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CAM ARC Report Number 934

Abbey Fields, Thorney, Cambridgeshire

Trench Evaluation and Community Archaeology Project

Alexandra Howe & Richard Mortimer

May 2007

Cambridgeshire County Council
Environment & Community Services

Commissioned by The Thorney Society

CAM ARC Report Number 934

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Alexandra Howe BA & Richard Mortimer MIFA

Site Code: THO ABF 06
Date of works: Aug/Sept 2006
Grid Ref: TF 280 040

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Authors	Howe & Mortimer		
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Editor: Stephen Macaulay BA MPhil MIFA &
Elizabeth Popescu BA PhD MIFA
Illustrators: Alexandra Howe BA, Louise Bush MA
Crane Begg B.Sc. (Hons)

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PROJECT DETAILS				
Project name	Abbey Fields, Thorney, Cambridgeshire: Trench Evaluation and Community Archaeology Project			
Short description	Community archaeology project, trench evaluation. 10 trenches, mostly medieval and post-medieval.			
Project dates	Start	29/8/06	End	6/10/06
Previous work	Desk-based Assessment: CAM ARC Report 776		Future work	Unknown
Associated project reference codes	THO ABF 03			
Type of project	Community archaeology project, trench evaluation			
Site status	None			
Current land use (list all that apply)	Principally pasture			
Planned development	None			
Monument types / period (list all that apply)	Stratified medieval archaeology: Medieval aisled building - possibly Abbey Brewhouse - Med & PM ditches, drainage features and ridge and furrow.			
Significant finds: Artefact type / period (list all that apply)	None			
PROJECT LOCATION				
County	Cambs	Parish	Thorney	
HER for region	Peterborough			
Site address (including postcode)	Abbey Fields, B1040, Thorney, Cambs.			
Study area (sq.m or ha)	18ha			
National grid reference	TF 2800 0400			
Height OD	Min OD	2m	Max OD	6m
PROJECT ORIGINATORS				
Organisation	CAM ARC			
Project brief originator	None			
Project design originator	Steve Macaulay			
Director/supervisor	Richard Mortimer			
Project manager	Stephen Macaulay			
Sponsor or funding body	The Thorney Society (Heritage Lottery Fund)			
ARCHIVES	**Location and accession number**		**Content (e.g. pottery, animal bone, database, context sheets etc)**	
Physical	CAM ARC offices		Pottery, CBM, bone, glass, stone	
Paper	CAM ARC offices		Context sheets, photographs etc	
Digital	\\ccc.cambridgeshire.gov.uk\data\Elh Afu\Active Projects\Peterborough\Thorney\THO ABF 06_Abbey Fields\Community Project 2006-7\Report		Report, Specialist reports, photographs, background etc.	
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Summary

The Thorney Abbey Fields Excavation was a public-community archaeological excavation, which ran for nine consecutive days at the end of August/beginning of September 2006. The excavation was run by CAM ARC (Cambridgeshire county Councils archaeological field unit), and funded by the Thorney Society through the Local Heritage Initiative grant scheme (Heritage Lottery Fund). During the seven days of excavation work, sixty-seven volunteers worked on the site, alongside eight professional archaeologists from CAM ARC and Peterborough Regional College Archaeology Department.

Abbey Fields is a large but not publicly used open space that lies at the heart of the village of Thorney. There are pronounced and clearly visible earthworks, and the area is presumed to have lain within the precinct or grounds of Thorney Abbey – thought to be the earliest of the Saxon Fenland Abbeys. The specific aim of the excavation was to investigate as wide a variety as possible of these earthwork and cropmark features.

Ten trenches, varying in length from 2.00m to 30.00m were excavated. Trenches 1 to 7 were located over earthwork or cropmark features; Trenches 8 to 10 over features identified by geophysics.

Archaeological features were uncovered in all the trenches. The archaeology in Trenches 1 to 7 included a possible Bronze Age ditch, medieval and post-medieval field ditches, medieval ridge and furrow, a raised building platform and a very large, open, drainage feature. Trenches 8 to 10 revealed deep, stratified medieval archaeology, including a stone-footed aisled building, possibly part of one of the Abbey's medieval brewhouses.

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1 Introduction

The specific aim of the excavation stage of the project was to provide the local community and volunteers with an opportunity to be involved in an archaeological investigation close to the historic centre of Thorney. Abbey Fields was selected partly for its location but also because it gave the opportunity to answer some longstanding research questions into the archaeology of the Village. The land is owned by Mr Michael Sly.

The project has developed from investigation work in 2003 when an Archaeological Site, Desk-Based Survey and Conservation Restoration Plan was carried out at the request of the owner as part of a consideration for the site to enter a Countryside Stewardship Scheme (DEFRA) (Macaulay 2004).

As part of the requirements of investigation the site and developing conservation and restoration proposals, the Peterborough City Council Archaeology Service (PCCAS) produced a Brief for Archaeological Survey which was incorporated in the DEFRA Brief for the Restoration Plan. The archaeological elements of the Brief included: a Desktop Study, Air Photographic Appraisal, Earthwork Survey, Geophysical Survey and Trial Trenching/Test Pitting.

The project in 2003 undertook all elements of the archaeological investigation, apart from the Trial Trenching. It was proposed that a Community Excavation run by professional staff from CAM ARC and involving local volunteers would be a better way to promote the Abbey Fields site, whilst excavation would improve understanding of the site and inform its future management. As a result of this the Thorney Society, Peterborough Regional College (Archaeology Course) and CAM ARC applied for and were granted a Heritage Lottery Grant (from the Local Heritage Initiative Fund) to run a Community Archaeology Project at Thorney in 2006 and 2007.

This report deals predominantly with the Community Archaeological Dig run at the site in August and September of 2006.

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

2 Geology and Topography

The site (Abbey Fields) comprises approximately 18 hectares of mixed farmland (pasture and arable) within the modern day village of Thorney (nr. Peterborough). The village of Thorney lies on a gravel island that rises to a maximum of between 5.5m and 6m OD above the surrounding fen. The exposed pre-Flandrian soils are mainly Fen Gravels with some Till (Boulder Clay) overlain by Flandrian peat

deposits (Horton 1989, BGS Sheet 158). The raised peninsula on which the village sits is capped by March Gravels (Hall 1987, 48).

3 Archaeological and Historical Background

The Interim Report (Abbey Fields, Thorney, Peterborough: Archaeological Site & Desk-Based Survey and Conservation Restoration Plan, Macaulay 2004) contains detailed background data on the site and should be seen as Part I of this report. Relevant sections are, however, included below.

3.1 Historical Sources

Primary Sources

Historical sources for Thorney Abbey include the Anglo-Saxon Chronicle (with particular reference to the period 656-1154), the Domesday Book (1086), the Thorney Annals (961-1421), the 'Red Book of Thorney (14th century manuscript in the Cambridge University Library) and the Chronicle of Hugh Candidus.

A survey of 1574 (Norwich Record Office) probably commissioned by the Duke of Bedford describes the manor of Thorney, including the remains of the abbey.

Original documentary archive research was not undertaken as part of this study. For the present report reference was made to secondary sources and, in particular, to the study by R. B. Pugh 1967 (Victoria County History (VCH), Cambridgeshire, Vol. VI).

Records and census information for the parish are held at Cambridge Record Office (CRO), Huntingdon Record Office (HRO) and Wisbech Library.

Secondary Sources

General outlines of the history of the county and accounts of individual parishes based on documentary sources can be found in the VCH of Cambridgeshire.

There are also regional studies that concentrate on specific research topics, e.g. Fenland surveys (Hall 1987; Coles & Hall 1994), place-names (Reaney 1943), history of the religious houses in Cambridgeshire (Haigh 1988), architecture (Pevsner 1968), history of Cambridgeshire (Taylor 1977; Kirby & Oosthuizen (eds.) 2000), and the medieval fenland (Darby 1940; 1983).

Accounts of the history of the abbey include the monographic studies by the Reverends W. D. Sweetings (1868) and R. H. Warner (1879).

Cartographic Evidence

Early cartographic evidence for Abbey Fields includes a series of post-medieval estate maps of the Manor of Thorney, as well as a series of survey maps of the North Level of the Bedford Level dating to the middle of the 18th century.

One of the earliest estate maps is the depiction of Thorney Manor by Benjamin Hare (1652, copy 1710) which shows outbuildings and ponds possibly associated with the original abbey. A later map of 1731 by John Halsey depicts the closes within the former abbey estate. The names of the closes are reminiscent of a deer park which was probably created immediately before or after the Dissolution (below). Among the latest maps is that of the town of Thorney by Fred Utting of Wisbech (1853), which shows the area as being occupied by a series of large ponds.

There is no record of Enclosure.

Later maps include editions of the Ordnance Survey from the end of the 19th century onwards.

All consulted maps are held at the Huntingdon Record Office (HRO), Cambridge Record Office (CRO), Bedford Record Office (BRO) and Wisbech Library.

3.2 Archaeological Excavations and Surveys

There is no record of archaeological excavations conducted within the study area. As a whole, little archaeological work has been undertaken within the historic village of Thorney.

Church Street Nos 23-25 Wisbech Road

Immediately to the north-east of the study area a recent investigation at Church Street (HER 51168) has confirmed Saxo-Norman and medieval occupation within the historic nucleus of Thorney. In particular, at the northern end of the site there were the remains of shallow (truncated?) ditches which are likely to have represented boundaries. The ditches were sealed by cultivation soil suggesting that this part of the site had reverted to agricultural use during the 11th – 12th-twelfth centuries. At the southern end of the site there was evidence for redevelopment during the 12th century in the form of structural remains, including a pair of substantial walls. One of these walls was abutted by a clay surface cut by 13th century postholes.

Among the finds there were residues of iron working, large amounts of medieval pottery, and fragments of painted glass and lead came consistent with the presence of monastic buildings nearby. Most finds had been dumped in the area north of the walled structure (Thomas 2001).

Church Street, Gas Pipeline

Limited archaeological observations along Church Street during the excavation of a gas pipe-trench revealed the disarticulated remains of twelve medieval burials (HER 51169). The remains were all recovered from a graveyard soil horizon, suggesting that the medieval cemetery was originally larger than that enclosed by the mid 19th century wall (NVRC Annual Report 1991-1992).

Wisbech Road

During an archaeological evaluation at land off Wisbech Road and north of Church Street sherds of unstratified medieval pottery were recovered (HER 51182). The area appears to have been prone to flooding and was probably not occupied during the medieval period (Bailey 2002).

3.3 Prehistoric

The content of this section is partly drawn from the Fenland Survey (Hall 1987).

The early prehistoric period in the Thorney area is poorly represented with a few flints occurring as a background on the gravels. Later peat deposits, which are likely to mask the Neolithic landscape, presently cover most of the Thorney Fens. During the Neolithic the area was dominated by a roddon system. The roddons merged into what is believed to represent an early northern branch of the River Nene along the southern and eastern edge of the parish.

During the Bronze Age, Thorney was part of an extensive peninsula of land stretching from Eye and Borough Fen where creek and river systems once operated. By the end of the Bronze Age the landscape would have been peppered with barrows, visible today as cropmark remains of ring-ditches spaced along the western fen-edge. Similar remains have also been identified within the village, immediately to the east of the study area (Palmer 2003). The few stray finds of prehistoric metalwork and lithics from the parish may have been associated with the barrows. Further material has been found during gravel extraction, including the remains of a salt-making site (Hall 1987, Site 46).

Peat continued to grow during the Iron Age, reducing the amount of dry land to the west. The old course of the Nene was still active, as

suggested by the deposition of flood silt in the Terrington Beds. Several settlements have been identified on the gravel islands where cropmarks show remains of enclosures and field-systems. Possibly similar features have been identified in the southern part of the study area (Palmer 2003).

3.4 Roman

During the Roman period the gravels to the west still remained dry. The Terrington Beds to the north were also dry for the first time. The Roman landscape consisted of small, dispersed farmsteads with field-systems and associated drove-ways for livestock. Some of these sites are likely to have originated in the Iron Age, as in the case of the area of possible Iron Age/Romano-British cropmarks visible on aerial photographs. These appear to concentrate in the southern part of the study area (Palmer 2003).

There are no securely provenanced Roman finds from the study area. Stray metalwork and pottery from the village, as well as residual pottery sherds from excavations at Church Street (Thomas 2001) are indicative of a settlement nearby and further corroborate the hypothesis of settlement-related features within the study area.

3.5 Saxon and Medieval

By the Saxon period, with the rise of the peat fen, there was only a limited area of dry land, on the island top, under the present village. All the gravel to the west was shallow fen (Hall 1987, 52).

Aside from the presence of the monastic foundation, evidence for Saxon occupation at Thorney is scanty. The place is first recorded in the Anglo-Saxon Chronicle in 656 as *Ancarig* (*igland*) from the Old English *ancor* meaning ‘anchorite’ (island). The name Thorney is recorded from the late 10th century, meaning island covered with Thorn bushes (Reaney 1943, 280).

A recent archaeological investigation at Church Street by the University of Leicester Archaeological Service (ULAS) has confirmed Saxo-Norman and medieval occupation in this area, possibly associated with the presence of monastic buildings nearby (Thomas 2001 and 2006).

The Abbey

Thorney Abbey is the earliest of the Saxon ‘fen’ monastic foundations. Tradition has it that Saxulf, founder and abbot of Peterborough (654-675), established a community of monks at *Ancarig* in 662. After the Danish incursions the monastery, and possibly the island, was

abandoned and is supposed to have become overgrown with thorn bushes, hence the name Thorney. In 972 St Ethelwold, bishop of Winchester, re-founded the monastery. King Edgar nominated the first abbot, Godeman of Winchester, who collected relics for the monastery, including those of St Botolph. The abbey church was therefore dedicated to the Blessed Virgin and St Botolph. Throughout the Late Saxon period the abbey acquired land from benefactors who included King Cnut and King Harold, and by the Norman Conquest it held many estates in the Peterborough area, including fisheries at Whittlesey Mere (Domesday Book), and in Huntingdonshire, Bedfordshire and Northamptonshire.

Following the Conquest, the abbey underwent major refurbishment under Abbot Gunther (1085-1112) who rebuilt the church, completing the chancel, tower and transept. The 12th century witnessed the addition of the Great Gate, a Granary and a Bakehouse, a new Refectory and the Abbot's Chamber. During the 13th century Abbot William Copton rebuilt the Chapter House, the Guest Hall and the Abbot's Chamber, adding to it a private Chapel. He also replaced the Abbot's Hall and Dormitory and added stained glass windows in the Lady Chapel (Thomas 2006).

Further references are made to buildings in the Abbey grounds. Abbot William is referred to as speaking with a feeling enthusiasm of the new brewery and malt-house he built, and how he covered the bake-house with tiles which had previously only been thatched (Warner 1879,138). The brewhouse is also mention with regard to an Abbot Clopton replacing the lead cauldrons in the brewery with new brass ones (*ibid*).

A series of floods during 1315-1317 came as a blow to the abbey finances. The Black Death further exacerbated the financial crisis. By the Dissolution (1529) there were only 20 monks who were pensioned off. The abbey and its former estate were granted to the Duke of Bedford (Haigh 1988).

The Church

The parish church of the Blessed Virgin and St Botolph (Listed Building (LB) 006030/HER 03053, Grade I) was built between 1085 and 1108 as the abbey church. In its present form it consists of the five west bays of the nave of the original church. When the aisles were demolished in 1638 the arcades were filled in with perpendicular windows. The transept is modern.

The church stands within a rectangular churchyard covering the sites of the side aisles, choir and chancel of the medieval abbey church. The churchyard originally extended across Church Street, as suggested by the recovery of disarticulated medieval bodies (NVRC Annual Report 1991-2).

The Manor

There are very few references to the medieval manor. What sources there are record arrangements in 1248 to define the boundaries with Ely Cathedral which owned properties in Wisbech Murrow. The dyke to the east of Thorney became the estate (and later parish) boundary separating Thorney and Wisbech fen.

A manor of Thorney is mentioned in 1485 when it is said that the abbot had the right of free warren in his demesne.

Economy

The earliest record of a market at Thorney dates to 1634 when the Fourth Earl of Bedford was granted the right to a market and two fairs which continued into the 19th century. No grants appear to have ever been made to the abbot.

The sources contain references to detailed arrangements concerning the granting of fisheries and fishing rights around Ramsey Mere and Whittlesea Mere (Darby 1983, 24 ff.). In 1306 the abbot of Thorney had five 'cotes' abutting on Whittlesey Mere and five boats were allowed to fish (Coles & Hall 1998).

Agriculture was only possible on limited areas of Thorney island itself, and there are surviving patches of ridge and furrow visible as earthworks in Abbey Fields and in other pasture fields around the village. The monks would have had to rely more on their outlying manors for corn. There is no record of early medieval mills. Thorney Mill on the manorial estate is mentioned in 1470 but its location is uncertain. A ruined late 18th century windmill stands on the A47, opposite Abbey Fields (HER 02980).

Meadow and pasture were probably also part of the outlying estates. There are accounts of disputes between the major abbeys of Ramsey, Thorney and Ely about profits and limits of their commons (Darby 1940, 72 ff.).

There is no record of trades associated with the abbey, although references to a brewery may point to ale-house keeping.

Transport and Waterways

Early attempts to drain the fen are recorded from the 15th century, although flood defence schemes appear to have been implemented from the Late Saxon or early medieval period. At that time the gravel to the west was shallow fen bounded by the Catswater, an artificial

canal which ran into another channel, the Old Eau or Shire Drain, along the northern boundary of Thorney parish. A bank on the Lincolnshire side of the channel was probably a Late Saxon/early medieval flood defence to keep out the waters of the Thorney fens (Hall 1987, 52).

It is possible that some of the waterways were flanked by banks which could have acted as raised trackways. At Thorney the Causeway (Thorney/Wards Causeway) follows the course of the A47. It might have originally linked the Thorney peninsula with Peterborough via the Catswater and Oxney Load or Storey Bar Water.

3.6 Post-Medieval to Modern

The Abbey, Church and Manor

Thorney Manor was granted to the first Earl of Bedford in 1540. The abbey was left to decay and the buildings were largely quarried away over the 16th and 17th centuries. Some of the masonry was re-employed during the construction of Abbey House that also incorporates a Norman arch and round piers from the monastery. The house at No.2, The Green (LB06046), appears to have medieval cellars. The early 18th century Cheriton House (the former Vicarage) on The Green (LB06045) is built on the site of the Chapter House.

The advowson (the right to appoint a nominee to the ecclesiastical post) of the restored church followed the descent of the manor until the sale of the estate in 1910. This was subsequently granted to the bishop of Ely (Pugh 1967, 221 ff.).

In 1544 it is recorded that the Thorney estate included a chase held by the king. Historic sources also refer to a ‘moat’ (possibly a pale) approximately 1.5km long and claimed to be 6m deep (Pugh 1967, 221). This ‘moat’ is supposed to have enclosed some 40 acres of land known as Hay Park on Halsey’ s map of 1731 and located to the west of the abbey in the area presently called Abbey Fields.

A deer park is known to have existed in the mid 17th century to the southeast of the abbey. It formed part of the manor of the Earl of Bedford. Whether this deer park was associated with the earlier Hay Park remains uncertain.

The Manor House, commonly called Abbey House (LB 006031/HER 03034 - Grade II) is a late 16th century stone building. The two-storey east wing is the original house. The west wing was designed by John Webb, architect of Thorpe Hall, and built by John Lovin, mason of Peterborough, in 1660. The east front was altered in the 18th century. During the 19th century the house was enlarged towards the north.

Next to the house is a 17th century range of stables much altered and converted into a dwelling (LB 006035 – Grade II).

Additional features of architectural interest associated with Abbey House include:

- the 16th century boundary walls (LB 005761 and LB 005762 – Grade II)
- The late 17th century garden wall with gateways in the east and west walls (LB 008725 – Grade II)
- The large late 17th century gate (LB 006032 and LB 006033/HER 50725 – Grade II)

Enclosure and Drainage

Systematic drainage of the Great Level began in the 1630s under the aegis of Francis, Fourth Earl of Bedford, and his associated 'adventurers'. The first attempts at land reclamation were unsuccessful and the situation was further exacerbated by the Civil War. After the Restoration, new drainage schemes were implemented and since then reclamation has proceeded outwards from the settlement area (Pugh 1967, 221-222).

3.7 Abbey Fields

During the medieval period the study area was probably part of the abbey estate, if not within the abbey precinct itself. The monastic manor originally extended south of the A47 (the Causeway) and across the B1040 (Whittlesey Road). Post-medieval and modern cartographic evidence would suggest that the original boundaries of the estate have undergone very little alteration and are still largely preserved.

The internal organisation of the manorial site remains uncertain. According to the standard Benedictine monastic plan, the abbey would have extended along the eastern side of the B1040, with the Cloister and Chapter House being located to the south of the church. The location of the remaining monastic and service buildings is however unknown. Medieval sources refer to both a bakehouse and a brewhouse (Warner 1879).

Both Hare's map of 1652 and Halsey's map of 1731 depict Abbey Fields as having been divided into closes, including Brewhouse Close and Hay Park, and being divided from Guye's Fen to the northwest by a large ditched boundary. The earlier map depicts a building immediately to the south of the post-medieval Abbey House and another to the southwest, both of which lie immediately outside the area marked as Brewhouse Close on Halsey's map. Whether either of

these buildings represent a brewery originally associated with the abbey is uncertain, though perhaps unlikely – Hare's map having been produced 120 years after the Dissolution.

Further features on Hare's map include two ponds in the area between these two buildings, and further buildings at the junction of the B1040 (Abbey/Ashley Pool Lane on Halsey's map) and the Causeway, underneath the post-medieval houses to the north of Abbey House. None of the buildings on Hare's Map appear on Halsey's map of 1731, although, later maps and aerial photographs (Palmer 2003) show the presence of ponds.

Reference to a royal chase in 1545 might suggest that part of the Thorney estate was converted into a park just before, or immediately after, the Dissolution. A later deer-park was created within the estate of the Earl of Bedford that extended to the west of the site of the post-medieval Park Farm.

The early park may have included Abbey Fields, with part of the area called Hay Park. On Halsey's Map of 1731 Hay Park encloses the area immediately to the south of Brewhouse Close. It may also have extended across the B1040 to Whittlesey, where the 18th century Park House (LB 06858) now stands. On Hare's map of 1652 there is no reference to a park.

By 1731 the former park had been divided into closes defined by substantial boundary ditches: Brewhouse Close, Hay Park, the eastern most part of Guy's Fen south of the Causeway, Croxey and Pightles. Some of the banked ditches that survive today, as earthworks within Abbey Fields, are the remains of these boundaries.

On Utting's Map of 1853 the boundaries of the former Brewhouse Close were maintained, the old close being unaltered except for the presence of three, possibly four, very large oval and rectangular ponds. The two oval ponds could have been the same as those represented on Hare's map. Furthermore, the easternmost pond appears to have been associated with a small building. By 1853 the western side of the Wisbech Road had undergone further development, including the construction of the Dukes Head Inn (demolished in the late 19th century). The boundary separating Guy's Fen from Hay Park and Brewhouse Close on Halsey's map of 1731 had undergone major alterations, with a major canal cut from the Thorney River to accommodate what look like a series of boathouses. By the time of the OS First Edition (c. 1890), the canal had been backfilled, its layout being marked by rows of trees, and most buildings demolished, except for a small boathouse near the eastern boundary of Abbey Field together with the adjacent rectangular structure. The small boathouse was demolished before 1901 (OS Second Edition).

The site changed little during the first half of the 20th century. In 1969 Abbey Fields was converted into a zoo (winter quarters for circus animals) that incorporated the 19th century ponds. The zoo was closed in 1978 and dismantled.

4 Methodology

4.1 Aims & Objectives

The trench evaluation sought to establish the character, date, state of preservation and extent of any archaeological remains within the area. The investigation will make a full record of these finds and report to the Peterborough Historic Environment Record (PHER).

4.1.1 General Aims

- To provide volunteer opportunities (to members of the Thorney Society, other local volunteers and students from Peterborough College) to learn and be involved in an archaeological investigation.

- To disseminate the findings of the investigation to the public both at the event and at later opportunities.
-

4.1.2 Specific Archaeological Aims

- To enhance understanding of not only Abbey Fields but the Abbey and the historic town of Thorney.

- To map parts of the site through Geophysical Survey, matching these results against earthwork surveys and to test some of these finding through physical excavation.

- To investigate selected areas of the site (based on geophysical and topographic/earthwork data) to increase current understanding of the archaeology of the earthworks and of what may be sealed beneath them. This to include test pitting, trial trenches and small open areas.

- Specifically to open a trench over the putative ‘aisled building’ recorded by geophysics and to attempt to date and record this feature accurately and ascertain its heritage.

- Specifically to open a trench over the very large earthwork ditch at the west of the area and to attempt to date and record this feature accurately and ascertain its heritage.

- Selected palaeoenvironmental sampling of buried deposits were to be carried out to provide supporting information for the site.

- To ensure all records are accurately maintained and archived, with data given to Peterborough Historic Environment Record office.

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4.2 Documentary Study

Background research has been undertaken by CAM ARC and the results are presented in both this report and the earlier desk-based study (Macaulay 2004).

4.3 Aerial Photographs

An aerial photographic assessment was undertaken by Air Photo services covering c. 20 hectares centred on TF280040. Photographs examined were from Cambridge University Collection of Aerial Photographs, the National Monument Record: Air Photographs at Swindon and Peterborough Museum. In addition to this, recent aerial photos have been supplied by Ben Robinson, Archaeological Officer at Peterborough Museum. A selection of photographs are presented in this report and the full Aerial Photographic Assessment is presented in the desk-based study.

4.4 Geophysical Survey

Selected geophysical investigations were undertaken on two areas of the site using both resistivity and magnetometry. This work was commissioned by Peterborough Regional College and conducted by Adrian Challands and took place in late April and May 2006. The full report is presented in Appendix 3.

4.5 Phosphate Sampling

Two phases of phosphate sampling were undertaken by staff and students of Peterborough Regional College. During the initial survey phase of the investigation, transect samples were taken at intervals of 10 metres, relating to the geophysical survey grid at the eastern edge of Abbey Fields. As the excavation progressed, spot samples were also taken in the excavated trenches. The full results of the survey are presented in Appendix 4.

4.6 Trial Trenching and Test Pitting

Machine excavation was carried out under constant archaeological supervision with a tracked 360° excavator using a toothless ditching bucket.

Trial trenches were excavated to the depth of geological horizons, or to the upper interface of archaeological features or deposits, dependent on the excavation strategy. A 360° mechanical excavator using a 1.8m wide flat bladed ditching bucket was used to open all trenches (with the exception of Trench 10, which was hand-excavated). A plan of the proposed trenching strategy was agreed with the Archaeological Officer of Peterborough Museum before trenching began.

Exposed surfaces within the trenches were cleaned by trowel and hoe as necessary in order to clarify located features and deposits.

Spoil, exposed surfaces and features were scanned both visually and with a metal detector to aid recovery of artefacts. All metal-detected and hand-collected finds were retained for inspection, other than those which were clearly modern.

4.7 Recording and Sampling

Records comprise survey, drawn, written and photographic data. The drawn record comprises an initial plan (scale 1:50) for each trench. Thereafter, single context and/or excavated feature plans were produced for exposed and excavated features where relevant. Trenches and features were tied in to the OS grid. Sections were drawn at 1:10 or 1:20 as appropriate. The written record comprises context descriptions on CAM ARC pro-forma context sheets. The photographic record comprises monochrome and colour slides supplemented by digital photographs.

All features were investigated and recorded to provide an accurate evaluation of archaeological potential whilst at the same time minimising disturbance to surrounding archaeological structures, features and deposits.

Bulk samples were taken from a variety of feature fills and layers in Trenches 1, 7, 8, 9 and 10 to test for the presence and potential of micro- and macro-botanical environmental indicators. The result of the analysis are incorporated in this report and appear in full in Appendix 9.

Though on private land, access to the excavations was made public, with daily tours taking place and a full open day, with hourly tours and a barbecue on the final Sunday. The weather conditions were

variable, though generally fine and sunny with occasional heavy showers (and a day of very high winds).

5 Results

5.1 Trench 1

Trench 1 was placed perpendicular to a slight east to west earthwork within an area of medieval ridge and furrow (Figs 2, 3 and 5). The trench was 11m long and excavated to a depth of 0.65m . Natural subsoil (102) was encountered 0.45m below the ground surface. During machining a wide linear feature was observed on a north-south alignment and the trench was extended 6.4m in a westerly direction to ascertain its width.

This trench revealed a possible Bronze Age ditch, medieval ploughsoil (ridge and furrow), a post-medieval or modern ditch and a modern pipe trench.

Ditch **103** (Fig. 5, Section 1) was 0.86m wide, 0.30m deep and filled by 104, a light yellowish brown silty clay. The ditch was on a north-northwest to south-southeast alignment and contained a single struck flint. The feature was sealed by a layer (101) of .mid brown-grey sandy clay measuring 0.24m in thickness. This layer represents medieval ploughsoil associated with the concentration of ridge and furrow in this area.

Ditch **111** (Fig. 5, Section 1), observed as an earthwork, was 0.3m deep and 0.78m wide. The ditch truncated layer 101, dating this feature to the post-medieval or modern period. The ditch was filled by dark brownish black silty clay (112), similar to the surrounding topsoil (100).

A large modern pipe trench was recorded, oriented north to south.

5.2 Trench 2

Trench 2 was oriented north to south on the corner of a small enclosure originally identified in the 2004 earthwork survey. The trench was 16.75m long with a maximum depth of 0.45m. Natural subsoil (201) was encountered 0.34m from the ground surface.

The trench revealed, a post-medieval ditch, modern dump layer and a possible tree bowl.

Ditch **109** was identified as a feature visible on the field surface and was aligned north-east to south-west. On excavation the ditch was

seen to be 0.5m wide and 0.08m deep and was filled by 110, a dark brownish black silty clay. A single sherd of pottery was recovered, dating to the 16th or 17th century.

A large part of ditch **109** remained unexcavated as it contained a discrete dump of clearly modern material(115) that included asbestos roof fragments.

A single tree bowl was partially excavated (**113**). No finds were recovered.

5.3 Trench 3

Trench 3 was also placed over an earthwork identified in the 2004 survey. It was oriented north-east to south-west and was 12.25m long by 0.4m deep. The natural subsoil was encountered at 0.32m deep.

The earthwork feature was visible at the base of the trench as an 0.4m wide ditch (**107**). It was filled with 108, a dark brownish black silty clay similar to the surrounding topsoil. No datable finds were recovered but the feature appeared to have been post-medieval or modern in date.

5.4 Trench 4

Trench 4 was located over a series of north-east to south-west oriented earthworks. The trench was 31m long and 0.35m deep.

On excavation the earthworks proved to be the shallow remains of medieval furrows (**210**) and only modern field drains were visibly cut into the natural subsoil (e.g. **208**). Two pottery sherds were recovered from topsoil 219, dating to the late 18th or 19th century.

5.5 Trench 5

Trench 5 was located over a series of earthworks running parallel to those in Trench 4. The trench was 19m long and 0.4m deep.

The trench contained two ditches, **202** and **213** (Fig. 5, Section 3). Ditch **202** was 0.4m deep and 1m wide and contained two fills (204 and 205). Ditch **213** was 0.8m deep, 1.6m wide and also contained two fills (212 and 214). The fills of both ditches were mid brown silty clay with moderate gravel inclusions.

The two ditches ran parallel, 3m apart, with deposit 206/215, a compact, gravelly clay silt, running between them and filling the upper parts of both features. This central layer represents the remnant of a bank running between the two ditches. No dating evidence was

recovered from either of the ditches. A single pottery sherd was recovered from the topsoil, dating to the late 18th or 19th century.

5.6 Trench 6

Trench 6 was placed to investigate the date and character of a large square earthwork enclosure at the centre of the site. The trench was 19m long and 0.4m deep. The location of the trench, near the southwestern corner of the enclosure, was dictated by the geophysics report which indicated possible building debris.

The trench contained a single ditch (**253**) (Fig. 5, Section 4) visible as a pronounced earthwork. It had been re-cut by **258** and **252**. The earlier re-cut (**258**) contained a post-medieval field drain. Ditch **253** was 1.2m wide and 0.8m deep and contained three fills (256, 255 and 257/263).

Deposit 257/263 (Fig. 5, Section 5), a dense and gravely clay silt, also forms part of a ground-raising layer, up to 0.30m deep, that overlay a buried soil (264) in the centre of the enclosure. A single, large pottery sherd recovered from fill/layer 257/263 dated to 1150 – 1350AD. Context 264, also up to 0.30m deep, was a dense grey-brown (purple-tinged) silty, sandy clay with moderate gravel inclusions.

5.7 Trench 7

Trench 7 was designed to investigate the size and date of a very large earthwork to the north of the square enclosure. The feature prior to excavation measured approximately 2m deep and 20m wide. A trench 9m long was positioned northeast to southwest on the northern slope of the feature.

The trench was initially machine-excavated and then hand dug to a depth of approximately 1m below ground surface. The excavation revealed a series of three ditches (Fig. 5, Section 6), the earliest of which (**265**) was wide with steep edges. It contained three fills (273, 274 and 276), which were compact grey clay weathering deposits. Recuts (**272** and **275**) contained a sequence of six fills (266 to 271). The upper fills (266 – 269) were very dark brown to black peaty topsoils and contained occasional modern finds (e.g. a coke tin from 266). A single pottery sherd recovered from context 266 dated to the late 18th or 19th century. The lower fills (270 and 271) were dense brown-grey clays with some gravel inclusions. No earlier dating evidence was discovered from any of these fills.

5.8 Trench 8

Trench 8 was located in an area of intense activity identified by the geophysical survey. The trench was 6.5m long and on a north to south alignment. The turf and topsoil were removed by machine and the trench was then hand excavated to a depth of 0.3m where a series of levelling or rubble layers (456, 459, 460 and 473), some heavily burnt, were recorded. Pottery from the hand-excavation, (418 and 476) immediately above the demolition/levelling layers, was mixed but dates to no later than the late 17th or early 18th century.

A small, shallow test pit (446) was excavated into rubble layer 457 and a shallow depression (**454**) was excavated in the northeast of the trench. Two sherds of pottery from the fill of 454 (453) date to the mid 15th to mid 16th centuries.

An environmental sample taken from an unexcavated burnt layer 473 contained charred sprouted barley, often indicative of brewing.

5.9 Trench 9

5.9.1 Trench Summary

Trench 9 contained, as expected, the most complex archaeology. Two upstanding walls lay perpendicular to each other, one running east to west and the other running north to south. There were four postpads, two internal and two forming an integral part of the two visible walls. There was evidence for burning (or heating) on the original floor of the building, and of a subsequent episode of re-flooring. A large modern pipe trench, initially recorded in Trench 1, ran north to south across this area of excavation, cutting off the western end of the building.

The topsoil (400) was on average 0.25m deep across the excavated area. There was no discernable subsoil present. The natural subsoil was a dense orange brown clay with clunch fragments. It was visible at the bases of Trial pits **417** and **421** and in the side of Trial pit **449** at a depth of 1.08m, 1.1m and 0.7m respectively (from the modern ground level). These heights translate as 4.95m, 5.37m and 5.32m above Ordnance Datum, showing a relatively steep downward slope from east to west, from Trial pit 421, to 449 to 417.

A total of sixteen pottery sherds were recovered from the topsoil and while of mixed date, the assemblage is no later than the early 18th century. Once the topsoil had been removed the whole site was trowel-cleaned in a series of specific areas, e.g. above individual walls and post pads and from separate areas outside the walls (cleaning layers 401–4, 408, 425–6, 428, 431, 434, 437-8 and 471). These

produced an assemblage of 34 pottery sherds dating from the 17th to early 19th centuries but incorporated much residual earlier material.

5.9.2 Methodology

Trench 9 was set out in an area identified by geophysical survey (magnetometry and resistivity – see Appendix 3) as the location of an aisled building (see Figs 6 and 7). A 4.50m wide machine trench was excavated from north to south where two post pads and the southern wall of the building were revealed. A second, narrower trench (1.86m wide) was then excavated to the west to form a T shape in order to locate the back, western wall of the building. This was encountered at approximately 6m along the trench. Internal floor surfaces and large dark features outside of the building were immediately evident. The floor surfaces, postpads and walls of the building were cleaned (and excavated where necessary) by hand and a later clay floor was removed by hand to reveal the earliest surfaces. Three trial pits were excavated through the external features/layers. Areas adjacent to the western wall were excavated to reveal a series of layers against it. A further trial pit was dug into the modern pipe trench fill to examine the internal floor layers and the layers beneath them.

5.9.3 Trial pits

Trial pit **410** was 1.4m square, 0.4m deep and located outside/over the northern wall of the building and within a large cut feature with a dark, almost topsoil-like fill. The excavation did not proceed to the level of the natural subsoil but stopped at a layer of stone rubble (472). Two layers or fills were excavated (409 and 411). Nine sherds of pottery were recovered, of mixed date but no later than the late 16th century. These layers were of compact dark grey silty clay with occasional rubble and gravel inclusions. In the base of the trial pit a line of stones (472) running east to west were recorded. These appear to represent the remnants of the robbed northern wall foundation of the building.

Trial pit **417** was 0.6m square and situated *c*. 2.50m outside the western wall of the building. Excavation continued to the level of the natural subsoil - 1.08m below ground surface. Five layers were recorded in section, however these had been excavated as two layers – the upper two numbered 416 and the lower three numbered 461 – separated by a lens of grey ashy clay silt with charcoal and fired clay inclusions. Upper layer 416 was a mid grey-brown blocky clay silt with some chalk and gravel inclusions, layer 461 a pale grey (darker towards the base) fine clay silt. Three sherds of pottery from 461 dated to the mid 13th to late 15th centuries and eleven sherds from 416 to the 16th and early 17th centuries. A significant number of stone roof tiles were recovered from the central and lower levels of the earlier fill (461).

To the east of Trial pit 417, immediately outside wall 443, two layers were removed from up against the wall. Layer 442 (Fig. 5, Section 7) was a mid grey-brown silty clay with chalky inclusions - it overlay 465, a similar material but darker and slightly siltier. These layers produced a well-dated stratified pottery sequence; the lower level contained six sherds of mid 12th to mid 14th century pottery, the upper level twenty-six sherds dating to the 15th century.

Trial pit **421** was 1.17m in length by 1.00m wide and situated 2.00m beyond the southern wall of the building. It was excavated to the top of the natural subsoil at 1.10m from ground level. It contained two main layers (420 and 424) (Fig. 5, Section 8). The lower layer (424) was light yellowish grey sandy clay, whilst the upper layer (420), was mid brownish-grey silty clay with some chalk and gravel inclusions. Four sherds of pottery from the upper layer date to the 13th to late 14th centuries. Part of a layer between Trial pit 421 and the wall was also removed (447) and produced five sherds of pottery dated mid 13th to mid 14th centuries.

Trial pit **449** was excavated into the backfill of a large pipe trench that cut north to south across the building (fill 448). The pit was excavated to sufficient depth (0.70m) to record the west-facing section through the building's interior. Three main layers were recorded above the natural subsoil (Fig. 5, Section 9); the *in situ* medieval subsoil (469), a thick clay dump layer (468) and an original metalled surface (441). There was clear evidence at to top of the clay dump and within the metalled surface for intense heating having taken place from above.

5.9.4 Masonry

Two stone foundation walls and two separate stone post-pads were recorded.

Wall **427** ran from east to west and represented part of the southern side of the building. It was 0.50m wide and was excavated to a depth of 0.30m on the southern side where two courses of un-bonded stones were visible. The full depth of the wall was not revealed. A postpad (**429**) was constructed within the wall. It was approximately 1m square and was also excavated to a depth of two courses.

The western end of the building (wall **443**) was aligned north to south and was 0.45m wide and 0.60m high (excavated to base level) with five courses surviving. A similar post pad type structure **444** had been built into this wall, however there were courses of wall stones above this feature. Postpad **444** was 0.80m wide and 0.20m high but it was not clear how much of the stonework had survived reclamation or decay.

The northern wall of the building had been removed or reclaimed and was represented by the loose pile of stones (472) recorded in trial pit 410.

The two internal postpads (**432** and **435**) were exposed but not excavated. They were constructed out of large pieces of unworked, un-bonded Barnack stone and would have provided a broad, flat base for an upright timber. They did not appear to have been constructed within a foundation trench, but no stonework was removed and no excavation took place against them and thus their construction level was not seen. They measured 0.90m by 1.10m with the slightly longer axis oriented north to south. Postpad **435** had a cracked stone tile on the top of it, perhaps final levelling before placement of the post. These postpads were spaced 3.8m apart and approximately 1.50m from the inner edge of the east/west walls. The geophysical survey shows two further postpads identically placed, 3.80m to the west.

5.9.5 Interpretation

The original, medieval subsoil (469) was observed in the edge of Trial pit **449** and again at the base of the building's western wall **443.** This early subsoil had been sealed beneath the build-up layers of the building. Layer 469 was a mixed mid to dark brownish orange silty clay and lay at *c*. 0.65m below the field surface.

The initial phase of activity relating to the construction of the building appears to be the creation of a clay platform. This platform would have served two main purposes; to level up the east-west slope and to raise the structure above the surrounding wet ground. This was represented by layer 468, which lay beneath the building's floor levels and was recorded in Section 9, Trial pit 449. The brownish grey silty clay layer with marl fragments and occasional flint probably derived from the slightly hollow features to the south and west of the building, the fills of which were excavated in Trial pits **417** and **421**. These features were up to 0.4m deeper than the level of the natural subsoil preserved beneath the building and contained no evidence of buried soils or weathering layers. These areas had been dug out in order to create the building platform, and they would also have served as added drainage around the back of the building. The lower fills, recorded in the trial pits, date to the 13th to 15th centuries providing a date for the construction and initial use of the building.

The building was constructed directly on this platform and recorded parts of it consist of two walls (**427**, **443**), two integral postpads (**429**, **444**) and two central postpads (**423**, **435**). The northern wall was reclaimed and is represented by the deposit of stones (472), located in Trial pit 410.

The original floor of the building was a solid metalled surface (441) made up of small to medium rounded gravel. During the early use of the building the central part of floor 441 records evidence of intense heating (numbered 440). This manifested itself as a broadly linear red area, burnt, or fired into the clay and gravel surface, roughly in the centre of the excavation area. There was no obvious charcoal on or in the surface, nor within the layer above. In the edge of Trial pit **449,** it was possible to see that the firing of the floor surface had penetrated to a depth of at least 0.15m and caused a red (478) and black (477) fired discolouration 'layer' 468. This large but well-defined area of intense firing, with no trace of *in situ* burning (charcoal), may suggest that some form of raised oven had sat on the floor, with fire designed to heat something within or above it but with some of the heat firing down into the floor. Within the general fired area were three heavier concentrations, roughly circular and *c*. 1.00 – 1.25m in diameter where ovens or kilns may have sat (440).

Above the metalled surface was a 10cm thick brown clay layer (412) that sealed the surface. This layer ran up to but not over the two stone post pads, and up to but not over or beyond the southern wall, and appears to represent a levelling or re-flooring of the building. There was no trace of this layer at the west of the building, beyond the pipe trench. The layer was relatively sterile but, in the area excavated, produced 16 iron nails. The finds within, and around, the building at this later phase suggest that it may have been used as a barn rather than as a domestic or industrial building. Nine sherds of pottery were recovered from this layer, dating it to the mid-late 15th century, perhaps providing a *terminus post quem* for the original use of the building.

At the back of the building Trial pit **417** produced a large number of stone roof tiles, perhaps suggesting that the building was already slipping into a state of disrepair.

The final phase recorded within this trench was the cutting of what appeared to be a robber or reclamation trench (Trial pit **410**). This feature cut through the latest floor layer and removed the northern wall of the building. The layers within this feature date to the late16th century, by which time the building must have been derelict.

5.10 Trench 10

Trench 10 was located approximately 100m north of Trenches 8 and 9, in an area interpreted from geophysics as possible formal gardens. The trench was 2m long and was excavated by hand to a maximum depth of 0.68m. Four stratified layers were observed beneath the topsoil. Natural subsoil was not encountered.

The lowest layer in the sequence was 462/467, which produced only bone and ceramic building material. It was overlain by layer 413/463/464, comprised of mixed grey brown silty clay with occasional ashy lenses. Twelve sherds of pottery were recovered from this layer, dating consistently to the mid 12th to mid 14th centuries. Overlying this was layer 415 (which also spread slightly to the north). It was comprised of crushed chalk fragments in a silty clay matrix, possibly a remnant of a chalk path. Along the south side of this layer were a number of iron nails, possibly the remains of a planked edging. The upper layer, context 405/406/407 was dark grey brown friable clay silt with frequent inclusions (gravel, slate, bone fragments etc). No datable pottery was recovered from this level.

6 Discussion

6.1 Trench 1

The north to south ditch in Trench 1 represents the earliest feature (with the possible exception of the tree throws in Trench 2) recorded on the site. The ditch was narrow, shallow and with a very pale, leached fill that produced no cultural material at all. Its appearance and alignment suggest the possibility that the feature is Bronze Age in date, perhaps part of a wider Middle Bronze Age field system – such systems have been recorded throughout the Cambridgeshire Fens, and the Peterborough region in particular. However, with no clear dating evidence the date of the feature remains ambiguous. The feature was clearly truncated by and sealed beneath ridge and furrow and is therefore certainly pre-medieval.

The east to west aligned ditch in this trench was post-medieval and clearly cuts through the topsoil and subsoil.

6.2 Trenches 2, 3, 4 and 5

The archaeology in Trenches 2, 3, 4 and 5 all dates to the medieval and post-medieval periods.

In Trench 2 a post-medieval ditch saw its upper level backfilled with modern debris that dates to when Abbey Field was occupied by the zoo. Trench 3 also contained a post-medieval ditch.

Trench 4 was located over what appeared to be a series of parallel ditches but on excavation these proved to be field drains. The earthworks visible on the surface are therefore likely to be the remnants of ridge and furrow with modern field drains cut into the base of the furrows to aid drainage.

Trench 5 produced the only features that may date to the medieval period. The two ditches and upcast layer represent a convincing large hedgebank, a characteristic medieval feature.

6.3 Trench 6

Trench 6 revealed a large ditch enclosing a central square platform. The platform has been raised above the surrounding land and provides a large, flat and dry, square plot approximately 40 to 45m square. Relatively fresh pottery sherds date the construction of the platform to the 12th to 14th century or later. It seems most likely that this platform was created to take a building, and possibly a building of some size and importance

A building is shown on Benjamin Hare's map 1652 (see Fig.10) between Trenches 5 and 6. It is possible that the building on this map could be located on the building platform. The building is not shown on John Halsey's map of 1731-2.

6.4 Trench 7

The large earthwork investigated in Trench 7 has a number of possible explanations. Firstly it is notable by its sheer size, over 20m wide, almost 100m long and standing – infilled – at up to 3m deep. The feature is roughly L-shaped, the long arm running from southeast to northwest and then turning northwards. Another observation is that there is no obvious location for the large amount of spoil that would have been excavated from the ditch.

It had been suggested that the feature may represent part of the medieval boundary ditch of the Abbey, though it would be extremely large for this purpose, and a bank might also be expected. Another possibility is that the feature may represent the end of a lode or canal, bringing imported stone and other materials to the Abbey by boat and taking the Abbey's goods out. However, at this height the feature would have been far too deep to make this feasible – it lies at the very top of the island, at around 6.00m OD, and the water in the canalised river that runs to Thorney would have been at no more than 1.00m OD. The Abbey would certainly have had docking facilities but they would have been at the base of the island, probably immediately to the northwest of Abbey Field.

It is thought that the most likely function of the ditch would be as a water management feature. Various ditches feed into the feature, including those that surround the building platform in Trench 6. This huge ditch could have acted as a catchment feature for water from the central and western parts of the island, which could then be sluiced out to the lode to the north in a controlled manner. The ditched earthwork

can be traced down towards the lode on the western side of the site (see Fig.2).

6.5 Trenches 8 and 9

Trench 8 was placed between the square building visible from the geophysical survey and the aisled building to its east. The building itself, a possible malting oven, would have been too complex to excavate in the time allowed and the trench was therefore placed to investigate the possible wall structures between the two buildings (see Fig.7).

The building, as measured from the geophysics plot, is approximately 14m square with an internal structure measuring some 6m across. The internal structure has an opening in its eastern side. An environmental sample from Trench 8 produced sprouted barley suggesting that brewing may have been occurring near by. While very large for a malting oven the form of the building is appropriate. A direct comparison would be that excavated at Lime St, Irthlingborough (see Fig.9) only 35 miles to the southwest (Chapman *et al* 2003). The malt oven there was *c*. 3.5m wide, with a flue to the east, and set within a building some 6.50m wide. It was attached to a small stone-footed barn, possibly the brewhouse. These structures date to the same period as those at Thorney, and belonged to a manorial farm. It might be expected that an Abbey would have had somewhat larger brewing facilities.

Trench 9 was located on the area identified by the geophysical survey as the location of an aisled building. The trench revealed stone based foundations and two post pads. Two floor surfaces were recorded with the earliest showing heavy localised heating. The pottery dates the use of this building to 13th to 14th centuries.

The building would measure approximately 10m by 20m and was aligned broadly west to east, fronting onto the main Whittlesey Road at the east. The building would have been of timber construction on stone footings, with large timber posts situated on the wooden post pads, both within the walls and internally, to support the roof. The roof was tiled with stone.

The localised heating of the initial metalled floor surface may suggest that an industrial process was occurring within the building. There is no charcoal, indicating that heating occurred from above rather than a fire being placed directly on the surface.

The brewing process uses large cauldrons to heat the water used to make beer and this could create the same pattern of heating on the floor surface. There is documentary evidence that a brewhouse was present on the site at Abbey Fields. Halsey's map (1731-2) denotes

the area around Trenches 7-10 as 'Brewhouse Close' (see Fig. 10). Earlier references are also made, dating to the 13th century, where Abbot William Yaxley (1261-1293) mentions the new brewery and malt house and refers to replacing the old thatched roof of the bake-house with new tiles (Warner 1879). The layout of the square building immediately to the west, beyond Trench 8, strongly suggests a malting oven; the brewhouse would have been adjacent to this.

Cauldrons are also referred to when Abbot Clopton had put two brass cauldrons into the brew-house, in place of the leaden ones previously in use, one of which he cast at Thorney, the other he bought in London (Wyatt Warner 1879:156). Two environmental samples have also produced charred barley, some of it sprouted, from areas immediately adjacent to both these buildings (see Appendix 9).

The use of the building may have changed in the 15th century when a new clay floor was put down over the original one. The clay layer was relatively clean and sterile which might suggest agricultural storage rather than domestic use or use as a cattle shed.

The northern wall of the building appeared to have been robbed out, or reclaimed, perhaps in the mid to late 16th century. The building may well have been disused and abandoned following the dissolution in 1529.

6.6 Trench 10

Trench 10 contained a complex sequence of *in situ* archaeological layers. The test pit was excavated to a depth of 0.68m. The test pit was too small to clearly define the character of the archaeology within it but the layers appeared to be well stratified with pottery dating from the 12th to mid 14th centuries. The nature of these deposits would suggest that the archaeological deposits within this area have remained undisturbed, and that the area has not been subject to ploughing. The possible plank-lined path and associated high phosphate levels (see Appendix 4) are possibly suggestive of formal garden features. The increase in the depth and complexity of the overburden in this area, and in the level of ash and charcoal in the soils, may be linked to its proximity to the Abbey buildings.

7 Conclusions

Considering that the evaluation at Abbey Fields was primarily designed as a community training excavation, and as such the excavators took precedence over the excavation, a great deal of valuable information has been recovered from the site. Excavation has clarified that the majority of the earthworks on the site are of medieval and post-

medieval date, and not, as had been posited, Roman or even prehistoric.

A single possible Bronze Age ditch was discovered which may be part of a wider field system, though with such a small percentage of the site investigated this must remain speculation. However, if the ditch does date to the Bronze Age it represents the earliest archaeological feature thus far identified on Thorney Island.

There was no evidence whatsoever of any Roman occupation on this site, not even stray, abraded pot sherds. This negative evidence is, however, important in itself.

It is for the medieval period that most new information has been gained. Medieval archaeology such as water management systems and agricultural field systems have been investigated. Most significantly a well preserved medieval aisled building, interpreted here as part of the brewhouse and bakehouse complex, was discovered, adjacent to what may well be a large malting oven. The state of preservation of these buildings, and therefore of all the other uninvestigated archaeological features and deposits on the site, is excellent. These features do not appear to have been greatly disturbed since their probable demolition in the 16th century. The investigations have thus far barely touched on the archaeology of Abbey Fields. As an extant archaeological resource the area is exceptional. Unploughed earthwork sites are very rare in Fenland, and unprotected ones (and thus available to be excavated) rarer still.

The medieval remains are clearly of some significance, both intrinsically and due to their excellent preservation. In addition, any future excavation within the area, particularly the Brewhouse Field adjacent to the Whittlesey Road, may find that, as a by-product of this preservation, the Saxon, Roman and prehistoric archaeology of Thorney will have been just as well preserved beneath and around the medieval.

An impressive amount of valuable information has been gained relating to the archaeology and history of Thorney. This was achieved in only a very few days, due to the sterling efforts of everybody involved in both the excavation and the organisation of the excavation. In all, sixty-seven local people took a physical part in the excavation, with hundreds more visiting. The success of this project has shown that not only does ‘Community Archaeology’ work extremely well for the community but that it can work equally well for the archaeology.

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Anon. 1749. A Survey of the North level, Bedford level, Crowland and Wisbech. CRO R77/38 (copy)

OS Maps

Cambridgeshire Sheet V SE; Northamptonshire Sheet IV (part of)

OS Map First Edition (1890)

OS Map Second Edition (1903)

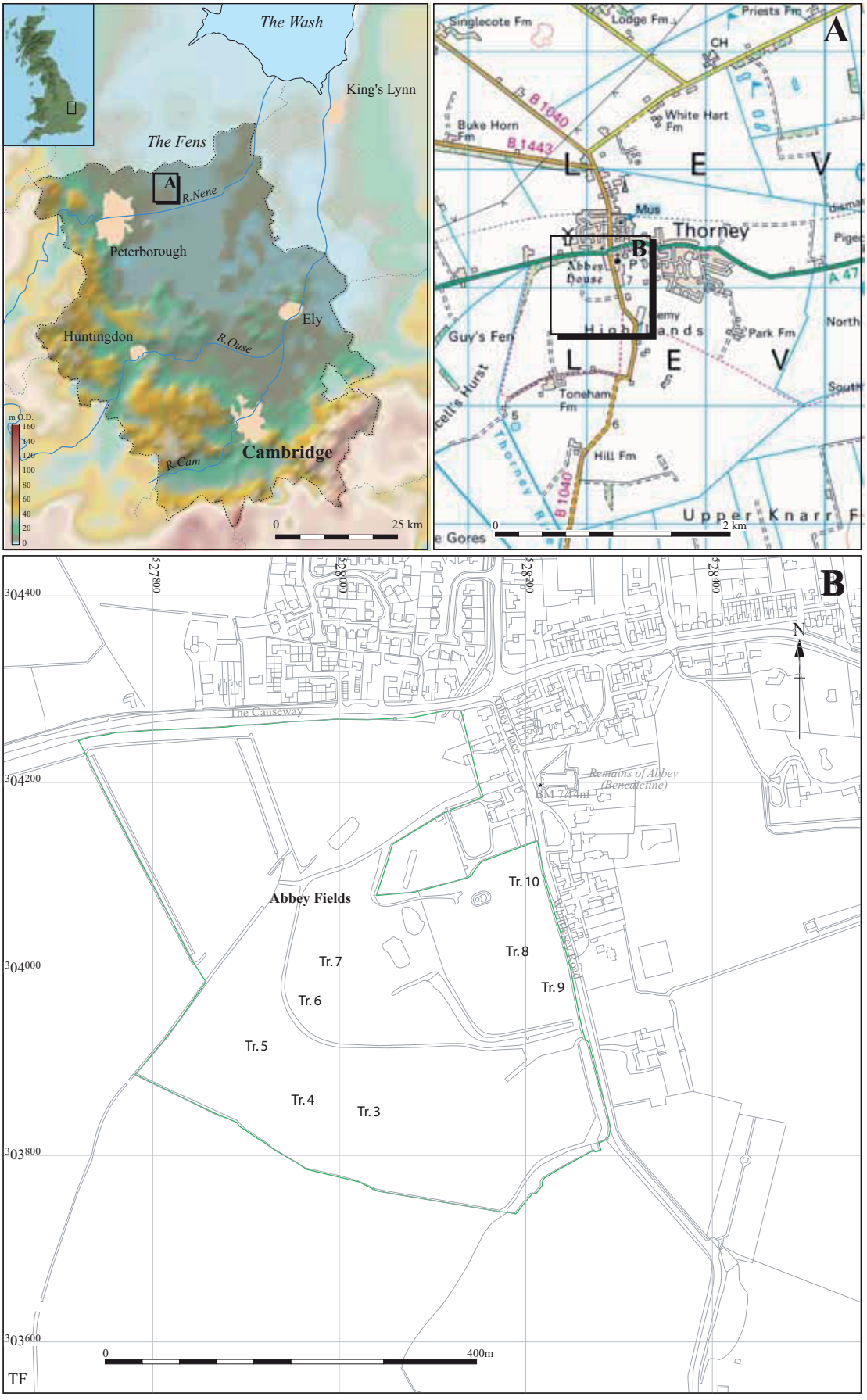


Figure 1: Location of trenches within Abbey Fields (green)

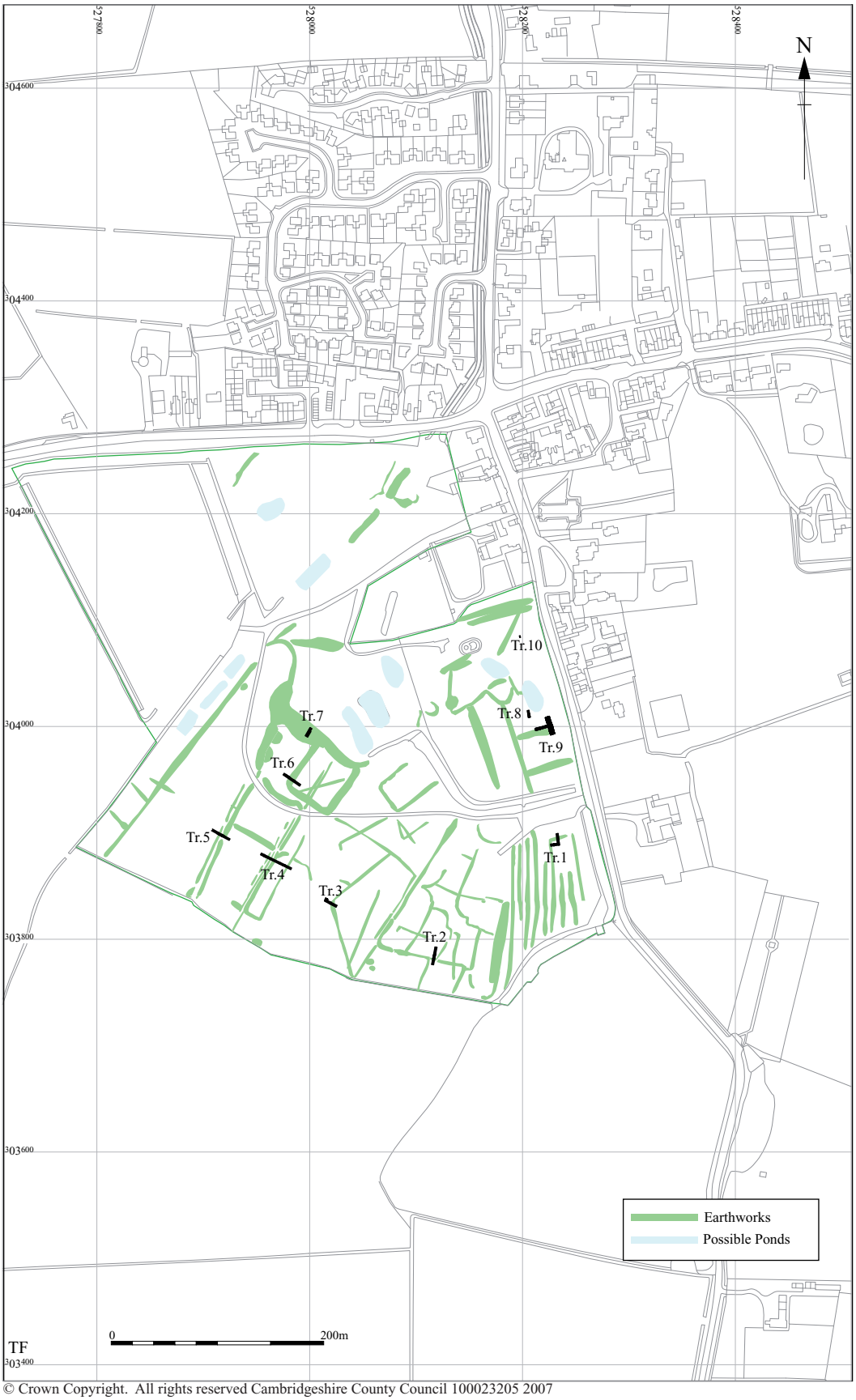


Figure 2: Position of trenches in relation to earthworks

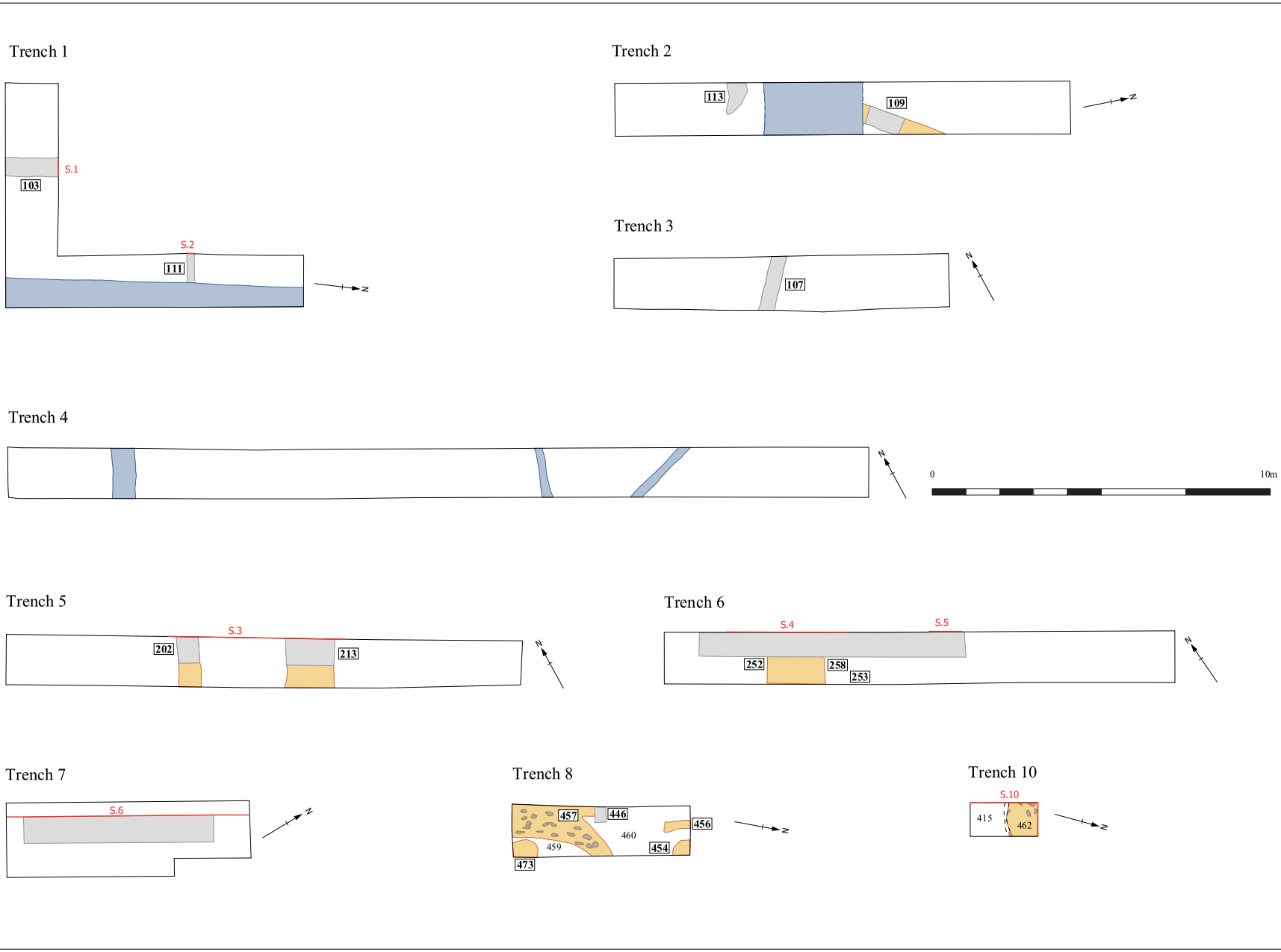


Figure 3: Trench plans

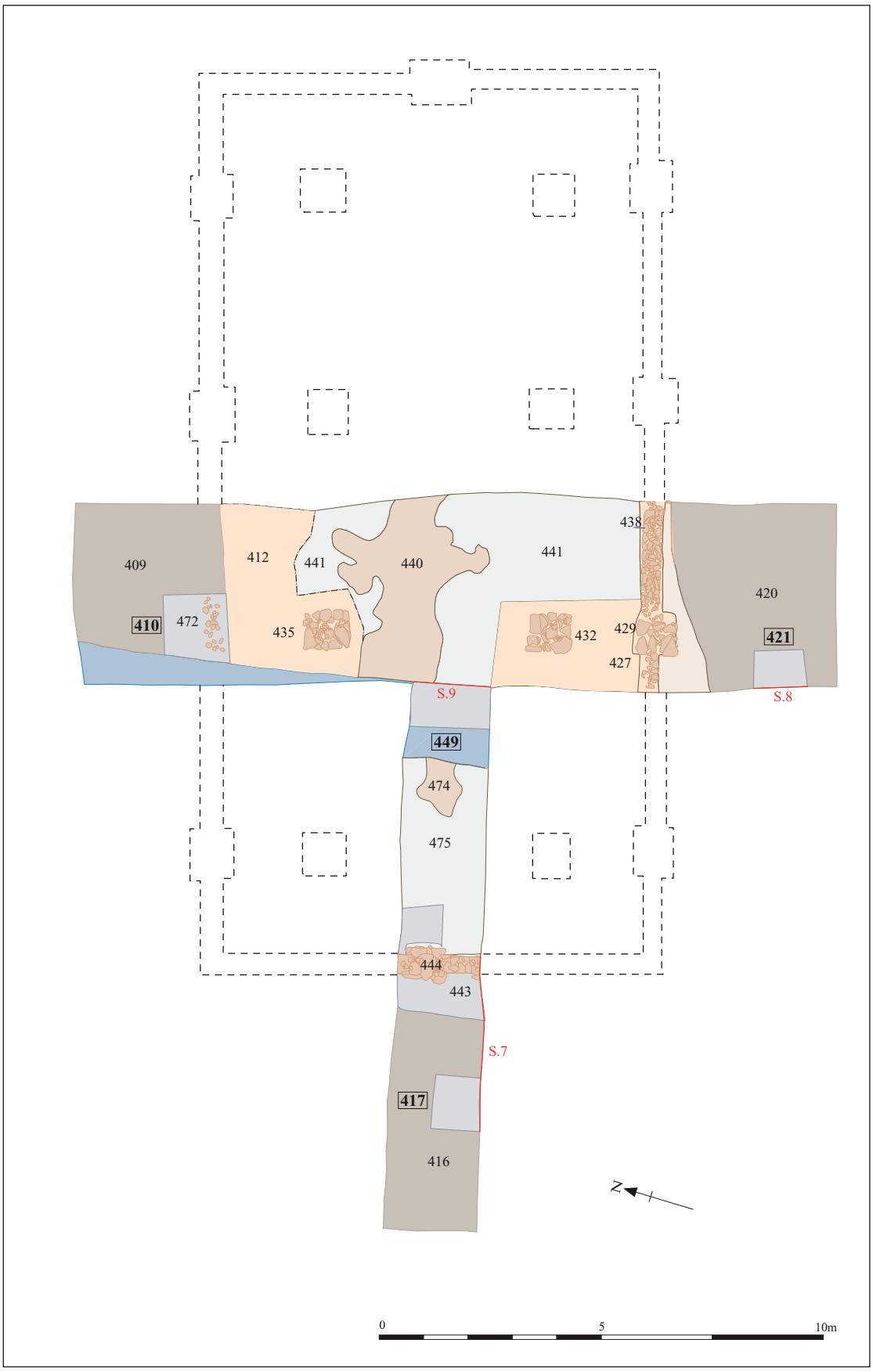


Figure 4: Trench 9 overlaid on suggested building plan from geophysical survey

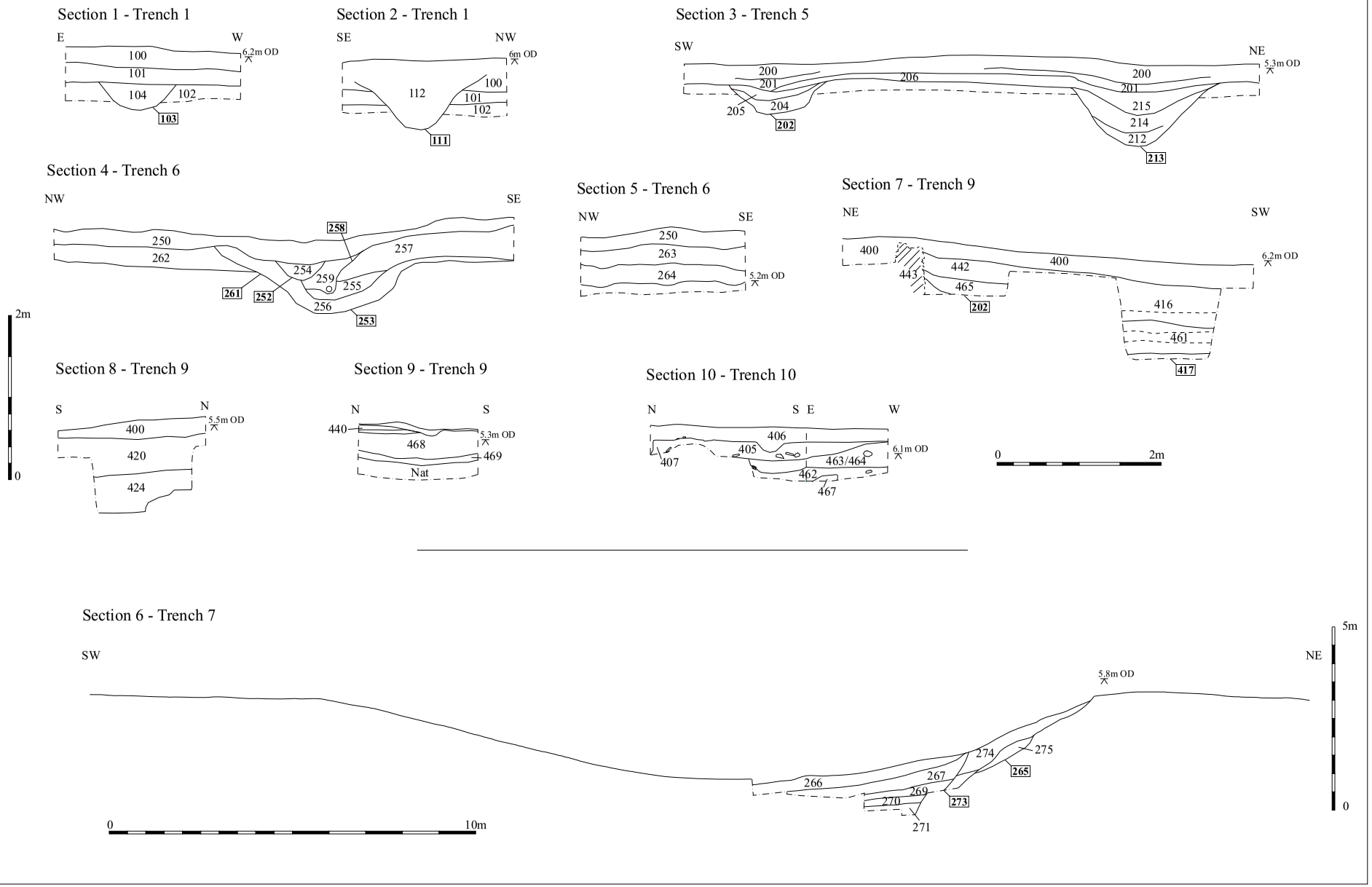


Figure 5: Sections

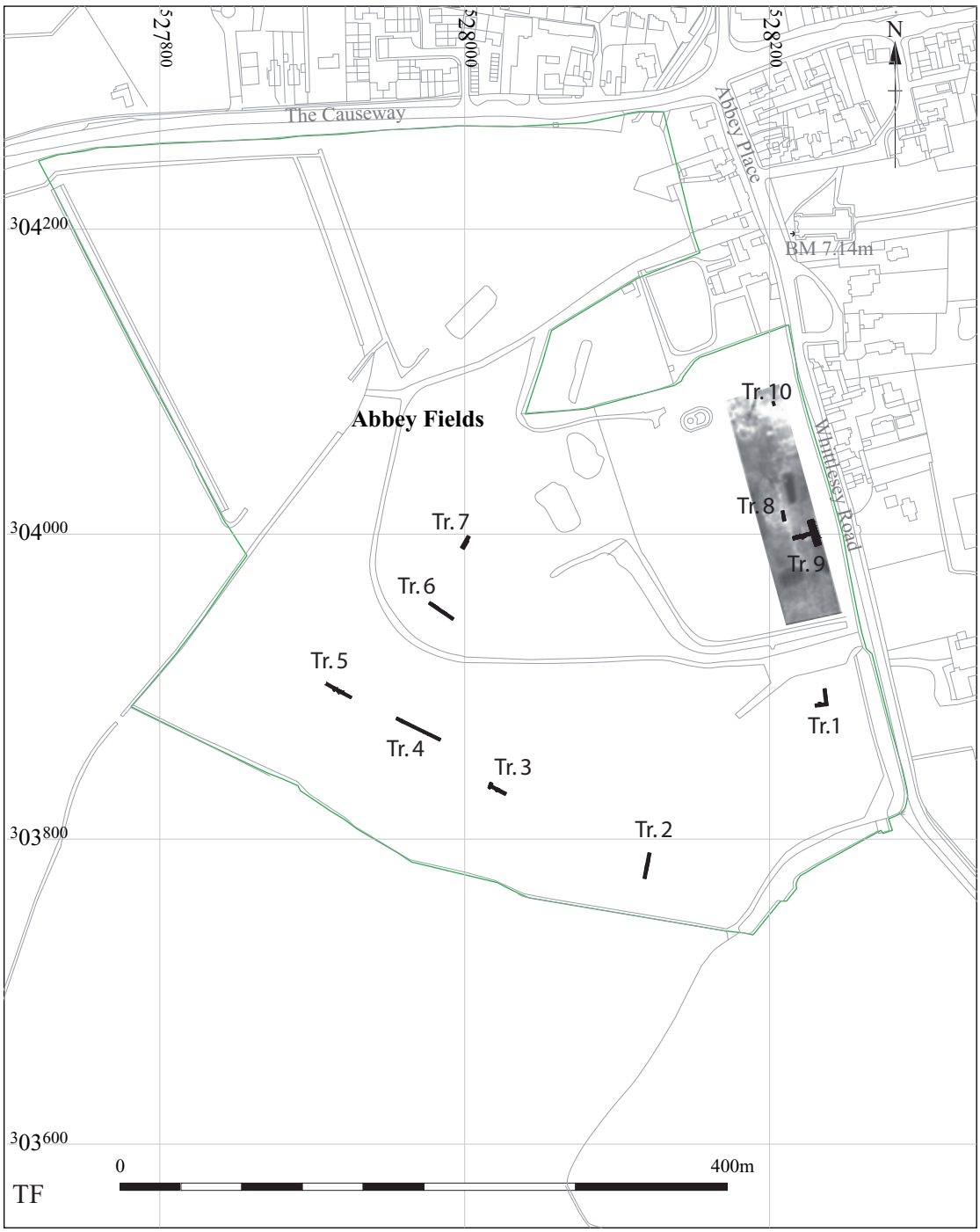


Figure 6: Location of geophysical survey

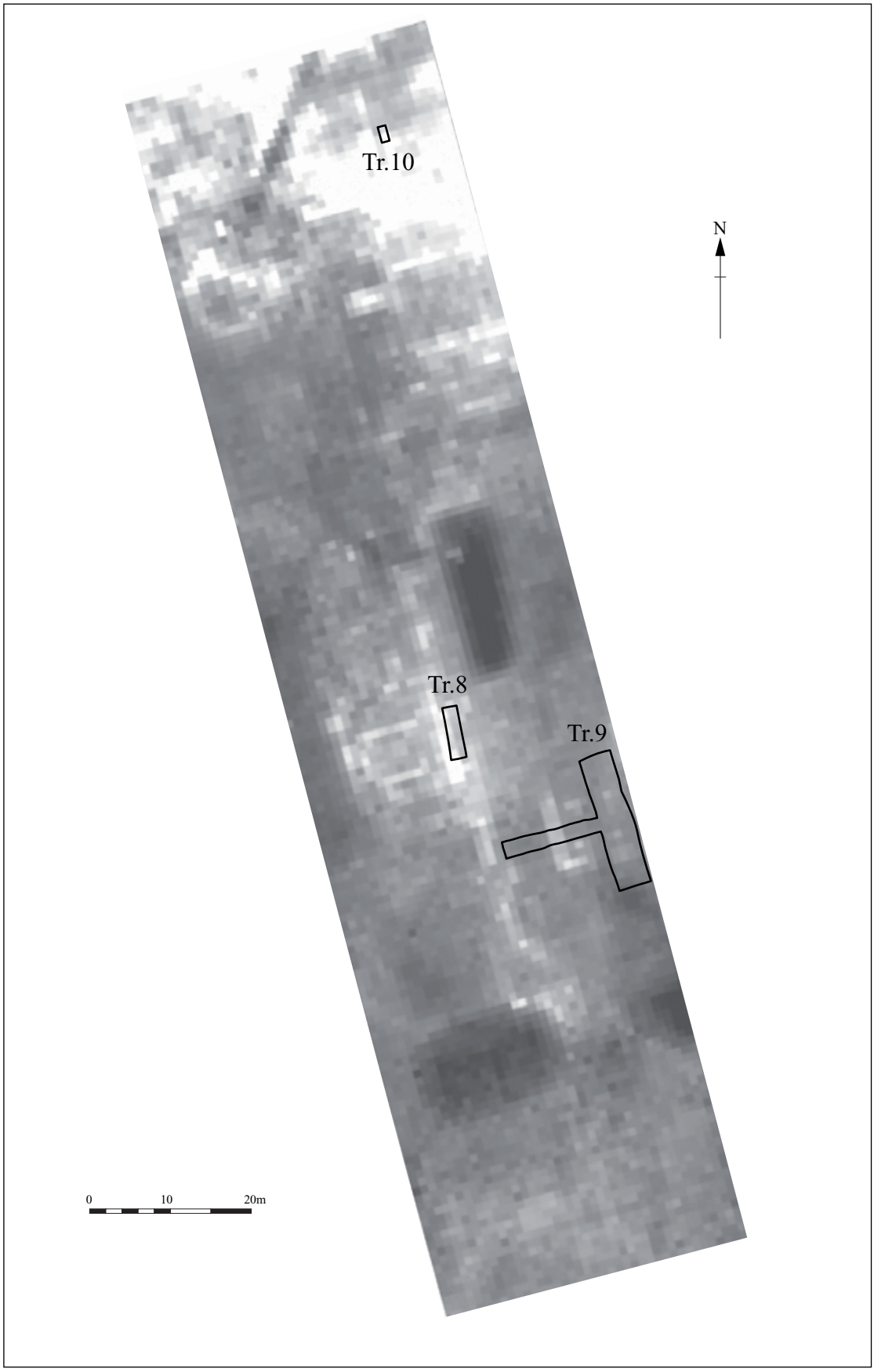


Figure 7: Location of Trenches 8-10 with the geophysical survey results (geophysics image © A. Challands)

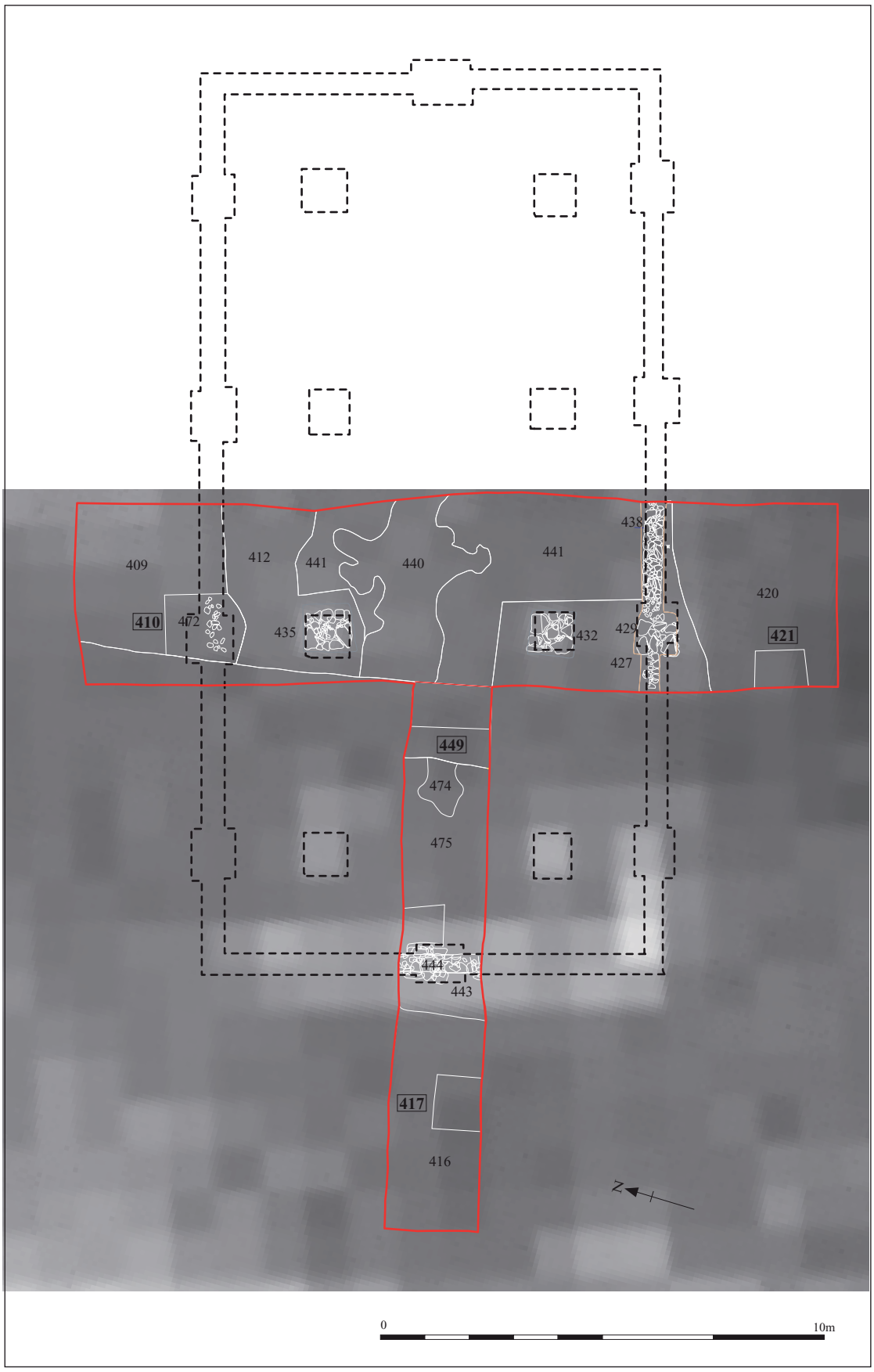


Figure 8: Trench 9 with geophysical survey results (geophysics image © A. Challands)

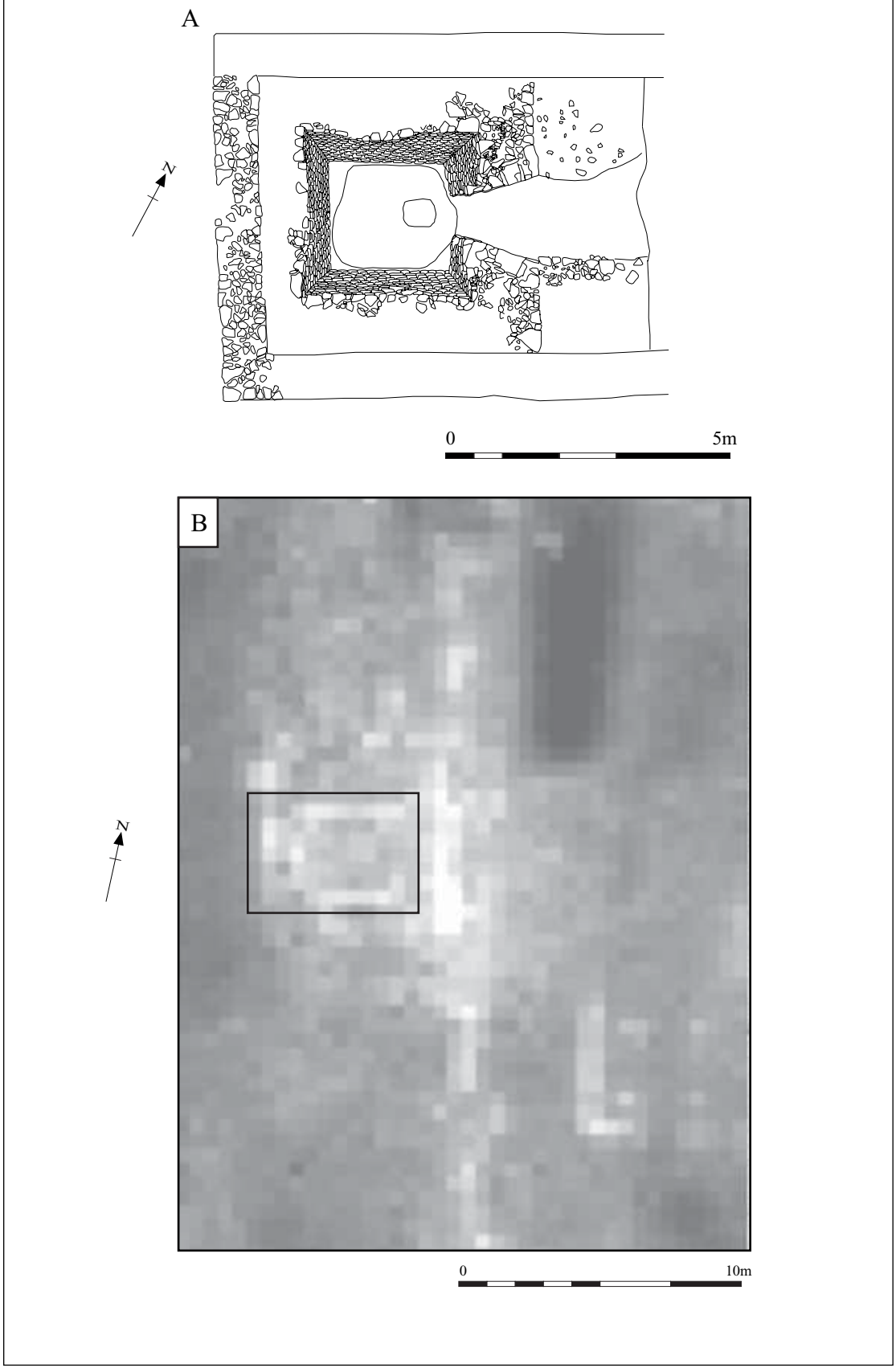
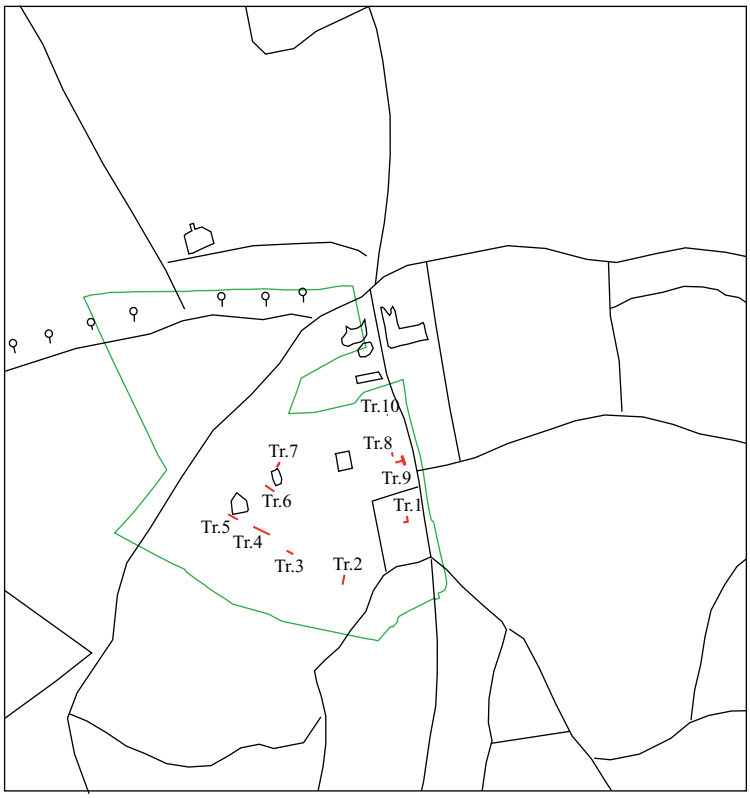
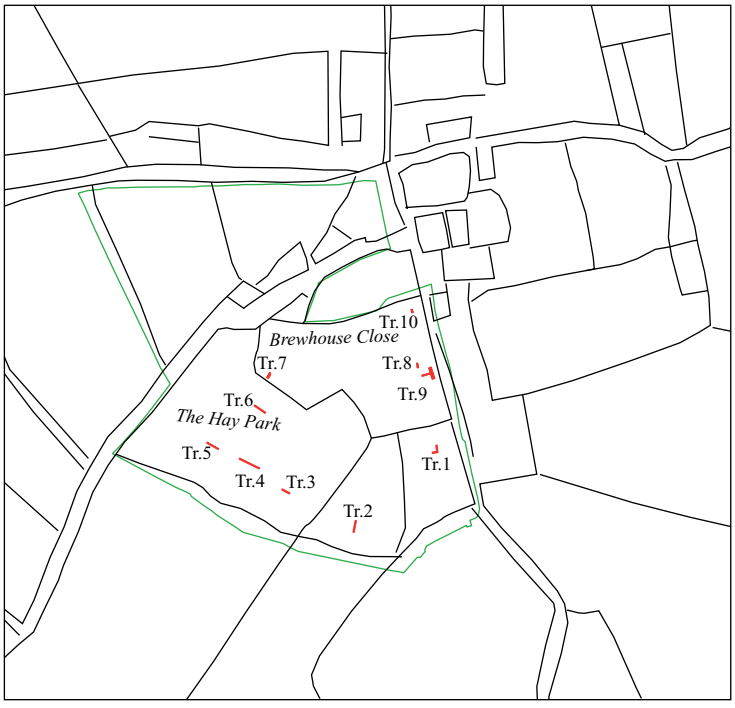


Figure 9: The malting oven from Lime Farm, Irthlingborough, Northamptonshire (a) (after Chapman, Atkins and Lloyd, Fig 7) and the results of the geophysics from Abbey Fields (b) (geophysics image © A. Challands).



After Benjamin Hare 1652 (copy 1710)



After John Halsey 1731-2

Figure 10: Historic maps of Abbey Fields, Thorney, with trench locations

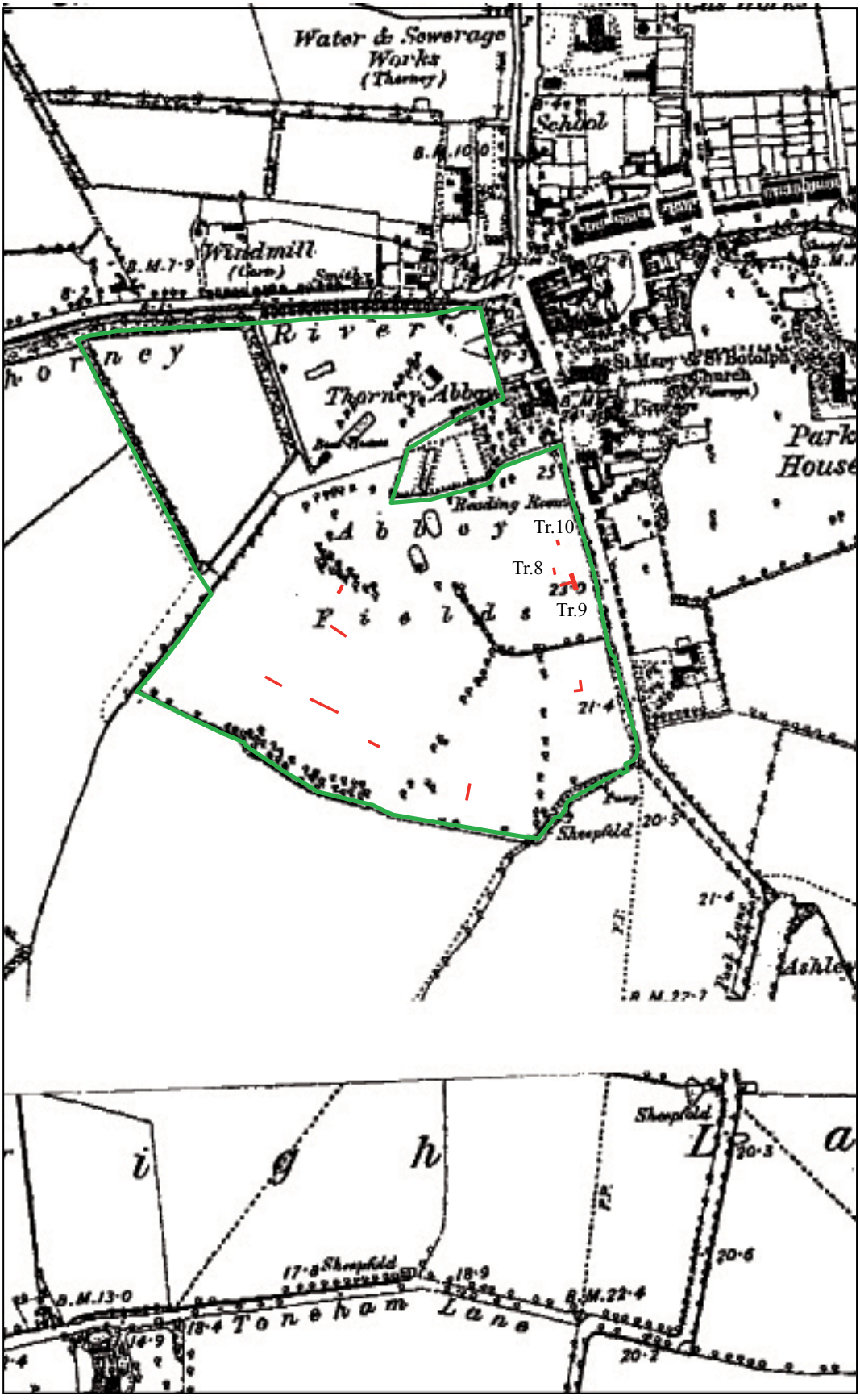


Figure 11: Thorney Abbey, 1st Edition OS 1890-1892

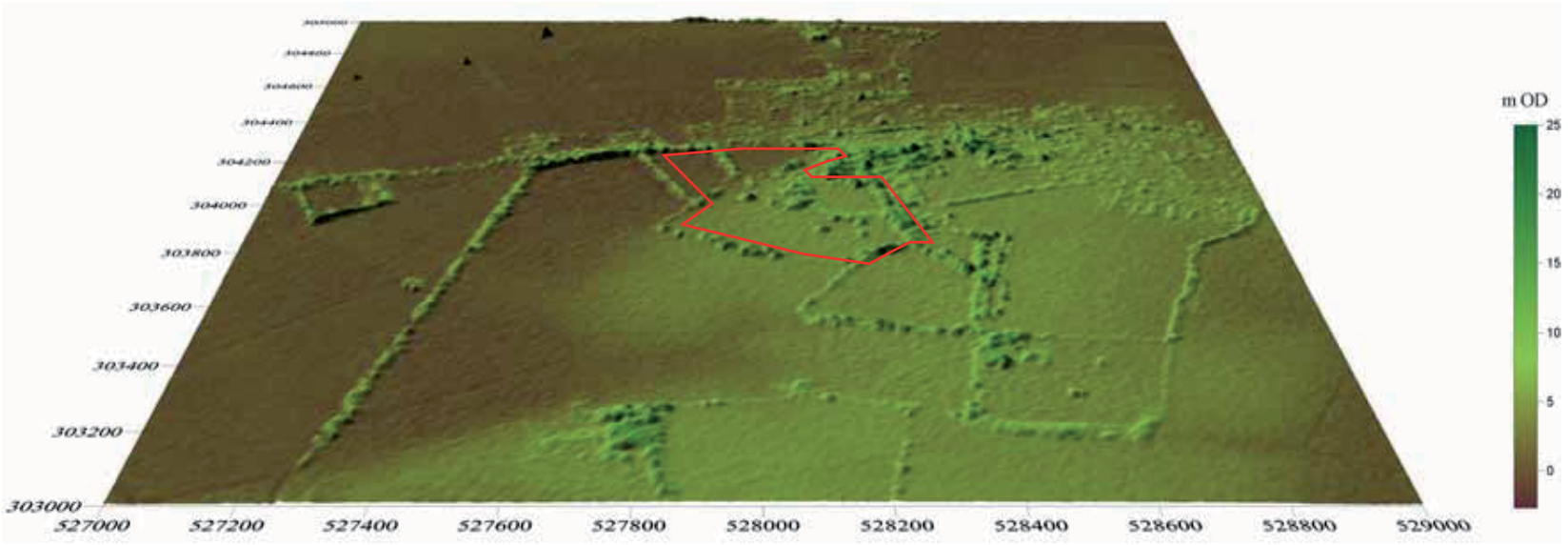


Figure 12 Digital surface model of Thorney island derived from aerial radar survey at 5m horizontal intervals. Abbey Fields is outlined in red.

Plate 1: Aerial photograph showing locations of trenches in Abbey Fields, Thorney (courtsey of ben Robinson)

Plate 2: Team photograph

Plate 3: View of southern wall from the east

Plate 4: Trench 9

Plate 5: A site tour

Plate 6: Working in Trench 9

Plate 7: Trench 7

Appendix 1: The Volunteers

		Wed 30 Aug	Thur 31 Aug	Fri 1 Sept	Sat 2 Sept	Sun 3 Sept	Mon 4 Sept	Tue 5 Sept	No. of days
Sarah	Botfield	√	√	√	√	√	√	√	7
Marie	Sanders	√	√	√	√	√	√	√	7
Steve	Thomson	√	√	√	√	√	√	√	7
Roy	Windsor	√	√	√	√	√	√	√	7
Juliet	Meatyard	√	√	√	√		√	√	6
Jason	Nesbit	√	√	√		√	√	√	6
Amanda	Norton	√	√	√	√	√	√		6
George	Norton	√	√	√	√	√	√		6
Carole	Bancroft-Turner	√	√	√			√	√	5
Richard	Halliday	√	√	√	√	√			5
Bonnie	Knapp	√	√	√			√	√	5
Ross	Lilley	√	√	√	√		√		5
Roy	Marriott	√	√	√	√		√		5
Joy	Reynolds	√	√	√		√	√		5
Sheringham	Reynolds	√	√	√		√	√		5
Christine	Whitehead	√	√	√			√	√	5
Drew	Jovie	√		√			√	√	4
Janet	Knights	√			√	√		√	4
Diane	Read	√	√	√		√			4
Heather	Thirlwell	√	√	√	√				4
Barry	Blades		√				√	√	3
Monica	Graham			√		√		√	3
Graham	Howson			√	√	√			3
Wayne	Llewellyn	√	√			√			3
Richard	Newman	√	√	√					3
Katharine	Newman	√	√	√					3
Rachel	Parker			√	√	√			3
Nick	Sennett	√	√	√					3
Susan	Barnes						√	√	2
Jon	Burgess					√	√		2
Alan	Crossland	√	√						2
David	Harvey					√	√		2
Tamsin	Henry	√	√						2
Lilly	Hodges				√	√			2

cont.		Wed 30 Aug	Thur 31 Aug	Fri 1 Sept	Sat 2 Sept	Sun 3 Sept	Mon 4 Sept	Tue 5 Sept	No. of days
Ron	Jary						√	√	2
Lizzy	Middleton		√		√				2
Andrew	Sanders				√	√			2
Jane	Scott	√		√					2
Vicky	Chapman					√			1
Alice	Donnelly						√		1
Sarah	Ebbage							√	1
Margaret	Fletcher		√						1
Tim	Grief					√			1
Beth	Grief					√			1
Sue	Hedges							√	1
Joanna	Henry		√						1
Frances	Keys							√	1
Andrew	Knights					√			1
Toby	Knights							√	1
Charlie	Knights				√				1
Alice	Lapinskis						√		1
Erika	Melnyk					√			1
Anthony	Moore		√						1
Simon	Pickstone				√				1
Jessica	Radford	√							1
Shirley	Selby				√				1
Hayley	Shipton							√	1
Emily	Shipton							√	1
Cilla	Smith			√					1
Sue	Squires	√							1
Scott	Thomson	√							1
Christine	Thorogood		√						1
Aimee	Waller						√		1
		31	**31**	**27**	**21**	**25**	**24**	**22**	**181**

Table 1: The volunteers

Appendix 2: Context index

Context	Same as	Feature	Trench	Category	Feature Type
100			1	topsoil	
101			1	subsoil	
102			1	natural	
103		103	1	cut	ditch
104		103	1	fill	ditch
105			1	arbitrary	cleaning layer
111		111	1	cut	ditch
112		111	1	fill	ditch
106			2	arbitrary	cleaning layer
109		109	2	cut	ditch
110		109	2	fill	ditch
113		113	2	cut	tree bowl
114		113	2	fill	tree bowl
115		109	2	fill	ditch
107		107	3	cut	ditch
108		107	3	fill	ditch
208		208	4	cut	land drain
209		208	4	fill	land drain
210		210	4	cut	furrow
211		210	4	fill	furrow
219			4	topsoil	
200			5	topsoil	
201			5	subsoil	
202		202	5	cut	ditch
204		202	5	fill	ditch
206	215		5	layer	
212		213	5	fill	ditch
213		213	5	cut	ditch
214		213	5	fill	ditch
215	206	213	5	fill	ditch
216		216	5	cut	land drain
217		216	5	fill	land drain
250			6	topsoil	
251			6	subsoil	
252		252	6	cut	ditch
253		253	6	cut	ditch
254		252	6	fill	ditch
255		253	6	fill	ditch
256		253	6	fill	ditch
257		253	6	fill	ditch
258		258	6	cut	land drain
259		258	6	fill	land drain
263			6	fill/layer	
264			6	layer	buried soil

Context	Same as	Feature	Trench	Category	Feature Type
265		265	7	cut	ditch
266		273	7	topsoil	
267		273	7	fill	ditch
268		273	7	fill	ditch
269		273	7	fill	ditch
270		273	7	fill	ditch
271		273	7	fill	ditch
272		273	7	fill	ditch
273	276	273	7	cut	ditch
274		265	7	fill	ditch
275		265	7	fill	ditch
276	273	273	7	cut	ditch
418			8	arbitrary	cleaning layer
445		446	8	layer	trial pit
446		446	8	arbitrary	trial pit
453			8	fill	depression
454			8	cut	depression
456			8	layer	
457			8	layer	
459			8	layer	
460			8	layer	
473			8	layer	
476			8	arbitrary	finds
400			9	arbitrary	cleaning layer
401			9	arbitrary	cleaning layer
402			9	arbitrary	cleaning layer
403			9	arbitrary	cleaning layer
404			9	arbitrary	cleaning layer
408			9	arbitrary	cleaning layer
409		410	9	layer	trial pit
410		410	9	arbitrary	trial pit
411		410	9	layer	trial pit
412			9	layer	surface (internal)
416		417	9	layer	trial pit
417		417	9	arbitrary	trial pit
420		421	9	layer	trial pit
421		421	9	arbitrary	trial pit
422	411	410	9	layer	trial pit
424		421	9	layer	trial pit
425			9	arbitrary	cleaning layer
426			9	arbitrary	cleaning layer
427			9	masonry	wall
428			9	arbitrary	cleaning layer
429		427	9	masonry	post pad
431			9	arbitrary	cleaning layer
432			9	masonry	post pad
434			9	arbitrary	cleaning layer
435			9	masonry	post pad
437			9	arbitrary	cleaning layer
438			9	arbitrary	cleaning layer
440	441		9	layer	surface (internal)
441			9	layer	surface (internal)
442			9	layer	
443			9	masonry	wall
444		443	9	masonry	post pad

Context	Same as	Feature	Trench	Category	Feature Type
447			9	layer	
448		449	9	fill	pipe trench
449		449	9	cut	pipe trench
461		417	9	layer	trial pit
465			9	layer	
468			9	layer	ground raising
469			9	layer	buried soil
471			9	arbitrary	cleaning layer
472			9	layer	wall
474	440		9	layer	surface (internal)
475	441		9	layer	surface (internal)
477			9	layer	
478			9	layer	
405			10	topsoil	
406			10	layer	
407			10	layer	
413			10	layer	
415			10	layer	path
462			10	layer	
463			10	layer	
464			10	layer	
467			10	layer	

Table 2: Context index

Appendix 3: Geophysical Survey

by Adrian Challands

The 2006 geophysical survey at Abbey Fields detected a range of archaeological features, providing possible evidence of variable land use, over at least 700 years. Putative remains of a formal garden and ornamental water features occupy a large area. A regular arrangement of fish ponds, controlled by ditch systems, are situated within possibly earlier structural elements. There is an aisled structure, surrounded by a possible wall and other buildings. A large pipeline cuts through the aisled building.

1 Introduction

Between the 28th April and 6th May, 2006, both a resistivity and magnetometer survey were carried out, to the south of Abbey House, centred on NGR TF 2822 0405 (see Fig 13).

The survey was undertaken with the aim of detecting any archaeological features, such as structures of medieval date relating to Thorney Abbey and associated settlement activities. The survey area is located on undulating rough pasture at an elevation of around 6m OD. March Gravels form the underlying drift geology (Hall, 1987, 48). The geophysical survey and the subsequent report have used guidelines set out by English Heritage (1995).

2 Survey Methods

Soil resistivity measurements were logged using a TR / CIA Resistivity Meter wired to a 0.5m wide roving twin probe configuration. Magnetic values were logged using a Philpot AM 01 Fluxgate Gradiometer linked to a TR Systems data logger. The survey was carried out within a 160m by 40m area, divided into 20 metre squares. Within the 20m squares, soil resistance values were logged at 1.0m increments.

Magnetic survey was carried out (see Fig. 13) within the resistivity survey grid. Two hundred magnetic values were logged on an east to west traverse that was located at 1m increments in the north to south direction.

A total of 6391 resistance values and 9 null readings were recorded within the 6400m square grid area. The resistivity survey covered a total area of 0.64 ha.

The magnetometer survey, which was carried out over part of the resistivity grid, covered a total area of 1200 sq m. A total of 12000 magnetic values were automatically logged.

3 Data Processing

All of the logged soil resistance values were off-loaded into a PC computer in the recorded 20m square format. A total of sixteen 20m squares were merged together in the correct order to form a mosaic of resistance values within the 160m by 40m area.

The data values fro the areas of magnetometer survey were also off-loaded into a PC computer. Three 20m squares were surveyed and the northerly pair merged together in the correct locations.

Four, extremely high, anomalous resistivity values were lowered to equal the average of the surrounding values. After editing, the resistivity measurements ranged in value between a minimum of 20.92 Ω and a maximum of 52.45 Ω, with a mean of 27.85 Ω and a standard deviation of 4.051 Ω.

In order to clarify and enhance the resistivity image, a 120 point filter was applied to the edited data values. Figure 13 displays the filtered images. The magnetic data values for the northern survey range between – 22 nT (black) and +22 nT (white). For the southern 20m square the magnetic values range between –22 nT (black) and +12 (white).

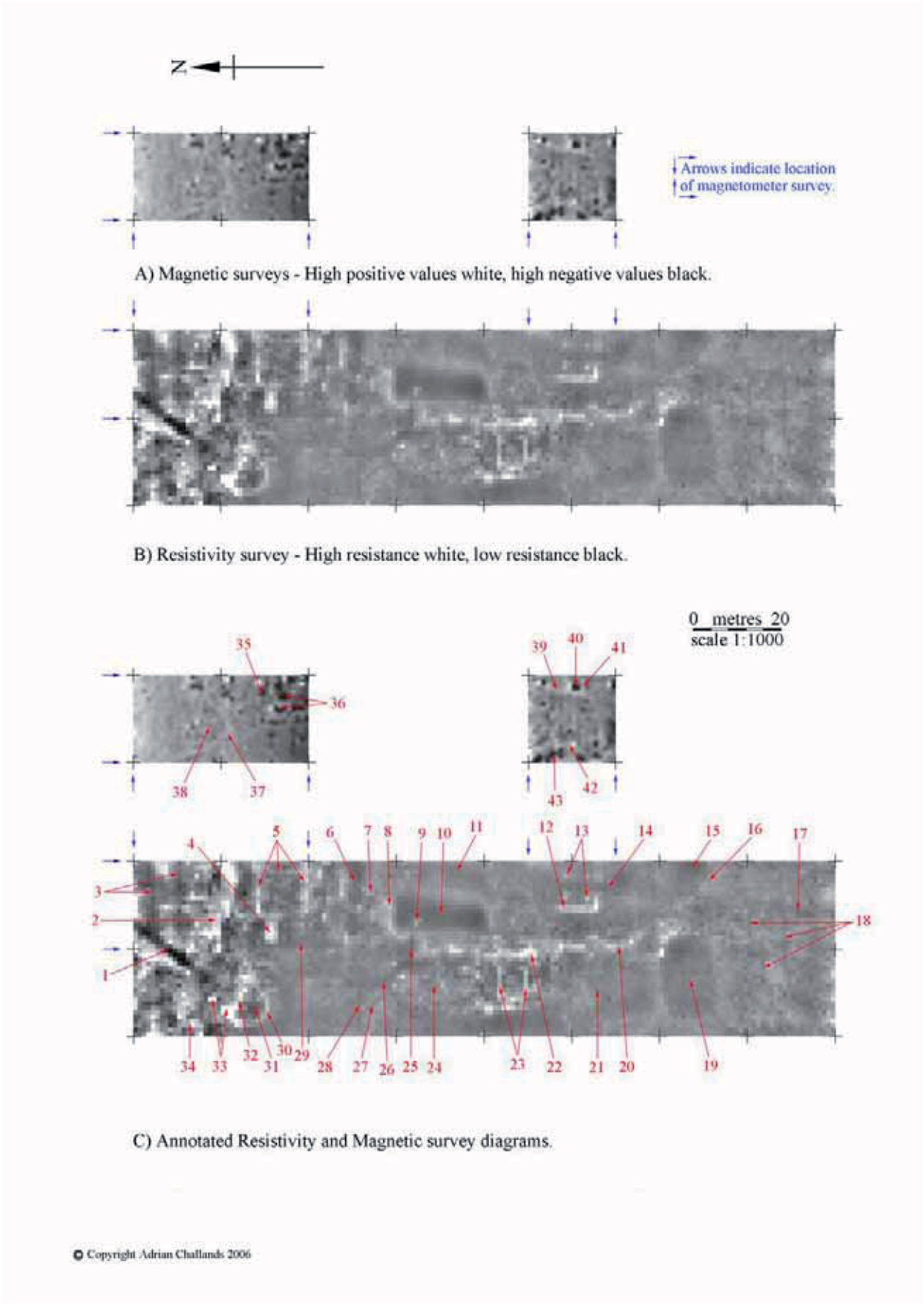


Figure 13: Geophysical survey results

4 Interpretation of the Data

Identification of the soil resistivity and magnetic features has been carried out by examining resistivity and magnetic anomalies displayed on Fig. 13. The following survey interpretations are numbered 1 to 43.

1 Linear low resistance – The 25m by c. 2m wide anomaly runs NE to SW to/from (32) and aligns directly on the centre of Thorney Abbey Church. It is possible that the anomaly is either a filled-in ditch or a collapsed culvert. If it was a watercourse, it may have been utilized to supply a garden water feature, possibly a cascade.

2 Linear high resistance – The east to west aligned, 7m by c.1m wide, anomaly mirrors the geometry of a number of similar anomalies, such as (4) and (5), which may represent paved paths within a formal garden.

3 Linear low resistance features – Similar alignment to (2), (4) and (5), possibly planted beds within a formal garden.

4 Rectangular area of high resistance – The 5m by 3m area is attached to and fits in with the alignment of (5) and may represent a paved area within the garden.

5 Linear high resistance features – Paths within layout of formal garden.

6 Area of low resistance within linear high resistance – Garden remains or remains of water feature associated with pond (10).

7 Linear high resistance – Forms southern boundary of (6).

8 Linear high resistance – Possibly revetting / edging of pond.

9 Small area of high resistance – Lies within pond (10) and at the end of ditch (25), possibly a sluice gate structure.

10 Sub-rectangular low resistance area – Pond, 21m long by average 7.5m wide.

11 Irregularly shaped low resistance area – The roughly 9m wide by *c.*6m wide area has a ditch–like feature located at the SW corner. May be associated with pond (10).

12 Linear high resistance – The 10m long by 2m wide feature represents a N to S aligned wall, at the south end the wall turns through a right angle to the east and reduces in width to 1m. After a distance of 2m, the 1m wide wall has a 2m wide breach and then continues to the eastern edge of the survey area. When (12) is interpreted in conjunction with (13) the plan suggests an aisled building.

13 Square and rectangular high resistance areas – Possibly post pads for structure (12).

14 Linear low resistance – *c.*2.5m wide and extending for 37m, exiting at the eastern and southern edges of the survey area. The linear feature could be a track or drove road which post-dates structure (12).

15 Irregularly shaped area of low resistance – Pond?

16 Linear high resistance – A wall, or less likely a metalled path, links up with (20) and is breached by track / drove road (14) and (17). If the anomaly is a wall it would surround structure (12).

17 Linear low resistance – Track / drove road as (14).

18 Linear low resistance feature – Narrow ditches forming enclosures butting onto track / drove road (14) and (17).

19 Rectangular low resistance area – The 19m by 12m wide rectangular area with rounded corners is an east to west oriented pond.

20 Linear high resistance – Wall or paved path, appears to join onto (16). The feature has curious small structures and breaches along the length. Also the high resistance features (22) and (23) align with and are connected to (20). If (20) is a path it may link ponds (10) and (19). If (20) is a wall it has structures / buttresses built against the interior and exterior.

21 Linear low resistance – 8m length of narrow ditch.

22 Linear high resistance – The 12m long by 2m wide feature is parallel to and forms part of wall / paved path (20). (22) also forms the east wall of structure (23).

23 Linear high resistance – Forms a complex structure, consisting of a central 8m by 5m room surrounded by further rooms and corridors.

24 Low resistance area bounded by linear high resistance – Forms a 5m by 3m wide, structure?

25 Linear low resistance – Course of east – west ditch connected to pond (10) and (26).

26 Curving low resistance – 2.5m wide ditch, connecting to ditch (25).

27 Linear low resistance – 1m wide by 8m long ditch, connects to ditches (26) and (28).

28 Linear low resistance – E to W ditch 1m wide by 11m long which connects with ditches (26) and (27).

29 Linear low resistance – Aligns with the garden geometry (4) and (5). Maybe the edge of another formal garden bed.

30 Curved high resistance – Possibly a crescentic revetting wall to mound (31) situated within the formal garden, appears to be built with (32).

31 Area of low resistance – Soil retained by (30) and (32).

32 Linear high resistance – Straight wall which links the two terminals of the crescentic wall (30) to form a façade of a 'D' shaped structure. When the 'D' shaped structure is considered with the possible water course/culvert (1), which terminates at (32), an ornamental cascade structure maybe suggested. Although at present, accurate levels have not been taken along the course of (1) and the interpretation may change if there is a fall away (32).

33 Null values – Location of mature trees.

34 Area of high resistance – Paved area or spread of building rubble.

35 Linear, high negative magnetic values – Aligns with paths (5) and represents magnetically enhanced soils, forming the edge planting of a formal garden layout.

36 Areas of high negative magnetic values – Magnetically enhanced soils, forming decorative planting patterns within the edge planting (35).

37 Circular area of higher positive and negative magnetic values – Forms a circular planted garden feature, possibly centrally located within a formal square garden layout.

38 Circular area of background magnetic values – Located within (37) and representing less magnetically enhanced soils. Probably area of less well manured low shrubs.

39 Linear, positive magnetic values – Aligns with track or droveway (14). As the magnetic enhancement is extending north from (41), movement of magnetized minerals by trampling from (41) along (14) is possible.

40 2m square area of high negative magnetic values – Location of magnetic enhancement of soils by burning. The magnetic feature maybe a kiln, hearth or less likely, a bonfire.

41 Halo of high positive magnetic values surrounding (40) – The combination of high negative with high positive values (41) suggests the location of a kiln or kiln-like structure.

42 High positive magnetic value – As the value is a single positive spike, iron debris is present.

43 Line of high negative magnetic values – Forming areas of magnetic enhancement associated with the linear high resistance areas, wall or path (20).

5 Overview of the Survey Results

The 2006 geophysical survey, which extends over part of the eastern edge of Abbey Fields, has detected a large number of diverse archaeological features.

The archaeological features detected cannot be directly dated by the geophysical techniques employed. Although analysing the form and layout can suggest a purpose and approximate date for the features. By using such analysis, it may be suggested that the surveyed area was continuously utilized for at least 700 years.

The most recent land use can be clearly seen as pastoral. No structures associated with the c. 1970's Zoo were detected within the survey area.

Geometric features, detected by both resistivity and magnetometry, extend over most of the northern third of the survey area. These geometric features are best interpreted as an elaborate formal garden, probably attached to Abbey House and dating to the mid 17th – 18th century. The plotted geophysical data revealed that an elaborate garden plan existed, with paved or gravel paths forming a geometric route around square formal garden beds. Circular planted beds and possibly water features, such as a cascade or fountain, are may also

be included in the layout. It is possible that the garden features overlie earlier medieval occupation remains.

South of the garden features the remains of earlier fishponds were both visually and geophysically detected. The sub-rectangular pond (10) has ditch systems entering and exiting with one of the ditches (25) possibly controlled by a sluice mechanism (9). Other ponds, (15) and (19), within the ordered hydraulic system, are also controlled by a ditches. The ponds and attendant ditches appear to post-date some of the nearby structural features and are possibly of a slightly later medieval date.

The curious linear feature (16) and (20) is a high resistance feature may represent walling or paving with an attached structure like feature (22) and (23). If (16) and (20) is not more recent remains it may form a boundary wall to what could be a tithe barn like structure (12) and (13) of earlier medieval date.

A linear low resistance feature (14) and (17) extends across part of the site, which may represent the route of a drove road of later medieval or post-medieval date. The possible drove road cuts across the aisled structure (12) and (13) and may even be the predecessor of the present Whittlesey Road.

Generally the geophysical survey has detected a palimpsest of archaeological features which only excavation can fully elucidate.

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This report is produced from geophysical data obtained during on site survey. The interpretation of the geophysical data incorporated in this report may sometimes require modification, after archaeological excavation and/or other information not known at the time of the geophysical survey becomes available.

Appendix 4: Phosphate Analysis

by Paul Middleton

1. Sampling Strategy

Two phases of sampling were undertaken. During the field survey phase of the investigation, transect samples were taken by coring to a depth of 15cm along selected grid lines at intervals of 10m, relating to the geophysical survey grid at the eastern edge of Abbey Fields (see Fig. 14, transects 1 – 5). These were intended to give insight to the phosphate variation across the site and to identify potential "hot spots". As the excavation progressed, the opportunity was taken to spot sample key contexts in the excavated trenches.

2. Method

All bulk samples were air dried, ground and sieved to 2mm mesh and processed under laboratory conditions. The prepared and weighed samples were treated to assess total phosphate levels, using a hydrochloric acid digestion method, adapted from Dick and Tabatabai (1977). The phosphate content of the processed samples was established colorimetrically by the standard molybdenum blue method, described by Murphy and Riley (1962) and quantified by reference to a standard curve. All phosphate levels are expressed in terms of mg. phosphorus per 100g. soil.

3. Results

Transects

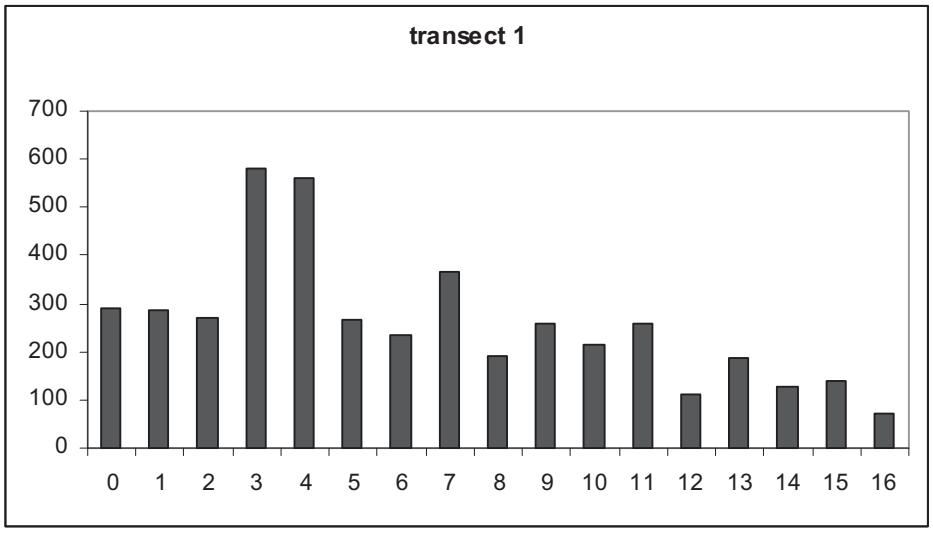
Two N-S transects were analysed located along the eastern edge of the geophysical survey grid (Graph 1, transect 1) and 20m west of this at the centre of the grid (Graph 2, transect 2). Both demonstrated considerable variation in phosphate levels with, in the case of transect 1, a particularly marked spike at points 3 and 4, (25m and 30m south). These levels were in excess of 500mg.P per 100g. soil. This high level of phosphate was in the context of relatively high levels (around 200 – 300 mg.P) throughout the transect, although a clear decline in levels is apparent towards the southern extent. Transect 2 also revealed significant variation with two major clusters of higher values, peaking between 250 – 300mg.

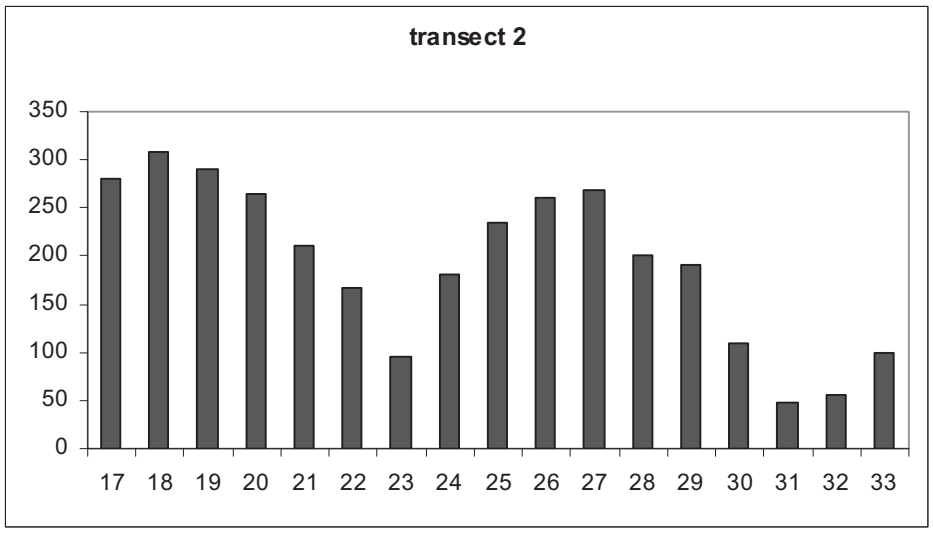
To complement the N-S transects, three E-W transects were undertaken, 20m apart at the centre of the geophysical survey grid (Graphs 3 - 5, transects 3 - 5). In each transect a consistent pattern

was revealed of higher phosphate levels at the eastern end with a marked decline in phosphate levels towards the west.

The pattern revealed by the five transects demonstrates high phosphate levels across the eastern side of the sampled area, with clear fall-off in intensity of activity beyond the centre line of the geophysical survey grid.

The levels encountered in the western sector of the site are consistent with natural background levels (c.75mg.P) raised by the modern pasturing regime of stock grazing. However, the enhanced levels, in excess of 200mg.P encountered consistently along the eastern side of the sampled area and, in particular, the spectacular spike in excess of 500mg.P demand explanation.





Graphs 1 & 2: Phosphate sample transects 1 and 2

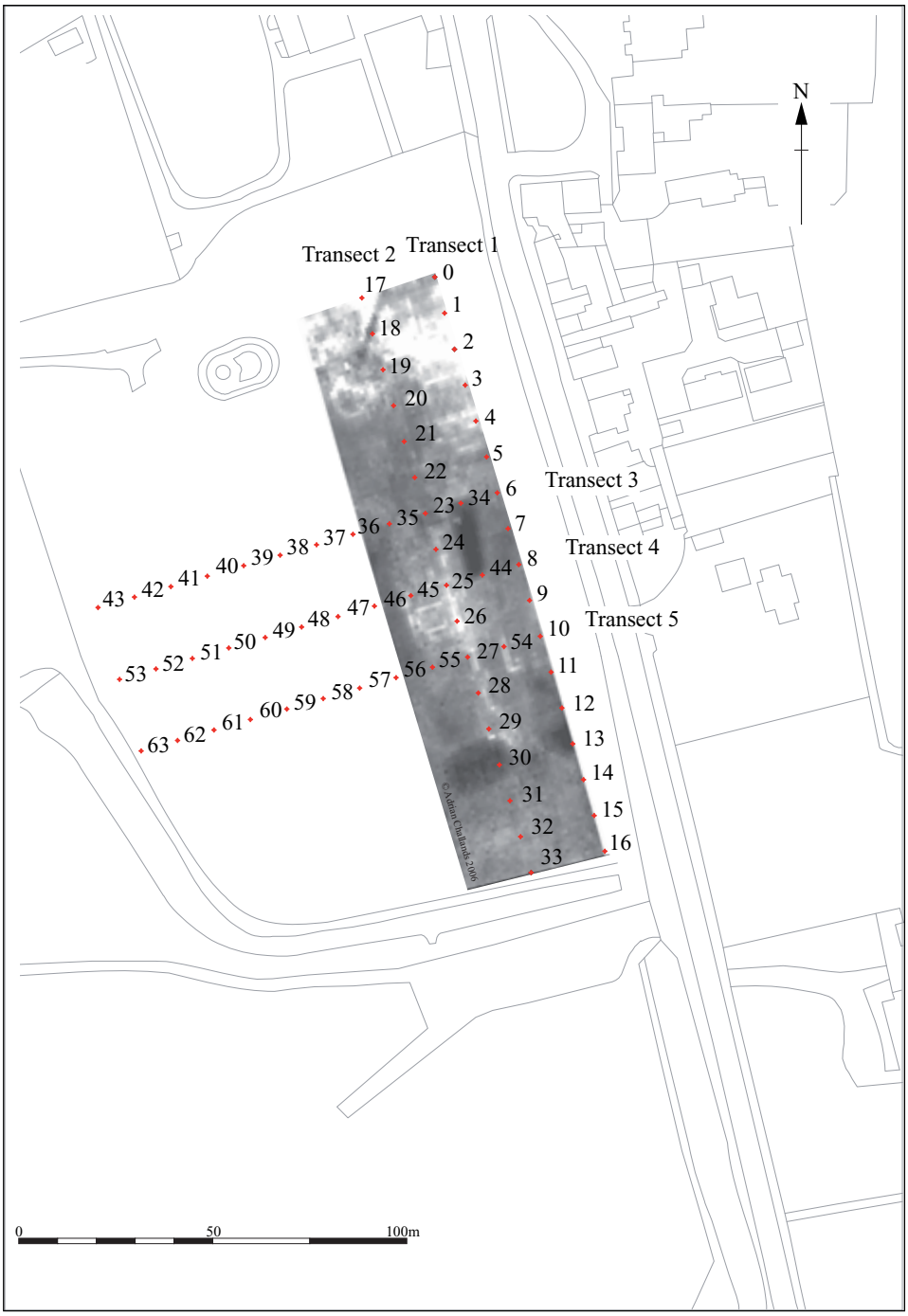
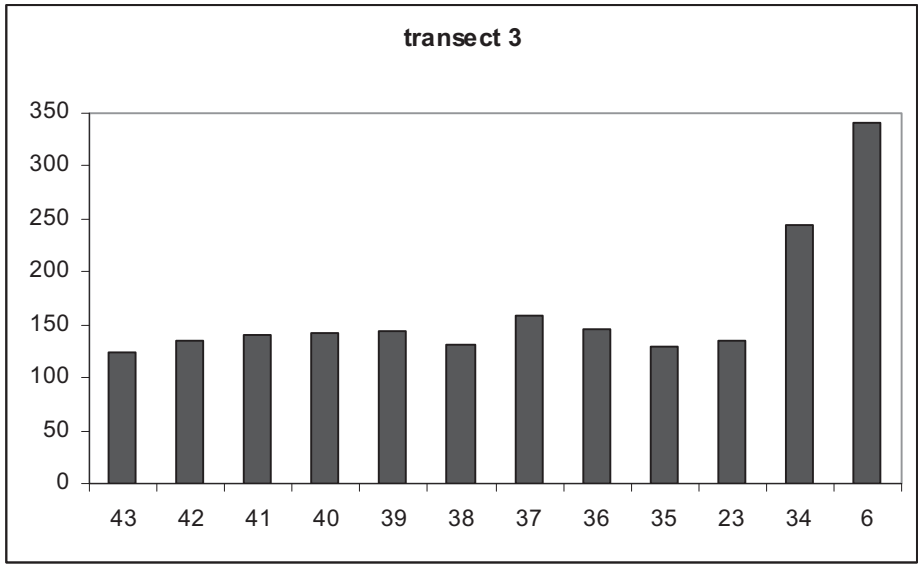
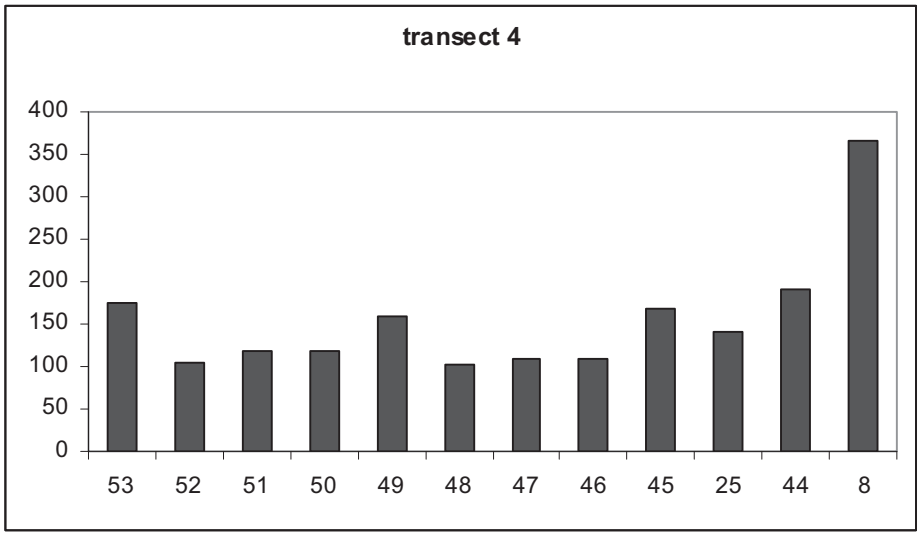
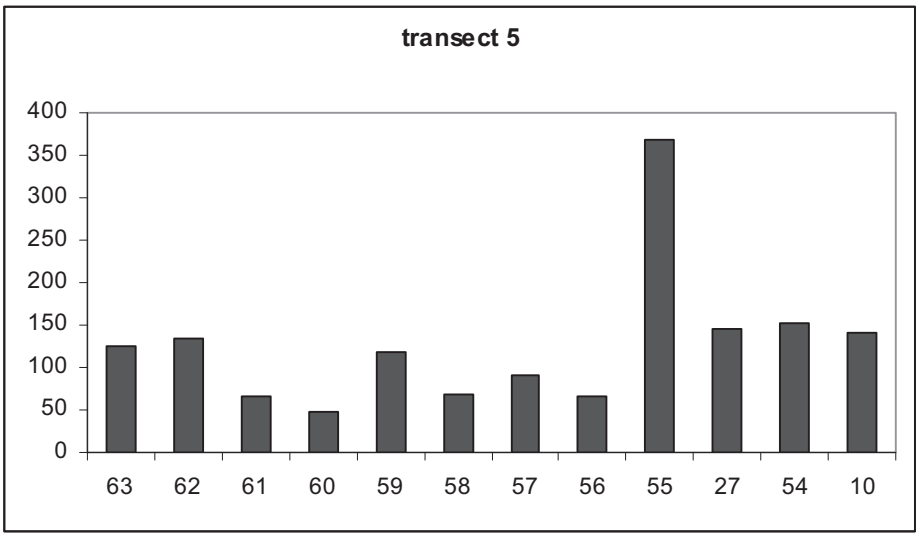


Figure 14: Location of phosphate sample transects 1 - 5







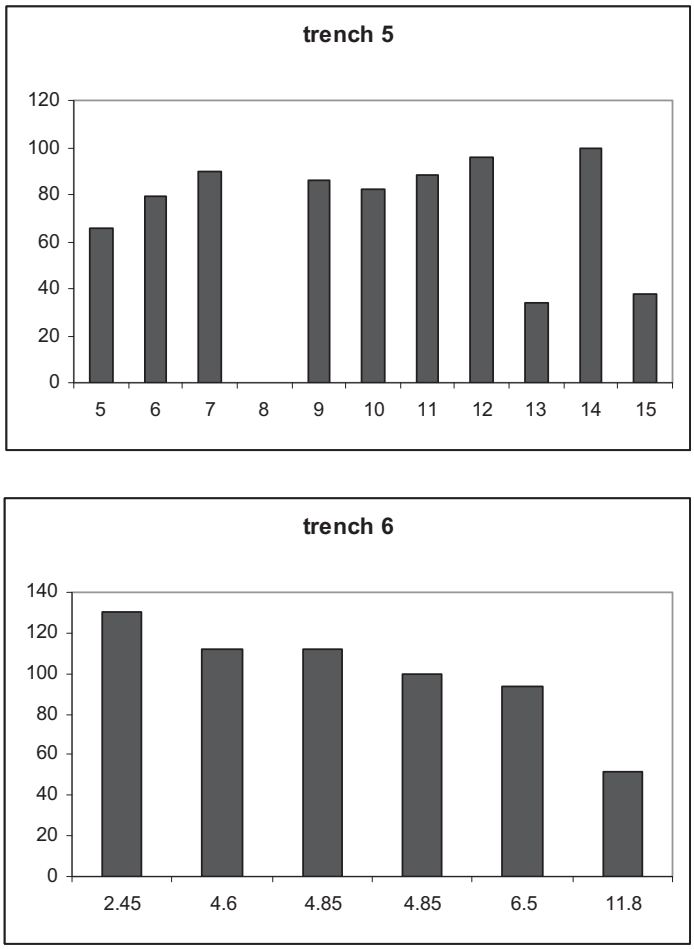
Graphs 4 & 5: Phosphate sample transects 4 and 5

Context analysis

Results from the excavated contexts are presented in Table 3. The phosphate levels encountered in Trenches 1, 3, 4, 5, 6, and 7 are much lower (mean 79mg.P) than those revealed in the eastern enclosure reported above under the section on the transect sampling (mean 154mg.P, excluding exceptional peak values).

Context 206, in Trench 5 (graph 6) was sampled at one metre intervals to test the hypothesis that the surface might represent a droveway. As can be seen from the results, the phosphate levels are uniformly low and therefore do not support the interpretation of the feature as a stock droving route.

Samples were taken at points 2.45m, 4.6m, 4.85m (at different depths), 6.5m and 11.8m along the northern section of Trench 6 (as measured from the eastern end). This transect (Graph 7) sampled both inside and outside a large square enclosure, as well as within the enclosure ditch itself (at two levels). The results show the levels of phosphate inside the enclosure falling to half the level of that outside.



Graphs 6 & 7: Phosphate samples trenches 5 and 6

Samples taken from Trench 10 complement the results from the transect survey in highlighting the significant enhancement of phosphate levels in this part of the site.

Phosphate analysis: Context samples			
Trench	Context No.	Mg.P per 100g. soil	Comment
1	1	90	
1		30	Subsoil/natural
1		56	Feature fill
3		80	Ditch fill
4	207	60	
4	211	70	
5	204	88	
5	205	122	
5	212	88	
10	406	268	Garden bedding trench?
10	413	448	Garden bedding trench?

Table 3: Phosphate analysis, context samples

4 Discussion

The phosphate results confirm that major activity was concentrated in the eastern field and that this was moreover focussed on the eastern side of that field, with a rapid fall-off in activity west of the centre line of the geophysical survey grid. Background levels of phosphate across the whole site indicate more intense stock grazing in this area.

The high levels of phosphate revealed by both transects and context analysis from Trench 10 complements the resistivity results and makes certain the interpretation of this part of the site as a formal garden laid out with bedding trenches and pathways. The phosphate results can readily be explained from the excavation of Trench 10, which revealed large quantities of ash and chopped animal bone, which had been deliberately added to a presumed bedding trench, thereby enhancing the mineral and fertility content of the soil. Parallels for such activity can readily be found in 17th/18th century garden literature.

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Appendix 5: Post-Roman Pottery

by Carole Fletcher BA

1 Introduction and Background

The excavation at Abbey Fields, Thorney in 2006, produced a relatively small pottery assemblage of 213 sherds, weighing 2.453kg. From 28 contexts contained pottery. The material from the topsoil and any unstratified material are included in these totals.

Ceramic fabric abbreviations used in the following text are:

Bourne B or Bourne B type ware	BONB/BONBT
Bourne D or Bourn D type ware	BOND
Colchester type ware	COLT
Cream ware	CREA
Cistercian	CSTN
Grimston	GRIM
Lyveden–Stanion	LYST
Medieval Ely or Ely type wares	MEL/MELT
Medieval Non-Local	MEDX
Metropolitan Slipware	METS
Nottinghamshire Stonewares	
Post–medieval Black Glazed ware	PMBL
Post–medieval Red ware	PMR
Potterspury	POTT
Refined White Earthenware	RFWE
Refined White Earthenware (Annular)	RFWE (A)
Transfer Printed Refined White Earthenware	TRANS
Shelly ware	SHW
Staffordshire Brown Stoneware	STBRS
Staffordshire Brown Salt Glazed	SBSG
Staffordshire Mottled ware	STMO
Staffordshire Slipped ware	STSL
Staffordshire White Salt Glazed	SWSG
Tin Glazed Earthen ware	TGW
Toynton All Saints	TOYN
Transitional Red ware	TRAN
Westerwald stoneware	WES

2 Methodology

The basic guidance in *Management of Archaeological Projects* (English Heritage 1991) has been adhered to along with the MPRG documents (MPRG 1998 and 2001). *Guidance for the processing and publication of medieval pottery from excavations* (Blake and Davey, 1983) acts as a standard.

All the pottery has been fully quantified on a context by context basis into an Access 2000 database using CAM ARC in-house system based on that used at the Museum of London. Fabric classification has been carried out for all previously described types. All sherds have

been counted, classified and weighed. Sherds warranting illustration have been identified, as have possible cross-fits. CAM ARC curates the pottery and archive until formal deposition of the site archive.

3 The Assemblage

3.1 The Assemblage by Trench

The pottery assemblage can be divided into groups of types that together represent broad time brackets or phases. The pottery recovered from each trench is outlined below. The small size of the assemblage makes statistical analysis unviable on all but Trench 9. The number of unstratified sherds and the flat nature of the matrix make a generalised phase discussion difficult. In discussion with the excavator it has therefore been decided that the assemblage will be described on a trench by trench basis and will include mention of the unstratified material from each trench where present.

The unstratified material from the site not attributed to a trench (70 sherds weighing 0.797kg) produced as might be expected a wide range of ceramic material. This included some 17th and 18th century material (STSL, SWSG, RFWE and TRANS). There are also a number of post medieval fabrics present including PMR and BOND, which provide the single largest weight of sherds in the unstratified material. The only medieval sherds present in the non-trench unstratified material is LYST.

3.1.1 Trench 1

No pottery was recovered.

3.1.2 Trench 2: Post-medieval (16th-17th century)

A ditch excavated in Trench 2 produced a single sherd of PMR weighing 0.003kg

3.1.3 Trenches 3, 4 and 5

No pottery was recovered.

3.1.4 Trench 6: Medieval (Mid 12th to Mid 13th century)

A layer in this trench produced six sherds of SHW, weighing 0.053kg

3.1.5 Trench 7

No pottery was recovered.

3.1.6 Trench 8: Early Post- Medieval (Mid 15th to Mid 16th century)

The unstratified material from this trench (15 sherds weighing 0.087kg) included SWSG and STMO both introduced in the 18th century, PMBL a 17th fabric, from the 16th century CSTN and BOND a mid 15th to mid 16th century fabric. Sherds of BONBT, MEL, MEDX, LYST and SHW indicate a background level of medieval activity. In comparison the stratified material from a layer within the trench consisted of two sherds of BONDT weighing 0.012kg and dating to the mid 15th to mid 16th century.

3.1.7 Trench 9: Early Post-Medieval (Mid 15th to Mid 16th century and Medieval 13th to Mid 14th century)

The unstratified pottery from Trench 9 (33 sherds weighing 0.374kg) has a similar make up to that of Trench 8 but also includes METS in the 17th century assemblage. In addition STSL, TGW, and WEST are also present, these span the 17th and 18th centuries. The extra medieval fabrics include GRIM and POTT.

The stratified assemblage is the largest by sherd count of any of the trenches with 74 sherds, weighing 0.950kg from ten contexts. This trench contains both medieval and post-medieval material, and though the entirely medieval contexts number only half of the total number of contexts, the number of residual medieval sherds present in the early post-medieval contexts indicates considerable medieval activity.

3.1.8 Trench 10: Medieval (13th to Mid 14th Century)

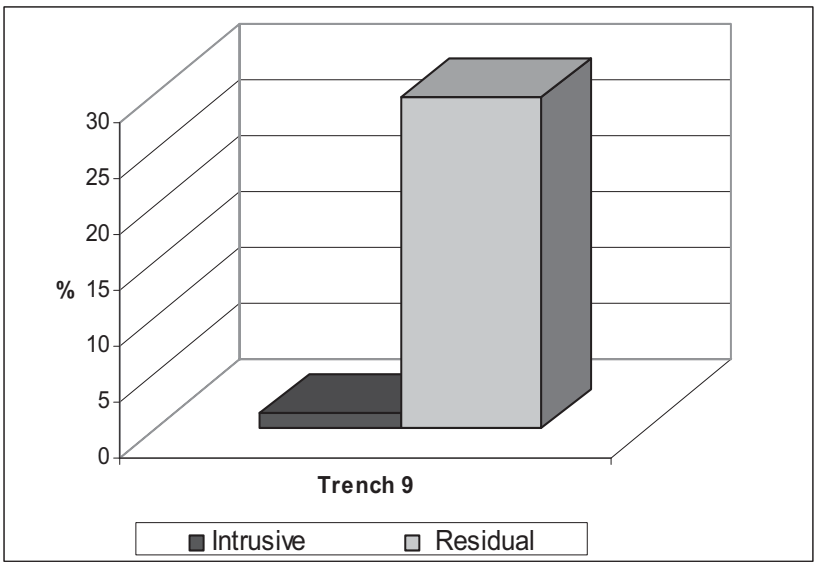
This trench provided 12 sherds; 0.178kg of pottery from 2 contexts, the material recovered from these two layers was medieval BONBT, MEDX and SHW.

3.2 Analysis of Trench 9

Though the Trench 9 assemblage is small, further examination is required due to its presence on this important medieval site. Therefore a limited amount of statistical analysis has been undertaken.

	Weight of Sherds (kg)	Intrusive (kg)	% Intrusive	Residual (kg)	% Residual
Trench 9	0.950	0.001	1.35	0.282	29.68

Table 4: Pottery residuality and intrusiveness (by weight)



Graph 8: Intrusiveness and residuality of pottery by stratigraphic phase (by weight)

The residual material in this phase is almost entirely medieval fabrics, the exception being a single sherd of Roman pottery, which lies outside the scope of this report. The intrusive material is a single sherd of SWSG in context 412 a clay floor layer.

3.2.1. Fabrics and Forms

a) Provenance

The basic statistics relating to the source area for the assemblage are illustrated below.

Region	Trench 9 (%)
Buckinghamshire	3
Cambridgeshire	2.6
Essex	2.3
Lincolnshire	59.3
Staffordshire	0.1
Norfolk	3
Northamptonshire	10.8
Non Local/Unknown	18.8
Roman	0.1

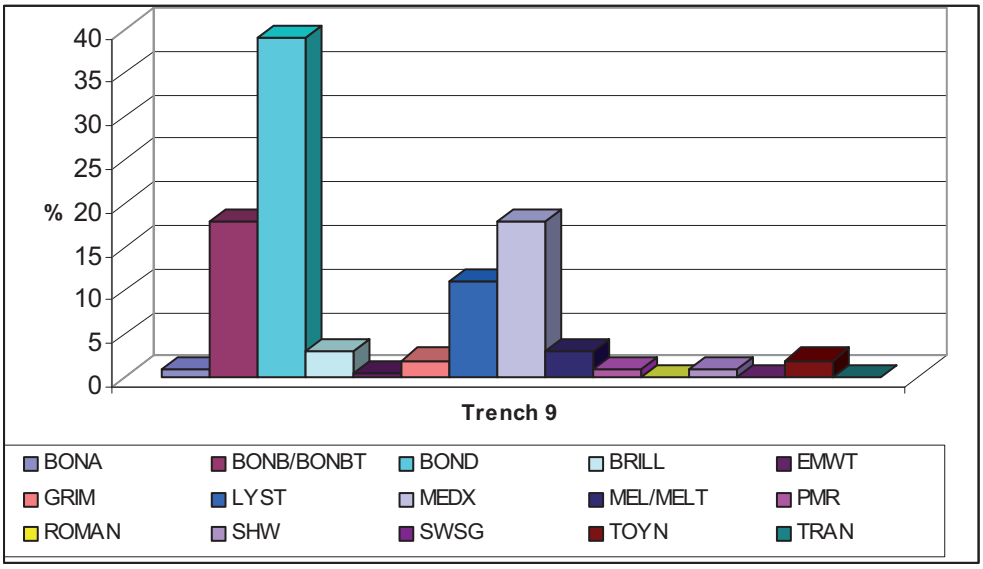
Table 5: General provenance showing percentage of assemblage by weight

The broad provenance of the assemblage is illustrated above; however it can be seen that Lincolnshire fabrics make up more than 59% of the assemblage. This includes the medieval Bourne fabric and the post-medieval BOND fabrics. The minor elements of the assemblage are the intrusive SWSG from Staffordshire, the sherd of BRILL from

Buckinghamshire and the small number of sherds from Cambridgeshire and Essex.

b) Fabric Types

Graph 9 shows the quantification data produced by grouping by pottery types.



Graph 9: Percentages of pottery types by phase (by weight)

Graph 9 indicates that there is a board range of fabric types present, the most common is BOND (39%) followed by BONB/BONBT and the non-local medieval sherds. The dominance of Lincolnshire fabrics from Bourne is not unexpected as this pottery production centre is approximately 30km to the north west of Thorney. Pottery from the wider area may have reached the site via the medieval port at Wisbech some 20km to the east of Thorney.

Medieval fabrics are very much in evidence and represent a small part of the assemblage one might expect to find on the site of an important Abbey, one of the five great Fenland religious centres, the others being Crowland, Ely, Peterborough, and Ramsey. It is however the post-medieval fabrics that date the assemblage and these relate more to the latter part of the Abbey's life, its dissolution and ultimately its reuse as a parish church.

BOND production spans the 16th century and continues into the 17th, with the kilns ceasing production some time in the 1630s. The pottery is therefore contemporaneous with the last decades of the Abbey and its surrendered to Henry VIII in 1539. When the Abbey was rapidly stripped of many building materials, some of which went to Cambridge to build college chapels, and the Abbey's church was reduced to a ruin (http://www.thorney.org). The pots made in Bourne would also still have been in use in 1638 when the western part of the Abbey church's

Norman nave was patched up to serve as a parish chapel. (http://www.british-history.ac.uk)

c) *Vessel Types*

Table 3 shows the percentages by weight of that part of the trench assemblage that can be attributed to broad vessel functional types. This data excludes those sherds for which no form or function identification could be made.

Basic Form	Trench 9 (%)
Jar	7.7
Jug	90.4
Lighting and Heating	1.9

Table 6: Percentage of vessel functional types in assemblage (by weight in kg)

It is clear from Table 6 that the dominant vessel type is the jug, with the majority being BOND. There are some also BONB/BONBT, BRILL, LYST, MEL and GRIM jug sherds. The jars in the assemblage are only a minor element four sherds in total; of these only three show any evidence of sooting. These jars sherds are all medieval fabrics, three of which are residual in post medieval contexts 412 and 442, the forth is a sherd of BONBT in context 447 which contained only medieval pottery. Finally a single residual sherd of MELT in context 442 has tentatively been identified as a fragment of a curfew. A second curfew sherd was identified in the unstratified material from Trench 9 in context 401, unfortunately there was no cross fit between the sherds although it seems likely that they are from the same vessel.

4 Conclusions

The pottery supplied to Thorney, either as pots or containers for other goods can be seen to come mainly from the surrounding counties, LYST from Northamptonshire, from Norfolk GRIM and BONB/BONBT from Lincolnshire. All medieval fabrics widely found in the northern part of the county. The post-medieval fabrics maintain local supply from Lincolnshire and from the more distant supply centres in Essex and by the 17th century from the early pottery industry in Staffordshire with STSL and later in the 18th century, STMO and SWSG. Across the site BOND from Lincolnshire remains the most common fabric, a post-medieval utilitarian ware. Bourne is a major supplier of post-medieval wares to the northern part of Cambridgeshire in this period.

The assemblage is not domestic in character and the concentration of jug sherds suggests that the storage, supply and serving of quantities of liquids was the main purpose of the buildings associated with the area of the Abbey under excavation.

Pottery Assemblage

Context	Trench	Fabric	Count	Weight	Date Range
100	Unstratified	STMO STSL SWSG TRANS	1 1 1 1	0.006 0.007 0.007 0.005	Late 18th Century
105	Unstratified	LYST PMBL SBSG STMO TRANS	1 1 1 1 1	0.052 0.008 0.002 0.001 0.004	Late 18th Century
106	Unstratified	CREA METS NOTS PMBL PMR RFWE ROMAN SBSG STSL SWSG	5 1 3 2 6 3 1 2 8 8	0.023 0.015 0.010 0.020 0.096 0.006 0.001 0.004 0.071 0.028	Late 18th Century
110	Trench 2	PMR	1	0.003	16th-Late 17th Century
200	Unstratified	RFWE	1	0.003	Late 18th Century-Late 19 Century
219	Unstratified	RFWE STSL	1 1	0.009 0.009	Late 18th Century-Late 19 Century
263	Trench 6	SHW	6	0.052	Mid 12th-Mid 14th Century
266	Unstratified	RFWE	3	0.025	Late 18th Century-Late 19 Century
400	Unstratified	BOND CSTN ENGS LYST RFWE SWSG	9 1 1 2 1 2	0.304 0.003 0.030 0.037 0.008 0.003	Early 18th Century
401	Trench 9 Unstratified	BONBT BOND COLT GRIM LYST MELT POTT RFWE (annular) WEST	1 2 1 1 1 1 1 1 1	0.005 0.013 0.003 0.024 0.007 0.018 0.023 0.002 0.006	Late 18th Century – Early 19th Century
402	Trench 9 Unstratified	BOND GRIM METS SHW STSL TGW	5 1 10 1 1 1	0.097 0.011 0.104 0.022 0.022 0.001	17th Century
403	Trench 9 Unstratified	PMBL	1	0.004	17th Century

404	Trench 9 Unstratified	BONBT	1	0.005	Mid 13th-mid 15th Century
408	Trench 9 Unstratified	BONBT STMO	1 1	0.005 0.002	18th Century
409	Trench 9	BONBT LYST MEDX	2 1 2	0.012 0.009 0.041	Mid 12th-Mid 14th Century
411	Trench 9	BONBT BOND MEDX TRAN	1 1 1 1	0.01 0.022 0.041 0.010	Mid 15th to Late16th Century
412	Trench 9	BONBT BOND GRIM MEL MELT SWSG	1 4 1 1 1 1	0.024 0.027 0.016 0.004 0.002 0.001	Mid 15th century
416	Trench 9	BONA BONBT BOND MEDX	2 3 5 1	0.009 0.014 0.045 0.004	16th-Mid 17th Century
418	Trench 8 Unstratified	BONBT LYST MEL STBRS	1 1 1 5	0.010 0.027 0.008 0.002	Late 17th-Early 18th Century
420	Trench 9	MEDX	4	0.051	13th-late 14thCentury
425	Trench 9	PMR	1	0.012	16th to 18th century
442	Trench 9	BONBT BOND BRILL EMWT GRIM LYST MEDX MELT	10 4 4 1 2 2 2 1	0.061 0.277 0.028 0.005 0.007 0.014 0.034 0.012	Mid 15th Century
447	Trench 9	BONB BONBT LYST MEL	1 1 2 1	0.025 0.020 0.019 0.007	Mid 13th-Mid 14th Century
453	Trench 8	BONDT	2	0.012	Mid 15th-Mid 16th Century
461	Trench 9	LYST TOYN	1 2	0.015 0.017	Mid 13th to late 15th Century
463	Trench 10	MEDX SHW	1 3	0.089 0.021	Mid 12th-Mid 14th Century
464	Trench 10	BONB SHW	4 4	0.011 0.057	Mid 12th-Mid 14th Century
465	Trench 9	LYST ROMAN SHW	2 1 3	0.046 0.001 0.008	Mid 12th-Mid 14th Century

476	Trench 8 Unstratified	BOND CSTN MEDX PMBL SHW STMO SWSG	1 1 1 1 1 1 1	0.010 0.007 0.008 0.006 0.004 0.002 0.003	Early 18th Century

Table 7: Pottery assemblage

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Appendix 6: Ceramic and Stone building materials

Context	Trench	Feature	Material	Object Name	Weight in kg	Comments
409	9	layer	CBM	Roof tile	0.07	15mm thick
411	9	layer	CBM	Brick and tile	0.30	Tile 25mm
412	9	layer	CBM	Roof tile	0.36	15mm & 20mm
412	9	layer	CBM	Brick	0.18	1 frag
416	9	layer	CBM	Floor tile	0.10	17mm, orange glaze
420	9	layer	CBM	Roof tile	0.04	15mm
425	9	layer	CBM	Roof tile	0.09	20mm
434	9	layer	CBM	Roof tile	0.01	
442	9	layer	CBM	Roof tile	0.09	yellow & orange, 12-17mm
442	9	layer	CBM	Brick and tile	0.49	degraded local brick
442	9	layer	CBM	Floor tile	0.15	17mm, orange glaze
445	8	layer	CBM	Roof tile	0.08	
447	9	layer	CBM	Roof tile	0.45	yellow & orange, 16-17mm
448	9	fill	CBM	Roof tile	0.06	
453	8	layer	CBM	Roof tile	0.07	orange, 12mm
461	9	layer	CBM	Brick	0.89	handmade, 65mm thick
461	9	layer	CBM	Brick and tile	0.48	brick handmade, 60mm thick
461	9	layer	CBM	Roof tile	0.23	orange, 17mm
463	10	layer	CBM	Floor tile	0.19	SF2, raised decoration
463	10	layer	CBM	Roof tile	0.25	orange, 17mm
464	10	layer	CBM	Roof tile	0.13	
465	9	layer	CBM	Roof tile	0.11	orange, 13 & 16mm
467	10	layer	CBM	Roof tile	0.29	Nibbed roof tile
467	10	layer	CBM	Roof tile	0.03	
471	9	layer	CBM	Roof tile	0.14	Reduced inside, 13-17mm
473	8	layer	CBM	Brick	0.03	fragment

Table 8: Stratified ceramic building material

The stratified ceramic building material (CBM) assemblage was all recovered from Trenches 8, 9 and 10. The assemblage chiefly comprised of locally made pegged roof tile with occasional floor tile and handmade brick. The assemblage is discussed below in trench order – all roof tile is pegged unless otherwise mentioned.

Trench 8

Four fragments of roof tile with an orange fabric were recovered from layer 453, dating to 1450 – 1550. A fragment of handmade brick was recovered from an undateable context, 473.

Trench 9

The assemblage from Trench 9 is divided into three phases: the construction and early phase of use of the aisled building, the late phase of its use, and after its destruction.

Early Building

Six contexts (420, 434, 447, 461, 465 and 471) associated with the original use of the building produced roof tiles with orange and yellow fabrics and all fell within the 15 to 17mm thickness range. There were also two fragments of handmade brick with depths of 60 and 65mm.

Late Building

Similar material was recovered from contexts dating to the later use of the building in the 15th century (412 and 442), but the range of tile thickness was slightly greater, from 12 to 20mm. There were also two fragments of degraded handmade brick and a single piece of orange glazed floor tile was recovered from context 422.

Post-destruction Building

CBM was recovered from four contexts dating to the post-destruction phase of the building. The roof tiles ranged in thickness from 15 to 25mm. Context 416 produced a second fragment of orange glazed floor tile, 17mm thick.

Trench 10

Two contexts produced small assemblages of CBM (467 and 463/464). Both held small numbers of standard roof tile fragments.

Context 467 also contained a large fragment of a nib tile. The tile would originally have had two nibs that allowed it to be hung over the lathes on a roof. These tiles were usually large compared to peg tiles, and are characteristically early, dating to *c*. 1130-1230 (Paul Drury pers. comm.).

Context 463 contained a fragment of a large, unglazed decorated medieval floor or stove-back tile, c. 28mm thick (SF2). The greatest surviving measurement is 90mm. As well as no trace of glaze on the front of the tile, there are no traces of lime mortar on the back or sides. The fabric has an oxidised pale orange outer with a central pale grey core. There are a few small to medium rounded flint inclusions. The decoration, in relief, appears to show a pair of (human) legs towards the edge of the tile, and a more central ‘flower’ motif. Both are only

partially visible and both could in fact represent something else. The tile appears similar to those manufactured in the Ramsey Abbey kilns, and would date to the 13th or 14th century.

Appendix 7: Other finds

7.1 Flint

Struck flint was recovered from Trenches 2 and 9. In Trench 2, one struck flint was recovered from post-medieval ditch **109** (pottery dates 1500 – 1700AD) and another from tree throw **113**. The flint from the ditch was un-retouched debitage with broadly Bronze Age characteristics; the flint from 113 was a small piece of debitage, and undateable.

In Trench 9, two Bronze Age flints were recovered from layer 442, a context dating to 1450 – 1500 AD.

7.2 Metalwork

Context	Trench	Feature	No.	Material	Object Name	Comments
406	10	layer	2	Fe	nails	SF29
407	10	layer	1	Pb	object	SF16
407	10	layer	2	Fe	nails	SF17
409	9	layer	3	Fe	nails	SF26
411	9	layer	3	Fe	2 nails, 1 object	SF25
412	9	layer	16	Fe	nails + frags	SF10
413 = 463	10	layer	1	Fe	object	
413 = 463	10	layer	15	Fe	nails	SF30
416	9	layer	5	Fe	nails	SF4
420	9	layer	1	Fe	nail	SF21
420	9	layer	1	Fe	nail	SF7
442	9	layer	3	Fe	nails	SF8
461	9	layer	1	Fe	nail	SF5
461	9	layer	1	Fe	nail	SF28
461	9	layer	1	Pb	button - v damaged	SF27
463	10	layer	5	Fe	3 nails, 2 objects	SF18
465	9	layer	2	Fe	nails	SF22
471	9	layer	1	Fe	nail	

Table 9: Stratified metalwork finds

The metalwork assemblage consists almost solely of medieval and post-medieval iron nails. There are also five small, unrecognisable other fragments and two pieces of lead; a heavily damaged button (SF27) and an unworked piece (SF16).

The majority of the iron nails were recovered from two contexts; a soil layer in Trench 10 (413/463) dating from the 12th to 14th century, and a floor-raising clay dump within the aisled building in Trench 9 (412) dated to the mid 15th century. Between them these contexts produced 60% of the contextable iron nails recovered from the site (34 of 58).

7.3 Glass

Context	Trench	Feature	Object Name	Weight in kg	Comments
403	9	unstrat	Window glass	0.002	SF 13. Post-medieval 'horticultural' window glass
403	9	unstrat	Vessel	0.005	SF 14. 2 fragments of 18th-19th C green vessel glass
404	9	unstrat	Window glass	0.003	SF 12.Fragment of medieval window glass
408	9	unstrat	Vessel	0.003	SF 11. Fragment of 16th-17th C bottle glass

Table 10: Glass assemblage

All the glass recovered from the site came from unstratified contexts – from surface cleaning after initial machining in Trench 9.

There are three fragments of bottle glass, one possibly contemporary with the later phases of the building, and two fragments of window glass. The medieval window glass fragment was recovered from cleaning over the southern wall of the building (404). It is of cylinder manufacture, approximately 2mm thick and is from the edge of a sheet, where it thickens to nearly 4mm. It dates to no earlier than the 14th century.

7.4 Stone

Context	Trench	Feature	Material	Object Name	Weight in kg	Comments
411	9	layer	Stone	Tile	0.04	
416	9	layer	Stone	Tile	0.23	Tile with mortar
420	9	layer	Stone	Tile	0.21	Tile with mortar
442	9	layer	Stone	Tile	0.01	Burnt tile
447	9	layer	Stone	Tile	0.27	
453	8	layer	Stone	Tile	0.22	
461	9	layer	Stone	Tile	4.35	some mortared
461	9	layer	Stone	Tile	3.58	some mortared
464	10	layer	Stone	Tile	0.01	Mortared

Table 11: Stratified worked stone

Stone roofing tile was recovered from six contexts in Trench 9 and in one context in both Trenches 8 and 10. The most significant quantity of tile was found in layer 461, which lay immediately outside the western wall of the aisled building in Trench 9. This context produced nearly 8kg of tile - 90% of the stratified assemblage. The context is dated to between 1250 and 1400AD, therefore falling within the use of the building. The relatively large quantity of tile probably represents the slippage of tiles from the roof during the building's life.

Peg holes were recorded on five out of 24 pieces of tile in layer 461. The peg holes ranged from 7mm to 12mm in diameter, with the thickness of tile ranging from 8mm to 20mm. Most of the tiles were fractured and therefore an average tile size was not possible to ascertain. The smallest measurable tile was 107mm wide and the largest 200mm wide.

7.5 Lava Quern

A small and very degraded fragment (16g) of lava quern was recovered from context 401, an unstratified cleaning layer in Trench 9.

7.6 Mortar

Lime mortar was recovered from two contexts in Trench 9. Layer 426 was excavated from the fill around wall **438** and layer 442 was located next to wall **443**. Layer 426 produced 0.16kg of soft creamy white mortar with very few inclusions, whilst layer 442 produced 0.2kg of mortar that was hard, off white with frequent small to medium flint inclusions.

7.7 Shale

A single fragment (0.02kg) of burnt oil shale was found in ditch **109** in Trench 2. This material was a fuel used in the medieval and post-medieval periods.

7.8 Slag

Layer 461 in Trench 9 contained a single smithing hearth bottom measuring 70mm across and 40mm thick. It is degraded and, while indicative of iron smithing, does not suggest that this was taking place nearby.

7.9 Tobacco pipe

Context	Trench	Feature	Material	Object Name	Weight in kg	Comments
100	1	topsoil	Ceramic	Tobacco pipe	0.007	stem
100	1	topsoil	Ceramic	Tobacco pipe	0.080	stem
106	2	unstrat	Ceramic	Tobacco pipe	0.006	stem
106	2	unstrat	Ceramic	Tobacco pipe	0.001	stem
400	9	topsoil	Ceramic	Tobacco pipe	0.005	stem
401	9	unstrat	Ceramic	Tobacco pipe	0.001	stem
402	9	unstrat	Ceramic	Tobacco pipe	0.001	stem
403	9	unstrat	Ceramic	Tobacco pipe	0.008	stem
412	9	layer	Ceramic	Tobacco pipe	0.002	stem
463	10	layer	Ceramic	Tobacco pipe	0.002	stem
476	8	unstrat	Ceramic	Tobacco pipe	0.010	stem

Table 12: Clay tobacco pipe assemblage

The entire clay pipe assemblage consists of pipe stems and is therefore undateable. However a broad date range of 18th to 19th century is likely. Only two small fragments of pipe stem were recovered from stratified layers 412 in Trench 9 and 463 in Trench 10 – and both are likely to be intrusive.

7.10 Fired Clay

A single piece of fired clay weighing 0.07kg was recovered from ditch **109** in Trench 2. The fabric was orange in colour with a hard, dense consistency. The ditch was dated to 1500 – 1700AD.

Appendix 8: Animal bone and shellfish

by Chris Faine

1 Introduction

A total of 101 “countable” bones were recovered from the Abbey Fields site with 125 fragments being unidentifiable to species (55.5 % of the total sample). Identifiable fragments were obtained from 16 contexts, the vast majority of which were layers belonging to the post-demolition phase around the aisled building in Trench 9. The number of stratified earlier bones is too small to make division into study by phase relevant and thus the assemblage is here described as a whole. The condition of the assemblage is extremely good, with the majority of fragmentation being attributed to butchery rather than any taphonomic processes.

2 Methodology

All data was initially recorded using a specially written MS Access database. All elements identifiable to species and over 25% complete were included in the database. Loose teeth, caudal vertebra and ribs without proximal epiphyses were noted but not included in any quantification. Elements not identifiable to species were classed as “large/medium/small mammal” but again not included in any quantification. Initially all elements were assessed in terms of siding (where appropriate), completeness, tooth wear stages (also where applicable) and epiphyseal fusion tooth wear was assessed using Grant (1982). Completeness was assessed in terms of percentage and zones present (after Dobney & Reilly 1988). Initially the whole identifiable assemblage was quantified in terms of number of individual fragments (NISP) and minimum numbers of individuals MNI (see Table 13).

Any instances of butchery were noted and recorded using a separate table from the main database. The type of lesion, its position, severity and direction were all noted. The presence of any further taphonomy, i.e. burning, gnawing etc was also noted. A separate table for any pathology, giving the position and type of lesion was also used.

3 The Assemblage

Table 13 shows the broad distribution of species from the assemblage in terms of number of fragments (NISP) and minimum number of individuals (MNI). The fragmentary nature of much of the assemblage is demonstrated by the fact that although cattle fragments are most prevalent, in terms of actual numbers of individuals pigs are the most

prevalent of the domestic mammals (making up 29.5% of the total assemblage). Cattle are in fact the 2nd most prevalent species, making up 27.6% of the total assemblage. A variety of other domestic and wild species are also represented, albeit in much smaller numbers.

As mentioned above identifiable fragments were obtained from 16 contexts, with the majority of those being recovered from seven. Context **411** (surface of trial pit 410, Tr.9) contained a number of butchered cattle long bones from adult animals, along with two-butchered humerii from an individual around 2-3 years of age. A number of butchered adult pig remains were also recovered, including long bones and portions of the axial skeleton. Context **412** (re-flooring of aisled building, Trench 9) contained a number of butchered cattle remains along with dog and roe deer maxillae. Butchered cattle, pig and roe deer remains were recovered from context **413** (layer Trench 10) along with a single domestic fowl carpometacarpal. Context **464** (equivalent to 413) contained two mandibles from a pig aged around 2½ years and a sheep/goat aged around 6-12 months.

Context **416** (upper layer, Trial pit 417, Trench 9) contains the largest number of identifiable fragments, largely consisting of pig vertebrae and phalanges, along with scattered sheep/goat, cattle and horse remains. In addition, a single intact cod vertebra was also recovered from this context. Context **420** (upper layer, Trial pit 421, Trench 9) again primarily consisted of post-cranial pig remains along with heavily gnawed cattle and sheep/goat long bones. Context **442** (equivalent to 416) contained a number of butchered cattle and pig tibiae, along with portions of butchered cattle and sheep/goat long bones and a pig mandible from an individual around 2-3 years of age. In addition a butchered roe deer maxilla and domestic fowl sacrum were also recovered from this context. Context **461** (lower layer, Trial Pit 417, Tr.9) primarily contained butchered cattle long bones and vertebrae. A cattle femur from this context showed extensive bone growth midshaft (osteitis) indicative of trauma. A portion of sheep/goat skull, tibia and a single red deer metatarsal were also recovered from this context.

The remaining contexts (**212**, **406**, **407**, **409**, **434**, **447**, **463**, **464** and **477**) largely contained single fragments of butchered domestic mammal remains.

4 Conclusion

Despite the relatively small and scattered nature of the assemblage several things are clear. Firstly the assemblage appears to represent general domestic/settlement waste rather than evidence of any industry. Secondly the presence of deer and fish remains demonstrates exploitation and importation of wild resources (the cod most likely being imported in its salted form).

	NISP	NISP%	MNI	MNI%
Domestic mammals				
Cattle (*Bos*)	43	43	14	27.6
Pig (*Sus scrofa*)	29	28.8	15	29.5
Sheep/Goat (*Ovis/Capra)*	18	18.8	11	21.6
Sheep (*Ovis aries*)	1	0.9	1	1.9
Horse (*Equus caballus*)	1	0.9	1	1.9
Dog (*Canis familiaris)*	1	0.9	1	1.9
Wild mammals				
Roe deer (*Capreolus capreolus*)	3	2	3	5.9
Red deer (*Cervus elaphus*)	1	0.9	1	1.9
Birds				
Domestic fowl (*Gallus gallus*)	2	1.9	2	3.9
Fish				
Cod (*Gadus morhua*)	2	1.9	2	3.9
TOTAL:	101	100	51	100

Table 13: Species distribution for the whole assemblage

5 Shell

The stratified shell assemblage weighed 0.621kg and was recovered from eight contexts in Trench 9 and four contexts in Trench 10. Another 0.2kg was collected from the topsoil and cleaning layers. The assemblage consisted almost entirely of oyster shell with small quantities of mussel, cockle, whelk and periwinkle shells.

In Trench 9, oyster and mussel shell were recovered from all the building phases (early, late and post-demolition), with whelk also in the early phase, cockle and periwinkle in the late phase and cockle in the post-demolition.

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Appendix 9: Environmental remains

by Rachel Fosberry

1 Introduction and Methods

Samples were taken from across the excavated area and fourteen were submitted for an initial appraisal. Ten litres of each sample were processed by tank flotation for the recovery of charred plant remains, dating evidence and any other artefactual evidence that might be present. The flot was collected in a 0.5mm nylon mesh and the residue was washed through a 1mm sieve. Both flot and residue were allowed to air dry. The dried residue was passed through 5mm and 2mm sieves and a magnet was dragged through each resulting fraction prior to sorting for artefacts. Any artefacts present were noted and reintegrated with the hand-excavated finds. The flot was examined under a binocular microscope at x16 magnification and the presence of any plant remains or other artefacts are noted on Table 14.

2 Results

The results are recorded on Table 14.

Sample	Context	Trench	Type	Flot contents	Residue contents
1	104	103		-	-
2				Sparse charcoal	-
3				Wetland snails, Elderberry seeds	-
4				Wetland snails, Elderberry seeds	-
5	461	417	layer	Occasional barley grains, charcoal	Mussel, fish bone, animal bone, fe nail, lead fragment, button
6	412		Floor surface layer	Uncharred roots and twiggy bits	-
7	406			Charcoal and cokey fragments	Animal bone
8	413			Charcoal, wheat, burnt snails, few weed seeds	Fe nail, Animal bone
9	473			Charcoal, barley (some sprouted), weed seeds	Animal bone, CBM
10	440d			Sparse charcoal	-
11	440a			Sparse charcoal	-
12	440b			Sparse charcoal	-

13	440c			Sparse charcoal	-
14	424		trial pit	Snails	-

Table 14: Environmental Samples

Preservation is by charring and is generally poor to moderate. Charcoal fragments are present in most of the samples in varying quantities.

3 Conclusions and recommendations

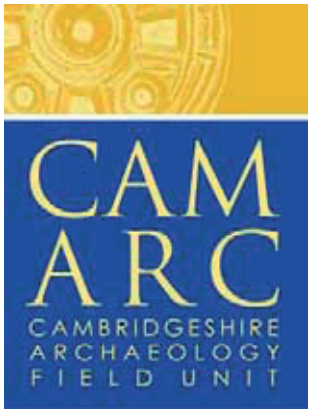
In general the samples were poor in terms of identifiable material. The flots of the majority of the samples were largely composed of modern roots with very low densities of charcoal fragments. Only four samples produced significant results, two from Trench 10 (406 & 413) and one each from Trenches 8 and 9 (473 & 461 respectively).

Sample 5 (context 461, Trench 9) contains a few barley grains along with general dietary refuse in the form of fish and animal bones and the remains of shellfish. This context is contemporary with the early use of the aisled building.

Sample 7 (context 406, Trench 10) contains a few fragments of animal bone and the flot is comprised of charcoal fragments and small cokey fragments. No plant remains were observed.

Sample 8 (context 413, Trench 10) contains occasional wheat grains along with a few weed seeds. It has a substantial volume of charcoal that includes several small charred twigs.

Sample 9 (context 473, Trench 8) is of interest as it was taken from a structure that is thought to have been a brewery. It contains several grains of barley, some of which appear to have sprouted. This context is a burnt layer that lies between the aisled building and the possible malting oven.



CAM ARC,
Cambridgeshire County Council,
15 Trafalgar Way,
Bar Hill,
Cambridgeshire,
CB3 8SQ

General Enquiries: 01954-204191
Fax: 01954-273376

http://www.cambridgeshire.gov.uk/archaeology