CARMARTHEN CASTLE

EXCAVATIONS OUTSIDE THE GATEHOUSE, JUNE-AUGUST 2003

Report No. 2004/22

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CARMARTHENSHIRE COUNTY COUNCIL

ARCHAEOLEG
CAMBRIA
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By

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EXECUTIVE SUMMARY

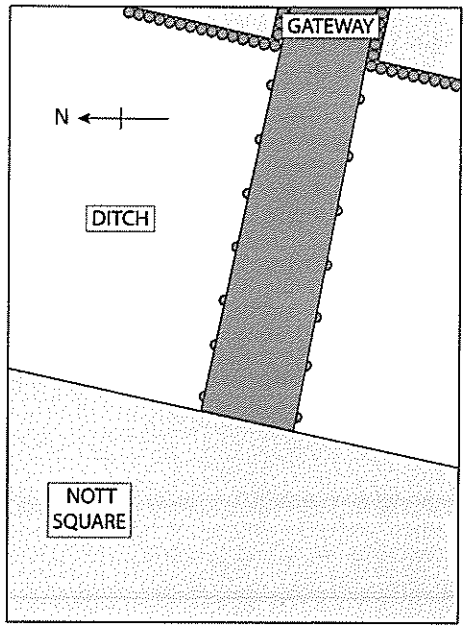
An archaeological excavation was undertaken at Carmarthen Castle, Carmarthenshire in the summer of 2003 by Cambria Archaeology on behalf of Carmarthenshire County Council, as part of Phase 4 of the ongoing consolidation and enhancement works. The site was located in the area between the gatehouse of the castle and the street frontage of Nott Square, on land previously occupied by Nos. 11, 12, and 13 Nott Square, and the back of No. 21 Bridge Street. The excavation was required to characterise and record the extent of surviving archaeological features and deposits within the area as part of an ongoing enhancement scheme for the castle. Cellars associated with No. 11 were cleared out and recorded. The cellars were cut into backfill deposits within the castle ditch and included elements of masonry bridging structures connecting the castle to the market square. The street frontage of No.11 revealed more of the bridge structure the edge of the castle ditch. An excavation below the cellar floor revealed in situ medieval ditch deposits, and containing some waterlogged leather shoes, wooden bowl fragments, metal finds, and environmental evidence. The excavation also revealed the deposition sequence within the ditch, and evidence of buildings pre-dating No.11 Nott Square. A chronology for the development of the castle defences and for six phases of alterations to the masonry bridge/causeway structures are suggested. The processes of gradual reclamation of the ditch in response to pressures of urban development, the recutting of the ditch during the civil war period and subsequent backfilling and redevelopment is also suggested to explain apparent anomalies in the historic and archaeological evidence. During the project, various possibilities for retaining the excavated features for public display were explored. At the end of the excavation, all the trenches were backfilled except for two of the cellars. It is hoped that it will be possible to allow public access to the cellars and to display the remnants of the medieval bridge.

In the main report the site is divided up into Areas A to E. Each of these areas is discussed in more detail in the main body of the report. In the descriptions, however, it will be noted that not all the phases are represented in each area. This executive summary therefore aims to provide simple plans and brief descriptions that outline each of the main phases of development that were ascertained during the excavation of the site as a whole.

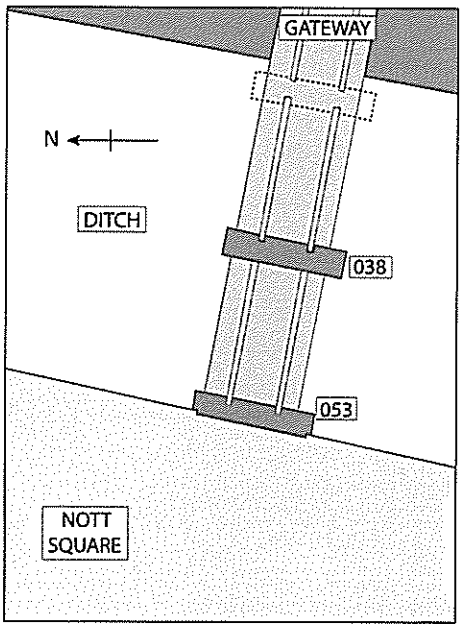
The first six phases are primarily represented by the development of the bridge and its gradual conversion into a permanent causeway as the need for defendability diminished. Subsequent phases represent the backfilling of the ditch and the events and processes by which the area outside the castle gatehouse became built upon.

The plans in this executive summary are simplified plans, based on the more detailed plans in the main body of the report.

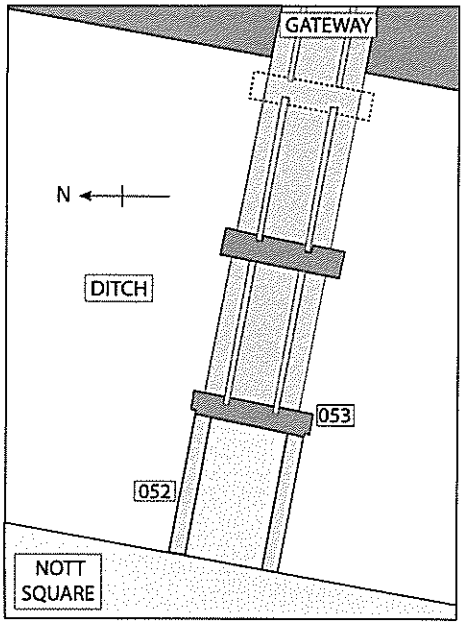
Phase 1 (c.1109-1223)
In this phase, a bridge constructed entirely of timber is hypothesised. This would have been associated with the earliest phases of the castle. No direct evidence for the location or character of the bridge, the width of the ditch or the nature of the castle defences in this phase has been revealed. The evidence for this phase is likely to have been destroyed or obscured by the later phases of the castle.



Phase 2 (c. 1223-1409?)
In this phase, the supports for the timber bridge have been replaced by stone piers. Slots to house the bridge timbers are visible on the east side of [038]. There may have been a third pier to the east of [038], upon which a drawbridge would have rested. Pier [053] may mark the edge of the castle defensive ditch at this time. Evidence for this ditch edge would have been destroyed when the ditch was widened. The form of the gateway is unknown.

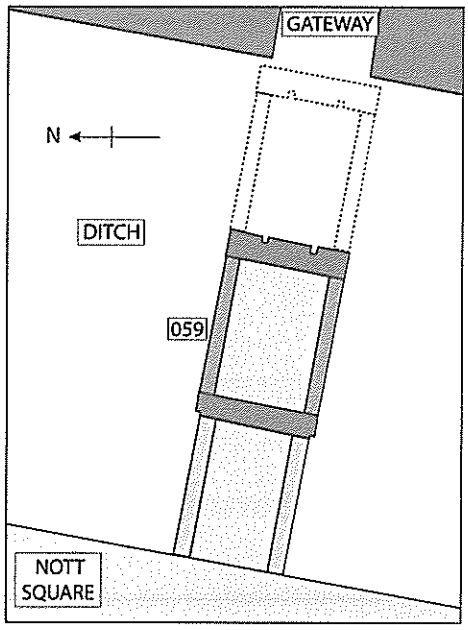


Phase 3 (c. 1223-1409?)
In this phase, the ditch may have been widened to the present-day edge of Nott Square, a width of 18m. Wall [052] and its equivalent to the south, were built to the west of pier [053] and filled with rubble to form a solid abutment, projecting out into the defensive ditch. East of [053] the bridge was probably still of timber construction. The form of the gatehouse in this phase is not known.



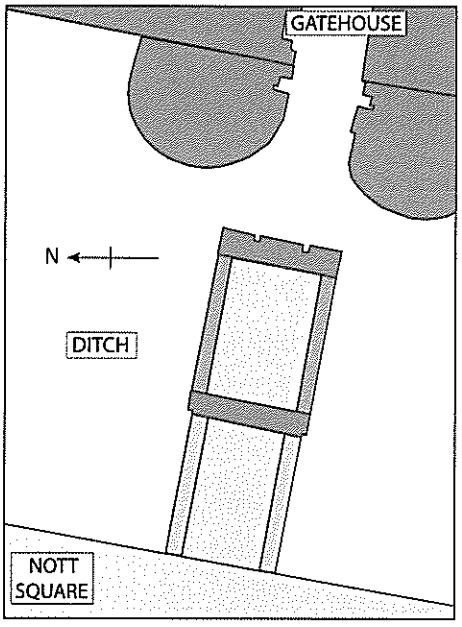
Phase 4 (c. 1223-1409?)

In this Phase, wall [059] and its southern equivalent were constructed. These walls may have supported a timber superstructure, or may represent the in-filling of this section of the bridge to create a more permanent masonry causeway. It is possible, but has not been proven, that the section to the east of [038] was also filled in, in the same manner, during this phase to create a solid causeway spanning the entire ditch. Alternatively, this section may have been of timber construction.



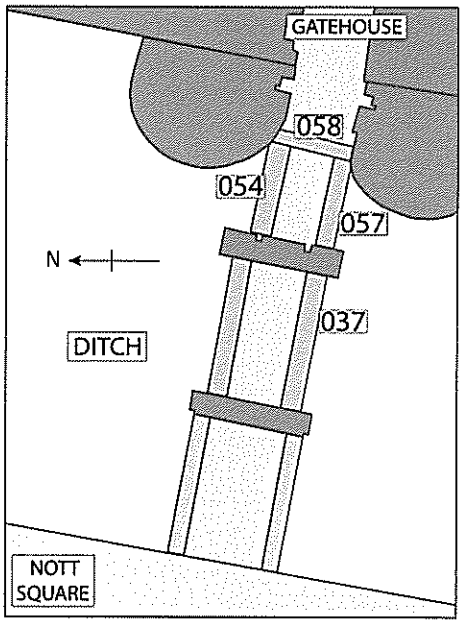
Phase 5 (c. 1409-1610?)

This phase represents the possibility that Phase 4 could have existed after the construction of the gatehouse that exists today (built in 1409). Much of the evidence for the earlier gatehouse would have been destroyed at this time. A drawbridge may have spanned the gap between the causeway and the new gatehouse. This phase may have existed for a while, gradually falling into disrepair, to the extent that in Phase 6, entirely new walls were built, rather than simply repairing the walls of Phase 5.



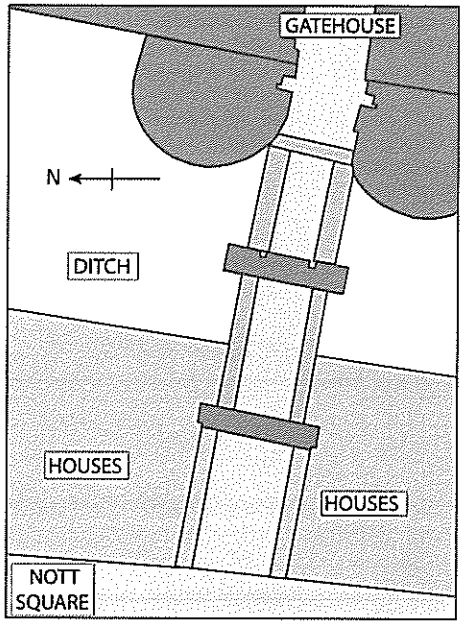
Phase 6 (c. 1409-1536?)

In this phase, walls [058, 037, 057, and 054] were constructed and the space between them filled with soil, to form a continuous solid causeway, associated with the new gatehouse construction. This causeway remains in use until the defensive ditch is filled in. The ditch will have gradually filled in through a variety of deposition processes, but may also have been cleared out from time to time. The construction of a permanent causeway suggests that the need to defend the castle had reduced.



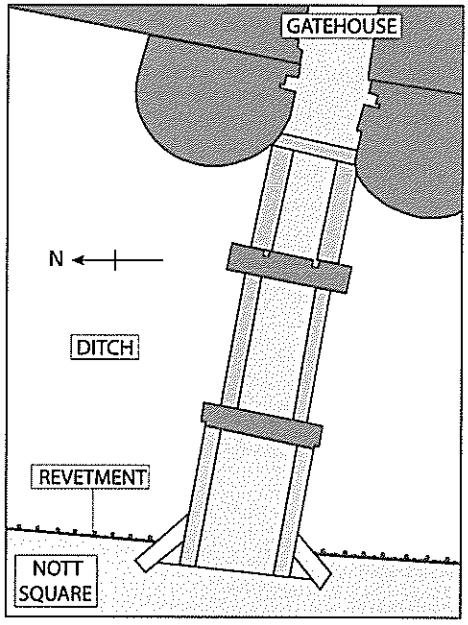
Phase 7 (c.1536-1642?)

Either through gradual in-filling or intentionally in response to increased pressure for room to build within the town, the ditch is made narrower, creating space for buildings to be built in front of the castle on land that was previously within the area of the ditch. The area between the new houses and the castle may have remained as open ditch, or may have been back yards for the houses. This is the phase that is represented on John Speed's map of Carmarthen drawn circa 1610. Because of events in later phases, no direct physical evidence for this phase has survived.



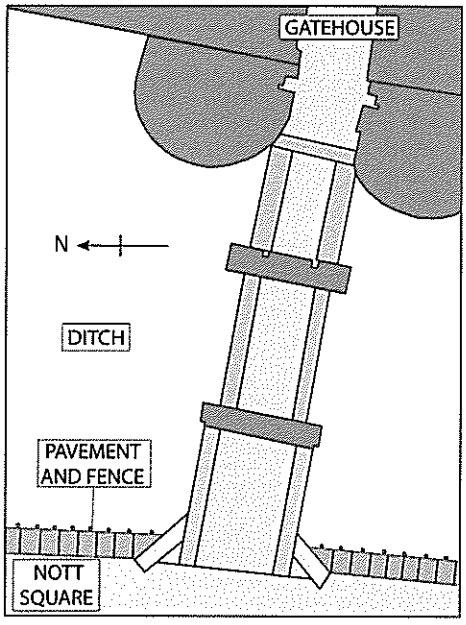
Phase 8 (c. 1642-1645?)

The houses of Phase F may have been demolished and the defensive ditch re-cut as part of the improvement of the castle defences during the Civil War (1642-5). This possibility explains the absence in the archaeological remains of evidence for the buildings depicted by Speed. Angled buttress walls are built to strengthen the point where the causeway joins Nott Square. A timber revetment is also built to strengthen the edge of the ditch.



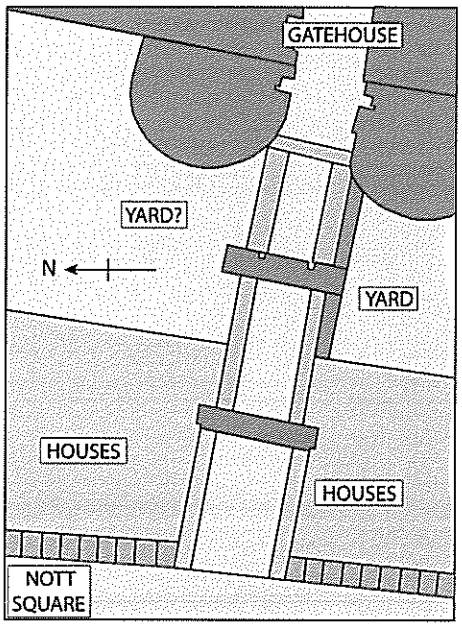
Phase 9

In this phase the ditch appears to have been fairly rapidly backfilled with rubbish. Although backfilled, the ditch appears not to have been built upon immediately. Instead a stone pavement and a fence were constructed along the edge of the ditch. This phase may have been short-lived, since after the Civil War, pressure for space to build within the town would have resumed.



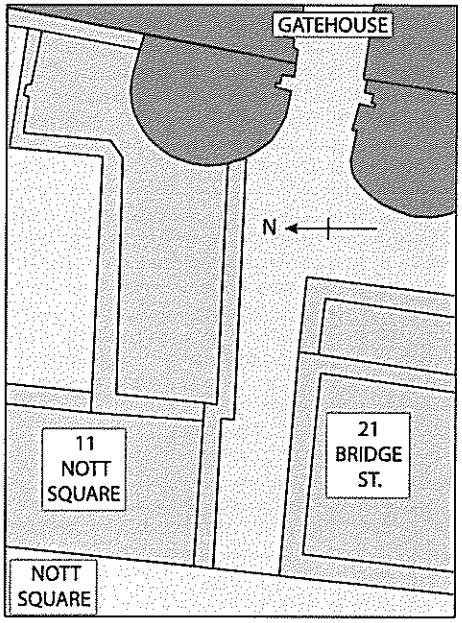
Phase 10 (1645-1688?)

In this phase, the ditch was rapidly backfilled with rubbish deposits so that new buildings could be built to replace those that were demolished in Phase G. The size and character of these new houses is not known. Only mortar and earth floor surfaces were revealed during the excavation, the walls, without stone footings, were truncated by later phases. Stone walls built against the south side of the bridge are possibly part of this phase, they suggest the space between the castle and the houses was open ground used as yards and that the causeway was still standing.



Phase 11 (c. 1786?- 2004)

The buildings of Phase I are replaced by the construction of buildings with vaulted brick cellars and stone wall footings (No. 11 Nott Square, and No. 21 Bridge Street). These are cut into the ditch infill, destroying much of the evidence of the earlier phases. By now, the ditch has been entirely filled in and the causeway has gone out of use and is no longer upstanding. The new buildings are on a different alignment and have cut through some of the walls of the causeway. Access to the castle remains as a passage between the buildings.



1.0 SUMMARY

An archaeological excavation was undertaken at Carmarthen Castle, Carmarthenshire in the summer of 2003 by Cambria Archaeology on behalf of Carmarthenshire County Council as part of Phase 4 of the ongoing consolidation and enhancement works commissioned by the county council. The site was located in the area between the gatehouse of the castle and the street frontage of Nott Square, on land previously occupied by Nos. 11, 12, and 13 Nott Square, and the back of No. 21 Bridge Street. The excavation was required to characterise and record the extent of surviving archaeological features and deposits within the area as part of an ongoing enhancement scheme for the castle. Cellars associated with No. 11 were cleared out and recorded. The cellars were cut into backfill deposits within the castle ditch and included elements of masonry bridging structures connecting the castle to the market square. The street frontage of No.11 revealed more of the bridge structure the edge of the castle ditch. An excavation below the cellar floor revealed in situ medieval ditch deposits, and containing some waterlogged leather shoes, wooden bowl fragments, metal finds, and environmental evidence. The excavation also revealed the deposition sequence within the ditch, and evidence of buildings pre-dating No.11 Nott Square. A chronology for the development of the castle defences and for six phases of alterations to the masonry bridge/causeway structures are suggested. The processes of gradual reclamation of the ditch in response to pressures of urban development, the recutting of the ditch during the civil war period and subsequent backfilling and redevelopment is also suggested to explain apparent anomalies in the historic and archaeological evidence. During the project, various possibilities for retaining the excavated features for public display were explored. At the end of the excavation, all the trenches were backfilled except for two of the cellars. It is hoped that it will be possible to allow public access to the cellars and to display the remnants of the medieval bridge.

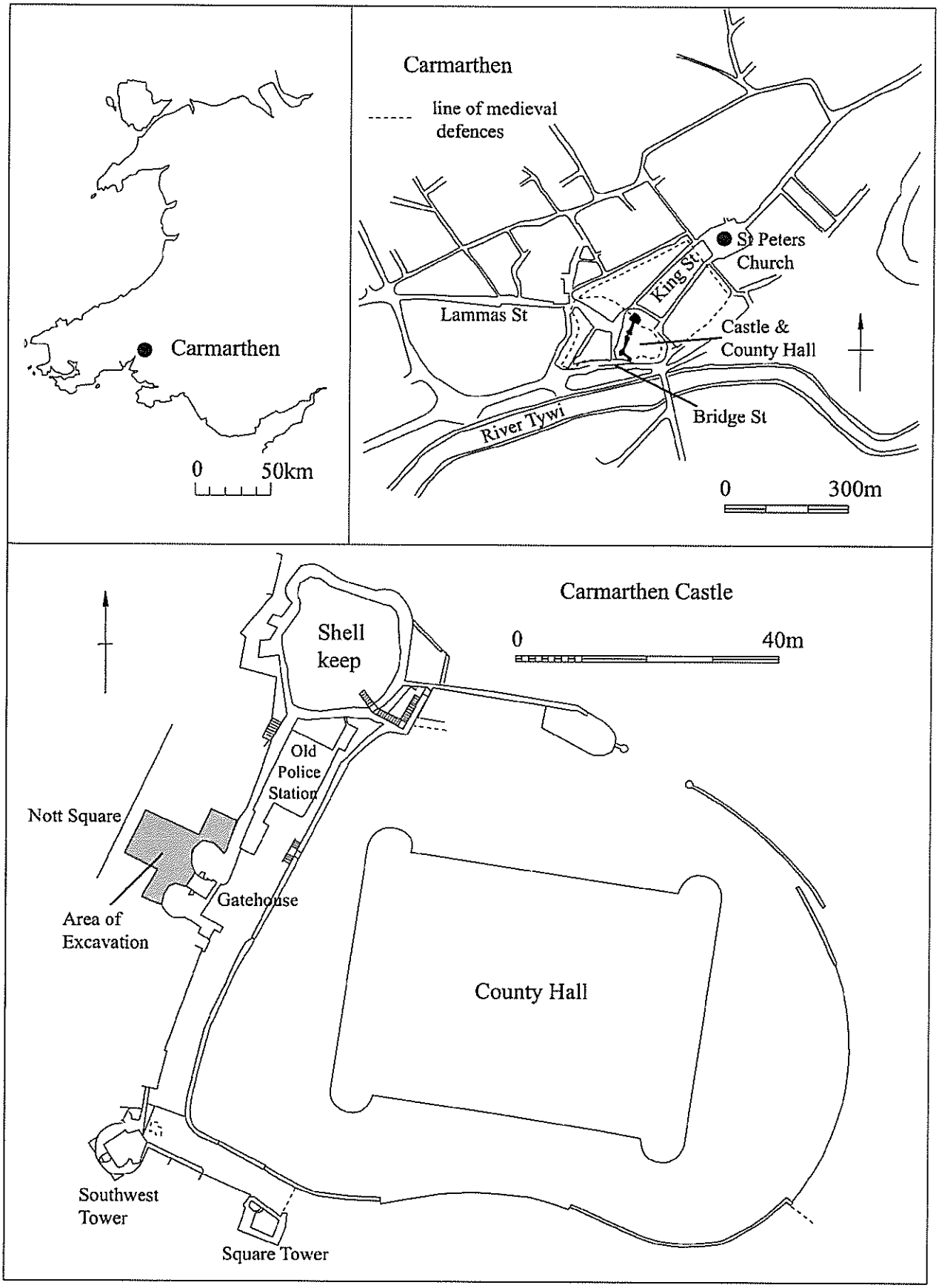


Fig. 1: Carmarthen Castle - location maps

2.0 INTRODUCTION

2.1 Abbreviations used in report

NGR - National Grid Reference
PRN - Primary Record Number
SAM - Scheduled Ancient Monument
SMR - Sites and Monuments Record

2.2 General description

The remains of Carmarthen Castle (PRN 57 in the regional SMR), which lie at NGR SN 4130 1996, are a Scheduled Ancient Monument (Cm 8) and a Grade I listed building. The castle was a typical large, masonry castle from the medieval period. First established as a timber motte-&-bailey castle in 1109-10, it was refortified in stone during the 12th-15th centuries. The castle site was neglected after the Civil War until the construction of a gaol, designed by John Nash, in 1789-92. The gaol was demolished in 1933 to make way for the present County Hall, built in 1938. Carmarthen Castle is important to the medieval history of Wales as the springboard for the Anglo-Norman annexation of south-west Wales. It was the centre of Crown, and therefore governmental, authority in west Wales, and one of the very few English royal castles in the region.

Large-scale consolidation and enhancement works at Carmarthen Castle were initiated by Dyfed County Council in 1993 and have been continued under Carmarthenshire County Council, with grant-aid from the European Community, the Heritage Lottery Fund, the Welsh Development Agency, and Cadw, under the overall management of the Cardiff-based firm TACP.

The aim of the enhancement scheme is to permit public access to, and awareness of, the entire castle remains as an amenity with recreational potential. This includes preservation and conservation of the surviving fabric and below-ground archaeology, and the preservation and conservation of the historic environment within which it lies. The work has largely been in the form of phased programmes of consolidation and enhancement of the surviving elements of the castle and its surroundings.

All stages of work were subject to Scheduled Monument Consent from Cadw and were subject to archaeological supervision and accompanied by a full programme of archaeological recording, concentrating on the standing remains and their environs. TACP commissioned Cambria Archaeology (Field Operations) to undertake the archaeological component of the project, giving general guidance on archaeological matters, and undertaking excavation, building recording, and watching briefs to record significant archaeological features revealed as the enhancement project has proceeded. A full report on the results of all stages of archaeological recording is currently being prepared for publication by Cambria Archaeology.

During Phase 3 of these works, the area between Nott Square and the castle walls was being developed into a public open space. This land had previously been occupied by buildings, Nos. 11-13 Nott Square which, in their final form, were demolished in the 1970s and 1980s. During the enhancement groundworks, a series of vaulted cellars

associated with the demolished buildings were revealed. These had been closed off during the early 20th century. They were emptied under archaeological supervision and their floor plans and wall elevations recorded.

The cellar beneath No.11 Nott Square - which had been, during the 19th century, a public house called 'The Swan Inn' - was discovered to incorporate elements of a medieval bridge or causeway leading from Nott Square to the castle gatehouse, crossing a defensive ditch that formerly lay in front of the castle walls. Other walls associated with the bridge were also revealed adjacent to the cellar. Cartographic evidence suggested that a barbican stood at the front of the bridge, remnants of which might also be encountered during the development.

In the light of these discoveries, it was decided that an archaeological excavation should be undertaken in order to record the extent of the surviving remains of the bridge and possible barbican. Excavation would allow clarification of the sequence of bridge construction, and its modification, and of the history of town development and later land use of the site. It was hoped that the results of the excavation could be incorporated into the enhancement scheme. The excavation would also increase public awareness of both the enhancement scheme, and of the history of Carmarthen and its castle. The excavation was accordingly accompanied by a programme of outreach and promotion. The project was undertaken during the summer of 2003.

2.3 Site history and development

A detailed history of Carmarthen Castle is currently being researched for a forthcoming publication report. This is a summary based, except where indicated, on James (1980, 35-6), and Lodwick (1972, 18-28).

2.3.1 The castle

In 1093 the Norman adventurer William Fitzbaldwin sailed up the Tywi from Devon and built a motte-and-bailey at Rhyd-y-gors, one mile below the present castle. This castle appears never to have become the centre of a formal lordship. In 1109, the Norman King Henry I set about reorganising the administration of west Wales and a new castle, of earthwork and timber construction and motte-and-bailey design, was founded on the present Carmarthen Castle site under the King's representative Walter of Gloucester.

The castle occupies a bluff on the westernmost extremity and highest point of a terrace of loose glacial gravels. This is a strategic location, as the ground falls steeply away to the south, overlooking the tidal limit and a bridging point of the River Tywi. From this vantage point, the castle was the hub around which the town developed.

The motte occupies the northwest corner of the castle, which appears always to have comprised two baileys. It is now crowned by a masonry wall that in the main follows the line of the early 13th century shell-keep. The other standing medieval remains are the large southwest tower, (re)built in the late 13th century, the gatehouse, dating from the early 15th century, and the Square Tower, also probably 15th century. All appear to represent defences of the inner bailey.

The expenditure of £170 on the castle in 1181 may represent the construction of a ?timber tower on the motte. The castle was 'destroyed' by the Welsh in 1196 and again in 1215, when it remained in Welsh hands until recovered by William Marshal II in 1223. This year probably marks the beginning of the conversion of the timber structure into a stone castle, and the construction of the present shell-keep on the motte. Sources from the mid 13th century onwards consistently refer to the 'five towers' of the castle, presumably representing the defences of the inner bailey; one of these towers may have been a gate-tower on the site of the present gatehouse. By 1233, the castle was strong enough to have withstood a 3-month siege. The town received a murage grant in the same year, the town walls connecting with the southwest and northeast corners of the castle.

Carmarthen was pillaged by the Welsh in 1246. Under royal hands again, the castle was granted to the future King Edward I in 1254. Around this time, a considerable sum was spent on the domestic buildings within the castle. It was, however, described as 'in want of repair' in 1275. Rebuilding in 1288-9 cost £169 15s 3d.

In 1300 the treasurer of West Wales was ordered to repair the 'houses of the King's castles'. A document of 1338 mentions a kings hall and chambers, a chamber for knights and esquires, a chapel, a bakehouse and a kitchen, the king's chapel, the outer gate (and therefore Outer Ward?), a large stable, a granary and a pantry, but two years later repairs were ordered on the castle walls.

In 1343 the castle was granted to Edward the Black Prince and a survey records that dilapidations amounted to £215. Reference was made in 1348 to a house above the exchequer, the chamberlain's hall and kitchen, the armourer's chamber, houses in the large gate and a house above the well. In 1355 a wine cellar was added below the chamberlain's chamber and a 'palace' built opposite the chamberlain's hall. These were followed by the addition of a reception hall in 1370 and a 'newly-made' gate, with a crenellated chamber between the Inner and Outer Wards in 1394.

The castle was taken during the Glyndwr rising, after which, in 1409, £380 was spent on repairs. This included £100 for the rebuilding of the gatehouse in its present form. For the next 200 years its history was uneventful. However, it retained its status as head of the Lordship and County of Carmarthen. After the Act of Union of 1536 abolished the medieval lordships, the castle may have retained its administrative function for a period.

Carmarthen was nominally Royalist, and during the Civil War the castle changed hands twice. A force of Parliamentarians under Colonel Rowland Laugharne took the town and castle in April 1644. The Royalists recaptured Carmarthen in June of the same year under Colonel Charles Gerard. Carmarthen finally capitulated to Laugharne's forces in October 1645. In 1660 the royal auditor reported the castle to be 'quite demolished'. Much robbing of the fabric subsequently took place, but in 1774 the castle was repaired.

Carmarthen Castle became the site of the County Gaol, built 1789-92 to a design by John Nash. Additions were made during the 19th and early 20th centuries but the gaol was demolished in 1933 to make way for the present County Hall built in 1938.

2.3.2 The gatehouse and bridge

The gatehouse is a complex structure representing the main entry to the castle from the town, facing Nott Square which was the site of a medieval market. It was apparently constructed in 1409 as a twin-tower structure, perhaps incorporating parts of an earlier gatehouse that had been destroyed during the Glyndwr rising of 1405-6. Only half of it survives. Two guard-chambers to the rear, lying beneath domestic accommodation probably representing the Constable's Chamber mentioned in contemporary accounts, were removed sometime prior to 1789 when construction of the County Gaol began. The doors that communicated with this rear section can be seen in the present gatehouse east wall, while its southeast corner is 'fossilised' in the gaol enclosure wall. However, the main body of the gatehouse was retained throughout, presumably as a 'prestige' entrance to the gaol.

The form of the pre-1409 gatehouse is not known. It may have been one of the 'five towers' of the inner bailey mentioned in sources from the mid 13th century onwards. Two windows in the 'tower above the gate' were repaired in 1288-9 (Green 1913, 47-8, citing Pipe Roll 17 Edw. I). It appears to have been a substantial structure by the 1350s, at least, when the then Constable's Chamber - which had a stone-flagged floor - was already being described as lying 'over the large gate' (Green 1913, 63-4, citing PRO, Ministers' Account, 1221, 10). All the surviving detail in the present structure is 15th century and later, but the lost rear section may have incorporated elements of the earlier gatehouse, including the constable's chamber. Indeed, a vertical joint is visible towards the east end of both sides of the present gatehouse passage, perhaps representing the junction of the pre- and post-1409 structures (Fig.3).

A bridge over the ditch, in front of the gatehouse, was first mentioned in 1227 when it was 'repaired' (Cal. Liberate Rolls 1226-40, 17). It appears that this bridge was entirely rebuilt before 1318-19, when repairs to the 'new bridge' were recorded (PRO E159/92, Memoranda Roll 12 Edw II). However, by 1343 'the bridge at the Great Gate' was in need of repair (PRO E163/4/42). All these references pre-date the rebuilding of the gatehouse. The excavated remains suggest that the bridge/causeway, in its final form, was of masonry with timber decking, and indeed the final reference is to a 'plank bought... for the mending of the bridge' in 1424 (Green 1914, 21-27, citing Exchequer K. R. Account, 487/17).

John Speed's plan of Carmarthen, drawn in c. 1610 (Map 2) appears to show a second gatehouse - or barbican - at the Nott Square end of the bridge. There are, however, no other documentary sources for a barbican.

2.3.3 The town

The developmental history of Carmarthen is lengthy and complex and will not be described here. Instead, a brief description of the medieval origins of the town layout will illustrate the significance of the excavation site to the history of the town.

As with many medieval towns, the market place at Carmarthen was situated directly outside the castle gate. It seems possible that the market expanded from Nott Square into Guildhall Square in 1252, when Henry III directed that shops be built 'in the middle of our town of Kermerdyn (Carmarthen), to wit, to the west of the church of St

Mary' (James 1980, 28); the site of St Mary's Church is now occupied by the Guildhall. Nott and Guildhall Squares provided the axis around which the medieval street plan developed. The present street plan and property boundaries are more-or-less unchanged from their medieval origins, particularly those properties along Bridge Street, Nott Square and Queen Street. The thoroughfares through the town were initially dictated by topography and the gradual expansion of the town, but became 'fossilised' when the town walls were built.

Pressures of space, and commercial expedience, mean that domestic development along the east side of Nott Square, over and within the castle's defensive ditch, may have begun at an early date. It was certainly complete by c.1610 - long before the castle's military usefulness had come to an end - as John Speed's plan clearly depicts continuous properties lining the east side of Nott Square, leaving just a small gap in front of the gatehouse itself (Map 2).

2.4 Aims and objectives

The excavation forms part of a long-term, archaeological research design for the castle, outlined in the conservation plan of 1998 (Cambria Archaeology/TACP, 1998). Cambria Archaeology has been involved throughout the consolidation project and has attempted to ensure that all works form part of the research design. Significant excavation by both archaeologists and contractors has been avoided unless it can answer specific questions about the nature and development of the castle site.

Because the gatehouse has always been the main access way from the castle to the town, it has been the obvious route for services in recent years. In addition to the damage from these services, there was a potential threat of further damage from future development of the area. Excavation could usefully 'preserve by record' the surviving remains, and the results could inform future use of the area. The excavation was recognised as a means of increasing public interest, support, and involvement in the scheme. It was also envisaged that some aspects of the excavation could be incorporated into the enhancement works.

As well as these practical considerations, the information obtained from excavation would add considerably to academic studies of the history of the castle and Carmarthen town. The present understanding of the development of the town and castle is largely based upon cartographic evidence and documentary research, with some additional information from excavations and building recording.

A primary source for the understanding of the development of Carmarthen are two versions of John Speed's map of the town, which date from around 1610 (Maps 1 and 2). Differences between these maps and the known structure of the castle have already been identified (such as the 'tower' depicted between the gatehouse and the south west tower, and the barbican). The reliability of the details depicted on the maps is therefore questionable. The excavation offered an opportunity to test the accuracy of these maps, and to tie in the documentary references with the physical remains in order to confirm or clarify the supposed sequence of events.

It is clear from the above description, that the location of the excavation site, between

the gatehouse and Nott Square, offers a rare opportunity to investigate the relationship between the castle and the town, both in a physical and a symbolic sense. Features within this area would reflect the various repairs, rebuildings, and changes in use of the castle throughout its history. Evidence of earlier gatehouse structures or associated features, beneath or incorporated into the fabric of the existing gatehouse might also be expected.

In addition excavation provided the opportunity to confirm the presence of the castle ditch, and to ascertain its depth, width and character. The sequence of alterations to the medieval bridge/causeway and the possibility of a suggested barbican would also be clarified.

The site also has the potential to reveal the sequence of land reclamation and the development of late and post medieval buildings on Bridge Street and Nott Square, as the castle ditch was filled in. The character and date of these developments reflect the social history of the town and changes in the perceived importance and significance of the castle to the town over time. The results of the excavation will also contribute to wider academic studies of the approaches to medieval castles and their bridges/causeways and the dynamic interface between town and castle.

2.5 Methodology

A small team of 2-3 experienced archaeologists and two part time volunteers participated in the excavation. All archaeological deposits were hand excavated. Modern overburden was removed and the excavation area was hand-cleaned to reveal the contractors' previous excavations for drainage works, the stone foundations of the recently demolished rear portion of No.21 Bridge Street, and a series of modern drains associated with this building. Obsolete services were removed and their trenches defined. Overburden and backfill was removed from above live services in order to ascertain their locations, but for safety reasons no further excavation was undertaken in their vicinity.

Recording of archaeological features conformed to current professional best practice in accordance with Cambria Archaeology Field Operation's recording manual. Significant archaeological features were drawn at an appropriate scale and photographed. Walls and structures were subject to a level of recording relative to their significance. All finds and environmental samples were retained and specialist advice sought regarding identification, interpretation and conservation.

At the end of the excavation, Areas C and D were lined with 'terram' and backfilled with 'builders dust', in order to protect and stabilize the causeway walls and the excavation edges. Areas A and B are at present still open, with the intention of retaining the cellars beneath the open plaza that will be created in the next phase of the enhancement scheme. It is hoped to allow public access to the cellars so that the cellars themselves, the remains of the medieval bridge and the depth of the gatehouse towers can be appreciated and interpreted. The possibility of further excavation within the cellars remains.

2.6 Public presentation and information

Throughout the excavation considerable interest and enthusiasm was shown for the project by members of the public. In addition to press and television coverage, Cambria Archaeology produced an information panel and regularly updated newsletters on the progress of the excavation. Weekly tours of the excavation and the rest of the castle, given by Cambria Archaeology, were well attended. Various options for public access and display of the bridge features and cellars were explored during the project, for inclusion in the enhancement programme.

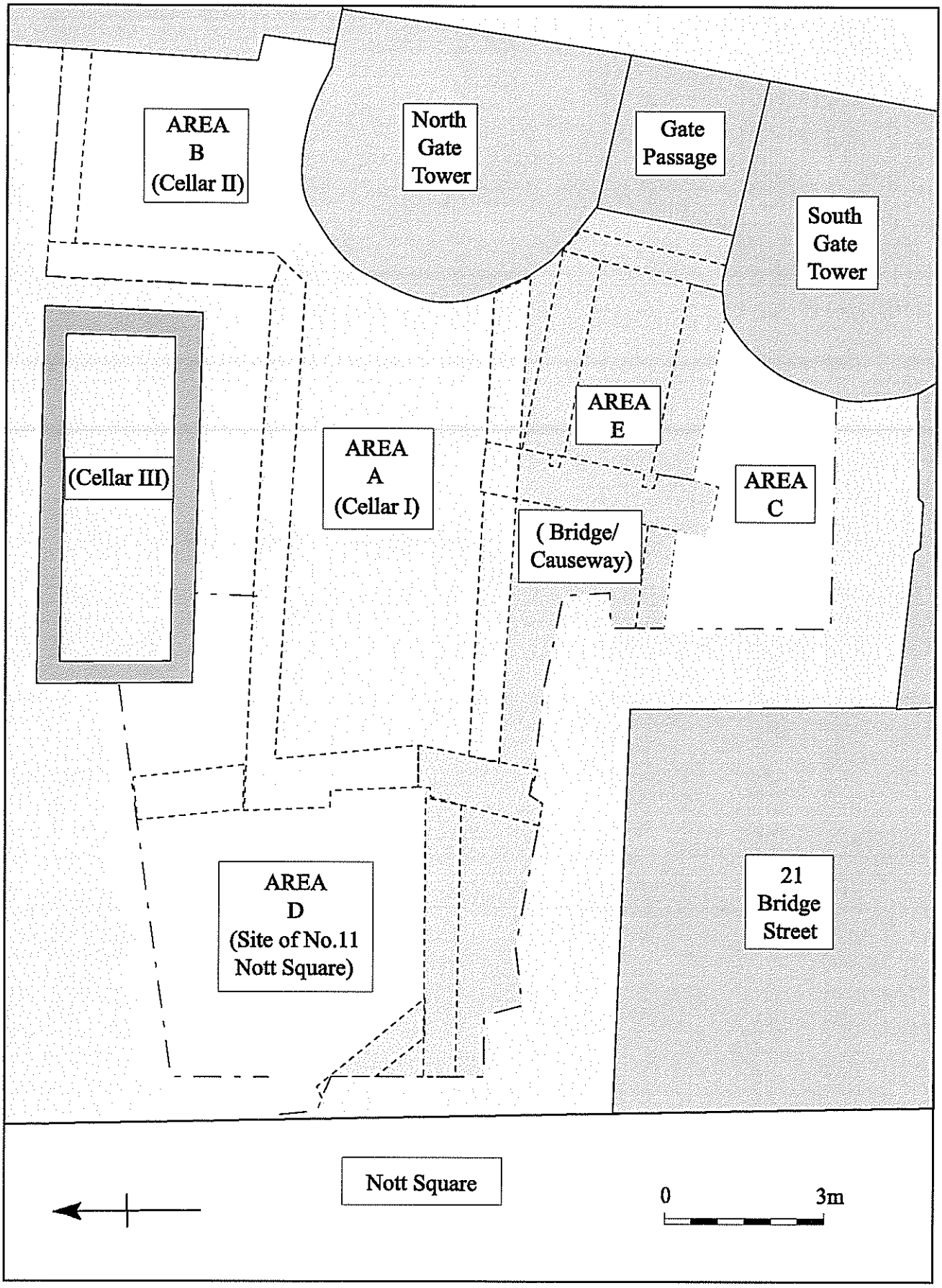


Fig. 2: Plan of Carmarthen Castle gatehouse and excavated area

3.0 RESULTS

3.1 Site description

At the commencement of the excavation, the extent of the site was defined by the castle gatehouse, the two previously-opened cellars beneath the former No.11 Nott Square (Cellars I and II), the eastern edge of Nott Square, and the front section of No. 21 Bridge Street, which had been retained.

The site broke down into five areas (see Figs. 2 and 3) -

- **Area A** - this comprised a post-medieval cellar, (Cellar I), running west from the gatehouse north tower beneath the former No.11 Nott Square.

- **Area B** - a second post-medieval cellar beneath the former No.11 Nott Square. Cellar II lay at right-angles to Cellar I, to run northwards from the gatehouse north tower.

- **Area C** - was a small area that was opened up to the east of No.21 Bridge Street, south of the bridge/causeway. It included deposits associated with the castle ditch

- **Area D** - was opened up between Cellar I and Nott Square, in the area occupied by the street frontage of the former No.11 Nott Square ('The Swan Inn'). It included the western edge of the castle ditch.

- **Area E** - the excavation within the medieval bridge/causeway itself. A test-trench excavated beneath floor-level in Cellar I, in order to expose more of the bridge/causeway structure, will be discussed along with Area E.

A third E-W cellar (Cellar III) lay to the north of Cellar I, between it and Cellar II (beneath the former No.12 Nott Square). This had been backfilled a long time prior to the excavation but had been recorded, in outline, in February 2003. A further cellar lay beneath the retained portion of No.21 Bridge Street and this was also subject to outline recording.

3.2 Area A (Cellar I) - Figs. 3 and 4, Photos. 27, 42, 45-47, and 50

Area A comprised a large, vaulted cellar, Cellar I, which runs westwards from the gatehouse north tower towards Nott Square alongside, and immediately north of, the line of the medieval bridge/causeway. It measures approximately 9.0m E-W and height of approximately 2.10m to the vault apex (see Fig. 4).

The area was formerly occupied by No.11 Nott Square, which was a public house, 'The Swan Inn', during the late 19th -early 20th centuries. The building was demolished in the 1970s. Nos 12 and 13 were demolished in 1982. A new No 12 ('Owen Travel'), with an entirely different footprint, was erected on the site in the 1982, and was in turn demolished during 2001. This building did not utilise the earlier cellars. The cellar is enclosed by the gatehouse north tower to the east, wall [049] to the west and wall [069] to the north. The south wall is of many phases, of which only

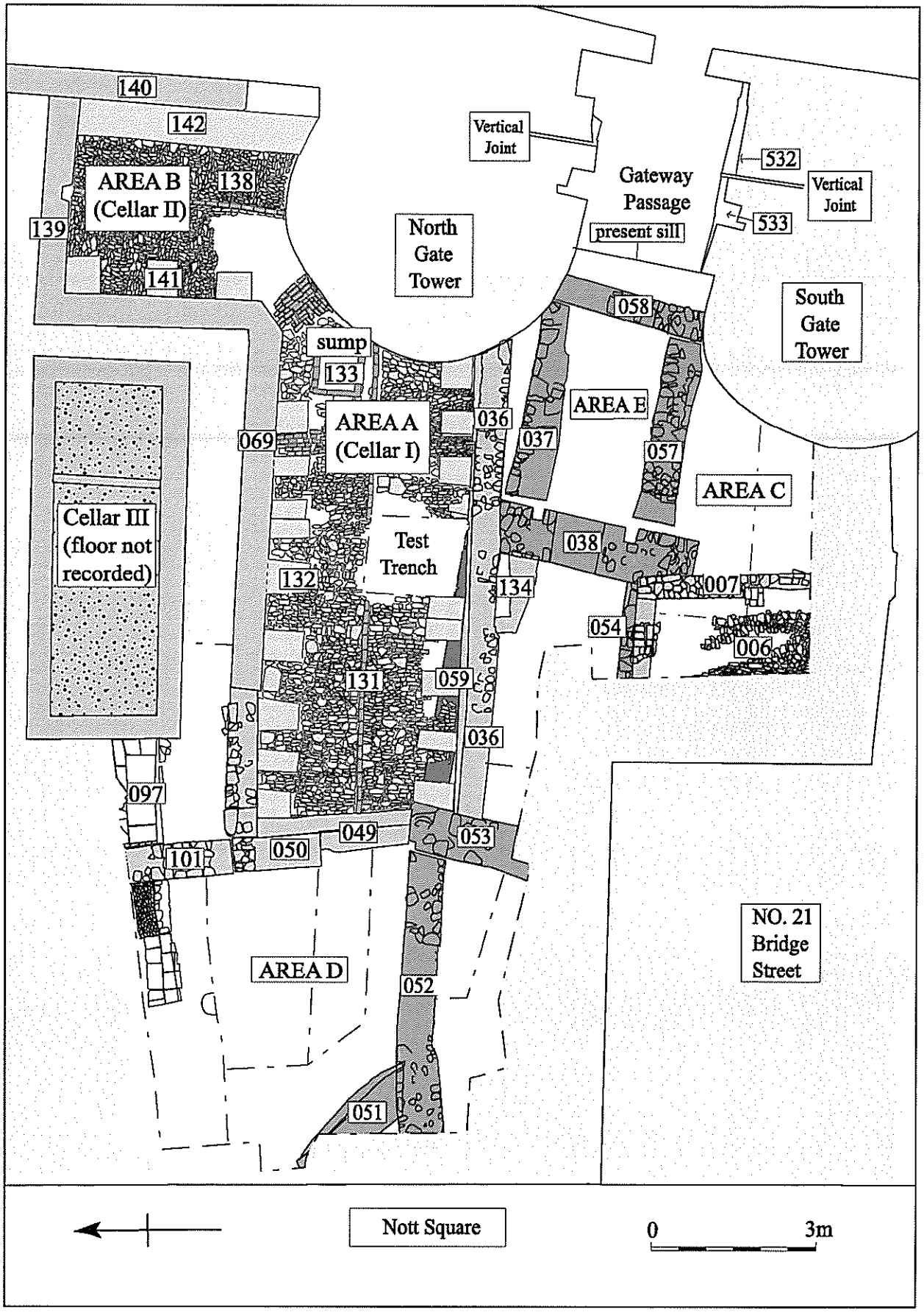


Fig. 3: Composite plan showing excavated areas, cellars and context numbers

the latest, [036], is contemporary with the cellar. This is discussed in more detail in Section 3.6 below. All walls are of local rubble masonry; the floor [131] is of cobbles and the vaulted roof and associated openings are of red brick. Both north and south walls are lined by a series of 'stillages' [132] (Photo.47), clearly relating to the former use of No.11 Nott Square as a public house.

Cellar I, like all cellars in this area, lies within the body of the castle ditch which had silted, and been at least partly infilled, prior to their construction. From the available evidence it appears that the west wall, [049], was the first wall to be built. It butts against medieval wall [053], representing one of the bridge piers (see below), but is parallel with the western edge of the castle ditch (i.e. on Nott Square), rather than being square with either the bridge/causeway, or the cellar north and south walls. Moreover its construction, with a significant batter on its eastern face but a rough western face, suggests that it was initially constructed as a revetment to hold back the ditch deposits during the excavation for the construction of the cellars. Its elevation shows evidence of at least one rebuild, probably representing repairs to the wall, which considering the shoddy nature of its construction was probably prone to collapse. Its alignment is continued northwards, beyond the cellar, by walls [050] and [101] in Area D (see Section 3.5 below).

The north and south cellar walls [069] and [036], are both constructionally later, and butt against wall [049]. It is assumed that they are contemporary with each other and, in the absence of evidence to the contrary, that the red-brick cellar roof is contemporary with these two walls. The eastern end of the cellar is formed by the curved wall of the northern gatehouse tower. Wall [036] butts up against this tower, while wall [069] stops short of it to form an entry into Cellar II. The cobblestone floor [131] has been patched here and there with red bricks, and a line of red bricks runs down the center. The bases of walls [036] and [049] occur just below the level of the cobbled floor. The same is assumed for wall [069].

The stillages [132] were built on the surface of the cobbled floor. The tops of the stillages show grooves that would have held timber structures upon which beer or wine barrels were housed. The plinths are of differing widths and irregular spacing, suggesting they were built on an *ad hoc* basis as required. Cut into the cellar floor at its eastern end is a red brick lined sump [133]. This feature, and some of the repairs to the cobble floor, attest to drainage problems within the cellar.

The elevation of wall [036] shows, at external ground level, a barrel delivery chute [134] that was later blocked with brick and stonework (Photo.48). In addition, at the same level at the western end, are the remains of a probable arched window light [135]. The elevation of wall [069] shows the remains of another probable arched window light [136], and a possible entrance doorway into the cellar [137] (both subsequently blocked up).

A small test-trench was excavated beneath the floor of Cellar I to ascertain the nature and depth of the ditch deposits and earlier phases of the bridge. This is discussed below under Area E.

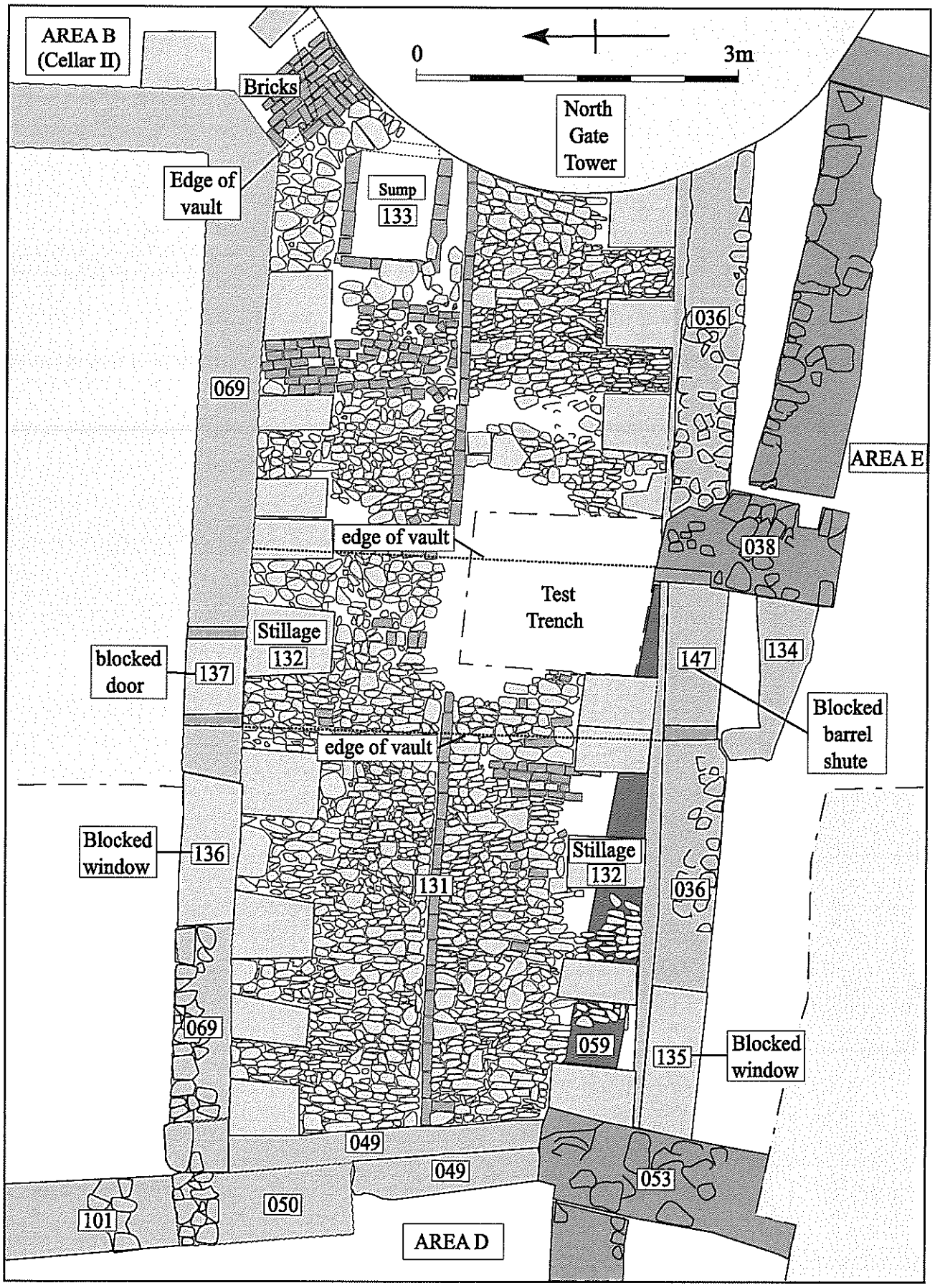


Fig. 4: Detailed plan of Area A (Cellar I)

3.3 Area B (Cellar II) - Fig. 5, Photos 26 and 43

Cellar II also lies beneath the former No. 11 Nott Square. It is open to, and at right-angles with, Cellar I, running northwards from the gatehouse north tower along the foot of the west curtain wall of the castle. It measures 3.80m E-W and 4.0m N-S, and is approximately 2.80m deep from the present surface of Nott Square, with a total height of 2.50m to the vault apex.

As in Cellar I all walls are of local rubble masonry, while the vaulted roof and associated openings are of red brick. The west wall is continuous with, and of the same construction as wall [069] in Cellar I, but is at right angles to it, the corner being represented by a deep, curved chamfer. The northern wall [139] contains a brick built fireplace (Photo. 26). The eastern wall [140], which is built against the castle wall, appears to be contemporary with the west wall. Its primary function was to support the brick vault roof, since both the wall and the vault stop short of the tower wall. There is a coal chute on the west side of the vault. The fact that the vault does not extend all the way to the tower wall may suggest that there was an access stairwell to the cellar in this location.

As with Cellar I, the floor of Cellar II is of cobblestones [138], with a line of red bricks running down the centre. There are the remains of three probable stillages [141] against the western wall, but these have been removed. They appear to have been set into the floor rather than built on top of it since they have red brick footings flush with the floor. The cobbles also stop short of the wall on the eastern side of the cellar, suggesting that a raised plinth [142] ran along the entire eastern side of the cellar. Most of this structure has been removed but part of it survives at the southern end (Photo. 43).

The open access between Cellars I and II was blocked off by 20th century red brick walling which was removed during the current excavation.

3.4 Area C (No. 21 Bridge Street) - Figs. 6, 10 and 14, Photos. 1-10

This area was opened up between the gatehouse south tower, No.21 Bridge Street, and the bridge/causeway (Area E), and measured approximately 8.0m E-W and 6.0m N-S. Until January 2003, it had largely been occupied by the rear section of No.21 Bridge Street, but this was demolished to improve the visibility of, and access to the gatehouse. The edge of the excavated area was positioned so as to retain a 1m access way between the excavation and the remaining part of No.21.

Removal of temporary surfacing, laid down in 2003, revealed a series of recent services running down the center-line of the bridge structure including copper and lead water pipes, an obsolete electricity cable, a sewer pipe, earth cable, two newly inserted electricity cables and connections for a new water pipe. In addition there was a series of slightly older obsolete services. These included gas pipes and lead water pipes. All these services were contained within cut [011]. Cut [017] contained a lead pipe running southwards.

Also exposed, were deposits associated with the demolished remains of No.21 Bridge

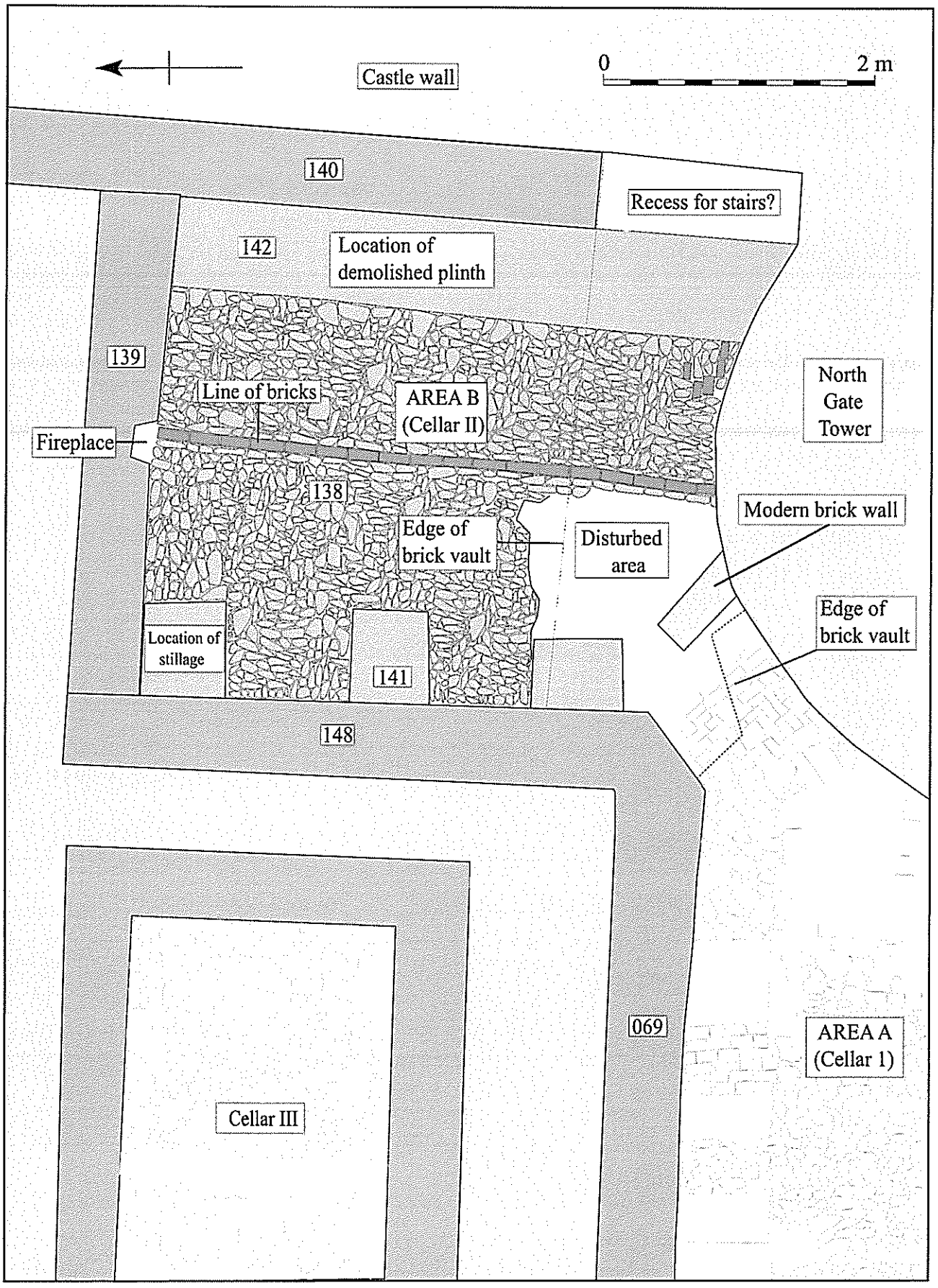


Fig. 5: Detailed plan of Area B (Cellar II)

Street, and associated exterior surfaces. These in turn overlay a sequence of wall remnants built against the south face of the bridge. Beneath these was a sequence of backfill deposits within the castle ditch (See Figs. 10 and 14).

3.4.1 Later features - Figs. 6 and 14

The north and east walls of the former rear section of No.21 were defined by their masonry foundations, [007]. With the removal of all the modern cuts, intrusions and overburden [001] it became apparent that these walls represented the latest phase in this area (Photo.2). They enclosed an internal cobbled surface [006] (Photo. 1). A brick structure in the east wall, [004], appears to be the remnant of a fireplace or drainage feature, but no evidence of burning was encountered. Lying on top of surface [006] was a deposit of crushed brick and roof slates [003] that probably represented demolition debris. This was overlain by context [005], a deposit of glassy slag and clinker, much truncated by modern drainage cuts. The fact that this deposit overlays [003] suggests that it was not a primary occupation deposit.

Because of the need to leave a 1m wide access way around the excavated area, it was not possible to directly ascertain the relationship between surface [006] and the retained front portion of No.21 Bridge Street. This overlies a cellar, the east wall of which contains a fireplace and a flight of steps leading up to ground level. It is not clear if these features are contemporary with surface [006] or are earlier.

Between wall [007] and the gatehouse were the truncated remnants of an exterior cobbled surface, [014]. This surface exhibited patches and repairs [015], and was cut by two post-holes [011] and [012], close to the south gate tower. It appears also to have been cut and repaired when the gas-pipe services were installed, and during more recent groundworks. Further, horizontal truncation of this surface has resulted in the partial exposure of medieval and post-medieval masonry belonging to the bridge/causeway (Area E).

The majority of deposits from this phase were very mixed, containing ceramics ranging in date from medieval to 19th century. In addition there was intrusive modern material. The ceramic dating evidence therefore suggests a 19th century date (or later) date for this phase.

3.4.2 Earlier features and castle ditch deposits - Figs. 10 & 14

The removal of these later contexts revealed the tops of the walls of the medieval bridge/causeway (Photo. 9), and the top of a sequence of deposits representing the backfilling of the medieval defensive ditch. There was no evidence of any earlier structural phases of No. 21 Bridge Street, or of any buildings that may have pre-dated it. The upper backfill deposits were, however, associated with a sequence of apparently truncated stone wall foundations [060], [061], [031], [055], [056], built against the southern face of the medieval bridge/causeway (Photos. 5 and 6). The earliest of these walls, [061] and [056] were most probably the remains of property boundaries or garden walls associated with No.21 Bridge Street. The later walls [056], [031], and [060] were wider, and may have been buttresses to support the side-walls of the bridge/causeway in the later stages of its use. Deposited against these walls were chronologically associated ditch fill deposits [025], [026] and [046] (see Fig.11).

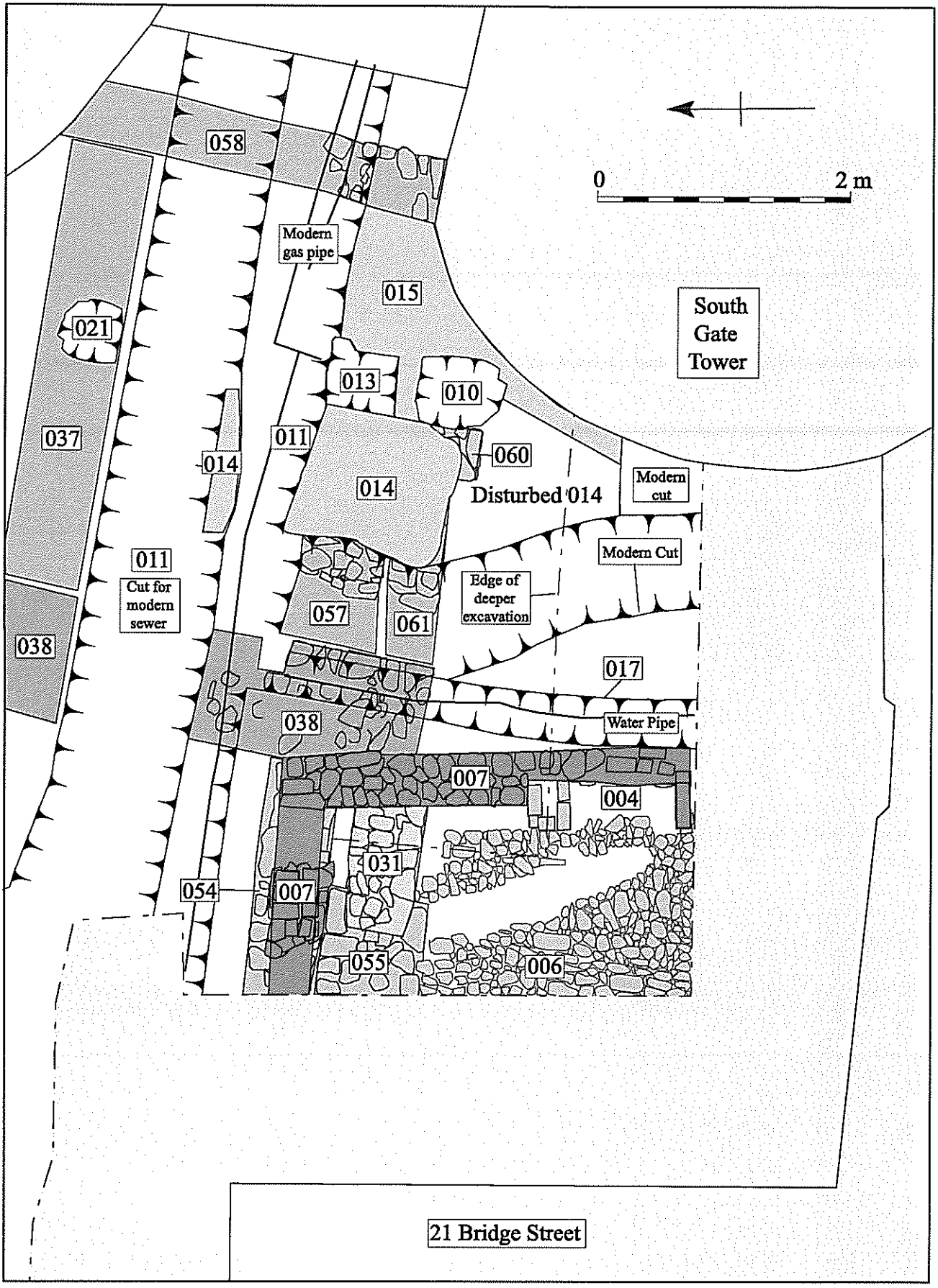


Fig. 6: Plan of Area C (No. 21 Bridge Street)

Again, this sequence of deposits contained a mixed range of ceramics, but the *terminus post quem* for these is not at odds with the stratigraphic evidence. The material from deposit [025] suggest a late 18th century date, while those from [046] suggest a 17th century or later date.

Beneath these layers was a thick layer of ditch backfill, [047] 1.80m thick. Although some tip lines could be discerned within this layer, it was essentially homogenous (Fig.10). It ran up to, and lay above, the south side of the medieval bridge/causeway, represented by walls [054] and [057]. A curious line of pitched slates [143] running parallel to the bridge was excavated within the top few centimetres of [047] (see Photo. 4). The slates did not appear to be the remains of a roof to an outhouse since there was no evidence of timber, slate pegs, or nails. Another possibility is that they are the remains of a lawn border or other garden feature. As [047] was excavated, it became necessary to step in the trench edges for safety reasons. As a result the area of excavation was reduced (Photo. 12), and it became more difficult to characterise the nature of the excavated deposits.

Ceramics from [047] suggest a late 16th century date or later. A late 16th century date may be a little early as a date for the large scale backfilling of the ditch, especially if compared with the dating evidence for the ditch fills in Area D. A 17th century date is perhaps more likely.

Layers [062], [064] and [065] (below [047]) were sloping downwards to the north, apparently running beneath the side-walls of the bridge/causeway (Fig. 10 and Photo. 10). Dating evidence from pottery recovered from these deposits suggests that deposits [062], [064] and [065] are of 16th century date or later, the earliest ceramics being Somerset wares from [065] dating to c.1550-1650. The dating of these deposits, which run beneath the side walls of the causeway, compares reasonably well with the ceramic material from the deep excavation on the north side of the bridge, but is perhaps slightly later.

Excavation in Area C stopped when the bases of bridge/causeway walls [054] and [057] were reached 3.15m below the present ground surface as it was considered unwise to risk undermining the walls.

3.5 Area D (No. 11 Nott Square) - Figs. 7 and 13, Photos. 11-24 and 28-41

This area lay between Cellar I and Nott Square, north of the medieval bridge/causeway (Area E), and measured up to 8.0m E-W and 6.5m N-S.

Features within this area included walls associated with the bridge (discussed as part of Area E), the western edge of the ditch, and ditch backfill deposits. In addition there were cellar walls, surfaces, features and deposits associated with the No.11 Nott Square. As noted above, this property, which had been a public house ('The Swan Inn'), during the late 19th- early 20th centuries, was demolished in the 1960s.

Modern intrusions crossing Area D included the westward continuation of the services running along the line of the bridge/causeway. In Area D these lay to the south of wall [052]. Also in this location was a trench containing an 'anchor' for supporting a BT

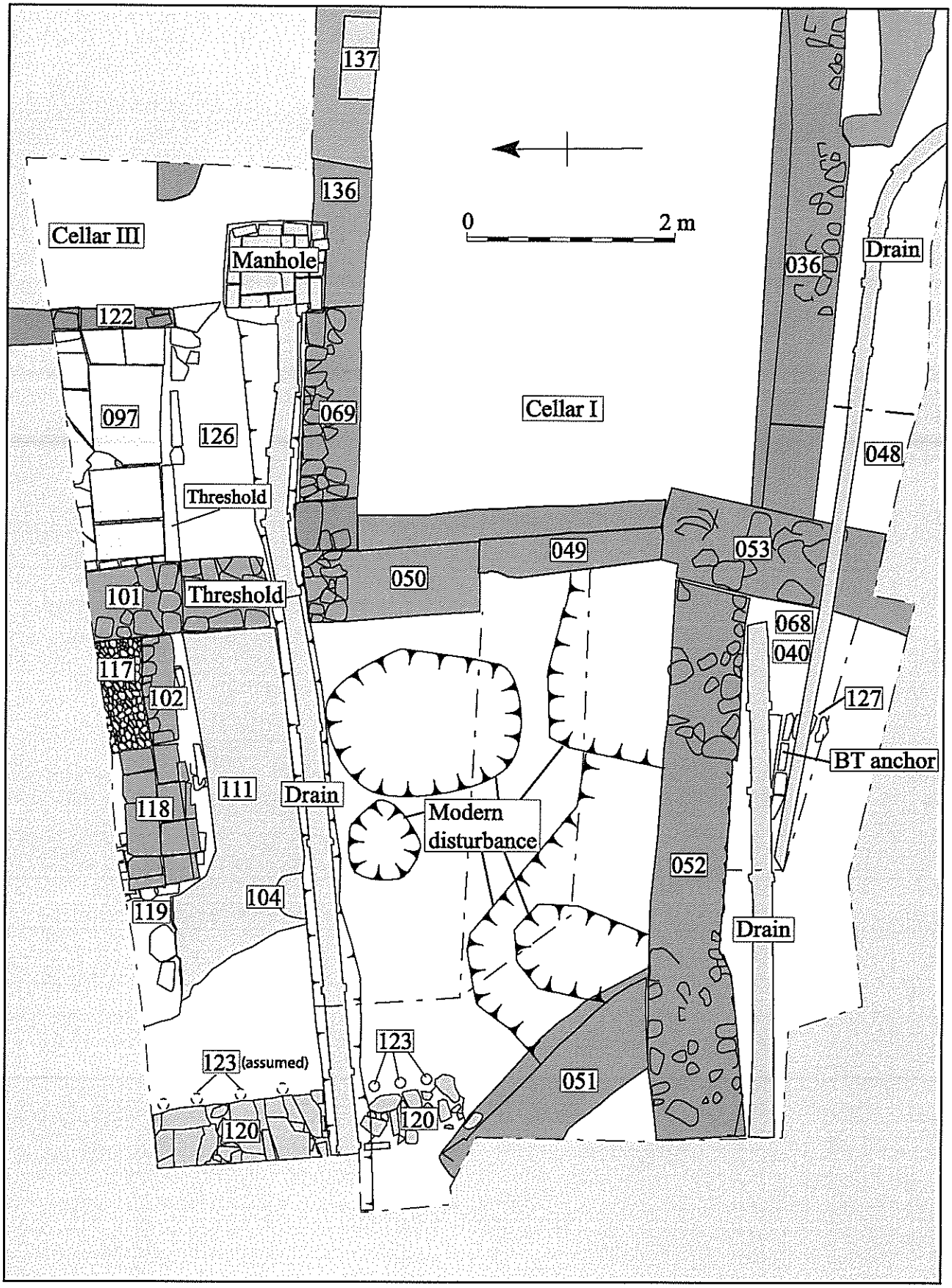


Fig. 7: Plan of Area D (No. 11 Nott Square)

pole [127]. To the north of Area D a drain ran from a manhole at the east end of the area, to the western edge of the site on Nott Square [126]. In addition, there was recent disturbance to deposits up against walls [049], [052] and [051].

The northern edge of Area D, originally defined by the north wall of Cellar I, was extended in an attempt to tie this area in with the plot formerly occupied by No.12 (Owen Travel). The extension did not locate the property boundary with No.12 but did reveal better preserved continuations of deposits [033] and [034] and other features, enabling clarification of the nature and sequence of building construction on the site of No.11.

3.5.1 Later features - the 'Swan Inn' etc. - Figs. 7 And 13

The only surviving evidence of the layout of No.11 is from cartographic records and from the evidence recovered during the excavation. The exterior and interior walls of No.11 have all been demolished. Only the cellar walls associated with the property have survived demolition. The south wall of No.11 was constructed on top of cellar wall [036]. A kink in the wall, (Map 6) suggests that at the west end of wall [036] continued westward, using bridge wall [052] as foundations. No surviving evidence of footings for the street frontage of No.11 was located during the excavation, suggesting that there was no cut for the building foundations

The 1895 OS map (Map 6) suggests the north wall of Cellar I and the west wall of Cellar II mark two sides of a back yard for the property. Wall [101] forms the west side of this yard area. Scrutiny of the walls that have survived demolition suggests that wall [101], wall [119], cobbles [117] and steps [118], all appear to be of the same construction phase (Photo. 21 and 22). Although cut by a later drain [126], wall [101] is also the same as wall [050]. Furthermore, wall [050] appears to be bonded to cellar wall [049] (although repairs to wall [049] have not made this particularly clear). All these walls therefore appear to be of the same construction phase as Cellar I. A series of deposits, surfaces, and structures to the east of wall [101], suggest two main construction phases associated with No.11.

East of wall [101] - Figs. 7 and 13, Photos. 13, 14, 20, and 28-31

Because of the degree of alteration to the features and deposits in this area, and the limited exposure that was possible, it has not been possible to ascertain the exact order of deposition. The greatest problem was in relating the series of deposits on either side of wall [101] to each other. Considering the evidence, however, the following sequence seems most probable.

The latest surface [097] was of limestone slabs (Photo. 13), which butted up to wall [101] and the remnants of red brick superstructure of wall [122]. The construction cut and foundations for wall [122] were sealed beneath [097]. The absence of stone flags running up to wall [069] may be due to later truncation by [026]. There was evidence that a doorway and partition wall once stood along the southern edge of the surviving slabs of [097]. These features probably represented an outhouse built within the yard.

Beneath [097] were the truncated remains of a cobble surface [098] (Photo. 20). This had been mostly removed in order to lay down pebbly silt [100] (as a bed for the later

slabs), but survived in patches. [098] butted up to wall [101], and was also assumed to have butted up to wall [122]. The cobbled surface was presumed to represent the yard surface before the construction of the later outhouse.

The underlying layer [099] and surfaces [106] and [107], were all associated with masonry wall [121] that appeared to belong to an earlier phase of construction (Photos. 28 and 29). [121] was constructed upon deposit [108], a curious feature consisting of large river cobbles that appeared to have been jammed between a number of stake holes [110] (Photos. 30 and 31).

Surface [107], appeared to run beneath wall [101/050] but this could have been an illusion, since [108] did not extend beneath [101]. Instead it appeared that [108] was contained within a cut [144]. Mortar deposits visible in the edge of this cut appear to originate from the west side of wall [101] (which they must therefore pre-date).

Wall [122], within cut [124], is the west wall of Cellar III. The northern trench edge section indicates that it supported two phases of superstructure, corresponding with the two phases outlined above.

The quantity of ceramics recovered from reliably stratified deposits was not great. The dating evidence from these deposits, however, is consistent with the stratigraphic sequence, suggesting a 19th century or later date for deposits [094] and [100], and an 18th century date for [099]. Ceramics from [105] suggest a late 17th or early 18th century date. Context [106] contained material of 18th century origin. 16th century material recovered from [107] is presumably residual.

West of wall [101] - Figs. 7 and 13, Photos. 21, and 32-42

Features and deposits excavated to the west of wall [101] appear to belong to an earlier phase, pre-dating the construction of No.11. The initial excavation of Area D revealed a series of thin laminated deposits [033] and [034] up to 0.08m thick in total (Photos. 32, 34, 35), directly below modern overburden layer [019]. These appeared to be occupation deposits but were seriously damaged by tree roots, service trenches and more recent disturbance (Figs. 9 & 11). Extending the trench edge northwards, revealed better preserved deposits, indicating that layers [033] and [034] correspond to deposits [111], [114] and [112].

As previously mentioned, horizontal truncation across the whole site has resulted in the removal of wall footings of No.11. This is clearly indicated by the lack of a wall between paving stones [120], but also by the horizontal truncation of surface [111], over 1m from the pavement edge, and the complete absence of more recent floor surfaces associated with the buildings use up until the 1960s. 20th century deposits did however survive above the sunken 'half-basement' floor [117].

Beneath [111] were two more mortar surfaces [112] and [115]. That the laminated surfaces are associated with structures that pre-date both Cellar I and wall [101] is clearly indicated in the section through the ditch backfill deposits, which are truncated by cellar wall [049]. It is again illustrated by the fact that surface [112] appear to run beneath wall [101], only to be truncated by cut [130].

No evidence of structures associated with these surfaces was identified. While this may be due to later truncation and disturbance, it is also possible that the surfaces are the remains of temporary, or insubstantial structures associated with the market place.

Paving stones [120], indicate that the line of the Nott Square street-front was formerly set back further to the east than its present line (Photos. 37, and 38). The apparently associated post-holes [123] are also associated with mortar deposit [041], which clearly pre-dates the occupation deposits (Photo. 24). A date stone in the wall of No.12 records the construction of a building in 1682, while structural evidence of roof scars etc. (see Plate 4) revealed when No.13 was demolished, suggests that there may have been buildings on the site from the medieval period.

Ceramic dating evidence suggests a 16th century or later date for context [034] and a 17th century or later date for [114]. [115] is dated to the 16th century or later. These dates are, however, based on a small quantity of material, and have to be considered in comparison to the ceramic evidence recovered from the upper ditch fill deposits that are sealed beneath the laminated occupation surfaces.

3.5.2 Earlier features and castle ditch deposits - Figs. 9 &12, Photos 16,18,19,24

After the removal of occupation deposits [033] and [044], a trench 1.80m wide was excavated to the north of wall [052], through the upper layers of ditch backfill deposits. Immediately below the occupation deposits was a mixed layer [039], approximately 0.10m thick, interpreted as a make-up layer or construction debris. Below this was a series of mortar deposits interleaved with domestic debris and stone chippings. These layers were excavated as [041]. This deposit, with a maximum thickness of 0.40m is also interpreted as construction debris, derived from the construction of pavement [120] and forming a foundation to the subsequent occupation deposits.

Next in the sequence are a series of laminated backfill deposits excavated as [042], [043], and [044]. These deposits all appear to be derived from domestic debris, consisting of varying proportions of oyster, mussel and cockle shells, coal waste and ash, animal bone and ceramics etc. all in a dark grey/green silty matrix. Together, these deposits are a maximum of 1.0m thick. They all run up to bridge walls [051] and [[052]. These deposits represent a period of deliberate direct backfilling of the ditch with domestic debris. They differ from [047] in Area C in that they appear less homogenized, suggesting they are not re-deposited.

Beneath layer [044] was a layer of mortar [128] up to 0.05m thick. This runs up to wall [051] and is derived from its construction. [128] represents the depth of the ditch when the buttress was constructed, and the point from which the subsequent deliberate backfilling of the ditch began. In order to excavate the deeper ditch fills, and to reveal the entire elevation of wall [052] the trench was reduced in width to 0.80m below [128]. The layers beneath [128] are markedly different in character from those above. Layers [045], [075], [076], [077] and [087] are primarily derived from redeposited natural gravels. [045] appears to have been deposited after the construction of wall [052], while the other deposits, although apparently also redeposited, pre-date the construction of the bridgehead.

Excavation of the ditch fills in Area D was halted due to the depth of the trench and in order to prevent the undermining of walls [052] and [051]. The trench was, however, extended along the western edge of the excavation area to expose the entire depth of wall [051]. The removal of the ditch backfill deposits down to layer [128] indicated that [051] was built against the western edge of the castle ditch, apparently respecting the gradient of the ditch edge. The western edge of the ditch corresponds almost exactly with the present day edge of Nott Square. Also revealed running along the sloping ditch edge, was a group of stakeholes [083] (Fig.14). These were sealed beneath ditch fill [044] but were visible in the underlying mortar layer [128] (Photos. 23 and 41).

The stakeholes, with diameters ranging from 0.10m to 0.16m, and depths of at least 0.50m, are believed to have supported a wattle revetment or fence to strengthen (or defend?) the ditch edge. Because it was not possible to remove walls [051] and [052] we could not ascertain whether or not the stake holes pre-dated the construction of the stone bridgehead. On balance, the stake holes are most probably contemporary with the construction of buttress [051] or later. They clearly, however, pre-date the backfilling of the ditch.

Immediately to the east of the stake holes, sealed by [128], was a more or less vertical edge [085] filled by ditch backfill [087]. Due to the depth of the trench and the limited exposure that was possible, it was not possible to excavate any deeper. Because of these restrictions, we were unable to ascertain whether cut [085] was the original ditch cut, or a later re-cut. It was also not possible to ascertain for certain whether the material into which the stake holes were sunk was natural, or redeposited. The latter is suspected. Further investigations to the west of the present excavation edge would be necessary to clarify these issues.

Ceramic dating evidence suggests that layer [045] is 16th century or later, while [039] [043] [044] and [077] are late 16th century or later. [041] is 17th century or later; [076] mid 17th century or later and [075] is mid 18th or later.

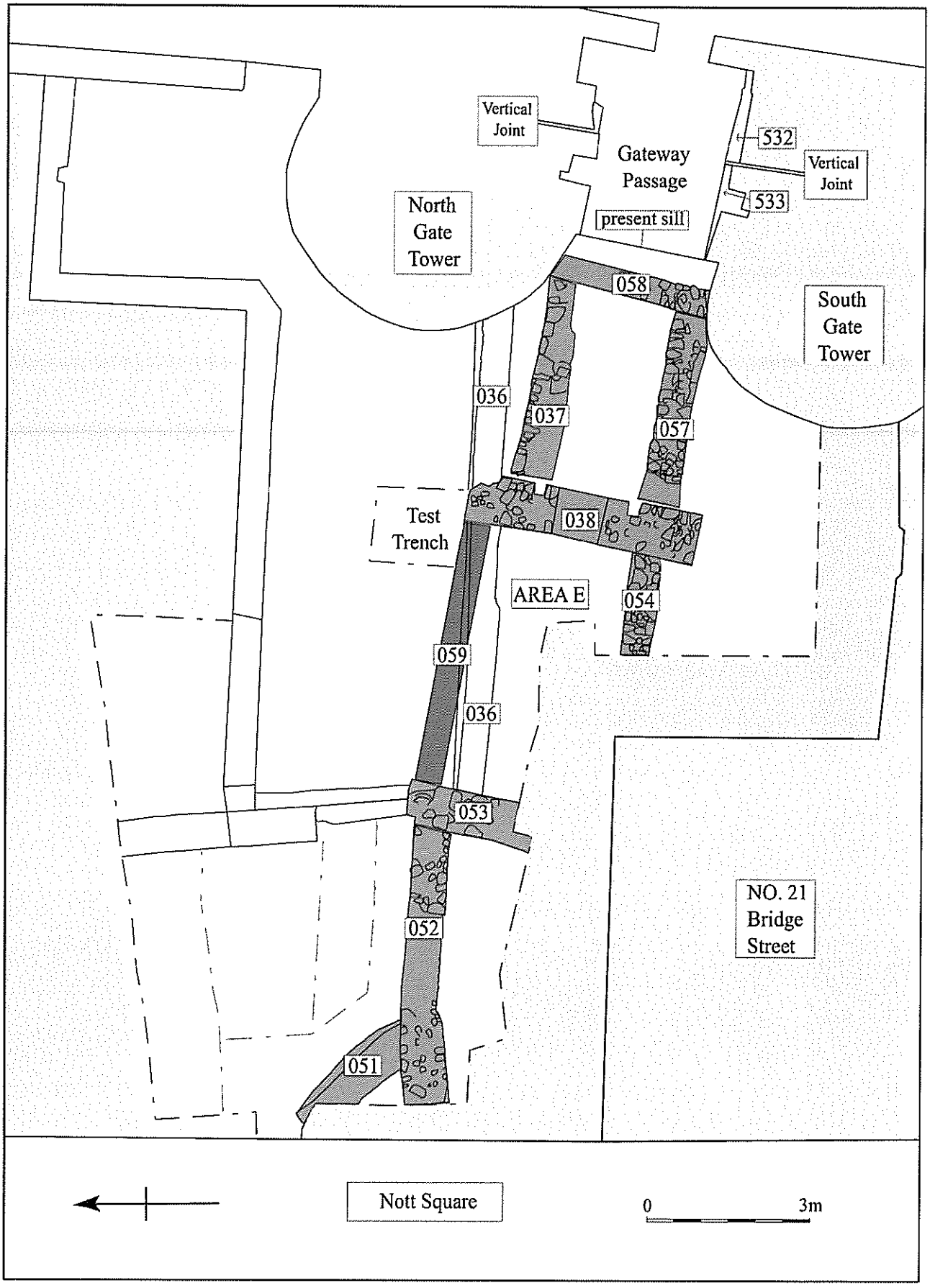


Fig. 8: Plan of all bridge/causeway walls within the excavated area

3.6 Area E (the medieval bridge/causeway) - Figs. 8, 9 and 11, Photos. 9, 39, 44

Removal of overburden, all service trench fills, truncated later surfaces and the partial removal of castle ditch deposits revealed a substantial quantity of structural evidence for the medieval bridge/causeway across the castle ditch. However, owing to the need to leave a 1m wide access-way along the north side of No.21 Bridge Street, Area E was restricted and it was only in its eastern half that the full width (4.60m) of the bridge/causeway could be exposed. The western half of Area E was only 2.0m wide, confined to the northern half of the bridge. In addition, other constraints, including the presence of a live electricity cable down the centre of the bridge/causeway, and disturbance from a number of past services, meant that only limited excavation was possible within the body of the bridge/causeway.

The evidence demonstrated that what began as a bridge supported on piers had, through time, been converted into a continuous masonry causeway. In its final form, this spanned the full width of the castle ditch (roughly 17m). All masonry was in locally quarried rubble, mainly limestone.

3.6.1 The bridge/causeway - Figs. 8-11

It was immediately apparent that the south wall of Cellar I, wall [036], was partly built upon the north side-wall [059] of the bridge/causeway, but on a slightly different alignment (Fig. 9). The elevation of the southern wall of the cellar also exhibits two discrete blocks of masonry, [038] and [053], 4.90m apart, incorporated into the later fabric. They represent two free-standing piers, which belong to the earliest phase of the bridge (Photos. 45 and 46).

These piers were also exposed in plan (Fig. 8). The eastern pier, [038], is 0.92m thick (E-W) and 4.40m wide (N-S). Excavation below the floor of Cellar I revealed that it originally descended at least 5.0m into the castle ditch from the present ground surface. Two square-sectioned vertical slots or chases with angled bases, each 0.24m wide and set 0.30m into the pier, run down the east face of the pier 1.10m from the existing top of the pier (Fig. 8). A square sectioned horizontal slot 0.20m wide runs E-W through the pier, 0.20m south of the southern vertical slot (Photo. 44). A similar horizontal slot is assumed to exist on the north side of the pier, but is obscured by wall [037] The masonry between the two vertical chases has been truncated to a depth of over 1.20m when services were laid along the center of the bridge/causeway (cut [011]).

The western pier, [053], was not fully exposed in plan, and its full height is not known, having only been exposed to the level of the floor of Cellar I, a depth of 3.0m from the present ground surface. The original dimensions of pier [053] are assumed to be similar to those of pier [038]. Unlike pier [038] its north face is markedly tapered towards the top, diminishing to a thickness of 0.5m. This may be due to a later repair or rebuild rather than an original feature, but if original, it may suggest that this pier once marked the western edge of the ditch. The two piers would have supported decking for a fixed timber bridge, possibly stopping at the eastern pier where a movable drawbridge may have communicated with the castle gatehouse (see section 5.0 below). The slots or chases in the eastern pier may have supported the bridge timbers, but they may have been associated with a drawbridge as no such features

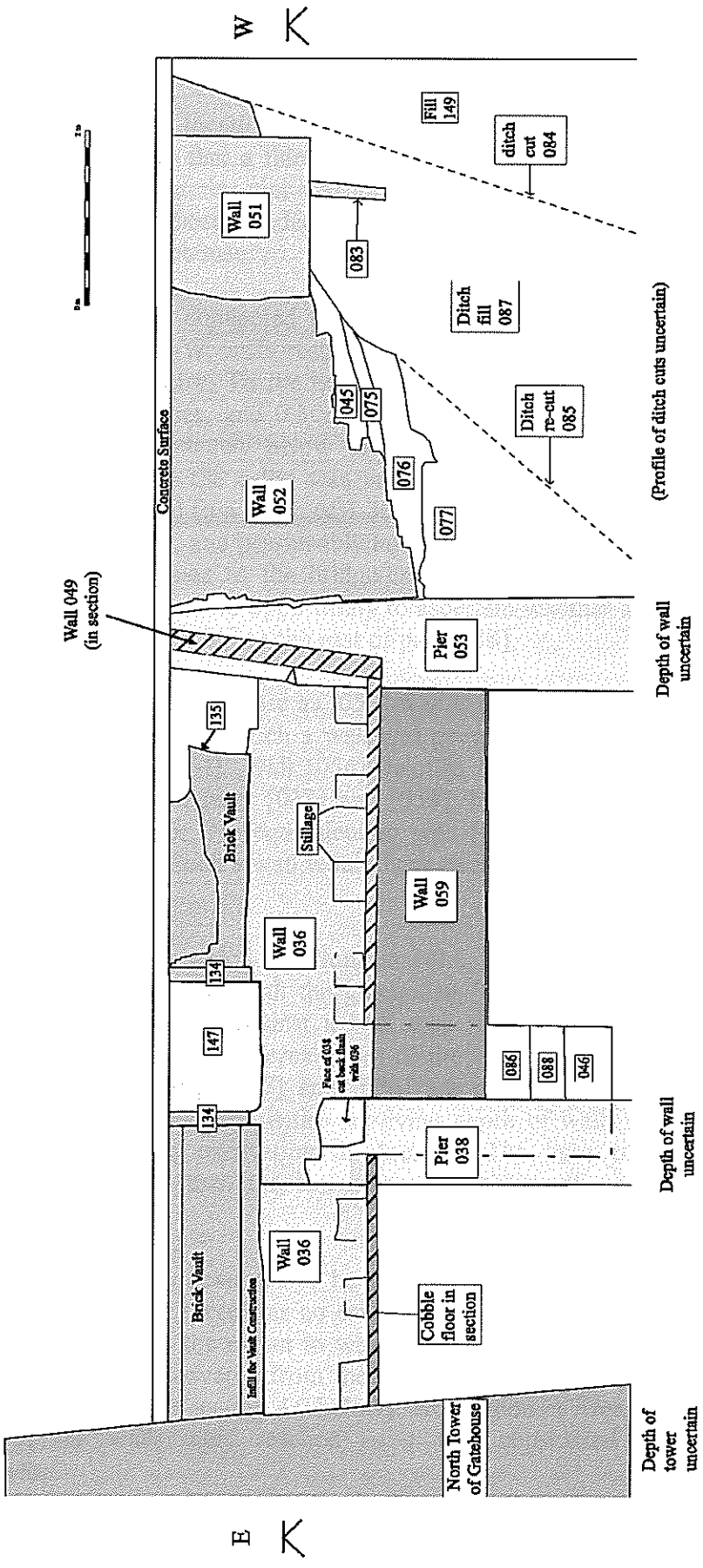


Fig. 9: Schematic elevation of north-facing side of bridge/causeway

although the western end lay beyond the limits of the excavation. The wall was 0.65m wide. In elevation wall [052] was found to be built directly upon silt/backfill deposits that tipped down towards the east from the western edge of the ditch. Where it butted up against the west face of pier [053], the total depth of wall [052] was 2.80m. Towards the west, the base of wall [052] stepped up to a depth of 1.40m as it approached the edge of the castle ditch. The last 1.50m of its length was, however, obscured by wall [051]. A square drainage hole, 0.20m wide runs through the wall 1.0m below present ground level, 0.60m from pier [053]. Originally this would have drained water from the bridgehead into the castle ditch.

Wall [051] was a later addition built diagonally from the western edge of the castle ditch to butt against the north face of wall [052]. This appears to have functioned as a strengthening buttress (but was initially thought to represent part of the barbican apparently shown by John Speed in c.1610 - see section 5.0 below).

Equivalent walls to [052] and [051] are presumed to have existed on the south side of the bridge/causeway, but these lay beyond the excavation area, and appear likely to have been at least partially destroyed by the construction of No. 21 Bridge Street.

3.6.2 Castle ditch deposits - Figs. 9 and 10, Photos. 42 and 51-56

A small test-trench, measuring 1.40m N-S and 1.70m E-W, was made through the floor of Cellar I in order to clarify the sequence of construction of the bridge and cellar. This was also an opportunity to excavate deposits from the fill of the castle ditch that were too deep to be accessible from elsewhere on the excavation. This trench, which was excavated to a depth of 5.0m from the present ground surface, revealed the base of walls [036] and [059], and the continuation downwards of pier [038]. It also revealed a sequence of ditch fill deposits, some of which were of potentially medieval date.

The cobbled floor of the cellar [070] was set into a clay deposit [071] approximately 0.15m thick. These were cut by cut [073] which contained fill [066] of 20th century date. This cut appears to have been an attempt to alleviate a drainage problem. Below [071] was deposit [067], approximately 0.80m thick. This deposit contained several tip lines but the material was considered sufficiently similar to be one deposit. A single clay pipe stem fragment suggests a 17th century or later date for this deposit, while other ceramics may suggest that at least part of this deposit may be of 15-16th century origin.

Beneath [067] were three deposits [078], [079] and [081]. These were approximately 0.05m, 0.16m and 0.80m thick respectively. Due to their clay/silt matrix these deposits were sufficiently waterlogged to have allowed the preservation of organic materials such as leather shoes and wooden bowls, as well as plant remains and animal bone. A list of the small finds from these deposits is included as appendix IV. These contexts are believed to be primary deposits and [079] and [080] contained ceramics suggesting a date in, or shortly before or after the 15th century. It is significant that these deposits definitely post-date bridge pier [038] and probably post-date wall [059]. The deposits below [079] are similar in character to [062], [062] and [065] in Area C.

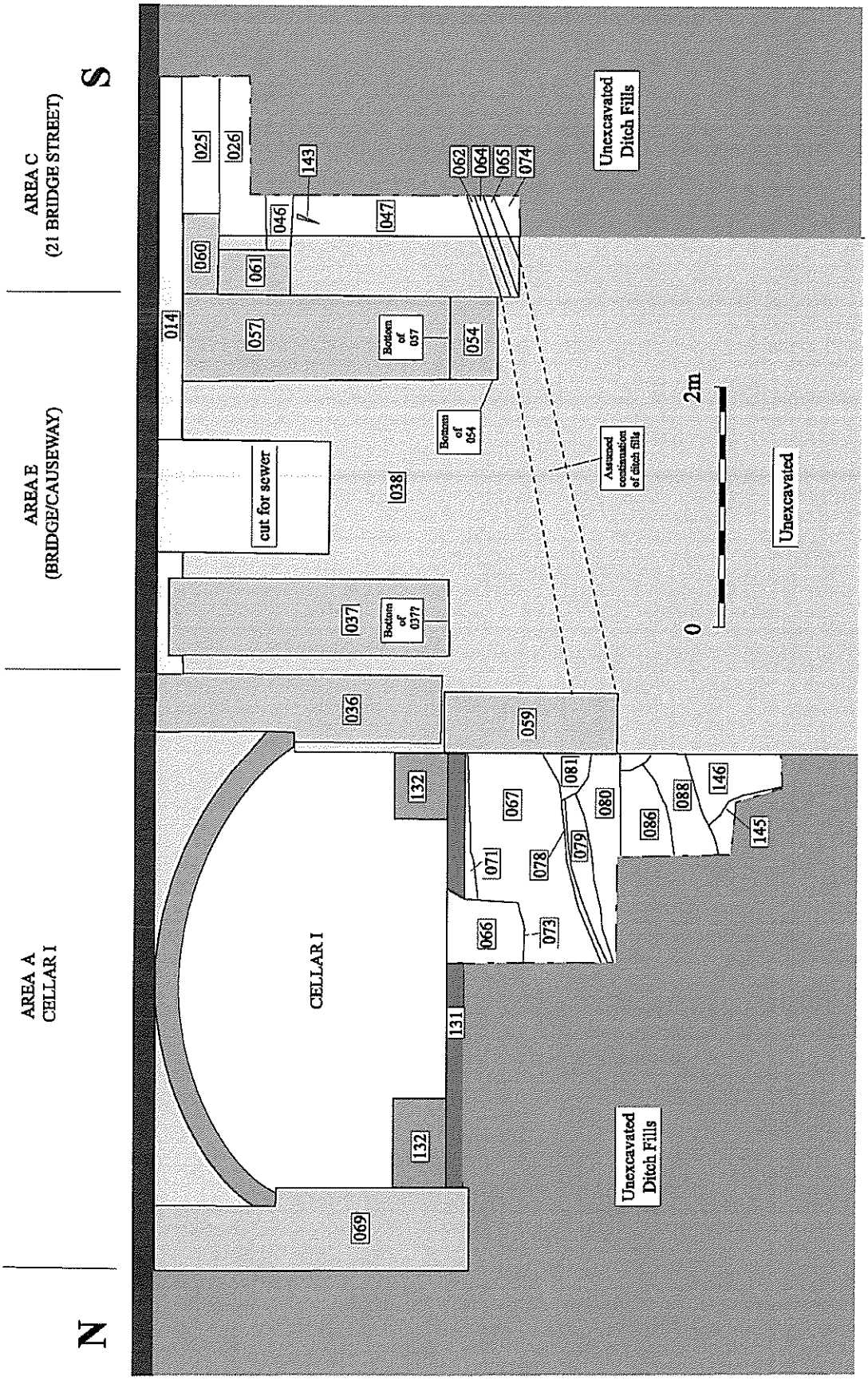


Fig. 10: Schematic north-south section through site, across the bridge/causeway

Although further deposits [086] and [088] were dug below [080], the excavated area was very restricted, and no reliable dating evidence was recovered

3.7 The remainder of the site

Cellars I and II had been emptied under archaeological supervision in early 2003. Cellar III was emptied at the same time, but was immediately backfilled after having been photographed and measured. As in Cellars I and II, the walls were of rubble masonry, with a red-brick vaulted roof and cobble floor, although in Cellar III, there were no red bricks along the center-line of the floor. A N-S brick dividing wall had been inserted across the middle of the cellar during the 20th century. There was a possible former stairway, giving access from above, in the southwest corner but this appears to have been demolished (or to have collapsed). Interestingly, as with Cellar I, the western wall appears to have been particularly badly built (Photo. 49), possibly for similar reasons, though this is by no means certain.

A fourth cellar is reportedly located between cellar 3 and Nott Square, observed during the demolition of No.12 Nott Square in February 2001, but this was not revealed during the current excavation. Its exact location and dimensions are not known.

A cellar also lies beneath No.21 Bridge Street. This is different from the others in showing no evidence for ever exhibiting a vaulted roof, but its walls are of similar rubble masonry and it may be broadly contemporary with Cellars I-III Its east wall contains a fireplace and a flight of steps leading up to ground level (presumably cobbled surface [006]).

4.0 SUMMARY OF THE FINDS AND ENVIRONMENTAL EVIDENCE

This section is a summary report based on the specialist reports on the ceramic and animal bone assemblages, and the paleoenvironmental assessment report, the results of which are discussed in relation to the development of the site. The full reports are reproduced as appendices I-IV. The paleoenvironmental work was a rapid assessment of the potential for further analysis of samples taken from the ditch deposits and is therefore of an interim nature. Also, in addition to pottery, animal bone and paleoenvironmental samples, a variety of other objects and small finds were recovered during the excavation. Most notable among these were the large fragments of wooden bowls and leather shoes that were recovered from the waterlogged Medieval ditch deposits [078] to [081]. Detailed analysis of the finds recovered during the excavation has not yet been undertaken due to the necessity to undertake specialist conservation of the objects, which itself has not yet been completed. A list of the small finds is included as Appendix IV.

4.1 Ceramics

The analysis and report were undertaken by Paul Courtney. Some of the ceramic evidence is presented as part of the excavation results (above). The following is a descriptive summary of the ceramics recovered during the excavation.

The lower levels of the ditch fills were dominated by ceramics dating from the 15th to 16th centuries, or possibly as late as the Civil War period, depending on the chronology of the Somerset wares. The dominant wares were local wares similar to the 15th century Newport kiln (245 sherds); late 16th –early 17th century Somerset wares (123 sherds); late 15th-16th century Cistercian wares (217 sherds), 15th-16th century Malvernian (93 sherds) and Merida ware (79 sherds) vessels. Two Tudor Green sherds possibly come from a cup and jug. There was also a scattering of Continental imports of the first half of the 16th century, a not uncommon feature in southern Welsh urban and high status assemblages of this period (e.g. O'Mahoney 1994 and Courtney 1994). Some of these could also come from privateering rather than trade. A small amount of residual medieval ceramics (Local, Ham Green, Bristol Redcliffe, Saintonge and North French) was also recovered, as well as 101 sherds of locally made ridge-tiles of ?medieval date. A small amount of Mavernian and North Devon ridge tiles were also recovered. A single sherd, which might be a medieval tile crest, was in a micaceous fabric typical of Herefordshire or Gwent.

Probable late 15th-early 16th century imports included Reaeren and Cologne-type mugs, Spanish maiolica from Seville (an Isabela Polychrome jug and both plain white and white and green dishes or bowls), an Italo-Netherlandish maiolica flower vase (1 sherd.); several Martincamp I flasks, Beauvais stoneware (probably at least 2 mugs and a jug); Beauvais single slip (1 sherd) and double slip sgrafitto (1 sherd), Beauvais green and yellow glazed earthenware mugs and post-medieval Saintonge, notably a lobed cup and polychrome bowl. Later imports included Frechen stoneware, a redware bowl identified as either a Normandy earthenware or underfired stoneware, and a sherd from a North Italian (Pisan) marbled bowl. Five fragments of early 16th century Normandy-type green or yellow glazed tiles were also recovered.

Unfortunately, the bulk of the ceramics appear to be secondary deposits (i.e. they had been broken and initially dumped elsewhere) and highly mixed. They may even derive from a rubbish dump. Unfortunately this poses problems in trying to date the sequence of ditch infilling as only a small proportion of the pottery, if any, in the lower levels, is likely to be contemporary with the backfilling. The assemblage adds to the poorly-sequenced material from Carmarthen Priory, in providing one of the largest groups of pottery of this period in South Wales. What is badly needed, however, is more groups of more or less contemporary ceramics, so that the changing patterns of supply and usage from the 15th to early 17th centuries can be more accurately determined.

4.1.1 Depositional analysis

Area C (in front of gatehouse)

The lowest four contexts ([074], [065], [064] and [062]) are all dominated by 15th-early 17th century ceramics. The earliest wares from these contexts are Somerset wares from [065] probably dating to c.1550-1650 on comparison to Bristol (Good and Russett 1987; Good 1987). Small amounts of North Devon ware, including a fish dish, ridge tile and coarsely-made internally glazed vessel, occur in [046] and [047]. These are probably 17th century though could potentially be a little earlier. A single sherd from a small Frechen mug with a characteristic mottled brown glaze in context [046] is at least late 16th century in date. Contexts [046] and [047] may therefore have been deposited later than the underlying fills but the ceramic evidence is inconclusive on this point.

Layer [026] also contains 15th to early 17th century wares, but also has a Bristol/Staffordshire yellow-slipped drinking vessel of c.1680-1760, a Pisan marbled dish of 17th century date, clay pipe stems, and large amounts of North Devon ceramics, including 17th century sgrafitto dishes. A sizeable portion of a plain creamware dish indicates that this context cannot have been deposited before the 1740s. Context [025] similarly has a large amount of North Devon ware, but a single sherd of Pearlware suggests a date in the 1770s or later while industrial white wares in [009] and later contexts point to a 19th century or later date.

It is notable that all five fragments of early 16th century Normandy-type floor tiles were recovered from contexts which also produced North Devon wares: [025], [026], [046] and [047]. In fact, these represent the only pre-19th century contexts in this trench to have North Devon wares. Context [046] had a Frechen mug sherd of late 16th century or early 17th century date; while contexts [025] and [026] produced nearly half of all the North Devon gravel tempered sherds on the site. Both the latter contexts also had 18th century or later ceramics. Furthermore, what appear to be fragments of the same chafing dish (reduced LMW), occur in [046], [047] and [048], the latter associated with a Creamware sherd of 18th century date. It is therefore likely that this association between ceramics and tiles points to a related source of fill material rather than being merely a reflection of the ditch infilling sequence. It is also suggestive that [046] and [047] were not deposited before the 17th century.

Area D (Nott Square)

The contexts below [035] are dominated by 15th-early 17th century ceramics. A single sherd from a North Devon gravel tempered vessel of 16th or more likely17th century date came from [045] and more usefully a clay pipe stem from [041]. A sherd from a North Devon sgrafitto dish from context [076] indicates that the whole upper part of the sequence (i.e. [076-034]) must have been deposited after c.1625. Again, the lower part of the ditch fill (contexts [087-077]) may or may not have been deposited at an earlier date.

Area E (below cellar I floor)

Context [080] produced 2 sherds of local late medieval ware, including a storage jar with applied thumbed band on its neck, and a single sherd of unglazed Malvernian ware of late 14th-16th century date. Context [079] also produced a large portion (roughly estimated at 20%) of a late-medieval squat jar with rod handle. These vessels together suggest a date either in (or shortly before or after) the 15th century for the deposition of these layers.

4.1.2 Conclusion

The lower parts of the ditch infill probably derive from a 15th-early 17th century rubbish dump. Contexts [074-062] in Area C, and (087-077) in Area D, could have been deposited as early as the late 16th century, or much later. A separate source of infill material containing 17th century material (including North Devon wares and Normandy-type tile), is also indicated by contexts [025], [026], [046] and [047] in Area C. This may be paralleled stratigraphically by the North Devon sherds in contexts [045] and [076] in Area D. Key ceramics for providing *terminus post quem* (the earliest date at which a deposit could have been created) dates for parts of the sequence are: the 17th century (c.1625-1700) North Devon sgrafitto sherd from [076]; the clay pipe stem from [041] in Area D; a late 16th-early 17th century Frechen sherd from (046), and mid- to late-18th century creamware from [026] in Area C.

It remains unclear on ceramic grounds, however, if there is a series of infilling episodes at different dates, or a major single infilling event. If the latter, this is unlikely to be earlier than the middle of the 17th century, perhaps as late as the second half of the 17th century. It could, however, be as late as the 18th century, if [025] and [026] were part of the main infilling rather than a secondary episode.

A gazetteer of the Ceramics recovered from each context is included in this report as Appendix I.

4.2 Animal Bone

The following is an edited version of the Animal bone analysis and report provided by Lorrain Higbee. The full version and tables are included as Appendix III.

A small assemblage of animal bone was recovered from the site during the excavation. The total quantity is 469 fragments. The material dates from the 15th

century through to the 19th century although the largest stratified collection is from 18th century ditch deposits. The size of the assemblage precludes any comparison between chronological periods thus the main aim of this report is to characterise the assemblages from each main period.

4.2.1 Results

Preservation and recovery

The factors affecting bone preservation and fragmentation are many and varied and it can be difficult to disentangle the individual effects and interpret the results. Overall the assemblages from each period are well-preserved. The gnaw marks of carnivores such as domestic dogs can also affect the potential information available from an assemblage. These can mask surface details such as butchery marks and completely obliterate small fragile bones from the archaeological record. Approximately 14% of all bone fragments were recorded with gnaw marks, a relatively large proportion (18%) of bones from 15th century contexts bear gnaw marks whilst bones from later deposits are slightly less affected (13% of 18th century bones and 12% of 19th century bones).

All of the assemblage was recovered by hand and this is reflected in the low incidence of small bones and bones from small species. In summary the assemblage is well-preserved, little affected by carnivore scavenging but biased by recovery methods.

15th century assemblage

A small quantity of animal bone was recovered from 15th century deposits located within Areas A and C. Bones from cattle and sheep/goat in particular are common. Little can be said about the procurement of beef, mutton and pork due to the overall small number of bones from each species. Only four pig bones were identified, all are from context (79). The limited data suggests that most cattle were culled as beeves (e.g. under 36 months); sheep/goat culled from lambs through to adults, and the data for pig suggests a yearling.

Butchery marks were noted on 33% of cattle bones and 37% of sheep bones. Chop marks are consistent with initial dismemberment of the beef carcass. Chop marks consistent with reduction into individual meat joints were also observed. Cut marks were observed on the neck of one sheep/goat scapula and probably result from dismemberment using a sharp knife. The butchery noted on cattle vertebrae suggests that cattle were hoisted by their hind limbs to be dismembered.

In addition to domestic livestock, a small range of other taxa have been identified they include a 'non-countable' atlas vertebra from a dog, a small number of chicken, duck and crow bones and a small fragment of claw from the edible crab *Cancer pagurus*.

18th century assemblage

The 18th century assemblage represents the largest stratified collected from the site. The majority comes from ditch fills located in Areas C and D. Bones from the main

livestock species account for *c.*91% of the total number of specimens identified to species and cattle is by far the most common species making up 60%. A small range of other taxa have been identified, these include horse, dog, fallow deer (*Dama dama*), a small species of *cetacea* (e.g. dolphin, porpoise or pilot whale), chicken, goose, thrush (*Turdus sp.),* and pike (*Esox lucius*).

Cattle
Cattle bones representing waste from primary carcass dismemberment are more common than bones of high meat utility. This waste material includes bones from at least 12 individuals. This material is split between 12 separate contexts but the majority (40%) comes from ditch fill (47). Most of the waste elements from this context are complete and some bear butchery evidence consistent with skinning and disarticulation of the lower limb. Other skeletal elements are under-represented but most body parts are represented, suggesting that whole carcasses were processed on site. Overall the skeletal elements represent disposal of bone waste from separate processes (e.g. skinning, primary dismemberment and domestic refuse). The ditch fills clearly include a greater quantity of waste from the initial processing but only small quantities of kitchen and table refuse.

Butchery marks were recorded on a small number of cattle bones (17%) most occur on foot bones and are consistent with skinning and disarticulation of the lower limb. Cut marks resulting from skinning and filleting meat off the bone were observed. Chop marks are slightly more common and most were recorded on ankle (i.e. astragalus and calcaneus) and foot bones (metapodials) suggesting two points of disarticulation of the lower limb. Chop marks on meat bearing bones are consistent with disarticulation at major joints, the elbow and hip, and reduction into individual cuts. Butchery marks were also noted on two vertebrae and one rib fragments, and this is similar to that recorded from the 15th century assemblage described above.

One worked cattle bone was identified from context (67). The bone, an ulna has been sawn through the proximal articulation and a square hole cut into the resulting platform presumably for the insertion of a metal implement. The distal shaft is smoothed and parallel cut marks suggest that this was carried out using a knife. The end of the distal shaft has been shaped into a point and the surface is stained green from having been in contact with copper. The general morphology of the object suggest a duel function possibly a knife handle and awl (or point).

Only 4% of cattle were culled as young calves under 12-18 months of age. The majority of cattle were slaughtered at the aged of 2-2½ year. The mortality profile suggests that cattle were primarily managed for beef and milk. Historical evidence suggests significant changes in the agricultural economy of Britain during the mid 15th century. Such changes included a shift from arable to pasture farming and the gradual replacement of oxen with horse for ploughing. Over time this meant that it was no longer necessary to keep large numbers of fully-grown cattle and the emphasis in their husbandry shifted towards supplying meat and milk for the growing urban population. Beef and milk production are complementary husbandry strategies since the removal of the calf allows exploitation of the mother's milk for human consumption. Male calves and female calves surplus to requirements can then be culled to provide veal or kept for a few years to be slaughtered nearer their full body size thereby providing greater returns. This general trend has been recorded at a number of other sites around

the country including Bristol, Exeter, Leicester, Launceston Castle, Lincoln and Norwich.

A small but significant number of cattle foot bones with pathological or aberrant changes were recorded. These changes include areas of new bone formation, areas of bone resorption and eburnation (or pitting and polishing) and significant alterations in the symmetry of individual bones. These conditions have generally been associated with the use of cattle as draught animals.

Measurements indicate that the average withers height of 18th century cattle from Carmarthen Castle is just over 1m with a range of 95.8cm-120.8cm. The average height is shorter than cattle from earlier and later periods but the range in stature is greater than cattle from the 15th century. Greatest length measurement on one complete horncore suggests that medium horned breeds of cattle are represented.

Sheep/Goat
Sheep or goat bones account for 22% and a small number of bones could be positively differentiated as belonging to sheep rather than goat, thus all undifferentiated caprine bones are assumed to be sheep. Most body parts are presented, suggesting that whole carcasses are represented. Small bones are conspicuous by their absence but this is probably a result of recovery methods. Pelvises are the most common skeletal element representing at least 5 individuals, mandibles and long bones from the forelimb are also fairly common. Butchery marks were observed on only 10 sheep bones and chop marks are slightly more common than cut marks.

Tooth wear data indicates that most mandibles are from individuals aged 2-4 years and 4-6 years, suggesting most of the sheep were culled as adult animals over 3 years of age. This general pattern is consistent with the importance of sheep for wool and is part of a general countrywide trend. Measurements suggest that 18th century sheep are on average 57.8cm tall, with a range of 55.3cm-61.9cm. The mean value is smaller than that obtained for a single complete long bone from the 15th century assemblage.

Pig
Pig bones from most body parts are represented particularly the major meat bearing bones from the fore and hind limbs. Small bones are under-represented but this is probably also due to recovery methods. Butchery evidence is limited and chop marks were observed on bones from the forelimb only. Age data is very limited but suggests that a range of ages are represented from neonate through to adult although it is clear that most were culled before they had reached skeletal maturity. This general trend is common and reflects the fact that pigs are essentially meat animals, providing no secondary commodities, they are also fairly fecund animals and mature quickly.

Less common mammals
A small range of other mammalian species are represented they include horse, dog, fallow deer and a small species of *cetacea*. Fallow deer are not an indigenous species, they were probably introduced to Britain after the Norman Conquest and for many centuries they were largely confined to deer parks. The single find indicates that venison was occasionally procured and consumed by the inhabitants of the castle during this period. A single *cetacea* vertebra bearing chop marks consistent with removal of the transverse processes was recovered from context (41). The specimen

could not be positively identified to species, however its overall size suggests that it is from a dolphin, porpoise or pilot whale. It is likely that sea mammals of this size were occasionally netted along with fish although the carcasses of stranded individuals would also have been exploited. *Cetacea* remains are generally considered 'high status' food items consumed in place of fish during religious periods of fasting and cetacea, whether stranded or caught at sea, were claimed as a seigneurial right from the mid 12th century onwards (Gardiner 1997: 176). *Cetacea* remains have been recovered from a number of high status sites a summary of which can be found in Gardiner (1997: 189-192)

Birds and fish

A small number of bird bones were recovered and three different species identified. Chicken is the most common species and is represented by bones from the wing and leg; a furcula (or wish bone) was also recovered. Two of the bones are from immature individuals whilst the rest are adults, this could indicate that eggs were more important than meat. Two bones from a domestic goose were recovered they include an ulna and femur. The only other bird species identified is a single tibio-tarsus from a thrush, possibly the song thrush (*Turdus c.f. philomelos*). The specimen can only be treated as a general indication of the types of bird species living in proximity to the castle during this period.

A small number of fish bones, mostly skull fragments, were also recovered. Diagnostic bone includes two mandibles from a pike (*Esox lusinus*). Pike inhabits fairly slow flowing waters, matures relatively quickly and is a popular choice for managed fish ponds although few fish have been the subject of such conflicting views as to their palatability.

19th century assemblage

A small number of mostly cattle bones were recovered from two cut features of 19th century date. Cattle bones from the lower limb (i.e. ankle and foot) are common relative to other body parts. A single sheep/goat humerus and rabbit metatarsal were also identified.

4.2.2 Conclusions

Analysis has shown that the assemblage is well-preserved and that the relatively large collection of bones from 18th century deposits is reasonably informative providing some insight into the nature of cattle husbandry. Cattle appear to have been extensively exploited to provide meat and milk, and pathological changes suggest that they may also have been used for traction. Sheep appear to have been managed for wool and pigs for their meat. These mortality profiles fit closely with the general trends recorded for other areas of Britain during the post-medieval period. Deer and *cetacea* bones are rare from the assemblage but their presence alludes to the high status of the site.

The 15th and 19th century assemblages are less informative and have only been briefly described here.

4.3 Waterlogged plant remains

A series of samples were taken from the waterlogged ditch deposits (of medieval origin) for the recovery of environmental evidence. During the excavation it was observed that these deposits contained plant matter including wood fragments, stems, leaves and seeds. Also recovered was a possible coprolite. Because of the nature of the deposits (ditch fill), and the urban location, it can be anticipated that material from a number of different sources, and representing a variety of different activities, has been dumped in the ditch. Such material can provide useful evidence of past agricultural, economic and domestic activities, diet, disease, and the exploitation of different environments for plant materials used for building, bedding, animal fodder etc. An initial assessment of the samples has been undertaken by Catherine J. Griffiths and Astrid E. Caseldine (see Appendix II). The initial results indicate a range of plant species, some of which may have been growing in the immediate vicinity of the castle ditch, while others are more likely to have been brought to the site by human agency. Further analysis of these samples has been recommended.

5.0 DISCUSSION

Because it was not desirable to dismantle any of the structurally significant stonework, and on consideration of health and safety issues and other practical constraints, it was not possible to ascertain all of the stratigraphic relationships that would clarify the complete building sequence. In addition, not all features could be excavated in their entirety. As a consequence, a certain amount of speculation is necessary in the interpretation of the excavated features.

The accuracy of dating based on ceramic evidence is hampered by the mixed nature of many of the deposits (many of which are of secondary deposition), and the wide date range that some of the pottery types are known to span. As a result, although the sequence of events is reasonably straightforward, there is considerable overlap between the possible dates for the various construction and deposition events that have been identified.

The discussion of results will consider the implications of the excavation findings for each of the main features and depositional sequences. In addition the findings will be discussed in relation to known historical records, cartographic and other pictorial evidence relating to the castle, principally John Speeds two plans of Carmarthen from c. 1610 (Maps 1 and 2), and Thomas Lewis' three plans of Carmarthen, all from 1786 (Maps 3,4 and 5).

5.1 The gatehouse

The gatehouse is a complex building that has undergone considerable alteration. It is beyond the scope of this report to interpret this building in detail, beyond those aspects that relate directly to features uncovered during the excavation.

To date, little clear evidence relating to pre 1409 gatehouse has been uncovered (see section 2.2). However, two vertical joints between walls [532] and [533] of the gatehouse may indicate the outer face of the earlier gatehouse, which could have been flush with the west curtain wall of the castle. This suggests that the gatehouse was extended forwards when it was reconstructed in 1409 (Crane, 2001), to its present position projecting out from the castle walls. The north gatehouse tower was exposed to a depth of approximately 5.0m below the present ground surface, without revealing the base of the tower. It is notable that the ground floor chambers of the gatehouse towers have been filled with rubble, probably to strengthen the towers during the civil war (1642-45).

In 2001 an excavation in the gate-passage reached a depth of 1.20m. No evidence of either a masonry floor or the scars of any former cross-walls was encountered (*ibid*). It was assumed that this was because there may have been a drawbridge counterbalance pit within the gateway. A cross-wall might have been expected at the outer end of the passage for the drawbridge to pivot upon. The lack of these cross walls means that there is no surviving evidence for the drawbridge (hinged or pivoted), save for the appearance of the gateway arch, and the slots in pier [038] which may be associated in some way with a drawbridge.

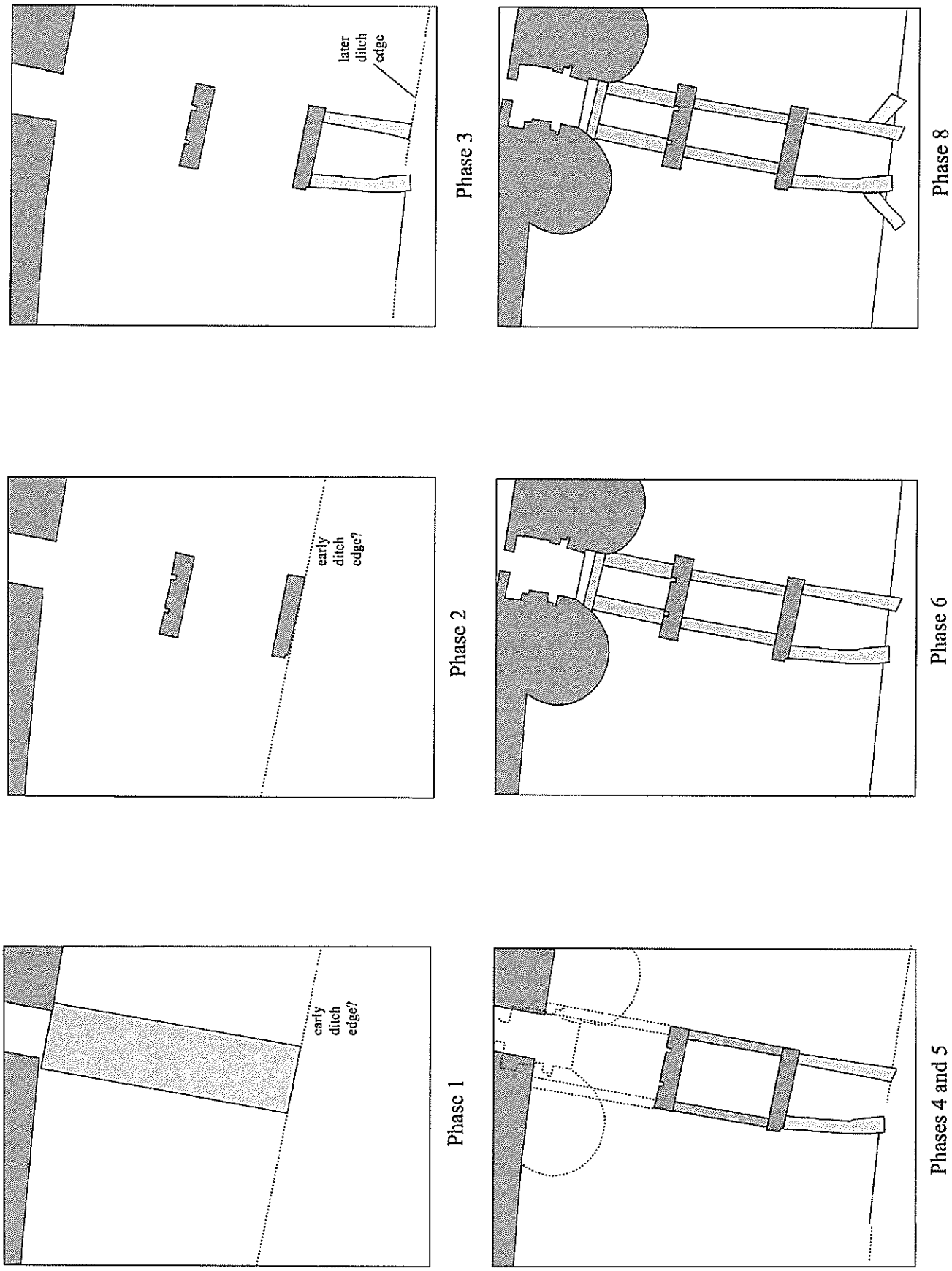


Fig. 11: Proposed Phasing of bridge/causeway (Area E)

The lack of such features means there is no direct physical evidence to link the earliest phase of the bridge (piers [038] and [053]) to either the 1409 gatehouse or to an earlier gatehouse. The alignment of the existing bridge/causeway is compatible with the existing gatehouse (see Fig. 8). The alignment of the postulated bridge phase represented by wall [059] (see discussion in section 5.3 below) however, suggests that its earliest two phases are associated with the earlier gatehouse (Fig. 11).

5.2 The ditch

The excavation has confirmed that there was a substantial defensive ditch situated between the gatehouse and Nott Square. From the castle west curtain wall to the edge of the ditch on Nott Square is a distance of 18m. It is likely that the ditch is at its widest in this location in order to afford extra protection to the gatehouse. The bases of walls [051], [052], [054], [057], and [059], indicate the profile of the ditch when these walls were constructed, but it is clear from the excavation that the deposits upon which these walls were built are all ditch fills, and do not represent the original ditch profile (Fig. 9). The excavation beneath Cellar I did, however, indicate that ditch fills were present at a depth approximately 5m below present day ground level.

The western edge of the defensive ditch appears to follow the existing edge of Nott Square. The line of stakeholes [083] represents the ditch edge from the time wall [051] was constructed, but the material into which the stakes were sunk could be redeposited ditch fill, suggesting the original ditch edge may be slightly further west, beyond the edge of the excavation (Figs. 13 &14).

The excavation of evaluation trenches to the south of the gatehouse (on the site of the Rugby Club) in 2001 (Crane, 2001) identified a linear cut that may be the eastern edge of the castle ditch. The position of this cut suggests there may have been a wide 'berm' between the ditch and the castle walls. It was not possible to ascertain the existence of this cut to the north of the gatehouse during the 2003 excavation.

The width of the ditch may have been increased at the time other alterations were made to the castle walls and the bridge/causeway, but by their very nature, such alterations would destroy any evidence of the earlier profiles. It has been suggested that the apparent batter on the east face of pier [053] may suggest that this marked the western edge of the castle ditch when the bridge piers were constructed.

The ditch fills are discussed in section 5.5 below.

5.3 The bridge/causeway - Figs. 8, 9, 10 and 11

In addition to the postulated first phase, in which the bridge is thought likely to have been constructed entirely from timber, the bridge/causeway shows six phases of alteration. These alterations have resulted in the conversion of what was fundamentally a bridge, into a continuous masonry causeway. While the order in which these alterations were made is reasonably apparent, it is less easy to identify exactly when the alterations were made.

Phase 1 12th-13th century--fig. 11

The exact character, location, and extent of the earliest castle on the site is not known. It is generally assumed that the castle would have been of timber construction, with a defensive ditch. The bridge that would have spanned the ditch would also have been constructed entirely of timber. No direct evidence of this castle, ditch or bridge was revealed during this excavation. Any timber bridging structure is likely to have been entirely removed by the construction of the masonry bridge piers in Phase 2 or in 3. Since, however, the bottom of the ditch was not reached, and the existing bridge could not be removed, it is entirely possible that evidence of an earlier bridge structure may survive beneath the existing causeway. Likewise, any evidence for the gateway to the castle in this phase is likely to have been destroyed by or hidden beneath the later gatehouse structures.

Phase 2 13th -15th century? - Fig. 11

The second phase of the existing bridge is represented by piers [038] and [053]. This is the first phase of the bridge for which there is direct physical evidence. As discussed in the previous section (3.6.1), the batter on pier [053] may indicate that it originally formed the bridgehead on the western edge of the ditch at this time. The bridge structure would still have been of timber construction. Although there is no direct physical evidence, as will be discussed in the next phase, it seems probable that the two stone piers were associated with the pre 1409 gatehouse.

Phase 3 13th-15th century? - Fig. 11

In Phase 3 it is possible that the castle ditch was widened, with the new ditch edge being close to the existing edge of Nott Square. No direct evidence for this, however, was revealed during the excavation. Modifications to the bridge structure in this phase consist of the construction of wall [052], to link pier [053] to the new ditch edge, thus forming a continuous structure that projected approximately 6.0m into the ditch. Wall [052] is the only surviving wall of this phase. Its southern equivalent is beyond the area of excavation and was presumably mostly truncated by the later construction of No.21 Bridge Street (Fig. 11).

Wall [052] is thought to belong to Phase 3 because it appears to be on a slightly different E-W alignment than the other walls of the bridge and is of superior construction and quality. The small quantity of ceramic material recovered from causeway fill [040], immediately to the south of wall [052] has been dated to the 13th-14th century, but material from the 18th century is also present. If the later material is considered intrusive (not unlikely considering the degree of later disturbance to this area) a 14th century date for the bridgehead construction is entirely feasible. Deposits on the north side of wall [052] date from the 17th century, but, as will be discussed in the next section (5.5), these relatively late deposits may have been deposited after a period in which the ditch was re-cut, effectively removing earlier deposits. Wall [051] is an angled buttress, strengthening the point where wall [052] meets the ditch edge. Although it appears to be of the same phase as [052] it is of a different build. In addition, stratigraphic evidence suggests that this wall is a late addition to the causeway, occurring shortly before the intentional backfilling of the ditch in the 17th century (Fig. 11).

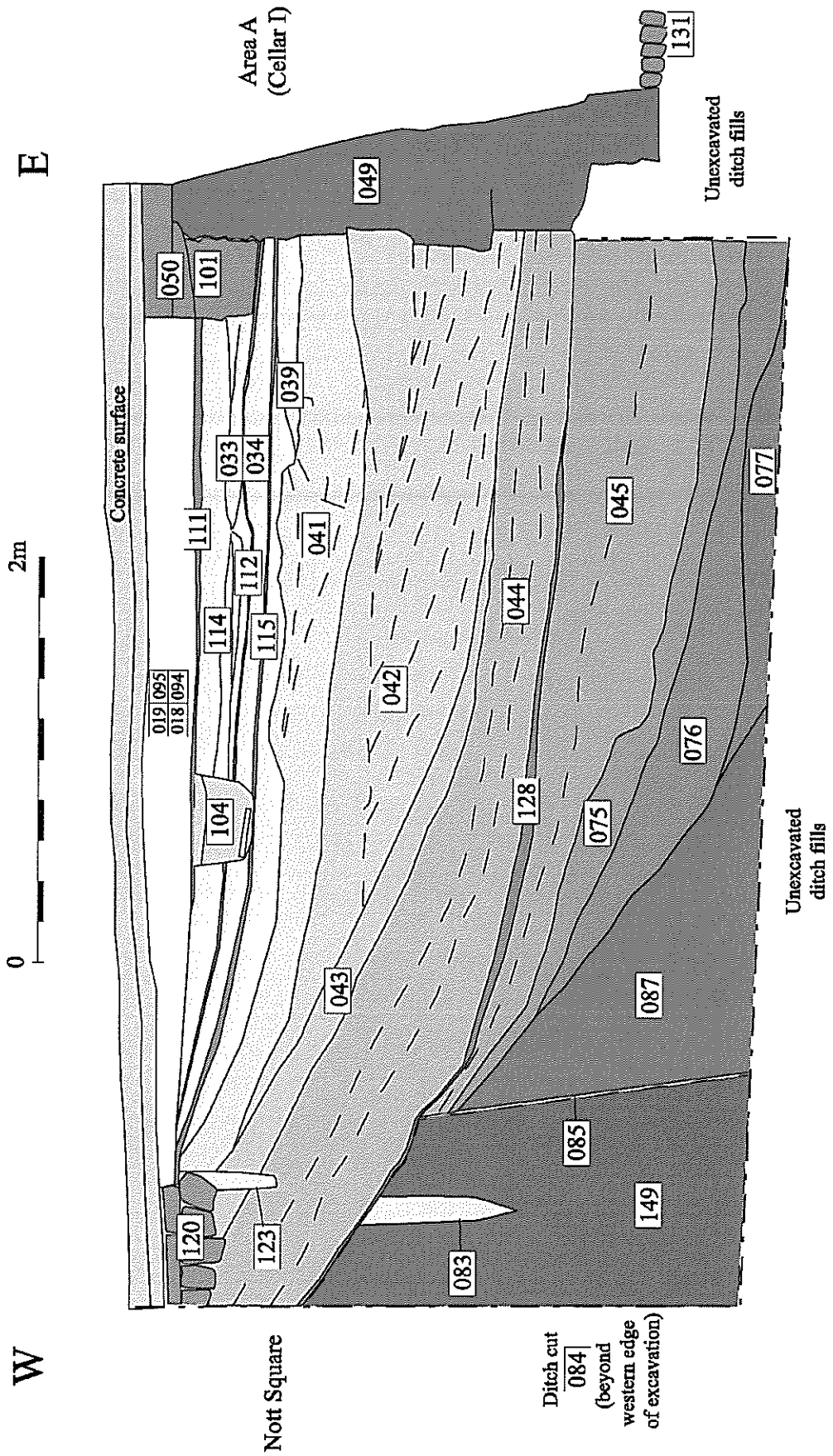


Fig.12: Schematic south facing section through castle ditch deposits in Area D

Phase 4 (15h-16th century?) - Fig. 11

Phase 4 is problematic because it is represented solely by wall [059], running between the two bridge piers. Unfortunately, no direct physical relationships to test the existence of Phase 4 were present within the excavation. On the other hand, there is also no evidence to refute the theory. In the description of Phase 4 it is assumed that excavated walls have a symmetrical relationship with their postulated counterparts (for which there is no direct evidence).

The depth of wall [059] suggests that it is earlier in the construction sequence than wall [054] and other walls associated with that phase. This is illustrated in fig. 10. It is possible that remnants of walls associated with [059] exist (or existed), between pier [038] and the gatehouse (or hypothetical third pier) forming a solid causeway structure.

The most significant feature of Phase 4 is the fact that wall [059] is flush with the northern edges of the Phase 2 bridge piers [038] and [053]. If the walls postulated for the rest of this phase are also assumed to be flush with the pier ends, then the width of the causeway is significantly wider than the existing gatehouse passage and is on a significantly different alignment, suggesting (as illustrated) that this phase of the bridge was more likely to be associated with the earlier gatehouse structure. These postulated walls are indicated in Fig.11.

At some time between Phase 4 and Phase 5, the majority of this causeway was demolished. It is tempting to suggest that this happened when the gatehouse was re-modeled in 1409 when the alignment of the gatehouse and the bridge was altered. This assumption is supported by waterlogged ditch deposits [078], [079] and [081] thought to be of primary deposition, which run up to wall [059], containing ceramic material dating to shortly before or after the beginning of the 15th century.

Phase 5 (16th –17th century?) - Fig. 11

This phase represents the possibility that the walls of Phase 4 could still have been in use after the construction of the new gatehouse in 1409. The additional walls postulated in Phase 4, if they ever existed could have been demolished at this time, while wall [059] and its equivalent could have remained in use.

Phase 6 (16th –17th century) - Fig. 11

Phase 6 consisted of the infilling or 'connection' between the bridge piers with walls [037], [054], [057] and [058], to create a permanent causeway across the ditch (see Fig. 11). Walls [057] and [054] of Phase 6 could not have been built unless wall [059] had already been truncated (and its theoretical equivalent on the south side, completely removed), otherwise the earlier walls could simply have been repaired or used as foundations for a rebuild. Scrutiny of the stonework in wall [057] suggests that its lower courses are constructed from dressed old red sandstone, very similar to that found in wall [059], and from which it may well be derived (see Photo.10). It is notable that the width of the causeway in Phase 6 is considerably narrower than it probably was in the earlier phases, presumably indicating that the early gateway was wider than the later rebuild.

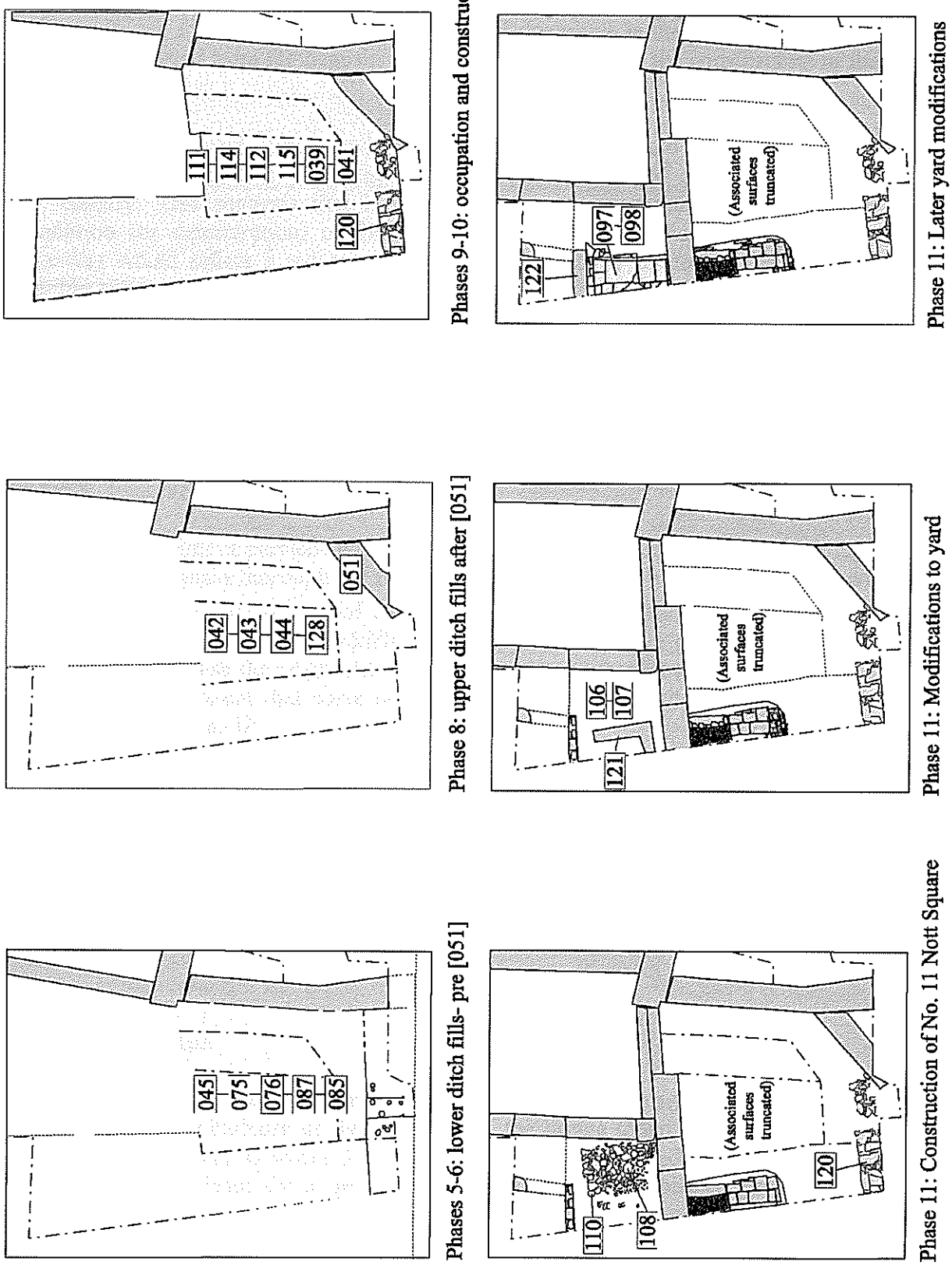


Fig. 13: Main phases in Area D

5.5 Backfilling of the ditch

From the time the ditch was first cut it would have begun to infill with erosion debris from the ditch edges, sedimentation, refuse disposal, construction and demolition debris, and intentional backfill. In the absence of any evidence for construction cuts, the bases of the different walls of the bridge/causeway reflect the extent to which the ditch had become backfilled when each phase of the bridge was built. It is also probable, however, that the ditch may have been cleared out from time to time. In addition one of John Speed's two maps of Carmarthen c.1610 shows continuous development along the east side of Nott Square with back yards extending up to the castle west curtain wall (Map 2), suggesting the ditch was partially backfilled. His other map, however, shows neither the buildings on Nott Square, or the ditch (Map 1).

The medieval deposits beneath the floor of Cellar I are the only ones that are probably primary fills rather than redeposited, and these have been dated to the beginning of the 15th century. No dating evidence was recovered from stratigraphically earlier deposits and no deposits known to be of equivalent were excavated in Area C or Area D. Indeed it seems probable that a different sequence of deposition events occurred in each of the excavated areas, reflecting differences in land use and when the ditch was reclaimed.

Area C

The lower ditch deposits in Area C that run beneath the causeway walls of Phase 6, are presumed to post-date the demolition of the Phase 4 or 5 walls. These deposits contain ceramics dating from the 15th to the early 17th century, with the earliest sherds dating to 1550-1650. This may suggest that these deposits built up gradually on the southern side of wall [059] after its partial demolition, while the area to the north of [059] remained open, allowing the accumulation of the waterlogged silts of [079], [080] and [081]. Due to later truncation by the construction of the Cellar I, it is not clear whether or not this was the case.

These deposits are overlain by homogenous redeposited material of 17th century or later origin [047]. The sequence of wall stubs and associated deposits ([026] etc.) may be of 18th century origin. They pre-date the construction of No. 21 Bridge Street. As discussed above, Ogilvie's painting of the gatehouse may suggest a possible purpose and *terminus post quem* for these features.

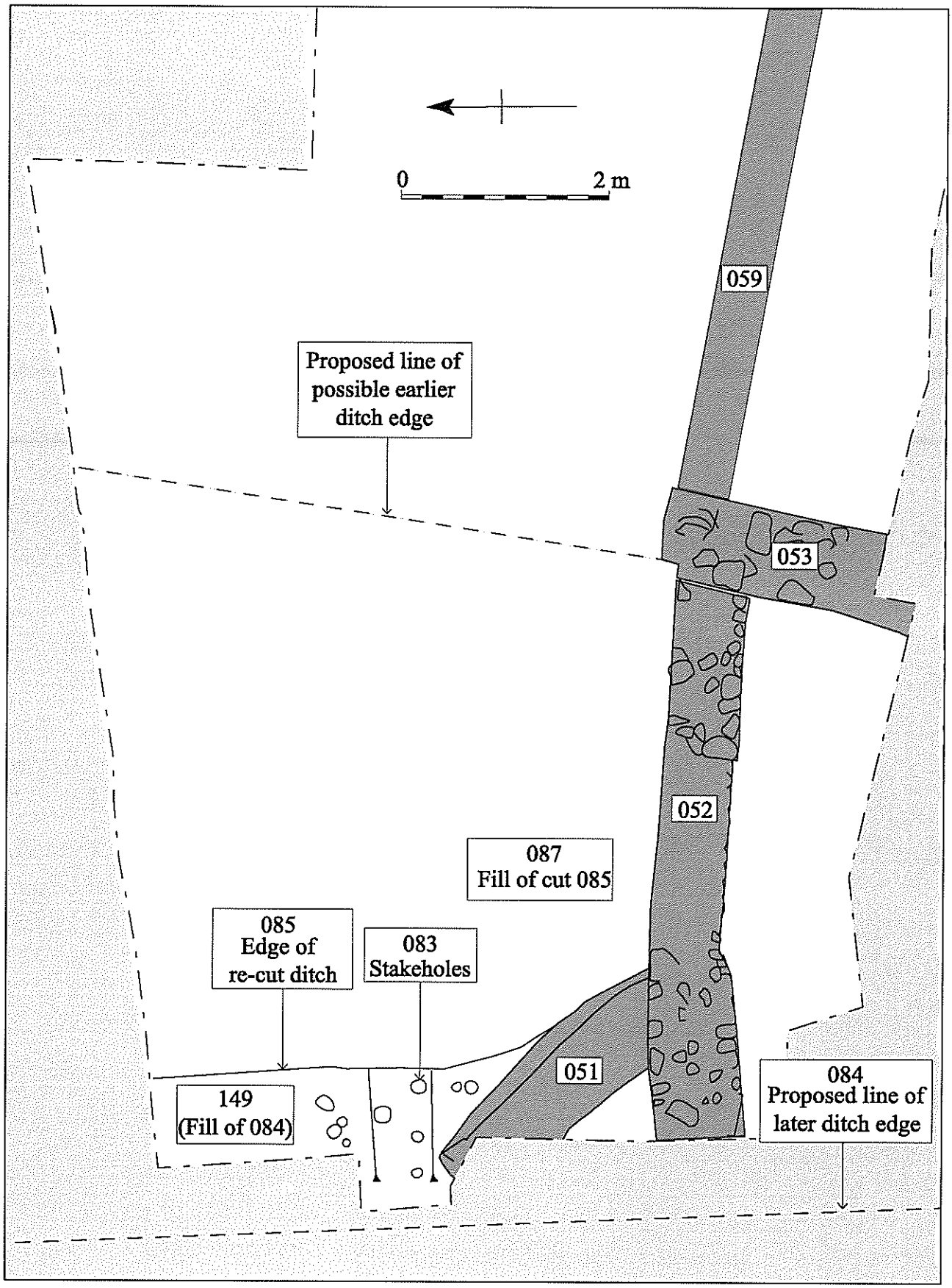


Fig. 14: Plan showing proposed sequence of ditch edges

The slope of the earlier deposits in Area C (see Photo 10) and the later intentional backfilling, may suggest that reclamation of the ditch area to the south of the causeway began, before reclamation of the area to the north. Also, the difference in the character of the deposits in Areas C and D suggest that a different sequence of events may have occurred in Area D. This is however, little more than conjectural since the construction of No.21 Bridge Street has effectively truncated any evidence of any earlier buildings and street front ditch deposits on the site.

Area D

Enough of the ditch deposits in Area D have survived later truncation to suggest that there is a more complex sequence of deposition and construction. From the ceramic dating evidence it seems likely that the construction of No.11 Nott Square (later the Swan Inn) can be dated to the 18th century, the earliest cartographic representation of what is presumably No.11, being from 1786. Beneath this phase are earlier occupation deposits probably dating to the late 16th or 17th century. A commemorative stone plaque set into the wall of No.12 Nott Square bears a construction date of 1688, although this may have originated from an earlier building on the site.

A photograph taken when No.13 Nott Square was demolished shows a complex series of building phases attesting to the intensity of building alteration that has occurred at the site. It has been suggested that the earliest phases in this building sequence may date back to medieval times (James, 1980). Buildings are also shown in this location on John Speed's map of Carmarthen of c.1610 (Map 2). The dating evidence recovered from the ditch fill deposits in Area D, however, indicate that the ditch was not backfilled before the 17th century. This evidence has crucial implications for understanding the development of the site in relation to the town. There are several explanations for the excavated sequence. The simplest explanation would be that the Speed map representation of Carmarthen castle is erroneous, or imaginary, and that the castle ditch remained open and free from the pressures of urban development right up until it was backfilled and building first began in the 17th century.

Another explanation is that reclamation of the ditch and subsequent development may have occurred before the 17th century, to the south and to the north, but not immediately adjacent to the causeway. Evidence that would have supported or refuted this possibility unfortunately lay beyond the limits of this excavation.

The most likely explanation accounts for the stratigraphic sequence that was revealed during the excavation, fits within the broad range of the dating evidence, and also explains the detail of Speeds map. It is however, relatively complex.

17th century material occurs both above and below the mortar layer [128] that marks the construction of wall [051]. This 17th century date below [128] is problematic, suggesting either that wall [051] is of later construction, or that the dating evidence is based on intrusive or mixed up material.

Close examination of the ditch fill deposits beneath wall [052] however, indicated that the ditch fills that pre-date the construction of wall [051] are different from those immediately beneath wall [052] (but from which no dating evidence was recovered). This suggests that the ditch may have been cleaned out up to the face of [052], and

partially backfilled by eroded deposits before [051] was constructed to strengthen the point where the bridgehead joins Nott Square. The stakeholes along the edge of the ditch were probably also inserted at this time.

The re-cutting of the castle ditch in the 17th century could have been undertaken as part of the strengthening of the castle defences during the Civil War of 1642-45. The housing in front of the partially reclaimed castle ditch depicted in Speed's map of 1610, could have been entirely removed at this point, for defensive reasons. After the civil war, the ditch was then rapidly backfilled and redeveloped to replace the previously demolished housing. A stone plaque bearing the date 1688 was set into the wall of No.12 Nott Square, which, if considered to be *in-situ*, may suggest a date for this reconstruction.

Paving stones [120] and associated post-holes [123] appear to represent a phase between the backfilling of the ditch and the construction of the new housing. They may suggest that the area of land adjacent to the causeway remained an undeveloped vacant plot for a while before the new houses were built.

5.6 Later buildings

The scenario outlined above accounts for the absence of buildings on the site before the 17th century. The laminated occupation surfaces that seal the 17th century ditch fills appear to belong to buildings for which little or no other structural evidence survives. It seems probable that these buildings would have respected the walls and alignment of the bridge. Within the area of excavation, however, the only location where such structural evidence might have survived was along the north face of wall [052]. Unfortunately, this particular location was badly disturbed by the current groundworks (see Fig. 7), resulting in the loss of potentially useful deposits. Other locations where structural evidence might have been located was truncated by the construction of the cellars. Another possible explanation for the absence of structural evidence associated with the surfaces is that the structures were insubstantial constructions associated with the market (later named Nott Square) of which no archaeological evidence remains.

No.11 Nott Square was the latest building to be built on the site. The earliest cartographic evidence for the building is on the various versions of the Thomas Lewis Carmarthen map of 1786 (Maps 3, 4,and 5). Cellars I, II, and III, are all associated with No. 11 and appear to have been built at the same time. They are also presumed to be contemporary with the cellar of No. 21 Bridge Street. The bridge/causeway structure was by now entirely obsolete, although the throughway still existed. This is clearly indicated by the fact that No. 21 Bridge Street and No. 11 Nott Square do not respect the alignment of the earlier bridge. Several walls of the bridge/causeway having been removed in the construction of Cellar 1 and No. 21 Bridge Street. Wall [101] is the only surviving section of major wall associated with No.11 that is not a cellar wall. It appears to have been cut into the earlier deposits, truncating the mortar occupation surfaces. Wall [102], floor [117] and steps [118] were also constructed at the same time.

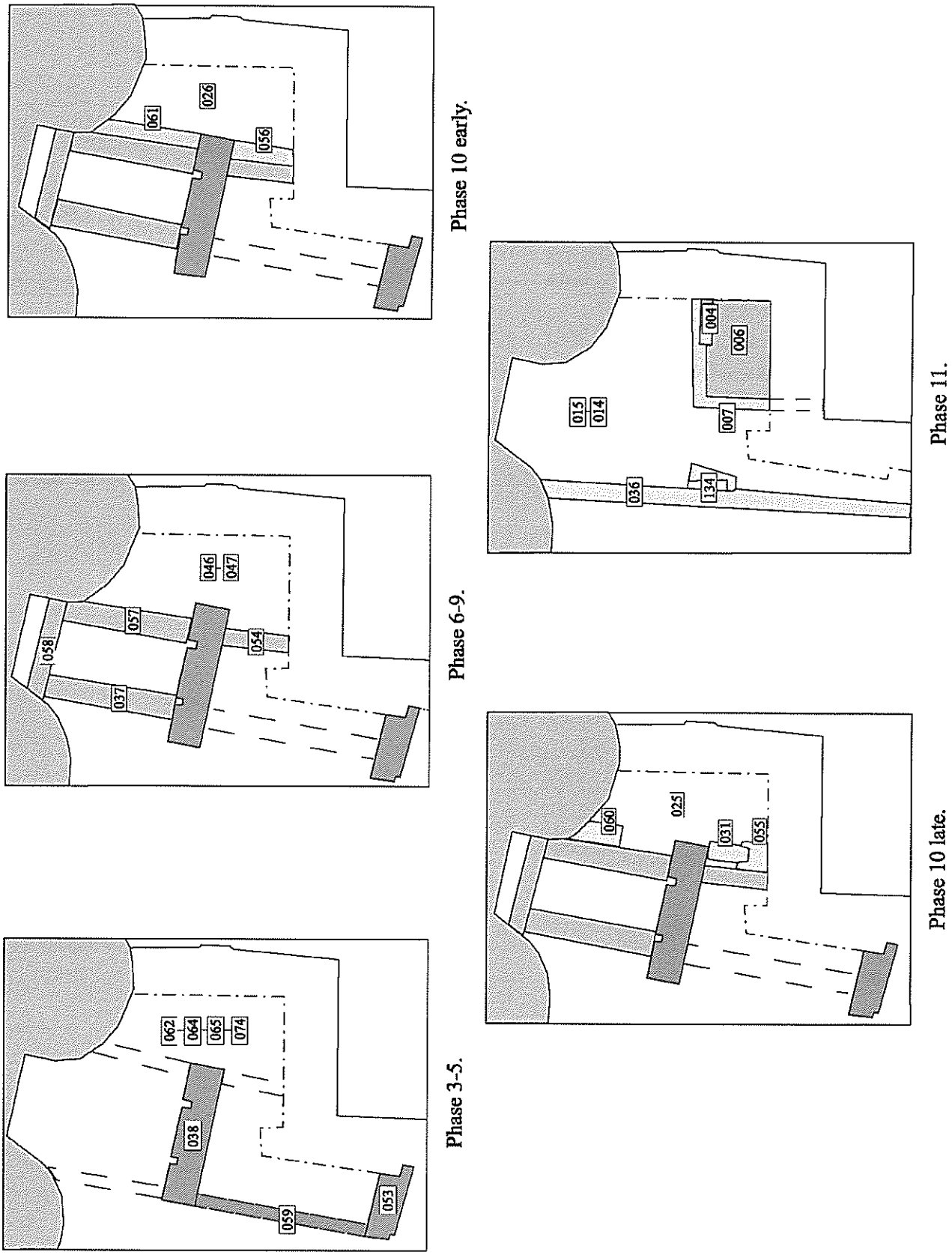


Fig. 15: Wall phases and associated deposits in Area C.

The only location in which significant alterations to the fabric of No.11 were encountered was in the yard area to the east of wall [101] (see Fig. 13). The limited area available for excavation, and the degree of truncation to the deposits means that interpretation of the excavated sequence here is necessarily tentative. It was not possible, for example to ascertain which, if any of the surfaces pre-dated the construction of No. 11.

Paving stones [097] and underlying cobbles [098] represent the latest events in Phase 11. Both surfaces are believed to have been the floors of an outhouse built in the yard area. Deposits [089] and [096], which underlie [098] may be associated with the original construction of No.11. Cut [090] may be the construction cut for wall [101], but this is uncertain.

Surfaces [106] and [107], both associated with wall [121] may pre-date the construction of No. 11, although the similarity of their alignment suggests they may be contemporary and therefore represent earlier yard surfaces of No 11, before the outhouse was constructed. Because of later truncation by cut [129], and its proximity to the trench edge, the function of wall [121] is uncertain.

Underlying wall [121], cobbles [108] and stake holes [110] were too large and too irregularly placed to have been a surface. Instead they are thought to be an attempt to consolidate the ditch fills. Due to subsequent truncation it is unclear whether this event occurred before or after the construction of No. 11, but the features did not extend west of wall [101].

No. 11 Nott Square was run as a public house called the Swan Inn for many years until its demolition in the 1960s. Exactly how long the property was an inn, is not known, but the features recorded within Cellars I and II attest to this function for the building, and may be original features. It seems probable therefore that this was the intended use of the building from the time of its construction.

6.0 ACKNOWLEDGEMENTS

The author would like to thank the following for their contributions during and after the excavation: Carmarthenshire County Council; Gwilym Bere and Jemma Bezant for their sterling work during the project, Brian Milford, Louise Mees, Ceri Jones, for their valuable voluntary assistance; Neil Ludlow, Hubert Wilson, Paul Sambrook, Pete Crane, Gwilym Hughes, Louise Austin, Lucy Bourne, Phil Wait (all of Cambria Archaeology), for various help and assistance; Dee Brennan for pottery spot dates, Astrid Castledine and Catherine J. Griffiths (Lampeter University of Wales, Lampeter) for the environmental report, Lorrain Higbee for the bone report, Paul Courtney for the ceramic report, Phil Parkes *(et al.),* of Cardiff University Conservation Dept.; Brendan Coles (*et al.*) of Alun Griffiths Contractors Ltd.; Terry and Heather James.

7.0 ARCHIVE DEPOSITION

The archive, indexed according to the National Monuments Record (NMR) material categories, will be deposited with the Sites and Monuments Record for Carmarthenshire, Ceredigion and Pembrokeshire, curated by Cambria Archaeology, Shire Hall, 8 Carmarthen Street, Llandeilo, Carmarthenshire. It contains the following:-

A.1. Copy of the final report
A.2. Interim report
A.4. Disk copy of report

B.1. Context record - paper

C.2. Site drawings

D.1. Catalogue of site photographs

E.1. Catalogue of boxed finds
E.3. Index to storage location of finds
E.14. Specialist correspondence and notes

G.1. Source documentation

H.3. Unpublished analyses

I.4. Final report - manuscript
I.4. Final report - typescript
I.4. Final report - disk
I.4. Proofs

L.1. Project research design/specification
L.4. General admin.

M.1. Non-archaeological correspondence

There is no material for classes **F, H, J, K** and **N.**

8.0 REFERENCES

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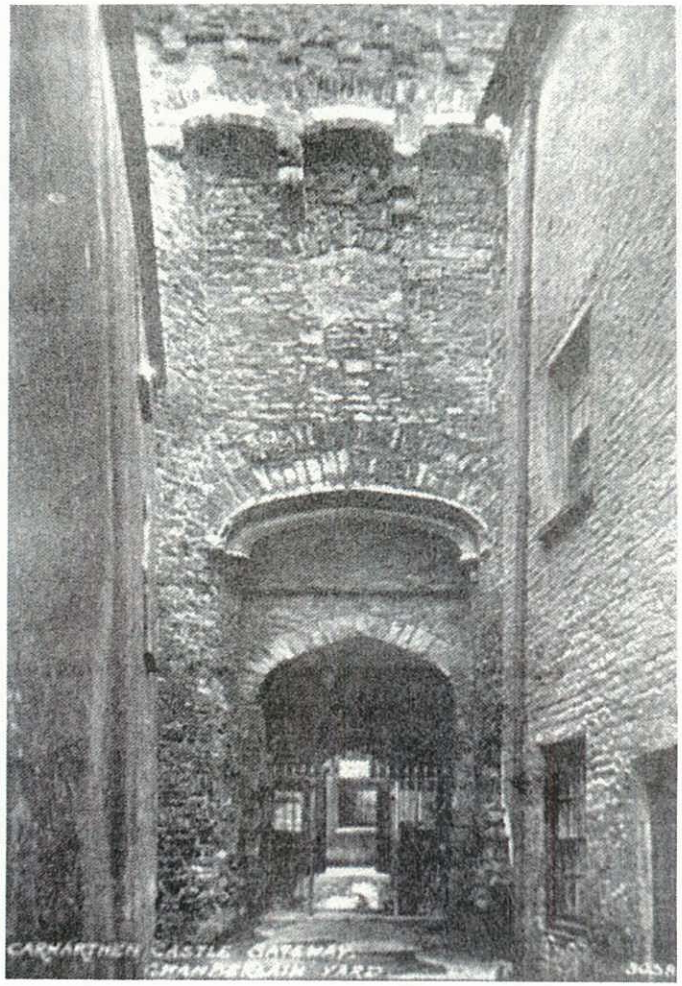


Plate 1: Photograph of Carmarthen Castle gatehouse from the west (early 20th century?).

Plate 2: Watercolour of Carmarthen Castle gatehouse from the west, by William Bagnall Ogilvie circa 1860.

Plate 3: Photograph of Nott Square showing Nos. 11, 12, 13, and No. 21 Bridge Street (c.1960s?)

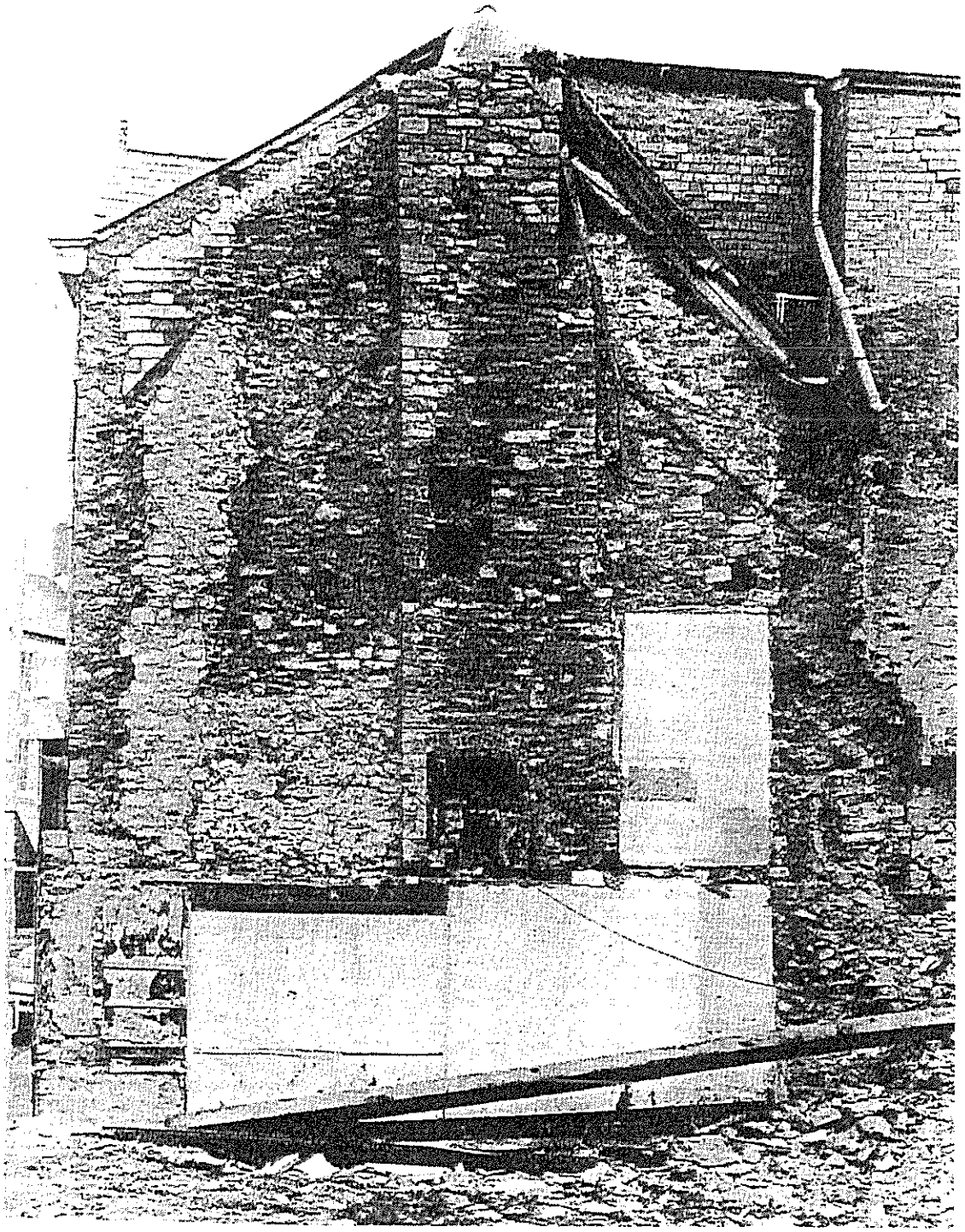
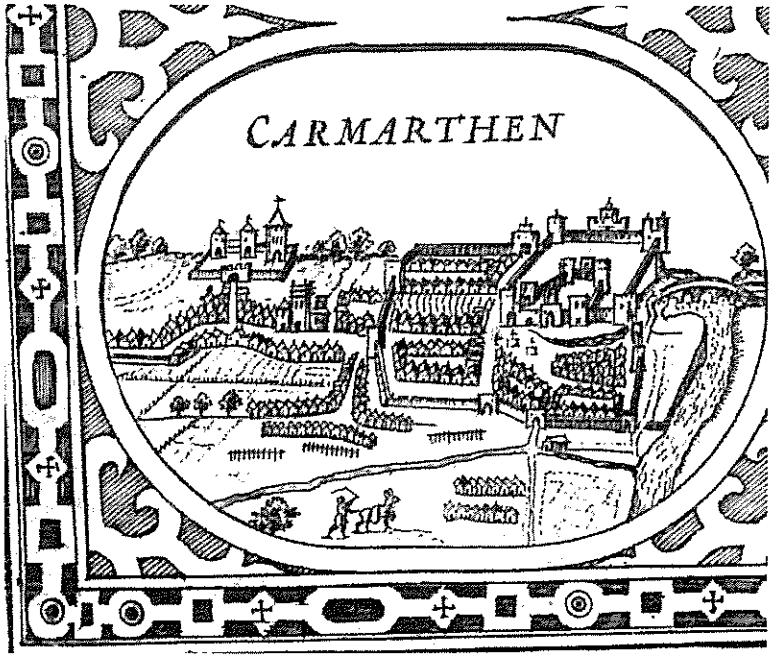
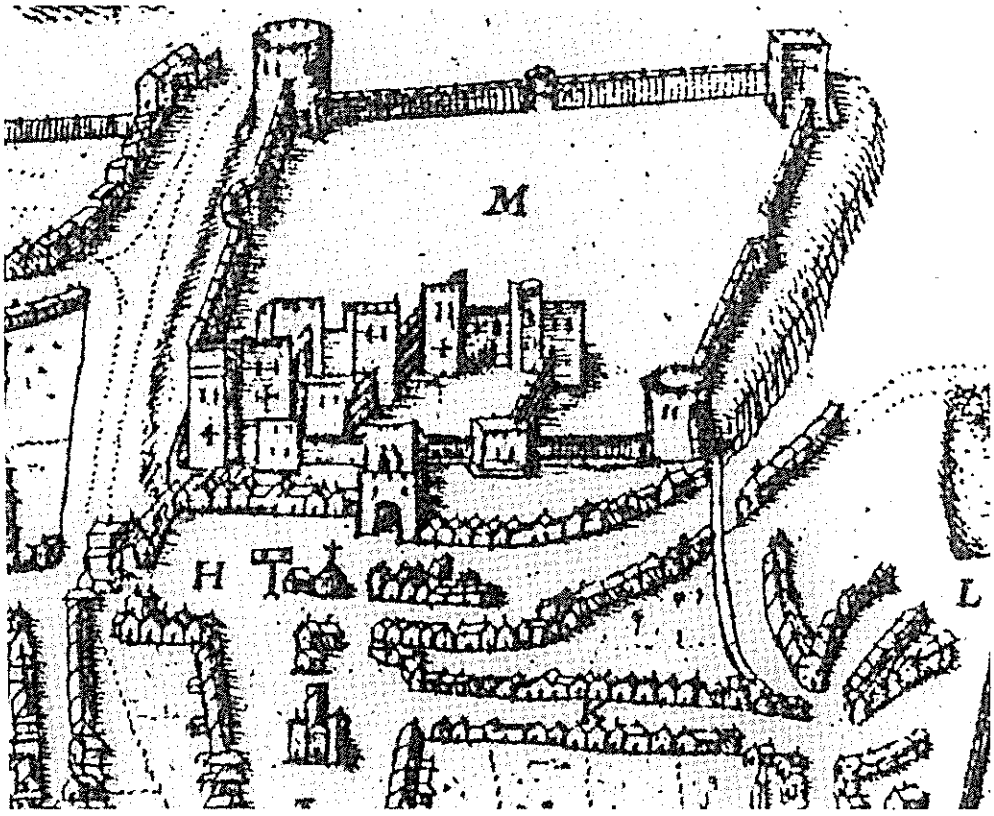


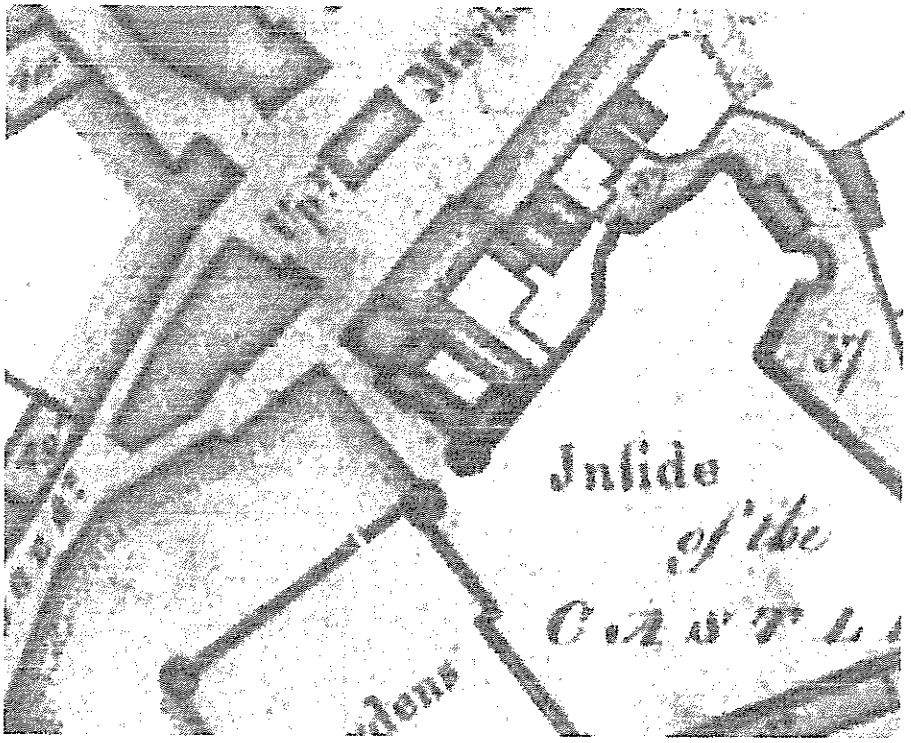
Plate 4: South facing wall of No. 13 Nott Square, showing scars of numerous building phases (1980).



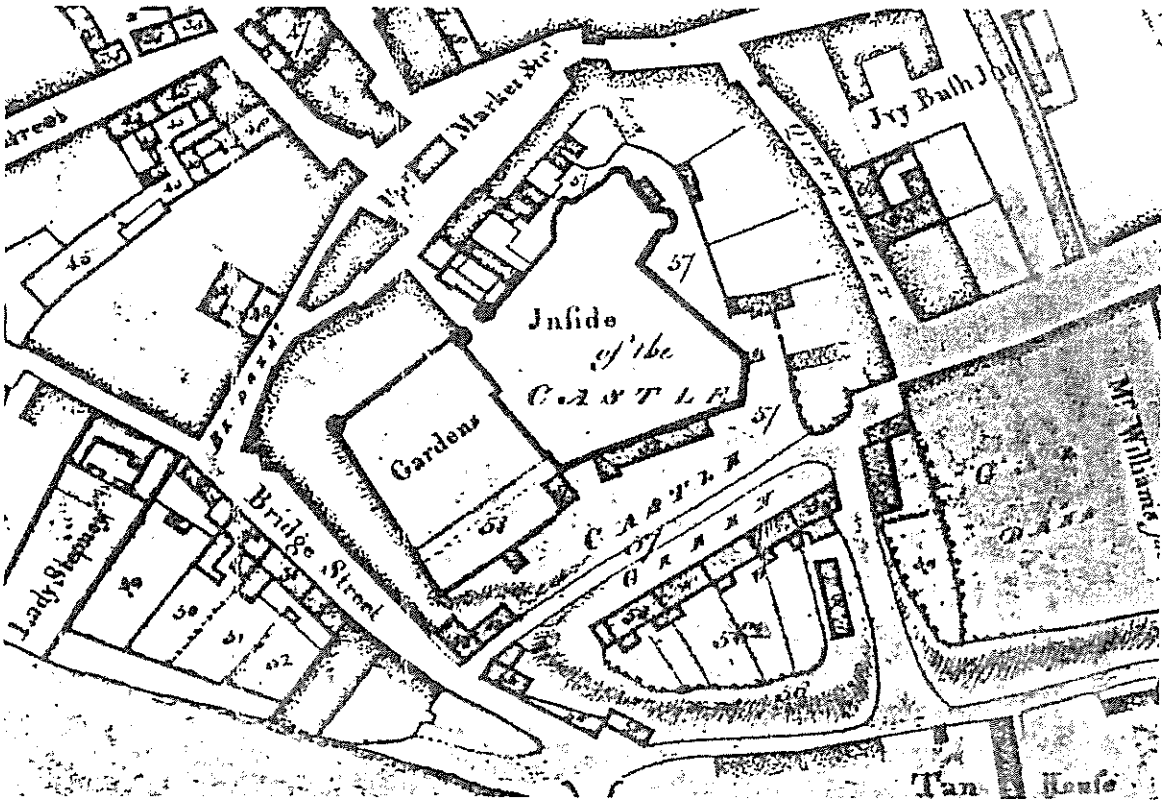
Map 1: Inset of Carmarthen by John Speed circa 1610
(note the absence of buildings or ditch in front of the gatehouse)



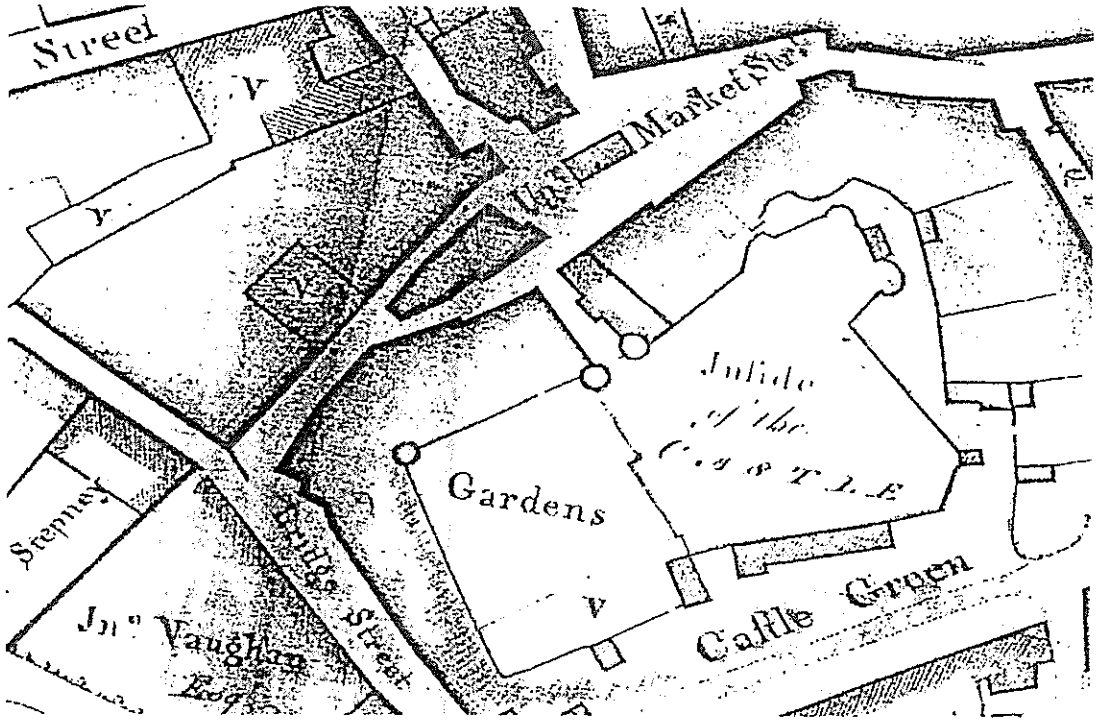
Map 2: Detail of Carmarthen Castle from map by John Speed circa 1610
(showing barbican and houses in front of the castle ditch)



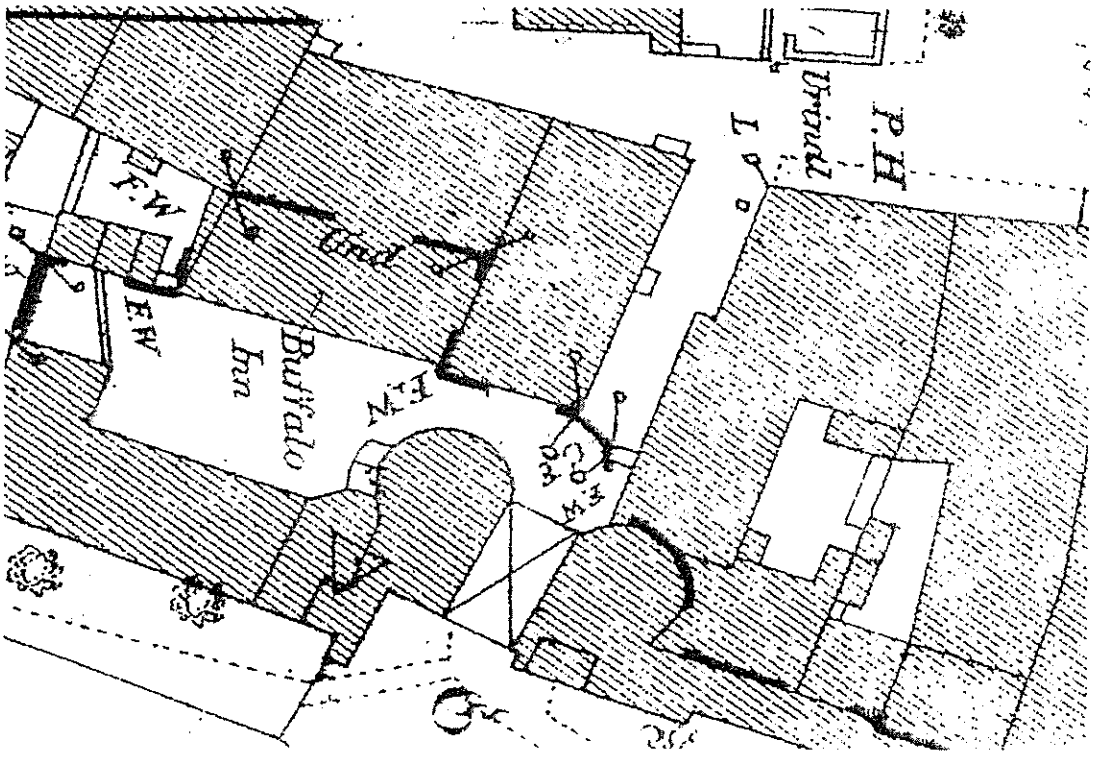
Map 3: Detail from map of Carmarthen of 1786 by Thomas Lewis. (version 1)



Map 4: Detail from map of Carmarthen of 1786 by Thomas Lewis. (version 2)



Map 5: Detail from map of Carmarthen of 1786 by Thomas Lewis. (version 3)



Map 6: Detail from Ordnance Survey 1:500 of 1895.

Photo 1: Area C. Showing floor 006,wall 007, 004 etc., looking south.

Photo 2: Area C. walls 007, 031, after removal of 006, looking east.

Photo 3: Area C. North facing section through rear of No. 21 Bridge St.

Photo 4: Area C. Row of slates 143 in layer 047 along south side of Causeway, looking south.

Photo 5: Area C. Walls 055 (to right) 055 (left) 056 (below) after removal of 007 and 031. Looking west.

Photo 6: Area C. Walls 057 (to left), 060 (right), and 061 (below) after removal of layers 025, 026, and 046. Looking east.

Photo 7: Area C. Top of 062, showing probable construction debris.

Photo 8: Area C. East facing section. Layer 026 in foreground.

Photo 9:
Area E. East end of causeway looking East. Showing walls 038,054,057, 037, 134, 136 (top left), 060 (top right) etc.

Photo 10:
Area C. Showing base of causeway wall 057 (left) with section through deposits 062, 064, 065, 074 (at top). Note red sandstone, possibly derived from 059, and angle of tip lines in fills.

Photo 11:
Area D. Facing north. Construction cut 124 after removal of Wall 122, showing earlier phase of wall (west wall of cellar 3).

Photo 12: Area D. Wall 052 (053 to left) looking south. Note drainage hole.

Photo 13: Area D. Surface 097, looking south. Wall 101 to right.

Photo 14: Area D. Looking west Showing wall 122 in foreground.

Photo 15: Area D. Wall 052 showing base of wall (051 to right) looking south.

Photo 16:
Area D. Looking east. Trench after removal of Ditch fills. Upper deposits 041.Step to left of scale is layer 043. Wall 052 to right, wall 051 bottom right.

Photo 17:
Area D. Looking east. Showing angle of ditch fills 045 that ran up to wall 052.

Photo 18:
Area D. Looking west, showing gravely ditch fills 045 and below base of walls 052 and 051.

Photo 19:
Area D. Looking east. Showing layer 043 to left With 044 In section below and mortar lense128 Above 045.

Photo 20:
Area D. Facing west. Showing wall 122 (fore), vestiges of cobble surface 098 after removal of 096 and slabs 097. soil layer is 100.

Photo 21:
Area D. Facing west. Wall 101 (fore) wall 102, steps 118, cobbles 117. wall 119 (back). All cutting surface 111.

Photo 22:
Area D. Facing east. Layer 111(under scale) truncated in foreground. Note steps 118 Associated with the Swan Inn phase.

Photo 23:
Area D. Facing south. Showing mortar spread 128 Running up to base of 051 and post holes 083. Layer below 128 is ditch fill 087

Photo 24:
Area D. Facing west. Wall 052 to left, 051 top left Pavement 120 and stakeholes 123 top right. Mortar spread 041to right. Layer 043 (first step).
Note mortar lense 128 running up to base of 051.

Photo 25:
Area E. Facing west. Wall 036 (to right), wall 037 (left), with construction cut 030 and fill 029 (beneath scale) and post hole 021(top left).

Photo 26:
Area B. Cellar 2, Facing north. Brick fireplace.

Photo 27:
Area A. Cellar 1.Facing east. Stillage 132. Cobbles 131.

Photo 28: Area D. Facing south. (east of wall 101). Showing surface 106 running up to wall 121 (at bottom of photo).

Photo 29: Area D. Facing south. (east of wall 101) Showing surface 107 running up to wall 121.

Photo 30: Area D. Facing south. (east of wall 101). Debris above Cobbles 108.

Photo 31: Area D. Facing south. (east of wall 101), showing cobbles 108 and stake holes 110 which run beneath wall 121.

Photo 32: Area D. Facing east. Section through occupation deposits 033 and 034 above 039. Scale is on 041.

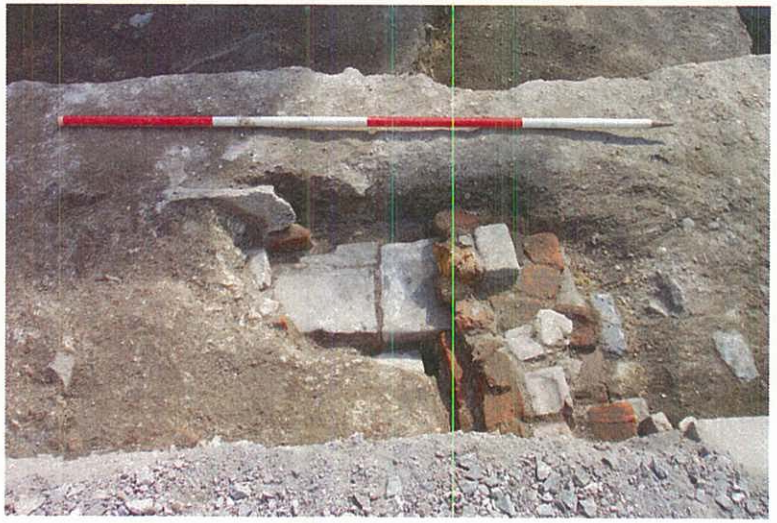


Photo 33: Area D. Facing south. Wall 019 (right) and partially revealed steps 118, cut into earlier surface 111.

Photo 34: Area D. Facing east. Occupation deposit 033.

Photo 35: Area D. Facing east. Occupation deposit 034.

Photo 36: Area D. Facing north, before removal of 095.

Photo 37: Area D. Facing north. Section through ditch deposits etc.

Photo 38: Area D. Facing west. Showing pavement 120 and layer 041.

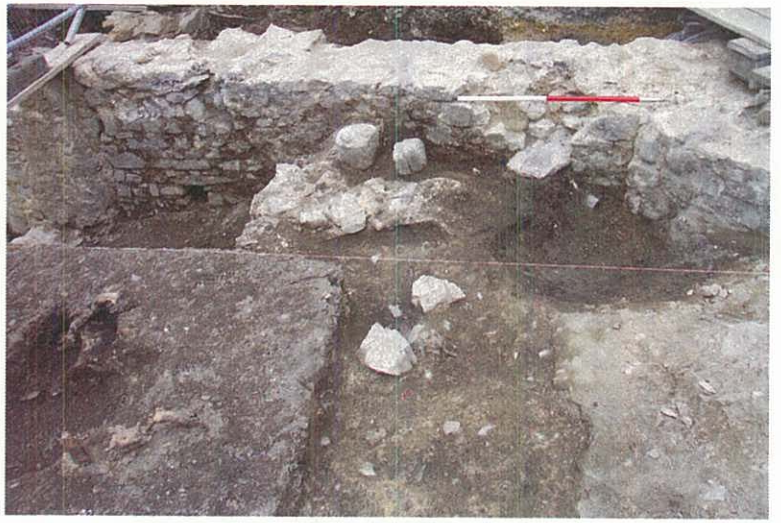


Photo 39: Area D. Facing south. Top of layer 042 (right).

Photo 40: Area D. Facing north. After removal of occupation deposits And showing upper ditch fill 041 in section, with 042 below.

Photo 41: Area D. Facing north. Showing stake holes 083 sealed beneath ditch fills 044 (mortar 041 to right).

Photo 42: Area A. Cellar 1, trial trench, Facing south, showing top bottom of wall 059(right) and pier 038 (left).

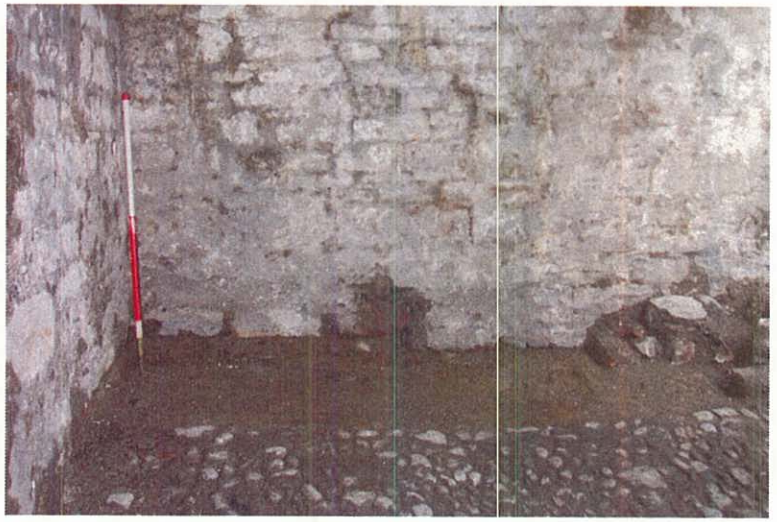


Photo 43: Area B. Cellar 2, facing east, showing cobbles 138 running up to demolished 'plinth' 142 (with remnants to right).

Photo 44:
Area E. East face of pier 038 showing vertical Slot for bridge/drawbridge timber, and square Timber slot to left which runs right through pier. Wall 057 in bottom left of shot.

Photo 45:
Area A. Cellar 1. Facing west. Stillage plinth 132 (with slot for timber). 036 (to left). 053 (behind).

Photo 46:
Area A, Cellar 1, facing south, showing pier 038 Incorporated into wall 036.

Photo 47: Area A. Cellar 1, facing west. Stillage 132 with timber slots.

Photo 48: Area E. Blocked up barrel chute 134 in south wall of cellar 1.

Photo 49: Cellar 3. Facing west, showing remarkably poor Construction of western cellar wall 121, the probable of stairs.

Photo 50: Cellar 1. bricks in floor at entrance to cellar 2. Note remains Of modern brick wall (top centre).

Photo. 51: Top of 067. Note angle of 038 and 059 in relation to 036.

Photo. 52: Top of 078/079.

Photo. 53: Top of 080 and 081

Photo. 54: Top of 086.

Photo. 55: Top of 088

Photo. 56: Bottom of 088.

Sequence of excavated deposits within test trench through floor of Cellar 1

9.0 APPENDICES

9.1 Appendix 1

The Ceramics from the Carmarthen Castle Excavations 2003
By Paul Courtney
(Revised 25/11/03)

FABRIC SERIES

An attempt was made to correlate the fabric series with that established by O'Mahoney (1994) for the Carmarthen Grey Friars excavations. Unfortunately this proved especially difficult for the local wares, sub-divided into 18 fabrics, without a type series of sherds available to hand. A simplified fabric series was therefore established more in keeping with the time and resource constraints of PPG16 archaeology.

Local Wares

LCP Local medieval cooking pots (O'Mahoney A2). Mostly oxidised unglazed sherd fabric with abundant rounded quartz (up to 0.5 mm) and sparse to abundant large siltstone inclusions (Dyfed gravel tempered ware). 7 sherds.

LGW Local Glazed wares (A3 and A4). Glazed jugs and internally glazed vessels in hard fabric (some individual sherds are unglazed) with moderate to abundant fine quartz inclusions (up to 0.5 mm) and occasional siltstone fragments. Mostly oxidised surfaces and reduced core. 47 sherds including 12 from 040 (late 18th century or later context).

The two above wares probably date the 13th and 14th centuries but could extend later. The small quantities as well as the small and worn nature of many sherds suggests they are all residual on the site. They are petrologically similar to other wares from SW Wales but are most likely dominated by local products.

LMW Local Late-Medieval wares (?A8-9 and 13-14)- Mostly thick-walled vessels though thinner walled vessels occur. They have sparse to abundant ill-sorted and coarse (up to 1mm) quartz temper and sparse to moderate siltstone inclusions. Usually entirely oxidised orange to red in colour, they sometimes with a reduced grey inner surface. Glazes are often thin and patchy, green to brown in colour or else a thick olive-green, pitted with brown centres to the pits.

Squat jugs and internally glazed vessels dominate. Specific recognisable forms include fish dishes, a skillet (065), storage vessels with applied thumbed collars to the neck (041 and 080), a bowl with applied prunts or rosettes on the rim, possibly copying Northern vessels (044) and a chafing dish (048), the latter a variant in a fine reduced fabric but with the classic pitted glaze. These wares are similar to those produced by the Newport (Pembs.) kiln though are likely to be mostly products of a local kiln. They also have broad parallels with the Orange wares of the West Midlands. They can be dated to the around the 15th century though exact dating is uncertain. It remains uncertain if production extended into the 16th century. 245 sherds.

Regional Wares

Medieval and Transitional
Ham Green jugs (O'Mahoney B5). Hand-made jugs in pale fabric with dull green glaze from Ham Green near Bristol. Late 12th to end of 13th century. 1 sherd.
Bristol Redcliffe jugs (B16). Wheel thrown jugs in light fabric similar to Ham Green with bright green glaze. Mid 13th-end of 15th centuries. 7 sherds.
Minety tripod pitchers (B2). Reduced hand-made, grey fabric with dull green glaze and calcareous inclusions or voids. Single sherd has characteristic combed decoration. Probably late 12th-13th century from Wiltshire. 1 sherd from 075.

Llanstephan jugs (B11). Wheel-thrown, thin-walled, glazed jugs with small voids from calcareous inclusions from Carmarthen Bay area, ?13-15th centuries. 1 sherd from 044.
Malvernian (B32). Hard red fabric with occasional Malvernian rock fragments, sparse often brownish glazes. Mostly unglazed jugs but also internally glazed bowls and glazed cups. The jugs may be as early as the late 14th century though Bristol and Gwent evidence points to the late15th-early 16th centuries as main periods of importation along the Severn (Good and Russett 1987, 37-8). 93 sherds.
North Devon med? (B6). An unglazed ?bowl or pancheon rim with coarse angular quartz temper from context 047 is probably a North Devon product. It does not fit into the normal post-medieval typologies and therefore is perhaps late medieval/transitional in date.1 sherd from 044
Misc. A. Pale-firing, partly reduced, glazed jugs in sandy fabric (?S. W. Wales Coal Measures), two sherds with siltstone temper. Thin yellowish glazes. Medieval. 4 sherds
Misc B. Fine pink fabric with a few red iron mineral inclusions and very fine quartz with ext. and internal glossy orange-yellow glaze, probably jars. ?16th century. This resembles PM fabric A from Usk in Gwent (Courtney 1994b, 57). Possibly a Somerset or other West Country product. 2 sherds, 025 and 044.
Tudor Green (B28). Green glazed white-ware from Surrey/Hampshire border, late 15th-16th century. 2 sherds probably from cup (047) and jug (065).
Cistercian (B36). Brown to black glazed redwares, sometimes reduced with green glaze on grey body. Dominated by globular cups with flared rims. Also of note: one sherd copying a straight sided Raeren-type mug neck, one similar rim sherd with angular carination below rim, one body sherd a from ridged cup (Brears 1971 type 13), one pedestal base (?? jug) and six sherds with applied white pads, one of which was stamped with simple radiating pattern. Late 15th-16th centuries. Source(s) uncertain. 217 sherds.

Post-medieval
Somerset Wares (O'Mahoney B37). Hard-fired dense fabric with very fine quartz inclusions, smooth surfaces. The fabric is partially or wholly oxidised with white slip being common. Glazes vary from even to patchy and are often an olive-green. External grooves are common. Mostly jars, also some jugs and mugs and a single pancheon from 046. The identification of Somerset wares to kiln site is an arcane practice except to a few specialists. However, the bulk of the Carmarthen wares probably derive from the Nether Stowey kilns in North Somerset on comparison with forms published from Bristol (Good and Russett 1987, 39-40; Good 1987). At Bristol, the main period from importation of Nether Stowey (and Wanstrow) products is the late 16th and 17th centuries. They appear to have been largely pushed out of the Severn trade by North Devon products which become more widespread after the mid 17th century. The dominance of Somerset and North Devon wares would argue against any significant local production in the late 16th-17th centuries at least. 123 sherds.

NDGT (B39). North Devon Gravel Tempered ware, glazed coarsewares. ?16th-19th centuries but main period of importation into S. Wales was 17th-early 18th centuries, especially after c.1650.125 sherds (37 sherds from 025 and 33 sherds from 026).
NDGF (B41). North Devon Gravel Free, variant of normal gravel-tempered ware used for jars and jugs.61 sherds (31 from 026)
ND Sgraf (B43). North Devon Sgrafitto wares, 16 sherds (6 from 026). Most common in the second half of the 17th century though examples, with a running S-shaped scroll, from sites of c.1625 onwards found in Virginia (B. Straube, Jamestown, pers. comm.).
ND Slip (B44). North Devon slip coated wares. All dishes, some may be from sgrafitto vessels. Late 17th-18th century. 15 sherds (5 from 025)
B/S YW (B58). Bristol/Staffordshire type yellow slipped wares, white fabric, mugs dated to c.1680-1760. 3 sherds.
B/S slipped bowl (B57). Bristol/Staffordshire-type press moulded dishes in white to buff fabric with slip decoration. c.1680-1760. 2 sherds.
B/S mottled (B59). Bristol/Staffordshire-type brown mottled wares, white to buff fabric, tankards. c.1680—1760. 7sherds
Blackware. (B55) Blackware drinking vessels with black glaze on red earthenware fabric. 17th-early 18th century. 3 sherds.
LRE (B46 and B56) Lead glazed red earthenwares, utilitarian wares, plain or with trailed slip decoration.?17th-?19th centuries. Possibly several sources including Glamorgan and Somerset.12 sherds.
TGE. Tin Glazed Earthenware, English, 1 sherd probably from blue-decorated dug jar, 17th- mid 18th century.

Industrial Wares

Creamware. Off-white glazed earthenware, c, 1740s-1800. 28 sherds.
Pearlware. Blue tinted whiteware, c.1770s-1830s. 30 sherds.
IYW. Industrial yellow-ware, yellow glazed white fabric. Early 19th century. 1 sherd.
DWW. Developed White ware: industrially produced whitewares, Early 19th century-present. 49 sherds
IBW. Industrial black earthenware, 19th century-?. 1 sherd.
SGSW. Saltglazed stoneware, 1720s-c.1800. 7 sherds.
ESW, English stoneware, mostly with brown wash or glaze. 18th - 19th centuries. 13 sherds.
English Porcelain. Late 18th-20th century, 4 sherds.

Imports

(see Hurst *et al* 1986 for type definitions)

Merida (O'Mahoney C5). Micaceous unglazed orange fabric. Forms include flasks, handled jars, lids and bowls, probably from Portugal.15th-16th centuries. 79 sherds
Saint. Green (C2). Saintonge green-glazed jugs, 13th-15th centuries. 19 sherds.
Saint. Poly (C2). Polychrome jugs, c.1250-1300. 3 sherds
Raeren (C11). Stoneware mugs with dark grey fabric and light grey to brown surfaces, mugs, c.1500-50. 9 sherds from 026, 039, 47, 106 and 115.
Cologne-type SW (C13). Stoneware in light grey fabric with light grey surface (patchy brown surface in parts but not mottled like later Frechen), from Cologne or possibly early Frechen (a town to which Cologne potters migrated c.1550), c.1500-50. 2 sherds from 026, from single mug neck with characteristic neck cordon.
Frechen SW (C12). Stoneware mugs in grey fabric with mottled brown surfaces from late Cologne potters or more likely Frechen. Late 16th-17th centuries. 5 sherds from 026, 040 and 046.
Beauvais SW (C15). Off-white stoneware with grey to brown surfaces from E. Normandy. Probably two mugs and a jug represented, 5 sherds from 047 and 115. c.1500-1550.
Beauvais Sgraf (C16). White-ware with red slip and sgrafitto decoration from E. Normandy, c.1500-50. One dish rim: 1 sherd from 07.
Beauvais Double Slip (C16). Whiteware with red and white slips, presumably from sgrafitto flatware vessel, c.1500-50: 1 sherd from 047.
Beauvais Green (C18). Bright green glazed white-ware mugs, c.1500-50. 6 sherds from 019, 025, 026, 046 and 099.
Beauvais Yellow (C17). Yellow-glazed white-ware mugs, c.1500-50. 3 sherds from 46 and 107.
MWW (N. French?) (C3). Miscellaneous whitewares, mostly green-glazed jugs, probably from various sources in Northern France, though English copies can be deceptively similar. 13th-16th centuries. Finds include a bowl fragment from 047 with a bright green interior. and ext. glaze an off-white micaceous fabric. Medieval-16th century. Two sherds from come from a polychrome jug of an identical type to a more complete example found at Langstone Court in Gwent and probably dating to the 16th century (Courtney 1994a, fig.3: no.8). A green-glazed applied prunt (026) parallels that on a 15th-16th century French drinking vessel from Haverfordwest Priory and on 14th century Beauvais cups illustrated by Cartier 2001, cat. Nos. 77 and 79. 24 sherds.
Saintonge post-medieval (C2) Two sherds come from a worn lobed cup (019) and polychrome decorated bowl (026), both of 16th century date.
Isabella Polychrome C9). Pink fabric with white Maiolica glaze and decoration in blue and purple, c.1500-50. Manufactured in Seville region, c.1450-1550 but most likely early 16th century in S. Wales. 8 sherds from 046, probably from single jug (Gutiérez 2000, 46-8: Seville blue and purple).
Seville Maiolica (C10). Sevillian Maiolica bowls with white glaze over pink fabric sometimes with traces of green glaze on back. Gutiérez (2000, 47) dates plain white forms to c.1480-1650 and half-dipped green and white to 15th century. 4 sherds from 026, 039, 046, 061, those from 026 and 046 with partial green glaze on ext. probably late 15th-early 16th century in Welsh context.
Montelupo (C26). Italian Maiolica dish or bowl with painted bright polychrome decoration, late 15th-mid 16th century, redefined as Italo-Netherlandish by Hurst 1991 as some produced by emigrant Italian potters. 1 sherd from 117.
N. Italian marbled ware. Red earthenware dish with polychrome marbled glaze on interior and glazed exterior. 17th-18th century product, probably from Pisa. 1 sherd from 026.

Italo-Netherlands Flower vase (C30). A single sherd from a blue-decorated flower vase. Probably a South Netherlandish product though similar ceramics produced in Italy from which potters emigrated to Low Countries, c.1500-75.
Martincamp I (C21). Sherds in unglazed off-white to pink hard, thin-walled earthenware from flasks. Late 15th-16th century. Produced probably in the Beauvaisis region of Normandy (Ickowicz 1993). 9 sherds from 018, 034, 039, 041, 044, 115
?French Redware (?C20). High fired fine-redware, hooked bowl rim, probably MWW in origin. Similar earthenwares were produced in Normandy for purely local use or might be an underfired (eastern) Normandy stoneware. Post-medieval. 1 sherd from 020.

Building Ceramics

LRT. Local glazed ridge tiles in fabrics similar to the medieval jugs (LGW) but sometimes with more siltstone inclusions. Simple cut crests. Presumably 13th century -?post-med. 101 sherds
Mal RT. Ridge tiles in Malvernian red fabric with sparse or no glaze. 15th-16th centuries. 8 sherds.
NDGT RT. North Devon Gravel Tempered green-glazed ridge tile. 16th-17th centuries. 3 sherds from 047.
Normandy FT. Normandy-type floor tiles, straight-sided floor tiles in buff to pink fabrics with worn green or yellow glazes. Early 16th century imports from Seine Valley region of Normandy. Their export from Normandy and Le Havre is documented (Lewis 1999, 10 and 73-4: Group 31). 5 sherds from 025, 026, 046 and 047.
LFT. Local Floor tile in reduced, siltstone-tempered fabric with no trace of glaze surviving. Straight sides. Uncertain date. 1 sherd from 041.

Discussion

The lower levels of the ditch fills were dominated by ceramics dating from the 15th to 16th centuries, or possibly as late as the Civil War period depending on the chronology of the Somerset wares. The dominant wares were local wares similar to the 15th century Newport kiln (245 sherds); late 16th –early 17th century Somerset wares (123 sherds); late 15th-16th century Cistercian wares (217 sherds), 15th-16th century Malvernian (93 sherds) and Merida ware (79 sherds) vessels. Two Tudor Green sherds possibly come from a cup and jug. There was also a scattering of Continental imports of the first half of the 16th century, a not uncommon feature in S. Welsh urban and high status assemblages of this period (e.g. O'Mahoney 1994 and Courtney 1994). Some of these could also come from privateering rather than trade. A small amount of residual medieval ceramics (Local, Ham Green, Bristol Redcliffe, Saintonge and North French) was also recovered, as well as 101 sherds of locally made ridge-tiles of ?medieval date. A small amount of Mavernian and North Devon ridge tiles were also recovered. A single sherd, which might be a medieval tile crest, was in a micaceous fabric typical of Herefordshire or Gwent.

Likely late 15th-early 16th century imports included Reaeren and Cologne-type mugs, Spanish Maiolica from Seville (an Isabela Polychrome jug and both plain white and white and green dishes or bowls), an Italo-Netherlandish Maiolica flower vase (1 sherd.); several Martincamp I flasks, Beauvais stoneware (probably at least 2 mugs and a jug); Beauvais single slip (1 sherd) and double slip sgrafitto (1 sherd), Beauvais green and yellow glazed earthenware mugs and post-medieval Saintonge notably a lobed cup and polychrome bowl. Later imports included Frechen stoneware, a redware bowl identified as either a Normandy earthenware or underfired stoneware, and a sherd from a North Italian (Pisan) marbled bowl. Five fragments of early 16th century Normandy-type green or yellow glazed tiles were also recovered

Unfortunately the bulk of the ceramics appear to be secondary deposits (i.e. they had been broken and initially dumped elsewhere) and highly mixed. They may even derive from a rubbish dump. Unfortunately this poses problems in trying to date the sequence of ditch infilling as only a small proportion of the pottery, if any, in the lower levels is likely to be contemporary with the backfilling. The assemblage adds to the poorly-sequenced material from Carmarthen Priory in providing one of the largest groups of pottery of this period in South Wales. However, what is badly needed is more groups of more or less contemporary ceramics so that the changing patterns of supply and usage from the 15th to early 17th centuries can be more accurately determined.

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Catalogue by Context

DV = Drinking vessel
FW = Flat ware
HW = Hollow ware
IGl = Internally glazed vessel

Below wall [031]

Fabric	*Sherd Count*	*Weight*	*Comments*
Cistercian	1	4 g.	Cup
Malvernian	1	24 g.	Jug
LRE	2	7 g.	HW-black gl.
NDGT	7	177 g.	Jars/bowls
ND sgraf.	1	11 g.	HW
ND slip	1	26 g.	Dish
NDGF	4	34 g.	HW/FW
Somerset	3	12 g.	?/Slipped DV
Saint. Green	1	1 g.	Jug
LMW	2	10 g.	Igl
DWW	3	5 g.	?
LRT	(1)	39 g.	
Red Tile	(1)		
Pipe stems	(2)		
Total	**26**		

19th century or later

Cut for [007]

ND sgraf	1	9 g.	Dish
Total	**1**		

Mid 17th century or later

Fill of [134]

DWW	7	25 g.	Transfer wares
Total	7		

19th century or later

Backfill of cellar 1

NDGT	1	3 g.	FW
I BW	1	15 g.	HW base
SGSW	2	8 g.	Bowl, ?
Pearlware	1	7 g.	Bowl- painted
DWW	1	3 g.	FW-transfer
Gr. Bottle gl	(1)		
Pipe stems	(9)		
Clay marble	(1)		
Bead	(1)		Imitation pearl
Total	**6**		

19th century or later

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[002]

B/S mottled	1	1 g.	Tankard
ND slip	2	18 g.	Jugs
NDGT	2	27 g.	FW
NDGF	2	19 g.	?jug
LRE	1	-	FW-slip trailed
Creamware	3	2g	?, handle
Eng. Porcelain	2	2 g.	?

DWW	1	1 g.	?
SGSW	1	1 g.	? cup
Modern tile	(1)		
Pipe stem	(1)		
Gr bottle gl.	(1)		
Total	**15**		

Mod. Tile of reconstituted rock- mock marble
LRE- slip- unsourced slip decoration on interior and ext
19th century or later

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[003]

NDGT	2	50 g.	
NDGF	1	4 g.	
Pearlware	15	106 g.	Dish
DWW	1	9 g.	Dish
B/S mottled	1	2 g.	Tankard
Pipe stem	(2)		
Total	**20**		

19th century or later

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[008]

NDGT	2	48 g.	Jar, FW
ESW	1	5 g.	Jar
DWW	1	12 g.	Teapot Lid, brown gl
Pipe stem	(1)		
Total	**4**		

ESW- trace of brown wash
19th century or later

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[009]

NDGT	7	98 g.	FW
DWW	1	4 g.	?bowl, mocha dec.
Red tile	(1)	13 g.	
Total	**8**		

19th century or later

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[012]

Pearlware	4	4 g.	FW/HW, banded & transfer
DWW	3	7 g.	HW
Green Glass	(1)		Bottle
Total	7		

19th century or later

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[016]

Cistercian	1	1 g.	Cup
NDGT	2	16 g.	Fw
ND Sgraf	1	5 g.	Dish
B/S slipdish	1	10 .	moulded dish
Total	5		

Late C17 or later

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[018]

Cistercian	5	11 g.	Cups
Malvernian	9	177	Bowls, Jugs, mug
Merida	5	58 g.	Jars
Martincamp I	2	6 g.	Flask
MWW	3	16 g	Jugs
Saint. Poly	1	2g	Jug
Italo-.Neths flower vase	1	2 g.	Flower-vase (blue decoration.)
Bristol Red.	1	26 g.	Jug
LMW	23	842 g.	Interior glaze, fish dishes
Somerset	2	8 g.	HW base
NDGF	1	18 g.	Small Jar
LRT	(13)	437 g.	
Mal RT	(1)	38 g.	
SGSW	1	26 g.	Plate
Pearlware	5	13 g.	Plate, bowl, ?jug
ESW	6	48 g.	
DWW	7	24 g.	Transfer ware
Green Bottle	(2)		
Pipe stem	(3)		
Total	**72**		

MWW includes polychrome sherd- possibly same vessel as [065], also Langstone Castle (Gwent). Cu green exterior and yellow interior.

DWW-transfer print suggests 19th century

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[019]

Cistercian.	1	11 g.	Cup
NDGT	1	48 g.	?Bowl, sooted
Saint. PM	1	9 g.	Base of lobed cup, worn
Beauv. Green	1	1 g.	?jug
Somerset	1	4 g.	Beaker-like rim. Slipped
Pipe stems	(3)		
Clay marble	(1)		
Total	**5**		

Cistercian has applied white pad with simple stamped design.

17th century or later

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[020]

?French redware	1	88g.	Hooked rim
Creamware	2	8 g.	Bowls, banded decoration.
Pearlware	3	6g	HW plain
DWW	12	27 g.	Transfer
ND slip	2	35 g.	Dishes
Green bottle	(3)		
Clay pipe stems	(6)		
Total	**19**		

DWW-transferware suggests 19th century or later date. Bottle base- cylindrical type –late C18 –early C19.

19th century or later

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[025]

Cistercian	2	8 g.	Cups

Malvernian	2	24 g.	Jugs
Merida	1	3 g.	HW
LGW	3	25 g.	Jugs, Interior glaze
LMW	10	65g	Jugs/interior gl.
Beauv. Green	1	8 g.	HW
Somerset	3	16 g.	HW
NDGT	37	847 g.	Assorted
Misc B	1	5 g.	Jar
NDGF	7	108	Jars
ND Sgraf	1	128 g.	Dish
ND Slip	5	19 g.	Dishes
LRE	2	11 g.	Dishes or bowls, app/ slip
Eng Porcelain	1	1 g..	? cup
B/Staffs YSlip	1	2 g.	?mug
B/S mottled	2	62 g.	Mug
Pearlware	2	1 g.	Green-edged pl
Normandy FT	(1)	110 g.	
Gr. bottle glass	(3)		
Red tile	(1)		
pipe stems	(2)		
Total	**81**		

Somerset- externally white slipped, no evidence of glaze. Misc. B – fine pink fabric with iron flecked yellow glaze on internal and exterior ?date and provenance. LRE- slipped pink fabric with interior lead glaze and concentrically trailed white slip. Possibly Glamorgan (e.g. Ewenny), ?Late C17-C19.
Pearlware suggests Late C18 or later

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[026]

Cistercian.	12	150 g.	Cups,?
Merida	1	6 g.	Jar
Malvernian	3	24 g.	?jug, appl. Band
Raeren	1	6 g.	Mugs (cyl. Neck)
Frechen	1	8 g.	Mug
Cologne	2	35 g	Jug neck
Beauv. Green	1	4 g.	Mug
Saint. Green	1	3 g.	Jug
Saintonge. Postmed	1	14 g.	Polychrome bowl
MWW	2	10 g.	Jug/?prunted DV
Seville Maiolica	1	2g.	Bowl, ext green gl
N. It. Marbled	1	11 g.	Dish
LMW	17	242 g.	Interior glazed/Panch/bowl
LGW	5	28 g.	
ND Sgraf	6	163	Dishes
ND Slip	2	64 g.	Dishes
NDGF	31	732 g.	Jars, bowls,
NDGT	33	1020 g.	Jugs, bowls, jars
Somerset	4	33 g. +	Jars
LRE	2	45g	Bowl, small hand.
Creamware	8	150 g.	Dish
Staffs. YSlip	1	3 g.	DV
Malvernian Tile	(3)	71 g.	
LRT	(1)	105 g.	

ND RT	(1)	48 g.	
Mic Med Tile	(1)	30 g.	Applied
Normandy FT	(2)	310 g.	
Pipe stems	(2)		
Green glass Beaker	(1)		
Total	**136**		

Cistercian- one sherd has white applied pad. Cistercian= one rim from ridged cup and second rim has single sharp ridge or carination below rim. Saintonge- polychrome decoration on interior, knife trimming on exterior, Hurst (1974, 230) suggests late C16-early c17 date. Misc Fr- applied roulette cf. Haverfordwest Priory probably C16 Mic med. Applied glazed pyramid from ?jug or roof furniture. Micaceous fabric suggests Old Red Sandstone source. **Creamware suggests 1740s or later** (4 sherds join- old break- to form large piece of plate).

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[034]

Cistercian	3	3 g.	Cups
Malvernian	1	-	Cup?
Martincamp I	1	15 g.	Flask
Somerset	1	-	Glazed HW
LMW	1	10 g.	Gl interior & ext
Mal RT	(1)	54 g.	
Total	7		

16th century or later

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[040]

Saint. Green	8	31 g.	Jugs
Saint. Poly	1	5 g	Jug
LRT	(11)	521 g.	1 crest
LGW	12	143 g.	Jugs
Brist. Red	1	2 g.	Jug
ESW	1	3 g.	HW
Frechen	1	4 g.	Mug
Lead glass	(1)		
Total	**24**		

Saint. Green- 3 sherds with no glaze. Also 3 sherds with vertical applied strips.

18th century or later- redeposited C13-C14 wares dominate, no obvious C15-C16 material.

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[039]

Cistercian	11	80 g.	Cups
Somerset	7	98 g.	HW/FW
Merida	3	22 g.	HW, sm. handle
Malvernian	5	137 g.	Jars, ?
LMW	9	224 g.	Jugs, Interior gl
LMW (Fish-dishes)	2	1328 g.	2 rims, nb handle
LGW	6	46 g.	Jugs Igl
Martincamp I	1	2 g.	Flask
Raeren	1	3 g.	Mug
Seville Maiolica	1	12 g.	Bowl
MWW	1	13 g.	?cup handle
Misc A	1	49 g.	Jug, pale fabric
LRT	(3)	325 g.	
Total	**48**		

Somerset- thin jug sherd with interior and ext white slip below glaze. ? Donyatt Somerset-note pierced ?handle or spout. Malvernian. Jar with thumbed neck ring

Late 16th century or later

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[041]

Cistercian	16	122 g.	Cups
Merida	7	319 g.	Jars/Lid
Malvernian	9	337 g.	Bowls/Jugs
Martincamp I	1	75 g.	Flask
Saint. Green	1	1 g.	Jug
NDGT	1	35 g.	IIGl FW
LMW	16	592 g.	Jugs/Ig
LMW (fishdishes)	4	715 g.	
Somerset	2	44g.	
LMW (coarse)	1	200 g.	Stor. Vessel
LGW	3	28 g.	Jugs/Igl
LCP	1	10g	
LRT	(9)	530 g.	
LFT	(1)	209g	No gl
Red tile/brick	(2)		
Clay pipe	(1)		

LFT- coarse siltstone temper. No glaze survives. Coarse siltstone temper, crude and heavy cons, thumbed applied band on rim/body junction, inturned rim.

Clay pipe suggests 17th century or later

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[043]

Cistercian	45	234 g.	Glob cups
Merida	3	31 g.	Flask, hw
Malvernian	3	249 g.	Jugs
LGW	4	13 g.	Jugs
LCP	1	10 g.	Cp
LMW	18	362 g.	Jugs, Igl
Red Tile	(8)	75 g.	
LRT	(1)	106 g.	
Misc A	1	24 g.	Foot of tri. P.
Total	**75**		

Cistercian-one with white applied pad. Cistercian- one with pedestal-type base- ?chafing dish. Misc. siltstone. Dyfed gravel tempered ware with splashes of glaze on buff surface, with grey core and dark grey interior surface. Worn foot from tripod pitcher

16th century or later

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[044]

Cistercian	22	230 g.	Glob cups.
Merida	**2**	11 g.	**Jar, hw**
Martincamp I	4	25	Flask
Malvernian	6	125 g	Jugs/bowl/ cup (2 sherds)
Somerset	17	339 g.	HW slipped
Misc B	1	10 g.	Jar, pink fabric
LMW	21	677 g.	Jugs/bowl
LMW (Fish Dishes)	5	430g	
Misc red tile/brick	(5)	121 g.	
Llanstephan	1	6 g.	Jug, reduced
Total	**79**		

Cistercian- 3 sherds with applied white spots. LMW, Newport–type ware with decorative lozenges on outfolded rim.

Late 16th century or later

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[045]

Ham Green	1	8 g.	Jug
Bristol Red.	1	5 g.	Jug
Saint. poly	1	1g.	Jug?
Saint. Green	1	3 g.	Jug
Malvernian	2	39 g.	Igl
NDGT	1	14 g.	FW
LCP	2	33 g.	c.pots
LGW	1	6 g.	Jug
Total	**10**		

LGW jug – combed decoration and possible external. slip. LCP- sooting on body sherd
16th century of later

[046]

Cistercian	10	54 g.	Cups
Merida	6	136 g.	Flask, costrel
Malvernian	2	30 g.	Jugs
Beauv. Yellow	2	4 g.	Mug
Beauv. Green	2	8 g.	Mug hand.
Columba Pl	1	8 g.	Bowl/dish
Frechen	3	62 g.	Jugs
Saint. Green	1		Jug
LMW	9	122 g.	Interior. gl, Chdish
NDGT	2	11 g.	Interior gl.
Somerset	19	330 g.	Pancheon, jars, small handle
Mal RT	(4)	155 g.	
LRT	(8)	419 g.	
Normandy FT	(1)	279 g.	
Total	**41**		

Seville Maiolica - pink, white glaze on interior and green glaze runs on ext.
LMW: 2 sherds. (one pierced) probably from reduced chafing dish. Bowl/pancheon rim with splash of whiteslip, reminiscent of Haverfordwest wares. Frechen suggests 17th century or later- **includes misfired sherd probably from bellamine-type jug**

[047]

Cistercian	35	148 g.	Glob cups
Raeren	5	91 g.	Mugs
North Devon med	1		rim
Beauvais SW	3	16 g.	Mugs
Merida	35	275 g.	Flasks, bowls,
Saint.. Green	1	3g	Jug
MWW	7	26 g.	Jugs/DVs
MWW?	1	14 g.	Bowl
T. Green	1	4 g.	?cup
Beau. Double. Slip	1	3 g.	FW
Isabella Poly	8	41 g.	Jar, ?
Malvernian	25	457 g.	Jugs, Costrel, Igl
Somerset	39	404 g.	HW
LMW	52	1066 g	Interior gl, jugs

NDGT	2	104 g.	Interior gl. Jar/Fdish
Misc A	2	27 g.	Jugs, pale fabric
Bristol Red	1	10 g.	Jug
LCP	3	16 g.	Cpots
LGW	8	28 g.	Jugs/Igl
Mal.RT	(1)	39 g.	
Normandy FT	(1)	204 g.	
LRT	(31)	1368 g.	
NDGT RT	(3)	380 g	
Red tile/brick	(1)	15 g.	
Total	**230**		

LRT- one piece made into disc, 6-6.5 cms diameter. LMW- note fragment of chafing dish with pierced hole- same vessel as context. Also handle from possible second chafing dish in fine reduced fabric. Malvernian- couple of sherds interior glaze with calcium deposits.

Late 16th century or later

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[048]

Cistercian	9	61 g.	Cups
Merida	4	103 g.	Lid, bowl, HW
Malvernian	4	69 g.	Jar & ?
LMW	13	294 g.	Jugs, IGl, ChD
Seville Maiolica	1	6 g.	?bowl
MWW	2	6 g.	Jugs
Creamware	1	9 g.	?jug rim
LGW	1	19 g.	IGl
LRT	(1)	28 g.	
Total	**35**		

LMW- note chafing dish in reduced fabric same vessel as [047] and [046] (main vessel)

Creamware suggests 18th century date or later.

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[062]

Cistercian	1	1g	Cup
LCP	1	13 g.	Rim
LMW	2	7 g.	IGl, small hand
Malvernian	2	25 g.	?jug/& FW
Mal RT	(1)	46 g.	
LRT	(3)	30 g.	Crest
Total	**6**		

16th century or later

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[064]

Cistercian	5	25	Cups
LMW	4	168 g.	Jug/Igl
Merida	1	21 g.	? jar base
Malvernian	2	67 g.	Jugs
Raeren	1	11 g.	Mug handle.
Bristol Red	2	5 g.	Jugs
Total	**15**		

16th century or later

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[065]

Cistercian	5	38 g.	Cup/?costrel
LMW	11	335 g.	Jugs, Igl, skillet

Merida	3	5 g.	HW
Tudor Green	1	6 g.	DV rim
LMW (Fish-dish)	1	203 g.	
Somerset	7	30 g.	HW, /cup, ?jars
MWW	3	51 g.	Jugs
LRT	(13)	375 g.	Crest
Pierced slate	(1)		
Total	**31**		

N.Fr- note rim of ? mug cu glazed interior and ext. over off white fabric.
Misc Fr- one sherd identical to Llangstone polychrome with stamp- also 2nd sherd in [018] LMW (Newport-type) note skillet handle
Late 16th century or later

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[066]

Somerset	1	4 g.	DV, slipped
LRE	3	33 g.	Jar/bowl
ESW	2	67 g.	Jars
Eng. Porcelain	1	-	Gilt decoration.
NDGT	1	4 g.	
DWW	9	206 g.	Red & blue transfer, banded
Modern tile			
19th cent-Modern glass			
Modern. plastics			
Total	**17**		

20th century

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[067]

Cistercian	9	42 g.	Cups
Merida	1	5 g.	Hw
LMW	12	174 g.	Interior. Gl
Somerset	1	12 g	?jug/jar
Malvernian	1	8 g.	Interior gl.
Saint.. Green	4	63 g.	Jugs
MWW	1	6 g.	DV
LRT	(2)	68 g.	
Clay pipe stem	(1)		
Total	**29**		

Saintonge- poor glazes ? late med.
Newport-type interior glazed vessel with Horizontal strap handle at rim 9g.
Clay pipe stem suggests 17th century or later

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[075]

Cistercian	2	45 g.	Cup
Malvernian	1	17 g.	?Jug base
Minety	1	23 g.	?tripod pitcher
Creamware	1	1 g.	HW

Cistercian- most of upper profile plus 1 handle, flared cup
Minety- combed decoration.
Mid C18 or later

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[076]

Cistercian	1	1 g.	Cup
ND Sgraf	1	1 g.	Dish
Malvernian	3	66 g.	Jugs

Somerset	1	27 g.	Jar or jug, slipped

Mid C17 or later
Somerset- sherd join with context 077

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[077]

Cistercian	2	45 g.	Cups
Somerset	6	154 g.	? jugs/Igl
Saint. Green	1	11 g.	Jug rim

Somerset- jugs slip coated, faint trace of glaze. Cross join with [076]
Cistercian- one sherd copy of Raeren. Saint- part of parrot rim- mottled green glaze.
Hornstone present
Late 16th century or later

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[079]

LMW	1	320g	Jug

Large portion of late-medieval squat jug with rod handle
Late medieval or later

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[080]

LMW	2	142 g	Jar, Igl
Malvernian	1	11 g	

LMW- interior gl. jar with horizontal thumbed band below rim
Late medieval or later

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[084]

LMW	4	239 g.	Igl

Late Medieval or later

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[085]

LGW	3	79 g.	Jugs
MWW	1	6 g.	Handle small
Cistercian	1	6 g.	Cup hand.
Merida	1	5 g.	?
Brick	1	51 g.	

16th century or later

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[088]

Brick	3	296 g.	

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[092]

NDGT	3	11 g.	FW
NDGF	1	19 g.	Jar, ?
ND Sgraf	1	9 g.	Dish
Somerset	2	32 g.	Jar, ? applied
Pipe stems	(4)		
Total	7		

Mid 17th" century or later

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[094]

NDGT	11	623 g.	Handle, IGl, fish-dish
NDGF	8	180 g.	Jars
Somerset	1	3 g.	Jar, slip decoration
Blackware	1	3 g	Tankard
DWW	1	12 g.	?jug,

Cu alloy coin 1697			
Total	**22**		

Somerset- white applied spot on exterior. DWW- brown transfer print.
Coin ½ d of William III dated 1697.
19th century or later

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[095]

Creamware	1	5 g.	Sm. Handle
DWW	1	5 g.	Blue –edged pl.
Pipe stems	(35)		Some glazed
Total	**2**		

19th century or later

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[099]

Cistercian	3	28 g.	Cups
Somerset	3	29 g.	HW/FW
LMW	2	70 g.	Igl
Beauv Green	1	-	Mug?
MWW	3	-	Moulded dec
NDGT	2	47 g.	Bowl/?dish/handle
SGSW	3	3 g.	Tankard/ plate
ESW	2	1 g.	DV
B/S slipped dish	1	6 g.	Moulded dish
LRE	2	6 g.	FW- slip dec.
Creamware	2	3 g.	Plates
Pearlware	1	1 g.	Small handle
Bottle glass	(36)		Green
Pipe stem	(3)		
Red brick	(1)	56 g.	
Total	**25**		

Bottle glass includes–late 18th-early 19th century French- 2 tiny fragments including rim with exterior and interior green glaze and moulded exterior decoration. One piece of appliqué (moulded) in micaceous white fabric and green glaze ?C16.
Late 18th century or later

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[096]

Creamware	7	31 g.	Jug
Pipe stems	(9)		
Total	7		

18th century or later

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[100]

Pearlware	2	14 g.	Blue edged plate
Creamware	2	2 g.	?
IYW	1	9 g.	Lid- encrusted surface
DWW	1	1 g	?
Pipe stems	(5)		
Total	**6**		

Industrial Yellow ware- blue band and gritted textured surface- lid of teapot
19th century or later

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[105]

Cistercian	3	13 g.	Cups
Malvernian	4	43g.	Jugs
Merida	1	9 g.	?jar or flask

LMW	1	13 g.	Jug
ND Sgraf.	3	110g	Dishes
NDGF	4	374 g.	Jars
NDGT	4	112 g.	Bowls or jars
ND Slip	2	8 g.	dishes
B/S Mottled	3	6 g.	Tankard
Somerset	4	115 g.	Jug, ?skillet
Clay pipe stems	(5)		
Total	**27**		

Somerset- twisted handle (unglazed, traces of white slip) and ?skillet handle with sooting.
Mottled ware suggests Late C17 (post 1680) or early C18.

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[106]

Cistercian	1	1 g.	Cup
LMW	2	16g g.	Jug
Raeren	1	22 g.	Mug
Merida	1	5 g.	?
Malvernian	2	53 g.	Jugs
TGE	1	4 g.	?drug jar blue dec.
Somerset	3	60 g.	Gl-jug/jars
NDGT	4	66 g.	Bowls?
ND Slip	1	3 g.	Small jar
Creamware	1	65 g	Oval dish
LRT	1	84 g.	
B/S YSlip	2	5 g.	Cup/mug
ESW	1	5 g.	Base of ?mug
Total	**21**		

Creamware and brown stoneware suggests C18 date or later

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[107]

Cistercian	5	60 g.	Cups
Malvernian	2	74 g.	Jugs
Merida	3	15 g.	Jars
Beauv. Sgraf	1	5 g.	Bowl rim
Beauv. Yellow	1	2 g.	Mug
Montelupo	1	5 g.	Bowl
Somerset	2	9 g.	HW ?jars
LMW	1	7 g.	IGl
Total	**16**		

16th century or later

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[113]

Cistercian	1	2 g.	Cup
Merida	1	1 g.	?
LGW	1	1g	IGl or jug?
LMW (Fishdish)	1	252 g.	
LRT	(2)	14g	
Mal RT	(1)	16 g.	
Total	**4**		

16th century or later

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[114]

Cistercian	3	2 g.	Cups
Blackware	2	21 g.	DV-slip dec
LMW	3	43 g.	Jugs
Pipe stem	(1)		

Total	**8**		

17th century or later

[115]

LMW	5	239 g.	IGl
Malvernian	3	13 g.	FW/HW
Somerset	3	19 g.	HW
Cistercian	1	4 g.	Reduced, ?cup
Martincamp I	1	3 g.	flask
Beauvais SW	2	51 g.	Mug, jug
Raeren	1	6 g.	mug
Total	**16**		

Somerset includes white slipped rim from jar or jug. Beauvais stoneware probable jug sherd and handle and upper body of mug.

16th century or later

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[116]

LRT	1	63 g.	App. crest, stabbed
ND Sgraf	1	24 g.	Dish
NDGF	2	22 g.	Igl
Total	**4**		

LRT- horn-like stabbed crest

Mid 17th century or later

9.2 Appendix II

An Assessment of the Plant Remains from Carmarthen Castle

Catherine J. Griffiths and Astrid E. Caseldine

The aim of this investigation was to assess the potential of samples taken by Cambria Archaeology from contexts associated with a dark grey silt deposit, assumed to be of medieval date, from Carmarthen Castle defensive ditch for environmental analysis. The samples were examined primarily for plant macrofossils but the presence of other biota was also noted.

The samples examined were as follows:
[078] - plant macrofossils
[079] - plant macrofossils
[079] - wood identification
[079] - possible coprolite
[080] - wood identification
[080] - organic material
[081] - wood identification

Methods

A one litre subsample was examined from sample 079 and a 250 ml sample was examined from 078. The two samples were sieved using the wash-over method and scanned using a Wild M5 stereo microscope. The wood was identified using a Leica Laborlux microscope. The possible coprolite was examined for parasite ova using a water mounted slide.

Results

Plant macrofossil analysis

Both the samples were rich in plant remains, mainly waterlogged. Sample 079, the larger sample examined, contained a range of seeds as well as vegetative material. The seeds included *Picris* sp. (oxtongue), *Ranunculus repens* type (buttercup), *Chrysanthemum segetum* (corn marigold), *Fragaria/Potentilla* (strawberry/cinquefoil), *Lapsana communis* (nipplewort), *Carex* sp. (sedges), *Rubus fruticosus* (blackberry), *Rumex* spp. (docks), *Urtica dioica* (nettle), *Corylus avellana* (hazelnut) fragments, *Agrostemma githago* (corn cockle) fragments. One charred seed was observed, a legume of *Vicia/Lathyrus* (vetch/pea) size. The vegetative material consisted of monocotyledon (grass/rushes) stem remains, *Calluna vulgaris* (heather) stem and shoot material, *Ulex europaea* (gorse) spines and moss fragments. Sample 078 contained a very similar assemblage. Bone fragments were also observed in 079 but no fish or small mammal bones. Both samples contained only small amounts of insect remains, including fly pupae and fragments of beetle. Sample 080, which was described as organic material, consisted purely of monocotyledon (grass/rush) stems.

Wood identification

Wood was identified from 3 samples. Sample [079] included oak (*Quercus* sp.), hazel (*Corylus avellana*) and willow/poplar (*Salix/Populus*) while sample [080] also included oak and hazel. Oak was also identified from sample [081] and some of the wood in this sample appeared to be charred.

Possible coprolite

The sample was examined for parasite ova using a water mounted slide. No parasite ova were observed, but pollen grains were present.

Conclusions and recommendations

The deposits are rich in waterlogged plant remains but charred remains are scarce. There is no evidence of any mineralised material which would suggest a cess deposit. The nature and content of the material is indicative of waste material. The remains potentially provide evidence for the environmental conditions and activities taking place in and around Carmarthen Castle during the medieval period and it is recommended that further work should be undertaken and a report prepared. It is recommended that detailed analysis of sample [079] should be completed. Sample [078] appears to contain a similar assemblage and it seems unlikely that processing further material to bring it up to the same size of sample as [079] would yield much more new information, but it is recommended that analysis of the sample already started should be completed. It is also recommended that further examination of the 'possible coprolite' from [079] and the 'organic material' from [080] should take place. Only a small amount of wood has been identified and it is recommended that the sample size examined should be increased.

Recommendations for future excavations

If waterlogged deposits are found during any future excavations it is recommended that they are sampled and at least an assessment undertaken to determine if they contain a different or similar range of material to that examined on this occasion. For example, it is possible that other contexts might represent cess material and/or be rich in fish bones or insect remains. Equally, the plant macrofossil assemblage could also contain a different range of material and provide additional information.

9.3 Appendix III

ANIMAL BONE FROM EXCAVATIONS AT CARMARTHEN CASTLE 2003.

L. Higbee

Introduction

A small assemblage of animal bone was recovered from the site during the normal course of hand-excavation the total quantity is 469 fragments. The material dates from the 15th century through to the 19th century although the largest stratified collection is from 18th century ditch deposits.

The overall small size of the assemblage precludes any comparison between chronological periods thus the main aim of this report is to characterise the assemblages from each main period with detailed discussion restricted to the relatively large 18th century sample.

Methods

Analysis of the assemblage was carried out following Davis (1992). In brief a selective suite of mammalian skeletal elements were recorded as standard and used in counts, these will be referred to through the report as POSAC's. In addition to the POSAC's selected by Davis the following elements were also counted: horncores with a complete transverse section, the occipital part of the cranium, and the navicula-cuboid. Any non-countable elements from less common species or elements displaying butchery marks or pathological changes were also recorded but not used in counts. Numbers of vertebrae (centra) and ribs (articular ends) were also recorded to species where possible or to general size category (e.g. cattle-size or sheep-sized) this information was collected in order to assess the representation of this part of the body and record epiphyseal fusion information for vertebrae. Bones were only recorded if at least 50% of a given part was present and Dobney and Reilly's (1988) zonal recording method was incorporated for this purpose. Single condyles of cattle, caprine and cervid metapodials were counted as halves, as were the central pig metapodials.

The recording of avian bones was limited to bones from the wing and leg but these were only recorded if they retained one complete articular surface. Avian bones were also recorded using a zonal method following Cohen and Serjeantson (1996).

The above methods of quantification reduce the over-recording of fragmented material to give a truer indication of species proportions. The number of specimens identified to species (or NISP) was calculated for all taxa but the minimum numbers of individuals (or MNI) were only calculated for the most common taxa (i.e. cattle and sheep/goat). The MNI was calculated by simply dividing the total number of fragments of each skeletal element by the number present in the body.

Most, but not all, caprine (sheep and goat) bones are difficult to identify to species however, using the criteria of Boessneck (1969) and Payne (1985) it was possible to identify a selective suite of elements as sheep or goat from the assemblage. Of the small number of caprine bones that could be identified to species, all were sheep and it is therefore assumed that most caprine bones belong to sheep.

The Gallus/Numida/Phasianus group of closely related galliformes are also difficult to distinguish (see MacDonald, 1992) however, no guinea fowl or pheasant bones were positively identified, and it is therefore assumed that all fowl-like bones belong to chicken.

Preservation was recorded using a modified version of Behrensmeyer's (1978) weathering stages that is each POSAC was graded on a scale of 1 to 5 with 1 representing excellent preservation and 5 representing poor preservation.

Information on gnawing, butchery and pathology was recorded where present. Butchery was recorded by type (i.e. chop, knife cut, sawn), position and orientation (using standard anatomical terms and orientation). Pathological conditions were categorised were possible and detailed descriptions made as to form and location.

The ageing data of Silver (1969) was used to assess epiphyseal fusion of the post-cranial skeleton and fusion categories follow O'Connor (1989). Epiphysis are recorded as 'fused' when the epiphyseal plate joining epiphysis to metaphysis is closed, 'fusing' once spicules of bone have formed across the epiphyseal plate and 'unfused' if none of these changes had taken place. Bird bones with 'spongy' ends were recorded as 'juvenile'. Tooth wear and mandible wear stages were recorded following Payne (1973 and 1987) for sheep/goat, and Grant (1982) and O'Connor (1989) for cattle and pigs.

Sexing using morphological characteristics was only undertaken for pig canines and their alveoli. Boar canines can be differentiated from sow canines on the bases of their size, shape and root morphology (Schmid, 1972: 80-81).

In general measurements follow Von den Driesch (1976) with the following exceptions: measurements taken on the humerus and, cattle and caprine metapodials follow Davis (1992); shaft diameter (or SD) on caprine tibiae was taken in the anterior-posterior plane; measurements of horncores are the largest (Wmax) and smallest (Wmin) diameters at the base; measurements on pig teeth follow Payne and Bull (1988); width measurements of cattle and caprine teeth were taken across both cusps; and measurement of equid cheek teeth follow Davis (1987). Withers height calculations for cattle and sheep bones use the conversion factors of Matolcsi and Teichert respectively (see Von den Driesch and Boessneck 1974). Individual measurements are presented in the appendix (archive only) but detailed analysis of this information is limited by small sample size.

Results

Preservation and recovery

The factors affecting bone preservation and fragmentation are many and varied (Binford 1981; Lyman 1994) any single assemblage will have been subjected to a combination of these processes and it can be difficult to disentangle the individual effects and interpret the results. Preservation state was recorded for each bone fragment using the categories outlined above and the results have been quantified by period (Table 1). Overall the assemblage is well-preserved with the majority of fragments assigned to categories 1 (*c.*58%) and 2 (*c.*34%), of the remaining 8% a significant proportion (*c.*7%) exhibit moderate degrees of weathering (category 3) whilst the number of poorly preserved fragments is small. This general trend is repeated for the assemblages from each period.

Another factor affecting the potential information available from an assemblage is the bone chewing habit of carnivores (e.g. domestic dogs). Gnaw marks can mask surface details such as butchery marks and completely obliterate small fragile bones, such as those from young animals from the archaeological record. Approximately 14% of all bone fragments were recorded with gnaw marks, a relatively large proportion (18%) of bones from 15th century contexts bear gnaw marks whilst bones from later deposits are slightly less affected (13% of 18th century bones and 12% of 19th century bones).

In addition to the affects of preservation, recovery methods will also bias an assemblage (Payne 1992) since hand-recovery is usually inclined towards the recovery of larger fragments and therefore the bones of larger species. All of the assemblage was recovered by hand and this is reflected in the low incidence of small bones (i.e. carpals, tarsals, loose teeth etc.) and bones from small species (i.e. birds, fish and small mammals). In summary the assemblage is well-preserved, little affected by carnivore scavenging but biased by recovery methods.

15th century assemblage

A small quantity of animal bone was recovered from 15th century deposits located within Areas B and C. Bones from the main livestock species are common in particular cattle and sheep/goat (Table 2). Little can be said about the procurement of beef, mutton (Tables 3 and 4) and pork due to the overall small number of bones from each species. However, cattle bones from the lower limb and sheep/goat bones from the upper forelimb and pelvis are common relative to other skeletal elements. Only four pig bones were identified, all are from context (79) and include a scapula, calcaneus, 3rd phalanx and the mandible from an adult male. Epiphyseal fusion data for these three species (Table 5) is limited but suggests that most cattle were culled as beeves (e.g. under 36 months); sheep/goat from a range of ages

were selected for slaughter from lambs through to adults, and the epiphyseal fusion data for pig contrasts with the data from tooth wear to suggest the presence of an yearling.

Butchery marks were noted on 33% of cattle bones and 37% of sheep bones. Chop marks are more common than cut marks, they occur at major joints such as the shoulder, elbow and hip and are consistent with initial dismemberment of the beef carcass. Chop marks were also observed on the mid-shaft region of some cattle bones and are consistent with reduction into individual meat joints. Cut marks were observed on the neck of one sheep/goat scapula and probably result from the dismemberment using a sharp knife, a butchery practice which can easily be carried out on carcasses of this size. In addition to the butchery noted on POSAC's, butchery evidence was also recorded for 'non-countable' vertebrae and rib fragments. Butchery marks were noted on 5 out of 7 cattle vertebrae and 1 out of 4 cattle rib fragments. The butchery noted on cattle vertebrae includes two examples where the spinous or transverse processes were removed by chopping and 4 examples where the centrum was chopped dorso-ventrally (or through the mid-line) thus splitting the main trunk of the carcass in left and right sides. This evidence suggests that cattle were hoisted by their hind limbs to be dismembered and the technique is thought to have become more common with the advent of professional butchers (Sykes, 2001).

In addition to the bones of domestic livestock species a small range of other taxa have also been identified they include a 'non-countable' atlas vertebra from a dog, a small number of chicken, duck and crow bones and a small fragment of claw from the edible crab *Cancer pagurus*.

18th century assemblage

The 18th century assemblage represents the largest stratified collect from the site and the majority comes from ditch fills located in Areas A and B. Bones from the main livestock species account for *c.*91% of the total number of specimens identified to species (or NISP; see Table 2) and cattle is by far the most common species making up 60% of NISP. In addition to bones from the main livestock species a small range of other taxa have been identified these include horse, dog, fallow deer (*Dama dama*), a small species of *cetacea* (e.g. dolphin, porpoise or pilot whale), chicken, goose, thrush (*Turdus sp.),* and pike (*Esox lucius*). The assemblage is described below with most emphasis on the relatively large collection of cattle bones.

Cattle
Cattle bones predominate and bones considered to represent waste from primary carcass dismemberment are more common than bones of high meat utility (Table 3). This waste material includes 24 metacarpals, 23 metatarsals and 20 phalanx primae representing at least 12 individuals. This material is split between 12 separate contexts but the majority (40%) comes from ditch fill (47). Most of the waste elements from this context are complete and some bear butchery evidence consistent with skinning and disarticulation of the lower limb. All other skeletal elements are under-represented however; most body parts are represented suggesting that whole carcasses where processed on site. Overall the skeletal element representation suggests a degree of differential disposal of bone waste from separate processes (e.g. skinning, primary dismemberment and domestic refuse). The ditch fills clearly include a greater quantity of waste from the initial processing but only small quantities of kitchen and table refuse.

Butchery marks were recorded on a small number of cattle bones (17%) and as stated above most occur on foot bones and are consistent with skinning and disarticulation of the lower limb. Cut marks were observed on the shafts of 7 metapodials, a phalanx prima and the illium of a pelvis, the former result from skinning whilst the cut marks on the pelvis probably result from filleting meat off the bone. Chop marks are slightly more common and most were recorded on ankle (i.e. astragalus and calcaneus) and foot bones (metapodials) suggesting two points of disarticulation of the lower limb. Chop marks on meat bearing bones are consistent with disarticulation at major joints, the elbow and hip, and reduction into individual cuts. Butchery marks were also noted on two vertebrae and one rib fragments, and this is similar to that recorded from the 15th century assemblage described above.

In addition to butchery, one worked cattle bone was identified from context (67). The bone, a ulna has been sawn through the proximal articulation and a square hole cut into the resulting platform presumably for the insertion of a metal implement. The distal shaft is smoothed and parallel cut marks suggest that this was carried out using a knife. The end of the distal shaft has been shaped into a point

and the surface is stained green from having been in contact with copper. The general morphology of the object suggest a duel function possibly a knife handle and awl (or point).

Most of the available age data is based upon epiphyseal fusion (Table 5) however; it is worth emphasising that this data is skewed by the types of skeletal elements represented since bones with early and intermediate fusing epiphyses are more common than bones with late and final fusion epiphyses. The vast majority of early fusing epiphyses are fused and only 4% of cattle were culled as young calves under 12-18 months of age. Most intermediate fusing epiphyses are also fused (82%) whilst most late and final fusing epiphyses are unfused suggesting that the majority of cattle were slaughtered at the aged of 2-2½ year. The kill-off pattern suggested by tooth eruption and wear (Table 6) however, indicates a higher proportion of juvenile animals. Eight mandibles from juvenile cattle with almost identical patterns of tooth eruption and wear were recorded. All have deciduous fourth premolars (or dp4's) at wear stage b (after Grant 1982) and first molars (or m1's) in eruption stages V and E indicating that calves aged only 5-6 months (Silver 1969: 296) were selected for slaughter. A further three mandibles are from adult individuals with permanent dentition. The mortality profile established by both methods suggests that cattle were primarily managed for beef and milk. This pattern appears to be a countrywide phenomenon, well documented by both historical and archaeological evidence.

Historical evidence suggests significant changes in the agricultural economy of Britain during the mid 15th century (Kerridge 1967; Beckett 1990) such changes included a shift from arable to pasture farming and the gradual replacement of oxen with horse for ploughing (Trow-Smith 1957). Over time the affect of these changes meant that it was no longer necessary to keep large numbers of fully-grown cattle and the emphasis in their husbandry shifted towards supplying meat and milk for the growing urban population. Beef and milk production are complementary husbandry strategies since the removal of the calf allows exploitation of the mothers' milk for human consumption. Male calves and female calves surplus to requirements can then be culled to provide veal or kept for a few years to be slaughtered nearer their full body size thereby providing greater returns.

This same general trend has been recorded at a number of other sites around the country including Bristol (Higbee forthcoming); Exeter (Maltby 1979); Leicester (Gidney 1991 and 1992); Launceston Castle (Albarella and Davis 1996); Lincoln (Dobney *et al* 1996) and Norwich (Albarella *et al* 1997).

Given the husbandry strategy suggested by the available age data, one would expect there to be more males to females in the death assemblage. In order to test this, measurements taken on metapodials were plotted (Figures 1-4) since their size and shape are sexually diamorphic. Longer, more robust metapodials can be assumed to represent males whilst shorter more slender metapodials are assumed to be females. Having said this however, length measurements vary between different breeds and it can be difficult to distinguish between cows and steers (male castrates). The analysis of this data failed to reveal any convincing clusters of data points but does neither the less illustrate the considerable variation of size and conformation of cattle in Wales during the post-medieval period.

A small but significant number of cattle bones (*c.*5%) were recorded with pathological or aberrant changes and all were recorded on foot bones these include two metacarpals, 3 metatarsals and 2 phalanges. These changes include areas of new bone formation (or remodelling), areas of bone resorption and eburnation (or pitting and polishing) and significant alterations in the symmetry of individual bones. One specimen, a metatarsal, exhibits severe forms of all these changes; regular new bone forms a linear ridge on the anterior aspect of the medial proximal shaft whilst irregular new bone covers the posterior distal shaft and extends onto the medial and lateral aspects forming buttresses of new bone, and the distal articulation shows signs of advanced joint disease in the form of eburnation. The buttresses of new bone are affectively the bodies attempt to stabilise the joint and compensate for the stress placed upon it. A further manifestation of the stress place upon this joint is the pronounced asymmetry of the distal articulation whereby the medial distal condyle is considerably wider or splayed than the lateral condyle. All these conditions have generally been associated with the use of cattle as draught animals however; a direct link to traction has not yet been proven for the splaying of metapodial condyles (Bartosiewicz *et al* 1993).

In an effort to quantify the degree and nature of the splaying on metapodials, measurements A and B (widths of individual condyles) were expressed as a percentage of each other in order to establish whether there is any asymmetry between the two condyles and the results plotted in Figures 5 and 6. A

value of less than 100 shows that A is smaller than B, and *visa versa* for values over 100. Metacarpal measurements are plotted in Figure 5 and show three trends, firstly that the modal class is on 100 indicating that 'the norm' is for both condyles to be of equal width. The second trend is for values to fall close to the modal class, and the third trend is for a small number of values to be distinctly different, in other words distinctly asymmetrical. These trends indicate that in most cases the slaying of distal metacarpal condyles is almost equal rather than asymmetrical. However, similar analysis of distal metatarsal condyles (Figure 6) indicates that in all cases A is larger than B, thus metatarsal distal condyles are asymmetrical and in some instances this slaying is very marked indeed. The metatarsal described above as displaying other pathological changes as well as pronounced asymmetry plots to the extreme right of the histogram. It seems reasonable to suggest that there is some causal factor, most probably stress related, which has resulted in the consistent asymmetry of distal cattle metatarsals from Carmarthen Castle and the most probably cause is traction.

In addition to the above conditions a single third molar (or m3) was recorded with a non-metric trait, on this specimen the hypoconulid (or distal cusp) was entirely absence, the condition is thought to be genetic in origin but is as yet little understood.

Summary descriptive statistics of cattle metapodials is given in Table 7 and withers (or shoulder) height estimates based upon greatest length measurements are presented in Table 8. These measurements indicate that the average withers height of 18th century cattle from Carmarthen Castle is just over 1m with a range of 95.8cm-120.8cm. The average height is shorter than cattle from earlier and later periods but the range in stature is greater than cattle from the 15th century. Greatest length measurement on one complete horncore suggests that medium horned breeds of cattle are represented (Armitage and Clutton-Brock 1976). A complete list of measurements of cattle bones can be found in Tables 9, 10 and 13 of the appendix (archive only).

Sheep/Goat
Caprine (i.e. sheep or goat) bones account for 22% of NISP (Table 2) and a small number of bones could be positively differentiated as belonging to sheep rather than goat, thus all undifferentiated caprine bones are assumed to be sheep. The skeletal element distribution (Table 3) indicates that most body parts are presented suggesting that whole carcasses are represented. Small bones such as those from the ankle and foot (e.g. phalanges) are conspicuous by their absence but this is probably a result of recovery methods. Pelvises are the most common skeletal element representing at least 5 individuals, mandibles and long bones from the forelimb are also fairly common. Butchery marks were observed on only 10 sheep bones and chop marks are slightly more common than cut marks.

Epiphyseal fusion data (Table 5) is limited by small sample size but suggest that most sheep were culled as adult animals over 3 years of age and this is largely confirmed by the data on tooth wear (Table 6). Tooth wear data indicates that most mandibles are from individuals aged 2-4 years and 4-6 years. This general pattern is consistent with the importance of sheep for wool and is part of a general countrywide trend.

Measurements suggest that 18th century sheep are on average 57.8cm tall (Table 8) with a range of 55.3cm-61.9cm. The mean value is smaller than that obtained for a single complete long bone from the 15th century assemblage.

Pig
Pig bones make up *c.*9% of the NISP and most body parts are represented particularly the major meat bearing bones from the fore and hind limbs. In similarity with the skeletal element distribution for sheep described above, small bones are under-represented but this is probably also due to recovery methods. Butchery evidence is limited and chop marks were observed on bones from the forelimb only. Age data is very limited (Tables 5 and 6) but suggests that a range of ages are represented from neonate through to adult although it is clear that most were culled before they had reached skeletal maturity. This general trend is common and reflects the fact that pigs are essentially meat animals, providing no secondary commodities, they are also fairly fecund animals and mature quickly.

Less common mammals
A small range of other mammalian species are represented they include horse, dog, fallow deer and a small species of *cetacea*. Fallow deer are not an indigenous species, they were probably introduced to Britain after the Norman Conquest and for many centuries they were largely confined to deer parks.

The single find indicates that venison was occasionally procured and consumed by the inhabitants of the castle during this period. A single *cetacea* vertebra bearing chop marks consistent with removal of the transverse processes was recovered from context (41). The specimen could not be positively identified to species, however its overall size suggests that it is from a dolphin, porpoise or pilot whale. It is likely that sea mammals of this size were occasionally netted along with fish although the carcasses of stranded individuals would also have been exploited. *Cetacea* remains are generally considered 'high status' food items consumed in place of fish during religious periods of fasting and cetacea, whether stranded or caught at sea, were claimed as a seigneurial right from the mid 12th century onwards (Gardiner 1997: 176). *Cetacea* remains have been recovered from a number of high status sites a summary of which can be found in Gardiner (1997: 189-192)

Birds and fish
A small number of bird bones were recovered and three different species identified. Chicken is the most common species and is represented by bones from the wing and leg; a furcula (or wish bone) was also recovered. Two of the bones are from immature individuals whilst the rest are adults, this could indicate that eggs were more important than meat. Two bones from a domestic goose were recovered they include an ulna and femur. The only other bird species identified is a single tibio-tarsus from a thrush, possibly the song thrush (*Turdus c.f. philomelos*). The specimen can only be treated as a general indication of the types of bird species living in proximity to the castle during this period.

A small number of fish bones, mostly skull fragments, were also recovered. Diagnostic bone includes two mandibles from a pike (*Esox lusinus*). Pike inhabits fairly slow flowing waters, matures relatively quickly and is a popular choice for managed fish ponds although few fish have been the subject of such conflicting views as to their palatability.

19th century assemblage

A small number of mostly cattle bones were recovered from two cut features of 19th century date. Cattle bones from the lower limb (i.e. ankle and foot) are common relative to other body parts. A single sheep/goat humerus and rabbit metatarsal were also identified.

Conclusions

Analysis has shown that the assemblage is well-preserved and that the relatively large collection of bones from 18th century deposits is reasonably informative providing some insight into the nature of cattle husbandry. Cattle appear to have been extensively exploited to provide meat and milk, and pathological changes suggest that they may also have been used for traction. Sheep appear to have been managed for wool and pigs for their meat. These mortality profiles fit closely with the general trends recorded for other areas of Britain during the post-medieval period. Deer and *cetacea* bones are rare from the assemblage but their presence alludes to the high status of the site.

The 15th and 19th century assemblages are less informative and have only been briefly described here.

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Tables

Figure 1. Cattle: size variation of metacarpals from 18th century contexts.

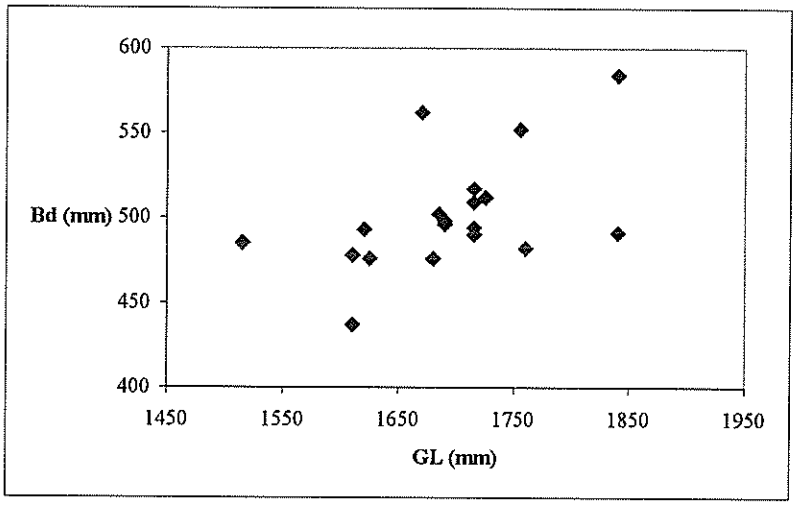


Figure 2. Cattle: Shape variation of metacarpals from 18th century contexts.

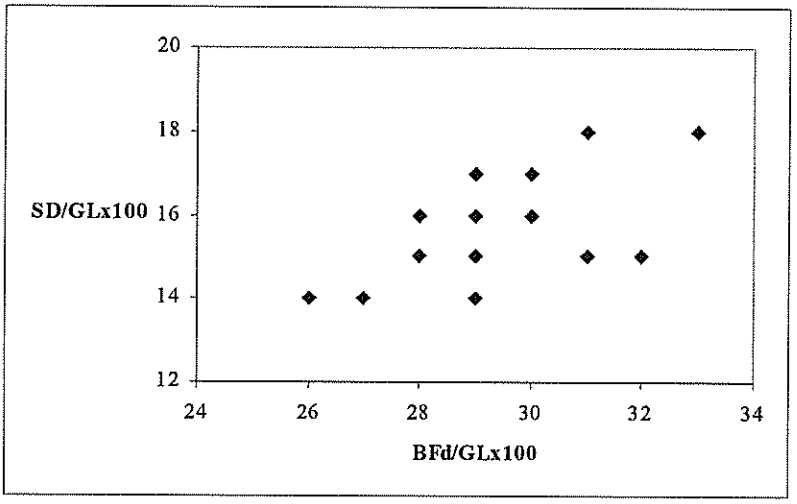


Figure 3. Cattle: size variation of metatarsals from 18th century contexts.

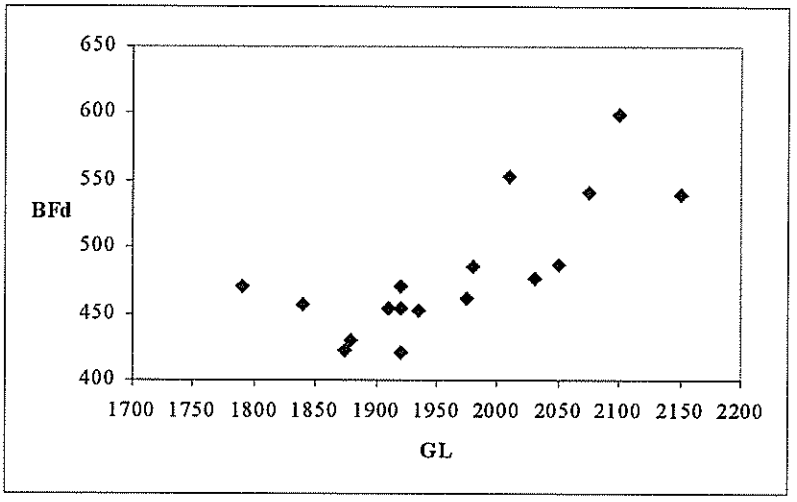


Figure 4. Cattle: shape variation of metatarsals from 18th century contexts.

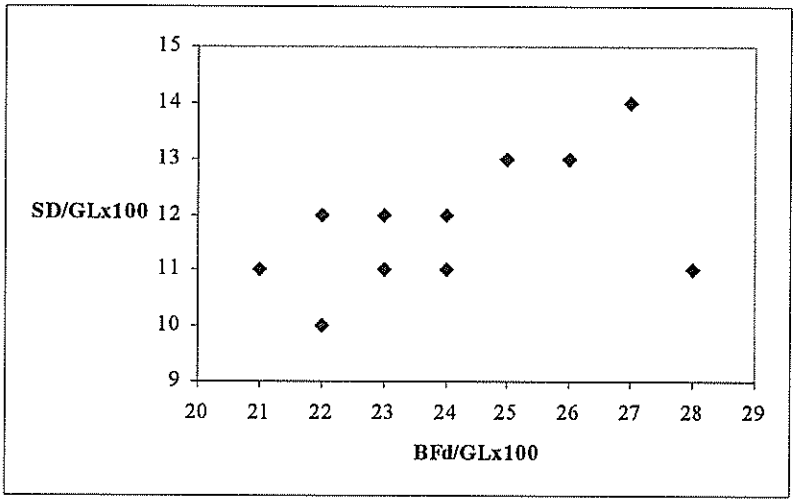


Figure 5. Cattle: histogram showing asymmetry of the distal condyles of metacarpals from 18th century contexts. Where measurement A is represented as a percentage of measurement B and a value of 100 indicates that there is no asymmetry.

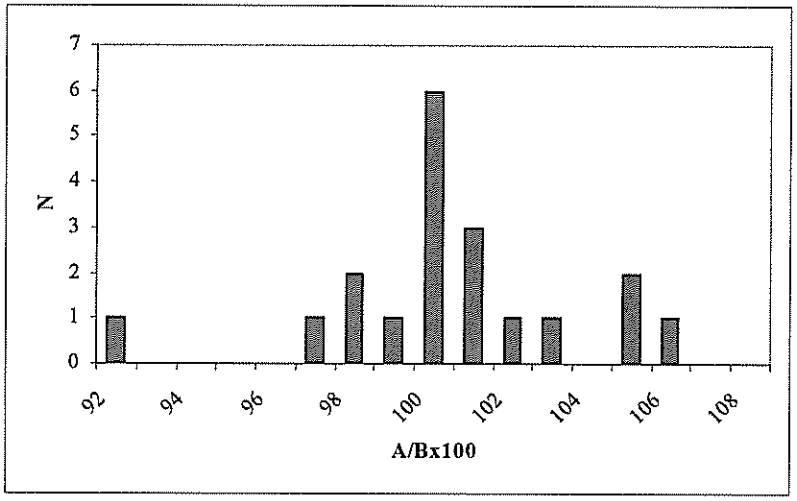
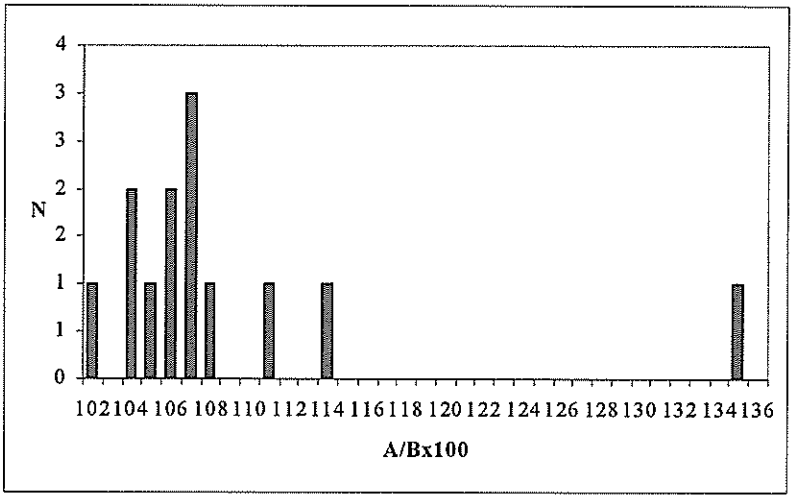


Figure 6. Cattle: histogram showing asymmetry of the distal condyles of metatarsals from 18th century contexts. Where measurement A is represented as a percentage of measurement B and a value of 100 indicates that there is no asymmetry.



9.4 Appendix IV

Table of small finds

Find No.	Context No.	Description
1	079	Wooden bowl fragment
2	080	Wooden bowl fragment
3	079	Wooden bowl fragment
4	079	Wooden bowl fragment
5	080	Leather shoe sole
6	081	Leather shoe fragments
7	078	Worked wood
8	079	Leather shoe
9	079	Leather shoe sole
10	079	Leather shoe sole
11	079	Leather shoe
12	079	Leather shoe sole
13	079	Leather fragments
14	079	Leather shoe sole
15	080	Leather fragments
16	079	Leather fragments
17	086	Leather shoe sole
18	080	Leather fragments
19	079	Leather fragment
20	079	Leather fragment
21	079	Leather shoe sole
22	078	Wooden bowl fragment
23	079	Leather shoe
24	067	Leather fragments
25	080	Worked wood
26	*079*	Leather shoe sole
27	*079*	Leather shoe sole
28	*079*	Leather shoe fragments
29	*079*	Leather shoe fragments
30	*081*	Worked wood
31	001	Cu alloy Key
32	018	Lead plug/weight
33	080	Lead object
34	065	Pierced slate disc

35	045	Bone tool Fragment
36	044	Cu alloy object
37	039	Cu alloy thimble
38	041	Cu pin
39	067	Silver coin
40	019	Cu alloy coin (1869)
41	064	Cu alloy object
42	046	Cu alloy object
43	099	Cu alloy object
44	046	Cu alloy objects
45	026	Cu alloy object
46	099	Cu alloy object
47	023	Cu alloy button
48	079	Gold pin
49	147	Clay pipe bowl
50	001	Clay pipe bowl
51	002	Clay pipe bowl
52	019	Clay pipe bowl
53	001	Clay pipe bowl
54	026	Clay pipe bowl
55	044	Bone tool

CARMARTHEN CASTLE

**EXCAVATIONS OUTSIDE THE GATEHOUSE,
JUNE-AUGUST 2003**

REPORT NUMBER 2004/22

MARCH 2004

This report has been prepared by Duncan Schlee

Position :Archaeologist

Signature ..... Date 08/04/04

This report has been checked and approved by Neil Ludlow on behalf of Cambria Archaeology, Dyfed Archaeological Trust Ltd.

Position : Project Manager

Signature ..... Date 8/4/04

As part of our desire to provide a quality service we would welcome any comments you may have on the content or presentation of this report