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Tilty Abbey, Essex:
detailed survey of a
Cistercian abbey and
investigation of its wider
landscape setting



**Earthwork, topographical
and geophysical survey**



July 2011

**Client: English Heritage on behalf of
Mr and Mrs Pedley**

OA East Report No: 1203
NGR: TL 6017 2667

**Tilty Abbey, Essex: detailed survey of a Cistercian abbey and investigation of
its wider landscape setting**

Earthwork, topographical and geophysical survey

By Rachel Clarke BA AlFA

With contributions by Peter Masters BA

Editor: Liz Popescu BA PhD MIFA

Illustrator: Gillian Greer Bsc MAAIS and Louise Bush BA MA PIFA

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Position: Project Officer
Date: July 2011
Checked by: Paul Spoerry
Position: Regional Manager OA East
Date:
Signed:

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Oxford Archaeology East,
15 Trafalgar Way,
Bar Hill,
Cambridge,
CB23 8SQ

t: 01223 850500
f: 01223 850599
e: oaeast@thehumanjourney.net
w: <http://thehumanjourney.net/oaeast>

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Summary

'a most beautiful and opulent abbey'

English Heritage, on behalf of the landowners Martin and Jane Pedley, commissioned Oxford Archaeology East to undertake an analytical earthwork survey (Level 3) and wider area investigation (Level 1) of the remains of the Cistercian Abbey at Tilty in Essex. A geophysical survey, comprising gradiometer and earth resistance, was also commissioned as part of the Section 17 Management Agreement with the landowners. The fieldwork was undertaken intermittently between June 2010 and March 2011.

This project was developed with a number of specific research aims in mind with the principal outcome being to provide sufficient information to guide and support the long term management of the scheduled monument and to develop a deeper understanding of the site and its context. This has been achieved through the collation and assessment of available documentary, cartographic and aerial photographic data, underpinned by the results of previous investigations and research relating to the abbey and its surroundings. Combined and integrated with the results of the measured earthwork (Level 3), geophysical and wider area (Level 1) surveys, this work has enabled a more accurate and clearer plan of the abbey to be established. This has not focused on the claustral nucleus but has explored the evidence for routeways, water management, industrial elements (mills, brick kilns etc.), land-use (watermeadows, woodland, pasture, orchards, fishponds etc), boundaries and buildings within and beyond the monastic precinct.

Notable results include the production of a detailed and complex earthwork plan of the 5ha scheduled area, with features spanning the pre-monastic to post-Dissolution and modern periods. In addition, it has been possible to identify elements that relate to the wider pre-monastic landscape, notably Tilty Grange. Map and topographical evidence indicates that this is likely to be the site of a Late Saxon estate/manorial centre, and is an area that would significantly benefit from further investigation. An early routeway, represented by a hollow way, has been recorded, whilst a previously-unknown industrial building has been located by the gradiometer survey. The earthwork survey has greatly enhanced the picture of the post-Dissolution use of the site, with extensive gardens associated with the later manor house being identified, an aspect of the site that was previously poorly-understood. Many of these elements (e.g. sites of the monastic windmill, watermill, kilns, the manor house, garden features etc.) would merit further investigation to aid their understanding and interpretation.

One of the main aims was to encourage community participation and raise awareness of the monument within the local area and this proved to be a particularly successful aspect of the project. Local volunteers took part in both the Level 1 and Level 3 surveys, whilst a guided walk and illustrated talk organised by OA East and the Council for British Archaeology (CBA) was well-attended. This in turn has generated further interest in the abbey and the current project.

A substantial archive of research material has been collated as part of the project which, together with the earthwork and geophysical results, will provide a rich resource for the production of display boards. In turn this will greatly enhance the understanding and appreciation of Tilty Abbey and its surroundings.

1 INTRODUCTION

1.1 Circumstances and Background of the Project

- 1.1.1 English Heritage, on behalf of the landowners Mr and Mrs Pedley, has commissioned Oxford Archaeology East to undertake an analytical earthwork survey and wider area investigation of the remains of the Cistercian abbey at Tilty in Essex (TL 60172667).
- 1.1.2 Tilty is a small parish located between Thaxted and Dunmow, within the rolling countryside of north-west Essex. The abbey occupies a site that is still relatively isolated and secluded, despite the nearby presence of Stansted airport.
- 1.1.3 The survey was undertaken in accordance with an English Heritage document entitled *Guidance and Specifications for Contractors Tendering for Archaeological Survey and Investigation Projects* in addition to published guidance notes: *Understanding the Archaeology of Landscapes: a guide to good recording practice* (English Heritage 2007). A MORPHE-compliant Project Design (Connor 2010) was prepared by OA East prior to the commencement of the fieldwork.
- 1.1.4 The Level 1 and Level 3 surveys were designed to aid long term management of the scheduled monument and to develop a deeper understanding of the site and its context. A geophysical survey, comprising gradiometer and earth resistance, was also commissioned by English Heritage as part of the Section 17 Management Agreement with the landowners. Although a separate report was produced, the main results of this are incorporated and discussed within the current document; a copy of the report is also included as Appendix 1.
- 1.1.5 It is anticipated that the results of the different surveys, collated with available documentary and cartographic evidence, will be used to inform interpretative materials at the site. An additional aim of the project was to further raise the profile of the monument and build on interest within the community through local participation in the wider area survey and by means of an illustrated talk and guided walk around the Abbey Meadow.
- 1.1.6 Relatively little of the abbey, founded in 1153, remains above foundation level as many of its buildings were demolished in the post-Dissolution period. A section of flint and mortar wall, thought to be the east wall of the cellarage/west wall of the cloister survives in fairly poor condition, whilst the present parish church was once the *Capella Extra Portas*, or gate-chapel for the abbey. A complex of well-preserved earthworks of medieval and later date extend over c.5ha within the Abbey Meadow, which along with the extant wall are designated as a scheduled monument (EX88). Associated features within the immediate landscape (and under separate ownership) include the site of the monastic fishponds and windmill in addition to areas of wood and meadowland; Tilty Grange is located c.400m to the south-west of the main claustral range. The Abbey Meadow is in private ownership but is traversed by a public footpath that leads down to Tilty Mill, a Grade II* 18th-century watermill believed to be located close to the site of its monastic predecessor.
- 1.1.7 Previous documented investigations were undertaken at the abbey in 1901 and in 1942 (Galpin 1928; Steer 1950), which targeted the church, claustral buildings and infirmary. More recent studies, largely carried out during the 1990s, include detailed recording of the standing wall (Andrews and Gilman 1992) and further interpretation of the precinct plan based on aerial photography and cartographic evidence (Hall and Strachan 2001).

Despite the paucity of original monastic records relating to the abbey (most having been destroyed during a disastrous fire at Easton Lodge in 1918) there are a number of published and unpublished works charting the history of the abbey that have proved to be particularly useful. These include Morant (1768), the Victoria County History (VCH: Page and Round (eds) 1907), Steer (1950), Dickinson (1963), Willoughby (1994) and an unpublished Dissertation (Melling 2007).

- 1.1.8 The earthwork survey within the 5ha Abbey Meadow and the wider area investigation of the immediate surrounding landscape were carried out to Level 3 and Level 1 standards respectively (as defined by English Heritage 2007) and were undertaken between June 2010 and March 2011. This resulted in a measured plan of the earthworks at a scale of 1:1000 within the scheduled area, underpinned by a topographical plot of the site created from data obtained using GPS technology and further supplemented by notes and photographs for the wider area survey. An additional element of the project was created as a result of parchmarks appearing during the late summer; these were plotted using a Leica TCR 705 and have been integrated with the results of the earthwork and geophysical surveys.
- 1.1.9 Access to the scheduled area and much of the wider area survey was unimpeded, although some of the latter areas were only accessible by public footpaths; an accompanied visit to Eseley Wood was kindly granted by the landowners.
- 1.1.10 The site archive is currently held by OA East and will be deposited with Saffron Walden Museum and the NMR in due course.

1.2 Acknowledgements

- 1.2.1 OA East are grateful to English Heritage and to Martin and Jane Pedley for commissioning this work. David Kenny (English Heritage HEFA) was instrumental in the instigation of the project and provided practical support, and assistance with access, throughout its duration. David McOmish (English Heritage Senior Archaeological Investigator) also provided practical instruction, advice and insight both on site and during the production of this report. Aileen Connor and Dr Paul Spoerry managed the project; Aileen also assisted in the Level 1 and 3 surveys. Gareth Rees, Neil Smith, Darren Stone and Ben Dixon assisted the author with the Level 3 earthwork survey.
- 1.2.2 A number of local people were involved in the project: Cecile Down was invaluable as a point of contact with the local community, Ben Dixon assisted with the set up for the Level 3 survey and also took part in the Level 1 survey during which he was responsible for taking photographs. Thanks are also due to the landowners, the Pedleys (Abbey Meadow), the Collinsons (Eseley Wood and land to the north of the Mill Stream), Michael Womack (Home Wood) and several local residents including Tom Collinson, who kindly allowed access to the woods, fields and gardens around Tilty. A group of keen local volunteers became landscape detectives as part of the Level 1 survey: Darren Stone, Ben Dixon, Maggie Stevens, Fran Dickinson, Jane Pedley, Steve Hornsby, with further support provided by David Kenny.
- 1.2.3 Research and collation of material was undertaken by the author who would like to thank Sally Gale at Essex County Council HER and Richard Havis of the HEM team for their advice and assistance, as well as staff at the Essex Record Office. Additional information was provided by Dr James Willoughby, Darren Stone, Terry Francis and Deborah Melling. The illustrations were prepared by the author, Gillian Greer (hachure plan) and Louise Bush, who also collated this report; Gary Jones created the topographic contour plot based on the GPS data. The photographs reproduced in this report were taken by Ben Dixon, David Kenny, Darren Stone and the author.

- 1.2.4 This report is dedicated to the people of Tilty and surrounding villages, particularly those who have contributed to the understanding and future survival of the abbey, many of whom are no longer living. Perhaps most noteworthy of these are: The Reverend Hugh Cuthbertson (and his daughter Cecile Down who still lives at Abbey Gates), Francis Steer, Mary Blakey and Duncan Willoughby.

2 GEOLOGY, TOPOGRAPHY AND LAND-USE

- 2.1.1 Tilty's Cistercian abbey, dedicated to St Mary, is situated in a typically remote but sheltered location on the lower slopes of the Chelmer valley midway between Thaxted and Dunmow in north-west Essex (TL 60172667; Fig. 1).
- 2.1.2 The site is part of the small hamlet of Tilty located in an area of rolling countryside to the west of the B184 Thaxted Road; the nearest villages are Duton Hill and Great Easton to the north-east and south-east respectively. Much of this land, situated on the lower reaches of the River Chelmer, is low-lying and was once marshy; water management forms a major component of the site. Tilty Abbey Meadow, which encompasses the main part of the scheduled area, is sited c.20m to the north of the church of St Mary the Virgin, formerly the gatehouse chapel and sanctuary of the abbey.
- 2.1.3 Although situated on a bedrock of London Clay, the superficial geology of the scheduled area predominantly comprises chalky boulder clay of the Lowestoft Formation with outwash sands and gravels and a high flint content (BGS Sheet 222 1990). Along the northern boundary with the Mill Stream there are Head deposits of sands and gravels, beyond which is alluvium where the former fishponds, water meadows and pasture were once located. Tilty Grange, c.400m to the south-west of the abbey site, is positioned on an outcrop of glaciofluvial sands and gravels overlooking the valley.
- 2.1.4 The soils in this part of Essex are extremely variable, although naturally fertile due to the high chalk content. This region of valleys, floodplains and dissected plateaux remained largely wooded during the Neolithic and Bronze Age periods, although by the Late Bronze Age the fringes of the Till were being colonised by farmers. The heavy clays were extensively cultivated, probably by the Iron Age and certainly during the Roman period; the high number of Roman villa sites in this broad region attest to the prosperity of the land. In subsequent eras settlement became more scattered and diverse, with manorial centres being focused on terraces beside river crossings or close to a spring line above. Manorial boundaries tended to follow natural features such as rivers and brooks or established elements such as roads, being defined by field boundaries only where they abutted another manor's land. These settlements and the now seemingly isolated hamlets and farmsteads are linked by an intricate network of meandering roads and lanes joining the main regional Roman arterials established centuries before (Hunter 1999, 34-5; 80).
- 2.1.5 Tilty Abbey's conventual buildings were located in one of the lowest-lying parts of the immediate landscape (Plate 1; Fig. 14), adjacent to and south of a modified stream which flows eastwards to join the nascent Chelmer. There is a large pond (intermittently wet) cut into the eastern part of the field and a number of mature Elm trees are known to have once flourished in the meadow, mainly close to the current entrance (Darren Stone pers. comm.). The ground rises noticeably to the south-west from c.62m in the north-east corner to c.73m close to the current parish church and c.78m in the south-west corner adjacent to Home Wood. Floodplains extend along the northern side of the stream, beyond which lies Eseley Wood, probably once part of the same forest as Home Wood, which extends to the south of the stream towards Tilty Grange. Home Wood lies to the west of the scheduled abbey site and was until fairly recently much more extensive. Both woods are depicted on the late 16th century Agas estate map,

and were clearly managed until recently as there are many coppices surviving; they are both ancient/semi-natural woods and include notable species such as hornbeam.

- 2.1.6 The current scheduled area forms an irregular triangular shape and is bounded by the Mill Stream to the north and a field boundary to the south-east leading to Abbey Gates, a 19th century former vicarage. St Mary's church and churchyard, and Clerks Cottage are located to the south, whilst a pasture field and Home Wood form the south-western and western boundaries. Church Lane provides the main access to the church and houses forming this small enclave; it also links to the minor road to Broxted which passes adjacent to Tilty Grange to the south-west. A footpath crosses the Abbey Field, leading down past the extant cloister wall to the Mill House and Tilty Mill which are located at the north-west corner of the scheduled area. Arable fields, many still relatively small and enclosed by ditches and hedgerows, and scattered farms extend across much of the higher ground to the south and north whilst meadows and pasture flank the streams and rivers in the valley bases. The small village of Duton Hill to the north-west overlooks the abbey field and the spire of Thaxted church can be seen in the distance to the north.
- 2.1.7 The area around Tilty is predominantly arable in character, although the Abbey Meadow is currently grazed (somewhat intermittently) by sheep; its historic use as pasture and meadow no doubt contributing to the good preservation of the earthworks. Gravel quarries are known in the vicinity, particularly to the south of the minor road to Broxted in Barrow Field (shown on the 1st Edition Ordnance Survey) and to the east near Duton Hill (Darren Stone pers. comm.). The water mill last operated in the 1950s and is currently unused and boarded-up (Plate 9), as are the adjacent barns, although the 19th century mill house is occupied. Tilty Grange barn was converted into residential use in the 1990s. The church continues to provide a focus for religious and community life, with the remains of the abbey forming a valued and integral backdrop.

3 HISTORY OF THE SITE

3.1 Before the abbey

- 3.1.1 There is very little documentary or archaeological evidence relating to the pre-monastic occupation of the site. Field names comprising Little and Great Barrow Fields (to the south of the Broxted Road) noted on the 1594 and 1730 estate maps provide tantalising evidence for possible prehistoric use of the area. These fields overlook the (albeit slight) valley of the Chelmer where it is met by the Mill Stream so the location would seem consistent with the siting of burial monuments. There are no known finds or cropmark evidence to support the interpretation of the field names, which is perhaps unusual given that the area nearest to the road to Tilty was quarried in the 19th century.
- 3.1.2 The discovery of a small burnt samian cup somewhere in the vicinity of the abbey in 1850 (now in Colchester Museum; EHER1171), combined with the observation of Roman tegulae noted in tree roots during a field visit by H. Paterson (English Heritage) in 1980 and the inclusion of Roman tile in the surviving section of cloister wall, strongly suggests a Roman presence here, possibly associated with a farmstead or villa. Local knowledge also indicates that Roman occupation extended into the fields around Duton Hill to the immediate east of the site, although none of these finds have been reported to local authorities (Terry Francis pers. comm.).
- 3.1.3 By the later Saxon period Tilty was held by a thane named Doding 'for a manor and for half a hide' (Stevenson 1905, 1; Morant 1768, 435). Morant suggests that the name may derive from the Saxon 'Tilða', meaning tilled or cultivated land, although an account written by Heckford in c.1766 and transcribed by Willoughby in 1994 infers that Tilty 'undoubtedly received its name from the tiles formerly made in it', citing two field names shown on an old estate map. The latter theory is, however, unlikely if the origin of the name is indeed Saxon.
- 3.1.4 In the Domesday Survey Tilty or 'Tilteiam' is recorded as having:
'always two teams in the demesne, and one team of the homagers [who did homage for occupancy]; always three villains [tenants at the lord's will]; then two bordars [cottars], now six; then three serfs; now the like: thirty acres of meadow: twenty acres of marsh: now forty beasts. Then it was worth a hundred shillings, now seven pounds' (Stevenson 1905, 1; Reaney 1935, 499).
- 3.1.5 This clearly illustrates that a large proportion of the manor of Tilty was marsh and not prime agricultural land.
- 3.1.6 After the Norman Conquest and at the time of the Domesday Survey Tilty belonged to Henry de Ferrers and was still held by the Ferrers Earls of Nottingham and Derby until the foundation of the abbey nearly a century later (Morant 1768, 435; Dickinson 1963, 6).
- 3.1.7 Recent research has highlighted the presence of an ancient trackway which crosses the site, now part of Harcamlow Way, that once linked London to the north Essex coast (Melling 2007). The earliest documented use of this route, which survives as a shallow 'hollow way' in the Abbey Meadow, is c.1100; it clearly pre-dates the foundation of the abbey, and may be significantly earlier.

3.2 The medieval abbey (1153-1535/6)

- 3.2.1 There is some debate regarding the actual foundation date of the abbey at Tilty, which has been discussed at length elsewhere, notably by Morant (1768), Steer (1950) and Heckford (c.1766 and transcribed by Willoughby in 1994). This is not dwelt on here.
- 3.2.2 Generally the foundation date is now accepted as being 1153, when seven monks from the abbey at Warden in Bedfordshire (itself founded from Rievaulx) travelled to Tilty. This date has been further refined by Steer (1950, 5) to the 22 September of that year, known as the Feast of St Maurice, which would have been an appropriate honour to the Founder, Maurice FitzGeoffrey. Heckford (c.1766 and transcribed by Willoughby in 1994), however, notes that the monks themselves recorded the date as the 20 May 1153. The Founder, FitzGeoffrey, referred to as 'Mauricius Inglisch, Earl of Essex' (Morant 1768, 435), was sheriff of Essex and Hertfordshire in 1157-60 and 1161-3 (Steer 1950, 4). The grant, which was confirmed by his overlord Robert de Ferrers (Galpin 1928, 89; Stevenson 1905, 5), comprised his whole estate in the parish of Tilty. Of the 50 religious houses established in Essex, Tilty was one of three monasteries of the Cistercian order to be founded in the county, the others being in Stratford Langthorne (1135) and Coggeshall (1140).
- 3.2.3 It was not until 16th March 1188, however, that construction of the major buildings, notably the great abbey church, commenced; wooden buildings had probably sufficed for most of the abbey's needs until this point. Ralph, the 6th abbot (1207-1218) and chronicler of the nearby Cistercian abbey at Coggeshall, refers to Tilty in 1214 and describes the transformation: 'from a very poor grange [Abbot Simon] made a most beautiful and opulent abbey in which the zeal of religion and secular prudence rivalled each other' (Steer 1950, 6). The church was completed in 1214 and dedicated in 1220, the delay presumably caused by the major set-back also recorded by Ralph of Coggeshall, when on Christmas day in 1215, 'a part of King John's army violently entered the church and offices of the abbey while mass was being celebrated, overthrew the furniture, broke open chests, and carried off booty' (VCH: Page and Round (eds) 1907, 134). It has been suggested that considerable repairs were needed to the abbey church and other buildings given that the church was reconsecrated some five years after the attack (Robinson 2002, 185).
- 3.2.4 The abbey precinct once encompassed an area much greater than that which is now scheduled (5ha), and has been estimated as having consisted of approximately 60 acres (c. 24ha) in all (Hall and Strachan 2001, 200). From the 1594 Agas estate map it appears to have been defined by a stream that flows next to the road from Thaxted to Easton on the east, the minor Broxted road to the south, and a small lane to the north (now a bridleway adjacent to the river). The western boundary is not well-defined but may have been adjacent to and partly within Home Wood to the east (Steer 1950, 9; Hall and Strachan 2001; 200).
- 3.2.5 In 1199 Richard I, by a charter dated 3 February confirmed all grants made to the monks which included the land of Tilty, in addition to granges at Duddenhoe, Chrishall, Duxford and Ringmer, and various other lands, and granted liberties. On the 13th March 1251, Henry III confirmed the same and many more grants, including granges at Radwinter and Aythorpe Roding, indicating a prosperous time for the abbey. Further confirmations were obtained from Edward III in 1361 and from Edward IV in 1475 (VCH: Page and Round (eds) 1907, 134).
- 3.2.6 The VCH (Page and Round (eds) 1907, 134-5) also notes that the seal of the abbey, taken from a brass matrix in the possession of St John's College, Cambridge, measures 1⁷/₈ in. In a carved niche with pinnacled canopy and balustrade the Virgin is

seated crowned, with the infant Jesus standing on her left knee, holding in her right hand a sceptre with three flowering branches. On each side is a penthouse containing three monks. Legend: 'SIG' COMUNE MONASTERII BEATE MARIE DE TILTEYE'.

- 3.2.7 The temporalities for Tilty recorded in the Taxation of 1291 amounted to the value of £163 13s. 5d. yearly, and indicated that the possessions of the abbey were widely distributed. Of the annual total £100 0s. 2d. came from Essex with principal incomes from holdings in Steeple, Debden, Chrishall, Chawreth, Chickney, Radwinter and Great Chishall. Amounts of over £1 came from Chigwell, Aythorpe Roding, Littlebury, Elmdon, High Easter, Wenden Lofts, Easton, Takeley and Thaxted, with smaller sums from 23 other places. Cambridgeshire contributed £48 6s. 5d., chiefly from Duxford, Ickleton, Fulmer and Melbourn; Hertfordshire £8 13s. 10d.; Suffolk £5 19s. 8d. and London 13s. 4d. (VCH: Page and Round (eds) 1907, 134-135).
- 3.2.8 As with the rest of the Cistercian order in England, Tilty grew prosperous on wool-farming. The Cistercians were the first to farm wool for profit, such an important industry for the economy of medieval England and exemplified by the many splendid grange barns, churches and guild halls in this part of Essex. The number of granges owned by Tilty Abbey is testament to its economic prowess during the 13th century: Steer (1950, 8) lists at least seven in Essex, two in Cambridgeshire, one in Sussex and two further probable granges in Norfolk and Suffolk. Abbot Robert (1246-c.1267) was a strong administrator and it appears that it was under his tenure that the abbey began large-scale wool farming.
- 3.2.9 The abbey seems to have reached its height of prosperity in the late 13th and early 14th centuries and it was during this period that a rebuilding campaign was instigated (Steer 1950, 17). Although little is known of what the main conventual buildings may have looked like in this period, the current parish church and former gate chapel provides an evocative example as it illustrates the juxtaposition of the simple architecture of the earlier 13th century (embodied by the nave) with the highly elaborate design of the chancel and its magnificent east window, which dates to c.1340.
- 3.2.10 The abbey's wool trade with Italy was considerable, with a sum of 340 marks being recorded in 1288. This reference to Tilty is included by Francesco Balducci Pegolotti, a clerk in the great Florentine House of the Bardi in his later book 'La Pratica della Mercatura' (c.1330-40) and reads: *Tilitea la buona mar. 17½ e lla mojana mar. 10 e i locchi mar. 8 il saccho, ed annone da 12 saccha per anno*. This translates as 'Tilty; the good brand 17½; and the middle brand 10; and the worst brand 8; per sack, and number from 12 sacks for the year' (Steer 1950, 18). This is a notable amount of wool, and illustrates the quality of the product that was being exported to the continent at this time. It has been estimated that by c.1300 Tilty had a flock of c.7,000 sheep (James Willoughby pers. comm.), although methods of calculating these totals are not particularly accurate.
- 3.2.11 Of the 65 British abbeys and priories listed in Pegolotti's book, 85 per cent were Cistercian, with Fountains Abbey being the chief exporter with 76 sacks of wool, followed by Rievaulx with sixty sacks and then Jervaulx with 50 sacks. The Cistercians clearly had a massive influence on the wool trade in England, introducing the grading process for fleeces and pioneering the use of manure as well as concentrating on issues associated with disease and breeding (Burton 2002, 28-29).
- 3.2.12 This good fortune was not consistent, as there were a number of epidemics, including sheep scab, which almost bankrupted Rievaulx Abbey (Burton 2002, 30), further compounded by bad debt. The abbot and convent of Tilty had repaid a debt of £64 6s.

8d. to the Ricardi of Lucca, not knowing that the goods and debts of the latter had been confiscated by Edward I in 1296, and consequently they had to pay it over again at the Exchequer (VCH: Page and Round (eds) 1907, 134-6). Following an appeal at court, in 1328, they were allowed to pay the debt in instalments of 40s. yearly, suggesting that finances were fairly tight, possibly in part as a result of their rebuilding campaign. This financial pressure would have been exacerbated when in 1336 Edward III declared that there was no export of wool allowed (Reaney 1928, 69), and no doubt further compounded in the aftermath of the Black Death. In this period the monks began to change from farmers to landlords and leased their granges, beginning with the largest at Chigwell.

- 3.2.13 The latter years of the abbey were troubled, with many changes of abbot in quick succession. In 1530 it was found necessary to depose Abbot Roger Beverley (described as 'unthrifty'), a pension of £20 being granted to him for life by the convent. His successor, Edmund Emery, also resigned after a short time, and on 13 March, 1533, arbitrators awarded pensions of £14 to him and £10 to Beverley. In 1533 the new abbot, John Palmer, wrote to complain to Cromwell that the bishop of London had 'intruded a clerk into the benefice of Easton', which the abbots have had for several years, so that in addition to being charged with two great pensions he was also deprived of this benefice (VCH: Page and Round (eds) 1907, 135).
- 3.2.14 A further indication of the involved and somewhat parlous nature of the abbey's finances and administration in its latter years is provided by the fact that in 1529 Tilty Grange was leased to Thomas Grey the Marquis of Dorset for £20 a year, with the first year's rent going towards repairs of the abbey and grange buildings. At the same time the abbey guest house was also leased to the Marquis and his second wife Margaret for thirteen years, with the accommodation being described in the deed as the 'new house over against the [abbey] church with the orchards, hop garden and all other houses as they were accustomed to have hitherto' (Steer 1950, 19). The latter statement suggests that the Marquis and his wife had already been in residence prior to 1529.
- 3.2.15 On an endorsement to the lease the property is described as 'the Guest Hall, with Green's house, Byard's chamber, with the new lodging made by the same Marquis, and the buttery, pantry, cellars, parlours and kitchen, garden, orchard and cook's garden' (*ibid*; Waller 1906, 119-20). This indicates a substantial and self-sufficient accommodation, that included a number of newly-constructed buildings, and which presumably could have operated quite separately from the daily life of the abbey. The augmentation of existing accommodation and construction of new buildings are likely to have utilised brick and timber and may have been quite avant-garde in design (James Willoughby pers. comm.). A carved wooden fragment currently in a display-cabinet in the church is believed to come from the guest house as is a fine wooden staircase now housed in The Warrens in Dutton Hill, although its listing (LB122188) suggests that the staircase may have come from Easton Lodge.
- 3.2.16 The endorsement signed by both parties also stated that the Marchioness and his wife should give eight week's notice of their intention to enter the house and that they were responsible for repairs except when the abbot used the house. In addition to this lease, the Marquis was endowed as Steward of the Monastery with an annual fee of 20s. and was entitled to have stabling for twenty or more horses. The Marquis, who had been a brave soldier and favourite of Henry VIII, was also granted the stewardships of various other manors and was constable to Warwick and Kenilworth castles in 1528 and 1529 (<http://www.luminarium.org/encyclopedia/thomasgrey2.htm>, accessed 18th March

2011). He died soon after, in 1530, although his widow continued to reside at Tilty and appears to have been deeply embroiled in the affairs of the monastery, illustrated by a number of letters written by her to Cromwell that are preserved in the National Archives. A portrait of the Marchioness by Holbein is held in the Royal Collection at Windsor castle and appears to date to the time (1532-5) that she may have been resident at Tilty (http://en.wikipedia.org/wiki/File:Margaret,_Marchioness_of_Dorset,_by_Hans_Holbein_the_Younger.jpg, accessed 16th March 2011).

- 3.2.17 Steer (1950, 22) suggests that Gerard Dannet (Privy Councillor to Henry VIII) may also have leased the guest house before the Marquis and Marchioness of Dorset as he has a very fine brass in the present Tilty Church, where once there was also a stately marble tomb that has since been destroyed. This indicates that he probably died at Tilty in 1520, hence his burial in the church rather than in London as was his wish.
- 3.2.18 The last abbot at Tilty, John Palmer, may have foreseen the turmoil to come and on the 6th October 1535 the convent entered into a new agreement with Lady Margaret the Marchioness of Dorset to lease the abbey guest house, the vineyard, Tilty Grange, the demesne lands and the manor of Tilty for a term of 60 years (*ibid*).
- 3.2.19 One of the few documented finds from the site may relate to these latter years of the abbey's life: a small 15th-century gold ring was found in the Mill Stream and is now in the British Museum. The bezel, in the form of a Lombardic D, was once set with a stone; inside the ring are engraved the words 'TUT DIS UN' (all say one). An illustration of the ring is included in Steer's history of the abbey (Steer 1950, fig. III, 26).

3.3 The Dissolution and afterwards (1536- late 18th century)

- 3.3.1 Tilty abbey was one of the first houses to be dissolved as its income was less than £200 (Dickinson 1963, 7), with the deed of surrender being signed on 28 February 1536. At this time only the abbot and five monks were in residence and its debts were recorded as being not inconsiderable at £126 13s 11d at its dissolution (Steer 1950, 20). Stevenson (1905, 4), however, suggests that there were seven monks, a prior and an abbot in residence at the abbey at this time. The abbot and his brethren were permitted to stay until the 'king's further pleasure' with the understanding that they were to maintain the abbey (VCH: Page and Round (eds) 1907, 135). At the time of the surrender, Abbot John Palmer had his mother under his care, as well as an Agnes Lucas and Thomas Ewen. The commissioners of Henry VIII pronounced Tilty Abbey of a very doubtful character (Stevenson 1905, 4). Fortunately, although there were numerous leases of doubtful legitimacy in this period just prior to the Dissolution, the lease of 1535 set up by John Palmer with the Marchioness of Dorset was later confirmed by the Court of Augmentation in 1538 (Steer 1950, 20). This detailed the 'house standing against the west end of the church of the said monastery, of old times called the Founder's house, otherwise the Gest's hall, and all others, including those newly builded as the old, and all other rooms within the said Gestes hall, and gardens' etc (Waller 1903, 118-121).
- 3.3.2 An inventory taken on 3rd March 1536 and reproduced by Waller (1902; 1903; and see Fowler 1906; 1909) lists a fairly impressive collection of vestments and plate for such a small (and debt-ridden) abbey. Much of this was stored in the abbots' bed-chamber, probably as a precautionary measure, and comprised: 'a crosse of plated silver and gilt', a silver-gilt censer, a silver incense boat and spoon, a silver salt with a cover, three mazer bowls, and ten silver spoons'. The inventory also records that the abbot had green and red hangings in his private dining chamber and five tapestry cushions; his bedchamber included a good featherbed and three chests for muniments.

- 3.3.3 A second inventory dated the following June also survives and indicates that by this time everything of value had been sold. Interestingly the first inventory was signed by John Palmer whilst the second was signed by the Marchioness of Dorset indicating that the community had left the abbey by this time. The Marchioness appears to have purchased a number of items including a pair of organs (from the abbey church); other goods that are listed came from the abbey's brewhouse and comprise 'two great brass pots, a lesser one, and two brewing vats' (Waller 1902-3; Steer 1950, 20). Other items noted in the inventory include 'iiii tables of alabaster', which Canon Galpin (1928, 91) believed to be the retables or reredoses of the transept altars, and a number of fine brass candlesticks, also likely to have come from the abbey church.
- 3.3.4 The final event of the history of the abbey as a religious establishment was the granting of an annual pension of £16 to John Palmer on 26th June 1536. Little is known of the fate of this last abbot of Tilty, or of the five monks who also signed the deed of surrender (*ibid*), although Heckford writing in c.1766 (transcribed by Willoughby 1994) mentions records of four monks living in Thaxted in abject poverty in 1562 and the pauper's burial of a monk in 1585.
- 3.3.5 On 24 April 1542 Sir Thomas Audley was granted (along with several other monastic lands) the site of the monastery and church, the guest house, Tilty Grange, the manor of Tilty with the rectory and chapel, and belfry. Also included in the grant were tenements called Ryecrofts, with a house, Byngemores Meadow next to the high field in Tilty and other lands in Henham and Broxted (Steer 1950, 24-5). These properties, including his 'manor of Tiltye, with the advowson of the Church, and a grange there, and 200 acres of arable and 60 of meadow, 300 of pasture, in Easton, Broxted and Chaurothe, Henham and Plesdon' (Morant 1768, 435) passed to Thomas Audley's eldest daughter Margaret on his death in 1544. By her marriage Margaret's vast estate passed to her second husband Thomas Howard, Duke of Norfolk, and then to their son Thomas, Earl of Suffolk.
- 3.3.6 The Marchioness of Dorset continued to live at Tilty until her death in c.1541, when the house was leased to her son from her first marriage, George Medley, who has an elaborate brass in the chancel of the church. Henry Grey, the 3rd Marquis of Dorset, visited Tilty in 1550 with his wife and daughter Jane; they spent Christmas there just a few years before Lady Jane Grey was to briefly rule England. This suggests that the house was suitable to accommodate such important visitors at this time. It was later leased to Margaret Tuke, who died in 1590 and whose brass is behind the altar in Tilty church (Steer 1950, 22-24; Dickinson 1963, 7; Dr James Willoughby pers. comm.).
- 3.3.7 On the 2nd March 1587 the lands were sold for a sum of £5,000 to Henry Maynard, in whose family and descendants' hands they remained until 1919 (Steer 1950, 24-5). Henry Maynard was also granted Easton Manor by Elizabeth I at the end of the 16th century, and it was here that he established his seat. He was probably largely responsible for dismantling any remaining abbey buildings at Tilty. A manuscript dated 1588 and held at the ERO (D/DWv M197) is entitled 'A trew platt of the Scite, demayne landes, Cppyhold Landes & Freeholdes, of the Manner [of Tilty] taken by Ferdinando Malyn at the request of Henry Maynard Esquyre' and comprises a survey and valuation of the manor of Tilty. This includes description and valuation of demesne, other lands, including orchard, vineyard, woods, 'scite of howse', fishponds and osiers, and other woods; names and acreages of copyholds, with note on enfranchisement value, value of services and windmill, detailed description of 'mansion howsw' which is 'spacious & ruynous' and of requirements for its reconstruction, including use of stone from 'ruyns

of the Abby', and of outbuildings. This suggests that the former guest house was in poor repair at this time and was substantially rebuilt.

- 3.3.8 The last descendant to live at Easton Lodge, the Countess of Warwick, died in 1938, although much of the house (already rebuilt in 1847 following a fire that destroyed the entire Elizabethan house) was destroyed in 1918 by a fire purportedly started by a pet monkey. Much of the outlying parts of estate (presumably including Tilty) had already been sold in the 1890s and many more portions were auctioned off in 1918/19 (http://www.eastonlodge.co.uk/content/?page_id=2, accessed 18 March 2011).
- 3.3.9 Little is known about the later occupants of Tilty manor/former guest house and grange in the ensuing years due to the loss of the muniments in the Easton Lodge fire. A number of more recent accounts (e.g. Steer 1950, 25; Dickinson 1963, 7 and the Reverend Morgan-Smith, undated) indicate that the manor house was occupied until the late 18th century, latterly by a farmer, but that the remaining buildings were finally pulled down by the then Lord Maynard. The former *Capella Extra Portas* became a private chapel and is now the parish church. For some reason the west wall of the cloister was left standing, perhaps to serve as a 'romantic ruin' and monument to the once flourishing abbey. Its retention may in part be explained by a local superstition as it was believed until the latter part of the 19th century that anyone who ordered the demolition of more of the remaining buildings would die within a month. This probably originated from the death of two different stewards who made such orders, and ultimately may have ensured that the surviving wall was left alone (Steer 1950, 26).
- 3.3.10 Remains of masonry from the abbey and associated buildings can clearly be seen in properties in the local area, although it is also likely that much of the material may have been incorporated into the Maynard's' new manor at Easton Lodge. Some elements have been retained in buildings near to the abbey, including in a 'cowshed' adjacent to Tilty Mill and in the gardens at Tilty Grange, where architectural fragments have been noted in a rockery and on either side of the entranceway (Steer 1950, 25; see also Plates 21 and 28). A number of architectural and other pieces are also displayed in the parish church, including a large stone mortar that was discovered after heavy rains had scoured the banks of the Mill Stream in 1947 (Steer 1950, 29); this has been re-used as a font (Plate 27). Slightly further afield in Thaxted there are reported to be two large ornamental chimney pots from the abbey guest house in the gardens of Clarence House. In the same town a 16th century flint boundary wall at Park Farm, Park Street incorporates numerous carved headstops, moulded stones, niches *etc* of 14th century date (Listed Building No. 122388; Plates 29a & b) that probably originate from the abbey church.
- 3.3.11 Contemporary records further illustrate the fate of the abbey's former buildings following the Dissolution. The churchwarden's accounts for Great Dunmow, dated 1538, include payment to a Richard Parker for 'lyme sande & fecchyng pavyng tile from Tyltey'; apparently Little Easton Church also contains tiles from the abbey (Steer 1950, 25). Excavations at the site (see below) have revealed some *in situ* flooring, suggesting that the abbey was not completely stripped, with perhaps the more valuable stone and lead being targeted first. Evidence that the church roof was leaded is provided by the amount of lead received by the king at Dissolution, a total of c.112 tonnes; further supported by the presence of numerous lead-clippings found at the site during previous excavations (Galpin 1928, 91).
- 3.3.12 Many of the buildings associated with Tilty Grange appear to have survived. Most date to the early or mid-16th century and are listed; these were perhaps rebuilt when the Marquis and Marchioness of Dorset took over the lease soon after the Dissolution. Tilty

watermill was rebuilt on or near to the site of its medieval predecessor, probably in the mid- to late-18th century; the fate of the windmill is unknown although it may have been dismantled and rebuilt in neighbouring Broxton (Darren Stone pers. comm.). The will of Charles Maynard of Easton Lodge, dated 1775 (D/DMg/F3), mentions the miller, Joseph Hawes in relation to Tilty watermill and windmill, in addition to land in Tilty and a messuage of 12 acres. He lived in the Mill House (now called Pumpkin Hall) and was also miller at Elmbridge mill (watermill) in Little Easton, suggesting that he was probably the Maynard estate miller.

3.4 Late post-medieval to modern (late 19th century to present)

3.4.1 Following the demolition of the remaining abbey and mansion buildings, the land appears to have reverted to a largely agricultural regime, with Tilty Grange used as a farm and millhouse. The watermill continued to work, albeit latterly to grind animal fodder, until the 1950s and the former gatehouse chapel has endured as the parish church. The lands that once formed the abbey precinct have been divided up and are under different ownership and land-use. More recent history of the site is illustrated by the numerous WW2 structures including pill boxes and a mortar spigot, the latter located close to the northern boundary of the scheduled area (Fig. 12; 19a). The site of the abbey church and associated major earthworks were scheduled in 1951 (EX88; EHER 19056) with the area being extended to the current size in 1974; the c.30m-long fragment of standing wall was listed in 1952 (LB122125; Grade II) and Tilty Church in 1967 (LB122121; Grade I).

4 HISTORY OF RESEARCH

4.1 Previous investigations (Figs 2-4)

- 4.1.1 There are over 550 items (maps, documents, engravings, photographs, sales catalogues, deeds, wills, court rolls, registers, electoral rolls *etc.*) currently held in the Essex Record Office (ERO) in Chelmsford, that broadly relate to Tilty. Some of these are viewable on SEAX (<http://seax.essexcc.gov.uk>), a searchable index of archived documents dating back to the 1400s. Examination of all of these is far beyond the scope of the current project, but it is worth noting that there may be additional material for more in-depth research in the future. In addition a number of inventories relating to Tilty Abbey, such as those taken at the Dissolution, have been published, notably by Waller, in the *Transactions of the Essex Archaeological Society* journal.
- 4.1.2 Documented but somewhat cursory investigations were undertaken in the Abbey Meadow in 1901 and in 1942 (Galpin 1928; Steer 1950), although Steer makes reference to 'disturbances which have taken place on the site over a long period of years' (*ibid*, 26). The published excavations, for which no primary records have been located, targeted the church, claustral buildings and infirmary with the aim of producing a ground plan of the abbey and dispelling earlier theories regarding the location of the abbey church and origin of the current parish church.
- 4.1.3 At least two reconstructions have been created for the abbey. One is a large watercolour which was produced following the 1942 excavations and is currently on display in the church porch (a copy is in the ERO). Another was created as a computer-generated image by Essex County Council and is viewable at <http://unlockingessex.essexcc.gov.uk>.

1901 Excavations

(Canon Galpin 1928, *The Abbey Church and Claustral Buildings of Tilty*)

- 4.1.4 There is no methodology or description of the investigations that led to the publication of the first provisional plan of the abbey in 1928, which is based in part on 'brief' excavations undertaken in 1901 supplemented by records of parchmarks visible during subsequent dry summers. The foundations of the church, and the other claustral buildings were described as only being a foot under the turf, allowing even the pillar bases in the nave to be located (see Fig. 2).
- 4.1.5 Dimensions of many of the principal buildings are given and these are placed broadly within the context of the known history of the site and, notably, the 1594 Agas map, an extract of which is included in Galpin's publication. The layout is fairly typical of the Cistercian plan, with the church being located to the south of the cloister.
- 4.1.6 The internal measurements of the church were described as: nave (of seven bays with north and south aisles), 102 feet in length and 45 feet across; choir and presbytery 72 feet long and 20 feet wide; two transepts each with two eastern chapels on the usual Cistercian plan, the width over transepts and crossing being 90 feet. Galpin suggests that this is fairly small and compares Tilty with other monastic churches, notably Rievaulx, Fountains and Coggeshall, the latter being estimated at 210 feet long. The notable rise in the ground level at the west end of the church was interpreted as a flight of steps leading down to the west door, with a galilee porch indicated by the discovery of numerous roof tiles. The church may have had a low tower above the crossing. A

later wall re-using older masonry was discovered leading from this to the west and it is suggested that this was added during the post-Dissolution period to secure the Inner Court of the new manor house.

- 4.1.7 On the east side of the cloister (83 feet by 81 feet), with alleys or walks of 10 feet wide and bordered with brickwork, was the vestry, with connecting doorway to the church. To the north of this was the chapter house, described as being rectangular in plan (43 feet by 32 feet), vaulted and aisled. Beyond this was the slype leading to the infirmary buildings to the north-east and presumably the gardens and monk's cemetery. The monk's day room (80 feet by 24 feet), orientated north-south, was located to the north of the cloister; green-glazed tiles were recorded at the northern end. Above these rooms/buildings would have been the dormitory, library and scriptorium, with night stairs leading down to the church.
- 4.1.8 On the north side of the cloister, the refectory was identified although its north-south plan is clearly erroneous as has been demonstrated by later investigations (see below). To the east were the dormitory day stairs and the warming house, with kitchen and buttery to the east; no dimensions are given for the latter. On the west side of the cloister were the lay brother's day room or hall (62 feet by 23 feet) to the south of which was the cellarage and store room, which was vaulted (68 feet by 20 feet). Above this would have been the dormitory of the lay brothers, presumably with stairs leading down to the nave of the church. Traces of an entrance porch were identified to the west, to the north of which were foundations of a later brick building projecting from the west wall of the lay brother's day room, which Galpin suggests is shown on the Agas map, and probably dates to the late 15th or early 16th century. No evidence of the guest house was discovered by Galpin, although he discusses it in terms of the Agas map.

1942 Excavations

(Francis W. Steer 1950, *A Short History of Tilty Abbey*)

- 4.1.9 As with the earlier account, the publication by Steer of his excavations at Tilty with the Reverend Cuthbertson and assisted by Mary Blakey (who unfortunately died just at the start of this current project), includes no methodology or detailed description of the investigations. The publication (originally published in 1949) does provide a useful overview of the abbey's history and attempts to prove the accuracy of the results of Galpin's earlier excavations through 'certain works' undertaken in 1942, supplemented by analysis of an aerial photograph taken in 1943. This achieved a more extensive, and arguably more accurate, ground-plan of the abbey that also included the infirmary cloister.
- 4.1.10 Steer describes the wider abbey lands, including the gatehouse, watermill and windmill, chapel, the 'fish stews', vineyards, woods and precinct boundaries. In relation to the latter he mistakenly identified the northern boundary as the mill stream and track, when in fact it was further north (see below). He attempts to phase the buildings, with the initial building campaign dating to the late 12th to 13th centuries followed by a rebuilding and/or augmentation 'in a style far richer than the original work' in the early 14th century. This rebuilding was no doubt curtailed by the the devastation caused by the Black Death of 1347 and the increasingly parlous state of the abbey's finances. The chancel of the current church and former gatehouse chapel is regarded as a 'magnificent example of the Decorated style of architecture', juxtaposed with the much plainer 13th century nave, and gives some idea of the quality of craftsmanship that was

employed by the Cistercians at Tilty. It is not possible to be certain which of the main abbey buildings were also rebuilt at this time.

- 4.1.11 The main discrepancies with Galpin's plan were on the north side of the cloister and on the north side of the lay brethrens' dayroom, although Steer admits that the previous disturbances on the site have hampered reconstruction of a number of the smaller rooms. A plan of the infirmary cloister and the south wall of a long pentice or covered walkway leading to it from the north-east corner of the cloister, was also identified, largely from aerial photography (see Fig. 2).
- 4.1.12 Excavation appears to have targeted the main claustral buildings, with the church receiving 'considerable attention'. Additional 'pits' were excavated through shallow middens and dumps along the northern edge of the site adjacent to the stream, from which several fragments of tile, pottery and oyster shells were recovered; the latter identified as originating from the Colne oyster beds [these are presumably the finds currently displayed in the parish church]. A trench was also excavated along the line of the east wall of the church, where a quantity of loose rubble was present close to the surface. Excavation continued to a depth of 1 foot 4 inches, with finds including decorated floor tiles, fragments of painted window glass and small pieces of twisted lead being unearthed. Below this was a rough red brick surface, including several pieces of moulded brick fragments, one with traces of pink and white paint surviving. This evidently sealed two graves, both of which had re-used 13th century stone coffin bases as capping stones and evidence of wicker coffins. Little bone survived, although a skull was present in the southernmost grave; both burials and other bones found 'on other sites in the abbey field during the excavations' were re-interred by the Reverend Cuthbertson; unfortunately the location is not given but was presumably within the original graves. The re-used stone coffin bases were damaged and were removed to Tilty Church and are now displayed on the north wall of the chancel.

Reinterpretation in 1963

(P. Dickinson 1963, *Tilty Abbey and the Parish Church of St Mary the Virgin*)

- 4.1.13 A slightly amended plan of the abbey was illustrated by Dickinson in his church booklet published in 1963 (see Fig. 2); this was based on a number of aerial photographs by Dr J.K. St Joseph of the University of Cambridge Committee for Aerial Photography that showed clear parchmarks of the monastic complex.
- 4.1.14 The main differences interpreted by Dickinson relate to the claustral plan and the infirmary. He identified for the first time the reredorter at the northern extent of the claustral range that was 'traversed by the great sewer once flushed by a diversion of the abbey brook', with the monks' day room to the south divided into a number of rooms or cells. Contrary to the earlier published plans, the refectory is shown as aligned east-west along the north side of cloister; there is no warming room but a thickening in the wall at the north-east corner is interpreted as the refectory pulpit. The kitchen excavated in 1942 is illustrated projecting from the refectory to the north, rather to the west and is a slightly different shape to that shown on previous plans. To the west of the cloister, a possible reredorter has been added to the north of, and projecting slightly outwards from, the lay-brothers' accommodation; the later brick building is not shown. The porch and outer parlour, where visitors would have been received and secular business conducted, are clearly shown.
- 4.1.15 Perhaps the more notable change to the detail of the plan relates to the infirmary, which is described as a being part of a 'large block of complicated buildings grouped round a

rectangular courtyard or cloister and lying at an angle to the main monastic buildings' (Dickinson 1963, 9). The foundations of these buildings were not so clearly-defined, and the walls appear to be thinner, suggesting that they were of 'lighter and later construction, perhaps of timber or brick'. The long covered passageway or pentice leading from the main cloister joins the infirmary at a small porch, with another small room beyond. On the north side of the courtyard is a large east-west aligned building, possibly the infirmary hall as part of an aisle was visible, in addition to an eastward projection that was interpreted as a chapel. The eastern range is shown as divided into several apartments, but the southern range, interpreted as the abbot's lodging with a number of rooms, is less clear; a small projecting building at the eastern end was suggested as the abbot's private chapel. Additional foundations extended to the south but were too indistinct to allow further discussion. The western range was well-defined, with a number of rooms shown leading off from the entrance to the east of the porch.

- 4.1.16 No foundations were visible for the purported guest house near the west end of the abbey church, leading Dickinson to speculate that the later manor house (former guest house) was converted from the former western range and lay brothers' accommodation.
- 4.1.17 Dickinson includes a detailed plan and history of the parish church and former *Capella Extra Portas*, which is one of only four Cistercian gatehouse chapels to survive in the country. When it acquired parochial status is not known, although a date sometime towards the beginning of the 17th century is suggested. The aisle-less nave was constructed c.1220 and the 'lofty' chancel with its magnificent east window in c.1330; a porch was added in the 17th century and a vestry in the 19th century. The small wooden tower was surmounted by a cupola in the early 19th century [although a similar structure is illustrated on a late 18th century engraving of the church]. Of note in the interior of the chancel are the double piscina and triple sedilia, which have elaborate pierced tracery with stops carved with the heads of a Cistercian monk (Plate 25) and a lay-brother. The two 13th century stone coffin bases excavated in 1942 are on the opposite (north) wall. An original double piscina is located on the south wall of the nave, below which a small patch of medieval wall painting survives.
- 4.1.18 There are a number of instances of material being re-used from the abbey, including a credence table, the font and a number of floor tiles (some of which are probably original to the church). Several fine brasses and memorials are listed in detail.

Recording of the Standing Wall and Additional Aerial Photographic Interpretation (Andrews and Gilman 1992, *Tilty Abbey: a note on the surviving remains*) Fig. 3

- 4.1.19 Recording of the elevations of the surviving cloister walls was undertaken by Essex County Council in 1990 at the request of English Heritage as part of the future management strategy of the monument. A shorter note was published in *Essex Archaeology and History* in 1992 which included reproductions of the elevations (Fig. 3; the originals are held at ECC) in addition to an analysis of parchmarks shown on aerial photographs taken during the particularly dry summers of 1989 and 1990.
- 4.1.20 The surviving wall comprises two separate lengths of the east wall of the west cloister; the wall was originally 3'4" to 3'6" thick although it is now very eroded in places, and would have stood well in excess of its present height of 10-11 feet (c.3m). It is built of coursed flints with some set in a herringbone pattern; other materials are utilised including Roman tegulae, rounded 'fieldstones', glacial erratics and small pieces of conglomerate, greensand and a very shelly limestone. An ashlar block with crude interlace decoration underneath projects out of the wall near the top on the west side of

the southernmost wall and wooden shingles survive on the east side. There are numerous putlogs in both sections of wall.

- 4.1.21 The southernmost wall is of most architectural interest as it contains the very clear outlines of three vaults, the webbing of which is made from greensand ashlar. The eastern face of the wall preserves the scars of three buttresses 3 feet wide that were designed to balance the thrust of the vaults. This side of the wall was fully-rendered and in areas it retains a thin lime-rich surface that is whiteish in colour. The inside wall under the vaults retains a whiteish mortar that may indicate repointing or a coloured render. The northernmost section of wall has lost its facing on its eastern side; there is no evidence of vaulting. Dating of the walls is presumed to be contemporary with or slightly earlier than the church, probably around the first half of the 13th century.
- 4.1.22 Parchmarks shown on an aerial photograph taken by Essex CC in 1990 were also plotted and rectified. The outline of the church including pillar bases is clear as are the cloisters to the north and the infirmary. Some differences with previously-published plans were noted, including the identification of a number of structures to the west of the church. There are also some variations in the detailed layout of the cloister and the infirmary, with more walls present, although some of the parchmarks could be geological in origin.

Further analysis of the abbey precinct and buildings based on new aerial photography and rectification of the 1594 Agas Estate Map

(Hall and Stachan 2001, *The Precinct and Buildings of Tilty Abbey*) Figs 4a-c

- 4.1.23 This publication briefly outlined the history of the abbey and previous research but concentrated on the plotting and analysis of parchmarks shown on a high quality aerial photograph taken by Essex CC in 1996. The authors also re-appraised the 1594 Agas estate map which Steer had thought destroyed in the 1918 fire at Easton Lodge but had recently been rediscovered in an Essex barn in 1997, albeit slightly damaged (see 5.1.2 below).
- 4.1.24 Further appraisal of the published documentary sources was also undertaken, which included the surviving post-Dissolution inventories. Although these were primarily concerned with moveable objects (see Section 3 above) the authors suggested that as the list of items was described by room or building that they were contained within, this gave a useful insight into the spatial layout of the abbey buildings. The inference was that the abbot's lodging, with its dining chamber, bed chamber and probably its guest chamber and servant's chamber, was close to the kitchen and cellar (in the undercroft of the west range) on the one hand and the brewhouse on the other [and therefore not part of the infirmary cloister at this time]. They note that some of the principal buildings including the chapter house, refectory and infirmary are not mentioned, indicating the lack of saleable objects in these buildings. This might suggest their disuse and a breakdown in communal life prior to the surrender of the abbey, given that only a few monks were in residence at this time.

1594 Agas Map

- 4.1.25 One of the main thrusts of the paper was to re-interpret the 1594 Agas map and use it to paint a much more comprehensive picture of the abbey lands, thus providing the first real attempt at placing the conventual buildings within their contemporary landscape.

Precinct boundaries

- 4.1.26 The precinct, which only occupies a small part of the map, is described from the outer gatehouse, c.180m to the south of the main abbey buildings, from which the boundary can be traced to the east. Here it is shown as almost solid but with many vertical lines indicating a wall or a substantial fence extending down to the junction with the Thaxted Road at which point it turns northward, following the line of the stream adjacent to the road, for c.130m. The authors suggest that the main approaches and sections of the precinct boundary close to important gateways may have been walled in stone but fenced elsewhere. On the next stretch, adjacent to the abbey's five fishponds, the convention changes to a series of spaced vertical posts that probably represent paling or pollarded trees, continuing to the north-east corner of the precinct to what is thought to be a gate. This is much further north than Steer believed it to be. At this point the boundary turns westward and is represented in the same solid form as was used to the south. The boundary continues for the length of two fields (one an orchard) at which points it meets another gate into the precinct, beyond which the boundary is represented differently again (fairly solid but without the vertical lines). At the northwest corner of the field it turns southward to the mill stream where there is a small tower indicated and the word 'walle' is written faintly. The authors believed this to be the origin of the supposition by Steer and others that there was a well or spring in the woods near to this point that supplied the abbey with fresh water. The continuation of the boundary is less clear from this point; it rejoins the Broxted Road to the south at some point where it is marked by spaced green bushes, probably a hedge, to the point it connects with the outer gatehouse again.
- 4.1.27 It is likely that many of the boundaries were simple banks and ditches, common on low-lying monastic sites where drainage was an issue. If this interpretation of the boundaries is correct it would make the abbey precinct c.60 acres in size which is comparative to other Cistercian houses including Jervaulx, however it may have been somewhat smaller if Home Wood formed the western boundary. There may have been more than one precinct, with other more industrial structures such as brewhouses, forges or even mills being located in separate precincts from the main Inner Court claustral buildings (Astill 1993; Coppack 1993, 89-97).
- 4.1.28 The location of the main approach into the abbey complex from the south was thought to be an unusual layout for a Cistercian abbey, for which entrances were normally from the west of the church, unless there were serious topographical or other reasons to prevent it.

Abbey buildings

- 4.1.29 The outer gatehouse to the south is depicted as a building of three parts: the central part is of two storeys with the upper storey in the roof in the gable above the broad arch through which carts and other traffic would have passed. This block appears to have a chimney on its eastern side, and east of this is a smaller and lower-roofed block; on the west side another smaller adjoining block is shown, either flat-roofed or already beginning to suffer after the Dissolution. The gatehouse may have looked similar to that still surviving at Beaulieu, Hampshire.
- 4.1.30 Upon passing through the outer gatehouse, visitors would enter a small yard leading to the inner or great gatehouse. To the right, and fenced off, was the Outer Court, still labelled *curia exteriori* on the 1594 map, along with the osier yard. By this period, apart from a few buildings on the north-west edge of the court, the whole area appears to be

given over to pasture. Access to the Outer Court appears to have been controlled solely by the outer gatehouse. The gatehouse chapel was (and still is) located on the left of the yard between the two gatehouses. Agas shows this with a western tower and spire, which it does not have, but these may represent a substantial bell-cote similar to that which is present today, perhaps surmounted by a small wooden spire. The chapel would probably have been used by the servants of the abbey and skilled workers employed in its construction and maintenance, as well as possibly for chantries and pilgrimage as at other gatehouse chapels.

- 4.1.31 The inner gatehouse to the right of the chapel is shown to be three storeys high, including the roof space, with several chimneys and a large arch on the west side. A second gable on the east side indicates some fairly spacious and permanent accommodation for the porter, suggesting it was built after the move away from communal living to the provision of individual apartments for the monks and their servants.
- 4.1.32 Within the great gates the field is labelled D. [*omini*] *curia*, the Lord's court, indicating some continuity between the monastic and post-Dissolution function as this would have been the Inner Court of the abbey. Apart from a pond and a few buildings along the outer edges, this area is shown as empty. A complex of buildings is shown at the north-west corner of the court, with a yard to the south and numerous rooves, chimneys and even a tower, which is interpreted as the guest house, leased to the Marquis of Dorset in 1529. The remains of the monastic cloister are illustrated to the north-east, indicated by a small yard surrounded on three sides by buildings. On the south side only a wall with a large door remains which is probably the north wall of the church, with the door being the original entrance into the west cloister or a new entrance created to fit with the post-Dissolution layout.
- 4.1.33 At the time of the map (1594) the eastern cloister remained largely intact from the vestry to the junction with the north range, the central part of which (the refectory) also appears to have survived. A wall is shown on the west side and is probably that which is extant. A fence is depicted extending northwest to another yard surrounded by buildings, likely to be agricultural or possibly stables. The northern projection at least of this building complex is likely to have been the mill as it straddles the stream and is labelled *mell*.
- 4.1.34 Agas labelled the whole of the central area, together with an enclosed garden to the west as 'Site of the manor of Tilty with orchard and gardens' and further describes it in the margin: 'The scite of Tiltey is well-built adjoininge to the place where sometime stood the abbie and near unto the church impropriate to the same maner'.
- 4.1.35 The western side of the garden is today marked by a massive earthwork, which the authors felt was substantial enough to delineate the precinct boundary itself, or perhaps an inner boundary to separate the sanctuary of the monks (Inner Court) from the Outer Court, sphere of the lay-brothers, secular servants and areas of agricultural use (in this case the wood). The gardens on the west may once have been within the Inner Court, the *abbeye yard* clearly was part of the inner precinct whilst the vineyards to the east appear to be outside the central area. The latter appears to be on the site of the abbey infirmary which, coupled with the fact that this building(s) was not mentioned in the inventories, indicates that it was probably no longer in use at the Dissolution.
- 4.1.36 The five-pronged fishponds, of which very little survives today, were located to the north-east of the vineyard in the outer court. The area occupied by the ponds, which extended c.185m north-south, was estimated to be c.4.8ha; they are compared to those

at Kirkstead. Immediately north of the fishponds was a small orchard forming the north-east corner of the precinct. Much of the western part of the suggested larger precinct was wooded (Home Wood) with the exception of a six acre meadow in the north and a small pasture next to the outer gatehouse in the south. Woods were important parts of monastic resources, with timber being sold or used for building, but more frequently it was coppiced and burnt for charcoal.

Aerial Photographs

4.1.37 Frequently during dry summers the parchmarks of the Tilty Abbey are revealed and have been captured by aerial photography. The particularly fine photograph taken by D. Strachan (ECC, Fig. 4a) in 1996 allowed further refinement and interpretation of the abbey buildings and monastic plan; a history of aerial photographs of the site is also provided:

- 1946 and 1948 RAF National Survey, partial coverage
- June 1949 Cambridge University (ref. CQ 92-5), outline of cloister garth present
- July 1949 Cambridge University (ref. EP102-8), slightly fuller plan
- June 1956 CUCAP (ref. SR29-33), more of the complex recorded including the abbey church
- July 1959 CUCAP (ref. AAM 96-9), the infirmary buildings first recorded
- August 1975 CUCAP (ref. BVU 55-61 & K17-AK-241-242) recorded much greater detail including buttress features and internal divisions using both oblique and vertical photography
- 1990 Essex County Council (see Andrews and Gilman 1992 above), much of the site was covered by vegetation
- 1996 Essex CC (Strachan 1997, Plate 2) produced low-level, high resolution images in ideal conditions for parching

4.1.38 The 1996 images were computer-rectified and imported into GIS along with other datasets including the 1777 Chapman and Andre map and the 1594 Agas map. The results were presented as a figure in the publication (see Figs 4b and c) and were discussed against the results of the plans published previously by Galpin and Steer (see Fig. 2).

The church

4.1.39 The parchmarks confirmed Galpin and Steer's plan of the church, comprising a seven-bay aisled nave, an unaisled square-ended choir and transepts, each with two identical square-ended chapels. The continued use of the 'Bernadine plan', until the 1950s thought to have been an early 12th century style of architecture favoured by the Cistercians, may represent a deliberate emulation of earlier ideas. No evidence of the gallilee porch was identified, although crossing piers were visible indicating a low crossing tower; a typical feature of 13th century Cistercian churches.

The east range

4.1.40 The chapter house showed up particularly well, occupying the central part of the east range, and corresponds well with the earlier plans although the pier bases are barely discernible. No structures are visible to the south of the chapter house until the division between the north transept chapels. North of the chapter house the parlour and dormitory undercroft are clearly visible, with the latter divided about two-thirds along its length. Further north the latrine block can be discerned, aligned east-west with the drain on its north side. The sub-division of the dormitory undercroft could either suggest

an extension of the north range at a time of expansion (in which case the easternmost section may represent one of the earliest abbey buildings prior to the rebuilding of c.1188-1214), or a contraction or division of the building into separate residences late in the life of the abbey.

The north range

- 4.1.41 The parchmarks clearly show a large room aligned east-west, parallel to the cloister which contradicts both Galpin and Steer's plans. Refectories were generally aligned north-south in Cistercian abbeys of this date (1160s onwards), although there are examples of east-west buildings as was clearly the case at Tilty. Faint parchmarks to the north are probably those of the kitchen.

The west range and lay-brother's cloister

- 4.1.42 In addition to the extant wall the aerial photograph shows a substantial range extending northwards and westwards, which is likely to be a separate yard or cloister with lay-brothers' dormitory above and refectory and cellarage below. The substantial accommodation indicated by the parchmarks suggests that there was no shortage of lay vocations in Essex at the time of its construction. The accommodation extended down to the church, indicating that the lay-brothers had direct access to the nave through the north-aisle door.

The infirmary

- 4.1.43 Detail of the infirmary was particularly clear for the first time on the 1996 photographs and has allowed reinterpretation of the earlier plans of this group of buildings. The main building shows clearly as a double-aisled hall divided into four bays by two sets of posts or piers. Two projecting chambers are shown at the east end, the southernmost of which has clear evidence of external buttressing indicating vaulting; it is almost certainly the infirmary chapel. North of the north chamber (which may have been for the infirmarer or for the seriously ill) was another structure that is likely to have been the infirmary latrine, adjacent to the stream. Other parchmarks clearly show that the infirmary was connected by a covered way to the east range and a pentice may have been provided against the west and south walls of the infirmary for the convalescent to walk beneath.
- 4.1.44 Early (1150-1200) Cistercian infirmaries in England were single-aisled and modestly proportioned (e.g. Kirkstall and Rievaulx), indicating that the infirmary at Tilty is likely to date to the 13th century when many were rebuilt on a grander scale and often with two aisles (e.g. Tintern).

The guest house

- 4.1.45 A number of poorly-defined parchmarks were identified to the west of the church in the area previously identified as the site of the guest house. The parchmarks are both complex and difficult to interpret, which accords well with Agas' depiction and the description in the lease. The guest house was clearly laid out on a similar orientation to the church and cloister. It is situated to the west of a road or path which runs north-west to south-east, to the west of the main claustral complex and can be traced as a low-lying earthwork on the ground. It shows as a parchmark on the aerial photograph, suggesting its surface was metalled.

Tilty Abbey and its Lands

(D. Melling 2007; Unpublished Undergraduate Dissertation, University of Sheffield)

- 4.1.46 This dissertation aimed to produce a wider landscape study of the abbey and its estates, and explore the effect that this had on the layout of, and life within, the abbey. Some analysis of the visible features including earthworks, standing buildings, and the suggested site of the 'Monk's well' in Home Wood, was undertaken, combined with re-appraisal of the cartographic evidence and published material. It includes a summary of the documentary evidence and research to date, outlining the history of the abbey from its foundation to its suppression and the post-Dissolution use of the site up until the present day. Of particular note was the identification of an ancient track traversing the site and the painting of a clearer topographic picture of the contemporary landscape and the effect this had on some aspects of the layout, entrances and approaches to the abbey.

5 CARTOGRAPHIC EVIDENCE

5.1 1594 Agas Map ERO D/DMg P25 Figs 5a-c

- 5.1.1 The following interpretation/discussion is based largely on the description given by Hall and Strachan (2001).
- 5.1.2 At the time Canon Galpin published his account of Tilty in 1926 the Agas map, surveyed in 1593, was preserved in the Warwick estate office, the Greville Earls of Warwick having acquired the Maynard estates by marriage. By 1949, however, it had disappeared, leading Steer to believe that it had been destroyed in the 1918 fire at Easton Lodge. Fortunately it was rediscovered in 1997 in an Essex barn once owned by a branch of the Greville family; one edge was seriously damaged by damp. The map is now deposited at the record office (ERO) in Chelmsford and is in even poorer condition and appears quite faded (observed by the author during a visit to the ERO 11 March 2011).
- 5.1.3 Ralph Agas is the author of the first known English scaled estate map in 1575, of West Lexham, Norfolk (Harvey 1993, 80-1). Agas' map of Tilty thus belongs to the first generation of accurate map-making, commissioned by Henry Maynard a few years after he took possession of the manor (Morant 1768, 436). The map, which was more than 3 feet square covers a wide area, encompassing Tilty and lands to the south and west. Typical of maps of the time it is coloured and has pictures superimposed on it, so that it is possible to make out some detail concerning the buildings. They were however painted at a small scale - 10 inches to the mile or 1:6336. Agas annotated each piece of land with its name, to whom it was rented and the area contained in acres, roods and perches. The text is a typical mixture of English and Latin. Around the outside, this and other information is contained in tables, designed so that the map could completely replace the survey or terrier as a record of landholdings.
- 5.1.4 Although Agas compiled a picture of Tilty Abbey almost 60 years after the Dissolution, the map contains considerable information regarding the monastic layout of the precinct and to a lesser extent, the claustral nucleus. Description of the buildings depicted by Agas is included in the previous section and is discussed further in the following sections.
- 5.1.5 The map is particularly useful as a means of placing the abbey within its broader landscape setting with field names providing clues for past land-use, which in some cases still endure today. Areas of pasture, meadow, wood and arable are clearly depicted as are orchards, osier beds, hopgrounds, the abbey fishponds, the abbey windmill and watermill, precinct boundaries, bridges, gates, towers, streams, and roads/tracks. It is also a useful comparator with the later estate map of 1730, which on the whole shows relatively little change in terms of field boundaries, field names and land-use (see below).

5.2 1678 Essex Map (not illustrated)

Small scale (three miles to an inch) county map, shows 'Tiltey' with 'the Abby' noted above a single building, presumably the current church.

5.3 1730 Estate Map ERO D/DMg P1 Fig. 6

'A survey of the several estates belonging to the Right Honourable Henry Lord Maynard in the Counties of Essex and Leicester'.

- 5.3.1 Unlike Agas, no acreages are given on these maps, with the extent of farms denoted by letters; the map of Tilty shows ponds, gates and distinguishes hedge from woodland. The title of each map is in an uncoloured cartouche; the maps themselves are uncoloured except for plain red borders, red reference letters, blue for water and occasionally pale buff for roads. Each map has a plain compass rose; the first, only, also has a scale bar showing a scale of 6.25 inches to 100 perches (20 inches to 1 mile or 1:3168).
- 5.3.2 The maps were created by Edward Laurence and commissioned by Henry Maynard, 4th Baron Maynard (c.1673-1742). Map three (two sheets joined together: 900 x 1220 mm) out of seven is pertinent to Tilty and is entitled 'A survey of the several farms in the manours of Tilty Broxted, Thaxted & Much Eiston'. The map shows farms (1,465 a.) in the manors of Tilty, Broxted, Thaxted and Great Easton, with only Tilty being wholly depicted. The postmill, watermill and 'The Vineyard' in Tilty are shown, with Tilty Church and other buildings (including those on the site of Tilty Abbey) drawn in perspective view. Other land-use information includes strips in Great Common Field, a hopground and osiers.
- 5.3.3 Similar detail to that shown on the earlier Agas estate map is given. The manor house (possibly rebuilt by this time) is depicted as a substantial house with west-facing wings and two chimneys; it is set within an enclosure with smaller buildings to the north. The watermill with a waterwheel on its northern side and a large mill pond are clearly shown and there are a number of buildings positioned along a sinuous boundary to the east and straddling a ?new field division to the south, which dissects the former Outer Court of the abbey. The church is shown with a western spire and there is a building within a small enclosure at the junction of Church Lane with the Broxted Road; the latter is also depicted by Agas and is roughly in the location of Nos 1-3 Church Cottages built in the mid-19th century. Both the inner and outer gatehouses have disappeared, although there is a building or gate spanning the entrance of Broxted Road off the Thaxted Road. The fishponds have gone but the woods and fields remain largely the same with some changes in name.
- 5.3.4 Tilty Grange is also depicted in some detail although there are less buildings shown than on the Agas map; Tilty Grange itself appears to be fairly substantial and the house to the east of this (now Pumpkin Hall) is clearly described as the Mill House. The miller would have been responsible for both the watermill and the windmill, which is also clearly depicted in Windmill Field to the south-west of the Grange.
- 5.3.5 It has not been possible to rectify this map accurately with the modern OS or the survey results, meaning that any comparisons given in the following report sections are approximate only.

5.4 1777 Chapman and Andre Fig. 7

This small scale map shows 'Tiltey' church, a building to the south and The Grange, but the abbey is not depicted. Interestingly, Home Wood and Eseley Wood are shown as being contiguous and the road or lane to Broxted and Chaureth does not continue past Tilty Grange; in addition some of the smaller streams and channels are not included. Neither the windmill nor the watermill are shown, although the latter was clearly in existence still at this time and may even have recently been rebuilt. The neighbouring post-mill beyond Great Easton is shown, suggesting that if Tilty windmill was still standing at this time it would have been included.

5.5 1811 Estate Map D/DMg P2

(not illustrated, viewable on-line at <http://seax.essexcc.gov.uk>)

- 5.5.1 'Map of part of the estate adjoining Easton Lodge belonging to the Rt. Honble. Charles Lord Visct. Maynard situate in the parishes of Great & Little Easton, Dunmow, Lit. Canfield, Broxted & Tilty, in Essex' Unknown Surveyor or scale; the map is in poor condition. It only shows the southern part of Tilty; the church/former chapel is illustrated but no other buildings or remains are indicated within the abbey field. The land to the south and east of Tilty Grange is described as being part of Grange Farm.

5.6 1st Edition Ordnance Survey 1876 1:2500 and 1881 1:10560 Figs 8a and 8b

- 5.6.1 Despite the fact that almost all remains of the abbey had disappeared by the time these maps were surveyed, they nevertheless provides useful detail relating to the field boundaries, woods, tracks, land-use and buildings including the church, watermill and the Grange. Although a number of the smaller fields shown on earlier estate maps have gone, the landscape is clearly recognisable as that depicted by Agas, and indeed (to a lesser extent) to the modern visitor.
- 5.6.2 Within the Abbey Meadow (erroneously dated to AD1133) the extant sections of cloister wall are clearly shown, in addition to the rectangular 'ponds' in the north-east corner with the large sub-oval pond still present today to the south-west. There were clearly more mature trees located around the pond and along the Mill Race and other boundaries; the new southeastern boundary of the Abbey Meadow is clearly established by this period, separating the former Inner and Outer Courts of the abbey precinct. Home Wood has evidently been encroached upon in the southwest corner by this time, where a few trees and fragments of former boundaries survive. The latter are orientated north-south and emanate from the boundary to the north of the church.
- 5.6.3 To the east of the former gate chapel, by this time the parish church, the Vicarage (now Abbey Gates) and ?church hall (later called the Sunday School) are shown, whilst the church cottages built by the Maynard estate are depicted to the west of the lane, beyond which are outhouses and some form of strip cultivation (a location now occupied by a bungalow). To the west of the church is a building known as Clerk's cottage (not annotated), where the present landowners live.
- 5.6.4 The mill and associated buildings are shown in the north-east corner of the field, as are the mill leets, mill pond and other related channels and drains, with a new track depicted leading from the Thaxted Road to the mill. A number of these were further investigated as part of the Level 1 wider area survey.
- 5.6.5 The distinctive shape of Tilty Grange is very recognisable from earlier maps and has changed little; even the internal subdivisions are on the whole the same, albeit demarcated by trees. A ?new track is shown, however, crossing the south-west corner of the enclosure and linking with the Broxted Road with radiating tracks or paths leading to the individual buildings. The track shown on previous estate maps entering the enclosure from the north is now only marked by an avenue of trees, indicating that this was no longer a main access or thoroughfare.
- 5.6.6 Interestingly, several (one angular, numbered 97) pond-like features are shown to the west, north and south-east of Tilty Grange which may relate to a pond also shown (less-clearly) on the 1730 map: perhaps remnants of a moat relating to the pre-monastic manor? A number of buildings, possibly cottages or agricultural structures/barns (e.g. to the north and south of the grange barn), shown on the Agas map are not depicted on the Ordnance Survey, reiterating the evidence from the

1730 map. Many others, however, are still recognisable and several new buildings appear to have been constructed, notably close to the barn.

- 5.6.7 Further afield the extents of Home Wood and Eseley Wood are depicted, both traversed and circumvented by a network of paths. The woods are generally similar in extent to that shown on the earlier maps, except the removal of the eastern part of Home Wood within the scheduled area, and the addition of a small plantation on the north-west edge of Eseley Wood. The numerous streams (many modified) feeding into the Chelmer are shown, many of which flow from the west of Tilty Grange. Fields to the north of the abbey, once the site of the monastic fishponds, and an orchard, maintain the boundaries and a channel relating to their former use, but no evidence of the ponds remains. The meadows or closes first illustrated on the earlier estate maps flanking the stream to the west of Tilty Grange are also still recognisable, although most of the subdivisions have been removed. No evidence of the windmill to the south of Broxted Road is shown, reiterating that this structure was no longer extant as indicated by the previous smaller scale maps.

5.7 2nd Edition Ordnance Survey 1897 1:2500

(not illustrated; viewable on <http://www.old-maps.co.uk>)

- 5.7.1 This largely shows the same detail as the 1st Edition survey. A few discrepancies include the absence of the two rectangular ponds (which reappear as earthworks on later maps) and the trees/former boundaries in the Abbey Meadow. There are also some additional buildings close to Tilty Mill, including a boat house, whilst within the Tilty Grange enclosure few trees are shown and many of the internal boundaries and paths/tracks have apparently disappeared or are not depicted.
- 5.7.2 The woods, tracks, roads and boundaries *etc.* otherwise remain largely the same, although there is continued loss of field boundaries, notably associated with the closes adjacent to the stream. The latter reappear on later maps.

5.8 20th Century maps

(not illustrated; viewable on <http://www.old-maps.co.uk>)

- 5.8.1 Relatively little change can be charted over the subsequent century, although sadly large areas of Home Wood are cleared in the post-WWII years (shown on the 1954-79, 1: 2500 map). A number of small buildings disappear (*e.g.* the boat house) and new ones are constructed, notably within the Tilty Grange enclosure; an orchard is shown to the west of cottages on Church Lane. There are also several new subdivisions within the Tilty Grange enclosure and the track linking it to Broxted Road becomes more defined, effectively separating the south-west corner where Thatched Cottage is located. Most of the ponds/former moat appear to have been filled in although their former presence is denoted by distinctively-shaped boundaries. Part of the field once occupied by the monastic fishponds appears to have been planted with trees (since removed) and Eseley Wood has gained a new large plantation on its western side (shown on the 1955-60 1:10560 map). The expansion of nearby Duton Hill, particularly with the addition of the 'Abbey View' development in the latter half of the century, is also illustrated.

6 GEOPHYSICAL SURVEY (APPENDIX 1)

- 6.1.1 Both gradiometer and earth resistance surveys were carried out over the entire c.5ha scheduled area (Masters 2010). The work, undertaken in May 2010, was commissioned by English Heritage as part of a S.17 Management Agreement with the landowners. A report was produced (Masters 2010), the results of which are incorporated and discussed in the following sections; a copy of this report is included as Appendix 1.
- 6.1.2 The gradiometer survey produced some significant anomalies relating to the abbey remains as well as the guest house/late manor house to the west. To the south-east of the pond, a rectangular-shaped structure with internal features was recorded, previously unknown. It is possible that this may represent an area of industrial activity as it lies well away from the nucleus of the abbey complex.
- 6.1.3 Earth resistance survey results produced a good outline plan of the abbey remains as well as other ephemeral anomalies possibly associated with the later manor house on the site, believed to be located to the west of the claustral range.

7 THE EARTHWORKS: DESCRIPTION AND INTERPRETATION (LEVEL 3 SURVEY)

- 7.1.1 The following description and interpretation of the earthwork remains at Tilty Abbey is presented in a topographic and, where appropriate, chronological order, with further suggested phase interpretations outlined in the Discussion (Section 9).
- 7.1.2 This section describes the earthworks in relation to the relevant results and interpretation of the geophysical surveys within the Abbey Meadow (Masters 2010), in addition to a plot of parchmarks revealed during late summer 2010. Where appropriate, other evidence from previous research outlined above is also incorporated to aid interpretation, in particular the plan of the claustral buildings, church and other elements published by Steer (1950), Dickinson (1963) and Hall and Strachan (2001). The 1594 Agas map (rectified by Essex County Council) is also heavily drawn-upon.
- 7.1.3 The letters in the text refer to letters on the plan (Figs 9; 10a-c and 11a-f) with pre-fixes relating to earthwork types (e.g. **T** for trackway, **P** for platform, **S** for scarp, **E** for enclosure, **C** for channel, **B** for bank etc). Clearly modern intrusions and mounds have not been numbered but are also described within this section, with further interpretation included in the Discussion.
- 7.2 Routeways and tracks (Fig 10a)**
- 7.2.1 A clearly-discernible but relatively slight earthwork (**T1**), comprising a linear depression flanked to the east by a low bank, traverses the Abbey Meadow. The main/most definable part of the trackway measures c.10m across and extends for c.130m on a south-south-east to north-north-west orientation, terminating c.8m short of the current fenced boundary and stream at the northern edge of the scheduled area. The bank survives to a height of up to c.0.3m, whilst the central depression is c.0.2-0.3m deep. No obvious bank survives to the west of the track, although there are numerous earthworks including scarps, platforms and channels (see below).
- 7.2.2 The southern extent of the trackway is more complex, with three earthworks demarcating its possible continuation (**T1a**, **T1b** and **T1c**), or different phases of use. All of these extend beyond the fence to the south of Abbey Meadow and are truncated or masked by later activity including a channel or ditch (**C10**, see below), a spoil heap, fences, and possibly the modern car park adjacent to the church. Very similar in size and profile, these earthworks are relatively slight at between 0.26m (**T1b** and **c**) and 0.36m (**T1a**) deep; a narrow low bank survives on the eastern side of **T1a**, which together form a combined width of c.8.5m. The latter may have been cut by **T1b**, which may also have a remnant bank and was, along with **T1c**, overlain by a later earthwork (**S34**) to the north-east. Both **T1b** and **c** are truncated by a 4.8m-wide and 0.1m-deep channel (**C10**), which cuts obliquely across them from south-west to north-east for a length of c.28.5m. This may have continued beyond the car park to the south where it disappears, whilst to the north it meets the edge of a substantial scarp (**S34**, see below). It may indicate the route of a post-medieval track or sunken path leading from the church to the eastern area around the extant pond.
- 7.2.3 The probable shallow 'hollow way' represented by **T1** is likely to be part of an ancient track that once linked London to the north Essex coast (see Section 3.1 above). It clearly shows as a parchmark on aerial photographs, suggesting that it may have been metalled, at least within the area of the Inner Court (Hall and Strachan 2001, 207). The track was also identified by both of the geophysical surveys (10), and was interpreted

as being ditched on both sides (presumably the paler anomalies on either side of the high resistance feature) and c.5m wide. The interpretative plot shows the track extending across the surveyed area, disappearing towards the middle and becoming more north-south aligned along its southern stretch (App. 1: Masters 2010, 5-6; figs 2-9).

- 7.2.4 It is possible that different phases of the track are represented; this is evident in the earthworks marking the southern extent (**T1a-c**) and suggests that this part of the route was modified at some point. The latter could have occurred when the inner gatehouse (see below) was constructed, necessitating a realignment of the track from its pre- or early monastic route which may have lain further east if the interpretation of the parchmarks is correct (Hall and Strachan 2001, fig. 2; see Fig 4b). The geophysical survey interpretation plots show the route following the line close to that of earthwork **T1a**, *i.e.* further west. Parchmarks recorded during the earthwork survey included some on the alignment of the trackway's western edge close to the west cloister and later manor. These could indicate that the road was flanked in part by a wall on its western side; possibly in areas accessing adjacent buildings.
- 7.2.5 Both the aerial photographs and geophysical plots show an anomaly branching off the track close to its northern extent. Although this was not clearly identified as an earthwork, a short section of channel (**C9**) curving off from **T1** does correspond with the easternmost part of the geophysical anomaly for the track. Its continuation is masked due to later disturbance in this area where there are numerous shallow mounds and depressions that are probably of more recent date. The surviving earthwork measures c.3.8m wide and c.0.15m deep. The parchmark branch leads off in the direction of the group of buildings to the immediate north-west of the survey area now occupied by the millhouse and associated buildings outside the scheduled area. A similar group of buildings positioned around a courtyard are shown on the 1594 Agas map and included the mill and several related buildings, possibly also the stables (see Fig. 5c).
- 7.2.6 This branch, and/or the metalling of the road, may date to the post-Dissolution phase of occupation. The main track clearly heads towards and crosses the Mill Stream at a different point than the footpath presently does, suggesting a bridge or ford would have once existed further east. No evidence of this was found, but any remains may have been removed when the mill stream was remodelled in the later post-medieval period and the new bridge and track created, making the mill much more accessible from the Thaxted road. Similarly, no obvious trackway is depicted on the Agas map, although there are curving dashed lines interpreted by Hall and Strachan as fencelines within the manorial courtyard that could equally represent a track or metalled path. Interestingly a gate or more probably a bridge (see Discussion) is also shown, possibly crossing a conduit or earlier mill stream to the north of the current track to the mill. This could be a representation of the earlier arrangement of (?pre-) monastic roads and bridges of which **T1** forms a major element. The antiquity of this track is further indicated by the fact it can be traced as a causeway (**42a**) between the floodplain to the west and monastic fishponds to the east to the north of the current Mill Stream, beyond which it continues as a distinct hollow way through the eastern edge of Eseley Wood. This impressive earthwork (see Section 8; **42b**) was traced possibly turning westwards at the north-east corner of the wood.
- 7.2.7 A number of probable channels or ditches (**C1-C6** on the west and **C7-C8** on the east) were recorded by the earthwork survey, some of which may in fact be sunken pathways. These would have connected different parts of the monastic and later manorial courtyards, radiating off the central spine formed by the track or road **T1**. Of

these, **C1** and **C5** are perhaps the most convincing as they have clearer junctions with **T1**; both measure between 5.2m and 5.8m wide and 0.25m-0.3m deep and are orientated east-west. The longest of the channels (**C1**) is also the most southerly, flanking the northern edge of a large scarp (**S1**), denoting an enclosure containing a number of probable platforms and other earthworks (**E1**, see below). The more northerly channel (**C5**), which largely just comprises an entranceway, has an L-shaped bank flanking its southern side approximately in line with one of the geophysical anomalies forming the track, perhaps indicating that it represents a length of wall at this point, similar to that indicated by the recent parchmark evidence (see above). These possible pathways could, however, relate to the post-Dissolution phase of occupation, although a possible narrow path or passageway (**C8**) to the east of **T1** may have linked to the west cloister and church and could have monastic origins. The latter (c.1.3m wide and c.0.2m deep) is not well-defined and is effectively formed between earthworks to the north and south, but appears to have a fairly clear junction with **T1**.

7.3 The area around the *Capella Extra Portas* and inner gatehouse

Inner Gatehouse

- 7.3.1 Previous investigations have on the whole not attempted to identify the location of the inner gatehouse, although its site is known to have been to the east of the gatehouse chapel (current parish church). This information was gleaned from the 1594 Agas map from which Hall and Strachan were also able to obtain a fairly detailed description of its appearance. Inspection of the rectified Agas map provided by Essex County Council indicates that the gatehouse was located to the immediate north-east of the *Capella Extra Portas*. The correlation between the old and modern maps is not particularly good for the church and other building details but is much better for roads and boundaries. These place the gatehouse either beneath the car park or within the grassed area between the car park and the southern boundary to the abbey field. No clear earthworks indicating the presence of a building were identified in this area, although a number of linear depressions on similar alignments were surveyed (**T1a-c**, see above) that might represent different phases of the road or track at the point where it entered the Inner Court.
- 7.3.2 The geophysical resistance plots indicate that the track (**10/T1**) continued until at least the edge of the car park and this may be the most likely position for the gatehouse, adjacent to the chapel. Faint anomalies (not demarcated on the interpretation plots but see Fig. 14) were identified that might relate to what from the Agas map appears to have been a substantial building with an arch on its western side (Fig. 5b). The weaker results might indicate that it had slight foundations or that its position is obscured by later activity.

Enclosure 1 (Fig. 10b)

- 7.3.3 A number of earthworks were identified to the west of the trackway and north of the church within a large terrace or enclosure (**E1**). Internally the enclosure, which occupies an area of gently sloping land, measures c.74m east-west and 65.5m north-south. It is defined to the north by a distinct scarp (**S1**) up to 0.6m high with a slight back to it forming an intermittent bank; a channel or sunken path **C1** (see above) flanks the scarp to the north. To the east it is less well-defined, and is essentially demarcated by the track **T1**, whilst its southern edge is marked by the boundary to the church (beyond which is a bank that might mark the original extent). The western boundary comprises a fairly well-defined bank (**B1**) which appears to slightly overlap **C1** to the north suggesting that it is a later construction. The bank, which measures 3.9m across and is

c.0.14m high, flanks a north-south ditch (**C12**) that also forms a boundary with a second large enclosure (**E2**) to the west (see below).

- 7.3.4 Some of the earthworks within the enclosure are well-defined but several have been disturbed by later activity making their original form difficult to characterise. There are a number of shallow hollows, depressions and low mounds (unnumbered) that have truncated or masked the earthworks, particularly within the eastern and southern parts of the enclosure. The modern fence to the abbey field also bisects the enclosure and some of the disturbed areas are located close to this. Of note within the enclosure are a number of probable building platforms, most of which are orientated approximately north-south. The most central of these (**P1**) is sub-rectangular in plan measuring c.15m x 12.6m in size and up to 0.5m in height. This earthwork may once have been more extensive as there are a number of less well-defined mounds or possible platform remnants to the immediate south that have been truncated by later activity. Platform **P1** corresponds approximately with a square-shaped high resistance anomaly (**13**) identified by the geophysical survey that is straddled by the modern fence. This was thought to represent a yard surface or base of a structure (Masters 2010, 6). Interestingly there is a clear linear high resistance anomaly (**14**), probably a wall, extending northwards from this structure for c.30m which was not identified as an earthwork. A small building is clearly depicted on the Agas map at this point, adjacent to a boundary that extends from close to the northwest corner of the church down to the area of the manor house. This boundary may have marked the inner monastic precinct and/or the later manor's Inner Court. A possible interpretation of the square geophysical anomaly (**13**) was that it might denote the site of the gatehouse, although cartographic evidence places this further east (see above and Discussion).
- 7.3.5 Additional, slightly amorphous earthworks (grouped as **P2**) were located to the north, east and west of **P1**. The more definable element of **P2** comprises a very slight earthwork at c.0.1m high, aligned east-west and extending for a length of c.30.5m on the north side of **P1**. This is more linear appearance than **P1** and incorporates a number of sub-rectangular protrusions on its south and north sides. This, combined with the other fairly low linear positive earthworks to the east and west could conceivably be the remains of a collapsed wall, possibly enclosing a yard surrounding the building denoted by platform **P1**. This might correspond with the rectangular anomaly on the gradiometer interpretation plot (southernmost numbered **13**; App. 1 fig. 5). A possible entrance is located on the eastern side, beyond which is a shallow channel (**C11**), 5m wide with a scarp or bank to the east running parallel to the eastern side of **P2**. This may represent a further boundary, or perhaps the remnants of a shallow path leading from the chapel to the south.
- 7.3.6 The northern edge of a very shallow, small sub-rectangular depression or sunken platform (**P7**) was surveyed to the south-east of **P1** and **P2**, adjacent to the current church boundary. This measured c.7.2m across and is noteworthy as it is in the location of a small building shown on the Agas map. No corresponding anomalies were identified by the geophysical surveys although this is probably due to high magnetic responses caused by the adjacent fence.
- 7.3.7 A sub-rectangular platform (**P3**) located on the northern edge of the enclosure may also indicate the site of a building, positioned on the scarp overlooking the site of the manor house/former guest house. This platform, which had an eastward projection, measured c.17m east-west and c.12.5m north-south and was c.0.3m high. To the east a shallow, rectangular sunken area measuring c.28.5m across occupies the corner of the enclosure and might be the remains of a garden. Two sub-circular/rectangular

depressions (unnumbered) that appear to truncate this earthwork could be later, or could possibly be contemporary garden-related features. A similar low-lying area surrounds the platform to the south and west and may also relate to former gardens. A small mound was surveyed to the immediate north of **P3**, which the channel or path **C1** appears to circumvent, and may be related although it would effectively be outside the enclosure.

- 7.3.8 Three well-defined rectangular platforms (**P4-P6**) occupy the western part of the enclosure. These all have similar shapes, with the two smallest, almost square platforms measuring between c.12m and 13.2m across and c.0.25-0.3m high. The central platform (**P5**), positioned between the two smallest ones, is also the largest, extending over an area measuring c.25.5m x 14.4m with a comparable height to **P4** and **6**. There is an area of disturbance on its southern side, possibly associated with the construction of the fence; a sub-circular depression that clips both the southwest corner of **P5** and the top of the adjacent bank **B1** may be a pit or possibly a tree-bowl/hole.
- 7.3.9 Some of these platforms are likely to have been related to buildings located just within the inner precinct boundary, although several (notably **P4-6** given their regularity and position within a tree-covered area depicted by Agas), are probably post-Dissolution and possibly relatively recent. They could be the remains of agricultural buildings, although no geophysical anomalies were identified that correlate with these platforms, suggesting that if they were constructed for buildings then any structures located on them must have been of slight construction.

7.4 Enclosures, gardens and orchards in the west of the precinct

Enclosure 2 (Fig. 10c)

- 7.4.1 A second large rectangular (with a cut-off corner) enclosure (**E2**) was located to the immediate west of **E1**, which stretched from the southern boundary of the scheduled area northwards, ending at a point parallel to the northern edge of **E1**. The internal area of the enclosure measures c.48m x 110m, within which the ground level slopes fairly gently from 78.7m at the south to 73.2m towards the northern edge.
- 7.4.2 A largely silted-up ditch or channel (**C12**) up to 5m-wide surrounds the enclosure on most of its east, north and west sides and continues downslope to form the western boundary for the enclosure to the north (**E3**). This channel is deepest on the eastern side of the enclosure, where it is c.0.4m deep, presumably because it has continued to provide drainage. The adjacent north-south bank (**B1**), which is parallel to **C12**, may in part derive from the cleaning-out of this ditch. This section of the ditch (and bank) appears to terminate, or more probably turn eastwards, at the point where it meets the boundary to Clerk's Cottage, where a slight bank and ditch is discernible outside the survey area. This also aligns with a bank topped by a hedge which extends along the northern limit of the churchyard further east.
- 7.4.3 A later, narrower ditch (**C13**) forms part of the southern and eastern boundary and cuts through the southern end of **C12**. This later ditch may be contemporary with a slight bank (**B4**) that is located on the western side of **C12** on the boundary with Home Wood (see below). The ditch, which is eroded completely in places and has an intermittent slight bank surviving on its outer side, also forms part of a network of boundaries for properties to the east and south. This earlier boundary is now replaced by fences and hedges that are positioned along the top of the bank or adjacent to it. It is not clear whether the enclosure was originally rectangular in shape; slight earthworks within the paddock to the south of the surveyed area may mark its continuation.

- 7.4.4 Very few earthworks are present within this enclosure. The most notable one is an L-shaped eroded bank (**B2**) with a possible silted-up ditch to the south, measuring 8.4m across in total. This earthwork flanks the inner side of the northern boundary, which it appears to pre-date, and may be contemporary/associated with the substantial bank (**B3**) and external ditch recorded within Home Wood that is likely to be monastic in origin (see below). Alternatively, this earthwork could be a lynchett derived from post-medieval ploughing within the enclosure. The resistance and magnetic plots indicated a number of ephemeral linear and rectilinear anomalies (numbered **15**) in this area that were interpreted as banks and ditches, several of which correspond with the earthwork boundaries around **E1** and **E2**. The westernmost of these aligns with the ditch to the south of **B2** and indicates that the ditch might continue southwards for at least c.23m, suggesting that it is not a product of ploughing.
- 7.4.5 Other earthworks comprise a large, shallow sub-circular depression over 10m long with a corresponding low mound adjacent to it located close to the eastern edge and a barely perceptible low oval mound near to the western boundary. These, along with similar depressions and low mounds noted within **E1**, may be evidence relating to the woodland which once extended across this area. Another sub-oval depression was noted near the south-west corner of the enclosure and is probably the result of erosion associated with the farm gate located here. The earthworks associated with this enclosure correspond very well with the boundary of Home Wood as depicted on the Agas map, indicating that the wood was more extensive at this time, illustrating that **E2** lay outside the inner precinct/court.

Enclosure 3 (Fig. 10c)

- 7.4.6 A third large enclosure or terrace (**E3**) is located adjacent to, and to the immediate north of, **E2**, from which it extends slightly further east. The internal area of this enclosure measures c.61.5m x 70m; the natural ground level slopes gently from c.72mOD to c.69mOD. A shallow ditch, a continuation of **C12**, forms the southern and western boundary, the latter being adjacent to Home Wood, beyond which is the large bank and ditch **B3**. The northern and eastern boundaries are formed by a distinct scarp (**S2**). The latter is somewhat diffuse and irregular to the north, with the slope spreading over 13m with a drop in height of c.0.9m. To the east it is more clearly-defined although it peters out at the south-east corner where there may have been an entranceway. A barely-perceptible shallow ditch or channel (**C14**) measuring c.4.5m wide flanks the scarp on its northern side and also forms a boundary with another enclosure to the north (**E4**). Its relationship with **C12** to the west is masked by a large sub-circular depression; it may originally have turned northwards and joined with/flanked **S3** (see below). Alternatively it is possible that in antiquity there may have been an entrance into the wood at this point necessitating a break in the ditch. To the east the continuation of **C14** is again obscured, in this case by a low oval mound c. 9.8m long located at the eastern end of **E4** (see below). This corner is quite complex, probably due to later activity associated with the post-Dissolution manor house (see below).
- 7.4.7 No earthworks were recorded within this enclosure, probably reflecting its monastic and post-monastic use as an orchard or garden rather than an area of buildings. That this area has been ploughed at some point might be indicated by the eroded and spread nature of its northern scarp. The results of the geophysical survey clearly illustrate, as does the earthwork survey, that the enclosures are largely devoid of archaeological activity, especially when compared with the 'noisy' areas to the east. There are, however, some weak linear magnetic anomalies aligned north-south (group numbered **15** on App. 1 fig. 9), which appear to be parallel to **S2** but were not identified as

earthworks, the latter possibly a result of ploughing. These could represent garden-related features or (given their different alignment) possibly earlier activity such as ditches or field boundaries that might pre-date the abbey. Another anomaly that was only identified by the gradiometer survey diagonally traverses **E3** on a north-west to south-east orientation (**14** on App. 1 fig. 5) and was interpreted as being a ditch possibly of more recent origin as it cuts across the top of other features. Although no corresponding earthwork was identified, this anomaly appears to extend to the north-west corner of platform **P6** in **E1** and could possibly be related to it.

- 7.4.8 Comparison with the Agas map indicates that the earthwork scarps correspond well with the boundaries denoting the edge of the orchard that was located here, whilst the geophysical anomalies do not, which again might suggest that they represent earlier features. Interestingly, the north-western corner of the orchard appears to be indented slightly, which is not mirrored by the scarp in this area. This corner may, however, have contained a different type of tree or cultivated crop in this area rather than an (albeit slight) extension to Home Wood. Also the eastern boundary 'dog-legs' out and extends up to the fenced boundary leading down to the manor house. This suggests that the orchard was previously much bigger and would have encompassed part of **E1** and the area to the south of **E5**. No earthworks other than those described above and **C15** described below were recorded that might mark this original extent, although the geophysical survey did identify the eastern boundary (**14**).

Enclosure 4 (Fig. 10c)

- 7.4.9 A narrow enclosure or terrace (**E4**) occupies the north-west corner of the surveyed area, and measures c.60m x 11.2m internally. The southern boundary is defined by **C14** whilst to the west, north and east the edge is formed by a fairly well-defined scarp (**S3**) that may slightly underlie **S2** at its southernmost point. At its most pronounced the scarp measures c.0.8m high; there is a rectangular protuberance with a corresponding opposing mound towards its western extent which may have been some form of causeway or internal boundary. The eastern corner is more complex and may either turn southwards on an oblique angle or possibly continue for a short distance eastwards. Two small but fairly deep holes measuring between 2.8m and 4m across and up to 0.4m deep are cut into the edge of the scarp and are likely to be of fairly recent date, possibly tree-related. A second slightly ragged scarp (**S4**) is located a few metres to the north of **S3**; it extends for c.38m and is 0.5m high.
- 7.4.10 No geophysical anomalies were clearly identified that might relate to these earthworks, however comparison with the rectified Agas map shows that the area encompassed by **E4** was a fenced or walled yard. This was located to the south of a group of buildings arranged around a courtyard with the watermill projecting to the north, the more northerly scarp (**S4**) probably marks the southern boundary of this building group. This part of the abbey is outside the scheduled area, and is currently occupied by a number of later post-medieval buildings including the mill house and the watermill.

7.5 Buildings and enclosures to the west of the claustral nucleus (Fig. 10d)

- 7.5.1 A complex area of earthworks was surveyed to the west of the main claustral nucleus and east/north of the enclosures described above. This area is roughly triangular in plan and extends over 120m in length from channel **C1** to the south to the modern boundary to the north and c.32m across from the edge of **E3/4** to the west to the track **T1** to the east. Within this there are numerous earthworks denoting a series of terraces or enclosures with platforms, internal divisions and possibly walls.

- 7.5.2 Located approximately parallel to and c.6.5m to the north of **C1** is a low, irregular bank (**B5**) with a small square platform projecting southwards at its eastern end close to track **T1**. The bank extends for c.20m and is c.0.2m high; the platform measures c.4m across and is a similar height. The bank meets, and possibly overlies, an irregular scarp (**S5**) at its western extent, which continues westwards until it meets the edge of Enclosure 3 (**E3**; **S2**). Above and to the south of this scarp is a second possible sub-rectangular platform that protrudes northwards; the latter measures c.6m across and c.0.2m high.

Enclosure 5 (Fig. 10d)

- 7.5.3 An L-shaped shallow ditch or channel (**C15**) defines the western and southern boundaries of this small enclosure (**E5**). The north-south section of **C15** flanks the edge of, and is possibly also overlain by, **E3/S2**. The northern boundary of this enclosure is perhaps defined by a scarp (**S6**), which may be associated with **S2** indicating that it is probably not a contemporary limit as it appears to cut through **C15**. A c.15m-long scarp (**S7**) is located to the immediate east of **S6** and is also overlain by it, suggesting that this might be the original boundary. This would make this enclosure, which is relatively level, encompass an area measuring c.22m x 44.8m.
- 7.5.4 Channel **C15** tapers out in a rounded terminal at its eastern extent but may continue as **C2**, which is effectively formed by the gap between **B5** and a platform to the north (**P8**). **C2** is an 8.7m-wide and 14m-long channel or sunken path which may possibly have acted as an entrance into this complex from the main trackway/road **T1**. Enclosed within the corner formed by **C15**, which measures c.60m in total and is c.3m wide, are a number of earthworks that may be the remnants of platforms or walls. The most westerly of these (**P9**) forms an approximate inverted 'U' in plan, with a slight project eastwards; the level/highest part of this measures c.12m east-west and c.15m north-south. A large sub-circular depression truncates its northern edge. The irregularity of **P9** might indicate that it could represent walls rather than a platform. A second, almost triangular-shaped, platform (**P10**) is located a few metres to the east, abutting and possibly truncated by the southern return of **S6** which forms the edge of this internal enclosure. This platform measures c.9.5m along its north-south (longest) axis and is just 0.1m high.
- 7.5.5 Located just to the east of **P10** is a fairly large sub-rectangular platform (**P8**), measuring c.11.5m x 14.6m and up to 0.2m high, which abuts the trackway **T1** on its eastern side. Two later depressions cut into the northern edge of the platform and are probably fairly recent. A small channel or pathway (**C3**) leading off **T1** lies to the north of **P8**; this is c.2.6m wide and extends westward from **T1** for c.17.5m. Beyond this there is another slight scarp or channel of similar dimensions (**C4**) that might form a narrow terrace on the edge of the enclosure.

Enclosure 6 (Fig. 10d)

- 7.5.6 A narrow enclosure was located to the immediate north of **E6**, with which it shares a southern and eastern boundary. Track **T1** forms the boundary to the east and a scarp (**S8**) to the north, giving a total internal area of c.34.5m x c.10m. There is a clear entranceway (**C5**) leading off from **T1** to the east, possibly delineated at this point by walls (see Section 7.2 above). Within the enclosure there is a single small sub-rectangular platform (**P11**) located fairly centrally and opposite the entrance. This measures c.4m x c.7.5m along its level/highest part and is c.0.2m high. A small, irregular sub-oval depression is located to the south-east of this and is probably a result

of later activity. The northern scarp (**S8**) is not well-defined but extends for c.20m, and is between 0.2-0.3m high; it is possibly contemporary with **S3** to the west.

Enclosure 7 (Fig. 10d)

- 7.5.7 Another scarp (**S9**) marks the southern and western edge of enclosure 7, located to the immediate north of **E5**. This enclosure is not well-defined to the north, where its course is masked by a later ditch or channel (**C16**). As with **E5**, the eastern side is essentially formed by the trackway (**T1**), therefore encompassing an area c.30m wide and at least 28.8m long. The scarp is indistinct and measures c.0.15m high on its most substantial southern side; it extends in an L-shape for c. 53m and curves round to join/flank **C5** to the south.
- 7.5.8 Located within the enclosure are a number of platforms, all of which are very slight, measuring between c.0.12m and 0.3m in height. The largest of these (**P12**) was located within the south-west corner of the enclosure and is sub-rectangular in plan; its western side is not well-defined and its northern extent is disturbed by ditch/channel **C16**. Originally the platform may have measured c.12m x 30m, although its full shape is no longer discernible. A slight, irregular mound or area of disturbance is located on its eastern side whilst its northern edge and channel **C16** is masked by an area of vegetation overlying a low spread mound that extend out from the modern boundary and may be related to the extant tree. Channel **C16**, which extends for c.30m approximately east-west and measures c.5 wide is very slight; it appears to merge into **S3**, the northern edge of **E4** to the west.
- 7.5.9 A number of smaller platforms (**P13-15**) were surveyed to the east of **P12**, adjacent and parallel to the trackway **T1**. These are generally sub-rectangular/square in plan; the largest and most northerly example (**P15**) measures c.5.3m x c.6.9m and between 0.1-0.15m high. To the south is a smaller, very slight mound (**P14**) measuring c.4.4m across beyond which is a more defined platform positioned within the south-east corner of the enclosure and abutting the track. The latter (**P13**) measures c.6.4m across and is more pronounced than the other platforms in this area at c.0.23m high.
- 7.5.10 The geophysical anomalies in the area of these enclosures are difficult to interpret although there are some correlations between the earthwork survey and the resistivity results. Although there does not appear to be a clear low-resistance anomaly in the area of **C15**, there is a good high-resistance anomaly (one of a group labelled **15** on App. 1, fig. 9) that is aligned parallel to this to the north on the approximate line of a scarp (**S8**) that may define another enclosure. This suggests that the latter might denote a wall or revetment and illustrates that this anomaly and the enclosure are clearly aligned on a different axis to that of the main track and much of the claustral complex to the east, as well as the earthworks to the north. Perhaps most significant is the identification of a possible rectangular hearth or chimney base (**12** on App. 1, fig. 9), which is located within **P9**, close to the western edge of the enclosure. This strong anomaly may denote the location of the kitchen or hall of the guest house or later manor.
- 7.5.11 Comparison with the rectified Agas map, however, places this complex of buildings further to the east although the accuracy of the building locations shown on the map is perhaps open to question and there are likely to be some errors in the rectified image. Documentary sources, however, also place the guest house adjacent to the abbey church, *i.e.* to the east of this group. The boundary denoted by **C15** is clearly discernible on the Agas map and defines the boundary between the area occupied by the manor house and other buildings from the orchard to the west and south. The

earthworks within **E5** and **E6** do not appear to correspond clearly with any buildings shown on the map, although as they are illustrated in perspective this is perhaps not surprising.

Earthworks to the north of Enclosure 7 (Fig. 10d)

- 7.5.12 The area to the north of **E7** and extending across to **T1** contains several diffuse and slight earthworks, most of which are probably fairly recent in origin.
- 7.5.13 A group of positive earthworks/mounds (**P16/17**) covering an area of c.20m square to the north of **P15** and **C9** may be the disturbed remnants of a rectangular platform or possibly later spoil heaps. To the west of these was a narrow linear earthwork (**B16**) overlain by the northern edge of **P12**. This earthwork, which may be the remains of a small bank or wall section, extends on a north-west to south-east alignment for c. 6.5m; it is c.1.4m wide and less than 0.1m high. North of this are two barely perceptible scarps possibly forming a channel (**C16a**) that were traced for c.19m towards the corner of the site. These are likely to be the result of erosion caused by the footpath that exits the field at this point. A barely perceptible sub-rectangular earthwork (**P18**) was recorded against the northern edge of the survey area and could be the remnants of a platform measuring at least 7.3m x c.3.8m.
- 7.5.14 These earthworks do not appear to correspond to the results of the geophysical surveys, although there are only a few weak linear anomalies identified in this area (numbered **15** on App. 1 fig. 9). The Agas map indicates that this area was an open yard extending up to and adjacent to the second group of structures which includes the mill and related buildings arranged around a courtyard to the north-west. Other than a fence and possibly the edge of the easternmost structures surrounding the courtyard, no features or buildings are shown within the yard. Most of the earthworks in this area are aligned with the track (**T1**), although **E7** and **P12** and the western side of **S3** are on a more north-west to south-east orientation, possibly indicating a later phase of use. This is a notably different alignment to that of **C15** etc to the south, which may belong to an earlier phase of occupation. A few weak linear anomalies (**15**) are indicated by the geophysical survey, which do not appear to correspond to the earthworks in this area.

7.6 The abbey buildings within the Inner Court

The church and burial ground (Fig. 11a)

- 7.6.1 The earthworks surveyed in the area established as the site of the former abbey church are relatively poorly-defined. This is largely as a result of previous investigations and excavations in this area and what appears to be quarrying against the southern edge of the church.
- 7.6.2 Two broad but irregular platforms (**P19** and **P20**) were identified that are orientated east-west and separated by a narrow (c.5.5m) discontinuous channel (unnumbered) that might be the remains of an investigative trench. The westernmost platform (**P19**) is roughly rectangular in shape apart from a square 'cut-out' on its southern side which is probably of fairly recent origin. The surviving width from east-to-west is c.20m and the platform measures c.0.6m high; there is a slight fall west-to-east from 65.96mOD to 65.59mOD. The easternmost platform (**P20**) is much larger, extending for c.32m east-west and c.33.8m north-south with an irregular outline formed by a fairly steep scarp which is c.0.6-0.7m high along its northern edge. As with the westerly platform, there is a perceptible but slight fall in height from west to east (65.71mOD to 65.48mOD).
- 7.6.3 A smaller sub-rectangular platform (**P21**) measuring 10m x 12.6m was surveyed to the immediate west of **P20**, abutting the bank that flanks trackway **T1**. This is surmounted

by a small, fairly well-defined and roughly square mound or platform (**P22**) that measures c.6.3m across and is c. 0.10m high.

- 7.6.4 There are a number of rectilinear and rounded mounds in addition to a short section of channel or trench (unnumbered) on top of this earthwork that are all likely to relate to excavations and associated activities undertaken during the last century or perhaps more recently. Four roughly circular mounds measuring between 3.6m and 8.6m across and between 0.14m and 0.22m high occupy much of the western and northern parts of the platform. The two central mounds in this group overlie a shallow channel or trench. The latter is orientated north-south and is c.5.6m wide and 0.12m deep; this may also mark a trench or other investigation. An L-shaped low bank or mound measuring c.20.5m long is located at the eastern end of **P20**. The corner of the bank is c.0.2m high; it overlies scarp **S11** to the north-east and is cut by the upper edge of the modern pond/quarry to the south. To the south-west of this and on the edge of the southern scarp for the platform are two smaller sub-circular or oval mounds measuring between 2.2m and 4.7m across. These, in addition to some of the mounds described above and those located to the south (see below) are probably localised spoil heaps created by previous excavations or more recent activity.

Enclosure 8 (Fig. 11a)

- 7.6.5 Located to the immediate east of platforms **19** and **20** is a relatively level enclosure or terrace (**E8**) that extends to the north of the extant pond around to the series of channels and ditches that emerge from it to the east. A low scarp (**S10**) forming a shallow depression (unnumbered) defines the eastern side and north-east corner, although this appears to peter out and a more pronounced earthwork (**S11**) provides the slightly irregular northern edge. The latter curves round and meets the edge of another scarp (**S12**) associated with **E9** (see below). The enclosed area or terrace extends by c.37m east-west and 18.5m north-south, with the substantial scarp **S11** measuring up to 0.7m high. The smaller scarp (**S10**) located in the north-east corner of the enclosure is much shallower at 0.1m.
- 7.6.6 The only earthwork located within this terrace is an almost imperceptible channel or linear depression that extends for over 21m north-east to south-west across its western half. This channel is less than 0.1m deep and may be of fairly recent origin.

Enclosure 9 (Fig. 11a)

- 7.6.7 Another similar enclosure or terrace (**E9**) was surveyed to the immediate north of **E8**, and may be slightly overlain by it at its western end. This area is defined to the north and west by a distinct scarp (**S12**) that almost mirrors the shape of **S11**, which also effectively forms the boundary to the south. The resulting terrace is relatively long and narrow, measuring c.43m by 6.6m; there is a slight fall from west to east (c. 64.18mOD to 63.83mOD), although the area is generally fairly level. The scarp is short and steep at 0.4m high; less spread than **S11** to the south. This steeper scarp also forms the southern edge to a channel (**C18**) that links into a network of channels and water features to the east (see below).
- 7.6.8 A small platform (**P23**), denoted by a rectangular sunken earthwork, is located at the eastern end of the terrace at its junction with **C17**. It is orientated on the same north-west to south-east alignment as the scarp at this point and measures c.9m long by 6m wide and is c.0.2m deep. A small rounded mound protrudes out from the edge of **S11** into the enclosure c.7m west of **P23**; this and the edge of **S11** are truncated by an irregular pit or depression that is likely to be fairly recent.

- 7.6.9 The geophysical surveys, particularly the resistance survey, produced very good results for this part of the site, especially for the area of the church. Comparison of these indicates that the earthworks are not particularly representative of the building foundations that clearly exist in this area but are perhaps more illustrative of later activity that have affected them since. The outline of the church is very clear (App. 1 fig. 9,1) on all but the northern side; the aisle posts lining the nave are also well-defined (on App. 1 fig. 9, 2). This clear plan is not surprising given the good definition of these structures as parchmarks (see Hall and Strachan 2001, fig. 2 and see Fig. 4b).
- 7.6.10 Platforms **P19-21**, however, all correspond well with the outline of the church, and with the wider area indicated by **P20** encompassing the site of the transepts/chapels. The stepped northern and southern edges of **P20** mirror the shapes of the north and south transepts almost perfectly, although the southern scarp is more spread/diffuse. A mound and parchmark in this area approximately corresponds to an oval anomaly on the plot and might mark the site of an altar table or perhaps more likely the partition between the two chapels within the north transept. Similarly the southern edge of **P19** corresponds fairly well with the south wall of the church shown on the resistance plot. Interestingly the point where the channel between the two main platforms is located is the place where the wall disappears, suggesting that it may have been robbed or removed at some point. Both the resistance and recent parchmark plots indicate that there might be an additional small, square building inserted into the angle between the chancel and south transept.
- 7.6.11 Platform **P22** corresponds with a high resistance anomaly to the west and just outside the church, whilst a similar anomaly to the south is not represented as an earthwork (App. 1 fig. 8). This appears to be in the area of the Galilee porch suggested by both Steer and Dickinson; the evidence from both the earthwork and geophysical surveys is unfortunately inconclusive in terms of verifying this interpretation. There is an interesting semi-circular anomaly projecting from the south-west corner that shows clearly on the resistivity plot and may be mirrored by a small scoop or depression recorded by the earthwork survey. This does not appear on any previously-published plans; its possible function remains a mystery.
- 7.6.12 The Agas map is less informative for the church and associated buildings as most, apart from the north wall, appear to have been demolished by the time the map was surveyed.
- 7.6.13 There are few geophysical anomalies within the enclosures and terraces to the east of the church, comprising a weak linear feature approximately in the location of the western end of **S11** revealed by the gradiometer survey. This suggests that no buildings were located in this part of the precinct, which during the life of the abbey was probably the monk's cemetery. The terracing represented by **E8** and **E9** could indicate remodelling of this former cemetery during the post-medieval period, possibly to create a terraced path leading past the ruins of the church down to the water gardens in the north-east corner (D. McOmish pers. comm.). At the time of the Agas map, however, this area, the pond to the south and the site of the infirmary to the north (see below) were under cultivation and are referred to as 'great and little vineyard'. This raises the possibility that the terraces (although north-facing) might be related to viticulture, a practice that is documented as having occurred during the monastic phase of use.
- The cloister and associated buildings (Fig. 11b)*
- 7.6.14 As with the church, the earthworks recorded in the area of the cloister are not particularly well-defined due to later disturbance.

- 7.6.15 The garth is a clear negative earthwork surrounded by a steep scarp (**S13**) that is rectangular in plan and measures 18.6m x 14m, widening to the south-east. There is a lower break of slope below the base of the scarp, and the deepest part of this earthwork is c.0.8m below the top of the scarp adjacent to the standing wall to the west.
- 7.6.16 A c.7m-wide bank (**B17**) formed between **S13** and a scarp to the east (**S14**) extends around the garth on three sides and probably represents the cloister walks, although the southern section appears to correspond with a resistance anomaly indicating a wall to the north of the walk. The walk on this side of the cloister may be represented by the slight fall/scarp between the church earthworks (**P19** and **20**) and the scarp for the garth.
- 7.6.17 A narrow, discontinuous bank (**B18**), c.2.5m wide, extends from the eastern edge of **B17** for a distance of 13.8m before turning south for a short distance. No southern return of this bank is visible and the surviving section is barely perceptible in an area that is generally very flat. This earthwork corresponds almost exactly with the resistivity plot (App. 1 fig. 9, 4) and fairly well with the parchmark plots and clearly denotes the outline of the chapter house. The geophysical plot indicates that this building measured c.12.4m x 8.4m internally, slightly smaller than the dimensions given by Galpin and others. No clear earthwork evidence associated with the internal pier bases, or the building to the was present.
- 7.6.18 The north range of the cloister is defined largely by the S-shaped bank **B17** and a low scarp (**S15**) to the east, giving internal dimensions for this rectangular room as c.18m x c.6.9m, although it probably originally joined with the extant wall to the west. This room has been interpreted as the refectory and shows clearly on both the resistivity survey and parchmark plot. No evidence of internal divisions or a hearth to indicate the location of the warming room in this range was found.
- 7.6.19 An L-shaped bank (**B19**) measuring c.4.9m wide and 0.1m high extends to the north and west of **B17**, and appears to be on a slightly different alignment to most of the earthworks associated with the cloister. This approximately corresponds with a rectilinear anomaly identified by the resistance survey (App. 1 fig. 9, unnumbered) and which has previously been interpreted as a kitchen of slightly later construction. It is possibly overlain by another barely perceptible L-shaped bank (**B20**) that is on a different orientation to that of the main claustral buildings, being slightly more in keeping with the alignments of some of the buildings to the west of **T1**. The bank has a total length of c.21m, is 5m wide and c.0.15m high. It does not correspond to either geophysical or parchmark features but may indicate the presence of a low wall associated with a building related to the later use of the site.

Buildings extending to the north of the cloister (Fig. 11b)

- 7.6.20 The area to the north of **B18**/the chapter house is masked by two sub-oval mounds that spread over an area of c.12.5m x 7.2m in plan. Beyond the northernmost mound, which also overlies the lower mound to the south, there is a narrow north-south aligned bank (**B19**) which extends for c.12.6m. The bank, which is c.3m wide and c.0.1m high, meets an irregular rectangular platform at its northern end, aligned north-east to south-west (**P24**). The latter earthwork, which is poorly-defined due to later disturbance, measures 17.5m along its longest axis by c.7.3m wide and is c.0.35m high. It is cut to the south by an irregular oval depression and there is a small, diffuse mound located to its immediate west which measures c.6m along its north-south axis.
- 7.6.21 A low platform (**P26**), partly revealed to the west of **P24**, measures c. 8m x 6.3m and is 0.1m high; this is on a similar orientation to **P24** and is probably associated. A second,

smaller platform (**P25**) on a different, north-east to south-east alignment is located to the north of **P24**, adjacent to the northern boundary. This platform is also sub-rectangular and measures c.5.2m along its long axis and is very slight at just 5cm in height.

- 7.6.22 The bank **B19** does not directly correspond with any geophysical anomalies, although it is adjacent and parallel to a rectilinear anomaly shown on the resistance survey plot (App. 1 fig. 9, 4), which corresponds with a building identified by previous work as the monk's day room. The platform **P24** to the north corresponds moderately well with a somewhat diffuse set of rectilinear anomalies which mark the location of the latrine block or reredorter. The weak nature of the geophysical anomalies provides further indication, along with the earthwork survey and very fragmented parchmarks, that this area is probably highly disturbed. The Agas map depicts a single building in this area, although this appears to be slightly further to the north than any of the earthworks or other anomalies that have been identified. The area to the west of the building, where **P26**, **B20** etc are located is identified as 'abby yard' suggesting it was an open area by this time.

The western cloister (Fig. 11b)

- 7.6.23 This area does generally not contain well-defined earthworks except in its southern half. There is a low mound just to the west of **B20** described above, to the south of which is another short, low section of L-shaped bank (**B21**). The bank, which appears to form a corner of a structure is on a similar orientation to the other claustral buildings and measures c.10m long and is 2.8m wide and is c.0.1m high. Although **B21** does not directly correspond with the high resistance anomaly identified by the geophysical survey, it is located very close to it, indicating that it is related to the south-east corner of the lay brother's refectory.
- 7.6.24 An east-west bank (**B22**) lies to the south of this and appears to be contiguous with the bank flanking **T1** to the west. It extends for 20m from **T1** to the extant wall to the east, and measures 7.7m across at its widest point and is c.0.25m high. This bank corresponds very clearly with a low resistance anomaly flanked by high resistance linear anomalies on the geophysical survey as well as the parchmark plot. This area has been interpreted as a possible porch with the lay-brother's refectory to the north and cellarium to the south (Dickinson 1963 plan). However, the combined earthwork, geophysical and parchmark surveys clearly show that this range of buildings extended much further west with **B22** possibly providing an alley similar to the cloister walks to the east.
- 7.6.25 A large, sub-rectangular depression measuring c. 22.4m x 21.6m is located to the south of **B22**, defined by a scarp (**S16**) on its south side (which is effectively continues as **T1** to the west and **B22** to the north) and the extant wall to the east (Plate 2). This depression is notably deep at c.0.9m and may represent a later cellar. A poorly-defined rectangular depression located adjacent to the extant wall is likely to be the remains of the cellarium. This large sunken earthwork corresponds to resistance anomalies on a slightly different alignment to the track but similar to that of the main claustral nucleus and may be related to enhancement of the buildings in this area during the post-Dissolution period. No obvious building is shown in this location on the Agas map, although the cellarium is indicated to the west of which is a fence or wall with a gate in it which is approximately in the location of the west edge of the depression/east side of **T1**.

Buildings to the east of the cloister (Fig. 11b)

- 7.6.26 Located immediately adjacent to the chapter house is a sub-rectangular enclosure or platform (**P27**) orientated on a north-east to south-west alignment that is at odds with the more east-west orientation of the chapter house and other claustral buildings. It is defined by low banks (**B15**) located to the east and west, by **P20** to the south and a scarp **S17** to the north. The banks measure c.3.7m wide and are c.0.11m high; the southernmost elements of these may be overlain by **P20** and **S12** (and possibly **S17** to the north) indicating that this could be an early feature. The internal area measures 9m x 13m. There is only a very diffuse resistance anomaly and a poorly-defined parchmark corresponding with the western side of this platform or enclosure suggesting that if a building is located here it must be of very slight construction.
- 7.6.27 The scarp (**S17**) located to the north of **P27** is quite irregular in plan, extending eastwards for c.25m towards the two mounds to the north of the chapter house; it measures c.0.25m high. To the north of this is a channel (**C19**), c.6m wide, that is effectively created by **S17** to the south and **S18** to the north. This corresponds with both the resistance anomalies and parchmarks which indicate a narrow corridor in this area linking the cloister to the buildings to the east.
- 7.6.28 Located to the north of **C19** is a large low-lying enclosure (**E10**) which is more rectangular in plan to the west and more curved to the east. Its limits are largely defined by a slight scarp (**S18**), c.0.22m high, and a thin, slight bank (**B23**) to the north which might be associated with the nearby fence. The enclosed area measures 31.5m x 23.2m, within which there is a large shallow hollow (14.3m long) located against the eastern edge. There are also several low irregular mounds covering much of the western half of the enclosure which are clearly later as they intrude upon or overlie the scarp. There are no geophysical anomalies or parchmarks recorded in this area, which is likely to have been a garden or open space located between the dayroom/dormitory to the west and the infirmary to east.

The infirmary (Fig. 11c)

- 7.6.29 Another large enclosure (**E11**) is located to the east of **E10**, the limits of which are largely defined by a fairly clear scarp (**S19**), although the northern edge is masked by a large mound or mounds forming a 'figure of eight' shape in plan that extends for c.18m east-west. The enclosure measures c.55m x c.24m, within which a number of platforms and banks are present. A large, irregular but mostly sub-rectangular platform or series of linking platforms (**P28**) is the most complex of these and clearly represents several buildings or rooms. It extends over an area measuring c.14m x 18m and includes low rectangular areas as well as an 8.3m-long length of bank. Another, larger bank (**B24**), of varying widths and height is located to the north of this; it is quite irregular in shape and difficult to define.
- 7.6.30 There are several mounds, in addition to sunken earthworks/depressions, within the enclosure, including a short possible channel that cuts into its southern edge. Other pits/depressions were surveyed against the northern fenceline and to the south of **S19**; these measure between 4.7m and 7.6m across and between a few centimetres and 0.2m deep. One of these is located to the south-east of **E10** and may originally have formed a corner as it aligns with the edge of **S18** to the west.
- 7.6.31 To the east of **P28** is a square shallow depression (**P29**) measuring c.6.7m east-west that may be a small platform. A sub-rectangular platform (**P30**) is located to the north of this, positioned on the edge of the scarp. The latter measures c.12m x 7.5m and is c.0.2m high.

- 7.6.32 The northern edge of another enclosure or platform (**E12**) projects to the north of **P30** and may represent an extension to the area, or possibly an earlier element. It is very regular in plan and extends for c. 25.5m along its longest axis and c.6m on its shortest. It is defined by a low scarp (**S35**).
- 7.6.33 These earthworks, although somewhat disturbed by later activity, clearly correspond with both the geophysical anomalies and parchmark evidence for the infirmary (Plate 3) and confirm its general extent and plan. The more-defined platforms and banks within the enclosure appear to relate largely to the chapels projecting from the eastern edge of the infirmary. The irregular mounds probably represent demolition rubble and/or spoil heaps associated with previous investigations. The Agas map indicates that this area was given over to vineyards by the post-Dissolution period and it is possible that some of the surveyed earthworks relate to this phase of activity.

7.7 Rectilinear earthworks and channels to the east and south of the infirmary *Channels C17 and C18 (Fig. 11c/d)*

- 7.7.1 An area of distinct earthworks occupies the north-eastern corner of the surveyed area. A deep-cut channel (**C17**) extends out from the edge of the extant pond in a north-easterly direction for c.30m at which point it branches, with one arm feeding into **C18** and the other into **C21**. The channel is between 0.5m-0.7m deep and c.5.8m wide; a slight bank (unnumbered) formed between the western edge and **S10** may also be related. The easternmost branch of the channel is relatively shallow (c.0.25m) and less well-defined, perhaps suggesting that it had been allowed to silt-up or had been diverted by the cutting of the second branch.
- 7.7.2 Channel **17** drains into a wide east-west oriented channel (**C18**) that is defined by **S12** to the south and **S19** to the north. It is a similar width to **C17** (c.5.7m) and is up to 0.4m deep. The western extent is not well-defined where it meets the edge of the claustral buildings; to the east it extends to, and presumably drains into, **C21**, extending over at total length of c.60m.

Earthworks C20 and C21 (Fig. 11d; Plate 4)

- 7.7.3 Two large, sub-rectangular earthworks (**C20** and **C21**) orientated north-west to south-east are located to the north-east of **C17** and **C18** in the lowest-lying part of the field. Both have similar profiles and dimensions, and measure c.51m long and between c.11m and c.14m wide, with **C21** being the widest. The latter is c.1m deep whilst **C20** is slightly shallower at c.0.6m deep on average; both bases were observed to be intermittently water-logged. **C18** is contiguous with, and feeds into, **C21** from the east. Located close to the eastern corner of **C21** there is a short length of linear earthwork (**C22**) that appears to form a 'run-off' channel that also serves **C20** and drains eastwards into the Mill Stream. The channel measures c.6.6m wide and is 0.35m deep, falling slightly from west to east. A very diffuse scarp (**S20**) is located to the south of this and may mark the edge of another eroded channel.
- 7.7.4 The north-western end of **C20** is more complex and has clearly been remodelled at some point. A short length of slightly curving bank (**B25**) extends across the breadth of **C20** and overlaps the edge of an angular scarp (**S36**). The latter emanates from the northern edge of the site and extends for c.30m in total. It initially defines the southern edge to a channel (**C19**) before turning sharply southwards and then eastwards, creating a rectangular depression to the south of **C20**. The feeder channel **C19**, of which a length of c.12m is exposed, is slightly funnel-shaped, widening from c.4.25m to the west to c.5.3m where it joins **C20**. This channel presumably connects with the mill

stream or another channel, supplying the two rectangular earthworks with fresh water. The low slightly curving bank (**B25**), which measures c.4.2m wide and just a few centimetres high, may have been created at some relatively recent point to act as a dam between **C19** and **C20**, perhaps to inhibit the flow of water between these features.

- 7.7.5 A long linear bank (**B30**) extending for almost the entire length of, and parallel to, **C20** is located on the north side of this earthwork and abuts the modern fence boundary. The eastern and western extents of this c.4.6m-wide bank may have been shortened as a result of modern activity in the form of an erosion pit adjacent to a water trough at one end and a WW2 spigot mortar emplacement at its western end.
- 7.7.6 A small rectangular platform (**P31**) measuring c.8.9m x c.5.8m is located at the eastern end of the bank that is effectively formed between **C20** and **C21**. The platform is c.0.1m high, comparable with other similar features across the surveyed area.
- 7.7.7 The channels and rectangular features in this area correlate well with both the geophysical surveys, in particular the gradiometer plot (App. 1 fig. 5; 7, 8 and 9; fig. 9; 8) and with aerial photographic evidence. The rectangular earthworks **C20** and **C21** show clearly as positive and negative features on the gradiometer survey and as weak anomalies on the earth resistance survey. These have been interpreted previously as either fishponds or osier beds, however analysis of the earthwork evidence indicates that they are more likely to form part of a planned post-medieval garden, probably a water garden. They may, however, have originally formed the southern part of the monastic fishponds illustrated by Agas, which comprised a series of five linear interlinked ponds that extended over 180m to the north of the scheduled area. Inspection of the rectified Agas map certainly suggests this and it is likely that the channels leading in and out of the complex may be modified versions of the monastic water management system associated with maintaining a fresh water supply to the ponds.

Enclosures and terraces to the east of the pond (Figs 11d-e; Plate 5)

- 7.7.8 A series of scarps defining terraces and enclosures orientated north-west to south-east extend down the slope on the south-eastern side of the surveyed area. The lowest of these (**S21**) also forms part of **C18** and the southern edge of **C21**. It continues eastwards from **C21**, turning slightly southwards to where it meets **C23**, giving a total length of c.74m.
- 7.7.9 This scarp also defines the northern boundary of a narrow terrace or enclosure (**E13**). The southern edge is delineated by another less-pronounced scarp (**S22**) which approximately mirrors the shape of **S21** to the north. The eastern side is formed by a ditch that is probably later (**C23**) whilst to the north-west two platforms (**P37** and **P38**) project outwards to form the limit at this point. The resulting sub-rectangular area measures c.8m x c.46m; the only internal feature is a barely perceptible low bank (unnumbered) located against its north-east corner.
- 7.7.10 A second, much narrower terrace (**E14**) is located to the south; it is defined to the north by **S22** and to the south by a 0.5m-high scarp (**S23**) and measures c.42m long x 10.8m wide (at its broadest). A shallow ditch is located at the base of **S23** and links to the main ditch **C23** to the east/south. Both these terraces are notably level, varying by less than 0.2m in height across their areas.
- 7.7.11 **S23** is overlain to the south-west by a sub-rectangular enclosure or platform (**E15**), defined to the north, west and south by a 0.5m-high rectilinear scarp (**S24**), which also provides a northern boundary for the adjacent enclosure (**E16**). The eastern edge of

E15 is defined by a slight linear scarp (**S25**), and the total area (**P32**) encompassed by the enclosure measures c.26m x 19m. A low, 5.4m-wide bank (**B26**) extends for c.14.8m along the south-western edge, slightly overlapping the linear scarp to the south-east.

- 7.7.12 To the south-east of **E15** lies a long L-shaped enclosure (**E16**) that is largely defined by scarp **S25**, with **S24**, **C25** and **C23** delineating the other sides. This gently-sloping enclosure measures c.51.7m lengthways and c.19m across at its widest point (**P35**). The latter sub-rectangular area may be a platform and has the remnants of a low bank (**B14**) just inside its south-western boundary. The bank **B27** is 10.4m long and 5.5m wide and appears to be truncated to the south by a ditch or channel (**C25**).
- 7.7.13 Located between **E16** and **E15** is a rectangular, slightly sunken, area (**P33**) within which is a small sub-rectangular platform (**P34**). The main sunken area extends over an area of c.14m x 9.8m with the smaller platform measuring 6m x 6.4m in plan and c.0.1m high.
- 7.7.14 Another probable enclosure (**E17**) is located to the south-west of **E16**, effectively created by the junction of two channels or ditches (**C24** and **C25**) that link with the main field ditch **C23**. The dimensions of this enclosure are not easy to define but it appears to be at least 22m long and 8m wide. A slight scarp is located adjacent and parallel to **C23** and there is a low mound, possibly created by vegetation, to the south-west of this.
- 7.7.15 The area to the south-west of **E17** and adjacent to the extant pond is very disturbed with a number of mounds and large depressions that are probably of fairly recent origin. The largest of the depressions or cuts measures c.13.5m across and is a metre deep. A shallow 12m-long and 3m-wide channel (**C26**), with a low 6m-wide bank to the east, cuts across this area at an oblique (north-south) angle and is also probably relatively recent.
- 7.7.16 A long, low bank (**B27**) extends for c.64m along the same alignment as, and flanking part of, channel **C24**. The bank measures 4.6m wide, c.0.12m high and has a rounded terminal at its northern end. There is a 31m-long linear scarp (**S37**) that mirrors the shape of **B27** to the north-west and effectively creates a bank (**B31**) that flanks the southern edge of deep channel **C17**. These are all on the same north-east to south-west alignment as the other channels, banks and enclosures in this area.
- 7.7.17 Located at the north-eastern end of **S37** are a series of overlapping sub-rectangular platforms, **P36-P38**. The most northerly and earliest of these (**P38**) projects into **E13** and measures c.14m x c.12m across and is c.0.12m high. Overlapping this is a smaller platform (**P37**) that measures c.8m across; its full dimensions are obscured by a distinctive sub-oval mound (**P36**). The mound, which is c.11.3m wide and c.0.8m high occupies a prominent position overlooking the channels and sunken earthworks to the west and north and may be part of a formal garden (see Discussion).
- 7.7.18 The earthworks both complement and enhance the results of the geophysical surveys in this part of the surveyed area. Very few of the slight earthworks forming the banks, channels and enclosures are represented as anomalies. However there is a clear sub-rectangular anomaly denoting an enclosure (App. 1 fig. 5, 4) surrounding a possible building (App. 1 fig. 5, 5) that shows on the gradiometer plot but was not identified by the resistivity survey. These anomalies correspond very well with earthworks **P33** and **P34** respectively located between enclosures **E15** and **E16**. This plot also clearly shows the scarps forming the edges of the terraces and the long bank **B27** (App. 1 fig. 5, 8). Rectilinear parchmarks were plotted in this area that also indicate the presence of a building or walled enclosure here.

7.7.19 There is also good correlation with the Agas map, which suggests that **B27** and the possible ditch to the north-west (**S37**) may have marked the boundary between the outer and inner monastic courts. This in turn indicates that the earthwork platforms and the building identified by the geophysical and parchmark survey lay within the Outer Court, against this boundary. No evidence of buildings associated with the Outer Court have previously been identified for this site.

7.8 Earthworks to the south and west of the extant pond (Fig. 11f)

- 7.8.1 This area is generally quite disturbed and difficult to define. A channel (**C27**) effectively forms the eastern boundary and joins with the main field ditch **C23** to the south. This channel or ditch is on the same north-west to south-east alignment as other channels (**C25**, **C23a** etc) that also link with **C23**, providing a network of drainage for this part of the site which may have previously been prone to flooding. After c.17m the channel opens out at its northern end, issuing into a low-lying area containing a number of banks, mounds and possible platforms. The main field/boundary ditch **C23** extends for c.166m along the southern edge of the scheduled area; it is c.5.6m wide and up to 0.4m deep. Part of a c.4m-wide external bank was surveyed flanking the south-east side of the ditch; this has been largely eroded by ploughing along its northernmost length.
- 7.8.2 A long, angular bank (**B28**) begins close to the mouth of **C27** and extends for a total length of c.35m, turning westwards about two thirds of the way along its course. It measures c.5.3m wide and is between 0.1m and 0.2m high. There are three poorly-defined low mounds or platforms (**B28a-c**) to the east of this, the latter two of which might denote broad steps leading down to the pond. These are both sub-rectangular and measure between 7.3m and 8.3m across and c.0.1-0.2m high.
- 7.8.3 A connected length of bank (**B29**) and adjacent mound or platform (**P41**) are located within the low area to the west of **B28**. Cumulatively these encompass an area measuring 20m north-south and 7.8m east-west, with a height of c.0.2m. A small but pronounced sub-square platform (**P43**), measuring 6.2m by c.5m in plan and c.0.5m high occupies the space (?entrance) between **S27** and **P40** and may be related.
- 7.8.4 To the south of these are further possible platforms and banks. **S26** appears to define an irregular but largely sub-rectangular platform (**P39**), measuring c.23m by 18.4m and up to 0.6m high. The platform is notably steep along the northern edge where the scarp is fairly well-defined as it drops into the lower-lying area also defined by **B28** and **P42** etc. Its eastern edge also forms the western side of channel **C27**. Surmounting **S26** on its western edge is a curving inverted 'C-shaped' section of bank (**B32**) which measures c.24m long in total and is up to 6.3m wide and between 0.2m and 0.4m high.
- 7.8.5 A distinct and steep scarp (**S27**), c.0.7m high and extending for c.15.6m on a south-east to north-west alignment before curving eastwards and terminating, marks the edge of the lower/sunken area to the west. This is bisected by a linear erosion caused by a sheep track. At the southern end of **S27**, and possibly pre-dating it, there is a small rectangular platform (**P40**), which measures 7.6m long and 5.3m wide and rises to a height of less than 10cm. This and **S27** are partially overlapped by a low spread or scarp which is likely to be fairly recent and probably associated with vegetation (nettle/bramble) growth adjacent to the fence.
- 7.8.6 Another steep scarp (**S34**), which survives to almost a metre in height, is located c.14m to the west of and parallel to **S27** and may be contemporary/related. This c.21m-long

scarp also turns eastwards back on itself at its northern end, slightly overlapping trackway **T1b**, suggesting that it is a later construction. There is a very slight scarp falling eastwards to the east of **S34** which might indicate the presence of a ditch or channel in this location.

- 7.8.7 Located to the north of and in between **S27** and **S34** is another, less well-defined, scarp (**S28**) that extends for c.22m on a similar alignment. There are two bulbous protrusions at either end of the c.0.4m-high scarp, which appears to be overlain by the bank/scarp delineating the main trackway (**T1**) to the west and in turn overlies platform (**P42**) to the east.
- 7.8.8 The small, sub-rectangular platform **P42** is only partially-exposed but measures c. 14.6m east-west and 13m north-south and is c.0.6m high, falling to the east. The platform overlies a c.23m-long scarp (**S29**) that is in turn overlain by the bank associated with a 14m-long and 3.8m-wide channel or track (**C7**) that appears to have linked the main trackway (**T1**) with the area of the monastic church to the north-east. Beyond the track is another scarp (**S30**) that extends for c.15m north-south and is 0.2m high. It is cut by **C7** to the south and a modern intrusion to the north and its alignment is comparable to that of the earthworks associated with the monastic church, indicating that it might be contemporary.
- 7.8.9 Many if not most of these earthworks could represent garden, landscape, and/or drainage features associated with the post-Dissolution phase of occupation.
- 7.8.10 An area of disturbed ground marked by a moderately steep scarp (**S31**) occupies the area to the east of **S30**, south of the church and west of the pond. Within this area are a number of mounds representing dumps of spoil; although grassed over the presence of concrete and brick within these indicates that they are modern. The mounds vary between 3m and 5.8m across and between 0.3m and 0.5m high and seem to represent a contemporary event (*i.e.* dumping of unwanted material).
- 7.8.11 This area of the scheduled site, which extends c.29m east-west and c.24m north-south, is noticeably lower than the surrounding parts of the field (c.0.75m deeper; c.65.66mOD) to the north, south and west and probably represents some form of quarrying, possibly to extract marl. This activity could be relatively recent, although the southern part of **S31** appears to be overlain by bank **B28** and it also appears to be cut by the ?original outer edge of the extant pond to the east (**S32**). The latter comprises a 0.25m-high scarp that mirrors the outline of the pond below and clearly truncates the platform associated with the monastic church (**P20**). As well as being the location of the south transept, this area may have been occupied by part of the monastic cemetery which indicates that the excavation of the pond/quarry represented by **S32** occurred at some distant point in time after the abandonment of the abbey. Furthermore, the probable quarrying represented by **S31** *etc* (which predates **S32**) may be post-medieval in origin but is unlikely to be modern, and may be contemporary with the various cuts and depressions noted to the immediate south of the pond.
- 7.8.12 The current pond, which is intermittently water-filled, is oval and measures c.45m by 33.3m; its eastern extents could not be surveyed due to the presence of dense vegetation. The upper edge of the pond is c.0.5m below the surrounding ground level, and is steeper on its northern, eastern and southern sides.
- 7.8.13 A probable spring was recorded by the earthwork survey to the immediate east of **S32**, which may conceivably have been present and utilised during the monastic occupation of the site. This lies on a step or terrace formed between **S32** and the lower rim of the pond. Its presence may mark a change in the geology on this line and may in turn

indicate where other springs might be located that would have provided fresh water for the Cistercians, for example that suggested by Steer and others to be in Home Wood. This spring may have been partially brought into service during the post-Dissolution phase of the site, feeding the pond and the channels that drained into the large garden/water features to the north-west (C20 and C21 etc). Any monastic features that might have been associated with the spring are likely to have been destroyed by this later activity.

- 7.8.14 Both of the geophysical plots further reiterate that this area is largely devoid of clear anomalies other than those indicative of 'background noise' or modern disturbance, several of which appear to correspond with some of the banks, mounds and scarps described above. The zones of high magnetic variation identified in this area (App. 1 fig. 5, 1) are interpreted as modern ferrous disturbance caused by brick and tile fragments or occasional stray iron objects such as horseshoes (Masters 2010, 4). The Agas map shows this part of the precinct being open, with no buildings or features other than a possible tree-lined small pond to the west of the current pond. Similarly on the 1730 estate map there are no buildings shown other than adjacent to or straddling boundaries to the east and south; this area to the east of the track is called 'The Fold Yard'.

8 THE WIDER LANDSCAPE (LEVEL 1 SURVEY)

- 8.1.1 The wider area (Level 1) survey was undertaken over a number of days during late 2010 and early 2011 with a small core team of local volunteers and professional archaeologists. This element of the project was designed not just to place the Level 3 earthwork survey within its wider landscape context but also to encourage community participation whilst building on local knowledge and interest in the monument and its management.
- 8.1.2 Access to some areas was uninhibited, whilst to others it was more restricted and in some cases it was not possible to gain access at all, notably much of Tilty Grange and Tilty Mill, which are both private properties. Undergrowth and overgrowth was a challenge during the earlier walkover surveys, especially in some of the wooded areas and close to streams and other watercourses.
- 8.1.3 Despite this, the surveys proved to be both successful and enjoyable, with a significant number of landscape features being identified. These include earthworks, water management features associated with Tilty Mill, and a number of WW2 structures. Areas of woodland, pasture, meadow and garden were explored and evidence for the abbey's precinct boundaries, fishponds, outer gatehouse, brick kiln, windmill and grange was sought. In addition, instances of re-used material from the abbey were also recorded within the Level 1 area and beyond. A significant element of the survey was the use of map evidence particularly for investigating boundaries, former land-use, relationship to the abbey and identification of specific elements such as the site of the windmill, and the origin and significance of Tilty Grange which have previously not received much attention. Maps that proved particularly useful were the 1594 Agas map, the 1730 estate map and the 1st Edition Ordnance Survey.
- 8.1.4 A list of identified historic landscape features was maintained, with nominated members of the team recording basic elements on a *proforma*, taking photographs, compiling a photographic register and, where appropriate, taking measurements. Additional photographs were also taken within the Abbey Meadow and during later visits. A selection of the photographs are reproduced in this report (Plates 6-30).
- 8.1.5 The extent of the Level 1 survey is shown on Fig. 12; with numbers assigned to individual features also annotated.

8.2 Boundaries

Precinct boundaries

- 8.2.1 Very little physical evidence of the precinct boundaries survives. The likely locations and type of boundaries are discussed by Hall and Strachan (2001) and are summarised in Section 4.1.24 above.
- 8.2.2 Perhaps the best surviving boundary is the large bank and ditch (32; Plate 6) that survives just within the eastern edge of Home Wood and was also recorded as part of the Level 3 survey (B3) despite it being outside the scheduled area. The bank (which measures c.14m across at its widest point) was recorded as extending for c.75m north-south. This is likely to be part of the precinct boundary given its size and the fact that the ditch is on the outside, *i.e.* western side; if it was on the eastern/inner edge it would clearly be part of the wood bank. The latter was also recorded and is much smaller in breadth and height and is probably a post-medieval boundary marking the reduced size

of Home Wood in this period. The precinct bank has a number of both coppiced and pollarded trees along its length.

- 8.2.3 As discussed above, this bank and ditch may have once continued as **B2** and its adjacent ditch, forming the inner precinct boundary separating the Inner Court from the formerly more extensive woodland and orchards to the west and south.
- 8.2.4 Other boundaries may have followed existing or slightly modified streams and established roads. No clear evidence of a boundary along what would have been the main approach into the precinct (now a minor road to Broxted) was identified. This field is ploughed, and was under crop when observed, which will have destroyed any upstanding remains of banks along its edge. The eastern boundary may have been marked in part by the channel (**37** adjacent to the Thaxted Road; to the north of the track leading down to Tilty Mill there is a hedge making the boundary where the fishponds were once located. To the north of these and a small field (**42f**, see below) there is another stream along the line of the presumed boundary that flows eastward to a bridge crossing to Duton Hill at which point it joins the Chelmer and runs southward. A bridleway flanks the stream to the north; westwards the stream flows to the south of Eseley Wood and again may have formed the boundary at this point (**42c**), although this stream is not clearly shown on the 1730 map. Beyond this it turned southwards and rejoins the Mill Stream.
- 8.2.5 The boundary beyond the Mill Stream is not easily definable, although it may have skirted the eastern side of Home Wood given the presence of the large bank (**B3**) further south and described above.

Smaller boundaries

- 8.2.6 A number of smaller boundaries were recorded, largely within the churchyard and gardens of houses to the west and south. A network of small banks and ditches demarcates the boundaries between Clerk's cottage, the churchyard, 'Woodlands' and Church Cottages (**34a**, **35a**, **b** and **e**). Most appear as boundaries on the 1st edition OS map and are now surmounted by fences, small coppices or hedges. Some (**35a**, **b** and **e**) appear to be contemporary with, and morphologically very similar to, the later wood bank and boundary for Home Wood and **E2** etc (**C13**; **B4**) recorded by the Level 3 survey, suggesting that they are probably post-medieval. The bank to the north and west of the churchyard (**34a**) with Clerk's Cottage, however, is slightly more substantial at c.5m wide and c.1m high and could conceivably belong to the monastic or perhaps more likely the post-Reformation use of the site. A linear sunken earthwork (**15a**) was also noted in the pasture field to the west of 'Woodlands' and could be the southern limit of Enclosure 2 that extends into the Level 3 survey area (see above).
- 8.2.7 Occasional very slight and/or ephemeral earthworks probably indicating former ponds or garden features were also observed in the gardens of 'Woodlands' and Clerks Cottage (**35d** and **35c**). Cartographic evidence indicates that 'Woodlands' (a modern bungalow) is located within a former orchard that does not appear to have been built upon previously. A building is however shown on the 1594 Agas map roughly in the location of Clerks Cottage; the latter is a Grade II Listed building of 18th century date adjacent to the church. Church Cottages to the south (**15b**, Plate 7), a row of three mid-19th century brick houses are also approximately on the site of a building shown on the Agas Map. There is a bricked-up well in the garden of No. 1 (Maggie Stevens pers. comm.). The cottages have the Maynard insignia displayed on their frontage comprising two plaques, one inscribed with a stag and one a crown and 'M'.

8.3 Tracks, causeways and entranceways

The main thoroughfare across the monastic precinct was identified as a slight holloway by the Level 3 survey (T1) and may be a re-used element of an ancient track (see 4.1.44 above). The entrance into the abbey precinct was from the south, perhaps along the line of where Church Lane is now. There is a low bank with steep scarp on the east side of this (16), beyond which the ground is significantly lower. The latter may be the site of the outer gatehouse, a very slight platform and possible parchmarks were observed in this area (36a, Plate 7; Fig. 12). A footpath may mark the continuation of this former track across the fields to the south of the abbey entrance.

8.3.1 The continuation of the trackway northwards beyond the scheduled area appears to follow a causeway flanked to the east by the site of the former fishponds and to the west by the flood meadows, both somewhat lower-lying. This clearly shows on the Agas map and appears to bend south-eastwards closer to the line of T1 within the Abbey Meadow. The causeway (42a) endures as a footpath and extends from the corner near a bridge over a channel (41, see below) beyond the watermill northwards to Eseley Wood, where it becomes a pronounced hollow way (42b, Plate 8). At this point on the Agas map it crosses a bridge; there is a small brick bridge here that is in poor repair, which is, however, probably of 18th century or later date. The holloway was traced extending northwards through the wood, turning westwards at the northern edge beyond which it could not be identified with any certainty; it probably heads towards Tilty Hill Farm.

8.3.2 Another possible trackway or slight holloway (31) leads out through Home Wood at the western side of the Abbey Meadow. Although not pronounced, it is marked to the south by the end of the large ditch and bank that may be a precinct boundary (32) and within the scheduled area is a narrow terrace or enclosure demarcated by a scarp to the north and south, with a possible ditch also to the south (E4). Its continuation westwards is no longer traceable as this area was cleared of trees in the post-war period (when numerous finds were apparently unearthed according to local sources). Map evidence is also not particularly useful, although this would have formed the most direct route between the abbey precinct (and later manor) with the grange to the south-west.

8.4 Watermill and associated water management

Tilty Mill

8.4.1 Tilty Mill and associated buildings are in private ownership and access was not granted; only elements visible from footpaths or adjacent accessible areas were noted and these only briefly. A Grade II* Listed Building, the mill (18, Plate 9) has been fully-described elsewhere, notably by Bonwick (2005). The mill and adjacent buildings are currently boarded-up and vacant, although the mill cottages are occupied.

8.4.2 The mill was probably constructed in the 1760s or 1770s, although its internal timber framing may be earlier; it was heightened in the 19th century. It is one of only two mills surviving in the upper Chelmer valley. At present it remains structurally and mechanically complete and survives with an original range of timber and masonry outbuildings (all disused apart from a pair of cottages). The mill, which straddles the stream, contains a large cast-iron internal waterwheel and a complete set of gearing to three pairs of stones. Additional equipment includes a sack hoist, a small modern hammer mill and a fourth pair of stones mounted on an elegant cast iron frame. Finely worked timbers of oak and pine are striking features of the mill.

- 8.4.3 A brick and flint outbuilding lies adjacent to the mill (see **2a** below) and flanks the mill pond. Abutting this is another brick building with the remains of a timber-framed structure that is largely collapsed, positioned at right angles to it (**28a**, Plate 10). A number of silted-up channels (**27a**, **28** and **29**), some with associated banks were briefly recorded within Home Wood to the west of the mill buildings and adjacent to the mill pond. Dense undergrowth prevented detailed recording of the extent of these features, which combined with poor light also hampered photography.
- 8.4.4 The channel nearest and roughly parallel to the mill buildings (**28**) is L-shaped, turning eastwards at its northern end at which point it enters a brick culvert beneath the building (Plate 11). The purpose of this channel is unknown as presumably if it was for drainage it would empty into the mill pond rather than run under the building. It may continue westwards, parallel to the millpond and may be associated with **27a**. A 6m-wide L-shaped bank (**29**) located between **28** and the adjacent farm building was also recorded that may be associated. This may also have continued westwards, parallel to the mill pond but its extent was obscured by undergrowth. A large east-west bank (**30**; Plate 12), was also recorded to the south and at right angles to **29** and is also probably related. These features warrant further investigation under better conditions as they could be associated with the site of the monastic watermill or water management features related to it.
- 8.4.5 Further west there is another channel that cuts through the mill bank (**27**; see below) and so must be later, it feeds into another long wide channel or sunken earthwork (**27a**) that extends adjacent to and parallel with the mill pond and may be related to the L-shaped channels shown on the 1st Edition Ordnance Survey (Figs 8a and b) and modern maps. Another earthwork bank aligned roughly east-west was also noted close to the end nearest to the mill buildings and may also be related. This area was quite damp with pools of standing/stagnant water and could be the site of the Monk's well identified by D. Melling as part of her Dissertation. If so it is perhaps unlikely to be the main source of fresh water into the monastic precinct as it is at a similar low-lying level to the buildings and would have required culverting beneath them. At some point in recent history the channel across the mill bank has been dammed using concrete, possibly during WW2 when the pill boxes and other defence structures were constructed.

The mill pond and associated channels

- 8.4.6 The mill pond (**2c**.) effectively an embanked widening of the eastward-flowing stream to the west is c. 6m wide near the sluice gate, widening to c.10m near the mill; it extends for c. 227m. The base is partly filled in and is only intermittently wet. It is brick-lined (**2f**), at least close to its neck where it is directed under the mill; there are numerous trees and plants growing in and around the pond. The substantial mill bank (**2b**, Plate 12), measuring c.10m wide and c.4m high, flanks the length of the pond on its northern side; another bank partially forms the southern side within Home Wood (**27**). A footpath runs along the top of the northern mill bank, beyond which there is a parallel, slight linear depression, possibly a silted up ditch. The low-lying water/flood meadows (**3**, Plate 13) extend northwards beyond this, up to the boundary with Eseley Wood.
- 8.4.7 At the north-western end of the mill pond is a sluiceway (**2d**) where the mill stream can be diverted into a bypass channel that flows under a concrete bridge northwards along a field boundary before turning eastwards and flowing south of Eseley Wood (**42c**). This bypass channel is a straightened and probably diverted stream that flows from west to east, to the north of the mill stream (**24**). The mill stream, which also flows west to east continues westwards before turning south-west and passing under the road to Broxted.

A number of other streams feed into these channels from the north and east and the mill stream is flanked by a series of enclosed pastures on its southern bank (9 a and b, see below).

- 8.4.8 The sluice gate (2d, Plate 14) is largely constructed from brick; some iron fittings associated with the framework survive but most of the (presumably) wooden gate structure has disappeared. The inner wall facing Home Wood is more ornate, with a curving profile (Plate 15), perhaps to aid the flow of water. As with the mill pond, there are trees and other vegetation encroaching on this structure; the sluice gate is effectively constantly open so most of the flow is currently directed into the bypass channel and away from the mill stream and mill. Two semi-circular arched brick bridges (2e) span the northernmost channel; these are also very overgrown and part of the bank has collapsed further west of these.
- 8.4.9 The tail race (39), now called the Mill Stream, flows out from under the watermill and around the Abbey Meadow, turning south and following the western side of the road to the entrance to the Broxted Road at which point it flows under the road and joins the Chelmer. There was probably a channel here during the monastic period which would have helped to flush the reredorter drains, no doubt augmented by the release of dammed water from the mill. This is largely dry and overgrown now, in part due to the bypassing of the millstream at the sluiceway.
- 8.4.10 The scope and nature of the water management associated with the mill, including the mill pond, banks, channels, tail race and sluice gate, indicate that much of this relates to the post-medieval mill rather than its monastic predecessor. It is feasible that the framework for monastic milling was not dissimilar, with the mill stream forming the main source of power to the mill (which according to the 1730 map was adjacent to rather than straddling the stream), presumably controlled via a sluice gate or similar arrangement. The track leading from the Thaxted Road to the mill was also presumably constructed at this time, or possibly during the 19th century when other improvements were being implemented to the mill and associated buildings.

8.5 Fishponds and associated channels

- 8.5.1 The presence of fishponds within the abbey precinct is largely inferred from documentary and cartographic evidence, and to a lesser degree aerial photographs. This evidence places the ponds, which would originally have stretched over an area measuring c.180m north-south, largely within in the low-lying field to the north of the scheduled area, where very little in the way of physical remains survive. The rectified Agas map, however, indicates that the southern ends of the long rectangular fishponds, of which there were five staggered in size and connected by channels, extended into the north-east corner of the Abbey Meadow (Fig. 4c). This is in the area of the sunken earthworks C20 and C21 etc. (see Section 7 above) and further suggests that the Mill Stream is largely a post-medieval construction or modification of an existing smaller (monastic) channel, undertaken when the mill was rebuilt or extended.
- 8.5.2 No earthworks, other than probably modern north-south ditches, survive in the field (40) to the north of the stream (Ponde Meade on the 1594 Agas map and 'The Moors' on the 1730 map). This field is much more low-lying than the surrounding land (Plate 16); there are a number of badger setts in the scarp to the north, beyond which is another small field (42f). An RAF photograph taken in the 1940s (not illustrated; viewed at ECC HER) hints at surviving linear earthworks in this field although none of the later photographs show similar evidence suggesting that any upstanding remains have been destroyed, possibly by ploughing.

- 8.5.3 An extant channel (41) leads into the fishpond field from a ditch crossing the water/flood meadows (3) to the north of the mill pond. This passes under a bridge carrying the causeway 42a (see above), eastwards of which it widens out and then narrows to flow parallel to the current field boundary, joining the Mill Stream at the junction with the Thaxted Road. This feature is probably that shown on the Agas map (but does not appear on the 1730 map), leading into the fishpond field and apparently controlled by a sluice gate or small building that straddles the channel. The area around this building, which is adjacent to the causeway (42a) described above, is called Ponde Yarde. Fish were a valuable resource and would have been protected by a boundary and possibly an on-site custodian. The channel (and sluice) would have ensured provision and control of fresh water into the fishponds from a separate source to that supplying the mill and abbey latrines. Presumably there would have been a system of smaller sluice gates and channels between the different ponds holding fish in different stages of development.
- 8.6 Watermeadows and enclosed pastures/closes**
- 8.6.1 The low-lying fields flanking the streams around the abbey would have provided valuable meadow and pasture and appear to have altered little in shape since the Agas map was surveyed in 1593. They are clearly shown on both ancient and modern maps and are visible on aerial photographs including Google Earth.
- 8.6.2 The easternmost meadow (3) is located closest to the abbey between the mill pond and Eseley Wood, and is called Ponde Meade on the Agas Map and Lower Pond Mead on the 1730 map. This may have regularly flooded and so would have been suitable for marsh- or damp-loving plants such as reeds and rushes, useful for fuel, bedding and possibly thatch. The field to the immediate south-west is called Upper Pond Mead, suggesting that it may have been similarly marshy; the land adjacent to the stream at this point is called Pool Hoppel and beyond that Floodgate Mead on the 1730 map. The latter may be field name evidence for an additional sluice gate in this area where two streams meet. A low bank (4) c. 10m wide extends across the field adjacent to the mill race and could be the remnants of the boundary between Upper Pond Mead and Pool Hoppel. To the north-west of these is a barn surrounded by a pasture field with a sinuous boundary (6); this is called Lower Barn and was probably associated with Tilty Hill Farm to the east and may be on the site of an earlier building shown on the 1594 and 1730 maps.
- 8.6.3 A continuous stretch of small enclosed pastures or closes flanked the southern bank of the western extent of the mill stream beyond Eseley Wood, continuing southwards beyond the Broxted Road to Malting Bridge. These enclosures are clearly shown on the 1594 and 1730 maps and include names such as 'Conduit, Hopground, The New Pastures and Horse Pasture'. Although many of the smaller sub-divisions between these closes have been lost this strip of ground is noticeably still lush green pasture in contrast to the arable fields surrounding them. A distinct scarp or lynchett was visible along the southern edge of the closes adjacent and to the north of the Broxted Road (9a) whilst to the south of the road the field named Horse Pasture still lives up to its name (9b, Plate 17). It is not possible to be certain whether the abbey owned or farmed these pastures but they clearly were part of the manor and estate that was eventually acquired by Lord Maynard at the end of the 16th century.
- 8.7 Orchards, osier beds, hopgrounds**
- 8.7.1 Evidence for other land-use within the wider area survey is wholly provided by map evidence. Orchards and gardens are known to have been laid out within the inner

precinct but there is also field name evidence for an orchard (42f; named 'New Orchard' on the 1594 and 1730 maps) in a triangular plot to the north of the fishponds. This occupies the north-east corner of the precinct. Osier beds are noted on the Agas map in the field to the south of the scheduled area in what was the outer precinct/court and another triangular-shaped plot is stippled and called 'oziers' in the north-west corner of Floodgate Mead to the north of the Mill Stream. Similarly a hopground is also stippled and shown within the closes to the south of the stream (9a).

8.8 Home Wood and Eseley Wood

Eseley Wood

- 8.8.1 Access to this wood was limited; the visit was accompanied by the owners and no photographs or note-taking were permitted. The wood is clearly of some antiquity as it contains many ancient species including Hornbeam; it also appears on the 1594 Agas map and probably once was physically joined with Home Wood to the south.
- 8.8.2 The main earthwork identified has already been mentioned above and comprises a hollow way that is likely to be the continuation of the ancient track identified in the Abbey Meadow. There is a fairly large wood bank and ditch (42e) surrounding the wood, which is slightly less pronounced along the southern edge where the by-pass stream flows (42c); this may also mark the line of the former precinct boundary. The western extension of the wood is a modern plantation.
- 8.8.3 A number of hollows and possible earthworks were noted within the wood and an area of overturned trees close to the south-east entrance has thrown up tile and brick fragments (42g; Terry Francis pers. comm.). Some of these appear to be over-fired and may be kiln wasters, suggesting this might be a possible site for the abbey brick kilns, or an area used for dumping waste.
- 8.8.4 This wood would clearly benefit from further investigation and more detailed recording.

Home Wood

- 8.8.5 Access to this wood was largely unrestricted, although it was not feasible to explore the entire area in an afternoon. This wood, like Eseley, is ancient or semi-natural woodland and would have been a valuable resource to the abbey, particularly in terms of coppicing for charcoal and fuel.
- 8.8.6 There is clear evidence for woodland management in the form of coppice stools and stands (23, Plate 18) and occasional pollards (though these are largely found outside the wood), however the wood is currently not managed in this way. Much of the heart of Home Wood has been removed in the post-war years, leaving an open area of woodland pasture. A herd of fallow deer are in residence.
- 8.8.7 A substantial wood bank and external ditch (20, Plate 19) survives on the west side of the wood, which has attracted a number of badger setts. The ditch is c.2.8m wide and the bank spans 8m across and is c.1.2m high and extends the length of the wood.
- 8.8.8 Within the wood a number of substantial earthworks were recorded, although it was not possible to easily locate these on the map. An east-west aligned scarp (21) was identified about two thirds of the way down, just inside the wood and extending for 20-30m at a height of c.1.2m. This met a north-south ditch (22) that appears to continue downslope to the stream (Esal Forde, Darren Stone pers. comm.) that was 4.3m wide and 0.7m deep. Its full extent was obscured by brambles, but it did not appear to continue beyond 21. The interpretation of these features is not clear, although one possibility is that the scarp marks the back of another pasture close similar to 9a to the

west with the ditch forming a boundary on its eastern side. This would be of some antiquity as it must pre-date the wood. A roughly north-east to south-west aligned ditch and bank roughly perpendicular to the Mill Race (26) were recorded to the east of 22 and are probably drainage-related although their antiquity is uncertain. A roughly-triangular-shaped plot shown on the Agas map in this approximate location indicates that there was an osier bed located on the edge of the stream but within Home Wood and the earthwork remains could conceivably relate to this.

8.8.9 Other features within the wood and marking its boundaries are described above in sections relating to the precinct boundary and watermill. As with Eseley Wood, further detailed exploration of the wood under more favourable conditions would no doubt reveal many other features. No evidence of the spring or well suggested by some previous researchers was found.

8.9 The sites of the abbey windmill and brick kiln

8.9.1 Cartographic evidence provided by both the 1594 and 1730 surveys clearly identifies the site of the abbey windmill in the corner of a field to the west of the grange and south of the Broxted Road (Figs 5a and 6). The windmill is depicted as a postmill and the field is named 'Windmill Field'. No other evidence for the precise location of this structure was identified; it does not appear as a crop or soil mark on any of the available aerial photographs. A very slight rise in the ground level was visible within the field (11); a rapid walkover, however, did not identify any changes in the colour or nature of the soil in this area and no finds were visible. There was, however, a low winter crop on the field that may have masked any such remains. This field would benefit from additional fieldwalking after ploughing, and possibly geophysical survey.

8.9.2 Field name evidence also provides possible candidates for the location of the abbey's brick and tile kiln, one of the earliest in the county. A field named 'Tile Kiln Lay' (8) is recorded on the 1730 map at the junction of the stream and the Broxted Road to the west of the windmill, beyond which is 'Tile Killn Close'. Another example on the same map is 'Killn Croft', located in the field (36c) that was formerly part of the Outer Court of the abbey, situated at the junction of the Thaxted Road and the Broxted Road to the east of the church. A brief walk over this field (which was also under crop) recovered a few sherds of medieval pottery and tile fragments. These are more indicative of a building (or manuring scatters) than an industrial complex, although as with the windmill field additional fieldwalking following ploughing could prove more informative.

8.9.3 Archaeological evidence provides a third possible site, just within Eseley Wood. A local resident has found numerous fragments of brick and tile of possibly 13th-15th century date within an area close to the south-east corner of the wood where a number of trees have fallen over (42g). Some of the fragments are warped and over-fired suggesting that they might be kiln wasters. This either suggests that the kiln was located nearby or that this was a dumping area for debris and other unwanted material; no mortar adhered to the fragments which perhaps suggests that they have not been used.

8.9.4 A kiln would have required good access to raw materials, fuel and water and would presumably have been in proximity to, but not too close, to the abbey buildings. The natural boulder clay combined with fuel provided by Eseley and Home Woods and the numerous streams would have provided an ideal combination for such a kiln, although further fieldwork is needed to identify its location with any certainty.

8.9.5 Other field name evidence that provides clues to land-use around the abbey is Tanners Mead or Meadow (38) on the west side of the Chelmer. A number of ditch-like earthworks are shown crossing this area on the RAF aerial photographs; these are

likely to be related to drainage. This area was presumably used for the less pleasant and more noxious industrial activities associated with tanning (and drying) of animal hides, which again required good access to natural water sources.

8.10 Tilty Grange

Thatched cottage and green to the south of Broxted Road

- 8.10.1 Both the 1594 and 1730 maps show what is now the small road to Broxted as a lane or track that extends on either side of Tilty Grange, but does not pass through it. By the latter part of the 19th century, however, this road cuts through the Grange, effectively disconnecting the south-west corner from the rest of the buildings and enclosures. A number of buildings are shown within this area on the 1594 map (Fig 5a), several of which seem to have disappeared by the time of the 1730 survey. The only building to have survived until the time of the 1st Edition Ordnance Survey is the Thatched Cottage, a Grade II listed mid-17th century house. This and the green to the north-west of it were briefly visited as part of the Level 1 survey. There are a number of small banks and ditches separating the various gardens and paddocks within the area around Thatched Cottage (14b) that in all likelihood reiterate those shown on the early maps.
- 8.10.2 The triangular-shaped green to the north-west (14a, Fig. 5a; Plate 20) incorporates a number of earthworks that probably represent former ponds and barns or other buildings depicted on the 1594 map. The hedge-line to the right of the photograph probably demarcates the original boundary enclosing the Grange at this point. This is another area that would benefit from additional investigation and research.

The Grange and associated structures

- 8.10.3 The area entitled The Grange (13; Fig. 5a) forms a distinctive sub-oval enclosure which topographically occupies a high point surrounded by gently-sloping valleys to the north and east. This was probably the site of the defended Late Saxon manor (see Section 3.1 above). As mentioned above, the road to Broxted and a number of tracks and footpaths shown on both early and modern maps clearly respect the enclosure, either stopping completely or circumventing its boundaries.
- 8.10.4 Access to the private buildings and gardens of The Grange was not achieved during the Level 1 survey; brief records were made from adjacent footpaths and roads only. There are a number of Listed Buildings surviving within the enclosure, some of which may be those shown on the 1594 map. Tilty Grange itself is an early 16th century house with 17th century extensions, whilst the impressive seven-bay barn to the west is early 17th century and has been converted into residential use. An instance of re-used material from the abbey was noted at the entrance to Tilty Grange where two stone column sections have been placed as markers on either side of the gate (13b, Plate 21). Steer (1950) also notes that there are significant quantities of architectural fragments within a rockery in the garden of Tilty Grange.
- 8.10.5 A mid-16th house is located to the east of Tilty Grange and is Listed as Grange Green Cottages but is now called Pumpkin Hall, and is also likely to be one of the structures depicted by Agas. On the 1730 map this is annotated as Mill House and is presumably where the estate miller resided (see above).
- 8.10.6 To the rear/north of the gardens and plots associated with the various houses and barns are two large enclosures that are depicted on the early maps separated by a tree-lined track which has since disappeared. These are called Round Down and Barn Croft on the 1730 map and are now open pasture fields (13a). The westernmost of

these (Barn Croft) clearly once had a building sited within it and slight earthworks were visible from the adjacent track (13a).

- 8.10.7 There are gates shown on the 1594 map at the three entrances into The Grange enclosure: from the Thaxted Road, the Broxted Road and from the tree-lined track leading up the valley from the north, indicating that privacy and security were still of importance. A number of large Elm trees were recorded at the junction between the Broxted Road and the edge of the enclosure surrounding Tilty Grange, which might be relict boundary-markers (12b, Plate 22).
- 8.10.8 This early enclosure, the buildings within it and its relationship to the abbey clearly warrant more detailed investigation that is beyond the scope of this Level 1 survey, and could provide the basis for a future research project perhaps by a local society.

8.11 Tilty Church

External

- 8.11.1 Tilty parish church and former gatehouse chapel has been described in detail elsewhere and was only recorded fairly cursorily as part of the Level 3 survey in terms of its interesting minutiae rather than its history or architecture.
- 8.11.2 In addition to the window and carved decorative label stops the east chancel wall contains numerous examples of graffiti ranging from carved shields, crude crosses, initials and dates (33; Plate 23) from the ?18th century onwards. There is a benchmark on the south buttress and a statue niche adjacent to the north buttress. The church fabric below the window is highly decorative and comprises faced flint in a chequerboard design.
- 8.11.3 A large smoothed but otherwise unworked piece of conglomerate ('Hertfordshire puddingstone') and another fragment of ?glacial erratic have been placed in the churchyard under a yew tree (34b). A stone cross very similar to that on top of the chancel has been re-used in a monument at the west side of the churchyard; it has two iron crosses leaning against it (34c).

Internal

- 8.11.4 Numerous interesting objects and fittings are present within the church, which again are dealt with elsewhere (e.g Dickinson 1963) and are not dwelt on here. Of note is the double piscina with fragment of medieval wall painting (34h, Plate 24) below on the south nave wall and the sedilia in the chancel. The latter includes two carved stone label stops, one depicting a Cistercian monk (34g, Plate 25) and the other a lay brother. On the opposite, north wall the two partially-restored and re-used 13th-century coffin bases unearthed during the 1942 excavations are displayed (34e, Plate 26), next to which is the Maynard coat of arms and a fragment of relief carving of a stone hand (34f).
- 8.11.5 The west window (34d) is a fine tribute to the Reverend H. Cuthbertson and his attempts to produce tobacco during the war years.
- 8.11.6 Throughout the church there are fragments and relics of the abbey, including many instances of re-used material; much of which is probably attributable to the Reverend Cuthbertson. The font is constructed from various architectural pieces including a column shaft, upon which the reconstructed stone mortar found in the Mill Stream now serves as the font (34j, Plate 27). The base of the pulpit (34k) similarly re-uses architectural fragments and decorated floor tiles excavated from the abbey church and

claustral buildings have been incorporated into the nave floor (34i, Plate 27). There are stone fragments on a shelf to the left of the door and a display cabinet in the chancel contains finds from the 1942 excavations, supplemented by a reconstruction drawing, plans, finds and notes displayed in the porch.

8.12 Other instances of re-used material from the abbey

8.12.1 In addition to the examples cited above (Tilty Grange and within the church), other instances of masonry that is likely to derive from Tilty Abbey were identified during the Level 1 survey and beyond. Part of a column base was re-used within the wall of the building adjacent to the mill (2a, Plate 28), positioned with some tile set around it. The very worn stone step (36b) within the porch of the former Vicarage, Abbey Gates may also derive from the abbey, although the Reverend Cuthbertson was well-known for salvaging material from many sources, including bomb-damaged sites in London (Cecile Down, pers. comm.). There are a number of examples of re-used stone documented in Thaxted (see 3.3.10 above), notably a 16th century flint boundary wall at Park Farm, Park Street that incorporates numerous carved headstops, moulded stones, niches etc. of 14th century date (Listed Building No. 122388; Plate 29a and b), that probably originate from the (later) abbey church.

8.13 More recent history

8.13.1 Reminders of Tilty's more recent history are present across the Level 1 survey area and within the scheduled Abbey Meadow. Numerous monuments to the protection of the home front against enemy invasion during the WW2 abound, mostly represented by brick and concrete pill boxes of various design (EG-type; Type 24) and states of repair. Pill boxes were recorded within a cart shed next to Tilty Mill (1, Plate 30), between the Mill Race and an adjacent stream north-west of Home Wood (5), within Home Wood on the banks of the Mill Race (25), within a hedge to the south of the Broxted Road (10), within a field to the north-west of Tilty Grange (12a) and adjacent to Abbey Gates (36c). In addition to these there is the base of a mortar spigot (19a, Plate 4) on the northern boundary of Abbey Meadow adjacent to the Mill Stream; other brick foundations are present to the west and might be associated.

Second World War

Needs discussion of their landscape context and how they were sited in relation to the landscape

9 DISCUSSION

9.1 Pre-monastic phase (Fig. 13)

- 9.1.1 Very few earthworks, geophysical anomalies or landscape features were identified that can be attributed a pre-monastic date within the scheduled area. However, the identification of an early sunken track or hollow way (T1) that crosses the Abbey Meadow and leads to a (lost) crossing over the Mill Stream is of significance. This appears to be an ancient track, the route of which may have in part determined the main approach into the abbey precinct and which was later modified by the Cistercians, perhaps in reference to the location of the inner gatehouse.
- 9.1.2 A further important discovery within the wider area (Level 1) survey was the identification of Tilty Grange, or more specifically its distinctive oval enclosure and possible internal moat remnants, as a probable pre-Conquest manorial or estate centre. This location may have been the seat of the Saxon thane Doding recorded at Domesday as holding Tilty at the Conquest, and could conceivably be an earlier foundation. This was probably the 'poor grange' granted by Fitz Geoffrey to the Cistercians in the 12th century, although the founding brothers appear to have selected a less prominent location closer to the river to establish their monastery. This choice would no doubt have been for a number of reasons, proximity to water probably being paramount, with the grange presumably continuing to fulfill its important agricultural and administrative function. It is not possible to prove or disprove this hypothesis without further detailed study and investigation of Tilty Grange and its surviving earthworks and buildings, which is beyond the scope of this current study.

9.2 Monastic phase (Figs 13-14)

- 9.2.1 The geophysical surveys, measured earthwork survey, parchmark plot and to a certain extent the wider area survey, combined with evidence from previous excavations, research and analysis of cartographic data have enabled a clearer plan of the monastic complex and its environs to be produced. A detailed description of the major abbey buildings and precinct layout has already been provided by previous researchers, notably Hall and Strachan (see Section 4 above), and is not repeated here unless the new evidence enhances or contradicts these interpretations.
- 9.2.2 A number of phases of monastic occupation and development are no doubt represented by the complex of earthworks recorded within the scheduled area, although it is somewhat difficult to disentangle these, particularly from the post-Dissolution phase of the site.

The buildings within the Inner Court

- 9.2.3 It is possible that the earthworks associated with the church and claustral range to the north largely relate to the first major building campaign by the Cistercians, much of which was not completed until the earlier 13th century. The extant section of standing wall dates to the later 13th century and it is probable that these major buildings were remodelled or updated during the second building campaign.
- 9.2.4 Both the geophysical and earthwork surveys have corroborated and enhanced the detail of the plan of the church suggested by previous research, notably Steer, Dickinson and most recently Hall and Strachan. The survey has shown that there is a slight discrepancy (c.1m) between the location of the extant wall and (to a lesser extent) the pond shown on the Ordnance Survey and the GPS/measured survey; this

was checked a number of times. As a result some amendment of the previously-published plans has been necessary to correlate them with the results of the recent work. The current surveys, particularly the measured earthwork survey, have also served to highlight the level of disturbance that this part of the monument has suffered, largely as a result of previous excavations in addition to earlier quarrying/creation of the extant pond to the south-east. Much of the south aisle and wall appear not to have survived and the south-east corner of the south transept chapel has been removed completely. Sunken areas and mounds are notable on the two platforms forming the church and probably represent former excavation trenches and spoil heaps respectively. The area to the east and possibly south of the church is likely to have been the monastic cemetery - if burials were located in this southern area then these have probably been largely destroyed or heavily-disturbed. Burials have been recorded previously to the east of the chancel and are likely to have extended outwards along the platform identified here (**E8**), although no anomalies indicative of a cemetery were revealed by the geophysical surveys.

- 9.2.5 To the north of the church the geophysical plots, notably the resistance survey, correspond well with the previously-published plans with some additional detail of walls and buttresses not shown on the Hall and Strachan plan but indicated as 'foundations visible' on the 1963 Dickinson plan (Fig. 2). The earthwork survey is less clear in terms of delineating the outlines of buildings and the results do not always correlate with the known remains, instead more probably illustrating the post-Dissolution history of the site from its abandonment and demolition (collapsed masonry, robbing, dumping *etc*) and effects of more recent investigations outlined elsewhere in this report.
- 9.2.6 As indicated by Dickinson, Hall and Strachan (and in contrast to earlier versions of the monastic plan), the geophysical plots and earthwork surveys also clearly show that the refectory was a large building aligned east-west to the north of the cloister, attached to which was a ?later kitchen. These buildings were largely identified by the resistivity survey, although part of an additional possible structure (represented by **B20**) was also recorded as part of the earthwork survey to the north-west which is likely to be later as well as it is on a different alignment to the main claustral complex. The area of the monks' day room with dormitory above and reredorter beyond to the north are again fairly poorly-defined as earthworks but are clearly distinguishable on the geophysical surveys.
- 9.2.7 To the west of the extant wall there are numerous earthworks that probably represent part of the lay brother's accommodation, the cellarium and the secular porch entrance and parlour leading from the road/track **T1**. The earthworks, and to a certain extent the geophysical anomalies relating to these elements are not particularly well-defined and appear to have been much modified by later use, presumably during the post-Dissolution period (see below).
- 9.2.8 As was typical, the infirmary at Tilty lies on the east side of the cloister, linked by a covered walkway or pentice. In addition to chapel(s), kitchen and, probably, refectory it was normal in Cistercian houses for this range to have originally included lodging for the visiting abbot from the mother-house, who was obliged to visit annually to check that the daughter-house was being administrated correctly (Coppack 1990, 77). The surveys undertaken as part of this project have demonstrated that the infirmary was indeed a large aisled building with at least one chapel projecting from the eastern side and a number of chambers, including the reredorter on the northern side adjacent to the stream or drain. The plan of this range of buildings is largely the same as that provided by Hall and Strachan (2001; Figs 4b and 4c) and is clearly different to the

plans previously proposed by Steer and Dickinson amongst others. As indicated by Hall and Strachan, this grander form of infirmary plan is likely to date to the 13th century, although it is probable that modifications, such as extensions and sub-divisions, of this building complex were undertaken from the 14th century that reflected a wish for privacy and the relaxation of the more austere aspects of monastic life (Coppack 1990, 77). The surviving earthworks in this area are complex and include a number of banks and irregular mounds which again are likely to represent post-Dissolution activities.

- 9.2.9 This area appears to have been abandoned by the post-Dissolution period and is clearly labelled as 'little and great vineyard' by Agas. It is quite possible that these buildings had become vacant or had even been demolished during the latter part of the abbey's existence, especially if the community had diminished significantly and new more elaborate lodgings were available to the abbot and visitors within the range to the west of the church and cloister. The sunken area (**E10**) between the monks' day room (with dormitory above) and the infirmary is likely to have been a small garden, possibly supplying the infirmary kitchen. Enclosing gardens was a common development within monasteries of all orders, although relatively few have been excavated (Coppack 1990, 78); several of Tilty Abbey's gardens are mentioned in the Dissolution inventories and are depicted on the Agas map. Beyond the infirmary to the north and east were the extensive fishponds, of which very little survives, being largely located within a low-lying field (Plate 16) outside the scheduled area and now separated from the precinct by a trackway.

Other buildings

- 9.2.10 Away from the claustral focus a number of definite and possible buildings have been identified, some of which are probably monastic in origin, or relate to the latter years of the monastery. A notable result of the gradiometer and earthwork surveys is the identification of a building with a possible industrial function to the east of the extant pond. Comparison of the survey results with the Agas map indicates that there were no buildings in this location at or soon after the Dissolution. The linear bank and ditch to the north of the building, however, corresponds well with the boundary shown by Agas separating the Inner and Outer Courts of the abbey precinct and the newly identified building is positioned close to this boundary and clearly within the Outer Court (Fig. 14). This again might support the interpretation that this structure had an industrial function as activities associated with unpleasant processes such as metalworking, dyeing, tanning *etc* may have necessarily been located at a distance from the spiritual and domestic centre of the abbey, although many of these processes required proximity to water which may not have been applicable for this location. The building is unlikely to be post-medieval as it does not appear on any of the maps; the 1730 map shows that the boundary delineating the Inner and Outer Court had become redundant and was replaced by a new ditched boundary to the south which is still present today (**C23**).
- 9.2.11 It is difficult to be certain which of the numerous platforms/possible buildings located to the south and west of the abbey church and cloister belong to the monastic phase, although some within **E1** (**P1** in particular) and adjacent to the southern end of the main trackway/road **T1** are very good candidates. These correspond with probable buildings identified by the resistivity survey and with structures illustrated by Agas in 1594 and could represent important elements of the abbey precinct such as the inner gatehouse (straddling **T1**). The probable building denoted by **P1** is of unknown function but was clearly in a fairly prominent location abutting a boundary but overlooking the precinct/Inner Court below.

9.2.12 The somewhat complex earthworks to the north of E1 and west of the cloister are most probably the remains of buildings identified by cartographic and documentary evidence as being the guests' house and associated chambers. This range of buildings later became the abbot's lodging and accommodation for the Marquis and Marchioness of Dorset during the latter years of the abbey. Only very ephemeral rectilinear anomalies were recorded by the geophysical surveys in this area but these correlate and enhance the evidence from previous aerial photographic interpretation. The contrast of these results with those of the flint-built abbey remains suggest that these ?later buildings were more likely to have been constructed from timber and brick. A strong anomaly, however, may represent a hearth or chimney base at the western edge of the complex; the brewhouse/bakehouse may have been located in this area, or it may represent the fireplace for the chamber block attached to the guest house. Other mounds and possible platforms/buildings were recorded to the north which may be contemporary although no corresponding resistance anomalies were identified here. Beyond these lay the monastic watermill and associated structures that have since been replaced by the buildings still standing today. It is possible that the site of the abbey mill lies to the west of the current complex, and is represented by one or more of the series of earthworks/channels identified during the wider area survey within Home Wood, although the Agas map places it further east (Figs 14 and 15).

Water management (Figs 12 and 15)

9.2.13 Although no definitive evidence of the abbey's great drains was identified by the geophysical or earthwork surveys, it has been possible to reconstruct a number of elements of the monastic water management system from the earthworks, topography, maps and wider area survey results. These have been outlined in detail in the relevant sections above and include the site of at least one spring, in addition to a series of linked and separate channels, waterways and ditches that both supplied freshwater to the abbey buildings, the mill and the extensive fishponds as well as carrying the waste water away and down to the Chelmer to the east.

9.2.14 The main ditch or channel would probably have been that (or an earlier version of) which is now called Mill Stream and which delineates the northern boundary of the scheduled site. This is clearly a modified natural channel and it seems logical that the flow of water that had been controlled and stored to power the mill located just upstream would also have acted as means of flushing the drains of the monks' reredorters and those of the infirmary further downstream that were both located adjacent to it. Culverts are also likely to have been constructed across the complex which would have emptied into the main drain, although no definite evidence of these was found. Other aspects of the drainage complex may have included a network of lead, ceramic or wooden drains in addition to lined cisterns or tanks that would have been designed to filter the water prior to consumption; individual latrine pits may also have been constructed for specific buildings within the complex (Coppack 1990, 91-4; 97-8).

9.2.15 The monastic water management system clearly extended beyond the claustral focus and was briefly investigated as part of the Level 1 survey. This identified a complex system of streams, leats, bypass channels, sluice gates, flood and watermeadows to the north and west of abbey, and although much of that visible today is likely to be largely post-medieval in origin these elements probably accurately reflect the level of sophisticated engineering that the Cistercians achieved many centuries before.

Boundaries and other land-use (Figs 13 and 14)

9.2.16 Parts of the precinct boundary have been recorded by the earthwork survey, notably the large bank and ditch within Home Wood, which probably once extended into the scheduled area but has been denuded by agriculture. As stated above, the internal boundary between the Inner and Outer courts has been identified by both the earthwork survey and numerous other boundaries, mostly banks and ditches, were recorded in the western part of the scheduled area in particular. These often correlate well with boundaries shown on the Agas map which delineate orchards, woodland and possibly gardens and illustrate the once complex layout of the abbey precinct which is perhaps difficult to imagine today.

Post-Dissolution phase (Figs 13 and 15)

- 9.2.17 What proportion of the earthworks and geophysical anomalies identified by the surveys are post-Dissolution is difficult to determine. However, when combined with the (somewhat sparse) documented history and cartographic evidence for the abbey, it is possible to make some broad interpretations.
- 9.2.18 Several of the major monastic buildings appear to have survived until the late 16th century at least as they are depicted on the Agas map, albeit with only the north wall of the church shown as still upstanding. The church would have been targeted for both its symbolism and its valuable stone, lead and other building materials. Following the removal of much of the church, the remaining buildings and walls would have provided an 'upstanding quarry' from which stone and other materials would have been taken as need dictated. The re-use of material believed to have originated from the abbey buildings was noted within the wider area/Level 1 survey and has been well-documented. Notable examples include a re-used architectural stone within a 16th century wall at Park Farm Thaxted, within the wall of the building adjacent to the watermill and within the garden of Tilty Grange.
- 9.2.19 The cloister, chapter house, refectory, ?dormitory/dayroom, mill, gatehouses and other buildings are shown on the Agas map, in addition to the former guests' house/manor house and *capella*. These buildings presumably survived at least initially as they were utilised and improved upon by the Marchioness of Dorset and later occupants. They were clearly of sufficient grandeur to accommodate Lady Jane Grey and her family in 1551, but were described as spacious but ruinous by 1588 when stone was taken from the abbey ruins to reconstruct the manor house. Several of the buildings depicted by Agas are also illustrated in the same approximate locations on the 1730 map suggesting some at least survived into the 18th century.
- 9.2.20 Tilty Grange clearly continued to be occupied as many of the buildings that are present today were constructed in the 16th century. The grange barn (now converted to residential use) dates to the early 17th century and there are documentary references to the estate miller living in what is now Pumpkin Hall in the late 18th century, suggesting that Tilty Grange continued to be an important element of the Maynard estate. Earthworks of ditches, platforms and ponds were noted during the wider area survey that relate to buildings and boundaries shown on the Agas map to the south of the Broxted Road. These presumably are of monastic or early post-Dissolution date and illustrate the abandonment of buildings/plots within the Grange during the post-medieval period. Again, this area would benefit from additional investigation and research.
- 9.2.21 Earthworks relating to this phase within the scheduled area include the large sunken depressions within the east and west cloisters that given their size and depth probably

represent post-Dissolution activity. The westernmost of these probably denotes the site of a former cellar far larger than the original vaulted cellarium. This range of buildings to the west of the cloister is more likely to have been re-used by the later occupants of the guests' house/manor house located immediately adjacent to it. This earthwork might conceivably be the brick cellar referred to by Galpin (1901, 95). A number of the earthworks identified as probably relating to the guests' house/manor house to the west and stables *etc.* to the north (within **E5-E7**) may in fact belong at least in part to this phase if these were rebuilt or enlarged in this period.

- 9.2.22 Much of the eastern part of the former abbey appears to have been significantly altered at some point following the departure of Tilty's Cistercian community. This seems to have included the creation of platforms/walkways that led past the 'romantic' ruins of the abbey church, by the former vineyards (on the site of the infirmary) to an area of probable water gardens partially formed from the abbey's fishponds. Deep, straight channels were also cut, possibly associated with the quarrying of the extant pond, which in part fed the former fishponds/water garden to the north-east. Some remodelling of the Mill Stream (?former abbey drain) was also undertaken at some point, effectively separating the abbey field from the precinct to the north.
- 9.2.23 These earthworks are much more well-defined than many associated with the monastic phase of occupation and may well relate to later post-medieval landscaping, possibly associated with the phase of manor house shown on the 1730 map. Several platforms were also identified on the terraces overlooking the two large sunken earthworks interpreted as water garden features (**C20** and **C21**), one of which may be a small prospect mound. These, and a platform located between the two earthworks, are probably part of the overall post-medieval garden design. As Coppack (1990, 142) notes: "In some cases, the post-suppression modification of the landscape was just as drastic as that caused by the building of the monasteries in the first place". He cites the example of Southwick Priory where the extent of the precinct is completely obscured by the earthworks relating to the buildings and terraces of the great 17th-century house that later occupied the site.
- 9.2.24 No surviving plans or documents relating to these probable gardens at Tilty have as yet come to light. It is also feasible that the earthworks may represent part of a post-medieval fishing garden, often mistakenly thought to be medieval in origin (Everson 2007, 119). Similar examples include Wyeford in Hampshire where earthworks of paired basins with walks and other water-management features surrounding a moated site have been surveyed. These are interpreted as being part of a garden thought to be of mid-17th century date, described as a "sort of watery or 'fishing garden' ". These may have been specifically associated with the "concept of quietism in Puritan eschatological thought", when the gardens played an important role as "places of proper rest and contemplation, undertaken to aid the renewal or re-creation of moral virtue" (*ibid*, 115).
- 9.2.25 Other examples of water gardens are cited by Everson and include Tackley in Oxfordshire and Old Madeley Manor in Staffordshire. Fishponds are often one of the most recognisable elements on former monastic sites; many might represent the conversion of these sites to secular use (as appears to be the case at Tilty). This type of development is described by Everson as being 'archaeologically commonplace' and includes sites such as Kirkstead Abbey in Lincolnshire, Coxford Priory in Norfolk and Leez Priory in Essex; the latter includes extensive fishponds and a 'Fishing Hut' (*ibid* 119). Coppack (1990, 145) also cites the 'finest of all monastic ruins', the great Cistercian abbey at Fountains, where the proposed 18th-century garden design was to

have used the ruins as a vista at the west end of the water gardens. Although this design was not fulfilled the incorporation of the ruins into a more Romantic garden layout ensured their survival, and this may conceivably also have happened at Tilty.

- 9.2.26 The area to the south and east of, and including, the extant pond appears to have been heavily quarried during the post-Dissolution/post-medieval period, activity that encroached upon the site of the abbey church and, presumably, its graveyard. Earthworks representing a number of ditches or channels have been identified in this area that linked to the main/new field ditch **C23**. This replaced the former boundary separating the Inner and Outer Courts of the monastic precinct. In addition, there are a series of possible steps or platforms leading down to the pond area which again may conceivably have been created as part of a 17th or early 18th century garden associated with the later occupants of the manor house.
- 9.2.27 Many of the earthwork platforms located within **E1** to the immediate north of the former gate chapel may also relate to this phase of occupation, perhaps representing later farm buildings. The 1730 map, however, indicates that much of the area to the north and west of the church was still under wood or orchard in this period, suggesting that the earthworks do not denote the presence of buildings unless they were constructed and demolished between the time of this map and the 1st Edition Ordnance Survey (c.1730-1877). The geophysical surveys do not indicate buildings (other than those identified as probable monastic elements) in this location.
- 9.2.28 The watermill was rebuilt in the 18th century, indicating that some investment was being undertaken on some of the buildings at Tilty at this time. This work may have included the construction or augmentation of the impressive millpond and associated remodelling of the sluices, although much of this may have occurred in the 19th century, when the mill machinery was refitted and the mill roof raised. The track leading down to the mill was probably created in the 19th century and served to further separate the former abbey site from its immediate environs. The hollow way (**T1**) surviving as an earthwork traversing the abbey field and continuing as a causeway beyond the Mill Stream clearly became largely redundant as a main route but in part persists as a footpath on a slightly different trajectory. Cartographic evidence suggests that the windmill located to the south of the Broxted Road did not survive as it disappeared at some point between 1730 and the 1st Edition OS (1877) maps.
- 9.2.29 There has clearly been some alteration to the landscape around the abbey, with the site of the monastic fishponds, orchards, hopgrounds, osier beds, watermeadows, smaller fields *etc* being lost to agriculture during the post-medieval period. Within the Abbey Meadow this is most noticeable with areas that were previously part of Home Wood or under orchard (**E2** and **E3**) being grubbed-up, probably during the later 18th or 19th centuries. A number of mature trees (Elms) that once graced the meadow and may be relicts of the manorial, or even monastic, topography have also been lost, several within recent memory. Despite this, much of the immediate surroundings still retain some of their ancient character and the landscape may not be completely unrecognisable to its former Cistercian occupants.

Modern (Figs 4a and 13)

- 9.2.30 Earthworks and features relating to the more recent history of the abbey were also recorded by the Level 1 and Level 3 surveys. These include probable trenches, pits and mounds associated with previous excavations by Galpin and Steer amongst others, mostly located within the area of the church and buildings to the north. Some of these disturbances are shown on the various aerial photographs of the site including that

taken in 1996 (Fig. 4a). In addition, there are depressions marking the sites of fallen trees, erosion caused by animal tracks and farm machinery, mounds of dumped material containing concrete and bricks (to the west of the pond) and numerous mole hills scattered across the site. Rabbits were noted, but are not particularly evident; badger setts are present in the banks of the Mill Stream, in a scarp bounding the northern edge of the field containing the former fishponds and within the banks surrounding Eseley and Home Woods, outside the scheduled area. Large areas of Home Wood were felled during the latter parts of the 20th century and are now pasture, however within the wood a number of earthworks survive well.

- 9.2.31 Structures dating from WWII are present within both the Level 1 and Level 3 survey areas and appear to only have had a low-level, localised impact on the surviving remains. The watermill and associated agricultural buildings are in fairly poor repair, as is the standing monastic wall within the Abbey Meadow, which has suffered from previous severe winters and the establishment of a number of trees. Earthworks within the southernmost part of the scheduled area, outside the Abbey Meadow, are quite truncated and irregular in appearance and have presumably suffered from activity of unknown form and date, but which is probably fairly recent. Some of this has been caused by the construction of the post-and-wire fence and to a lesser extent foot and farm traffic accessing the field through the gates. It is worthy of note that the eastern part of this area is occasionally used as an overflow car park for the church and that there is a large spoil heap and ?recent ditch in the eastern corner, possibly close to the site of the abbey gatehouse.

10 CONCLUSIONS

- 10.1.1 This project was developed with a number of specific research aims in mind with the principal outcome being to provide sufficient information to guide and support the long term management of the scheduled monument and to develop a deeper understanding of the site and its context. This has been achieved through the collation and assessment of available documentary, cartographic and photographic data in addition to previous research relating to the abbey and its surroundings, combined and integrated with the results of the current earthwork (Level 3), geophysical and wider area (Level 1) surveys.
- 10.1.2 One of the notable results has been the identification of elements that relate to the pre-monastic landscape, notably Tilty Grange as the probable site of a Late Saxon estate/manorial centre, an area which would benefit from further more detailed investigation.
- 10.1.3 The work has enabled a clearer understanding of the layout (Figs 14 and 15), and to a certain extent the development, of the monastic buildings and enclosures present within the precinct. Building on previous work undertaken by Galpin, Steer, Hall and Strachan amongst others, this new research has not focused on the claustral nucleus as has previously tended to happen, but has aimed to investigate the abbey complex in detail across the scheduled area and beyond. More detailed evidence for the less well-understood elements of the precinct has been recorded, in particular in relation to the infirmary, guests' house/manor house, gatehouse, ancillary buildings *etc.* These features can be more fully understood in relation to the significant and influential elements of the monastic buildings such as the church, in addition to local topography and the surrounding landscape. The identification of a possible industrial building, previously unknown, against the boundary between the Inner and Outer precinct courts is of particular note and would also be a good candidate for further investigation.
- 10.1.4 Both the Level 1 and Level 3 surveys have enabled the plan and development of the monastic buildings as well as the layout of the wider precinct to be better understood. Earthworks, geophysical anomalies and surviving features relating to buildings, roads/paths, boundaries, gardens and other landscape features have been identified, many of which can be related to elements shown on pertinent maps and referred to in contemporary documents. A greater understanding of the area to the west of the abbey cloister/church where the later manor house was sited has been achieved, but would benefit from further (?intrusive) investigation. In addition to the ground plan/walls, this work could target the probable hearth or fireplace identified by the geophysical survey.
- 10.1.5 Although no direct evidence for a burial ground was recorded the likely location of the churchyard has been suggested based on the monastic plan, topographic grounds and evidence from previous excavations. The earthwork survey results in particular indicate that if burials had extended around the south transept of the abbey church they will have been disturbed or destroyed by the quarrying and other activity associated with the creation of the large pond in the eastern part of the scheduled site.
- 10.1.6 The site of the putative 'monk's well' in Home Wood and accompanying conduit/drains have not been identified with any certainty, however the survey has indicated the presence of a spring within the abbey complex. In addition, it has been suggested that the watercourse known as Mill Stream probably relates to, or follows, the course of the great drain that served the abbey's kitchens and claustral and infirmary reredorters.

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- 10.1.7 Water management was an important aspect of the Cistercian abbey and this has been investigated through both the Level 1 and Level 3 surveys which included the watermill and its associated leets, channels, pond and banks. Further work could focus on investigating the earthworks within Home Wood which might relate to the monastic watermill. Equally the site of the abbey windmill has been identified with some certainty but would benefit from more targeted fieldwork in the form of fieldwalking and/or geophysical survey.
- 10.1.8 The surveys have enabled the abbey remains to be set against the wider backdrop of monastic and later land-use, identifying the location of fishponds, water meadows, closes, osier yards, woods, pasture and meadowland that would have provisioned the monastery. This work has also identified possible sites for the monastic brick and tile kilns, which would also be a good candidate for further research and investigation. It has also illustrated the integral part played by Tilty Grange from before the foundation of the abbey to long after its dissolution.
- 10.1.9 A surprising result, perhaps, of the Level 3 survey in particular has been the large number of post-Dissolution earthworks that have been identified that help to elucidate the post-medieval use of the site, a period which is not well-documented. The interpretation of much of these as post-medieval garden features perhaps needs further investigation by more intrusive methods to establish their date and function.
- 10.1.10 One of the project's main aims was to encourage community participation and raise awareness of the monument within the local area and this proved to be a particularly successful aspect of the project. Local volunteers took part in both the Level 1 and Level 3 surveys and contributed to the research and interpretation elements of the project. A well-attended guided walk and illustrated talk was organised in December 2010, which in turn has generated further interest in the abbey. This interest could be built upon by encouraging or facilitating the establishment of a local history or archaeology group, which could focus on the additional aspects of research identified above.
- 10.1.11 A considerable archive of research material has been collated as part of the project, which together with the earthwork and geophysical results provide a rich resource for display boards within the Abbey Meadow. Whilst undertaking the survey a number of walkers visited the site and were clearly interested in learning more about it. Information boards placed strategically around the site would considerably enhance the enjoyment and appreciation of the monument for both the local residents and the many visitors from further afield; this in turn might facilitate the site to be visited by local schools and other groups.

11 SURVEY METHODOLOGY

11.1.1 A Leica 1200 survey grade GPS was utilised to establish hard detail such as boundaries and fences in addition to a series of control points in areas of earthwork groups across the site. A Leica TCR 705 total station was also employed to infill areas of hard detail, establish control points and plot earthworks where satellite coverage was poor. The GPS was also used to produce a rapid topographical survey set to autolog at a minimum of 1m intervals, with data relating to tops and bases of earthworks also being captured. The GPS data was processed through Leica Geoffice and the TST data through Leica Surveyoffice software. The earthwork plot was completed in the field using the tape and offset method, at a scale of 1:1000. A digital hachured plan of the survey was produced using AutoCAD software and completed using Adobe Illustrator software.

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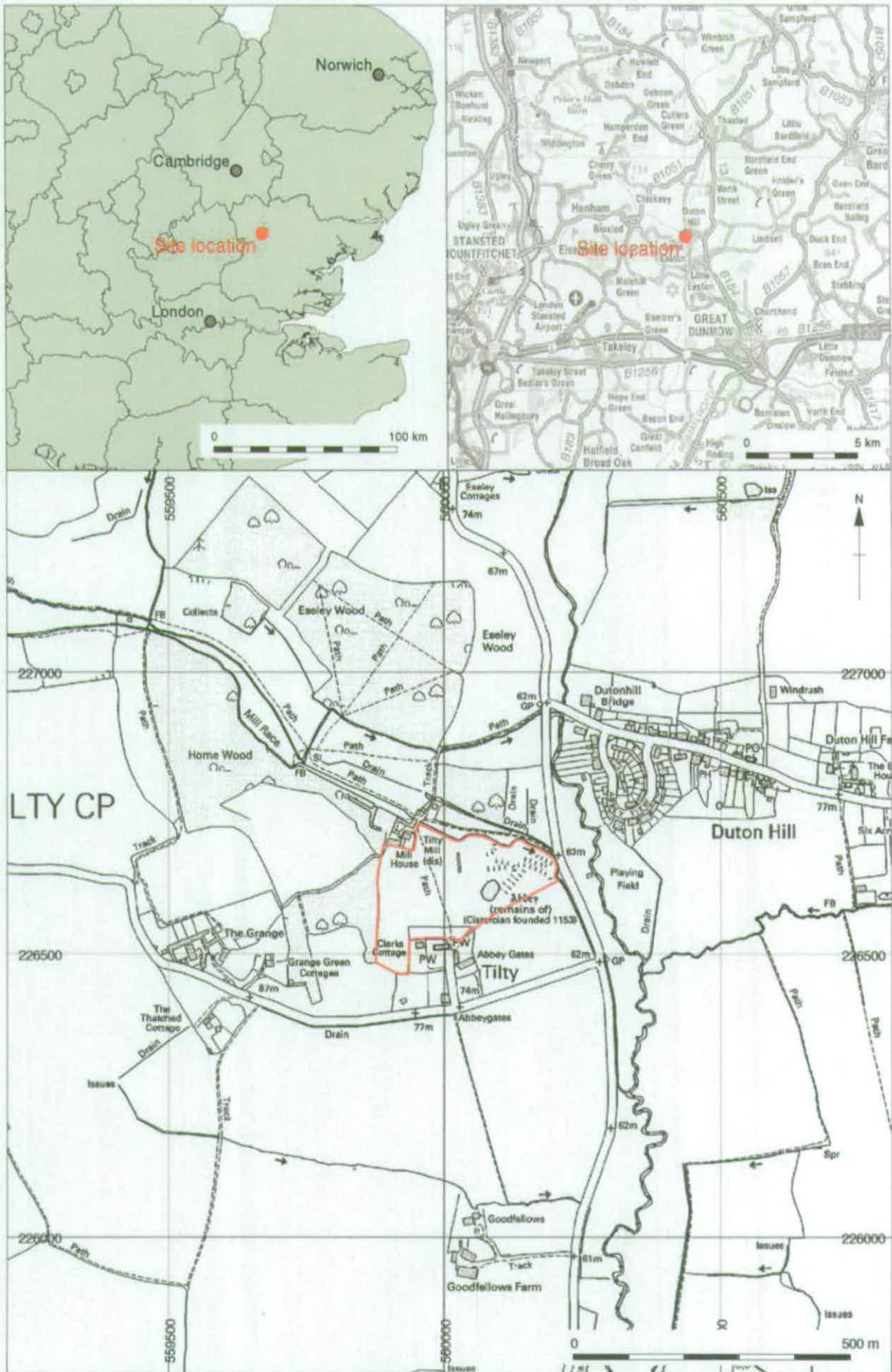
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Online Resources

<http://unlockingessex.essexcc.gov.uk>.
<http://www.luminarium.org/encyclopedia/thomasgrey2.htm>,
(http://en.wikipedia.org/wiki/File:Margaret,_Marchioness_of_Dorset,_by_Hans_Holbein_the_Younger.jpg),
<http://seax.essexcc.gov.uk>
<http://www.old-maps.co.uk>



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Figure 1: Location map with Scheduled Area (red)

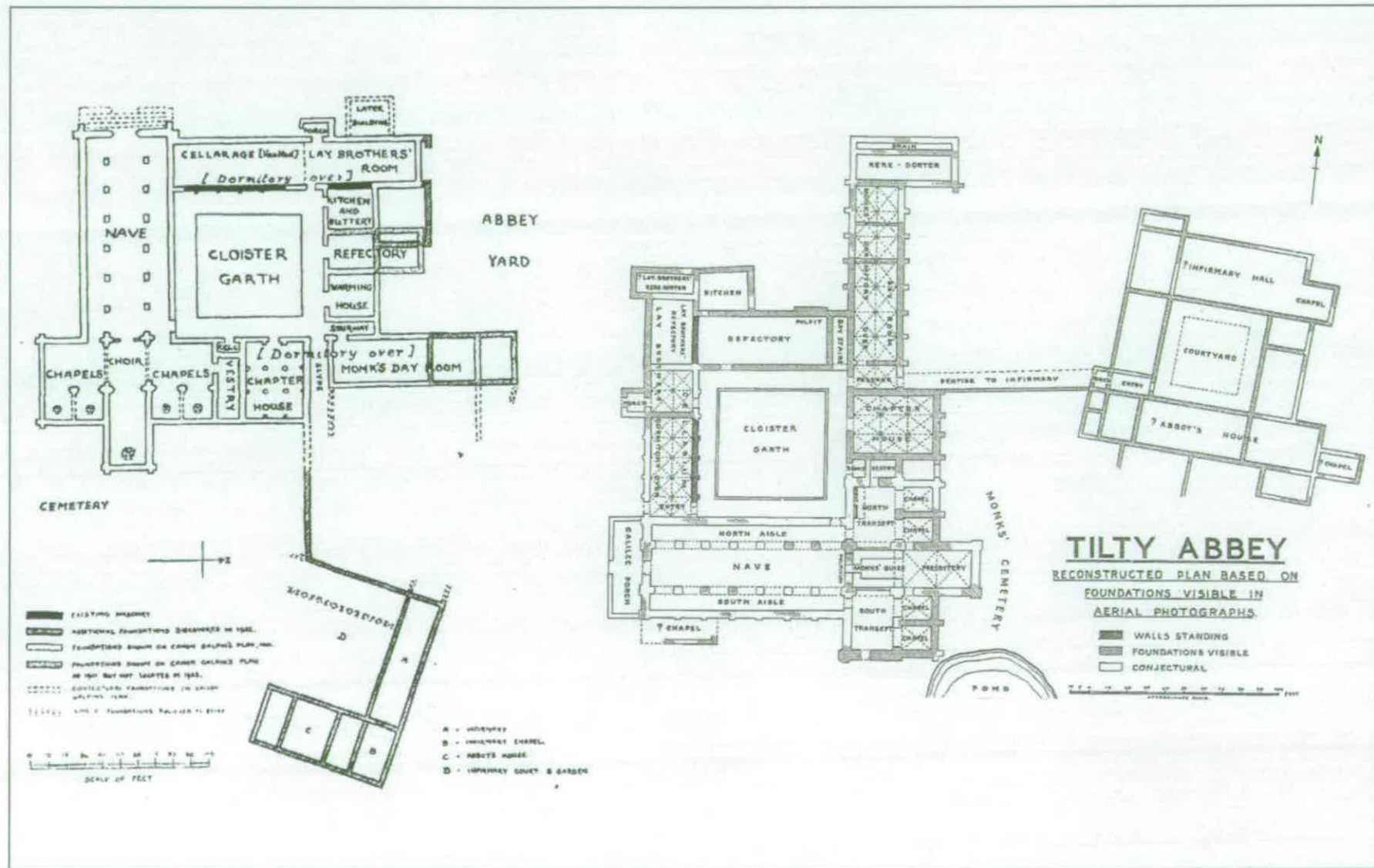


Figure 2: Previous versions of the abbey plan (Steer 1950 (based on Galpin 1928) and Dickinson 1963)

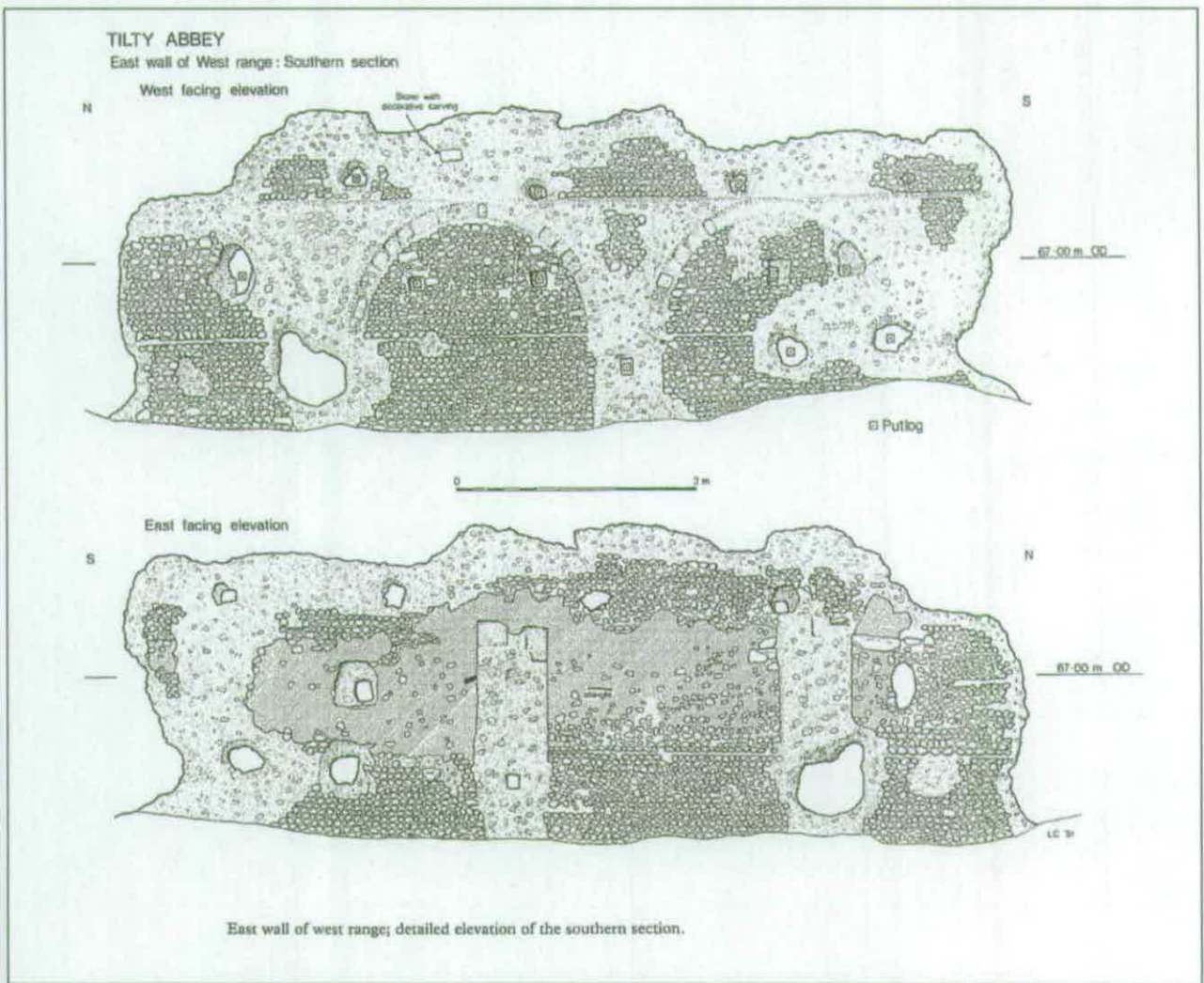


Figure 3: Detailed elevations of the standing cloister wall (Andrews and Gilman 1992)



Figure 4a: Aerial photograph taken in 1996 showing parchmarks of the abbey, from west (D. Strachan © Essex County Council)

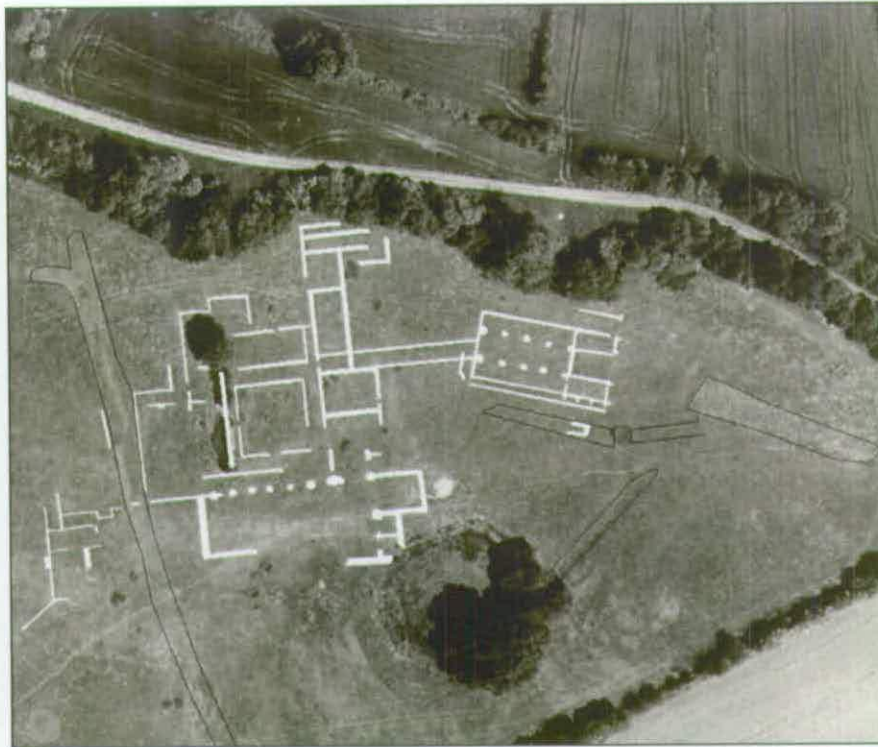


Figure 4b: Plan of the parchmarks based on the 1996 aerial photograph (Hall and Strachan 2001)



Figure 4c: Plan of parchmarks overlain on the 1594 Agas map (Hall and Strachan 2001)



Figure 5a: Detail from the 1594 Agas map, showing Tilty Grange (ERO D/DMg P25)

Figure 5: Extract from the 1594 Agas map, showing Tilty Abbey and Tilty Grange (ERO D/DMg P25) (Reproduced by courtesy of Essex Record Office)

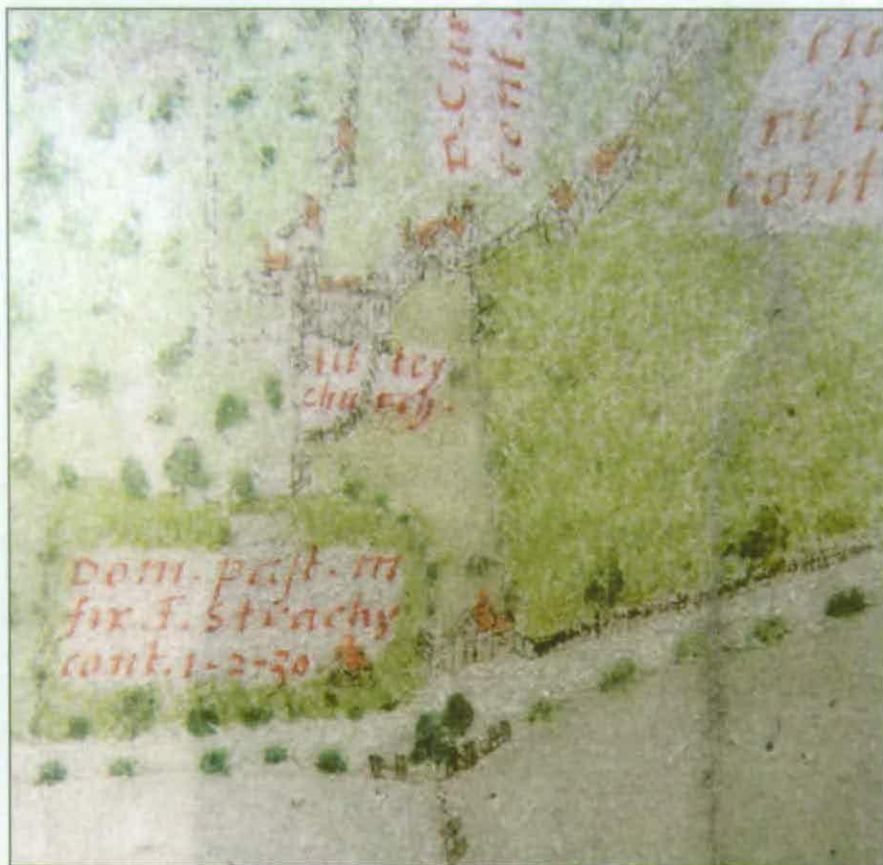


Figure 5b: Extract of 1594 Agas map showing detail of gatehouse, chapel and other buildings (ERO D/DMg P25)



Figure 5c: Extract of 1594 Agas map showing detail of manor house, surviving claustral buildings and fishponds (ERO D/DMg P25)

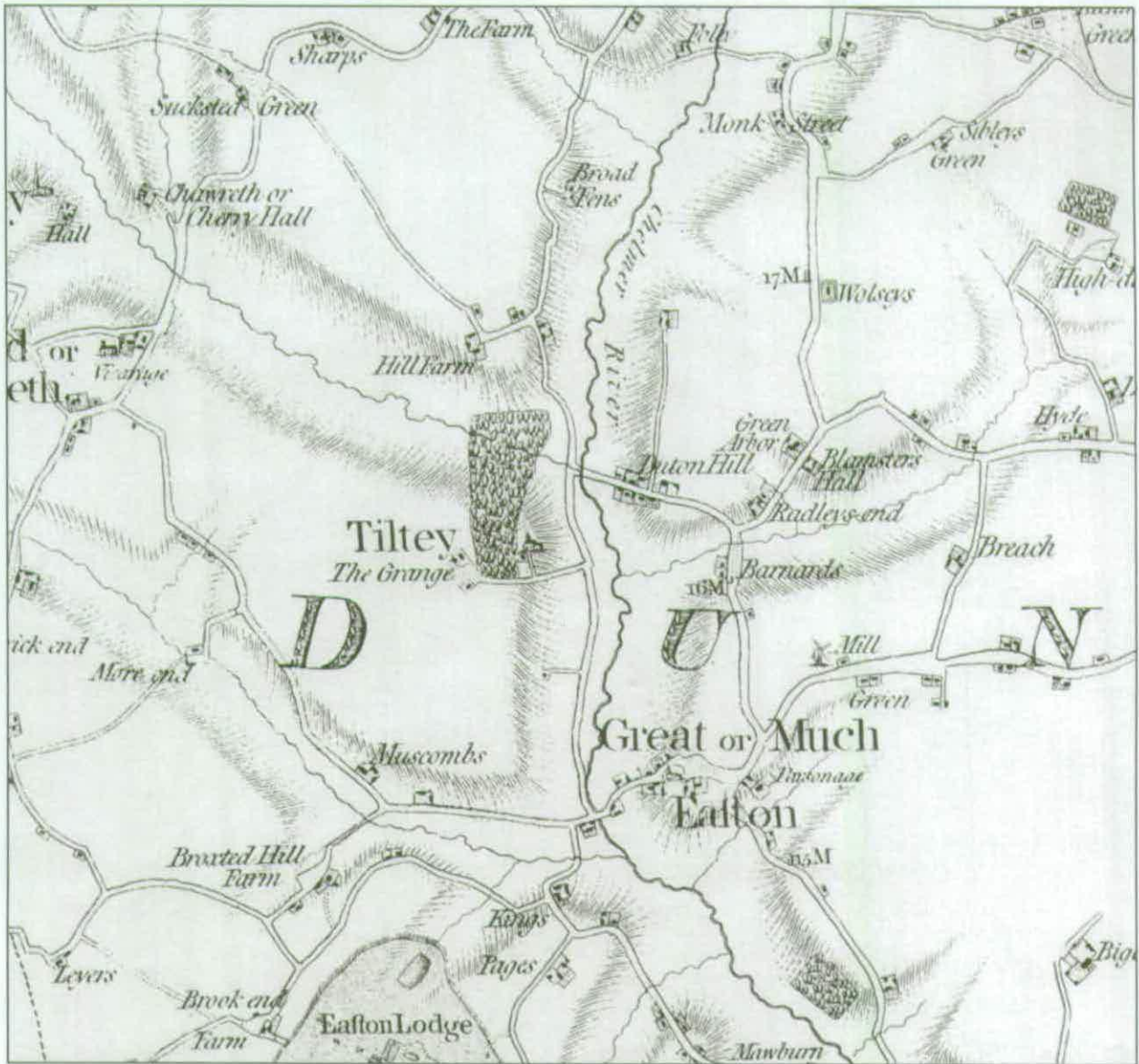


Figure 7: Extract from 1777 Chapman and Andre map (Supplied by ECC HER)

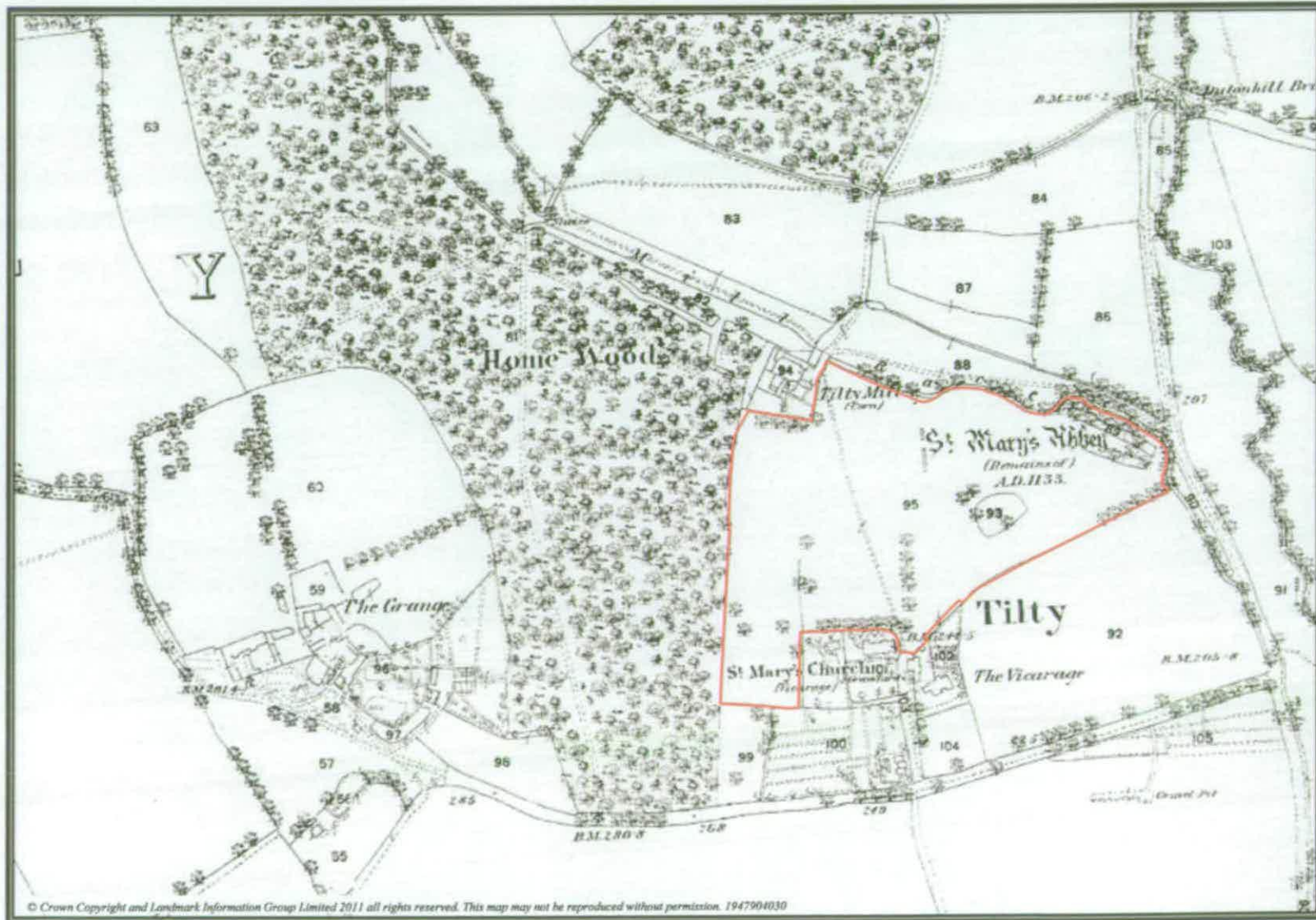
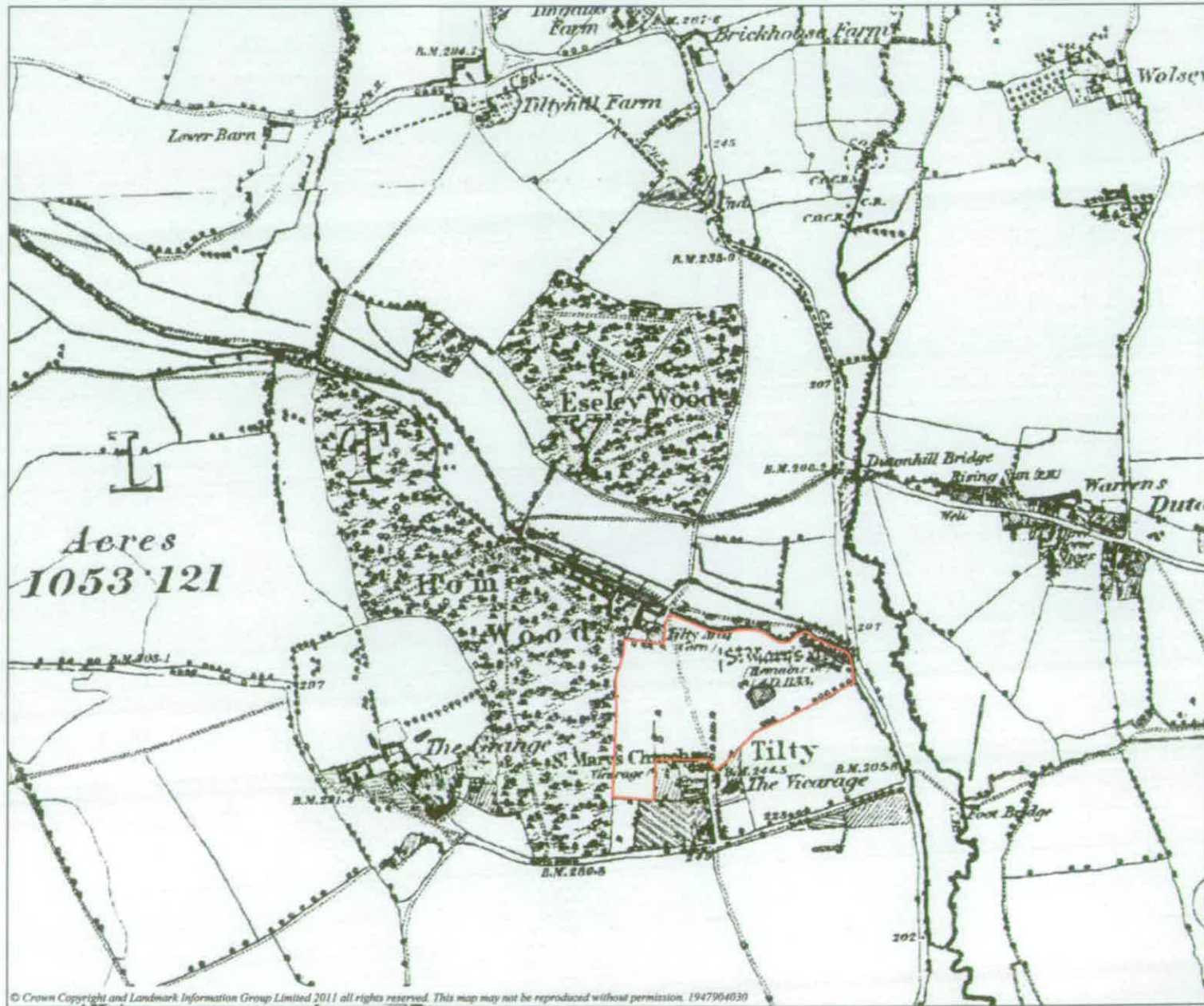


Figure 8a: Extract from 1st Edition Ordnance Survey 1:2500 (1876)



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Figure 8b: Extract from 1st Edition Ordnance Survey 1:10560 (1881)

County: ESSEX Scale: 1:10,560 Date: 1881



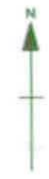


Figure 9: Level 3 Earthwork Survey (1:1000)

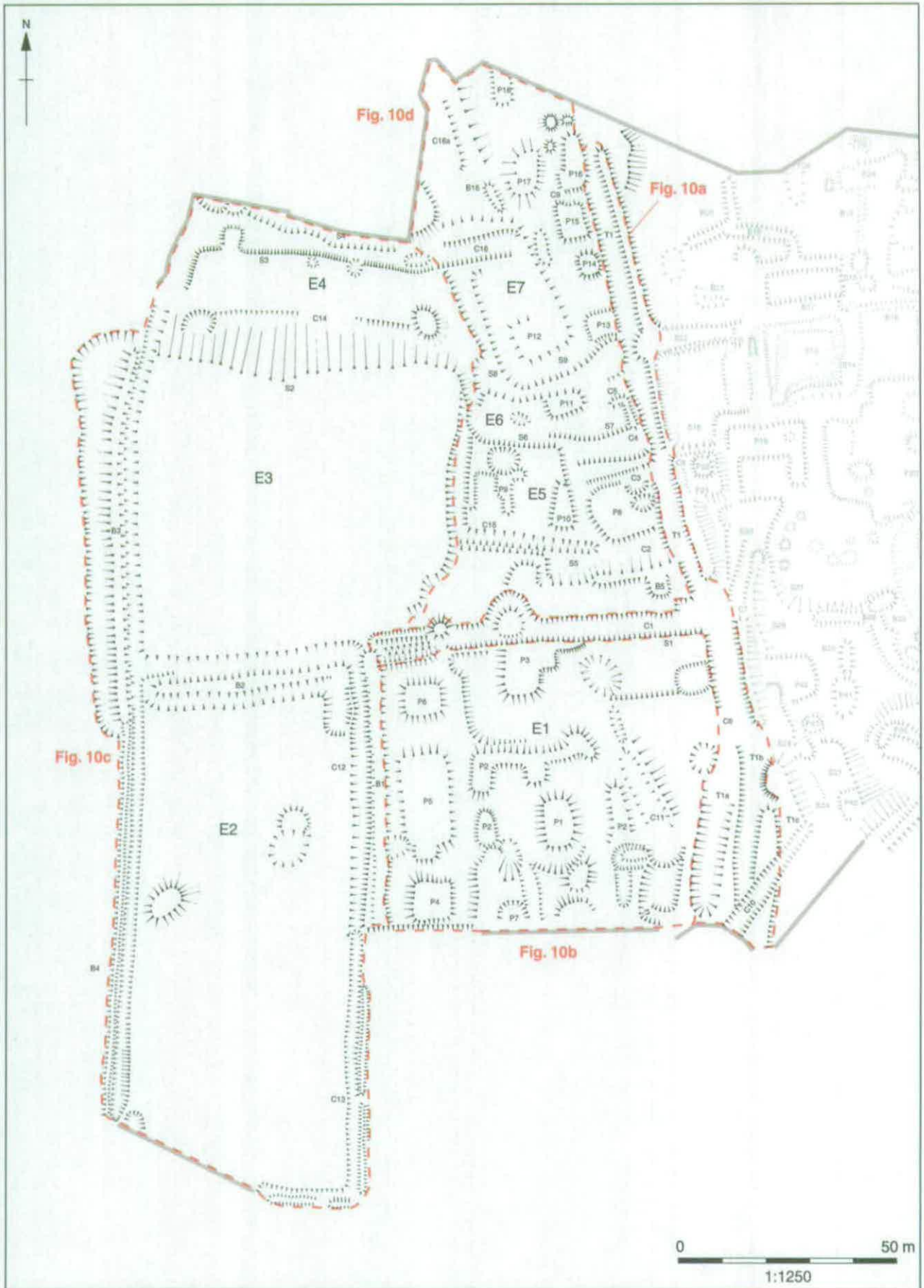


Figure 10: Detail of Earthwork plan to west of T1 (Figs. 10a-d)

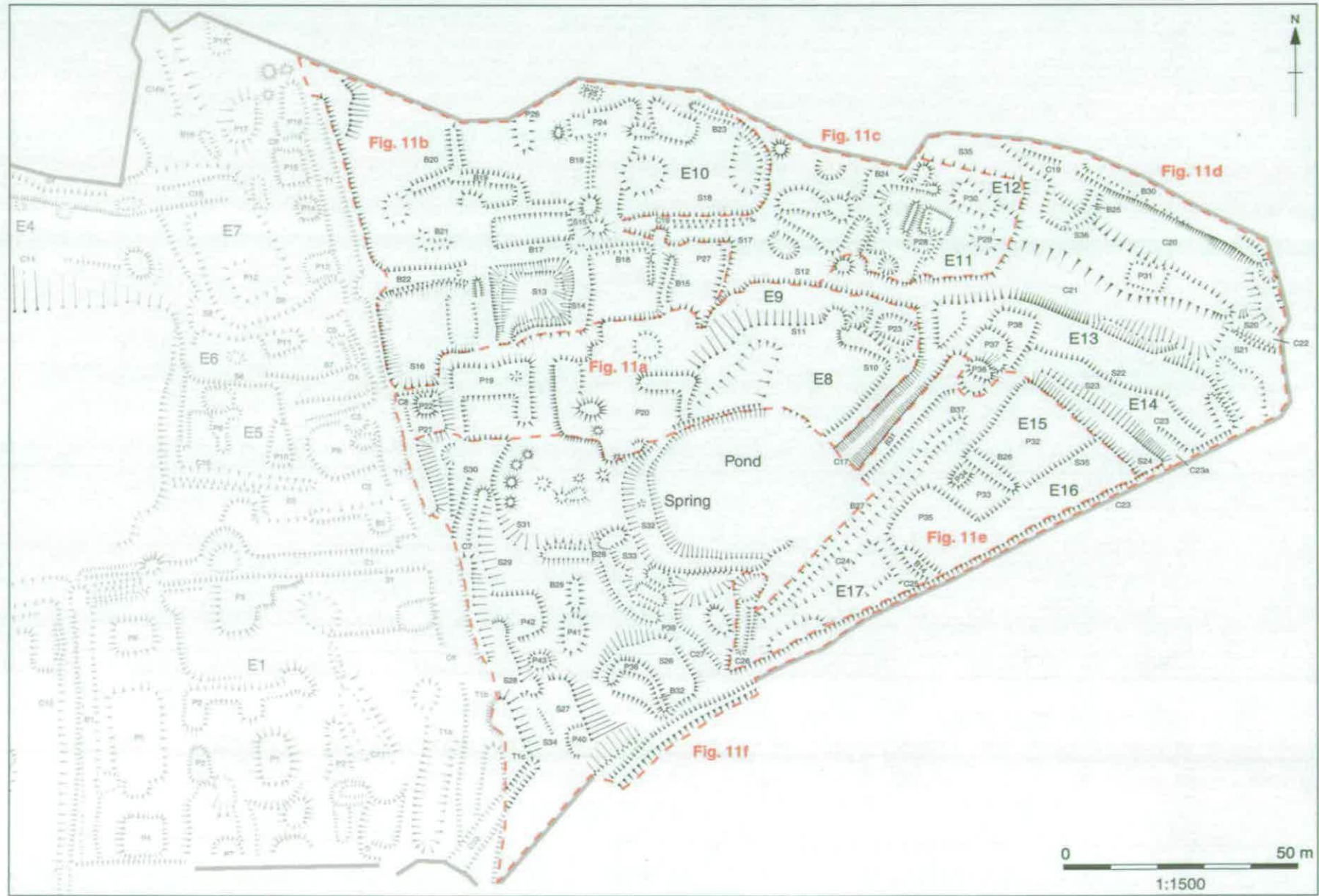


Figure 11: Detail of Earthwork plan to east of T1 (Figs. 11a-f)



Figure 12: Level 1 Survey Area

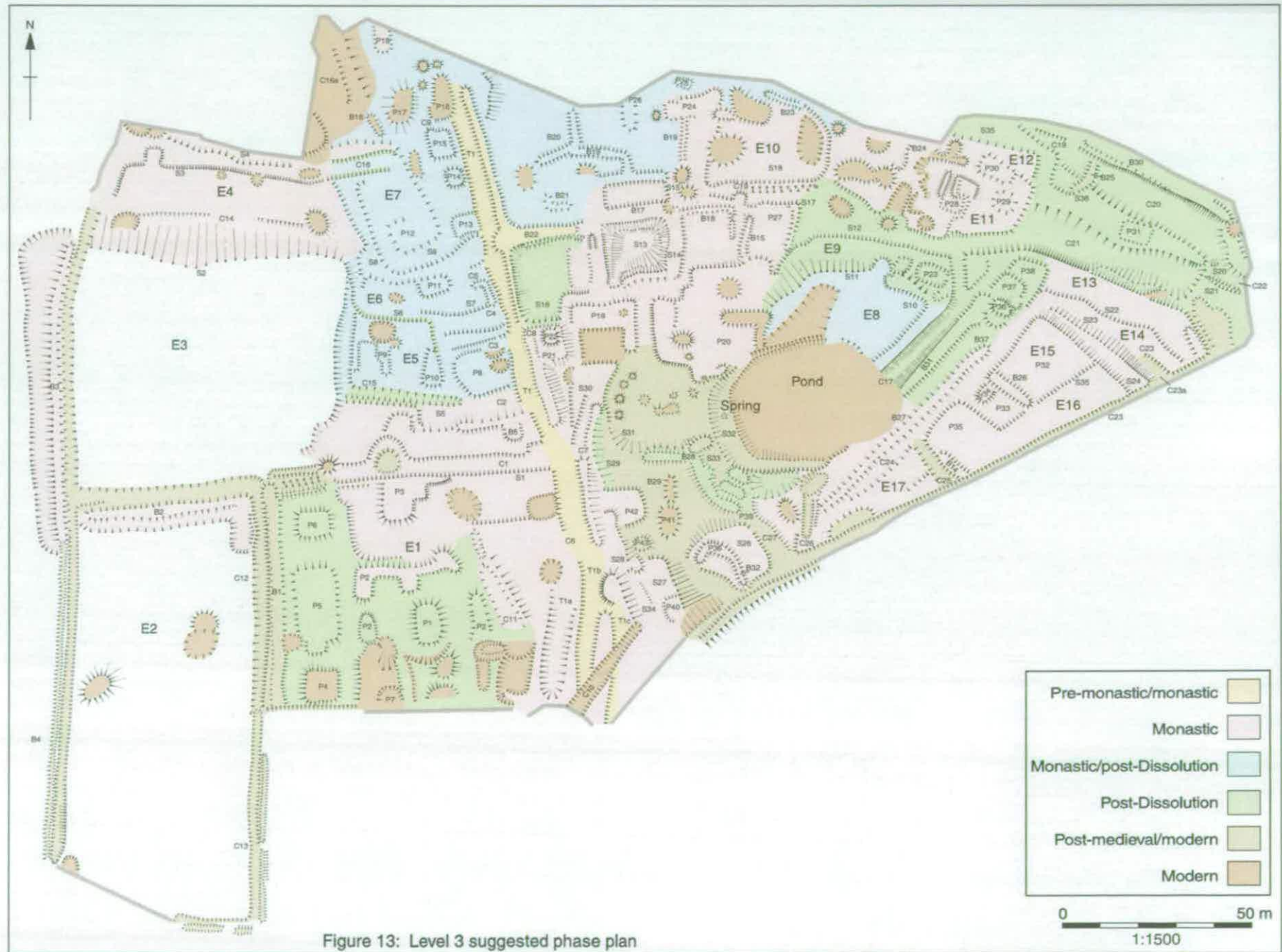
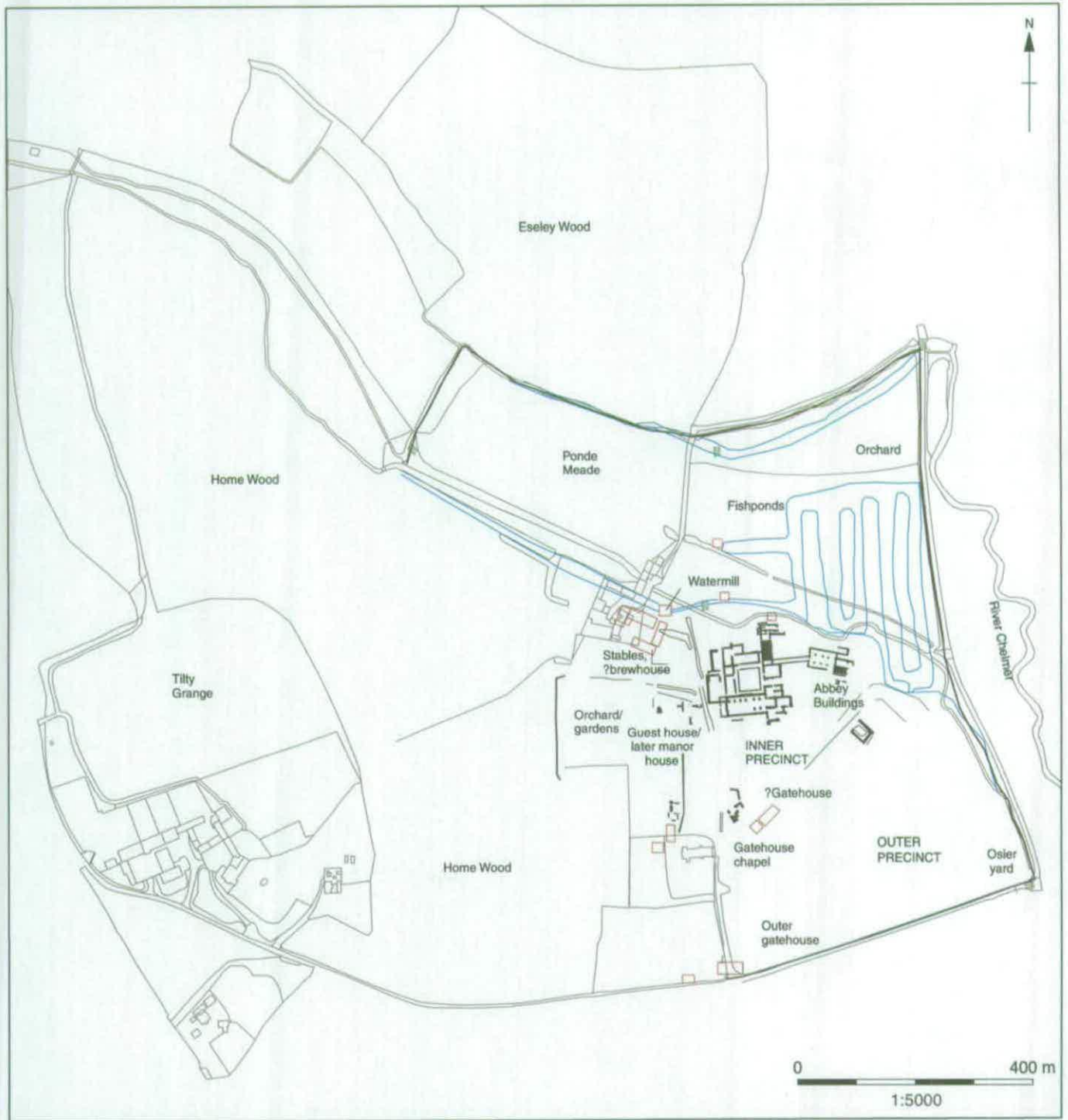


Figure 13: Level 3 suggested phase plan



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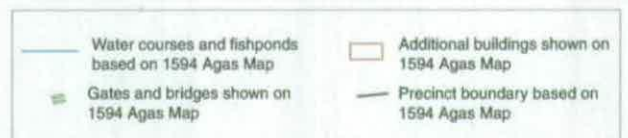


Figure 15: Simplified plan of the abbey buildings within the wider precinct, showing precinct boundary, gatehouses, bridged, fishponds, woods, watermill and Tilty Grange



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APPENDIX 1: GEOPHYSICAL SURVEY REPORT

Gradiometer And
Earth Resistance
Surveys At Tilty Abbey
Essex



Geophysical Survey Report



October 2010

OA East Report No: 1218



**GRADIOMETER AND EARTH RESISTANCE SURVEYS
AT TILTY ABBEY,
ESSEX**

By Peter Masters

Cranfield University Forensic Institute

Editor: Aileen Connor BA AIFA

Report Date: October 2010



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FIG. 8: Earth Resistance survey – greyscale plot of raw scale 1:1000

FIG.9: Interpretive plan of resistance data, scale – 1:1000



ABSTRACT

Both gradiometer and earth resistance surveys were carried out over the entire c.5ha scheduled area at Tilty Abbey, Essex. The work, undertaken in May 2010, was commissioned by English Heritage as part of a S.17 Management Agreement with the landowners. The geophysical survey was designed to coincide with repairs to the surviving section of the east wall of the west range and was undertaken as part of a wider project that includes detailed earthwork survey of the abbey remains. Results from all survey techniques will be collated and presented in a stand-alone report that in turn will be utilised to inform interpretative materials at the site. The survey and analysis of the site is important both in terms of future monument management and promoting the scheduled monument to the public.

The gradiometer survey produced some significant anomalies relating to the abbey remains as well as the later manor house to the west. To the south-east of the pond, a rectangular-shaped structure with internal features was recorded, previously unknown. It is possible that this may represent an area of industrial activity as it lies well away from the nucleus of the abbey complex.

Earth resistance survey produced a good outline plan of the abbey remains as well as other ephemeral anomalies possibly associated with the later manor house on this site, believed to be located to the west of the claustral range.

1.0 INTRODUCTION

Gradiometer and earth resistance surveys were undertaken for Oxford Archaeology East and commissioned by English Heritage (Fig 1).

The purpose of the survey was to attempt to define and characterise any detectable archaeological activity within the scheduled area of the monument. The earthwork remains of the abbey complex are little understood and survey and analysis are considered vital to aid interpretation of the extent and plan of the claustral buildings in relation both to the extant wall, any outlying structures as well as the wider precinct area including gardens, roads and water management systems. The work was undertaken in May 2010.

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

2.0 LOCATION AND DESCRIPTION

The information contained within sections 2 and 3 of this report is based on information within the tender document produced by English Heritage (Linford 2010) and supplied by Oxford Archaeology East (OA East).

The site is situated to the north-west of Great Dunmow, to the north-east of Stansted Airport and to the south of Thaxted, Essex (TL599265). The scheduled area covers approximately 5ha and is under permanent pasture and is grazed by sheep.

Tilty Abbey meadow is sited immediately to the north of St Mary the Virgin church and contains the surviving east wall of the west range (NMR TL 62 NW4), which is in poor condition. The meadow is accessed by a public footpath that leads towards the watermill, located in the base of the valley beyond the north-west corner of the field.

The site is situated on a prominent gravel knoll overlying Till (Boulder Clay) (British Geological Survey of Great Britain 1990). The magnetic responses of this type of geology is generally good depending on depth and target being detected (Gaffney & Gater 2003, 78; EH 2008, 15, 28).

3.0 BACKGROUND INFORMATION

St Mary's Cistercian Abbey at Tilty was founded in 1153 by Robert de Ferrers and Maurice Fitz Jeffreys. The Abbey Church was consecrated in 1215. King John descended on Tilty in the same year and sacked the Abbey during the celebration of Christmas mass. It is recorded that 7 brethren were at Tilty in 1377 and the same number at the time of its dissolution on 28th February 1536.

Today all that remains of St Mary's Cistercian Abbey is a section of the east wall of the west range, approximately 30m long and about 3m high. The former chapel by the gate is now the parish church, located to the south of the Abbey meadow.

Historic mapping of Tilty is depicted clearly on Agas's estate map of 1594 (Hall and Strachan 2001, Plate 1), which shows considerable detail of the layout of the monastic precinct and to a lesser degree of the abbey church and its associated range of buildings.

During dry seasons parch marks of the Abbey walls can be seen. Aerial photographs have been taken at various times over the last few decades and those of St Joseph's are particularly good at seeing the ground plan of the Abbey remains from the air (CR 011 013 015 EP 107 J K St Joseph). More recent photographs taken by Essex County Council in 1996 and subsequently rectified and mapped depicts the claustral remains very well (Hall and Strachan 2001, Fig 8 and Plate 2).

4.0 METHODOLOGIES

Gradiometry

Gradiometry is a non-intrusive scientific prospecting technique used to determine the presence/absence of some classes of sub-surface archaeological features (eg pits, ditches, kilns, and occasionally stone walls). By scanning the soil surface, geophysicists identify areas of varying magnetic susceptibility and can interpret such variation by presenting data in various graphical formats and identifying images that

share morphological affinities with diagnostic archaeological as well as other detectable remains (Clark 1990).

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

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

The data was processed using *Archeosurveyor v.1.3.2.8*. The results are plotted as greyscale and trace plot images (Figs. 2 & 7).

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

Earth Resistance

Earth resistance survey measures the electrical resistance of the earth's soil moisture content. A twin probe configuration is normally used, which involves the pairing of electrodes (one current and one potential), with one pair remaining in a fixed position (remote probes), whilst the mobile probes measure resistivity variations across the survey grids. Resistance is measured in ohms, and this method is generally effective to a depth of 1m.

Features such as wall foundations are usually identified as high resistance anomalies, as well as rubble spreads, made surfaces (i.e. yards and paths) and metalled roads and track ways. In contrast, low resistance values are normally associated with water-retentive features such as large pits, graves, ditches, drains and gulleys.

The resistance survey was carried out using a Geoscan RM15-D and the MPX15 multiplexer Resistance Meters with a twin probe array configuration in mobile probe spacing of 0.5m. The zigzag traverse method of survey was used, with 1m wide traverses across a 30m x 30m grid.

The data was processed using *Archeosurveyor v.1.3.2.8*. It was despiked to remove extremely high readings caused by bad contact with the ground surface. The enhanced data was high and low passed filtered in order to remove near surface geology and other trends as well as give it a smoother appearance. The data was also edge and range matched due to a difference in the backgrounds between data due to probes being dislodged by sheep during the survey whilst using the MPX15 multiplexer. The results are plotted as greyscale and trace plot images (Figs. 2 and 6).

5.0 RESULTS (Figs. 2-9)

Both techniques utilised the same grid and covered c.5ha in total. The survey grid was located by a Leica 1200 dGPS, tied into the earthwork control points. The surveys have revealed significant anomalies relating to Tilty Abbey. In addition, other anomalies of contemporary date or later remains have been detected and can be seen in the resultant plots.

Gradiometer survey results (Figs 2-5)

The magnetic survey results are less clear than those recorded by resistance due to widespread areas of magnetic disturbance although some significant archaeological anomalies in addition to the previously-known abbey remains have been detected.

Generally, over the whole survey area, a series of isolated individual anomalies as well as zones of high magnetic variation were detected (Fig.5, 1). These reflect areas of modern ferrous disturbance such as brick and tile fragments as well as stray ferrous iron artefacts such as horseshoes.

The surviving east wall of the west range is enclosed by an iron railing fence, which has been clearly detected by the gradiometer considering its ferrous nature. Significant anomalies in close vicinity to this appear to have been affected although some traces of wall alignments can be seen in the resultant images as positive linear and rectilinear magnetic anomalies (Fig. 5, 2). Some of these complement those recorded by earth resistance (see below).

To the south of the east wall of the west range, a large amorphous shaped dipolar anomaly (Fig.5, 3) was recorded. This is likely to signify a zone of modern magnetic disturbance or could resolve as an area of burning.

Immediately to the east of the pond, a rectangular shaped positive anomaly (Fig.5, 4) was detected denoting a ditched or walled enclosure. Internally, a strong magnetic square-shaped positive anomaly (Fig.5, 5) was recorded in the plot possibly indicating the presence of burning. Attached to the south-east corner of anomaly 4, is a positive anomaly (Fig. 5, 6) that may represent a pit-like feature or could denote the presence of burning. This isolated enclosure or possible structure could have been used for industrial purposes as this lies well away from important buildings around the claustral nucleus of the abbey.

A strong magnetic dipolar anomaly (Fig. 5, 7) close to the north-eastern hedge boundary denotes an *in-situ* gunning placement of brick and concrete construction.

To the east and north-east of the pond a series of earthwork and bank and ditches can be clearly seen on the ground and are mapped on the modern digital ordnance survey map (Fig. 1). These were recorded as positive and negative rectilinear and linear anomalies (Fig. 5, 8).

Two long rectangular shaped anomalies visible as topographical features close to the north-east corner of the meadow. The gradiometer survey did not reveal any

anomalies relating to these features. But the resistivity survey showed these as low resistance anomalies (Figs 6 and 9, 9).

West of the abbey remains, two parallel linear anomalies (Fig. 6, 10) set c. 5m apart probably denote flanking ditches either side of a track or road way.

Immediately to the west of the road or track way is a zone of magnetic variation where it is believed the later manor house (?former abbey guest house) once stood. No clear plan can be discerned from this area although an irregular pattern of linear and rectilinear positive and negative anomalies (Fig. 5, 11) may indicate the presence of walls. But due to the nature of the ground disturbance a complete plan cannot be attempted from the results. Within this disturbed zone, a large dipolar anomaly (Fig. 5, 12) was recorded possibly indicating an area of burning, which could represent the remains of a hearth or base of a chimney

To the south of anomaly 11, two further negative rectilinear anomalies (Fig. 5, 13) were detected possibly indicating the presence of wall-like features. However, due to their ephemeral nature, they could resolve as topographical responses.

Beyond this distinct zone of magnetic variation towards the western field boundary few anomalies were detected. A diffuse linear anomaly (Fig. 5, 14) orientated NW – SE probably indicates a ditch-like feature although it could be of more recent origin as it appears to cut across earlier remains.

Other earthworks were also recorded in the resultant data as diffuse linear and rectilinear anomalies (Fig. 5, 15)

Earth Resistance (Figs 6-9)

The resistivity survey has produced some extremely good results displaying a relatively clear plan of the monastic remains of Tilty Abbey along with further significant anomalies of an archaeological nature.

To either side of the surviving east wall of the west range, a series of rectangular and rectilinear high resistance anomalies were detected indicating the surviving underlying remains of the claustral buildings. Immediately to the south of the west range high resistance anomalies (1) show the outline wall remains of the abbey church. The clarity of the resistance survey shows individual high resistance anomalies (Fig. 9, 2) within the interior of the abbey church denote probable pier bases associated with the north and south aisles of the nave. The survey results appear to complement and enhance the detail depicted on the aerial photograph taken in 1996 (Hall and Strachan 1996, plate 2).

Opposite the north transept of the church, is a rectangular high resistance shaped anomaly (Fig.9, 3), which possibly denotes the chapter house. Internally, four individual diffuse high resistance anomalies (Fig. 9, 4) were detected probably indicating the presence of pier bases. Attached to the chapter house would have been the Monk's Day Room. A single diffuse square shaped anomaly (Fig. 9, 5) was

detected close to the south-west corner possibly indicating the presence of a pier base. The Monk's Day Room would have had a number of these in order to support a vaulted ceiling similar to the Chapter House.

Situated to the north-east of the claustral range would have stood the infirmary. The resistance survey has revealed a large rectangular-shaped anomaly (Fig. 9, 6) with protruding symmetrically opposed rectangular anomalies, which appears to confirm the outline plan of the infirmary. This interpretation is based upon plans produced as a result of previous investigations at the site (in 1901 by Canon Galpin and 1942 by F.W. Steer; illustrated in Andrews and Gilman 1992, fig. 36) and subsequent re-analysis and air-photographic interpretation (*e.g.* Dickenson 1963; Hall and Strachan 1996). This reflects the typical plan of a Cistercian monastery and that of Tilty's sister abbey at Tintern, Wales.

Two parallel linear anomalies (Fig. 9, 7) connecting the infirmary with the chapter house possibly denotes the presence of a passageway. The covered passage at Tintern is configured slightly differently running diagonally from the angle of the north transept and chancel.

To the east and south-east of the pond, further significant anomalies were detected. Some of these merely reflect the topographic features that survive as fairly substantial earthworks. These are represented by two rectilinear banks and ditches whilst in the north-east corner two rectangular-shaped sunken features were present. These have been recorded in the resultant images as low resistance anomalies (Fig. 9, 8). It has been suggested that these may represent fishponds but they may indicate osier beds (SEAX; <http://unlockingessex.essexcc.go.uk> – SMR No. 19056).

South-east of the pond, high resistance anomalies (Fig. 9, 9) were detected but they do not appear to form any coherent pattern compared to the gradiometer results (see above). It is possible that the high resistance represents either rubble spreads or sections of wall alignment.

To the west of the abbey remains, further significant archaeological anomalies have been recorded. These appear to complement those revealed by the magnetic survey.

Two parallel linear anomalies (Fig. 9, 10) adjacent to the west side of the claustral remains running on a north-south alignment probably indicate the presence of a road. These can be seen to run the length of the meadow from the parish church to the mill to the north-west. The road or trackway may be contemporary with the abbey remains or possibly associated with the later manor house.

To the west of the road, a series of diffuse rectilinear anomalies (Fig. 9, 11) were recorded in this area and probably relate to the former manor house. The anomalies are not as clear as was detected by the gradiometer in this area. This part of the meadow was under longer grass at the time of the survey and had not been grazed by the sheep. A square-shaped high resistance anomaly (Fig. 9, 12) appears to have been detected in a similar location to that revealed by the magnetic survey (Fig. 5, 12). It is feasible that this could indicate the presence of a hearth.

Straddling the southern field boundary close to the present day parish church is a square shaped high resistance anomaly (Fig. 9, 13). It is possible that this could represent a yard surface or base of a structure. Could this be the abbey gatehouse?

Attached to anomaly 13 and running in a northerly direction is a rectilinear high resistance anomaly (Fig. 9, 14), probably denoting a wall alignment.

Other linear, curvilinear and rectilinear ephemeral anomalies (Fig. 9, 15) possibly represent earthwork features such as banks and ditches.

6.0 CONCLUSIONS

Both techniques have successfully revealed significant anomalies relating to the remains of Tilty Abbey and later activity on the site.

In combination with the aerial photographic coverage, and previous plans of the site, a comprehensive picture has confirmed and further-enhanced the layout of the claustral nucleus of the abbey. No indication of a gatehouse has been located between the parish church and abbey meadow. However, straddling the field boundary a possible square-shaped anomaly may indicate the presence of a structure that could represent a gatehouse.

To the south-east of the pond, an enclosure or structure has been revealed, possibly indicating the presence of industrial activity at Tilty. To the west remains of the later manor house may have been detected although no clear outline of the wall foundations have been recorded by magnetic or earth resistance surveys.

Other ephemeral features such as paths and ditches have been recorded that possibly relate to orchards and gardens associated with the abbey or perhaps a later historic landscape.

Some of the anomalies detected maybe resolved from the topographical survey being undertaken at present. The results of all surveys will be collated and interpreted in light of previous interpretations and analysis in the analytical survey report to be produced by Oxford Archaeology East.

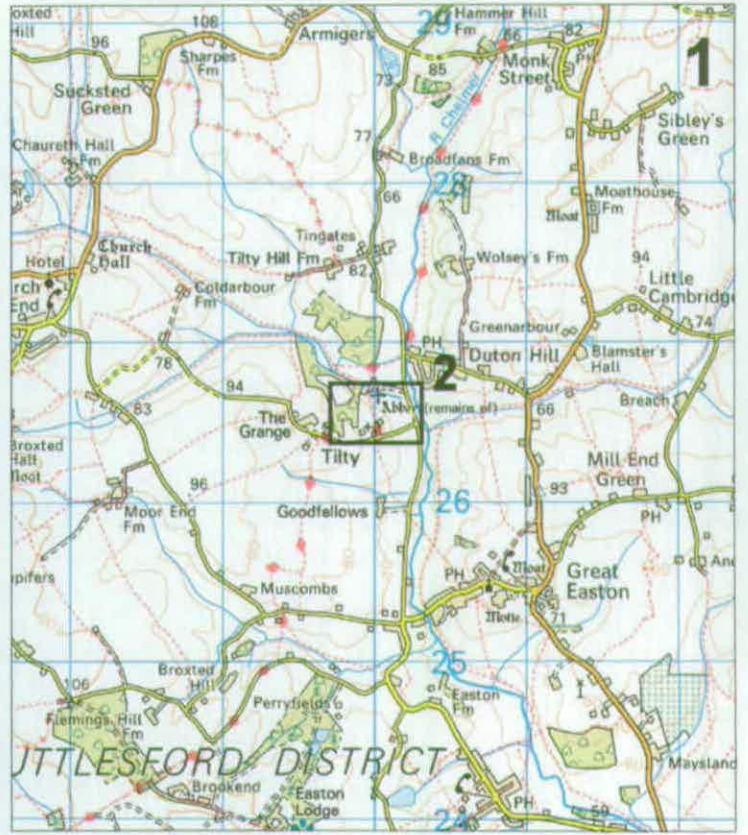
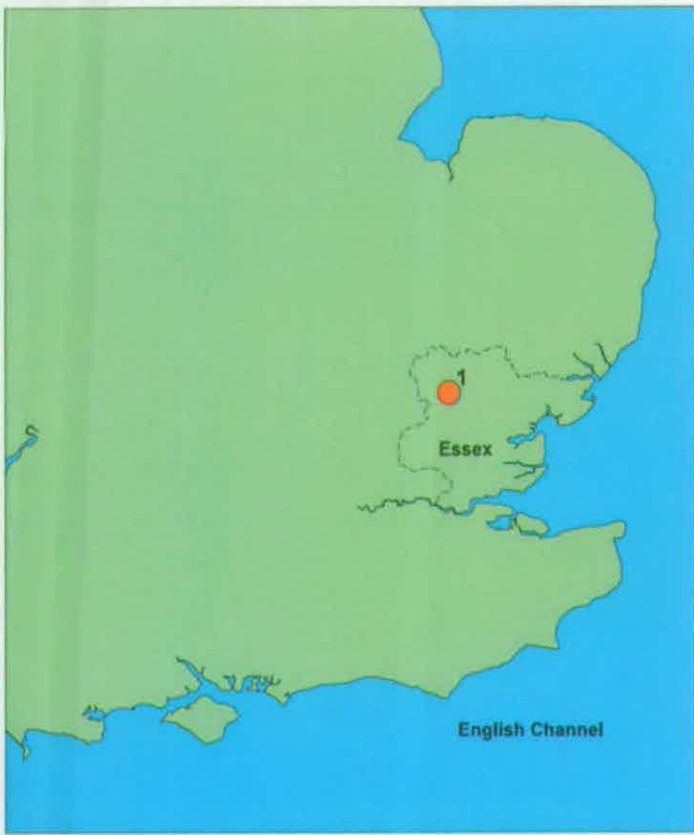
In conclusion, it can be said that the underlying surviving wall foundations appear to be fairly well preserved considering internal features such as pier bases were clearly defined in the resistance survey.

7.0 ACKNOWLEDGEMENTS

Cranfield University, Centre for Archaeological and Forensic Analysis would like to thank OA East and English Heritage for this commission. I would like to thank my field assistants, Caroline Sims and Charlie Enright for their help in completing the survey work.

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Fig.1 - Location plan, scale - 1:2500



FIG. 2: Gradiometer Survey – Grey scale plot of raw data, scale – 1:1000

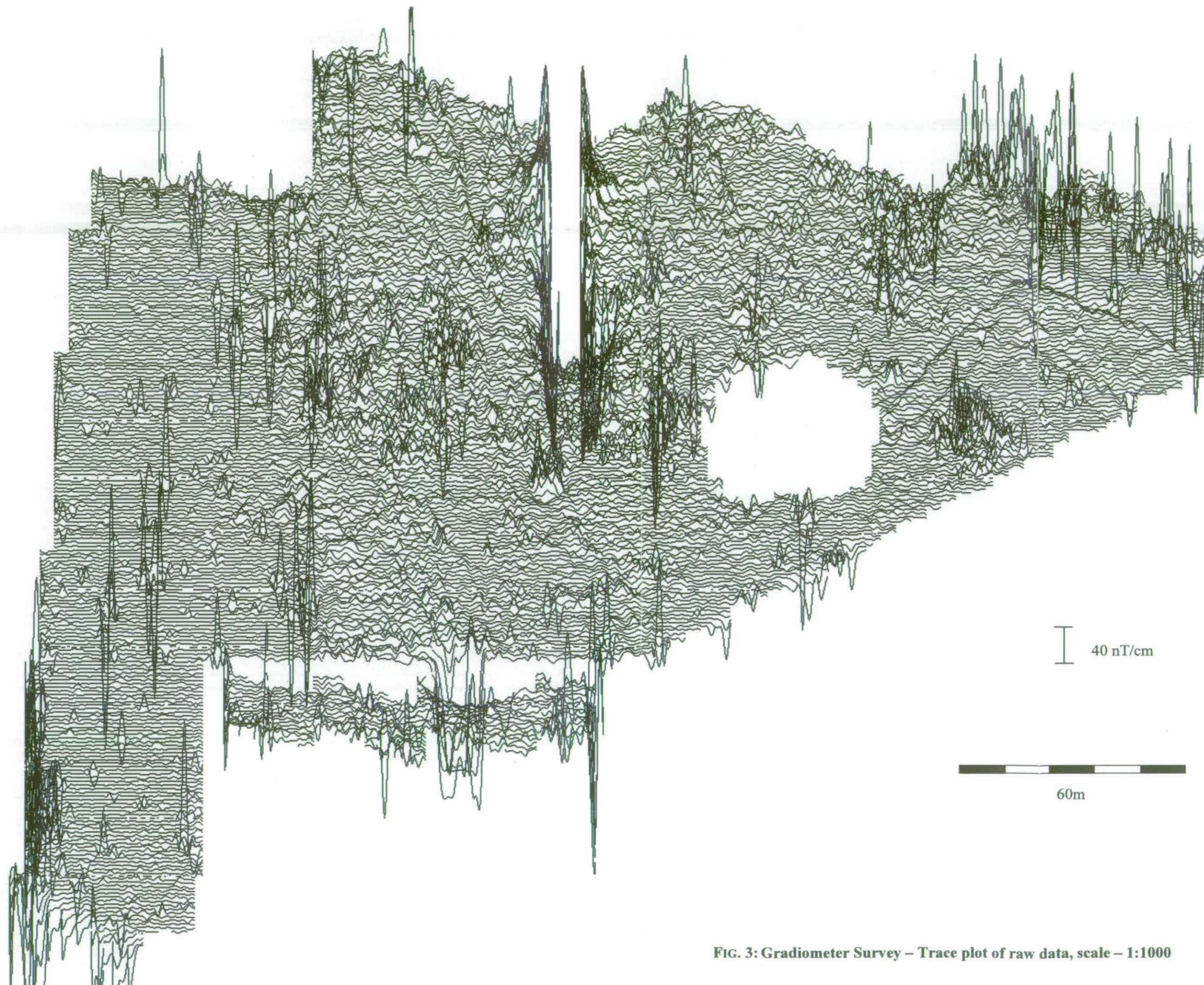


FIG. 3: Gradiometer Survey – Trace plot of raw data, scale – 1:1000



FIG. 4: Gradiometer Survey – Grey scale plot of enhanced data, scale – 1:1000



Figure 5 - Interpretation plan of gradiometer survey, scale 1:1000

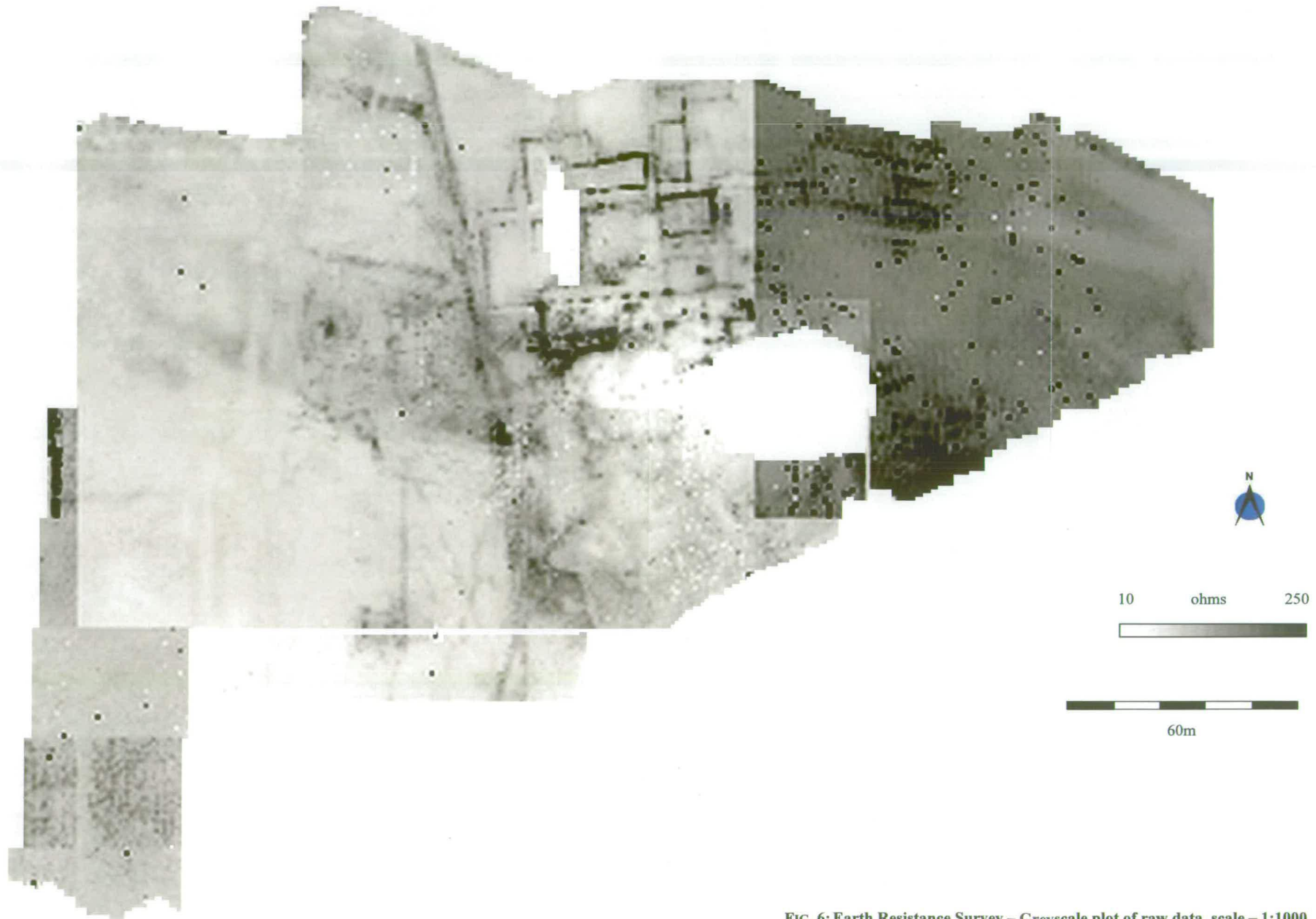


FIG. 6: Earth Resistance Survey – Greyscale plot of raw data, scale – 1:1000

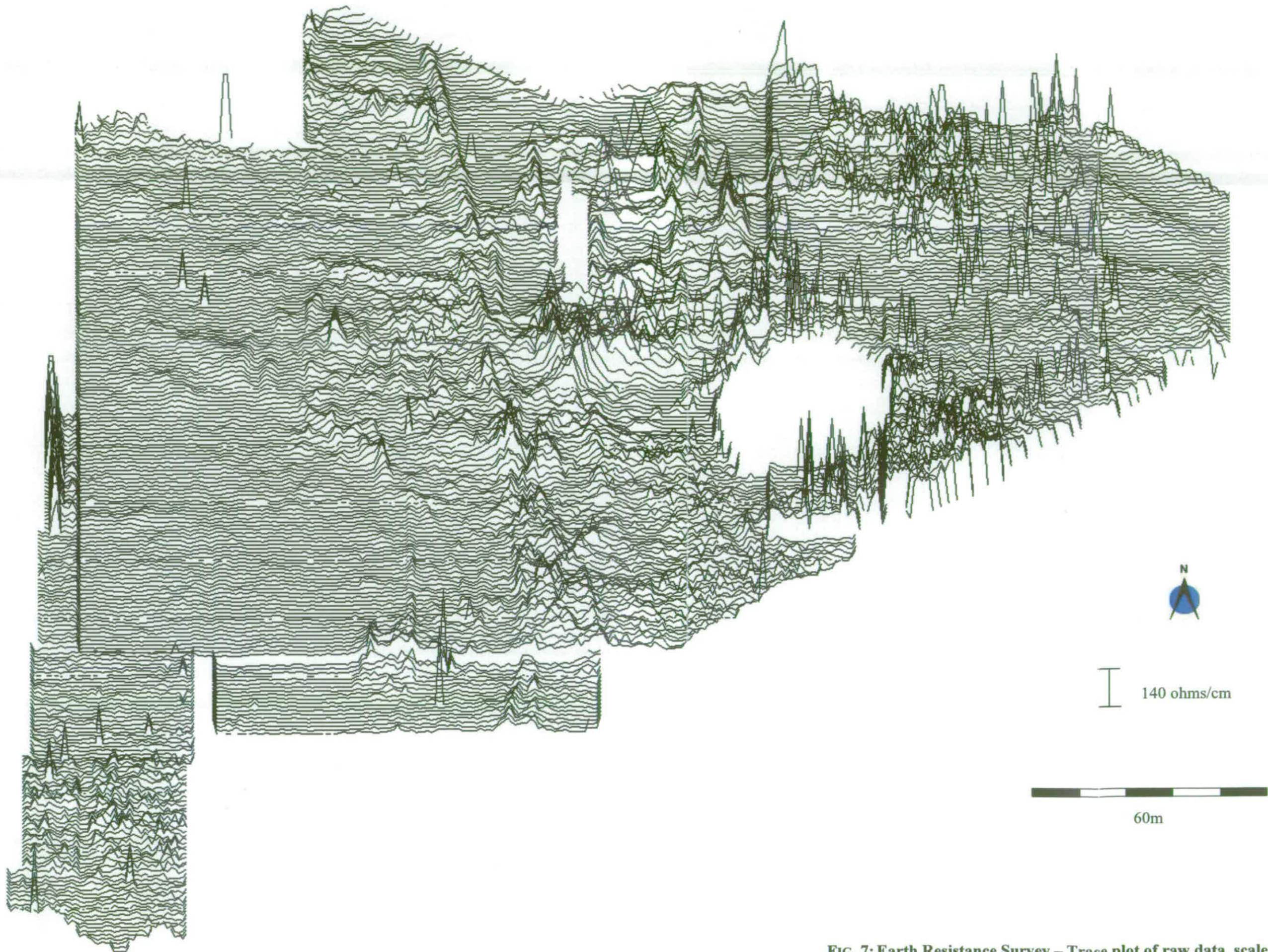


FIG. 7: Earth Resistance Survey – Trace plot of raw data, scale – 1:1000



FIG. 8: Earth Resistance Survey – Greyscale plot of enhanced data, scale – 1:1000



Figure 9 - Interpretation plan of resistance survey, scale: - 1:1000



**Head Office/Registered Office/
OA South**

Janus House
Osney Mead
Oxford OX2 0ES

t: +44 (0) 1865 263 800
f: +44 (0) 1865 793 496
e: info@oxfordarch.co.uk
w: <http://thehumanjourney.net>

OA North

Mill 3
Moor Lane
Lancaster LA1 1GF

t: +44 (0) 1524 541 000
f: +44 (0) 1524 848 606
e: oanorth@thehumanjourney.net
w: <http://thehumanjourney.net>

OA East

15 Trafalgar Way
Bar Hill
Cambridgeshire
CB23 8SQ

t: +44 (0) 1223 850 500
f: +44 (0) 1223 850 599
e: oaeast@thehumanjourney.net
w: <http://thehumanjourney.net>

OA Méditerranée

115 Rue Merlot
ZAC La Louvade
34 130 Mauguio
France

t: +33 (0) 4.67.57.86.92
f: +33 (0) 4.67.42.65.93
e: oamed@thehumanjourney.net
w: <http://oamed.fr/>

OA Grand Ouest

7 Rue des Monderaines
ZI-Ouest
14650 Carpiquet
France

t: +33 (0) 249 880 101
f: +33 (0) 249 880 102
e: info@oago.fr
w: <http://oago.fr>

Director: David Jennings, BA MIFA FSA



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