprises Phase 3 of archaeological works to be undertaken at Blackbird Leys. The Oxford Archaeological Unit was commissioned to undertake Phase 1, being an evaluation of Site C2 together with the peripheral road and Tempvs Reparatvm was commissioned to carry out Phase 2 and 3. Phase 2 included Site D and Site D Extension, whilst Phase 3 encompassed two fields to the north of this area.
- 2.2.2 This document presents Tempvs Reparatvm's results following completion of evaluative fieldwork over the proposed Recreation Ground Site.
- 2.2.3 The archaeological results discussed here comprise an archaeo-geophysical analysis (see Appendix 1) and the results of the phase of evaluative trenching.

2.3 Site location and landform

- 2.3.1 The site lies on the southern edge of the Blackbird Leys estate in the south-eastern area of the City of Oxford: NGR: SP554021. The Recreation Ground Site comprises fields belonging to the adjacent Blackbird Leys Farm. They encompass an area of c 3.5ha and were in a state of pasture prior to the intrusive investigations.
- 2.3.2 The site lies on relatively flat open land at the geological boundary of the Kimmeridge Clay and Corallian deposits. The immediate underlying geology is sand overlain by a thin calcareous gravel, which in turn is covered by variable depths of alluvial deposits which no doubt accumulated at times when the waters of the near by Northfield Brook reached this far. Alluvial deposits certainly gained depth closer to the brook as were revealed through the analysis of various geotechnical test pits which were opened up whilst the team were in the field. In areas the alluvial horizons are overlain by colluvial deposits which will have formed through the processes of hill-wash.

2.4 Previous evaluative work

- 2.4.1 To date, the application area has been assessed by several means. A detailed desk-top study of the complete application area has been written reviewing the potential of the site to yield evidence of an

archaeological or historical nature (see document TR31128DFF). This work was supplemented by a detailed archaeo-geophysical survey incorporating both magnetometer and magnetic susceptibility techniques (see Appendix 1). Following the completion of these surveys, a programme of intrusive evaluative trenching was formulated and agreed with the Council's archaeological adviser and implemented.

- 2.4.2 The desk-based analysis found little information relating to the immediate evaluation area, but information relating to the Romano-British and Medieval periods was identified close by. The specific details of these finds can be found in Appendix 2 of document TR31128DFF. It is clear that there is a substantial amount of archaeological material in the immediate region which perhaps casts light upon the potential of the evaluation zone to reveal informative evidence of an archaeological and/or historical character.
- 2.4.3 An important recognition was that no record of medieval or post-medieval activity could be identified within the proposed development zone. This may indicate that, until relatively recent times, the land may not have been subject to the archaeologically-destructive processes of agricultural ploughing. This factor could have significantly increased the potential of archaeological preservation.
- 2.4.4 The archaeo-geophysical survey detected a number of features of potential archaeological significance (see maps Appendix 1). It appeared that certain of the magnetic characteristics may relate to kiln features or similar strong magnetic structures. These findings specified particular areas to be tested in any subsequent work.
- 2.4.5 Documentary research did however introduce a caveat. Across part of the site sewage work installations were present during the late 19th and early 20th century relating to the large complex still present to the west of the site today (Oxford Corporation Sewage Farm map 1899). It is probable that certain of the geophysical anomalies relate to the remains of such structures and would thus not require further investigation.

3.0 ARCHAEOLOGICAL BACKGROUND

3.1 The known archaeology

compare with previous desktop

- 3.1.1 There is little evidence for prehistoric activity within the immediate environs of the development area. Stray artifact finds dateable to the Palaeolithic, Mesolithic, Neolithic, Bronze and Iron Ages are known from the general environment (eg: PRN 12905, PRN 3658, PRN 3843), but the significance of them in their isolation has to remain conjectural. *1095 etc!*
- 3.1.2 A much greater quantity of material has been recognised which is dateable to the Romano-British period, indeed, the principal interest of this part of Oxford is in its association with the important Romano-British pottery industry which is known to have developed there.
- 3.1.3 An important Roman road stretching between the centres of Alchester and Dorchester-upon-Thames passes the evaluation area about 0.5 km

to the east. Increased survey in the vicinity of the road has indicated that it was a focus for settlement and trading activity, in particular trade associated with pottery manufacture. The pottery industry which developed around Oxford concentrated itself around the eastern and southern sides of the present city and stretched northward and southward, being associated with the important communications link.

3.1.4 To date a number of kiln sites have been recognised along with high concentrations of pottery and manufacturing waste. The sites at Rose Hill, Littlemore, Sandford, Cowley and Nuneham Courtney reveal their dispersed nature in the landscape, but of particular significance to the present study are the suggested remains of three kiln sites at Blackbird Leys itself. These features were only recognised under salvage conditions during a period of housing construction in the early 1960's (Durham B pers comm).

3.1.5 Evidence of actual settlement is rarer for this particular area. A Romano-British trackway was located with small quantities of ceramics during a phase of archaeological work at Windale School just to the north of the present site, but there is little else relating to evidence of occupation in the immediate area (OAU pers comm).

No!
gang

3.1.6 Archaeological evidence post-dating the Roman period is represented by the remains of Littlemore Priory, being less than a kilometre from the area presently under discussion. Founded between 1134 and 1160, the priory grew to a complex containing several buildings, picturesque ponds and a plantation. Today the site, known as Minchery Farm, is represented by a building of the 16th century; little of the original complex has survived.

3.1.7 Within the actual investigation area there is little indication of post-medieval activity until the site was utilised in the 19th century by the Oxford Corporation for the disposal of sewage from the City of Oxford. A Corporation map of 1899 shows that across the site there were many structural features associated with the works such as outlet valves, carriers and settling tanks.

3.2 Specification parameters

3.2.1 The brief for archaeological evaluation required that the programme of works should aim to gather sufficient information to establish the absence/presence, extent, condition, character, quality and date of archaeological deposits across the development zone.

3.2.2 The work was to consist of a series of evaluative techniques each with the aim of providing an enhanced picture of the past nature of land utilisation of the site. A documentary search was followed by a detailed archaeo-geophysical analysis. These were thereafter followed by a phase of intrusive trenching.

3.2.3 The archaeo-geophysical survey was the subject of a separate report (Barlett A D H 1995 Blackbird Leys Development, Oxford: report on archaeogeophysical survey of the proposed Recreation Ground Site 1995), and has only been included here as an appendix (see Appendix 1). The detailed findings of the documentary search can be found in appendix 2 of the document TR31128DFF.

3.3 Trenching details

- 3.3.1 A total of 100 linear metres (at 1.8m bucket width) of trenching were positioned across the site equating to approximately 180 square metres of investigation (Figure 2).
- 3.3.2 Five trenches were laid out, of which one was in the north-eastern field. Of these trenches, three were positioned to coincide with geophysical anomalies.

4.0 METHODOLOGY

4.1 Trenching

- 4.1.1 Following assessment of the geophysical results a programme of intrusive trenching was agreed with the City Council's Archaeological Advisors.
- 4.1.2 The trenches were all excavated under archaeological supervision, with adequate provision for the retrieval of artifacts. Machine clearance of soils ceased at the most recent relevant archaeological horizons. All investigations of archaeological features thereafter took place by hand.
- 4.1.3 Monitoring visits by the curatorial authority were arranged so that representatives of the Oxfordshire City Council could be satisfied that the archaeological works were conducted to proper professional standards.
- 4.1.4 Trench plans were drawn to scale 1:100 and 1:50 and located on a site plan at scale 1:2500 being related to the OS grid. Where archaeological features were encountered trowel cleaning took place and all features were planned to scale 1:20 and excavated sections to scale 1:10. Upon all plans and sections the OD height of all principal strata and features was calculated.
- 4.1.5 Sufficient of the archaeological features revealed were excavated in order to provide the information required. Where necessary large features were half or quarter-sectioned as appropriate, smaller features were half-sectioned, and linear features were sampled by the excavation of segments. The evaluation aimed to excavate a representative sample so that reasoned statements could be made concerning the nature, date and extent of archaeological activity in the region covered by the trenches. Agreement of features excavated was reached between Tempvs Reparatvm and the advisors to the City Council.
- 4.2.6 Excavation did not compromise the integrity of the archaeological record. With regard for the trench evaluation, investigations were such a way as to allow for the opportunity for better excavation under the conditions pertaining to full investigation of a larger area if this is required.

4.3 Environmental assessment and sampling

- 4.3.1 Provision was made for a programme of environmental sampling under the guidance of the environmental specialist, but it was not considered necessary to call upon such services during the project.

5.0 EVALUATION RESULTS

5.1 Geophysical analysis

- 5.1.1 The detailed results of the geophysical survey can be found in **Appendix 1**. At this stage in the proceedings it appears that the survey was successful in identifying buried remains relating to kiln features of the Romano-British period.

5.2 Intrusive trenching

- 5.2.1 The trenching across the proposed Recreation Ground Site identified one particular area of archaeological activity. Trenches 23 and 24 produced a range of features clearly dateable to the Romano-British period. The concentrated scatters of Roman ceramics across these two trenches identified this zone as an area of importance.
- 5.2.2 Fewer features were present within the confines of Trenches 22, 25 and 26. Those recognised across Trenches 22 and 25 appear to be related to Romano-British activity, but those within Trench 26 appear to be post-medieval in date.
-
- 5.2.3 Trench 23 was positioned to coincide with a strong reading on the archaeo-geophysical magnetometer survey (see **Appendix 1**). It was also close to an area where a geotechnical test pit disturbed material which appeared to relate to a Roman kiln. The twenty meter trench entered the area of high geophysical readings on the western side, but continued into an area of 'quiet' to the east.
- 5.2.4 Following removal of the topsoil and subsoil deposits it was clear that a zone of dense archaeology had been identified. To the west was a large spread of very dark silt (223) containing a profusion of Roman pottery pieces (including some fine ware pieces such as mica dusted wares) and brick fragments, whilst to the east was a cobbled stone surface (229) clearly representing the presence of a structure (**Figure 3**). The pottery associated with (223) could be accommodated within the second half of the third century indicating that the activity in the trench was generally contemporary to that noted in the near by Trench 13 of the Site D-Extension evaluation (see Document TR31128DFF).
- 5.2.5 Upon select excavation of the silt horizon with its abundance of pottery and other ceramic fragments it became clear that it overlay an area of industrial activity. Several small cuts were recognised including [261] and [263] which, during the limited space, appeared to relate to the flue arrangement of a kiln feature (see detail **Figure 3**). The fills of these

two features, (262) and (264), were filled with fine dark brown-black silts containing pottery sherds dateable to the mid third century AD. The 78 sherds from (262) only contained one fragment at variance to this date, being a fabric dateable to after AD 350. Context (264) contained over 100 sherds, mostly greywares, with few fabrics suggesting anything later than the late third century. Exploratory excavation to the immediate south showed [261] continuing in this direction and being surrounded by, what appeared to be, a brick arrangement. Some of the fired clay bricks seemed to be in situ, thus forming the wall of a structure. Removal of the fired bricks did not take place, they were left in situ to allow for the opportunity for better excavation under the conditions pertaining to full investigation of a larger area if this is required. The in situ fired clay bricks and associated contexts were present at 61.35 mOD only c.0.30-0.40m below the ground surface. They were evidently just deep enough to have escaped destruction through plough action. Considerable burning had evidently taken place in the immediate area, and suggestions were put forward indicating the presence of a Romano-British kiln. Within the limited confines of the evaluation trench it was not possible to delineate this zone of industrial activity.

low way
course?
no section
drawing

5.2.6 Immediately to the east of this arrangement was a more substantial ditch [258] which contained a single dark silt fill (259) with several pieces of kiln debris, but no pottery. The additional presence of limestone pieces indicated that the feature may relate to the nineteenth century sewage works. A number of features across Site D-extension contained similar inclusions and were seen to be sewage related. It was not possible in the limited confines of the trench to be certain that this was the case here.

5.2.7 The cobbled stones (229) to the east of the trench appeared to represent the southern edge of a more substantial surface (Figure 3). Numerous, rather irregular, pieces of limestone were carefully arranged to produce a flat and stable surface. The feature travelled under both the northern and southern section faces, but appeared to be circular or semi-circular in plan. Initially, it was thought that the arrangement related to the nineteenth century sewage works, but excavation showed the stones to be embedded in a compact silt matrix (232) sealing pottery sherds of an entirely Romano-British date. The compactness of the surrounding matrix indicated that the structure was not Victorian. From (232) over 130 sherds of pottery were recovered, which could be accommodated quite securely within the confines of the late third century. Activity associated with the feature may have continued into the fourth century, as an example of a mortarium type [M23], dated by Young (1977) to after AD 350, was located.

5.2.8 The nature of the surface, and its close proximity to the suggested kiln, indicated that it was a feature relating to the production of pottery. It was suggested that it may relate to a structure which acted as a 'drying area' for pottery vessels being manufactured in the kiln (Durham B pers comm). The western side of the surface was well laid out and had evidently escaped the damaging effects of modern ploughing. The remainder of the feature had, however, been disturbed to some extent. The surface of the 'drying area' was 61.46 mOD only 0.29m below the present ground surface.

5.2.9 Trench 24 was at right angles to Trench 23 and was positioned to coincide with an increased magnetic reading which showed up on the

magnetometer readout (Appendix 1). Following machining it became apparent that the complete trench consisted of an amorphous spread of dark silts (239), (240) and (241) each which contained sizeable quantities of Roman pottery. In places the quantities indicated that dumping of the sherds had taken place. Most of the assemblage was consistent with the dating of the pottery from Trench 23, suggesting that activity across this area was contemporary. Although occasional sherds were of the fourth century, the majority indicated activity during the second half of the third century.

- 5.2.10 Whilst there were subtle differences in the colouring and texture of the surface, it was not possible to identify clearly any particular arrangement. An eight meter section was therefore positioned down the side of the trench to better understand the formation processes of these horizons. It was evident that an approximate east-west cut [255] existed in the area, which was filled with several dumping horizons, slumped in from the northern edge. Unfortunately, the dimensions of the feature were not ascertained within the section confines, leaving the true nature of the cut unknown. Its depth varied from between 0.30 and 0.40 meters and the base undulated across a sandy strata. Suggestions have been put forward indicating that the substantial cut could represent an extraction hollow for the recovery of sand to be utilised somewhere along the line in the pottery manufacturing process.
- 5.2.11 Trench 22 was orientated north-south and was positioned in an area where it is proposed to construct a drainage channel. The geophysical survey did not in fact cover this area, but readings close by did not indicate an area of archaeological magnetism. Following machining two features of interest were noted, each cut into the natural silts (Figure 3).
- 5.2.12 At the southern end of the trench was a shallow ditch [230] with a single sandy-silt fill (231) from which several pottery fragments were recovered. At present this appears to represent a fairly isolated feature, but one which is clearly dateable to the mid first century. The pottery from the ditch suggested domestic, and not industrial activity, taking place during the Late pre-Roman Iron Age and early Romano-British periods. This activity is removed both spatially and temporally from that recognised across Trenches 23 and 24.
- 5.2.13 At the extreme northern end of the trench and running under the northern section was a further ditch [251] of a more substantial character. Investigation showed a deep ditch with at least three fills (252), (253) and (254) of which the last two produced pottery assemblages of the third century. Context (253) contained 30 fragments, mainly grey-wares, with a single mortarium piece dateable to AD 240+. The feature appears to represent a boundary of some type, running on an east-west axis. Its depth was over half a meter and it was estimated that its width be in excess of two metres. The upper fills of the ditch were at 61.10 mOD, only 0.30m beneath the ground surface. It is possible that this feature delimits the recognised zone of contemporary industrial activity to the south from the lower lying floodplain to the north. In the Roman period this area was no doubt prone to flooding.
- 5.2.14 Trench 25, orientated east-west, was placed in an area where several enhanced readings were noted on the detailed magnetometer survey (Appendix 1). Upon excavation of the trench three ditches were

identified, of which two [237] and [242] related to relatively modern activities, perhaps associated with the Victorian sewage works (Figure 3). Ditch [233] however, appeared to be Roman in date, and contained two shallow fills (234) and (235), which both contained pottery. The upper fill (235) also showed evidence of burning. The assemblage from the two fills totalled 25 pieces and indicated a second century date. One of the sherds was from a BB1 cooking pot, clearly non-local and indicating an import. It is probable that the group relates to domestic activity, not industrial. Unfortunately this feature was truncated by one of the modern ditches. It was clear that the top and subsoil horizons in the vicinity of this trench contained few pottery sherds outlining this area as a zone of less intensive activity.

- 5.12.15 The final trench, 26, was placed in the north-eastern field and, like Trench 22, was placed to cover an area where it is proposed to construct a substantial drainage channel associated with the forthcoming development. Geophysical readings within the vicinity of the trench did not indicate the likely presence of archaeology.
- 5.12.16 Excavation revealed a number of east-west aligned features, which upon investigation proved to be modern, some perhaps relating to farming activities. Field drainage channels were common, whilst Roman sherds of pottery were rare. This area does not appear to constitute a zone of archaeological interest.

6.0 CONCLUSION

6.1 The archaeology of the application area

- 6.1.1 The evaluation of the proposed Recreation Ground Site identified one particular area where archaeological remains were of a concentrated nature. Trenches 23 and 24 were both characterised by conspicuous spreads of dark silts rich in ceramics of the third century. Excavation within Trench 23 identified structural components evidently relating to the site of kiln, including a stone surface thought to represent an area for the drying of vessels. The limitations of this industrial activity could not be ascertained within the confines of the evaluation project, but the remains in Trench 24 appear to be related. Here a substantial cutting was identified filled with dumps of silt rich in contemporary third century pottery. It was suggested that the cutting may relate to the extraction of sand deposits to, perhaps, be used in the pottery manufacturing process.
- 6.1.2 Elsewhere across the site activity was of less intensity. A substantial ditch and a smaller gully were identified in Trench 22 and a single small ditch was recorded in Trench 25, all being Romano-British in date. The large ditch at the northern end of Trench 22 was contemporary to the industrial activity noted in Trenches 23 and 24 and perhaps relates to the divisioning of land use. The smaller gully was of a first century date and appeared to be domestic in character. That the gully was isolated, and not associated with other features, makes it difficult to infer the limitations or importance of this domestic association. Similarly, the small ditch in Trench 25 was not contemporary to the industrial activity recognised. Here material of a second century date was recovered, which was again of a domestic

character. Trench 26 contained no features of archaeological significance.

6.2 Discussion

- 6.2.1 The evaluation was successful in identifying archaeological sites over parts of proposed Recreation Ground Site, Blackbird Leys. Those sites identified corresponded well with the results obtained from the archaeo-geophysical analysis.
- 6.2.2 Whilst the evaluation identified areas of archaeological interest it did not necessarily define them. Indeed, the limitations of the activity recognised were rarely established. It is possible that the kiln related activity around Trenches 23 and 24 is quite condensed, and may be bounded by the large ditch recorded at the northern end of Trench 22.
- 6.2.3 The earliest activity across the site was located within Trench 22 where a mid first century domestic assemblage was recovered from a gully feature. No associated features were identified within the confines of the trench. Second century domestic activity was recorded within Trench 25 where a single ditch was identified. Again no further features were associated with this find. Of more interest was the identification of a pottery production site close to Trenches 23 and 24. The evaluation identified a probable kiln site which appears to have been in operation during the third century. Some later and earlier material was recovered, but the assemblage as a whole echoed quite intense activity during the second half of the third century. It is apparent that much of the activity noted across Site D-extension was contemporary with this.

FIGURES

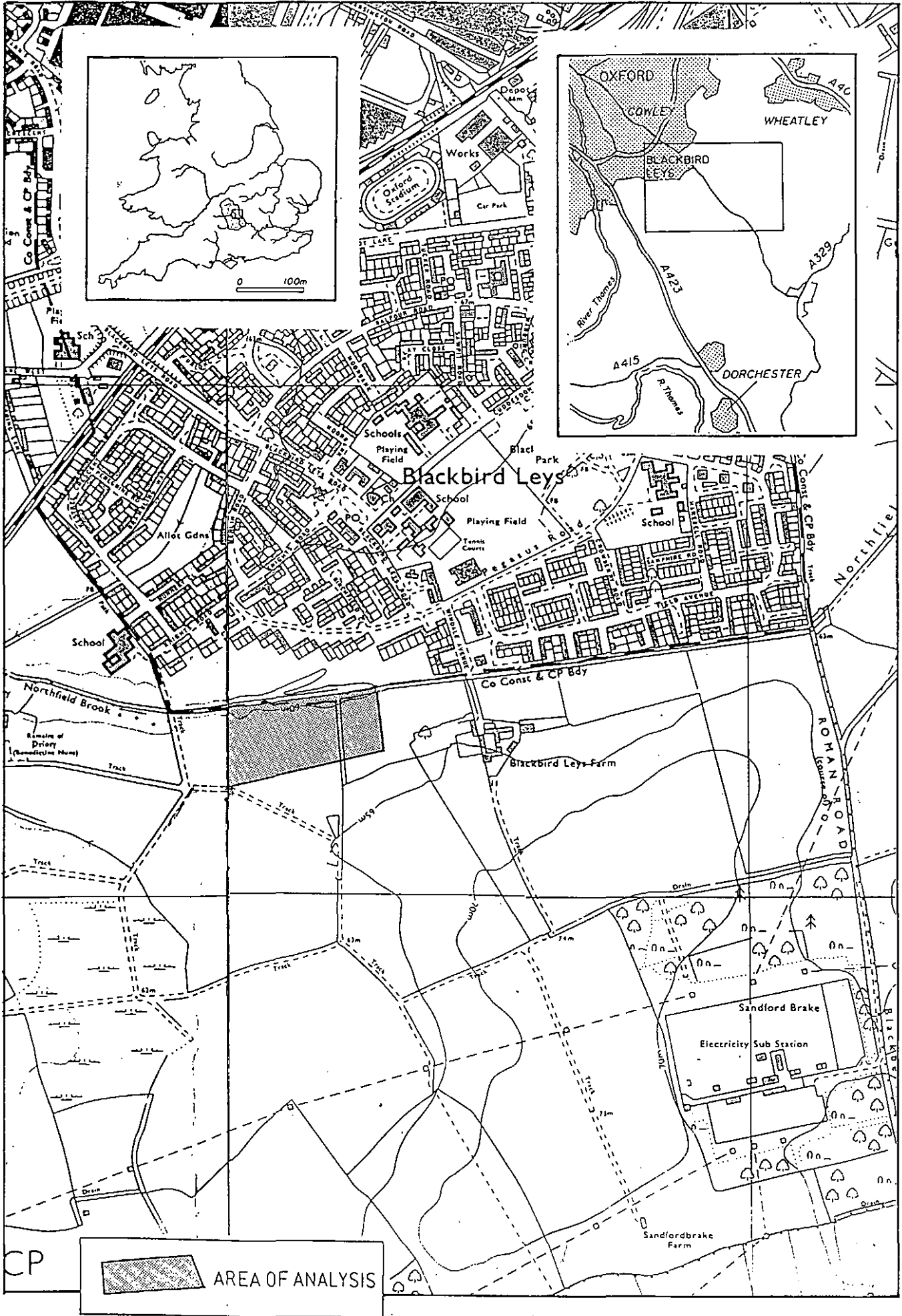


FIGURE 1 Site location plan



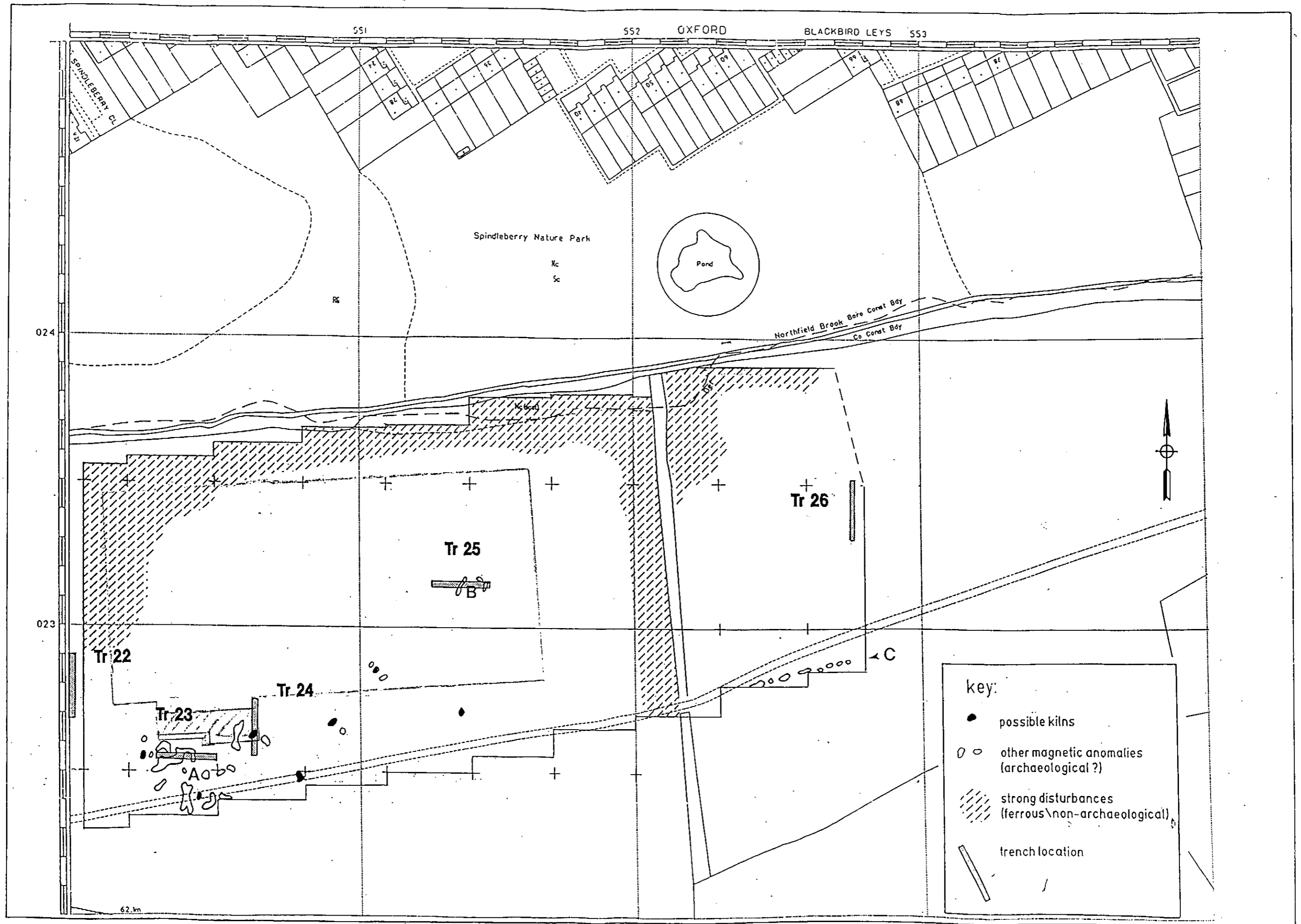


FIGURE 2 Trench location



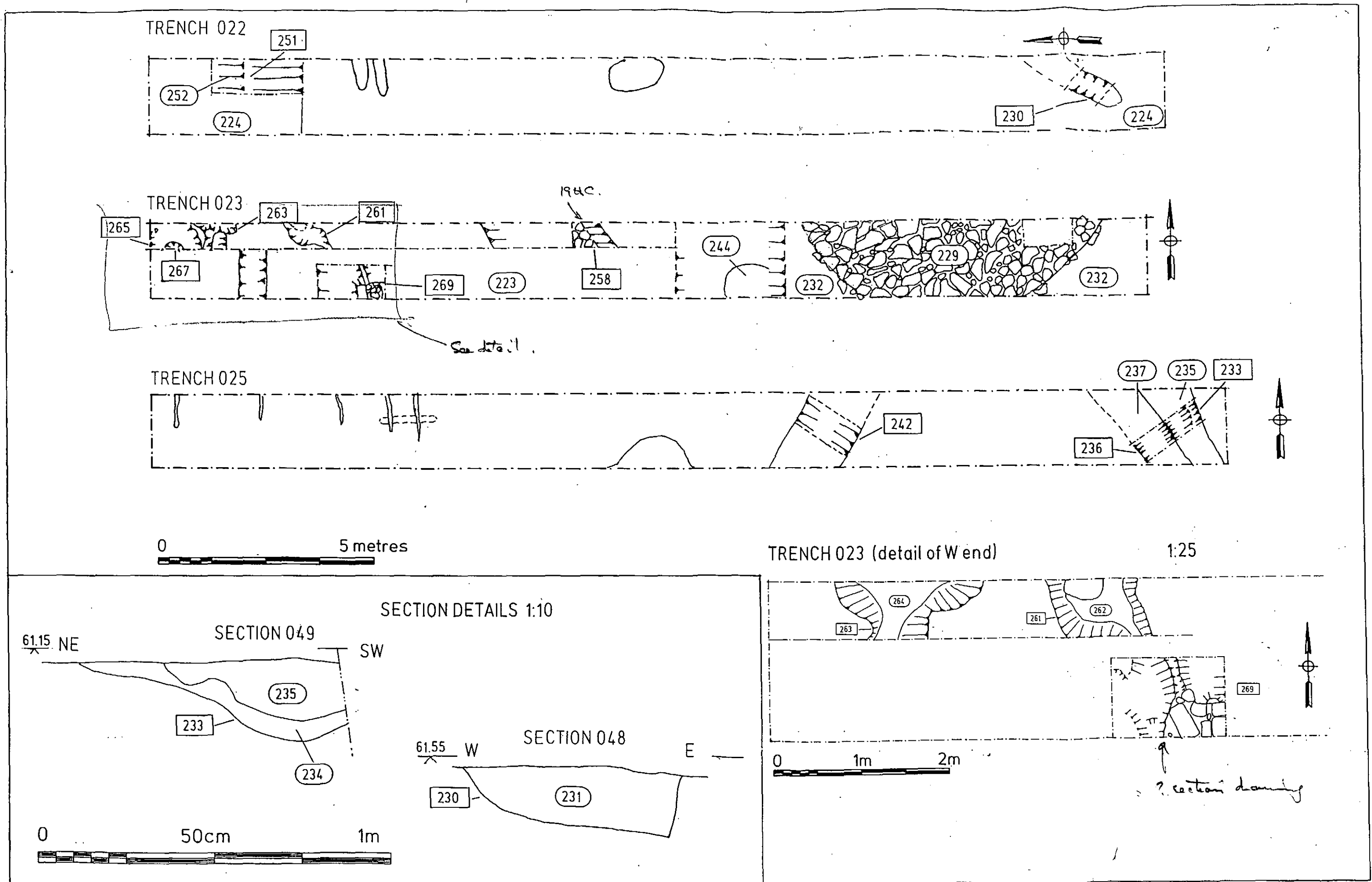


FIGURE 3 Trench detail



APPENDIX 1

**FRY'S HILL, BLACKBIRD LEYS,
OXFORD**

**Report on Geophysical Survey
1995**

A.D.H. Bartlett

Bartlett - Clark Consultancy

Specialists in Archaeogeophysics

FRY'S HILL, BLACKBIRD LEYS, OXFORD

Report on Geophysical Survey, 1995

Introduction

This survey was commissioned by Tempus Reparatum Archaeological and Historical Associates Ltd as part of a programme of archaeological assessments of proposed development areas near Blackbird Leys, which is being carried out on behalf of Oxford City Council.

The present site is to be levelled and landscaped as a sports field, and a pavilion is to be constructed. Remains from an extensive Roman pottery industry are likely to be found in the area, and so a magnetometer survey was requested of the full site. The magnetometer survey was supplemented by magnetic susceptibility readings taken at 15m intervals. Magnetometer surveying is the most appropriate technique for locating kilns and associated industrial debris, but susceptibility measurements provide additional evidence for the presence in the soil of magnetically enhanced material which may originate from ancient industry or settlement activity.

The fieldwork for the surveys was carried out on 1-3 November 1995, and initial plots of the results were provided for use during subsequent trenching.

Site

The survey covered an area adjoining the Northfield Brook, and centred at approximately SP 551 023, as outlined on figure 1. The site is on level farmland with a clay soil, and was under grass at the time of the survey. Susceptibility readings from the site were particularly low (with a mean volume susceptibility value of 7×10^{-5} SI). This is likely to mean that features lacking burnt material or other magnetically enhanced debris in the fill will not be reliably detected, although industrial features retaining a strong remanent magnetisation from heating should respond. These effects were demonstrated in the earlier survey of area D to the south of the present site. Tests on soil samples taken from features exposed in the trenching showed that some samples of pit fill had susceptibility values similar to the surrounding subsoil (in the range 8-18 SI), but other pits showed significant enhancement (with readings between 33 and 59 SI), and should therefore be detectable in a survey.

Additional notes on the techniques used for the survey are given in the appendix. Findings were as follows.

Results

Plots of the survey data are reproduced at 1:1250 scale in figure 2, and an interpretation has been added at the same scale to the survey location plan, figure 1. The magnetic susceptibility plot (inset at 1:2500 scale on figure 2) shows generally low readings, as noted above, but with higher values towards the west of the site. The magnetometer survey also indicates activity in this area.

The cluster of strong magnetic anomalies around A in the south west corner of the site (figure 1) lies close to deposits of burnt soil and pottery seen in previous trenching immediately to the south, and appears to represent an additional concentration of ancient industrial remains. Some of the stronger anomalies in this group could perhaps represent kilns, although interpretation is uncertain within the complex of features at A. Some of the more distinct strong magnetic anomalies to the east of A (indicated in black on figure 1) could well, however, indicate the presence of kilns or other strongly burnt structures or deposits.

A number of strong magnetic anomalies detected elsewhere in the survey are narrower than those indicated above, and are not marked on the interpretation. They have pronounced negative peaks and are more likely to represent modern buried iron than ancient kilns. Much of the remainder of the survey is quiet, although a group of pit-like anomalies has been outlined at B.

The high susceptibility readings at the north west of the survey correspond to an area of very strong magnetic interference, which probably represents the modern infilling of a pond or hollow. The remainder of the strong magnetic interference indicated by shading on figure 1 is caused by pipes across the north side of the site, and close to the field boundary which divides the site. There are also susceptibility variations associated with this boundary.

The line of magnetic anomalies seen in the eastern of the two fields at C may be associated with a former alignment of the footpath which crosses this field. Little else was found in the eastern field except for interference from a fence to the east, and from a pipe and associated drain covers in the north west corner.

Conclusions

The survey has located a number of magnetic anomalies which appear to be associated with ancient industrial activity, and some of which may well represent buried kilns. These anomalies are particularly concentrated in the south west corner of the site, where previous trenching has indicated the presence of features and deposits of this kind.

Much of the remainder of the site appears to be magnetically unresponsive, except for pipes and other modern disturbances. The clay soil provides difficult conditions for a magnetic

survey, and it may therefore be the case that ditches or other features lacking a magnetically enhanced fill have gone undetected.

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01865 200864

3 December 1995

C. Paton BSc and P. Heykoop BA carried out the magnetometer surveying for this project. B.Y. Turton MA collected the susceptibility data.

Appendix

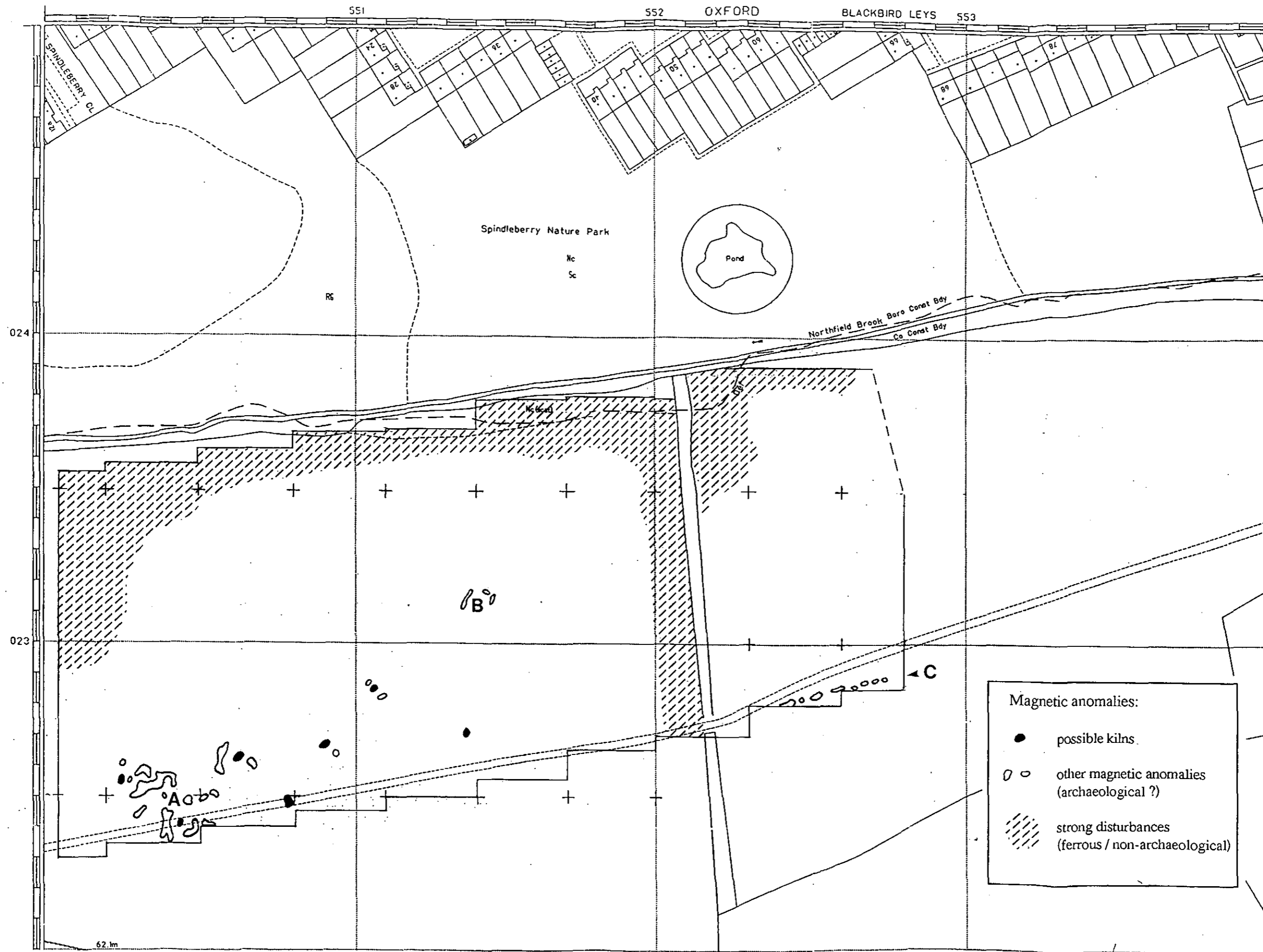
Geophysical Survey Procedures Employed in this Project: Technical Notes

Magnetometer Survey

The magnetometer survey plots represent readings taken at a rate of 4 per metre along traverses 20 or 30m in length using a Geoscan FM18 magnetometer. Each section of the survey is shown both as a graphical profile (or stacked trace) plot, and as a half tone plot, which provides an alternative view in plan of the detected features. High readings are represented by dark shading on the half tone plot. The half tone plots are based on a processed version of the data in which high readings (usually caused by buried iron) have been truncated, irregularities in line spacing caused by variations in the instrument zero setting have been corrected, and the results smoothed (using a two dimensional convolution filter) to reduce background noise levels and emphasise the broader features which may be archaeologically significant. The graphical plot shows the survey data after the same corrections, but with only slight linear smoothing.

Magnetic Susceptibility Survey

The results obtainable from magnetometer and magnetic susceptibility surveys are related, but they will not necessarily detect the same features or disturbances. The magnetometer responds to small localised anomalies in the earth's magnetic field caused when cut features such as ditches and pits are silted with topsoil, which usually has a higher magnetic susceptibility than the underlying natural subsoil. It also detects the thermoremanent magnetism of fired materials, notably baked clay structures such as kilns and hearths. Burning associated with past human occupation enhances the magnetic susceptibility of topsoil, increasing the magnetometer response from ditches and pits, and also making it possible to locate sites by magnetic susceptibility measurements on the superficial topsoil. Susceptibility testing can be used with quite widely spaced readings to give a broad indication of occupied or disturbed areas, as was done in this case, where readings were taken at 15m intervals using a Bartington MS2 meter with field detector coil. The results are presented as shaded squares, each corresponding to the area from which the reading was taken. High susceptibility readings are represented by dark shading on the plot.

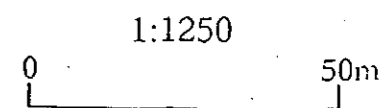


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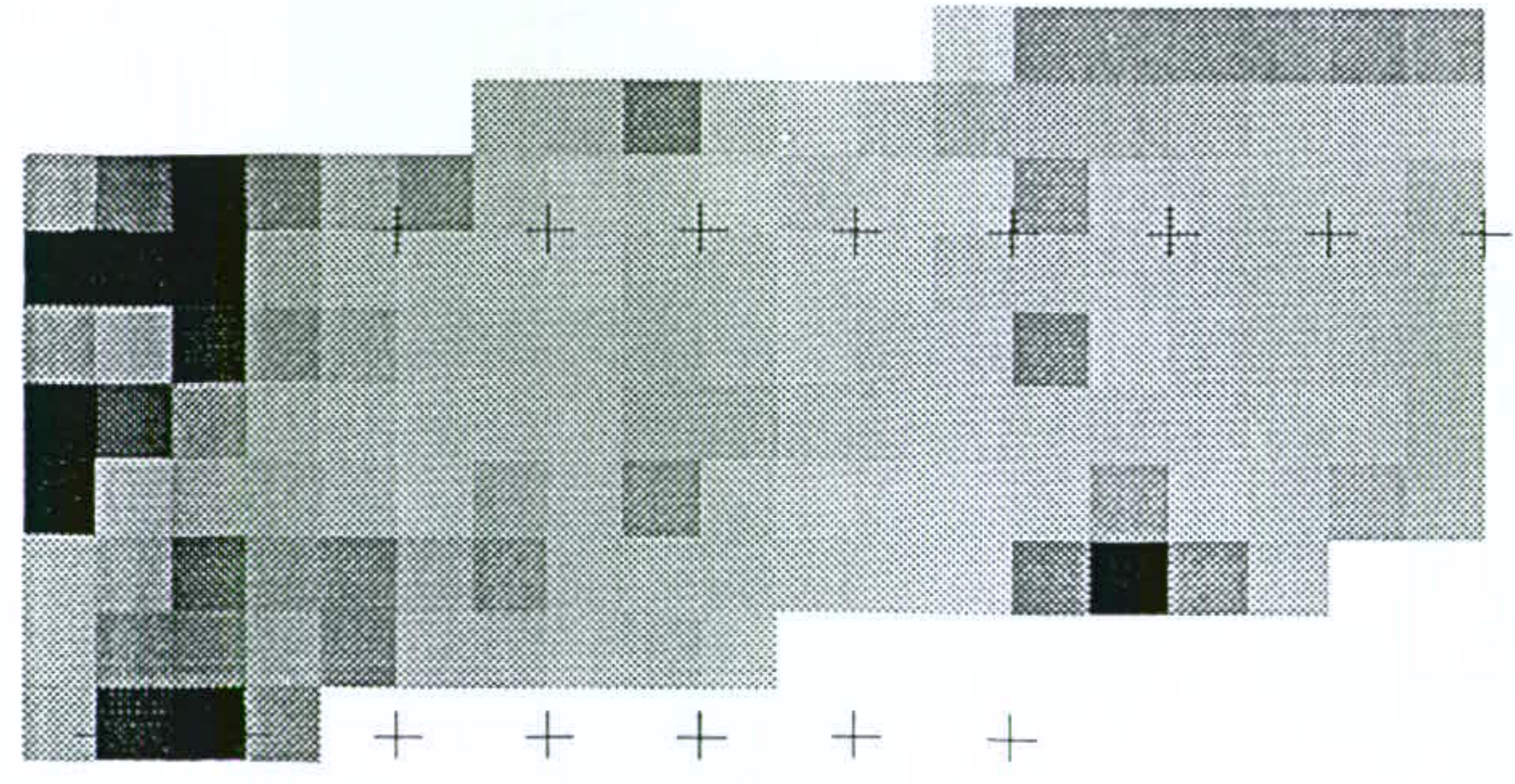
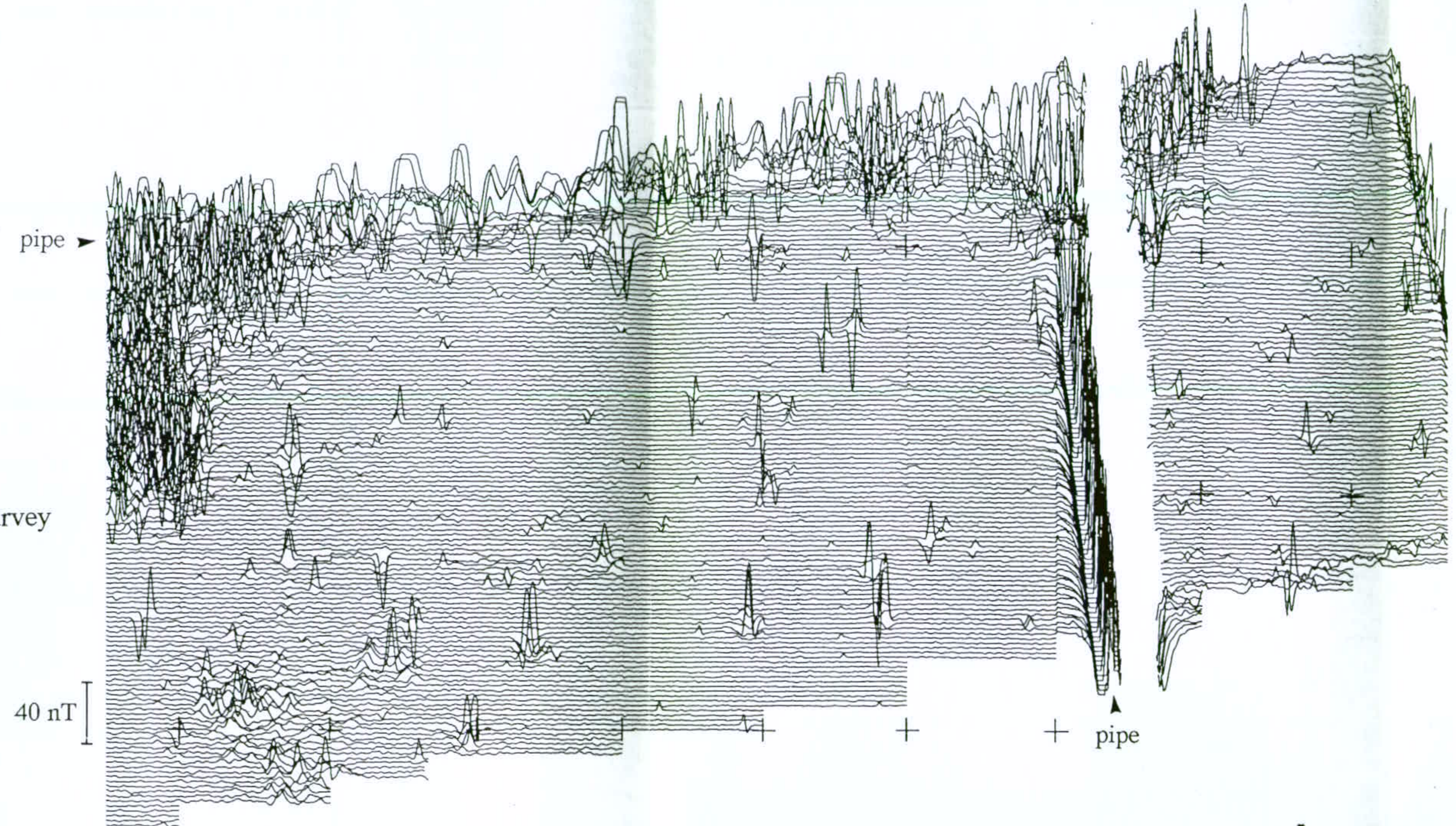
Oxford Centre for Innovation
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Fry's Hill, Blackbird Leys, Oxford
Geophysical Survey 1995

Figure 1: Location of Survey (with interpretation)

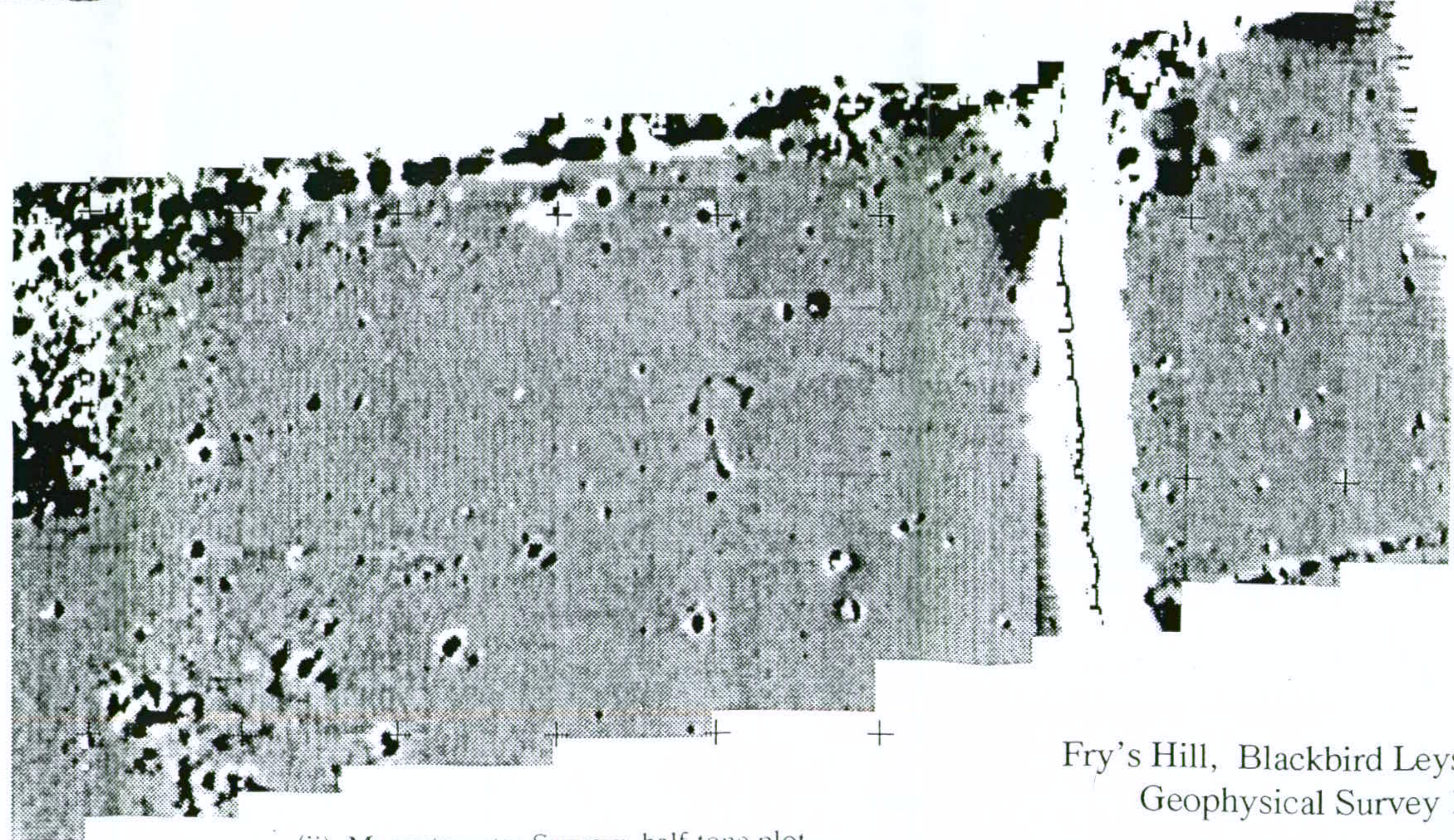


(i) Magnetometer Survey



(iii) Magnetic Susceptibility Survey 1:2500

Display range: 0 (white) to 15×10^{-5} SI (black)



(ii) Magnetometer Survey: half tone plot

Display range: -3 nT (white) to +3.75 nT (black)

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Figure 2: Survey Data

APPENDIX 2



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6.12.95

Dear Brian,

I enclose a copy of the pottery report on the final stage of Tempus' Blackebud Leys evaluation. The whole report was delayed because most of the pottery was not washed until yesterday!

Yours

Paul

ROMAN POTTERY FROM EVALUATION BY TEMPUS REPARATUM AT BLACKBIRD
LEYS, OXFORD, OXBLSD 1995, BLOCK III TRENCHES 22-26

Introduction

Some 2152 sherds of Roman pottery, weighing c 26.7 kg, were recovered from Block II of the Blackbird Leys evaluation. A small amount of post-medieval material is not reported on here. Close dating of the pottery groups was usually difficult, but the majority of groups appeared to be of 3rd century date, though both earlier and later material was also present. The pottery consisted almost entirely of locally manufactured material. Much of the material derives from pottery production within and around the area evaluated, but a few context groups probably represented domestic activity in the area. The pottery is discussed principally in relation to the earlier report on the material from the adjacent blocks I and II lying immediately south of the present area of evaluation.

Handwritten notes:
D+Dart

Methodology

The pottery was scanned very rapidly by context and a paper record was made on the same basis. The material was divided into major ware groups according to the system developed by the Oxford Archaeological Unit (OAU) for recording of Iron Age and Roman material from the region. In some cases material was identified to the level of individual wares (see below). The pottery was quantified in terms of the ware groupings by sherd count and weight, though the latter figures have not been used extensively in this report. Vessel types were recorded according to the typologies of Young (1977) where possible, or in terms of the more general form categories defined by the OAU system where it was not possible to assign vessels to specific Young types. At this stage, quantification of vessel types was by rim count only. EVEs measurements should be employed in any further analysis. Limited aspects of decoration were noted, along with an assessment of the date of each group.

Condition

The pottery was in moderate condition. The overall average sherd size (weight), 12.4 gm, was reasonable, though about 14% lower than that in the adjacent areas of evaluation to the south.

Some sherds had very poorly preserved surfaces, a function largely of the soil conditions on the site, although this characteristic appeared to be less common than in the areas to the south. This problem did make assessment of the proportion of colour-coated and white-slipped wares difficult, since it is likely that some sherds in these fabrics had lost all traces of their surfaces. A partial solution to this problem is discussed below (see Fabrics). Very few sherds were positively identified as wasters, despite the likelihood that much material derived from pottery production waste. This situation is exactly paralleled, however, amongst material from the production site

at Lower Farm, Nuneham Courtenay (Booth, Boyle and Keevill 1994, 135). There, as perhaps also at Blackbird Leys, the principal reason for rejection of pottery may have been underfiring rather than overfiring (only the latter produces distorted vessels).

Fabrics

The pottery fabrics were defined using the OAU system. This works hierarchically, so that it is possible to identify the fabric of a sherds at one of three levels of precision; major ware group, principal subdivision of major ware group, or specific fabric within major ware group. Much of the Blackbird Leys material, particularly the coarse wares, was identified at the intermediate level of precision. Individual fabrics were identified where possible. The fabrics present on the site, and their codes and quantities, are listed below.

The pottery consisted almost entirely of locally produced fabrics, as would be expected with production derived material. Most of the major products of the Oxfordshire industry were present: white and red-slipped mortarium fabrics (the latter scarce), red colour-coated wares, white wares, white-slipped wares and oxidised and reduced coarse wares. Second century fine ware production, as identified at Lower Farm (Booth, boyle and Keevill 1994, 137-8), was represented by two sherds of a mica-gilt fabric F35.

The problem of identification of colour-coated ware (fabric F51, see below) has already been mentioned. Likely sherds of this fabric were examined quite carefully for minute traces of slip. The result of the total erosion of the slip was generally an oxidised sherd, effectively indistinguishable from the majority of oxidised coarse wares (ware group O) in terms of its fabric. In some cases, where such sherds occurred in forms which were characteristic of the F51 repertoire, they were assigned to an intermediate ware category, OF, indicating that, despite the total lack of a colour-coated surface, they were likely originally to have had such a surface. This identification was only possible for certain rim and other very distinctive feature sherds, however, and it is likely that some of the sherds assigned to the general oxidised ware category (usually to ware group O10) were originally been colour-coated. The total figures for colour-coated ware given below, a combination of those for ware groups F51 and OF, are therefore an underestimate of the original importance of this ware group, although, as already noted, this problem was less significant here than further south.

The wares present in the assemblage, in ware group order, are as follows:

'Fine' (colour-coated) wares

F35. Mica gilt oxidised fabric (Booth, Boyle and Keevill 1994, 138). 2 sherds.

F51. Oxfordshire colour-coated ware. 143 sherds.

OF. Probable Oxfordshire colour-coated ware (see above). 41 sherds.

Mortarium fabrics

- M22. Oxfordshire white mortarium fabric. 223 sherds.
 M41. Oxfordshire red colour-coated fabric (=F51). 16 sherds.

White wares

- W10. General Oxfordshire white ware, fairly fine. 171 sherds.
 W20. Oxfordshire coarse sandy white ware. 2 sherds.

White-slipped ware

- Q21. Oxfordshire white-slipped ware. 20 sherds.

Oxidised 'coarse' wares

- O10. Oxfordshire fine oxidised ware. 309 sherds.
 O20. Oxfordshire coarse sandy oxidised ware. 4 sherds.
 O80. Oxfordshire coarse-tempered oxidised fabrics. 3 sherds.

Reduced 'coarse' wares

- R10. Oxfordshire fine reduced ware. 17 sherds.
 R20. Oxfordshire coarse sandy reduced ware. 5 sherds.
 R30. Oxfordshire medium sandy reduced ware. 1172 sherds.
 R90. Oxfordshire coarse-tempered reduced fabrics. 3 sherds.

Miscellaneous fabrics

- E30. Coarse sand-tempered 'Belgic type' coarse ware. 2 sherd.
 E80. Grog-tempered 'Belgic type' coarse ware. 15 sherds.
 O81. Pink grogged ware (?Northants). 2 sherds.
 B11. Black-burnished ware (BB1). 1 sherd.

The distribution of fabrics in each of the evaluation trenches is given in Table 1.

Trench	F35	F51	OF	M22	M41	W10	W20	Q21	O10	O20	O80	R10	R20	R30	R90	Other	TOTAL
22			1	7		9			11					21		15	65
23	2	138	31	189	14	131	2	20	261		3	3	991	991		6	1779
24		5	3	26	2	23			32	3		6	1	138			239
25			4	1		7			1				1	19	3	3	39
26			2			1			4					3			10
TOTAL	2	143	41	223	16	171	2	20	309	4	3	17	5	1172	3	24	2152
%	0.1	6.6	1.9	10.4	0.7	7.9	0.1	0.9	14.4	0.2	0.1	0.8	0.2	54.5	0.1	1.1	

Table 1: Quantification of fabrics (sherd count) by Trench

Colour-coated wares comprised a significant proportion of the assemblage, but were less important than in the adjacent areas to the south (8.5% of sherds if the totals of F51 and OF are combined, compared to 13.3.% for the adjacent areas), although this figure is probably an underestimate (see above). The occurrence of two sherds of the mica gilt fabric F35 is noteworthy (see discussion below). Mortaria were also less common than to the south. While the proportions of the white fabric M22 were similar in the two areas the red colour-coated fabric M41

was much less important here and the white-slipped fabric M31 was totally absent. This absence was not a consequence of poor surface preservation because the white-slipped fabric Q21 was actually better represented here than to the south. Parchment ware and burnt white ware were also absent in this area, though other white wares totalled 8% of the assemblage, a figure closely comparable to that from the adjacent area.

The corollary of the reduced representation of fine wares and mortaria is that oxidised and reduced coarse wares comprised a higher proportion of the assemblage than in the adjacent areas overall (c 70% compared with 60% to the south). Most of this material consisted of reduced wares. The principal fabric group, R30, amounted to 54.5% of the total sherds from this area, a figure only matched in Trenches 13, 15 and 17 in the northwest corner of the adjacent evaluation area to the south (ie that part nearest to the present area), whereas the overall figure for R30 in the earlier evaluation was 29.6%. Again the proportion of non-local products was negligible, though one context group, 231 in Trench 22, consisted entirely of grog-tempered 'Belgic type' sherds datable to about the middle of the 1st century AD.

The great majority of the pottery in the present area (83.6%) came from a single trench (23), in which features thought to relate to a pottery kiln were located. The proportions of fabrics within this trench were inevitably close to the site average, so no meaningful deviations from this can be discerned. The trench sherd totals indicate a strong concentration of activity around Trench 23. In particular, Trenches 25 and 26 east of Trench 23 produced relatively little material. The breakdown of ware groups within Trenches 22-24 was broadly similar, though colour-coated ware (F51) was absent in Trench 22 and less common in Trench 24 than in Trench 23.

Forms

The range of vessel forms represented in colour-coated wares was relatively limited, and was dominated by type C45, which amounted to 80% of all rim sherds assigned to fabrics F51 and OF. Thirty one instances of the type were recorded in F51, with 25 in fabric OF. The other colour-coated types present were C8, C16, C47 (2), C49, C51, C71 (?3) and unspecified types (3). The paucity of C51 is striking, particularly as it was so common in the areas to the south.

Two further examples of name stamps on bases, both from bowls of type C45, were noted, one each in Trenches 23 and 24. The former was the only well-preserved example from the whole Blackbird Leys complex, which has now produced at least 8 such stamps. This was a semi-literate example, similar to Young no 40 (Young 1977, 180). There were no examples of painted decoration, except on mortaria of type C98. This absence is not surprising considering the domination of the colour-coated repertoire by type C45. Stamped decoration was also very rare, with two possible examples.

A wide range of mortarium types was present. No one type was

dominant, though M14 was the most common. While M22 was present here it was less common than in the areas to the south and the great majority of types were of later 2nd-3rd century date. There was one fairly certain instance of type M23, however, and further sherds possibly of this type were also noted, including pieces of large spouts. M23 is dated by Young after AD 350 (ibid, 79). If this is correct the appearance of this type at Blackbird Leys contrasts markedly with the emphasis of the rest of the dating evidence (see below), the only exception being another mortarium type, C98, of which two examples were recorded. This is the painted version of the typical wall sided type C97, of which five examples were present. Again the dating is after AD 350 (ibid, 173).

The tabulated data for mortarium types (below) indicates a very heavy 3rd emphasis. This is reinforced by the fact that the great majority if not all of the uncertain types were from the late 2nd-3rd century group M10-M16, which are not easily distinguished on the basis of small flange fragments. A comparison with the area to the south indicates that both 2nd and 4th century types were more common there than in the present assemblage.

TYPE	NUMBER	%	TOTAL BY PERIOD	% OF DATABLE VESSELS BY PERIOD TOTAL
M6	2	3.6	2nd Century 2	2.6
M10	6	10.7	Late 2nd-mid 3rd Century 20	51.3
M11	1	1.8		
M12	1	1.8		
M13	3	5.4		
M14	7	12.5		
M15	1	1.8		
M16	1	1.8		
M17	3	5.4	Mid-late 3rd Century 13	33.3
M18	3	5.4		
M20	3	5.4		
M21	4	7.1		
M22	3	5.4	Mid 3rd-4th Century 4	10.3
M23	1	1.8		
Uncertain	17	30.4	Unknown (?3rd century) 17	-
TOTAL	56			

Table 2: Quantities of white ware mortarium types (quantification by rim count)

White ware forms were not very common, and while flagons appeared to be well represented by body sherds few rims were recovered. Jars were the principal type present. Vessels in oxidised and reduced fabrics have not been considered extensively here, but recognisable types are consistent with a 2nd-3rd century date range. Sherds of the grey ware imitations of samian forms 29 and 30 were noted, with occasional examples of comb decoration on this form. Barbotine dot panels, either from these types and or from the beaker R34, also occurred. Jars were most common, however, as would be expected, but they were supplemented by a variety of bowls and dishes. One reduced ware base had an illiterate stamp.

Discussion and Conclusions

In common with other assemblages examined from this area, the

great majority of the pottery almost certainly consists of waste from production. This is indicated principally by the proportions of the fabric groups. These proportions are not consistent with those which can be demonstrated on contemporary domestic sites in the region. The almost total absence of non-local fabrics, again unparalleled on domestic sites, also indicates production material. The presence of a kiln or kilns has been demonstrated for the immediate vicinity of Trench 23. As noted above, the material contained very few obvious wasters, but in this respect it closely parallels the assemblage from the production site at Lower Farm, Nuneham Courtenay, only c 1.5 km distant to the southsouthwest. Moreover, large quantities of fired clay consistent with kiln debris was found associated with the pottery.

A few context groups could be identified as indicating probable domestic activity, however. These included the assemblage from ditch 231 in Trench 22, datable to the mid 1st century AD. The fabrics and forms in this small group are consistent with local production, but there is no a priori reason to suppose that these vessels were not in domestic use here. Elements of the small group of pottery from Trench 25 might also suggest a domestic component here in the 2nd century, but this is less certain.

Domestic
1st c
2-4

The overall range of the material indicates some activity in the area in the 2nd century, but in common with the pottery recovered by the OAU on the line of the southern peripheral road in the Blackbird Leys project area and with the earlier phases of work by Tempus Reparatum, the great majority of it could be accommodated within the 3rd century. This is indicated in particular by the mortarium types, almost 90% of which may belong to the late 2nd-3rd century bracket (see above). It is debatable how far the spread of mortarium types is representative of the industry as a whole, however. There might have been a greater emphasis on coarse ware production in the 2nd century, for example, with white mortaria only added to the repertoire after production had been in progress for some time, but there is little clear evidence for this as yet.

The extent to which activity continued into the 4th century is still difficult to judge. There are contradictory elements in the evidence. The balance of mortarium types argues against extensive 4th century activity here, and the overall scale of colour-coated ware production also does not suggest manufacture through the 4th century, though the dominant type, C45 may have been in production throughout the late Roman period and is therefore not chronologically specific. It is possible, but unprovable on present evidence, that the production of C45 in the Trench 23 area all took place within the 2nd half of the 2nd century. The only relatively clear indicators of later activity are the few instances of mortarium types M23 and C98. The dating suggested by these types, after c AD 350, is so far at variance from the bulk of the other evidence from the site that the dating of these types may be considered questionable. The resolution of this issue, however, must await further work on both production and consumer sites.

References

Booth, P, Boyle, A, and Keevill, G D, 1994, A Romano-British kiln site at Lower Farm, Nuneham Courtenay, and other sites on the Didcot to Oxford and Wootton to Abingdon water mains, Oxfordshire, Oxoniensia 58 (for 1993), 87-217

Young, C J, 1977, Oxfordshire Roman pottery, Brit Archaeol Rep (British Series) 43

Paul Booth

6.12.1995

Conclusion of domestic in 1st cent (Tn 22) and 2nd cent (Tn 24). Could similar indicators elsewhere have been simply swamped by overlay of production waste.

Seems to make the assumption that potters would use imported ware for domestic purposes - is this true?