

ANGLO-SAXON AND MEDIEVAL ARCHAEOLOGY AT IPSWICH'S CORNHILL

By Andrew A. S. Newton, Gareth Barlow, and Julia E M Cussans
Figures by Kathren Henry

SUMMARY

Archaeological investigation, consisting of trial trench evaluation and open-area excavation, carried out at Cornhill, Ipswich by Archaeological Solutions Ltd revealed densely spaced Anglo-Saxon to medieval features, sealed by a sequence of made ground. Post-medieval features were also recorded. Cornhill is historically associated with a market place, and such activity still occurs here today. It is likely that it was set out in the Anglo-Saxon period, during the 8th century expansion of Ipswich and has probably served as a market place consistently since then. The recorded features are consistent in date with what is known about the use of this area but, other than potentially representing structural postholes and refuse pits, cannot themselves be closely tied to a market function. The finds assemblages recovered from these features are consistent with urban activity during these periods. These assemblages cannot be stated to prove that this area has been consistently been used as a market place but some aspects of them, especially the faunal assemblage which suggests that a butcher may have been trading in the vicinity, may be seen to support the historical evidence which states that Cornhill was a market place and the central hub of Ipswich's Anglo-Saxon and medieval retail economy.

INTRODUCTION

Extensive archaeological investigations, carried out since 1974, have demonstrated that Ipswich was founded in the early 7th century¹.

This early settlement covered an area of approximately 6ha before a rapid expansion and the laying out of an orthogonal street system, covering an area of c. 50ha, traditionally believed to have occurred in the 9th century but now understood to have happened in the 8th century as part of a deliberately planned process and alongside the establishment of a major pottery industry².

A market place was present at Ipswich since at least the late 9th century during Danish occupation, and potentially earlier. Scull³ suggests that the head of the Orwell estuary was an important trading location prior to the establishment of Ipswich and by the end of the 6th century, with more than one community and trading site involved, effectively forming an area of beach markets. On this basis, Scull⁴ speculates that the establishment of Ipswich, and its 8th century expansion, may have involved the formal consolidation, at a single site, of activities previously undertaken at a range of settlements or locations. Ipswich appears, by the 8th century, to have been linked to its hinterland through markets with a significant element of monetary exchange⁵. This suggests that the presence of a market within Ipswich prior to the 9th century and the period of Scandinavian occupation is highly likely. Ipswich had a daily market after c.1200.

Cornhill is the place where corn, brought in from the countryside, was laid out for sale; thus the Cornhill is intrinsically tied to a market in Ipswich⁶. The area at Cornhill was an open space

during the Anglo-Saxon period and St Mildred's church is thought to have been located here, on the site of the current town hall. The church is not recorded in Domesday but its dedication suggests it dates from this period⁷. The possible presence of an Anglo-Saxon royal residence on the Cornhill alongside St Mildred's Church⁸, and its topographical position of the area in relation to the rest of the town indicates that it would have been a central hub within the urban centre, perhaps reinforcing its suitability as a marketplace even prior to the 13th century.

Cornhill lies in an area of high archaeological potential in the extent of the Anglo-Saxon and medieval core of Ipswich⁹. Cornhill is an area of open pavement between the Town Hall and the Corn Exchange, the Post Office and various commercial shops lining Westgate Street to the north. It is currently in use as a market place with various stalls and traders. Proposals to regenerate the area by carrying out a number of public realm works, including installation of a water feature, public art, tree planting and repaving across the area, required archaeological investigation to be carried out in order to gain planning consent. Those investigations consisted of the opening of two archaeological evaluation trenches and the subsequent opening of a slightly larger excavation area. These investigations were carried out in accordance with a brief issued by Suffolk County Council Archaeological Service Conservation Team.

THE ARCHAEOLOGICAL INVESTIGATIONS

Two evaluation trial trenches (12.50 x 1.60m and 6.50 x 1.60m) were excavated using a mechanical excavator fitted with a toothless ditching bucket (Fig. 2) in locations approved by Suffolk County Council, Archaeological Service Conservation Team. One trench sought to target the market place and the second sought to target the area of the former market cross, as shown on historic cartographic sources. The trenches avoided existing service runs and access. A single excavation area (9.00 x 2.30m) was opened at the intended location of the plant room for the proposed water feature, also using a mechanical excavator fitted with a toothless ditching bucket (Fig.2). Following this work, a programme of archaeological monitoring and recording was carried out in association the lifting of an existing tarmac surface and the cutting of two test pits (Test Pits 1 & 2), a service trench (20.0 x 0.5m) (Trench 4), a Tree Pit, and a trench for a new water tank (7.85 x 3.90m) (Trench 5) (Fig. 2).

The evaluation phase of investigation revealed a relatively high density of features in both trenches (Fig. 3). The features comprised pits and postholes. The latter, particularly in Trench 2, may be indicative of structural remains. The excavation (Fig. 4) also recorded a dense collection of pits and postholes sealed by a sequence of made ground, including the continuation of features recorded at the southern end of Trench 1. Several pits were inter-cutting, and exhibited slightly irregular profiles with multiple fills that suggest the accumulation of waste, possibly as rubbish pits. The recorded features represented three phases of activity, spanning the 8th-9th, 9th-12th and 12th-15th centuries, with post-medieval activity also represented (Table 1). Both the dated and undated features contained modest quantities of animal bone and oyster shell, carbonised cereal remains, principally wheat and rye, and low quantities of fired clay, potentially from daub associated with construction. Pits F2077 and F2086 also contained well-preserved, residual Roman pottery. Only undated features were recorded during the programme of archaeological monitoring and recording. However, one of these, F3034, was found to contain a fragment of fine-grained, dark grey micaceous stone, probably schist, which has been identified as a possible whetstone. It has a rectangular section (17mm thick) and the lower end is 40mm wide, tapering gently to the opposing end, which is presumed to have been perforated but is snapped off. This type of implement was utilized in the Anglo-Saxon and medieval periods but equally has a currency spanning the Iron Age to the 19th century.

Phase	Period	Date
1	Middle Anglo-Saxon	8 th -9 th century
2	Later Anglo-Saxon to Saxo-Norman	9 th -12 th century
3	Medieval	12 th -15 th century
4	Post-medieval/early modern	16 th -19 th century

Table 1. The phases of activity represented at Cornhill, Ipswich

Phase 1. Middle Anglo-Saxon

The earliest recorded features were dated by pottery evidence to the middle Anglo-Saxon period, specifically the 8th to 9th centuries. Located at the western side of the site, and recorded within Evaluation Trench 1, was F1025, a sub-rectangular, vertical sided feature. Immediately adjacent to the east of F1025 was F1021, a sub-circular, steep-sided pit which, like F1025, extended beyond the limits of the evaluation trench. This was cut by the Phase 2 Pit F1023=F2077. To the south-east of F1021 lay F2060 which was recorded within the area that was opened up for excavation. This was a sub-rectangular pit with irregular sides and a concave base. F2060 cut Pits F2062 and F2067 indicating that these features must have been of 8th to 9th century date or earlier. Just over two metres to the east of F2060 was posthole F2042. No contemporary features with which this posthole may have had a structural relationship were recorded within the either of the evaluation trenches or the excavated area, although it is possible that it functioned in conjunction with the undated F2071 which lay to the south. Two features assigned an 8th to 9th century date were recorded in Evaluation Trench 2 (Fig. 16). The smallest of these was posthole F1051. It cut the larger undated posthole F1053, indicating that this feature must have been of broadly contemporary date or earlier. It may have had a structural function with undated posthole F1055 which lay a short distance to the north and also cut F1053. To the north-west of F1051 and also recorded within Evaluation Trench 2 was Pit F1057. This feature was square in plan, with vertical sides and a flat base.

Phase 2. Later Anglo-Saxon to Saxo-Norman

Two features recorded during the archaeological investigations were assigned a 9th to 12th century date. F1023, a sub-circular pit with moderately sloping sides and a concave base, was recorded in Evaluation Trench 1. It was also recorded as F2077 in the larger excavation area. To the south of F2077 lay F2086. This was sub-rectangular in plan with irregular sides and a shallow concave base. Both of these features contained up to four fills and both were found to contain residual Roman pottery, suggesting the presence of hitherto unknown, earlier activity in the Cornhill area. Intrusive modern pottery was also recovered from F2077.

Phase 3. Medieval

F1041, a small posthole, was recorded in Evaluation Trench 2 (Fig. 3). It was, like the other features in this trench, sealed beneath layer L1036 which contained a sherd of Anglo-Saxon pottery, which must be considered to be residual, and 106g of medieval CBM. To the north was the larger F1043, a sub-circular, steep-sided feature was dated to the medieval period, like F1041, on the basis of a small quantity of CBM. While dating evidence suggests that these two features were contemporary, there is nothing other than their proximity to one another to suggest a shared function or relationship.

Within the larger excavation area, to the south of Evaluation Trench 2, three medieval features were recorded. Two of these, F2058 and F2069, were postholes but the discrepancy in their

sizes suggests that they are unlikely to have functioned in unison. To the east of these postholes lay Pit F2082 (Fig. 4). This extended beyond the limits of excavation but was recorded as being rectangular in plan with vertical sides and a flattish base.

Possible Metalled Surface L2014 was present across the entire excavated area and was approximately 0.03m thick (Fig. 4). It comprised a compact dark brown grey clayey silt embedded with frequent medium sized rounded flints. Beneath Metalled Surface L2014 lay L2050 (Fig. 4). This appeared to represent made ground or possibly a demolition deposit. It was present across the excavated area and typically overlay the natural deposit, L2051, and sealed the Anglo-Saxon, Saxo-Norman, and medieval features that were recorded in this area. This combination of deposits suggests that the Cornhill area may have been deliberately re-surfaced, and therefore potentially rearranged, in the later medieval or early post-medieval period.

Phase 4. Post-medieval/early modern

Thirteen features were assigned a post-medieval to early modern date. The majority of these were recorded in the area that was opened up for further excavation after the completion of the trial trench evaluation (Fig. 4). A single feature was recorded in Evaluation Trench 1 (Fig. 3) and two features of this date were recorded in Evaluation Trench 2 (Fig. 3).

Many of these features contained pottery of earlier dates but their stratigraphic positions indicated that this material must have been residual. Pit F1004, for example, contained Saxo-Norman pottery but truncated Made Ground L1008 and was overlain by Concrete L1003. The post-medieval/early modern features recorded in the excavation area were all observed to cut layer L2005, which was stratified above possible Metalled Surface L2014 which in turn lay above the medieval possible demolition layer L2050 which sealed all of the features of medieval date and earlier.

In the excavation area, the most prominent feature was the irregularly shaped Pit F2015 (Fig. 4). This feature extended across the entire width of the excavated area and was aligned broadly south-west to north-east. On either side of this were the rectangular or sub-rectangular Pits F2006 and F2030, both of which extended beyond the limits of excavation at either end of the excavated area. F2015 cut the edge of the small pit F2028. Cut through the backfilled F2015 at the southern edge of the excavation area were pits F2024 and F2026. These extended beyond the excavated area but appeared to be sub-circular or oval in plan. Also cut through the backfilled F2015 were two sub-square or rectangular features with steep/vertical sides and flat bases, F2022 and F2032. These were very similar in form to the stratigraphically earlier F2017 and possibly, therefore, represent features of similar function.

Undated features

Several features were identified during the trial trench evaluation and the subsequent excavation that contained insufficient artefactual material from which a date for their use could be discerned. Stratigraphic evidence proved more useful in determining the antiquity of these features but in most cases could provide only a *terminus ante quem* for their final use.

Within Evaluation Trench 1 (Fig. 3), three undated features were observed. These were Pit F1015 and Postholes F1017 and F1019 which were recorded in section only. These were cut into the natural deposit L1014 and are more likely, therefore, to be contemporary with the Anglo-Saxon and Saxo-Norman features recorded at the southern end of the trench than with

the post-medieval F1004 which was identified at the northern end and which was cut through several layers much higher in the stratigraphic sequence.

Six undated features were recorded within Evaluation Trench 2 (Fig. 3). These were F1039, F1045, F1049, F1053, F1055, and F1059. Like all of the features recorded within this trench, the undated features cut the natural substrate L1014 and were sealed by layer L1036. L1036 contained both Anglo-Saxon pottery and medieval CBM suggesting that any features in this trench are likely to be of this date earlier. The presence of two features, F1047 and F1049, which both contained very small amounts of post-medieval CBM, within this trench may indicate that the dateable material within L1036 was all residual or redeposited. Undated features in Trench 2 may, therefore, be of post-medieval date or earlier.

In the Excavation area (Fig. 4), the stratigraphically earliest features were sealed by Layer L2050, which was assigned a medieval date. All of the undated features recorded within the Excavation area were sealed by L2050 and must, therefore, be earlier than this medieval layer. In three cases, those of F2062, F2064 and F2067, which have been shown to be stratigraphically earlier than F2060, a more specific date can be determined; these features must have been contemporary with or earlier than the Anglo-Saxon F2060.

DISCUSSION

Archaeological features and layers

The recorded archaeological features consist of a series of pits and postholes. The dense scatter of these features within the limited extent of the excavated/evaluated areas are difficult to reconcile with specific activities or phases of building within Ipswich but it is clear the multiple phases of Saxon and medieval activity represent a continuous sequence that can be well-defined by ceramic evidence.

Within the excavation area a density of Anglo-Saxon to medieval pits and postholes was recorded sealed by a sequence of made ground, including the continuation of features recorded at the southern end of Trench 1. Features of similar character and density were recorded in the evaluation trenches. Several of the pits appear to have been associated with the deposition of refuse, although this was not necessarily their primary function. It seems likely that the postholes that were present may be, and in particular within Trench 2, indicative of structural remains. However, beyond this dense but largely amorphous cluster there are few clear structural configurations within the areas that have been subject to evaluation/excavation. The areas that have been subject to investigation offer only a very small window on to what may be a fairly extensive archaeological landscape; as such, clearer coherent inter-relationships between archaeological features may not have been discernible.

Evidence for market place activity

While the recorded features suggest that structures or buildings stood in this area, through the presence of postholes, and that pits were dug into which refuse material may have been dumped, the layout of the features offers little clear information about the way in which the area was used. Artefactual and environmental evidence offers greater detail regarding activity at the site.

As the name suggests, Cornhill is directly linked with the commercial process of buying and selling grain. The importance of grain to the medieval economy and to the medieval diet cannot be overstated; depending upon social rank, lifestyle, and occupation, it is estimated

that grain constituted from 65-70% (for the lay nobility) to 80% (for an agricultural worker) of a medieval person's calorific intake¹⁰. Environmental samples taken from medieval contexts demonstrated that cereals and other crops are likely to have been in common usage at the site. However, the assemblage was relatively small and preservation by carbonisation makes it a bit difficult to draw a direct link to a market-type location. The likelihood of any of the traded commodities being burned seems quite slim as they would not have been undergoing the processes that would have led to this at this location. It is likely in this urban setting that crops were imported in a processed or semi-processed state. As such, deposits of remains from processing or drying accidents would not be expected. The assemblage could represent foodstuffs cooked and consumed by market traders or, as is perhaps more likely, in nearby dwellings. Key information that may be used to demonstrate the sale of grains and cereals during the medieval period, and earlier, at Cornhill is, therefore, missing and the assemblage may be regarded as a kind of subsidiary, background assemblage relating to more general surrounding activity.

In contrast, the animal bone assemblage appears to represent the processing and consumption of meat products. The assemblage was dominated by domestic taxa, particularly cattle and pig, with a lower representation of sheep/goat. Small quantities of bird (including chicken and goose) and fish were also present. This assemblage is reminiscent of the Middle Saxon 'town' assemblages described by O'Connor¹¹ that have low species diversity dominated by cattle, sheep and pig with small amounts of chicken and goose present and very few wild species.

Sparse age data indicate a mix of animals present for cattle and pig with pig showing a higher proportion of younger animals. Sheep/goat appear to be mostly represented by older animals. Given the significant proportion of butchered bones present and the ages of many of the animals involved it seems likely that these remains relate to the processing and consumption of meat products. As whole carcasses appear to be represented it is possible that live animals were being brought to market on the hoof and then slaughtered, butchered, sold and (some at least) consumed in the vicinity, or alternatively that whole slaughtered carcasses were being brought in and butchered on site.

The low numbers of sheep bones appears unusual for the medieval period, however, their main economic use at this time, particularly from the late 12th- mid 14th century was as wool producing animals¹² and as such any wool being sold at market would not have left any bone evidence at the consumer end of the process. The lack of horse bones in the assemblage is also of interest as it is again likely to indicate that the assemblage largely results from the processing and consumption of meat. Similarly, the lack of dog bones is also likely to be due to the consumer nature of the deposits. It is, however, clear that dogs were present on the site and perhaps scavenged butchery waste around the market. Sykes¹³ notes that around the 11th-12th century, high status sites start showing high proportions of meat bearing elements in their bone assemblages, which she suggests indicates that they were buying ready butchered joints from urban butchers. It seems likely that such a butcher was operating in the area of the site during the medieval and possibly Saxon period.

The small marine mollusc shell assemblage that was recovered from the site was dominated by oyster but also included mussels, winkles, and cockles. It is conceivable that shellfish were being sold at market stalls in the vicinity although, as such items are not unusual in medieval urban assemblages, they cannot, in themselves, be considered to be representative of market trading. Indeed, a similarly sized assemblage of oyster, cockle, and whelk shells was recovered from the broadly contemporary monastic site at New Shire Hall in Bury St Edmunds¹⁴.

Sawn pieces of deer antler recovered from the site are suggestive of antlerworking. Craft production of this type could potentially be associated with marketplace activity, with a

stallholder selling goods whilst also working on the production of others, but would not necessarily have been carried out at such a location. Like the marine mollusc shells, chicken and fish bone, and the pottery and CBM assemblages, this material could simply be viewed as being characteristic of a medieval urban assemblage.

The indication that meat and meat products could potentially have been sold at this location, challenges the notion that Cornhill was used primarily for the trading of grains and cereals. Alsford¹⁵ states that there were various specialised markets in Ipswich, with separate locations associated with particular categories of product; in the post-Norman Conquest period, at least, meat appears to have been sold in the area to the south of Cornhill. By the later medieval period, however, the situation may have changed; Davis¹⁶ indicates that while wholesale markets were focussed on the quayside area, retail markets were located in the northern part of the town, particularly at Cornhill, which lay at the heart of the town and comprised the centre of the retail market infrastructure, with many commodities being traded here.

The surrounding area

Extensive archaeological investigations in Ipswich between 1974-1990¹⁷ have identified stages of urban development and a chronological framework into which this site would appear to fit. Specifically, the pits and postholes identified by this excavation should be considered against the expansion of the middle Anglo-Saxon town along a newly laid out grid of streets centred on a market place at the Cornhill and the continued use and development of this area thereafter.

Evidence from the site itself is limited, but it demonstrates, as expected, Anglo-Saxon, Saxo-Norman, and medieval activity in this area. The features themselves suggest the presence of structures and of pits possibly used for the deposition of refuse material, although there is no clear structural configuration to any of the recorded features. Similar features of late Anglo-Saxon date have been recorded in close proximity at Arcade Street, as have the remains of medieval walls on that street, Tower Street and Tavern Street. Artefactual and environmental assemblages recovered from the site are consistent with the urban location of the site through the represented periods. Although the archaeological work carried out here has not categorically proven that the site has been in use as a market place since the Anglo-Saxon period, the available evidence, and particularly the faunal assemblage, would support such an interpretation.

The main research contribution that this work makes is as part of the overall corpus of information regarding the development of Anglo-Saxon and medieval Ipswich. In conjunction with the results of archaeological work already undertaken in Ipswich¹⁸, synthetic work based on the results of this¹⁹, and any similar work that be required in the future in this part of Ipswich, the work conducted here can be used to build up a mosaic of evidence providing information about the possible medieval and earlier layout of this important historical commercial area in a similar way to which synthesis of small-scale archaeological interventions has been demonstrated to further the understanding of rural settlements²⁰.

BIBLIOGRAPHY

Alsford, S. 2016, 'History of medieval Ipswich-Economy', *Medieval English Towns*, <http://users.trytel.com/tristan/towns/ipswic13.html> accessed January 2018

Davis, J. 2012, *Medieval Market Morality; life, law and ethics in the English marketplace, 1200-1500*, Cambridge University Press, Cambridge

Gaylard, R. 2016, 'The Cornhill in history', *The Ipswich Society Newsletter* 204, The Ipswich Society, <http://www.ipswichsociety.org.uk/newsletter/newsletter-july-2016-issue-204/the-cornhill-in-history/> accessed January 2018

Grant, A. 1984, 'Medieval animal husbandry: the archaeozoological evidence', in Grigson, C. and Clutton-Brock, J. (eds.) *Animals in Archaeology 4: Husbandry in Europe*, BAR International Series 227, 179-187

Lewis, C. 2010, 'Exploring Black Holes: Recent Investigations in Currently Occupied Rural Settlements in Eastern England' in N. J. Higham and M. J. Ryan (eds) *The Landscape Archaeology of Anglo-Saxon England*, Boydell Press, Woodbridge 83-106

Newton, A. A. S., 2013, *Land at Shire Hall, Raingate Street, Bury St Edmunds. An Archaeological Excavation. Research Archive Report*, Archaeological Solutions Ltd unpublished report 4287

O'Connor, T. 2014, 'Livestock and animal husbandry in early medieval England', *Quaternary International*, 346, 109-18

Scull, C. 2002, 'Ipswich: Development and contexts of an urban precursor in the seventh century' in Hårdh, B. and Larsson, L. *Central Places in the Migration and Merovingian periods; papers from the 52nd Sachsensymposium, Lund, August 2001*, Acta Archaeologica Lundensia, Series in 8°, No. 39, 303-316

Scull, C. 2013, 'The Buttermarket Cemetery and the origins of Ipswich in the Seventh Century AD', *Proceedings of the Suffolk Institute of Archaeology* 43 (1), 43-50

Stone, D. J. 2006, 'The consumption of field crops in late medieval England', in Woolgar, C.M., Serjeantson, D. and Waldron, T. (eds), *Food in Medieval England: Diet and Nutrition*, Oxford University Press, Oxford, 11-26

Sykes, N. J. 2006, 'From *Cu* and *Sceap* to *Beffe* and *Motton*: the management, distribution, and consumption of cattle and sheep in medieval England', in Woolgar, C., Serjeantson, D. & Waldron, T (eds.). *Food in Medieval England: Diet and Nutrition*, Oxford University Press, Oxford, 57-72

Thomas, J. 2006, 'The Archaeology of Historic/Medieval Village Cores: Evidence from Leicestershire and Rutland', *Medieval Settlement Research Group Annual Report* 21, 34-36

Wade, K. 1988, 'Ipswich' in Hodges, R. and Hobley, B. (eds.), *The Rebirth of Towns in the West AD 700-1500*, CBA Research Report 68, 93-100

Wade, K. forthcoming *Ipswich excavations* East Anglian Archaeology

ACKNOWLEDGEMENTS

Archaeological Solutions Ltd (AS) would like to thank Ipswich Borough Council for funding the project and for their assistance (in particular Mr Conor baker and Mr Stuart Oxborrow for assistance and Ms Cari Hodgkinson for arranging access). AS would also like to acknowledge the assistance of Brooks and Wood Ltd (in particular Mr Alistair Parker).

AS is pleased to acknowledge the staff of the Suffolk Historic Environment Record, especially Grace Campbell and AS would also like to thank the staff of the Suffolk Record Office in Ipswich.

AS would like to thank Dr Abby Antrobus of SCC AS-CT for her input and advice.

Authors: Andrew A. S. Newton, Gareth Barlow and Julia E. M. Cussans.

Archaeological Solutions Ltd, 6 Brunel Business Court, Eastern Way, Bury St Edmunds, Suffolk IP32 7AJ

The project was managed by Jon Murray. Pottery was analysed by Peter Thompson. CBM was analysed by Andrew Peachey. Metalwork was analysed by Rebecca Sillwood. Animal bone and shell were analysed by Julia E. M. Cussans. Environmental samples were analysed by John Summers. Figures and Illustrations are by Kathren Henry.

¹ Wade 1988, 93

² Scull 2002, 304

³ Scull 2002, 312

⁴ Scull 2002, 312

⁵ Scull 2013, 49

⁶ Gaylard 2016

⁷ Suffolk Historic Environment Record (SHER) IPS279

⁸ Gaylard 2016

⁹ SHER IPS413

¹⁰ Stone 2006, 11

¹¹ O'Connor 2014

¹² Grant 1984, Sykes 2006

¹³ Sykes 2006

¹⁴ Newton 2013

¹⁵ Alsford 2016

¹⁶ Davis 2012, 384

¹⁷ Wade *forthcoming*

¹⁸ e.g. Wade *forthcoming*

¹⁹ e.g. Scull 2002, 2013

²⁰ c.f. Thomas 2006; Lewis 2010

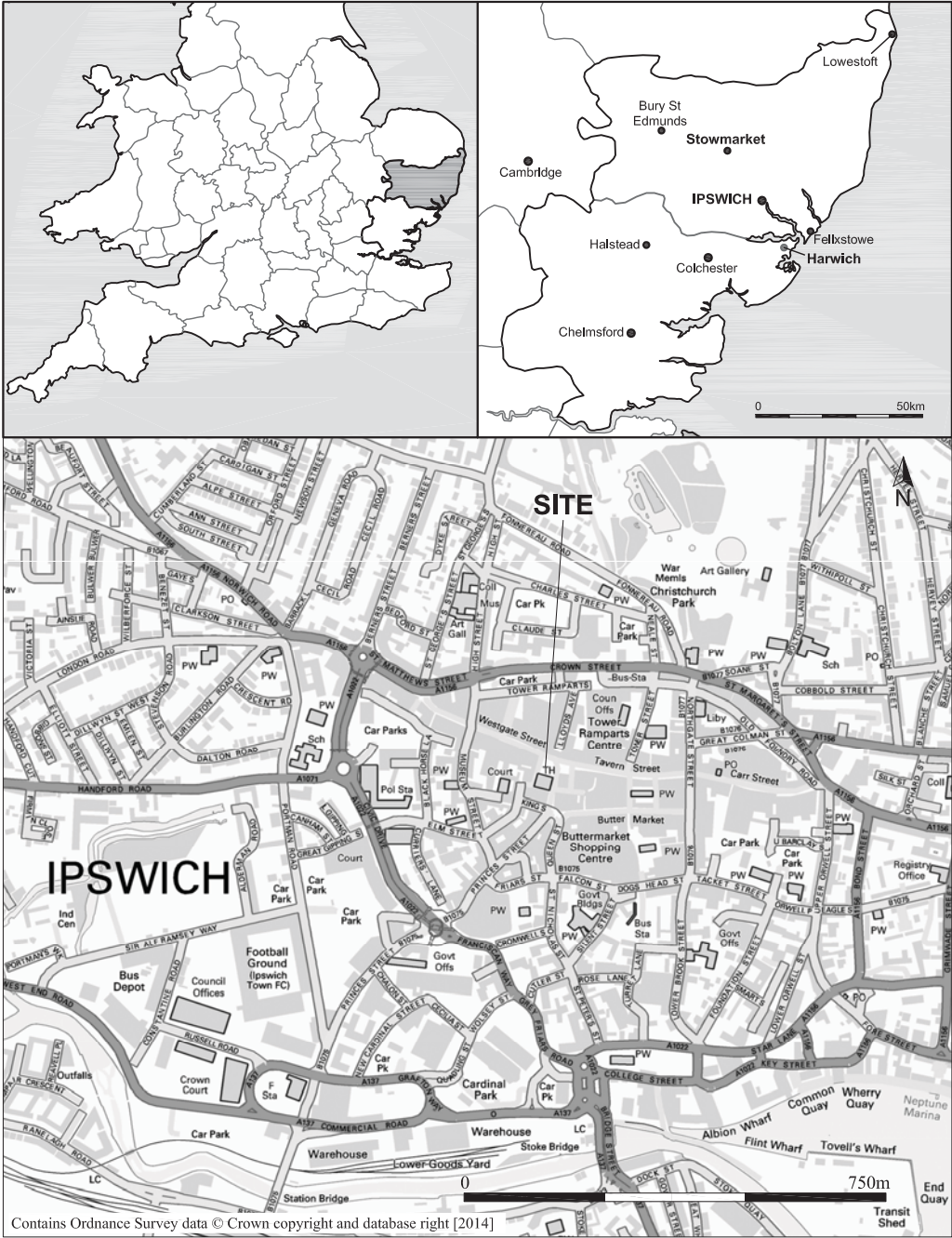


Fig. 1 Site location plan

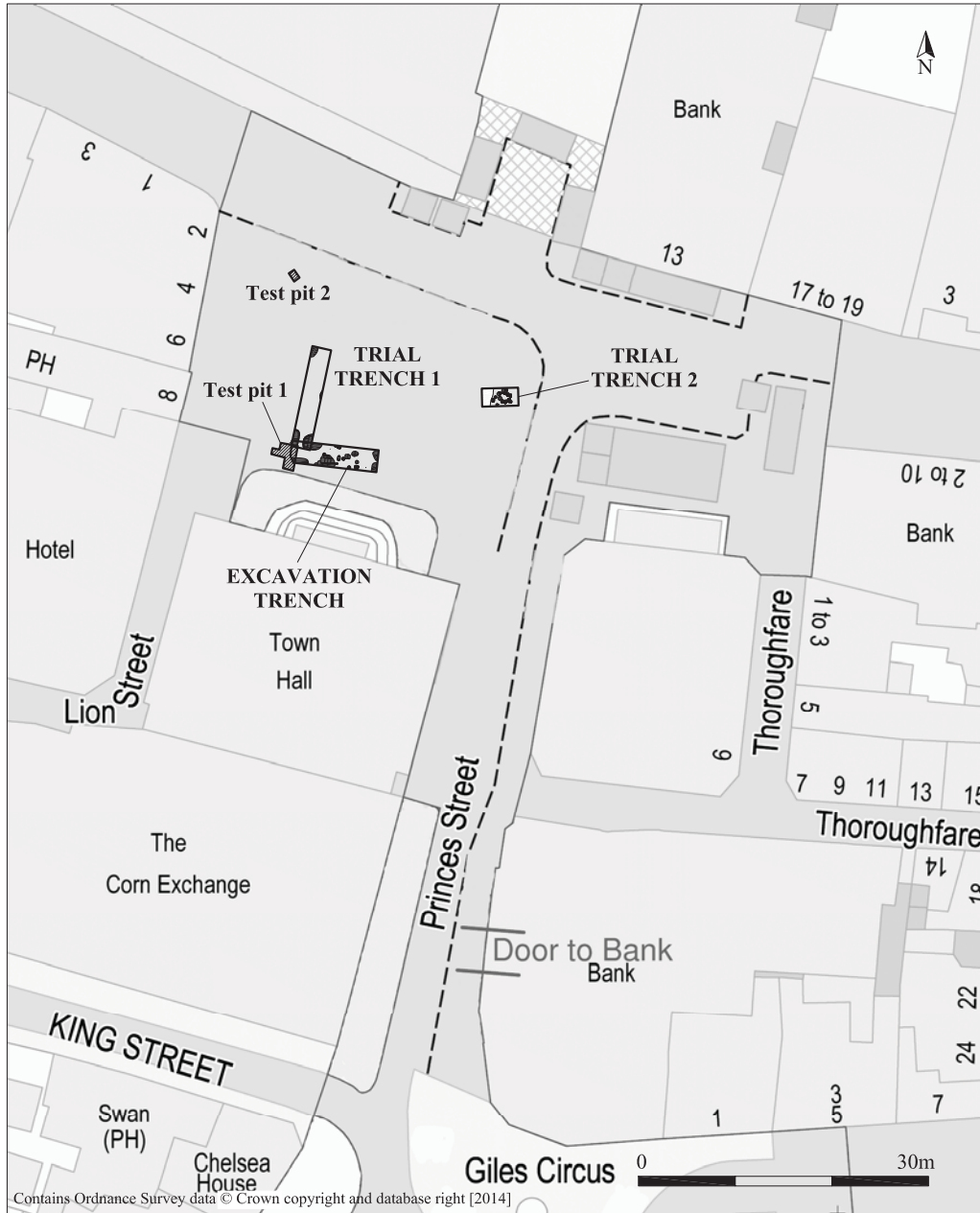


Fig. 2 Trench location plan

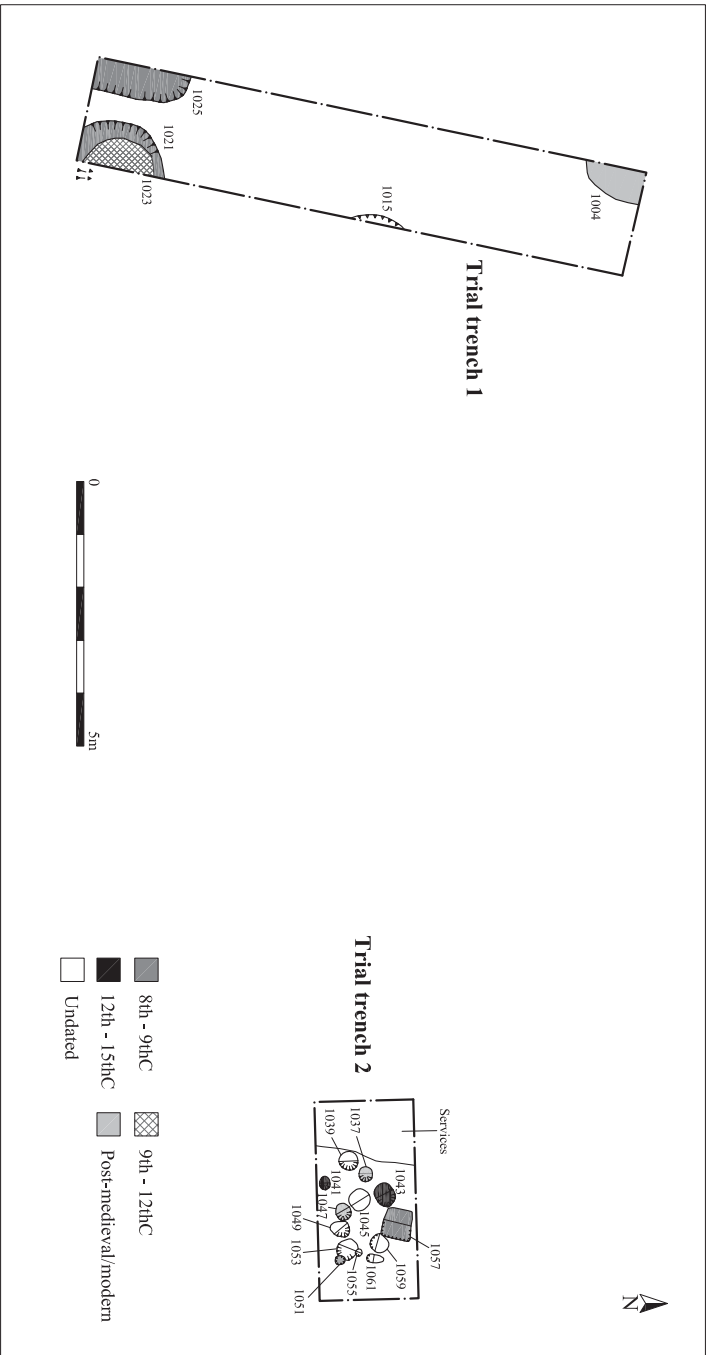


Fig. 3 Trial trench plans

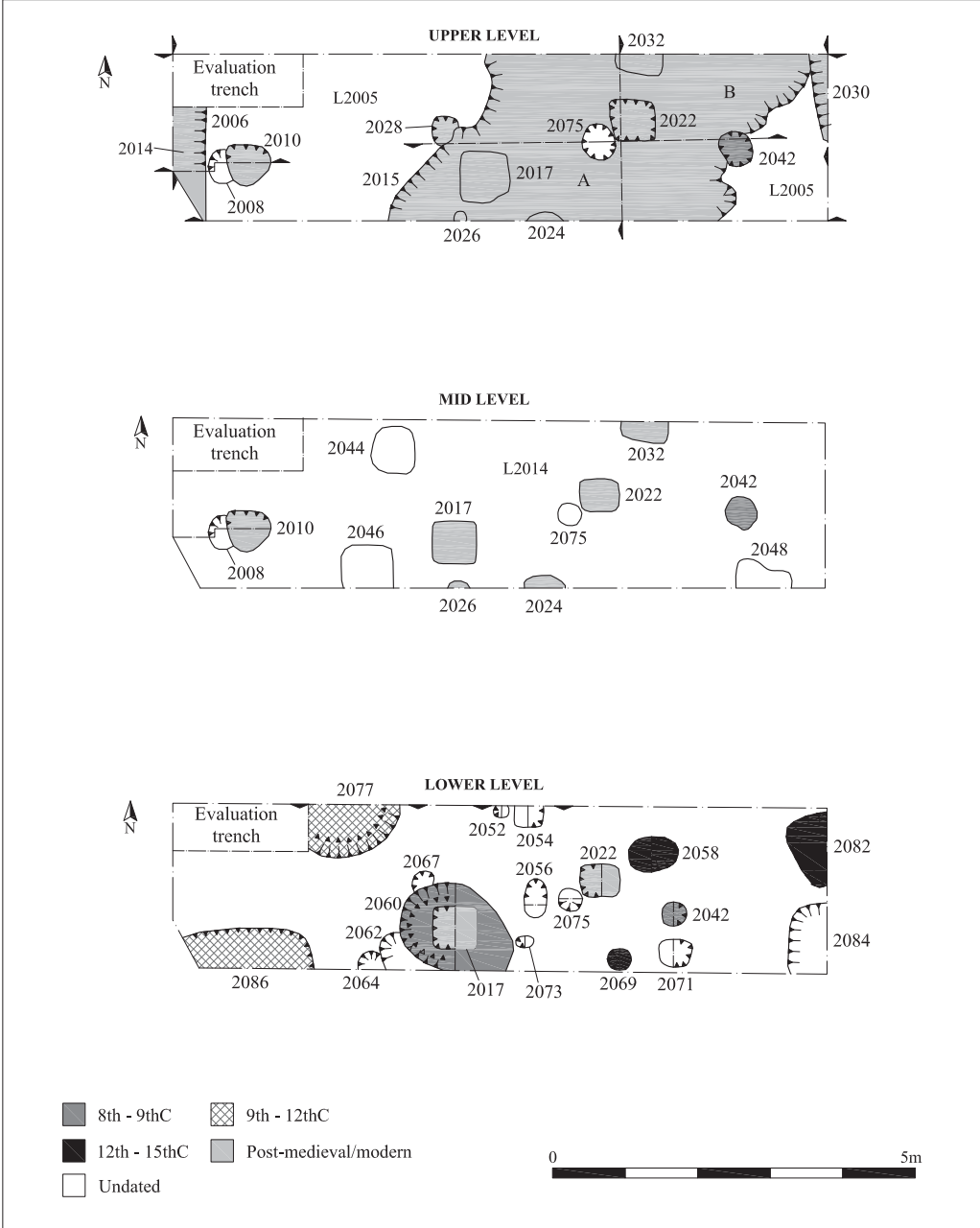


Fig. 4 Excavation trench plans