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CAF Data Structure Report No. 77 (preliminary report)

AE/10/63

**Excavations on the Grand Battery at
Carrickfergus Castle**

ANT 052:059

8th December 2011

On behalf of





Carrickfergus Castle Barracks

Excavations carried out on behalf of
Northern Ireland Environment Agency: Built Heritage

by

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CAF DSR 77

SMR: ANT 052:059 (Scheduled)

NGR: J 4143087250

Excavation Licence: **AE/10/63**

Preliminary report submitted to NIEA on 8th December 2011

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1 Summary

A four week excavation was carried out on the Grand Battery at Carrickfergus Castle over February and March of 2010 (Figures 1 and 2; Plate 1). The excavations, and Grand Battery, are both located at first floor level, above the vaulted storehouses on the ground floor against the east curtain of the Outer Ward. Documentary sources indicate that an Infantry Barracks built in 1715 on the battery preceded the Officers' Quarters building of 1802, the northern half of which still stands. Remains of the eighteenth century Infantry Barracks, the southern end of the Officers' nineteenth-century building and more recent surface changes on the battery (insertion of WWII air vents, construction test-pits, a slate-capped drain, a garden and hedge and various concrete surfaces) were all uncovered and recorded during the 2010 excavation.

Few early plans of post-medieval barracks survive and although the remains uncovered at Carrickfergus were incomplete it is possible to suggest it comprised a two-row, one storey building of twelve square rooms built against the west face of the east curtain. The Infantry Barracks was accompanied by a cobbled surface and was built above a sequence of midden deposits, rich in domestic waste (animal bone, pottery, shells, clay pipes, William and Mary coin etc.) presumably imported to even-out the site and provide a relatively level surface for the building.

Below the barracks building an earlier undulating cobbled surface, with an inbuilt drain, reflecting the shape of the barrel vaults below was uncovered along with the patchy remains of a possible third stone surface below this again. The documentary and cartographic evidence for the date of construction of the extant vaulted storehouses is equivocal. The archaeological evidence indicates that the first floor above the vaults was cobbled and in use before the Infantry Barracks was constructed and must therefore be of a seventeenth-century date or earlier. Quantities of bone and shell for radiocarbon dating, and pottery sherds, were recovered from deposits overlying the crown and haunches of the vaults and it is hoped that their analysis will provide a *terminus ante quem* for the vaults' construction.

2 Introduction and background

2.1 General

This data structure report (DSR) details the results of an archaeological excavation undertaken at Carrickfergus Castle (ANT 052:059 Scheduled and in State Care; Figure 1) in spring 2010 by the Centre for Archaeological Fieldwork (CAF) on behalf of the Northern Ireland Environment Agency: Built Heritage (NIEA). The excavations were carried out on the Grand Battery (Plate 1; Figure 2) and site of a former eighteenth-century Infantry Barracks and nineteenth-century Officers' Quarters building. The excavation was carried out over four weeks from February 25th to March 24th, 2010 and was directed by Emily Murray (Licence No. AE/10/63). Scheduled Monument Consent was applied for and granted before excavations began.

2.2 Historic background

Carrickfergus Castle represents one of the best examples of Anglo-Norman architecture in Ireland. It is strategically located on a rocky promontory that projects southwards from the north shore of Belfast Lough. It has a freshwater spring, and a natural harbour on its western flank, making it a prime defensive stronghold for the Anglo-Normans and successive military tenants. It is, however, a complex monument as it has been continuously occupied, and modified, since its construction in the late twelfth century through to the present. In 1928 it was transferred from the War Department to the Ministry of Finance and placed in State Care.

The history of the castle is well documented, in particular in Tom McNeill's 1981 monograph (McNeill 1981) and also in Ruairí Ó Baoill's more recent book on the castle and town (Ó Baoill 2008). Despite McNeill's detailed survey and the numerous excavations that have been undertaken at the site (see Section 2.3 below), there are still many aspects of the castle's evolution that are not fully understood. This excavation presented an opportunity to discover and understand more about the evolution of the Grand Battery, vaulted storehouses and east curtain.

2.2.1 Castle history – brief overview

The following overview of the castle's history and physical development is largely taken from McNeill (1981) and Ó Baoill (2008).

John de Courcy invaded Ulster in 1177 and, over the succeeding years, he established his earldom in the east of the province making Carrickfergus his administrative headquarters and where he built his castle. His castle (built c. 1178-1195) comprised the inner ward, defined by a masonry curtain wall and external ditch, and the Great Tower (Figure 2). The primary stone used in the construction of the castle is the local basalt. In addition, Cultra limestone which has a honey-yellow colour and local red

sandstone were both used for decorative features in the medieval building (keep and inner ward). Some of this stone was also re-used in later alterations and renovations.

De Courcy was subsequently expelled from Ulster by Hugh de Lacy, the first official Earl of Ulster, in the early years of the thirteenth century (1203-5). De Lacy in turn was ousted by King John and his army in 1210. While in the hands of the Crown between 1210 and 1226, the curtain wall forming the Middle Ward (later pulled down in the eighteenth century), along with the postern gate and sea tower, was constructed probably c. 1217-1222 (Figure 2). King John also spent money, 20 marks, on repairing the storehouses in the castle (McNeill 1981, 3) the whereabouts of which is not indicated but may then have been in the Great Tower. De Lacy regained his earldom and custody of the castle, with the help of the O'Neills, from 1226 until his death c. 1242. It appears likely that it was during this period that the Outer Ward, and probably also the twin-towered gatehouse, was built (Figure 3). The castle reverted to the Crown after de Lacy's death and several decades later, in 1264, Lord Edward conferred the earldom, and with it the castle, on Walter de Burgh (McNeill 1981, 4). As part of Edward the Bruce's campaigns in Ireland he besieged the town and castle in 1315 and the castle was laid under siege for a full year. The castle briefly became Bruce's centre of operations in Ireland, then reverted to the Crown in 1318 before it was given back to the de Burghs, specifically William de Burgh the last resident earl, in 1327 (McNeill 1981, 5). In 1333 William was murdered following which the castle descended to the hands of King Edward IV and it has remained in the Crown's possession since.

A series of constables were appointed to the castle over the succeeding decades each maintaining a garrison of varying proportions (McNeill 1981, 6-11; McSkimin 1909, 221-4). Documentary sources indicate that in the early 1380s repairs were made to the great tower and buildings in the outer ward (McNeill 1981, 6) and again in 1477 there are records of expenses for repairs to a section of the outer curtain wall that had collapsed and also for an associated building (*ibid.* 7). The first mention of guns at Carrickfergus dates to 1539 (McNeill 1981, 8). The constable received money for repairs during 1546 and 1547 (*ibid.* 8) and then substantial amounts seem to have been paid for repairs between 1556 and 1559 when the then constable, Peers, wrote of the castle being 'in decay' (*ibid.* 8). In 1561 he was sent money 'for the mounting of ordnance according to his request' (*ibid.* 9) and throughout the 1560s, under Queen Elizabeth's reign, significant amounts were spent on repairs and building works refortifying the castle, including the use of brick (*ibid.* 9). By the end of the 1560s, given the records for the amount of monies spent and references to building activities at the castle, it would seem that it was then in a good condition and well-fortified.

The town and castle was attacked by the O'Neills in 1573 and there are records of monies spent to carry out various repairs in the late 1570s (McNeill 1981, 10). The Earl of Essex, who was granted the

lands of Clondeboye by Queen Elizabeth in 1573, including the town and castle of Carrickfergus (McNeill 1981, 10), noted in a letter to the Council in England that there were few rooms in the castle “and none of these covered” and that he had no stores for ammunition “but in wet vaults” (quoted in Hill 1873, 420). In the 1570s, 80s and 90s the numbers of men garrisoned at the castle, and within the town, grew massively. Sir Arthur Chichester was in post as constable and governor from 1599. During the sixteenth-century, the twin towers of the gatehouse were cut in half to accommodate artillery (Ó Baoill 2008, 24). In 1601 the storehouses of Carrickfergus were described as being in need of repair and rebuilding (McNeill 1981, 11) though it is unclear if this refers to stores within the town or the castle.

After the end of the Nine Years War the expenditure on fortifications declined. In 1611 the castle had guns (McNeill 1981, 11) and it was used as a prison for Con O’Neill in 1603 and the Earl of Antrim in the 1640s. It was also used as a place of refuge during the 1641 rebellion. In 1616, £250 was given for repairing breaches in the castle and in 1662 the storerooms were described as being ‘neglected’ and fallen into ruin (*ibid.* 11-12). In 1665, £650 was spent on the storehouses, gun carriages and platforms (*ibid.* 12). In Richard Dobbs’ *Description of the county of Antrim* (Hill 1873, Appendix II, 376-389) he gives a brief account of the town and castle in 1683 and refers to ‘several excellent arched vaults’ within the high walls surrounding the tower (Hill 1873, 386).

Thomas Phillips reviewed the fortifications of Belfast Lough in 1685 which included the execution of several plans and views of the castle and his design for a bastioned fort to replace it but which was never built (McNeill 1981, 12). As a result of his report, work was carried out at the castle and new canons and guns were installed (*ibid.*). In 1688 the castle was held by the Jacobites for King James but in the following year, after a week-long siege, Schomberg captured it on behalf of the Williamites and King William III landed at the town in the same year (*ibid.*). Estimates for the construction of a gun platform and carriages were prepared in 1705 though they may not have been constructed until the following year when £500 was paid to the constable. Alternatively, they may have built along with the Infantry Barracks, which was built above the vaulted storehouses in 1715, and cost £13,336-10-0 (McNeill 1981, 13 and 15).

The castle continued in military occupancy throughout the eighteenth century (McNeill 1981, 15). The Great Tower was reportedly in good repair and in use as a magazine though a length of around fifty foot of the outer curtain (it is unclear what section) fell down some time in the 1750s (*ibid.*). Bishop Pococke on his tour of Ireland in 1752 visited Carrickfergus but had a little to say of the castle; “...the Castle is built on a rock, which is washed on three sides by the sea, it is a strong place and is kept in pretty good order, and no one being permitted to go to it in time of war, the orders have not been taken off in time of peace” (Stokes 1879, 21). In 1760, during the Seven Years War when

England was in battle with France and Spain, Carrickfergus Castle was attacked, which by then had a garrison of some 180 men, and surrendered to a French force led by Thurot (Clements 2003, 11-2). It returned to Crown control within the year and urgent repairs were made (McNeill 1981, 15). The castle was again described as being in ruinous condition in the early 1790s. During the United Irishmen hostilities of the late 1790s it was used by the Crown as a jail with the Great Tower used as a barracks (McNeill 1981, 15). Repairs were made to the outer wall at this time and McNeill (*ibid.*) has speculated that this may have comprised the refitting of the battlements with musket loops and/or the construction of the present Grand Battery. The roofs of the twin-towered gatehouse were also strengthened at this time (Clements 2003, 23).

In 1802 the Infantry Barracks over the vaulted storehouses were demolished and a new Officers' Quarters building was built as well as a new barrack and guard room on the opposite, western side of the Outer Ward (McNeill 1981, 15). In 1804 the armament of the castle comprised fourteen 12-pdr guns, two 6-pdr guns and six 4-pdr guns all of which were mounted on standing carriages and fired through embrasures (Clements 2003, 23) with the gun total increasing to 28 by 1811 (*ibid.* 38). In the Ordnance Survey Memoirs on the town written in the 1830s the Officers' Quarters building is described as having quarters for four officers with the vaults below used to keep store and lumber (Day and McWilliams 1996, 14). The battery, onto which the Officers' Quarters open on to, is described as having seven guns (on garrison carriages, not traversing platforms) "supported by bomb-proof vaults" and with a parapet wall pierced with embrasures for canon (*ibid.*; Clements 2003, 38). It remained in use as a magazine and armoury until it was transferred into State Care in 1928. The southern half of the Officers' Quarters building was pulled down some time thereafter and the northern half were then used as offices and, formerly, as the castle custodian's house.

2.2.2 Cartographic evidence

What appears to be the oldest surviving map of the town is undated but thought to be of *circa* 1560. The sixteenth-century pictorial map (Figure 4) shows the town and castle and a roofless, one storey, three-room building against the east curtain, in the location of the current vaulted storehouses. The two subdividing walls within the building, and the gable walls, are all vertical, with no suggestion of the springing of vaults. There is a single west-facing entrance and four windows all looking out onto the cobbled Outer Ward. There is also no indication of any stairs or ramps that might have facilitated access to a first floor above the storehouse rooms and/or along the adjacent battlements. If their absence is genuine, it might suggest that the buildings were once covered with pitched roofs. It seems likely that this map was created, and possibly submitted along with, Constable Peers' letter of complaint about the castle' ruinous condition in the 1560s and his requests for monies for repairs. It is conceivable therefore, that some artistic licence was employed in the depiction of its decay to improve his case.

Robert Lythe's map of 1567 (Figure 5) shows the two gatehouse towers mounted with four canons, two each, and at least one canon mounted at the southern end of the Grand Battery pointing out towards the bay. It is difficult to make-out exactly what is depicted north of the latter canon in the location of the current Grand Battery and McNeill has suggested that the main concern of the cartographer was to depict the layout of the town rather than the castle (McNeill 1981, 14). To the rear of crenelated east curtain of the Outer ward, and north of the canon, appear to be the pitched roofs of two adjoining rectangular buildings with their long sides running parallel to the east curtain. The roofs appear to be more steeply pitched (shorter) on their seaward side with a possible gable wall depicted at the southern end.

The PRO map of the town and castle dating to *circa* 1596 (Figure 6) shows a small one storied house with a pitched roof, chimney, central door and two windows, set behind and perpendicular to the east curtain. It is unclear if this building has been built at first or ground floor level. There appears to be a wall or boundary of some sort running along the western gable of the house, from the eastern inner side of the castle gate as far, approximately, as the location of the middle ward wall. This may be the representation of the edge of a raised platform, i.e. first floor, or, simply the edge of a path.

Phillips' map of 1685 (Figure 7) presents the castle in plan with a simple rectangular building against the east curtain. No subdivisions within the building are indicated. An elevated view of the castle and town is included in the bottom right-hand corner of the map (Figure 7) and this shows three large windows in the east curtain evocative of a hall. The 1760 map (Figure 8) also shows a simple rectangular building in plan against the east curtain and just south of it is a label 'the old breach' possibly referring to the stretch of the outer curtain that collapsed in the 1750s (see Section 2.2.1 above). The 1811 map (Figure 9) was drawn to accompany an inspection return for March of that year (McNeill 1981, 16) with the six gun ports of the present Grand Battery depicted though it is hard to decipher exactly what has been written as the label for it – 'Casements', 'Casemates', 'Basements', 'Cannonade' - ?

The eighteenth- (Figure 8) and nineteenth-century (Figures 9, 10 and 11) maps along with those from the sixteenth century (Figures 4 and 5) and Phillips' 1685 map (Figure 7), all show a large rectangular building against the east curtain in the location of the current vaulted storehouses. The nineteenth-century maps also show the basic ground plan of the Officers' Quarters building occupying the western half of the Grand Battery at first floor level (Figures 9, 10 and 11). Beyond the basic record of the apparent continued existence of a building against the east curtain from at least the sixteenth century the cartographic evidence is, unfortunately, too vague to draw any further conclusions about the evolution of these buildings.

In summary, the date of construction of the vaulted storehouses is not known. The brief overview of the castle's history above indicates that there were a series of references to the condition of the storehouses in the castle and also to records of repairs which generally do not detail the specifics of the repairs or building works. A number of these could potentially have included repairs or rebuilding to the storehouses and these are summarised in Table 1. On the basis of cartographic and documentary evidence McNeill has speculated that they may be as early as the 1560s and as late as 1715 when the Infantry Barracks was built above them.

Date	Account/description	Reference
1226 - 1240	Outer Ward [& associated internal buildings?] built by de Lacy	McNeill 1981
1380s	repairs made to buildings in the Outer Ward	McNeill 1981, 6
1390	castle described as being in a wretched state ' <i>destitute and desolate of defence</i> '	McSkimin 1909, 222
1406	castle in poor condition	McSkimin 1909, 222
1477	expenses for repairs to a section of the outer curtain wall that had collapsed and for an associated building	McNeill 1981, 7
1546-7	£19-4-6 for repairs	McNeill 1981, 8
1556-9	£193-14-4 for repairs	McNeill 1981, 8
1559	Peers complained of the castle being ' <i>in decaye</i> '	McNeill 1981, 8
c. 1560	a one-storey, roofless building divided into three rooms depicted in the location of the vaulted storehouses	map (Figure 4)
1561	money sent to Peers (constable) 'for the mounting of ordnance according to his request'	McNeill 1981, 9
1565	Peers described the castle ' <i>a great parte fallen downe</i> '	McNeill 1981, 9
1565-7	repair and work on-going including use of brick and a report that Sidney had 'built' the castle	McNeill 1981, 9
1567	Lythe map - canon mounted along east curtain; 2 pitched roof buildings set parallel to the east curtain in location of the vaulted storehouses	map (Figure 5)
1570s	Earl of Essex refers to wet vaults within the castle to store ammunition	Hill 1873, 386
1575-8	storehouses repaired [town or castle?]	McNeill 1981, 10
1596	small one-storey house set perpendicular to east curtain bounded by a wall(?) running parallel to it (house at ground or first-floor level?)	map (Figure 6)
1601	the storehouses of Carrickfergus [castle or town?] were described as being in need of repair and rebuilding	McNeill 1981, 11
1661	£250 given for repairing breaches in the castle	McNeill 1981, 11
1662	the storerooms of the castle [tower or elsewhere?] were described as being 'neglected' and fallen into ruin	McNeill 1981, 11-2
1665	£650 was spent on the storehouses, gun carriages and platforms	McNeill 1981, 12
1677	repairs made to the walls and new guns and canon mounted	McNeill 1981, 12
1683	Dobbs description of the castle mentions 'several excellent arched vaults' (within the castle walls)	Hill 1873, 386

Table 1 Dates when documentary and/or cartographic evidence indicates that repairs or building works were carried out or commissioned at the castle and which may relate to the storehouses and Grand Battery.

Date	Account/description	Reference
1685	Phillips' map shows the plan of a simple rectangular building in the location of the vaulted storehouses - no subdivisions shown	map (Figure 7)
1691	request made by Lord Talbot for £12,000 for repairs	McNeill 1981, 13
1705	estimates prepared for the cost of construction of gun platforms and carriage	McNeill 1981, 13
1706	payment of £500 to constable of the castle (cover cost of gun platforms and carriages?)	McNeill 1981, 13
1715	Infantry Barracks built; cost of £13,336-10-0	McNeill 1981, 13
1754	50ft of southern 'outer wall' fell down	McSkimin 1909, 224
1760	plan of a simple rectangular building, no subdivisions indicated, in location of vaulted storehouses	map (Figure 8)
c. 1790-3	castle 'in a very ruinous condition	McSkimin quoted in McNeill 1981, 15
1793	tower made into a barrack; outer walls repaired and furnished with artillery [insertion of musket loops and/or construction of present Grand Battery?]; roofs of twin-towered gatehouse stretched and converted to gun platforms	McNeill 1981, 15; Clements 2003, 23
1811	plan of the castle showing the 'Officers Barracks Royal Artillery' building occupying the western half of the Grand Battery labelled 'basements/casements/cannonade'?	map (Figure 9)
c. 1811	Grand Battery reinforced by the construction of bomb-proof vaults underneath	Clements 2003, 38
1821	map showing a long rectangular building set back from the east curtain in the location of the vaulted storehouses = Officers' Quarters building	map (Figure 10)
c. 1840	map showing a long rectangular building set back from the east curtain in the location of the vaulted storehouses = Officers' Quarters building	map (Figure 11)

Table 1 continued.

2.3 Previous Excavations

No previous excavations of the Grand Battery (first floor) or excavations of the vaults below are recorded. The surface of the Grand Battery was, however, previously stripped and re-laid on at least two occasions when in State Care. The southern end of the Officer's Quarters building was levelled in sometime after it came into State Care in 1928 and the building's footprint was laid out in grass with a hedge along its western edge (Plate 3). In 1990 this was replaced with concrete (Plates 4-6) and a new concreted surface appears to have been re-laid right across the southern end of the battery. When this work was carried out the levelled remains of the Officers' Quarters buildings were revealed and obviously reburied as they were again exposed in 2010 when the surface was lifted. Although photos from the time show the exposed walls it was not then recorded if these were left *in situ* or removed. Comparison between the walls in the 1990s photos and those uncovered again two decades later, show that some of the sub-dividing walls and associated features within the Officers' Quarters buildings did not survive and must have been removed at the time.

Elsewhere within the castle, a wide range of excavations and evaluations have been carried out since it came into State Care. The most recent of these was by the CAF in 2011 on the roof of the Great Tower. Excavations by Basil Wilson of the middle curtain wall in 1955 and Rees-Jones' excavations of the postern-gate in 1962 are both illustrated and described by McNeill (1981) while the excavation of the bridge pit at the entrance to the castle in 1950 (Waterman 1952) and those carried out around the keep carried out in 1993 and 2002 (Donnelly *et al.* 2005) are both published. Other excavations undertaken at the castle between 1991 and 2008 are briefly described in the annual *Excavations Bulletin*. These include a service trench which was opened running from the Great Tower to the gatehouse in 1991, the excavation of part of the Flash-Room corridor in 2008 and monitoring in advance of new services in the area immediately north of the gatehouse, also in 2008.

3 The 2010 Excavation

3.1 *Circumstances of the Excavations*

The vaulted storehouses have suffered ongoing problems of damp and water ingress and have primarily been used simply for storage. In order to realise their full potential and to conserve and maintain the fabric of the building, NIEA commissioned architects and engineers to draw up conservation plans to deal with these issues. These proposed plans essentially involved the remodelling of the Grand Battery, above the vaults, in order to lay-down an efficient system of drainage.

Work on-site began at the end of February 2010 (Plate 7). Removal of the concrete and underlying overburden by mechanical excavators across the Grand Battery unveiled remains of the nineteenth-century Officers' Quarters building and the earlier eighteenth-century Infantry Barracks. It had not been recorded during earlier works on the Grand Battery (see Section 2.3 above) if these previously unveiled foundations had been left *in situ* or fully or partially removed. Over the month of March 2010, the archaeological remains were fully exposed by mechanical excavation under archaeological supervision and excavated and recorded by hand by the Centre for Archaeological Fieldwork (CAF) on behalf of the NIEA.

3.2 *Methodology*

3.2.1 *General*

The concrete and much of the underlying levelling layers and overburden was removed by NIEA subcontractors using mechanical excavators. CAF archaeologists did not monitor the primary phase of this work. When the site was first visited by the CAF (Feb. 25) the site had been cleared to various

different levels and the walls of the four rooms of the Officers' Quarters building were exposed (Plate 7). Further mechanical excavation, under archaeological supervision, was carried out across the area between this building and curtain wall where there was a greater depth of overburden still extant and where there was also a greater degree of earlier disturbance. The site was then cleaned by hand and all of the surviving built architectural features were left *in situ*. Where the surface had previously been breached by cut features, or damaged through earlier building works (e.g. early twentieth-century garden beds), these were fully excavated which allowed a certain amount of investigation of the underlying stratigraphy.

Much of the more recent sequence of deposits was removed before archaeologists arrived on site. This, coupled with the retention of built features *in situ*, has meant that it has not been possible to reconstruct a full stratigraphic sequence for the site. Although not all contexts can be resolved, a story of multiple building phases can clearly be identified. Some of these phases can be linked-in with results from excavations and survey work carried out elsewhere within the castle (see Section 2.3) and can be tied-in to, and expand upon, McNeill's 1981 building phases (Table 2).

3.2.2 Recording methods

The context records for the excavation were created using the standard context recording method – all built features and deposits were assigned a unique context number and a pro-forma (Context sheet) was completed for each. All features were photographed both prior to, and following, excavation (Appendix 4 and CD) and a series of plans and section drawings were completed throughout the excavation. A field notebook was also maintained.

The register of context numbers is detailed in Appendix 1 and the Harris Matrices are presented in Appendix 2. The finds are catalogued in Appendix 3 and the photographic archive is catalogued in Appendix 4.

3.2.3 Archiving

Copies of this report have been deposited with the NIEA. All site records and finds are temporarily archived within the School of Geography, Archaeology and Palaeoecology, Queen's University, Belfast.

3.3 Acknowledgments

Illustrations were prepared by Ruth Logue and Sapphire Mussen, and the finds and photographic catalogues by Grace McAlister. The CAF excavation team comprised Sarah Gormley, Ruth Logue, Brian Sloan, Cormac McSparron and Ruairí Ó Baoill. Ruairí Ó Baoill provided copies of the modern

and historic maps of the castle and town and Tony Corey digitised the MBR's negatives and prints of the Grand Battery from the 1990s and earlier. Tom McNeill, Terence Reeves-Smyth and Bill Clements all kindly shared their knowledge, advice and recommendations about the interpretation of the site. Paul Logue provided guidance and support before, during and after the fieldwork on site.

3.4 *Account of the excavation*

The following account of the excavation will be described by phase (most recent first) which follows a broad sequence detailed in Table 2:

Approx. Date Ranges	McNeill's Phasing	2010 Phasing	Main features	speculated features (inferred)
1226-1242	Period III	Phase 1	Construction of east curtain wall of Outer Ward	
<i>Mid-16th C or earlier</i>	<i>Period VI</i>	<i>Phase 2</i>	<i>Construction of the vaulted storehouses</i>	
		Phase 3	Deposition of multiple imported deposits to create a level surface above the vaults including possible stone surface level with the crowns of the vaults	
		Phase 4	Laying of cobbled surface above the vaults	insertion of gun posts in east curtain wall (no longer survive)
Circa. 1714+	Period VII	Phase 5	Importation of artefact-rich deposits laid over the Phase 4 cobbling to create level surface	
		Phase 6	Construction of Infantry Barracks and contemporary cobbled surface	presumed integration and rebuilding of upper section of east curtain wall
1793/1802+	Period IX	Phase 7	Levelling of Infantry Barracks and Construction of Officers' Quarters building	Rebuilding of upper portion of east curtain; insertion of embrasures for canon; construction of slate drain?
		Phase 8	modification of Officers' Quarters building with insertion of brick subdividing walls & ?fireplace	
1939-45	Period X	Phase 9	Insertion of air vents through roofs of the vaults during WW2	
20thC (1928+)			Levelling of the southern half of the 19 th C Officers' Quarters building, rebuilding gable wall and use of the foundations as a garden	
1990		Phase 10	garden & hedge removed; all of the Grand Battery surfaced in concrete	

Table 2 McNeill's periodisation of the construction phases at the castle (McNeill 1981) correlated with the proposed phasing of the features uncovered in the 2010 excavation on the Grand Battery. The dating of the construction of the vaulted storehouses (italics) is still speculative.

At least ten phases of activity were recorded during the 2010 excavation dating from the sixteenth century or earlier, through to the twentieth century (Table 2). The main features uncovered comprised the foundations of the early nineteenth-century Officers' Quarters building (1802) which replaced an early eighteenth-century Infantry Barracks built in 1715. The Infantry Barracks, in turn, post-dated an earlier cobbled surface that may have been the surface laid above the vaults soon after the storehouse was built. All of this was succeeded by the castle in State Care from 1928 to the present. This includes the use of the vaults as air raid shelters during WWII and the various modifications made to the surface of the Grand Battery in its presentation to the public - levelling the southern half of the Officers' Quarters Buildings, presentation of this newly opened area as a garden and subsequently, replacing the garden with a concreted surface and retaining wall and railing in the early 1990s.

It is recommended that the Harris Matrix (Appendix 2) and catalogue of contexts (Appendix 1) along with the site illustrations (Figures) and photos (Plates; see also the full catalogue of photos on CD) are consulted throughout to better understand the descriptions of the excavated features and deposits.

3.4.1 Phases 9 and 10: the Grand Battery in State Care (1928 to present)

The most recent horizons on the Grand Battery are represented by concreted surfaces and rubble, gravel-blinding and other levelling-up deposits laid across the site, sealing the older structural remains beneath. Much of this was lifted mechanically before excavation began some under archaeological supervision.

Concrete surface and levelling deposits

A section of the concrete slab (C.162; 0.15m thick with a pebbled surface) survived at the top of the ramp that leads-up from the Outer Ward to the Grand Battery at its southern end. This overlay the levelled surface of the eastern long wall (C.109) of the southern end of the former Officers' Quarters building: the northern 'half' of this building still stands and is currently used as offices. The concrete (C.162) also sealed at least two levelling horizons east of this wall; a heterogeneous dark brown loam and rubble layer, C.211 (0.10m-0.13m thick), containing fragments of broken slate, stone, brick and mortar, and a lower loose, mottled light-brown rubble layer (C.209) with a high concentration of mortar. This deposit (C.209) decreased in thickness eastwards, closer to the east curtain (0.21m-0.06m). Much of these two deposits had been removed or heavily disturbed on arrival on site and were best preserved under the surviving section of concrete (C.162) at the southern end of the Grand Battery. It was unclear if the upper levelling deposit (C.211), which appeared to be a mixed layer of garden soil and building rubble, also extended west of the levelled wall (C.109) of the Officers' Quarters building. It probably dates to 1990 when the garden was replaced with concrete (see Section 2.3). The lower levelling deposit was more representative of a demolition layer and may date to the

demolition of the building in the early twentieth century. This layer (C.209) overlay a sticky red clay with occasional inclusions of lumps of mortar and stone (C.161).

North of the concrete slab (C.162) and east of the Officers' Quarters building, represented by the levelled wall (C.109) and standing building, were extended spreads of red clay, with some patches of blue marl/clay along with patches of gravel blinding and hard-core. These all appear to be relatively recent levelling horizons, formerly sealed by the concrete. It also seems probable that there is not a simple stratigraphic sequence right across the site but rather that discontinuous and different materials were laid across the battery before the concrete was laid. Too little survived to determine the exact sequence and these have been collectively assigned as the levelling deposit C.211. Only the sequence surviving at the southern end (C.162, C.211, C.209 and C.161) could be determined with any certainty.

The modern wall and railing

Sandwiched between the concrete slab (C.162) and the levelled wall (C.109) were the protruding torn edges of a blue plastic membrane (C.105) which had evidently been rolled out across the battery surface, probably to deter seepage, before the concrete was laid. The upper portion of the east-west orientated wall at the southern end of the battery and, built above the southern end wall of the vaulted storehouses (i.e. wall facing onto the ramp) and parallel to the gable wall of the standing office block, is also built above this plastic. The upper portion of this wall comprises a roughly built, concreted rubble wall (C.106) of one course of angular stones, of uneven height but on average 0.1m high. This section of the wall (C.106) is abutted by the concrete (C.162) and the upper surfaces of the two are roughly at the same level. This would suggest that this portion of the wall (C.106) was built before the concrete was laid. The wall would also have been concealed by the concrete thus explaining why it has an 'unfinished' appearance. Above this wall (C.106), was a regular well-built 0.41m height of wall (C.103) pointed with a mortar with a pinkish hue and coarse sand inclusions (C.104). The former was capped with a concrete sill (C.102; 0.15m in height) which supported a metal railing (C.101). This phase of construction and sequence of deposits (C.211, C.162, C.105, C.106, C.103, C.104, C.102 and C.101) all relate to the most recent presentation of the Grand Battery to the public and dates to the early 1990s (see Plates 4-6).

The modern wall and railing (C.101-C.104), the underlying plastic (C.105) and concreted rubble coursing (C.106), also continued along the western edge of the battery. At the northern end, the order of plastic (C.105 – with associated patches of tar and hard black plastic) and the roughly built wall (C.106) are inversed indicating that the two were obviously laid at the same time. The rough course of wall was probably built as filler and to patch-up the earlier uneven surface of the levelled walls where needed in order to bring the southern and western walls of the battery to an even height before the

concrete surface (C.162), and modern wall and railing, was laid. The pinkish mortar (C.104) used to bond, or at least to point, the upper wall (C.103) also lipped out over the plastic in sections along the western wall and linear traces of this mortar also survived on the new gable wall (C.112) of the standing building (approx. 0.03m-0.04m thick).

The garden and hedge

Between the parallel north-south orientated walls (C.107/108 and C.109) are three perpendicular walls subdividing the area, and former Officers' Barracks building, into four rooms: Rooms 1-4 running north to south. These subdividing walls were exposed on arrival to site (Plate 7). The deposits contained by the walls, within the four, unevenly sized rooms had also been excavated to different levels but comprised spreads of garden soil, rubble and mortar. Traces of a dark-brown garden soil (C.115), sealed by the plastic membrane (C.105) were, however, evident around the three walls. Consultation with old photos of the castle show that this part of the Grand Battery, the southern end of the former Officers' Barracks building, was formerly presented as a garden in the early twentieth century with the area to the east (east of the levelled wall C.109) surfaced in concrete. Some of the spreads of loam across the four rooms could be remnants of the soil from this garden (C.115) later covered over in concrete (C.162).

There was also a distinctive series of semi-circular patches of dark blackish-brown organic garden soil along the western, east-facing wall of the site which represent the traces of the former hedge. As with the garden soil (C.115), the traces of this hedge were sealed by the blue plastic (C.105). The garden soil horizon also respected and did not stain the wall infill (C.106) indicating that both (C.105 and C.106) post-date the use of the area as a garden. These dark 'splodges', twelve in total and each measuring approximately 0.7m – 0.75m across (north-south), were roughly spaced about 0.5m-1m apart. Traces of the soil extended up the east face of the wall (C.107/C.108) and over the sub-dividing walls (see Figures 12 and 13). The size and depths of the cuts varied, penetrating the underlying deposits in some instances (e.g. C.118 in Room 1) and shallower elsewhere as in Room 2 where a bed for the hedge overlay the subdividing wall separating Rooms 1 and 2 (C.280). One of the pair of semi-circular hedge-beds in Room 1 (C.118) was half-sectioned. It measured 0.7m, east-west and 0.17m in depth. It had a single fill, a blackish-brown loose sandy loam (C.119) and produced a couple of small fragments of brick and a tobacco clay-pipe stem. One other of the hedge-beds in Room 4 was excavated (C.192). This was a shallower cut than C.118, and measured 1.19m north-south, by 0.5m east-west and had a depth of around 0.04m. It had a single fill, a blackish-brown loose loam (C.193) and contained some fragments of brick and animal bone and a piece of white-glazed ceramic.

Given the disturbance of the site it is not clear if the garden soil was removed (perhaps to deter plant growth and dampness) prior to the laying of the concrete (C.162), with C.211 possibly spread as a

levelling/build-up layer right across the four rooms, or, if the garden soil was removed in 2010 by the contractors. On clearing back the site by hand, within the four rooms mortar and rubble deposits were identified in each (C.230, C.232, C.258 and C.253) which it is inferred predate the garden horizon (C.115 and hedge). It seems likely that these were separated by one or more levelling deposits but that due to modern disturbance it has not been possible to reconstruct this more recent part of the sequence fully.

The slate-capped drain

Running along the eastern length of the site, just inside (0.38m west of) the east curtain was a brick-built slate-capped drain bonded with lime mortar (C.143). It ran approximately north-south but not in a true straight line and was discontinuous. A small section was excavated and it was found to have been constructed of two single lines of bricks, set end-on. The gap or channel between these two lines was 0.23m wide while the overall external dimension of the drain measured 0.43m-0.48m wide. The bricks were set into a mortared base and the line of bricks on the western side was 'protected' or supported by an unmortared collection of rounded stones (average size 0.28m x 0.18m). The drain (C.143) and the collection of stones and associated structural debris including mortar and brick fragments forming the fill (C.172), were both set within an irregular linear cut (C.148), approximately 0.88m wide. Both the drain and the fill sat proud of the surviving edges of the top of the cut. The only integrated feature within the drain was a widening out of the drain where it was inset with a square vent or access-point. The drain, as it survived, was discontinuous and no exit points were identified nor were any physical connections discovered between it and other built features on the battery. The cut for the drain (C.148) cut through the top of one of the barrel vaults, Vault 5 (C.175) as well as multiple deposits overlying the vault (C.138, C.132, C.173) while the drain in turn was cut through in multiple locations by air vents, C.157 (see below). The relative surface of the drain was quite high and had been exposed by the machining. It is presumed the drain was sealed by the concrete and also some of the recent levelling deposits of red clay and gravel (C.211) but when it was inserted prior to this and for what purpose is unclear. It predates the early twentieth-century air vents and postdates the seventeenth-century Infantry Barracks. It is possible it dates to the nineteenth-century Officers' Quarters building and may relate to the drainage of the building, waste water and/or effluent.

Air vents

The drain, C.143, was partly built over by a series of concrete piers (C.158) located 0.80m-0.86m west of the east curtain. The northern five were exposed by machining and the southern two (total of seven, i.e. equal to the number of vaults) were covered over and obscured by levelling deposits and the spoil heap. The piers were all sub-rectangular almost square in shape and of around the same size (two measured; 1.36m (N/S) x 1.34m (E/W) and 1.27m (N/S) x 1.3m (E/W)). At the centre of each of these was a pipe running vertically down into the vaults below. None of these were excavated but it

would appear that holes were roughly cut through (C.157) from the surface of the Grand Battery through the apices of the stone-built barrel vaults with the pipes then inserted. A mixture of pipes seems to have been employed and the couple that were accessible and measurable had external diameters of 0.23m and 0.26m. The depths or lengths of the pipes measured 0.6m, 0.65m and 0.78m which would suggest that the thicknesses of the vault roofs are not all the same.

The basements of the keep were used as air raid shelters during WWII (Ó Baoill 2008, 26 and 84) and it seems probable the vaults were also used as places of refuge during the war with the pipes (C.127) being inserted as air vents. The concrete 'piers' that now encase the piers (C.158) and draw prominence to them may just represent a former surface that was left *in situ* to support the cannon while the rest of the surface of the Grand Battery was lifted and then resurfaced (see Plates).

Modern exploratory holes

Within Room 2 was a sub-rectangular cut (C.254; fill C.262) which the building engineers (Walter pers. comm. Feb. 2010) indicated had been opened relatively recently as an exploratory hole to determine the depth of deposits below the concrete surface and above the roof of the vaults (Figure 12). A second contemporary hole (C.142. 1.04m N/S x 0.7m E/W) was opened east of the standing building. This was half-sectioned (it was only discovered why and when the holes had been cut after C.142 was excavated) and the fill (C.163) was a mottled mixture of red clay, cobbles and lumps of mortar (i.e. essentially a mixture of deposits that had been cut through and redeposited back into the hole).

New gable wall

The one other feature that dates from the twentieth century is the rebuilt gable wall (C.112). Below the wall, within Room 1, are a series of levelling deposits (C.231, C.114, C.117 and C.230) bounded by the parallel walls C.108/107 and C.109. The gable wall is set on and built over these two walls and the deposits in between them were all exposed in section only. The stone and random-rubble coursing employed in the gable wall (C.112) ties in with the construction technique used for the rest of the building. The join at the corner between the already standing eastern long wall and the new replacement gable wall (C.112) is not clearly discernible except at the eaves. Here, in the long wall brick has been used and cut stone (sandstone?) is instead employed for the gable wall. The wall is bonded and pointed with a mortar containing a fine, angular pea-grit or gravel.

Directly below the wall (C.112) is a shallow (0.03m-0.06m) pinkish sandy mortar layer associated with roof slates (C.231). This has a level upper surface suggesting that it may have been laid to give an even surface on which to build the wall (C.112). This lay above a reddish-brown clay layer (C.114), 0.14m-0.16m thick containing some brick fragments. This may be contemporary with

levelling deposits (C.209) external to (east of) the levelled long wall, C.109. This clay horizon lay above a coarse and loose mortar deposit (C.117), 0.05-0.07m thick. It contained bits of slate and increased marginally in depth towards the eastern side of the room. This demolition or rubble horizon was separated from the underlying cobbled surface (C.155) by a very thin (0.02m-0.03m) light brown sandy loam, (C.230) which may actually be a 'settling out' of the overlying mortar-rich horizon.

3.4.2 Phases 7 and 8: the nineteenth-century Officers' Quarters building

Pre-1927 photos of the castle (Plate 2 and Figures 10 and 11) show that the standing buildings that run north-south along the western side of the Grand Battery, above the vaults, once extended as far as the southern ramp that links the Grand Battery and Outer Ward. The southern half was pulled down in the early twentieth century, sometime after it came into State Care in 1928. The southern gable wall (C.112) of the then shortened standing building was rebuilt and the area where the southern half of the building formerly stood was presented as a garden (see previous section).

Eastern and western long walls and southern gable wall

The Officers' Quarters building as originally built comprised the eastern long wall (C.109) running north-south, a southern gable wall (C.220?) and western long wall (C.108). The eastern wall (C.109) was built in a foundation cut, C.136 which cut through multiple cobbled surfaces (C.133, C.206, C.173, C.155, C.129, C.183 and C.111). The wall and cut were not excavated and only partially exposed in plan. Most of the eastern edge of the cut was exposed in plan but much of the western side was obscured by later additions (see below). The mortar-bonded stone wall (C.109) was between 0.71m and 0.83m wide and had been levelled to a fairly even and level surface at a height of around 0.17m to 0.2m above the cobbling as it survived in Rooms 1 and 4 respectively. Large angular stones (0.28m x 0.18m; 0.27m x 0.18m; 0.15m x 0.14m), none displaying signs of working, were employed in its construction along with the occasional brick and cobble. The foundation cut was marginally wider than the wall on both sides (by approx. 0.06m-0.1m) suggesting that the cut probably measured in full around 1m in width (east-west). The depth was not determined though excavations external to Room 2 indicated that it was at least 0.24m deep with the surviving height of wall measuring 0.47m. The fill of the cut (C.257) was a loose mixed-rubble, voided deposit with lumps of broken brick, mortar, slate and stone.

The parallel western long wall of the building was less well defined as this wall was only partly exposed during the excavation while its west-facing aspect (i.e. front long wall of the vaulted storehouses) is clad and obscured in concrete. Underlying the upper twentieth-century section of modern walling (C.101-C.105) along the western side of the Grand Battery are at least two earlier phases of walling. The upper, C.108, sits immediately below C.106/C.105. It has been damaged in places and has thus been patched up (C.106) to form a level surface. It is constructed with a random-

rubble coursing, has a surviving height of 0.19m – 0.2m and is of the same width as the wall, C.103, above it. This wall (C.108) is built on a wider wall or plinth, C.107, which projects out (eastwards of wall C.105/106 and C.108) by about 0.05m-0.09m. These two sections of wall could be contemporary, the latter being a plinth for the former, or, they could represent two different phases of building; the upper section, C.108 being the contemporary parallel partner wall to C.109 and part of the Officers' Quarters building; the lower section, C.107, may be contemporary with the use of the Grand Battery as an Infantry Barracks.

The southern gable wall of the former Officers' Quarters building, as with the western wall, is also not readily identifiable as the south-facing aspect is clad in concrete and the north-facing aspect was only partly exposed during excavation and is obscured by later modifications. An almost continuous rebuilding or patching up of the modern wall extends across the southern end of the site (C.106) suggesting that the end wall of the Officer's Quarters building was comprehensively levelled in the twentieth century. The new wall, C.106-C.103, was built above an earlier wall, C.220, both having equitable widths. The juncture of the southern and western walls at the south-western corner suggests that the southern wall, C.220 is structurally earlier than the western wall, C.107. The two are bonded together and both are rendered in plaster (C.110) suggesting that they were in use at the same time (Infantry Barracks?). Further keyhole excavations in Rooms 4, 3 and 2 demonstrated that wall C.107 was built above a yet earlier wall, C.210 (original front, western wall of vaulted storehouse?) but deeper excavations were not conducted along the southern end of Room 4 so it was not determined if wall C.220 continues all the way to foundation level and represents the original gable wall of the storehouse, or, if like wall C.107 it is also built above an earlier wall.

Internal partition walls

Within the building, west of the long wall (C.109), it was sub-divided into four unevenly sized rooms, Rooms 1-4 (running north to south). The dividing walls were built in two stages and all were bonded to, but not structurally integrated with, the long side walls (C.109 and C.108/C.107). The three dividing walls were constructed with poorly built mortared stone foundation courses (C.130, C.185 and C.126) with brick-built thin partition walls on top (C.184 and C.120). Only one course of brick survived as the site had been demolished to this level (sometimes cutting through a brick). Wall C.130 between Rooms 4 and 3 had a length (east-west) of 4.75m, measured approximately 0.36m in width and had a height of 0.43m. No upper brick course survived and a number of cobblestones were incorporated within the wall make-up. Wall C.185 between Rooms 3 and 2 measured 4.51m in length, 0.47m in width and had a surviving height of 0.56m. The red-brick partition wall (C.184) built above the stone foundation course (C.185) survived at the eastern end for a length of 1.43m with just a fragment (less than one-brick length) surviving at the western end. The bricks (0.23m x 0.11m x 0.06m) were laid with their long sides set parallel to one another, the lengths of the brick thereby

forming the width (0.23m) of the wall and just one course (height 0.06m) survived. The third wall, between Rooms 2 and 1, had a very roughly built stone foundation course (C.126), 0.44m-0.47m wide and 0.26m – 0.38m in height. The brick partition wall above it, C.120, survived best in the mid-section and partly overhung the stone foundation course at the western end by approximately 0.04m. The bricks, and one stone, were laid with their long sides set both perpendicular to and parallel to the length of the underlying stone wall. The bricks were bonded with a very hard concrete-like mortar with visible quartz and sand inclusions.

Thin brick-built walls also survived along the eastern side of the building set just inside (west) of the eastern long wall C.109 in Rooms 1 (C.187), 2 (C.113) and 3 (C.186). In Room 4, a length of this internal ‘skin’ wall survived set inside wall C.109 but was stone-built (C.123). Remnants of a parallel wall set inside, east of the western long wall C.107/8, also survived in the north-western corner of Room 1 (C.223). These walls, unlike the dividing walls between the rooms aligned east-west, were not set on a stone foundation course. In Room 1, two sections of the wall C.187 survived. Along the south-eastern side of the room two courses of brick, with the bricks set end-on survived for a length of 1.5m (north-south). The top of the wall appeared to be partly capped and bonded to wall C.109 with a layer of mortar/concrete – perhaps this was laid when the site was levelled and reused as a garden. The wall was also bonded at the southern end to the brick partition and skin walls of Room 2, C.120 and C.113. Just a short length, less than one brick length of wall C.187, survived at the north eastern corner of Room 1. The wall, C.187, was built against the western face of wall C.109, and was built above the cobbling (C.155) and the cut and fill of the long wall (C.136 and C.257). A fragment of a parallel brick wall, C.223, survived in the north-western corner of the room (length approx. 0.16m). Again two courses survived (0.15m in height) and the long sides of the bricks were set parallel to wall C.107 to which it is bonded with mortar. The wall is built on the cobbled surface (C.155) and continues under the new gable wall (C.112).

In Room 2, the brick dividing wall separating Rooms 1 and 2, wall C.120, is bonded to another section of brick wall (C.113), running perpendicular to it along the eastern side of the room, and set just inside wall C.109. As in Room 1, two courses survived (0.14m – 0.16m high) and a mixture of stones, but mostly bricks, was employed in its construction. As with wall C.187 in Room 1, the surface of wall C.113 had a thick cap of mortar bonding it to wall C.109 and obscuring the join. The wall (C.113) was built above a loose rubble deposit (C.232) which was sandwiched between the wall (C.113) and the underlying cobbles (C.129). The rubble deposit (C.232) contained bits of broken brick, stone, mortar and sand (decayed mortar) and was around 0.19m thick.

In Room 3, the equivalent eastern ‘skin’ wall (C.186) on the same alignment as wall C.113 and C.187 was also built above a rubble deposit, C.258, equivalent to C.232 in Room 2. As in Room 2, the brick

wall C.186 was bonded to, and a continuation of, the brick subdividing wall between the two rooms (C.184). The wall (C.186) survived across the full width of the room, a length (north-south) of 2.91m and two brick courses survived (height 0.18m). The wall was one brick thick (average brick width 0.23m) with the bricks' long sides set parallel to the main long wall, C.109. The rubble deposit, C.258, had the same make up as C.232 and lay above the cobbling (C.183).

Lastly, in Room 4, no brick walling survived but instead a discontinuous length (approx. 2.9m) of a mostly stone-built 'skin' wall (C.123) survived inside (west of) wall C.109. The stones used, along with one or two fragments of brick, were irregular in size and poorly bonded together with mortar. The mortar also appears to have been spread thickly directly over the cobbling (C.111) and into which the lower course of stones were pressed. The wall was sealed, as too was the levelled surface of C.109, by the concrete (C.162 – and presumably also the blue plastic tarp, C.105 which had been mostly cut away). One to two courses survived, 0.12m – 0.2m high and the wall measured 0.19m – 0.23m wide. As with wall C.109, the southern end of both walls terminated just short of wall C.220. The rubble deposit in Room 4 was not excavated but just identified in the west-facing section, stratified below wall C.123 and above the cobbling (C.111). It was a loose, mottled, coarse mortar-rich deposit with fragments of brick, lumps of mortar and small stones and was between 0.05m (north) and 0.12m (southern end) thick.

Linear foundation cuts

Within the three southern rooms there are linear cuts through the cobbling that run east-west parallel to, and immediately to the south of, the subdividing walls and along their full length – C.177 in Room 2, C.180 in Room 3 and C.124 in Room 4. These also cut through the rubble deposits (C.232, C.258 and C.253 respectively) that are stratified between the cobbled surfaces and the eastern skin walls as is evidenced by the surviving west-facing sections in each of the rooms. These cleaned back sections also demonstrate that the skin walls are built across the fills of each of these cuts (C.159, C.212 and C.125 respectively), as well as the rubble horizons.

The location of the cuts running alongside the subdividing walls would suggest that they represent foundation cuts although they are much wider than is necessary. The walls are also all apparently set hard against their northern edges. Box-sections were opened through all three cuts at their western ends where the beds for the former hedge had previously been cut (Figures 13 and 14). Each of these sections demonstrated that the bases of the cuts were synchronous with the bases of the walls and that they all cut through the cobbled surfaces and earlier underlying deposits. In Room 2, the linear cut C.177 south of wall C.126 was the widest of the three measuring between 0.37m and 0.56m (north-south) from the southern face of the wall (C.126) and had a maximum depth of 0.27m. The cut had a single fill, C.159 – a grey-brown sandy loam with fragments of brick, mortar, shell and charcoal as

well as some disturbed cobble stones. Finds from this deposit included animal bone, pot sherds, flint and metal.

In Room 3 a section was cut through the western end of cut C.180. This had a gently sloping, U-shaped profile with a width of 0.37m (north-south) south of the wall, and depth of around 0.28m (Figure 14). In addition to the wall, C.185, it had a single fill C.212, a sandy loam containing large angular stones, fragments of brick and decayed mortar. Disturbed cobbles were also present and visible within the top of the fill further to the east. An excavation trench was opened right across the width of Room 3 along its western end (approx.. 2.7m wide) but the northern edge of the cut, C.124 for the subdividing wall between Rooms 3 and 4, wall C.130, was not identifiable. The section was continued into Room 4 for a length of around 0.75m and excavation south of this wall (C.130), through the cut C.124, showed that it had a sloping U-shaped profile, a width of 0.25m (south of the wall) and depth of 0.29m. It had a single fill, C.125, a brown sandy loam containing small stones, brick fragments and animal bone.

It is unclear why these linear cuts are so wide if indeed they were cut as the foundations for the subdividing walls they now support. It is possible that they were originally cut for wider walls, of stone and/or timber, which were later replaced and the cuts reused. The stratigraphy, however, shows that they were cut after a rubble/demolition horizon (C.253, C.258 and C.232) was laid across the cobbled surfaces but before the eastern skin walls were built. It is possible that the rubble horizon also predates the construction of the eastern long wall (C.109 and cut C.136) but this was not demonstrable archaeologically. The subdividing walls are clearly secondary to the long side walls but whether this is just a constructional phase, or an interval of longer duration it is not possible to determine.

Room 1 fireplace

The last feature that is contemporary with this phase of construction are a pair of irregular shaped 'piers' in Room 1 set mid-way along the subdividing wall, C.126. The pair was represented by irregular cuts (C.122 and C.160) through the cobbled surface (C.155) set roughly half a metre apart. The western one (C.160) measured 0.56m (east-west) by 0.53m (north-south) and the eastern one (C.122), approximately 0.67m (east-west) by 0.56m (north-south). The latter still contained part of the stone- and slate-built pier (C.121) bonded with a hard lime mortar to the stone wall, C.126. It had been levelled to the same height as the walls while the western one had been robbed out and contained loose stones, rubble and other demolition material (C.230/117?). This loose debris was excavated and showed that the cut measured at least 0.12m in depth (mortared stones were encountered *in situ* at this depth). Although no traces of burning were identified around either pier, the setting is suggestive of a fireplace. Photos from the 1990s show that similar pairs of piers also formerly existed in the other rooms south of Room 1.

3.4.3 Phases 5 and 6: the eighteenth-century Infantry Barracks

The nineteenth-century Officers' Quarters building located along the western side of the Grand Battery replaced an earlier Infantry Barracks built in 1715 providing a *terminus ante quem* for the construction of the ground floor vaulted storehouses. No plans, drawings or other illustrations of this building survive though comparisons can be made with a small number of contemporary barracks, surviving and/or documented. There were perhaps enough bits uncovered at Carrickfergus to piece together an idea of the building and to make some suggestions as to its design and layout. It also seems probable that, unlike the later Officers' Quarters building, that the barracks spanned and occupied the full length and width of the Grand Battery.

All four rooms west of the long wall (C.109) of the Officers' building have cobbled surfaces. These survive best, and almost intact, in Rooms 1 and 4 but were heavily disturbed in Rooms 2 and 3. Extensive cobbling also survives outside, east of this wall, and again some areas have survived better than others. All of this cobbling was cut through by the foundations for the nineteenth-century Officers' Quarters building (C.136 and subdividing walls). Set within the cobbling, external to wall C.109, are also a series of levelled but well-built stone and red-brick walls that are respected by, and evidently contemporary with, the cobbling. These levelled walls and cobbled surfaces have been identified as the remains of the eighteenth-century Infantry Barracks.

The lower wall, C.107, was also built using unworked mortar-bonded angular stones and had patches of plaster or render (C.110) surviving on its east-facing aspect in Rooms 1 and 4. The plaster (C.110) was 10-15mm thick, coarse and brittle with inclusions of flecks of lime and charcoal. It was generally cream-coloured with a yellowish-brown hue and had an even burnished surface. It survived best in Room 4 and appeared to have been applied to the walls before the cobbles were laid which abut it.

The cobbled surfaces within the four rooms

The cobbled surface in Room 1, C.155, was relatively level and even and regularly laid out. It was cut by the foundations for walls C.109 and C.126 (C.136 and C.177 respectively), as well as by the cuts for the possible fireplace piers (C.121 and C.160) and beds for the twentieth-century hedge (see Figure 12). The cobbles were of roughly similar sizes and included the occasional flint cobble (cobble measurements; 0.12mx0.09m; 0.09mx0.08m; 0.06mx0.06m; 0.09mx .07m). Excavation of the cuts C.118 and C.121 demonstrated that the cobbles were just one layer thick and were set into a sticky red clay bedding layer (C.255). Neither of these two layers (C.155 and C.255) was excavated.

The cobbling in Room 2 was much different and distinctive in a number of ways. There is a clear linear band of cobbles, C.173 (0.4m-0.5m wide), that run east-west across the northern side of the

room, parallel to the foundation cut C.177. This same line of cobbles (C.173) continues externally (i.e. east of wall C.109) as far as the curtain wall. The stones in this cobbling (C.173) appear to be slightly overlapped by a more extensive cobbled surface, C.129 that covers much of the room with gaps in places where it has been disturbed though the two converge and are indistinguishable in the north-western corner. The latter has a distinctive linear arrangement of rectangular cobble stones (0.25mx 0.09m; 0.19mx0.09m; 0.24mx 0.09m) in the south-eastern corner of the room (decorative? drain?). This integrated detail (approx. 1m in length by 0.19m wide) was disturbed and truncated at its south-western end. An exploratory hole, C.254, was opened in Room 2 by the contractors in 2009/2010, at the same time as cut C.142 further to the north (see above). During the 2010 excavation this cut was extended eastwards by hand to see if the relationship between the two cobble layers, C.129 and C.173, could be more clearly distinguished. Only a slight overlap was discernible. Instead, the upper cobbles (C.129) were found to lie above a mixed mottled sandy-loam deposit or bedding layer, C.229, with inclusions of disturbed cobblestones within it. The lower cobbles, C.173, are also set in a sandy-loam bedding layer which was indistinguishable and appeared to be the same horizon used for the former, C.229. This presents three possibilities: one that the band of cobbles, C.173 may have been earlier and left *in situ* and incorporated within the upper cobbled surface when the latter, C.129, was laid, possibly disturbing some of the stones in the process. This, however, would have given an uneven surface. A second possibility is that when the upper cobbling (C.129) and associated building works were being constructed that a line of the lower cobbling (C.173), laid sometime prior to the use of the Grand Battery as the site of an Infantry Barracks, was exposed during the building work. It was then retained as part of the foundation for a wall (thus explaining its distinct linearity) with the remaining cobbles cleared and the cobbled surface, C.129, reset probably reusing cobbles from the C.173 horizon. Alternatively the cobbles could have all been laid as one surface with taphonomic or post-depositional activity causing the differential preservation and appearance of the two areas. The cobble surface in Room 2 (C.173 and C.129) is also at a much lower level than in any of the other rooms. One other feature associated with the cobbling in Room 2 is an irregular linear ‘depression’ (C.178) running along the western edge of the cobbling (C.129), adjacent to the western long wall (C.107/C.108). On cleaning back the disturbed deposits overlying the cobbles no distinct fill was observed within C.178 and in some places the cobbles seem to have been pushed down or slumped rather than cut away. The cause or function of this depression (0.04m-0.21m wide) is unclear and was not encountered in any of the other rooms. It may relate to the hedge planting or other gardening associated with the presentation of the Grand Battery as a garden in the twentieth century.

The cobbling in Room 3 was the most heavily disturbed, some of which had evidently been machined off in 2010. As in Room 2 there were two horizons of cobbling, though the two were more readily apparent in Room 3. The upper cobbling, C.183 (average size 0.08m x 0.06m), survived in patches along the southern side of the room where the subdividing wall, C.130, was built on top of it. As with

the cobbling in Rooms 1 and 2 this was also just one course deep and was set into a red clay bedding layer, C.213, similar to the clay bedding layer (C.255) employed for the cobbles (C.155) in Room 1. A small box-section (approx. 0.4m x 0.5m) was opened in the south-eastern corner of the room in an area that had been disturbed. The clay (C.213) layer was stratified above the lower cobbling, C.190, which was set into a sandy bedding layer, C.191. The excavation trench opened across the western edge of the room recorded the upper cobbling (C.183) and the two bedding layers (C.213 and C.191) but the lower cobbling did not appear to survive. Again, perhaps as in Room 2, when the later, upper cobbled surface was laid cobbles from the earlier horizon (C.190) may have been reused where convenient. The box section identified lower deposits stratified below the sand layer (C.191) but these will be discussed separately below.

In Room 4, as in Room 1, just one horizon of cobbling was recorded which like Room 1 was also regularly laid with an even surface and at the same relative height as C.155 in Room 1. The cobble surface was cut by the linear foundation C.124 and beds for the hedge (see Figure 13). The later was excavated and partly expanded which demonstrated that the cobbles, C.111, were of one course thick and set within a plastic mottled reddish clay (C.203), equivalent to (same as?) the clay bedding layer (C.213) in Room 3. The clay (C.203) was around 0.23m thick.

In summary, just one cobble horizon was identified in Rooms 1 and 4 and both were laid in a red clay bedding layer. In the intervening rooms which were more heavily disturbed there appeared to be two cobbled surfaces with cobbles from the lower horizon possibly having been reused in the later layer. In Room 3, the upper cobbling was set in a clay layer, as in Rooms 1 and 4, and the lower cobbling was set in a sandy loam, as were both cobbled surfaces in Room 2. The only detail or contemporary feature identified within the four rooms was a short linear arrangement of rectangular cobbles in Room 2.

The cobbled surfaces external to wall C.109

East of the long wall C.109 there was also an extensive cobbled surface C.133 that stretched eastwards from the wall for about 3m at its greatest extent, with a ragged truncated eastern edge. This was both level with and regularly laid-down like the cobbling in Rooms 1 and 4 (C.155 and C.111) respectively and was also cut by the foundation cut, C.136 (for wall C.109). It was overlaid in most places, in particular towards the southern end of the Grand Battery, by the sticky red clay layer C.161, which adhered to the surfaces and interstices of rounded stones. The cobbles (approx. 0.06m-0.07m-0.13m in diameter) were cut away in numerous places which presented ready-made cross sections through the layers. This demonstrated that the cobbles (C.133) were one course thick and set within a mottled red-clay bedding layer (C.137). Red-clay bedding layers were also employed for the upper cobbles west of the wall (C.109) though little of these deposits were actually exposed or excavated

(c.203, C.213 and C.255). A more extensive section of the clay deposit C.137, west of the wall (C.109) was excavated. The clay layer (C.137) was 0.07m-0.13m thick and had lumps of mortar and clay and fragments of brick within it, and quite a lot of animal bone. It also yielded a William and Mary coin (1689-1702), which can be dated to the turn of the eighteenth century and a corroded iron arrowhead. The discovery of the coin would tally with the interpretation that the upper cobbling, and presumably also the bedding deposits laid for them, date to the early eighteenth century and to the building of the Infantry Barracks. Patches of this cobbling (C.133) were also identified surviving along the curtain wall indicating that it must once have extended right across the width of the battery. Just east of Room 4 there was a divot or posthole-like hole in the cobbles with a handful of cobbles sitting proud of the hole to one side. The depression was in-filled with loose rubble, indistinguishable from the general levelling/demolition deposits C.209 and C.211. It seems likely that this cut or gouge out of the cobbled surface is of a relatively recent date, possibly when the garden or concrete surface was being laid in the twentieth century.

Walls, piers and other features contemporary with the cobbling C.133

Set within this cobbled surface (C.133) were a series of levelled walls and other features that are clearly contemporary with the cobbling though it appears probable that structurally (and stratigraphically) the former were built first with the bedding layer (C.137) and cobbling (C.133) then laid down. The range of features are best visualised and understood with reference to the site plan (Figures 12 and 13) and photos (Plates) and were, for the most part, levelled to the same height as the surface of the cobbles. The principal and most distinctive feature is a discontinuous linear stone- and brick-built wall that is aligned roughly north-south parallel to wall C.109 and the standing building. This is made-up of a number of sections, each numbered individually and which will be described here separately from north to south.

Perhaps one of the best preserved and most intriguing surviving architectural details on the site is wall C.135 which is located immediately beside, 0.07m-0.13m east of, the south-eastern corner of the standing building and which had been partly cut by the foundations (C.136) for that structure along its eastern side. A length of 4.5m (north-south) was uncovered and it measured 0.7m-0.75m in width. It was stone-built using random rubble coursing, and bonded with mortar. Brick edging (C.141) was used along its east face; the wall may also formerly have been edged on its western face with the bricks being removed when the Officers' building was constructed. The wall (C.135) terminated at its southern end in a cruciform arrangement where the wall, and notably the bricks, branched in three to the east, north and west, with curvilinear rather than angular corners (see Figure 12). The red bricks (C.141; 0.22m x 0.05m; 0.19m x 0.05m) were cut to form the curving features and the finish was not always even. Patches of plaster render (C.151) survived on the surface of the bricks (C.141). This was a fairly homogenous cream-coloured mortar with visible fine grains of sand and lime within it and

was around 10-12mm thick. The eastern branch of the wall (0.3m – 0.33m wide) continued eastwards for a length of around 1.9m where it terminated in a pair of rectangular brick piers, one set to the south of it (C.218) and one to the north (C.219), bounded by the cobbling (C.133) on all sides. The southern pier (C.218) had a foundation of three courses of brick, 0.2m in depth and 0.35m wide (east-west) and was crudely constructed. It was connected to the northern pier by a slip of mortar at the level of the cobble surface. The northern pier, C.219, had shallower foundations of just two brick courses, 0.12m in overall height/depth. Both were bonded with a lime mortar often thickly applied (0.5m-0.15m thick). The southern arm of the ternate wall also continued, southwards for around 4m. The wall, however, did not survive as it had been robbed-out but a negative space in the cobbling and patches of mortar (C.134) indicated its former presence. The void was in-filled with a loose sandy loam with lumps of mortar, small stones and bits of slate and it also yielded a North-Devonshire green-glazed ridge tile.

The length of robbed out wall (C.134) terminated at a disturbed area of the site and a rubble deposit C.167. Surviving traces of a wall were discernible within this area of rubble (C.167), which was suggestive of an arrangement and layout like the cruciform detail identified a few metres to the north, at the southern end of wall C.135. Due south of C.167 and C.134, was another length of a well-built stone wall (C.169), which employed cut sandstone (six pieces), probably Cultra sandstone reused from elsewhere in the castle, and abutted by the cobbling, C.133. This length of wall measured 2.1m-2.16m (north-south) and 0.6m -0.62m wide (east-west) and traces of mortar or render survived on its east-face. Just one course of stones survived (0.18m in depth) as revealed at its northern end, south of C.134, where the area had been robbed-out. The cobbled surface, C.133, had largely been removed in the area between walls C.134 and C.169, but an extensive area of cobbling survived and stretched eastwards from the southern half of the latter wall (C.169) and southwards towards the top of the ramp.

Wall C.169 was separated from the next section of the north-south wall, C.208, by an area of cobbling (C.133), with a narrow linear gully or slot aligned north-south (1.06m) within the cobbles running between the two. This 'slot' was represented by a gap in the cobbles, 0.12m-0.13m wide (east-west). The stone built feature, C.208 was a wedge or semi-circular shaped 'pier' in plan with a void (removed stone?) or hole (0.3m x 0.32m) towards the centre. It measured 0.95m at its western end (north-south) narrowing to 0.55m at its eastern side, and 0.56m across (east-west). It was built with two irregular shaped pieces of Cultra sandstone (0.4m x 0.35m; 0.28m x 0.3m) and was rendered or plastered on its southern face with a thick layer of mortar (0.32m thick). It is possible that this feature (C.208) may represent the southern side of an opening or entry of some sort with the central hole, and slot between it and C.169, having formerly supported wooden or metal fixtures.

Bonded to the eastern side of C.208 was a length of brick-built wall (C.217) running perpendicular to C.169, C.135, C.109 etc. The wall, C.217, was constructed with two lines of bricks with their long-sides set parallel to one another (average size 0.22m x 0.11m). A length of 1.57m (east-west) survived (0.23m wide north-south) but it was truncated at its eastern end and may once have continued as far as the curtain wall. With the exception of one brown-coloured brick, the rest were all of a red or burnt orange colour and were bonded with mortar (0.05m-0.01m thick). Some half bricks were also employed. A short length of wall branched off the wall on its northern side towards its eastern end on the same alignment as the piers C.118 and C.119 further north, and of similar size in plan (0.07m x 0.03m).

South of C.208 was the last section of the north-south wall, C.207, located parallel to and approximately 0.29m east of, the foundation cut C.136. It was also set just under a metre south of C.208 (0.95m) separated by an area of cobbling (C.133). This was a regularly laid, brick-built wall, 3.2m in length (north-south) and 0.36m wide, with one course surviving to a height of 0.05m at its northern end and three courses, to a height of 0.24m, at its southern end. It was constructed with rectangular hand-made bricks displaying different colouration due to uneven firing (orange/brown/red). Mostly complete bricks were used with relatively thick layers of mortar (0.02m) between courses. Traces of plaster render (10mm-12mm thick) survived on its eastern and western faces, especially towards the better preserved southern end of the wall.

Other contemporary built features were a series of sub-rectangular brick-built 'piers' or 'plinths' also all levelled to around the same height as walls C.135, C.169, C.207 etc. Between Room 2 of the Officers' Quarters building and the slate-capped drain (C.143) were a pair of piers, C.196 and C.145. The western one, C.196, was on the same alignment as the pair of piers to the north located east of wall C.135 and the standing building (C.218 and C.219), and all three were also aligned with the northerly projection of wall C.217 to the south. The pier (C.196) survived to a height of 0.17m and measured 0.35m across at the top, widening slightly to 0.4m at its base. It had two courses of brick surviving which were built on top of a couple of layers of slates laid flat and roughly mortared together. The second pier to its east, C.145, was 0.22m in height with two and part of a third course of brick surviving and it measured 0.61m (north-south) by 0.41m (east-west). On the same alignment as pier C.145 was another pier, C.144 and probable second pier C.146, which matched-up with the pair to their east (C.218 and C.219). Only the base of pier C.146 survived and was represented by slates laid flat and crudely mortared together – the same technique as employed for the base of pier C.196. The level of these slates, however, was at the height of the tops of the surviving walls and pier C.144. Pier C.144 was better preserved and three courses survived to a height of 0.21m-0.22m. It measured 0.62m (north-south) by 0.36m (east-west) and was constructed of rough, uneven sized rectangular bricks bonded with thick (15mm) layers of mortar. The last of the surviving piers (C.200

and C.176) was at the northern end of the site opposite the northern end of the standing building. This area of the site was not excavated by hand and only partly cleaned back by a mechanical excavator under archaeological supervision. It had evidently been heavily disturbed with modern services having been laid in the area. No traces of cobbling appeared to survive just a pair of the WWII concrete piers and air vents, and a short section of the drain (C.143) as well as the isolated brick piers, C.200 and C.176. Only one course of brick was exposed in pier C.200 (0.08m in height) and it measured 0.62m (north-south) by 0.35m (east-west). Just the surface of pier C.176 was exposed and had been damaged and was incomplete. The top of pier C.200 was capped with a layer of mortar as also were C.118, C.119 and C.144 – this probably just represents the mortar layer for the next course of bricks, since removed, rather than a deliberate mortar ‘cap’ or surface.

Cuts and fills associated with the brick walls and piers

The brick-built piers or plinths were all located along the eastern side of the battery which was generally more disturbed than the western half with the result that associated cuts, fills and deposits for a number of them were often exposed in section. The southern group of features was exposed in plan only and none were excavated (C.207, C.208 and C.217) which was also the case for the northern pier, C.200.

The area east of Room 2 was heavily disturbed and a section running between the wall, C.109, and the drain, C.143, was excavated by hand to provide a stratigraphic cross section across this part of the site. Interpretation of the features and deposits was, however, confused and difficult to reconstruct. North of wall C.169 and south of the robbed wall C.134 was a loose mortar and building-debris deposit, C.167. When this was removed it was found to lie directly above a fairly firm and plastic dark brown loam (C.170) with inclusions of charcoal, small stones and fragments of shell. Walls C.169 and C.134 were built above this loam deposit which also acted as a bedding layer for the cobbles, C.133. This layer, C.170, overlay a lower undulating cobbled surface, C.206, and both were cut to their east by the foundation cut, C.136. The cobbles were set on a light brown sandy bedding layer, C.139 which was exposed in plan where the lower cobbles, C.206, as well as the upper cobbles C.133, had both been removed through an episode of demolition or clearance (C.168). The rubble deposit, C.167 filled the disturbed area or cut (C.168). As the site plan shows an extensive ‘bite’ or area of clearance is evident east of Room 2 where the upper and lower cobbled surfaces have a ragged truncated edge and to which episode of levelling might be added the removal of the upstanding section of wall C.134. The depth and edges of this demolition ‘cut’ (C.168) are uneven.

Immediately east of the truncated eastern edges of the cobbling, C.133 and C.206, is an unusual mortared section of masonry in which mostly bricks and some slate are employed (C.165). When removed it was found to lie directly on top of the sandy layer, C.139, with no surviving cobbles in

between. Its relationship to the cut, C.168 and rubble deposit C.167 and its proximity to the foundations of a number of brick-built features, coupled with the nature of its fabrication suggest that it is a collapsed or dumped bit of masonry probably once part of the Infantry Barracks. This would suggest that the phase of disturbance represented by the 'cut' C.168, redeposited masonry C.165 and rubble layer C.167, probably date to when the Barracks was being levelled and replaced with the building of the Officers' Quarters in the early nineteenth century.

The fragment of masonry C.165 measured 1.2m along its maximum length, 0.44m across at its widest point and 0.2m in height or thickness. It was constructed of a mixture of mortared brick and slate and it was aligned, or lay, on a roughly north-northeast/south-southwest orientation. Its appearance is suggestive of a flue or drain-like feature but it is difficult to see how it would actually have fitted in or functioned within a structure and so its origin and use remain obscure.

East of the anomalous masonry feature C.165 are the brick piers or plinths C.196 and C.145. A cross-section through the site demonstrated that these were both set in shallow cuts (C.239 and C.236 respectively) which cut through the sandy bedding layer, C.139, for the lower cobbling (C.206/C.173) and an overlying mottled clay layer C.138, with lenses and lumps of pinkish marl within it. Traces of loose mortar fills, C.221 and C.166, associated with the two piers, C.196 and C.145 respectively, also survived. The northern sides of the piers respected the northern edge of the linear band of cobbles C.173 while just a few upper cobbles, C.133, survived against the north-eastern corner of the eastern pier, above the lower cobbling C.173. East of pier C.145 was the slate capped drain, C.143 and the cut for it, C.148 cut through the loam deposit, C.138 and the stone-built crown of one of the vaults (Vault 5; C.175). The sequence above these features and deposits (C.167, C.165, C.138, C.196, C.145 and C.143) was removed by machine and it was unclear whether they were sealed by the clay horizon, C.161, or by one of the more mixed rubble layers C.209 and/ or C.211. Evidently, there is a horizontal discontinuity between the former and the modern levelling/build-up horizons.

North of this section, the disturbed area east of the southern end of the standing building was excavated. The cut (C.150) for wall C.135 and the two piers (C.118 and C.119) was not excavated but was partly exposed in the east-facing section (0.15m-0.2m deep). Like the cuts for the piers further south, it cut through the dark-brown loamy clay layer (C.138; 0.13m- 0.03m thick) which was rich in artefacts including animal bone and shell, sherds of sgraffito ware and other ceramics, mid-seventeenth-century clay-tobacco pipe bowls, charcoal flecks and occasional bits of mortar. The foundations also cut through an overlying shallow mottled blackish-brown cinder layer, C.131 (0.01m-0.03m thick). A cursory appraisal of the finds recovered from the former deposit (C.138) would suggest a date range of the mid- to late-seventeenth century which would tie-in with the date of construction of the Infantry Barracks at the start of the eighteenth century. It seems probable that these

were midden deposits imported from elsewhere in the castle or town and spread out across the surface of the Grand Battery to build-up and create a relatively level surface for the construction of the Infantry Barracks and the laying of the cobbling (C.133). The lower of the two deposits, C.138 directly overlay a lower cobbled surface C.132.

East of the piers, C.118 and C.119, was a heavily disturbed area of the site and much of the upper deposits C.137, C.131, C.138 and the cobbling C.132 had been removed south of the southern pier C.144. No cut for pier C.144 was identified but it was constructed above the cut and fill of an irregular shaped 'pit', C.153, that cut through the lower cobbling, C.132. The pit measured 2.02m east-west by roughly 0.68m -1m north/south and was 0.05m-0.06m deep. It was filled with a mixed clay deposit C.189 that contained lumps of cuper marl, mortar and disturbed cobbles and was partly sealed, across the northern end, by the slates laid at the base of pier C.144, and also by the 'midden' deposit C.138. It produced some north-Devonshire pottery and a seventeenth-century clay pipe bowl suggesting that it is contemporary with the pier and overlying deposits (C.138 and C.131) and may have been cut during that phase of construction.

3.4.4 Phase 4: pre-eighteenth century cobbled surface

Underlying the Infantry Barracks building and associated levelling-up deposits was an earlier cobbled surface. Separate areas of this lower cobbling were recorded across the site and have been briefly described already. This lower cobbling includes the cobbling identified in Rooms 2 (C.173) and 3 (C.190) and in the area external to Room 2 (C.206/C.173) as well as the cobbling uncovered east of the standing building (C.132). Where the cobbles had been cut away it was found that they were set on a sandy bedding layer – C.229, C.191, C.229 and C.139 respectively. As with the cobbles these can all be identified as the same horizon. Indeed the excavation of a north-south transect, from pier C.144 southwards, demonstrated that C.229 and C.139 were the same deposit. The depth of this deposit, C.139 was relatively shallow adjacent to the pier C.144 (0.03m) but increased significantly in depth further south (0.25m). It produced a small amount of animal bone, a couple of clay pipe stem fragments, pot sherds, slates and flint.

The cobbling east of the standing building (C.132) had a linear drain feature incorporated within the cobbles. This was defined by the use of elongated sub-rectangular cobbles and the surface sloped down slightly either side of it to help facilitate the run-off. It ran for a length of 3.6m, east-west and measured roughly 0.3m in width (north-south) and terminated at the curtain wall where the run-off would have exited. This was blocked but on cleaning back the deposits adhering to the wall (cables had been laid against the inside face) and overlying the cobbles, it became evident that the cobbled surface continued under the walls. This suggests that the curtain wall above this level, in full or in part, has been re-built sometime after the lower cobbled surface was laid. Some infilling and

reworking around the embrasures can also be identified suggesting multiple phases of repairs and modification. However, the use of random-rubble coursing, and re-pointing, makes the identification of phases of rebuilding and modification more difficult to determine. Nevertheless, the continuation of the cobbles under the wall, documentary reference to ‘modifications’ for different artillery and the suggestion of possible rebuilding identified on the external face all suggest that the upper section of the curtain wall, extending along the east side of the Grand Battery could largely or wholly be of post-medieval construction.

3.4.5 Phases 2 and 3: deposits between the lower cobbling and the vaults

The horizons below the lower cobbling (C.132/C.173/C.206) and above the tops of the vaults - ‘the crown and haunches’ of the vaults - were explored through a number of different openings. The largest was a transect opened running north-south from pier C.144 to the east of Room 2. The upper horizons had been heavily disturbed in this area and the cobbling, both the upper and lower, had been largely removed. This ‘trench’ ran across the crown of Vault 5 (C.175), and was excavated down to the upper surface and stonework of the vault thereby providing a complete cross section and sequence of the overlying deposits (‘Vault 5 cross-section’). In Rooms 4 and 3, a narrow trench (approx. 0.7m wide) was opened across the western end of the rooms, from the north-western corner of Room 4 right across to the north-western corner of Room 3. In Room 2 a small section (0.4m x 0.5m) was opened in the north-western corner (‘Room 2 box-section’) while a small isolated box-section was opened towards the south-eastern corner of Room 3 (‘Room 3 box-section’). All of these identified a sequence of deposits some of which can tentatively be correlated and identified as representing the same horizons but depths and thicknesses varied.

Vault 5 cross-section

The extensive sandy bedding layer (C.139) for the lower cobbling extended right across this trench. At the northern end the cobbles (C.132) were set on the sand (C.139) and also into deposits C.226, a clay loam layer which was almost indistinguishable from the much thicker and more extensive horizon directly below it, C.199. The excavation of this latter deposit began to reveal the shape of the vault below which became more marked as excavation proceeded downwards. This deposit (C.199) yielded the complete base of a ceramic vessel which was well fired, had a dark grey, almost black, fabric and was covered in a rich green glaze. Cormac McSparron (pers. comm.) has suggested it may be a late variant of Scottish Late Medieval reduced-ware of probable sixteenth or seventeenth century date. This deposit (C.199) also contained lenses of marine shells and sandwiched between it, and the overlying horizon C.226, was a layer or setting of irregular shaped round-edged stones (C.194). The stones were generally larger (approx. 0.15m across) and less rounded than the cobbles employed across the site (C.132 etc.) and the stones were also patchier and localised in their extent. South of the crown of the vault, a similar stone layer, C.234, was encountered. Both are roughly at the same height

as too is the surface of the crown of the vault. This could therefore represent the remains of an earlier stone surface across the Grand Battery which was laid to make use of the solid stone surface presented by the tops, crowns, of the vaults. The stones, C.234, lay below a fairly sterile, dark brown loam deposit C.223 which underlay the sandy bedding layer, C.139.

North of the vault, excavation of the stones C.194 and layer below, C.199, revealed a pinkish-brown mixed clay (cuper marl) loam layer containing sea shells (C.201). Removal of C.199 south of this exposed the crown of the vault which it lay directly over. A burnt layer with inclusions of charcoal, ash and cinders, C.174, was stratified below this deposit (C.199) which in turn lay above another firm, pinkish-clay (cuper marl) horizon (C.214). This overlay a loose thin gravel layer (C.216) which sloped downwards reflecting the underlying profile of the northern haunch of the vault. Below the gravel (C.216) was a relatively thick dark grey loam (C.215), containing animal bones and pottery sherds and also produced a broken quern stone, and which sealed the penultimate deposit, a thin burnt layer, C.228, containing charcoal, ash and burnt earth. The primary deposit was a grey-brown loam (C.140/218) containing some ash and charcoal and it lay directly over the northern haunch of the vault and in the depression between it and the next vault (Vault 4) to the north which was not uncovered during the excavation.

The sequence of deposits below the sandy layer, C.139 south of the crown of the vault, was not dissimilar to that excavated against the northern haunch. Below the stone layer, or surface C.234, was a thin (0.02m) lens of burnt sand C.238 that extended across an area of 0.4m (north-south) by 0.31m (east-west) and produced bits of clay pipe, a ridge tile and nail. This lay above a brown silty clay (C.240) which in turn overlay a grey-brown mortar layer containing some large stones (C.243). Below this was a sterile red-brown clay (C.244) within which were a layer or lens of flat stones, C.245 (these are not well represented in the section drawing). This overlay a gravel layer with shell and animal bone, C.248, which may be the same deposit as the gravel layer, C.216, recorded north of the crown of the vault. The gravel lay above a lens of reddish-brown clay, C.260 (not dissimilar to C.244 above it) and beneath it, a brown clay loam, C.246, that produced animal bone, slate and some shells. When compared during the excavation, this latter deposit appeared very similar to the thick horizon, C.215 north of the crown. This would also correlate stratigraphically as both are sealed by layers of gravel (C.216 and C.246) which are probably the same deposit. Below C.246 was a layer of perforated roof slates, many complete or almost complete (C.249) which again is better recorded in the photos rather than in the section drawing. Below the slate horizon was a light brown sandy loam (C.251) which lay above the basal deposit C.252, an ash- and cinder-rich loam layer at the base of the southern haunch of Vault 5.

Room 4 box-section

One of the beds cut for the hedge was located right in the north-eastern corner of Room 4 (C.193). This was expanded slightly to the south and east (approx. 1.3m x 0.6m) and excavated to investigate the linear cut (C.124) and deposits below the cobbling (C.111). The former (C.124) cut through the cobbling (C.111) and clay bedding layer (C.203) (see above). The clay overlay a mid-brown gritty clay loam with inclusions of small stones and frequent lumps and patches of mortar (C.204). Below this was a dark, blackish-brown fairly compacted loam (C.202) with lots of animal bone throughout as well as shells, charcoal and small stones, some metal artefacts, pot sherds and bits of roof slate. This lay directly above the stonework of the vault below, Vault 5 and a sub-rectangular stone-built wall-like feature, C.205. This was bonded to the roof of the vault below and was also bonded to, and projected out from, walls C.107 and C.210. No cut for this feature was detected in the small box trench opened in Room 4. No signs of a lower cobbling or associated bedding horizon were discovered.

Room 3 box-sections

The trench was extended across the subdividing wall (C.130) into Room 3. The northern edge of the foundation cut (C.124) for the wall (C.130) could not be identified in the west-facing section suggesting that the wall was built right up against the edge of the cut. The upper cobbling (C.183) lay above the clay layer C.213 which lay directly on the sandy horizon C.191 and all abutted the wall (C.130). The lower cobbling, C.190 set within the sandy layer (C.191) encountered further west in the room, was not present in this box section, nor were any cobbles visible in the cross-section indicating that they must have been lifted (horizontal discontinuity) before the upper cobbles (C.183) and bedding layer (C.213) were laid down. The sandy layer (C.191) lay above C.204 which lay above C.202 – the same stratigraphy as encountered south of the wall. Between this lower deposit, C.202 and the top of the vault, however, was an additional layer, C.224. This was a friable gritty sandy loam containing flecks of mortar, small stones and occasional flecks of charcoal and shell and is suggestive of decayed mortar and weathered stone. This deposit (C.224) lay directly above the crown of the vault, Vault 6 (C.256) and also walls C.210 [and C.107] and features C.181 (labelled C.205 in Room 4 before excavation began but C.205 and C.181 are the one feature). As in Room 4, no cut for this built feature (C.181) was detected.

Further east in Room 3, a small box-section was opened to investigate the different cobble layers (see Section x above). Below the lower bedding layer, C.191, the clay loam horizon, C.204 was encountered and stratified between it and the charcoal rich layer, C.202, was a loose gravel layer C.227. This may be contemporary with, and the same as, the gravel layers C.216 and C.248 recorded within the haunches of Vault 5 further east. The gravel layer overlay C.202 and C.224 and the top of the vault roof (C.56) which was encountered at a depth of 0.36m below the cobble, C.190.

Room 2 box-section

The western end of the linear cut, C.177, terminated short of the western wall (C.107/C.108) where the fill (C.222) abutted a projecting stone-built feature, C.179. The cobbling in the area to the south and south-east of this feature and cut had also been disturbed. A small box-trench was therefore opened to investigate the stone feature, C.179, as well as the cobbles (C.173/C.129) and cut C.177 (Figure 14).

The two cobbled surfaces, C.173 and C.129, more distinctive further west, seemed to merge in the north-western corner of the room. This cobbling (C.173/C.129) lay above the sandy bedding layer C.229, which was stratified above a relatively thick (0.5m at its deepest) dark, grey-brown sandy loam horizon (C.237). It had inclusions of charcoal, small stones and pebbles and produced a range of finds including animal bone, pot sherds and fragments of brick. Below this was a shallow horizon (0.08m) of a black silty loam C.241 which lay above the basal deposit, C.242. This (C.242) was a loose mortar layer containing some shell, animal bone and pot sherds and lay directly above the stonework of the underlying vault, Vault 5. This lower sequence – the black charcoal layer (C.241) and basal layer (C.242) is not dissimilar to that encountered in Room 3 (i.e. C.202 and C.224 respectively).

3.4.6 Phase 1: walls and vaults

The earliest features encountered on the site were the underlying masonry structures; the front (C.210) and gable (C.220) walls of the vaulted store house, the crown and haunches of the barrel vaults (section of Vaults 5 and 6 were uncovered), the two anomalous features (C.181/205 and C.179) and the curtain wall. None of these can be independently dated and may all be contemporary or of multiple phases. It is hoped that analysis of the finds and possible radiocarbon dating of the lowest deposits overlying the stonework will provide a *terminus ante quem* at least. The early masonry features were all only partly revealed and can only be cursorily described.

The short lengths of wall that were uncovered at the western end of Rooms 4 and 3 (C.205/181), and Rooms 2 and 1 (C.179), appear to be built directly on top of the vaults. These may represent the remains of the original front wall of the vaults which continued upwards or above the heights of the crowns of the vaults. This wall may have terminated at this height or been levelled with wall C.107 built above it at some later date. The southern feature, C.205/181 measured at least 2.7m in length (north-south) and 0.98 wide (east-west) and extended for a height of 0.52m above the roof of the vault running perpendicular to it, eastwards (Vault 6; C.256). The wall C.205/C.181) was constructed with relatively large, mostly round-edged stones (0.39m x 0.28m) and bonded with a lime mortar which had become soft on exposed surfaces. The feature had a roughly rectangular, linear shape in plan but was rough and uneven suggesting that it is incomplete and possibly partly ruinous or robbed out.

Some cobbling (C.183) still survived overlying this feature indicating that it would not have been visible during this period of use of the Battery.

In Room 2, there was an anomalous stone-built feature (C.179) on the same alignment as C.181/205. It measured 1.1m in length (north-south) and 0.57m wide (east-west) and was constructed with a mixture of round- and square-edged stones, bonded with mortar. It was built above the north-south wall, C.210, slightly wider than C.107 above it. It was built with a mixture of stone (and brick?) and bonded with a yellowish, honey-coloured mortar. An unusual aspect of this stone feature (C.179) is that it projects above the surface of the upper cobbles (C.129/173). This feature (C.179) is bonded to and appears to be contemporary with the western long wall C.107, both of which are built above wall C.210. The bedding layer and cobbles (C.229 and C.173/C.129) lie above the top, or levelled surface, of wall C.210 and both horizons abut walls C.107 and C.179. This would suggest that walls C.107 and C.179 and the lower cobbling are contemporary.

These 'walls' (C.181/205 and C.179) are built above the vaults and western, 'front', wall of the vaulted storehouse (C.210). The junctures of this wall and the vaults was not revealed and their relationships therefore not fully established. About a quarter-metre height of the end wall (C.220) survived above the cobbles, and below the modern sequence of building (C.106, C.105, C.103 etc.) at the southern end of Room 4. The wall at first floor height is about 0.54m wide (north-south) though this includes the modern (concrete?) render on its southern aspect. It is of random-rubble construction and employs a mixture of both angular and rounded stones (0.22m x 0.18m; 0.16m x 0.14m; 0.21m x 0.27m) bonded with a lime mortar and with traces of plaster (C.110) on its north-facing side.

The surfaces of two of the vaults were partly uncovered: Vault 6 (C.256) in Rooms 3 and 4 and Vault 5 (C.175) in Room 2 and in the Vault 5 transept. The small area of the former that was uncovered indicated that it was constructed with roughly-hewn squared stones (0.2m x 0.3m) roughly mortared together. The section uncovered in Room 4 sloped downwards (southwards) quite sharply and if this is related to the general plan of the building it seems probable that it is quite close to the base of the southern haunch of Vault 6, and juncture with the rising haunch of the southernmost vault, Vault 7. The excavation across the western end of Room 3 provided a partial profile of the crown and haunches of Vault 6 (Figure 14).

The north-south transept opened across Vault 5 (C.175) east of the four rooms provided a complete profile of the top of the vault. The stonework was of random-rubble coursing and employed rounded and angular stones and included limestone, sandstone (pinkish-hue) and the occasional lump of chalk. It was bonded with a lime mortar containing angular grit/gravel that could be easily scraped away. It

was cut by the slate-capped drain (C.148) as well as the air vents (C.157). Only a small area of this vault was uncovered at the western end of Room 2.

3.5 *The finds*

A mixed assemblage of artefacts (see Catalogue of finds, Appendix 3) was recovered from across the site during the course of the excavation. This included architectural debris (perforated roof slates, window glass, nails and other corroded metalwork). Worked stone included a broken quern stone and worked flints (gun flints and residual prehistoric worked flints). Metal finds included a couple of coins as well as corroded iron nails (angular cross section) and a socketed arrowhead. Broken bits of discarded utilitarian objects were also recovered in particular ceramics, glazed and unglazed local and imported wares, as well as vessel glass. A couple of fairly large and complete ceramic bowls were found suggesting that they hadn't been moved far or left lying about to be kicked or trod on. Animal bones and marine molluscs – representing both food waste and fragments from poorly slaked lime, were also recovered.

4 Discussion

The features and deposits uncovered during the excavation can be grouped into at least ten constructional phases the majority of which can then be assigned to five broad chronological phases. This phasing is highlighted in the Harris Matrix for the site (Appendix 2) and is summarised in Table 2. The chronological phasing is based on that drawn up by Tom McNeill in his 1981 monograph though it is hoped that the results of this excavation, and other excavations conducted around the castle over the last four decades, will allow further refinement of the chronology.

Phasing

The phases recorded can be assigned to McNeill's Periods VI, VII, IX and X, spanning the 1560s, or earlier, through to the twentieth century. One of the key opportunities of the excavation was the potential to date the construction of the vaulted storehouses. With the survival of over a metre in depth of occupation material above the haunches of the vaults and below the cobbled surface of the 1715 infantry barracks, there seems to be a good prospect of this or at least to potentially narrow the *terminus ante quem*. A number of features and layers could not be easily phased as they have limited stratigraphic relationships. Suggested phases have been suggested for these in the matrix but further analysis and work on the site may necessitate some revision. The contexts not securely phased are; the drain (C.148, C.143 and C.172) which along with the clay layer (C.161) are both assigned here to the nineteenth century. The construction of wall C.108 and the anomalous linear depression in the cobbles in Room 2 (C.178) are also both assigned to this phase. The lowest end of the sequence is also

provisional as much of the earlier deposits and underlying structural features, including the walls and roofs of the vaults, were only partially exposed. All of the stratigraphic relationships could not therefore be observed and established. For the more recent structures built at first floor level, only the foundations, generally incomplete, survived so again only providing a partial picture.

The Officers' Quarters building

The uncovering of the southern end of the Officers' Quarters building was not unexpected. It was unclear from the surviving remains how the subdivisions within the building were laid out or what the method of flooring was though it is probable that much of the structural information could be inferred from an investigation of the standing northern half of the building.

The cobbled surfaces clearly predate the construction of the Officers' Quarters building as the foundations (C.136) for the long wall of the latter, C.109, cut through the cobbling while the dividing walls are either built on top of the cobbles, or built in cuts inserted through the cobbling. The cobbled surfaces may have been reused during the nineteenth century although this seems unlikely as it would have been uneven and much of it appears to have been damaged when the Officers' building was erected. It therefore seems unlikely that this uneven surface, with surviving bits of old masonry, would have been left as the functional surface of the Grand Battery during the Officers' occupation of it. Instead, it is suggested that a concrete surface or possibly paving slabs of some sort were laid. The red clay horizon (C.161) may therefore date to this episode and have been laid to support and cushion an earlier surface (paving stones?) that has since been removed. Alternatively the clay layer could post-date this and may have been laid when the castle came into State Care in the twentieth century.

Within the building it could be suggested that some of the rubble/ mortar layers derived from the levelling and demolition of the earlier Infantry Barracks were spread to even out, raise and provide a level surface for a flag or wooden floor that no longer survives. It is also possible that what have been described here as subdividing walls may not have supported walls, but instead acted as supports for flooring. The presence of the possible 'fireplace' in Room 1, and in at least one other room as indicated by the 1990s photos, does however support the likelihood that there were subdivisions.

The Infantry Barracks

A series of well-built stone and brick built features and a level, well-laid cobbled surface have been identified as the surviving remains of the 1715 Infantry Barracks. No plans, designs or general descriptions of this building appear to survive and there are few contemporary parallels. Due to the construction of the Officers' Quarters building on the same site around a century later, and the more recent landscaping, only isolated sections of the overall plan survive. It is, however, possible to speculate and infer the existence of now absent features given the general regularity and linearity of

the layout of what does survive and by making comparison with broadly contemporary barrack layouts.

The discontinuous stone and brick-built 'wall' that runs down the centre of the site, parallel to the eastern long wall of the Officers' Quarters building (C.109), is located almost half-way between the east curtain and the western edge of the Grand Battery. It is not a simple wall but includes details such as the base of a possible pier (C.208) and probable entrances or passage to either side of it, along with a cruciform terminal to wall C.135 and a similar feature which may also have once existed at the southern end of the robbed-out wall C.134. This linear sequence could have acted as the central spine of the Infantry Barracks with the east curtain and the wall along the western edge of the battery (C.107?) acting as the two long walls. The internal space is then subdivided by at least two walls (C.217 and the eastern arm of wall C.135) running perpendicular to this spine wall. A third contemporary wall has also been speculated as represented by the linear cobble feature C.173 running right across the site (east-west). All three walls, including the 'C.173' wall, have associated pairs of piers. The best, and arguably 'most complete' set are the two pairs of piers, C.118 and C.119, and C.144 and C.146, east of wall C.135. Where traces of other piers survive sets of four piers could also be inferred, i.e. accompanying the 'pier-shaped' projection of wall C.217, an additional set to partner piers C.196 and C.145, and two additional piers to add to the northern pair C.200 and C.176. It could also be suggested that a complete set, and an associated wall, have been removed between the latter and the four to their south (C.118, C.119, C.144 and C.146). The walls and their sets of piers would then subdivide the space along the eastern side of the battery equally into five or potentially six (if there was a room north of piers C.200 and C.176) bays each 5.9m square with the piers running roughly down the centre, and an estimated total length of around 38m (north-south). The suggested layout or plan of the Barracks is highlighted in Figure 16.

Apart from the linear cobbles in Room 2 (C.173) no apparent structural remains from the Infantry Barracks survives west of the 'spine wall' and within the footprint of the southern end of the later Officers' Quarters building. It is possible that wall C.107 represents the remains of the western long wall and the anomalous stone-built feature (C.179) that is bonded to it and located at the western end of C.173 may also be contemporary. The cruciform planned featured at the southern end of wall C.135 has curving aspects facing east and west which would suggest that one side was replicated on the other. It can be speculated, therefore, that the regular arrangement of walls and piers along the eastern side of the battery was simply repeated along the western side which would give a total of twelve rooms and have fully occupied the space available. This arrangement of two rows of rooms is replicated widely in barrack buildings in Ireland and Britain of the seventeenth and eighteenth centuries (see Figures 17-21).

Little evidence survived to indicate how the barracks at Carrickfergus materialised upwards. It appears to have been predominantly built of brick and plastered or rendered in mortar, and considering the quantities of perforated slates found on site it probably had a slate roof. Given the location of the building at first floor level, and the preference and recommendation for the ridges of soldiers' lodgings to be hidden behind ramparts (Douet 1998, 7), it seems unlikely that it was a two storey building. It also seems probable that the eastern wall of the barracks and east curtain were one and the same. At Greencastle, County Donegal there was single-storey barrack accommodation for the soldiers along the northern side-wall of the upper fort above which, at the roof level, the wall was loopholed for musketry and roof itself used as a walk-way (Clements 2003, 36). Perhaps a similar arrangement was realised at Carrickfergus? If there were four men to a room, as was the norm for the period (the tradition in English garrisons was two men to a bed and four men to a room with a fireplace for heat and cooking - Douet 1998, 9), then a one storey building of twelve rooms would have provided accommodation for 48 men.

Sir Bernard de Gomme was Chief Engineer and surveyor general of the Ordnance for much of the latter half of the seventeenth century and under him much of the armies building practices were developed and formalised (Douet 1998, 9). In 1679 the Disbanding Act put an end to billeting (Douet 1998, 14) to which the citizens of Carrickfergus were well accustomed (McNeill 1981). The appointment of the Duke of Marlborough as Master General of the Ordnance and who maintained this post for the first two decades of the eighteenth century also acted as a stimulus in the development of the British Army including in the construction of barracks (Douet 1998, 17). It is probable that these postings and the change in the law in relation to billeting motivated the construction of barracks across Britain and Ireland around this time, including at Carrickfergus.

De Gomme's plans of barrack buildings at Portsmouth in 1679 (the earliest known detailed drawing of a barracks in England) and the surviving foundations of the brick-built barracks at Tilbury *circa* 1680 (Douet 1998, figure 7), are both comparable with the Carrickfergus Castle barracks. The Portsmouth ground plan (Figure 18) depicts two rows of ten square bays (approx. 4.9m x 4.3m and 2.4m high), four men to a room and a fireplace in each. It was a two storey building with the upper rooms lit by dormer windows. The Tilbury plan is almost identical to it and the Plymouth Barrack (Figure 19), also by de Gomme was again of two storeys the upper reached by newel stairs which were depicted on plan for Portsmouth but not executed. The Hampton Court barracks (built in 1685) are the earliest barracks in Britain to survive and like the barracks at Carrickfergus were built at first floor level – above a stable in this instance (Douet 1998, 16).

A contemporary plan of 1715 for St Mary's in the Scilly Isles (Figure 20), is again like De Gomme's plans but designed by a different engineer by the name of Col. Lily had a regular arrangement of two

rows of square rooms, each with their own fireplaces but with the latter located back-to-back where the four corners converged (Douet 1998, 17). Comparisons can be made between this arrangement at St Marys and the cruciform plan with curving corners (C.135) recorded at Carrickfergus.

Lower cobbled surfaces

No contemporary structural remains were discovered in association with the lower horizon of cobbling apart from an in-built drain within the cobbles. The presence of this surface and possibly an earlier stone surface (represented by C.234 and C.194) would indicate that the first floor above the vaults was surfaced and had a period of use before the early eighteenth century when the Infantry Barracks was built. The existence of vaulted buildings at the castle prior to the eighteenth century is also supported by references made by the Earl of the Essex in 1573 and Richard Dobbs in 1665 (see Section 2.2.1).

If the vaulted storehouses were built in the 1560s, as McNeill has speculated, then their construction would date to the period when the castle was modified for cannon. McNeill also argues that it is unlikely that the eastern flank of the castle would have had no guns so the construction of the vaults may have served a dual purpose; as a storehouse and as a platform for cannon. It seems likely that seventeenth-century guns used at the castle were of demi-culverin or culverin calibre. Such guns were also employed at Limerick and Galway, for example, and for which stone cobbling was preferred over wood as a stable and more durable mounting platform (J. O'Neill pers. comm.)

5 Conclusion

The 2010 excavations have filled-in some of the gaps in the architectural story of Carrickfergus Castle. No plans or illustrations of the eighteenth-century infantry barracks at the castle are known to survive but enough fragments were uncovered to suggest a possible reconstruction of the plan of the building that once stood here. The existence of the lower cobbled surface was previously unknown and its continuation under the upper section of the east curtain suggests that some, if not all of this wall, is post-medieval in date. The material remains recovered from deposits below the lower cobbling and above the vaults have yet to be analysed in detail. However, cursory examination on site suggests a sixteenth-century date though the possibility of an earlier medieval date cannot be ruled out. If this phasing is broadly correct, and assuming the material is not giving a false reading (i.e. represent sixteenth-century midden material imported at a later time), this allows us to date the construction of the vaulted storehouses at least to the sixteenth century if not earlier.

6 Recommendations for further work

Specialist analysis

It is recommended that suitable specialists are commissioned to identify and provide reports on the main collections of finds including the coins, pottery, animal bones, worked flints, vessel and window glass. For the final report the site director can provide descriptions and accounts on the collection of slate, bricks and nails as well as the marine molluscs.

Radiocarbon dating

It is recommended that at least two suitable samples for radiocarbon dating are selected from the lowest deposits overlying the haunches of the vaults to provide a *terminus ante quem* for their construction.

Architectural survey of the vaulted storehouses

It would be of interest to undertake a thorough architectural survey of the vaulted storehouses. One approach would be to remove the external concrete cladding on the western front wall and the southern gable wall to see what evidence there is for single or multiple building phases. It would also be of interest, given the 1811 reference to the ‘bomb-proofing’ of the vaults under the Grand Battery, to undertake a more detailed survey of the interior of the vaults while a photogrammetric survey of the external face of the east curtain could allow the potential identification of building phases for it.

Publication

A brief overview of the excavation has already been published in *Archaeology Ireland* (Murray 2010) as well as in the NIEL Bulletin. A summary has also been submitted to the *Excavations Bulletin* for the 2010 volume. In addition to these published preliminary accounts it is recommended that a full excavation report is published in a peer-reviewed journal and/or in a new monograph on the castle.

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8 Appendices

Appendix 1: Register of context numbers

C	Type	Description
101	metal rail	modern metal railing; attached to top of sill, 102
102	concrete sill	concrete sill set on wall 103; supports rail 101; 0.15m high
103	stone wall	stone wall bonded with pinkish mortar; 'ornate' facing to W; built on top of tarp 105; 0.41m high
104	mortar	pinkish mortar; abuts walls 103 and 112; over 105
105	plastic layer	blue plastic tarp underlying concrete 104; over 115 and walls 109, 220, and 107/108
106	rubble layer	stone and concrete filler in walls; contemporary with 105; below 103
107	stone wall	stone wall, running N/S; parallel to wall 109; below 108; above 210
108	stone wall	built on 107 (107 plinth of 108?; contemporary with 109?); below 106/105
109	stone wall	E wall of barrack building; in cut 136; filled by 257
110	plaster	plaster on internal face of wall 107
111	cobbles	cobbling Room 4; set on bedding clay layer 203; cut by hedge beds & 124
112	gable wall	S gable wall of standing building, overlies levelling deposit 117 and walls 107 & 109
113	wall (brick)	set on/to inside of wall 109; built on fill 159 & deposit 232 and wall 126; Room 2
114	clay layer	red clay levelling layer below gable wall, 112, and above 117
115	layer	dark brown, organic garden soil; contemporary with hedge; below 105/106; above walls 126 +108 and deposit 258 and 253, 232, 230
116	void	-
117	mortar layer	mortar & rubble layer overlying cobbles 155 in Room 1, below 114
118	cuts (hedge)	cut for privet hedge, Room 1; filled by 119; cuts 155
119	fill	dark brown humic garden soil in cut 118, Room 1; overlies dividing wall 126
120	wall (brick)	brick and concrete wall between Rooms 1 and 2; built over stone dividing wall 126; below 115; contemporary with 113, 187 etc.
121	fireplace?	mortared slate and stone feature, Room 1, set in cut 122; bonded to wall 126; below 115
122	cut	irregular cut in Room 1 through cobbling 155 for 121; cuts 177 and fill 259; E of pair
123	wall (stone)	Eastern dividing stone wall, N-S of Room 4; set inside [W of] & parallel to wall 109; built above 111 & fill 125
124	cut	linear wall cut through cobbles 111 N side Room 4; filled by 125 & dividing wall 130
125	fill	Fill of cut 124 in Room 4; organic with animal bone
126	wall	stone and mortar foundation of dividing wall between Rooms 1 & 2; set in cut 177; brick wall, 120, set on top

C	Type	Description
127	pipes	ceramic pipes inserted through roof of vaults probably as air vents when used as air raid shelters WWII; in cut 157
128	void	<i>not used</i>
129	cobbling	upper cobbling in Room 2; cut by 177; below mortar layer 232
130	wall	stone dividing wall between Rooms 3 and 4; set in cut 124; earlier than fill 125
131	layer	blackish-brown cinder layer spread over 138; under 137; cut by 150
132	cobbling	early cobbling; external to barrack building; overlies sand 139 and under brown clay 138; contemporary with 206 and 173
133	cobbling	cobbling, external to Officers Barracks; contemporary with 111, 183 & 155; over 137
134	wall (robbed)	rubble from levelled wall 135/141; below 209; produced N Devon roof tile; above 170
135	wall	stone wall of Infantry Barracks; E of and parallel to standing Officers' Quarters building; faced with brick 141
136	cut	foundation cut for wall 109; filled by 257; cuts cobbles 133, 155, 206, 111, 183 & 129
137	layer	red clay and mortar layer over 131 and under later cobbles 133
138	layer	brown clay over early cobbling 132; below 131 cut by 239 & 236 (equivalent to 170?)
139	layer	patchy sandy bedding layer for early cobbling 132; overlies 218
140	void	<i>same as 218</i>
141	wall (brick)	brick edging to stonewall 135; plastered with 151
142	cut	sub-rectangular modern exploratory hole; filled by 163 and cuts 133;
143	drain	slate capped drain running N-S parallel & W of curtain wall; in cut 148; below 162; cut by 157
144	brick pier	brick-built feature; set in cut 153; filled by 189; below 209 & 211
145	brick pier	brick built feature; in cut 236; filled by 166; below levelling 209 & 211
146	pier	pier base - slate - partner to 144, E of wall 135: above 138
147	void	<i>not used</i>
148	cut	cut for drain 143; cuts cobbling 133 and Vault 5, 175; filled by 172
149	wall	curtain wall
150	cut	cut for wall 135 & 141; cuts 138 & 131
151	plaster	plaster exterior on red brick 141
152	void	<i>not used</i>
153	pit	irregular sub-circular cut filled by 189 and pier 144; cuts earlier cobbling 132
154	void	<i>not used</i>
155	cobbles	cobbling in Room 1; over clay 255; cut by 136 & 118
156	void	<i>not used</i>
157	cuts	cuts for pipes 127; capped by concrete 158; cuts drain 143 and vaults
158	concrete	concrete piers capping pipes 127; below 162
159	fill	fill of cut 177 Room 2; grey sandy loam with brick, mortar, shell, bone
160	cut	cut in Room 1; partner to 122, W of pair; cuts through cobbles 155

C	Type	Description
161	layer	mottled red and blue clay and mortar layer; levelling layer under concrete 162 and rubble 209; over cobbles 133
162	layer/surface	modern concrete surface, survived E of Room 4; overlies clay levelling layer 161, rubble 211, and 105/106
163	fill	fill of modern cut 142
164	void	<i>same as 199</i>
165	masonry	brick, slate and mortar masonry featured- collapsed? In cut 168; below 209 & 211
166	fill	fill associated with brick pier 145; in cut 236
167	layer/dump	mortar deposit with stone, slate and occasional brick; below 134; above 206 & 170; associated with collapsed masonry 165
168	cut/disturbance	clearance/disturbance 'cut' through 133 & 170; filled by 165 and 167
169	wall	stone wall with Cultra sandstone (reused?); over 170 and below 209 & 211; contemporary with 207 etc.
170	layer	dark brown silty loam; below walls 169 & 134, upper cobbles 133 and over lower cobbles 206; cut by 168
171	void	
172	fill	fill of drain cut 148 for drain 143; below 162
173	cobbles	linear band of cobbles extends E-W from within Room 2 to east; cut by slate-drain 143; overlies sand 229/139; same as 206; cut by 168; below 259 and 131
174	layer	charcoal loam deposit; below 201; above 214
175	vault	stone built vault, Vault 5; cut by drain 148
176	pier	incomplete brick pier; partner to 200 northern end of site [not excavated; exposed by machine]
177	cut	linear, E-W aligned cut in Room 2; foundation cut for wall 126 & 120 ; cuts upper [129] and lower [173] cobbles and mortar deposit 232
178	cut/depression	linear cut/depression in cobbles 129 running N-S, W edge Room 2
179	stone built feature	mortared stone feature NW corner of Room 2; under 216; built over 210
180	cut	linear cut running E-W, south of dividing wall Room 3-2, C.185; filled by 212
181	stone built feature	mortared stone feature built over vaults W end of Rooms 3 and 4; built on 210 and bonded to 107; contemporary with wall 179?
182	void	<i>not used</i>
183	cobbles	cobbling, Room 3; above clay 213; cut by 136
184	brick wall	brick wall running E-W in Room 3; overlies 185; contemporary with/equivalent to 186
185	wall	mortar, stone, slate base/plinth of dividing wall between Rooms 3 and 4; below 184; in cut 180
186	wall	brick wall, running N-S inside, to W of wall 109; over cobbling Room 3, layer 258 and fill of cut 180
187	wall	brick wall, running N-S inside, to W of wall 109; over cobbling 155 Room 1; above fill of 257; below 115

C	Type	Description
188	<i>void</i>	<i>not used</i>
189	fill	fill in cut 153; below 137
190	cobbles	lower cobbling Room 3; above 191; below clay 213; contemporary with 173
191	layer	sand bedding layer for cobbles, 190, Room 3; above 204
192	cut (hedge)	cut for privet hedge Room 4; filled by 193; cuts 111
193	fill	dark-brown garden soil; fill of 192; below 105
194	layer	grey clay, stoney layer wall; large stones; above 199; below 226
195	<i>void</i>	<i>same as 138</i>
196	brick pier	brick-built pier; paired with 145; in cut 239; above sand 139
197	<i>void</i>	<i>not used</i>
198	<i>void</i>	<i>same as 201</i>
199	layer	levelling layer; below 194; above 201
200	brick pier	brick-built pier N end of site: partner to 176: not excavated
201		below 199; above 174
202	layer	black loam, Room 4, overlying Vault; below 227; above 224
203	layer	red clay bedding layer for cobbles 111, Room 4; above 204
204	layer	brown sandy loam; under 203; over 202
205	<i>void</i>	<i>same as 181</i>
206	cobbles	lower cobbling equivalent to 173; cut by 136; over sand 139/229
207	wall	brick-built wall running N-S external to Room 4; contemporary with 208 etc.; abutted by cobbles 133; earlier than 209/211
208	wall	stone built feature, same alignment as 207; set E of Room 3; abutted by cobbles 133; below 209/211
209	layer	mixed rubble, mortar, stone, brick levelling layer across S & E end of site; above clay 161; below 211
210	wall	stone built, W wall of vaults; 181 and 179 built on top of wall; contemporary with 220?
211	layer	gravel/blinding layer over 209; below concrete 162
212	fill	fill of linear wall slot 180, Room 3; below 115; for wall 185
213	layer	red clay bedding layer for cobbles 183, Room 3; above lower cobbles 190
214	layer	pink cupar marl layer; above 216; below 174
215	layer	grey loam with large fragments of pottery; below 216; above 228
216	layer	gravel layer; below 214; above 215
217	wall	E-W aligned brick wall, E of Room 3; abutted by cobbles 133; below 209/211; bonded to 208
218	pier	S pier bonded to E extent of wall 135
219	pier	N pier bonded to E extent of wall 135
220	wall	wall, running E-W, S end Room 4; below 107; original S gable wall of vaulted storehouses? Contemporary with 210?
221	fill	fill of cut 239

C	Type	Description
222	<i>void</i>	<i>not used</i>
223	wall	mortared brick wall [fragment], NW corner Room 1; set inside [E] and partly over wall 107 and cobbles 155; below 115
224	layer	Room 3; primary deposit overlying crown of vault 256; below 202
225	<i>void</i>	-
226	layer	clay-loam under cobbling 132 and sand 139; over 194
227	layer	gravel lens, Room 3 and 4; below 204; above 202
228	layer	burnt layer overlying clay; below 215 & 129
229	layer	mottled sandy bedding layer for cobbles 173 and 129 in Room 2, overlies 237; equivalent to 139
230	layer	thin sandy loam layer, overlying cobbles 155 in Room 1 and walls 187 and 223; underlying mortar layer 117
231	layer	pink sandy mortar layer over 114; levelling for wall 112
232	layer	mortar & rubble levelling layer underlying wall C.113 in Room 2; overlies cobbles C.129; cut by C.177
233	layer	brown loam underlying sand 139 and overlying 234
234	surface/layer	stone surface underlying loam, 233; equivalent to 194; over 238
235	layer	gravel lens; below 234; above 240
236	cut	cut for brick-pier 145; cuts sand 139 and 138; filled by 166
237	layer	loam layer in Room 2; underlying sand layer 229; over 241
238	layer/lens	orange clay lens, with ridge tile and charcoal; under surface 234; above 240
239	cut	cut for brick pier 196; cuts sand 139 & 138; filled by 221
240	layer	brown silty clay; under 238; over 243
241	layer	black silty loam under 237, Room 2; above 242
242	layer	mortar deposit directly overlying wall 179, Room 2; underlying 241
243	layer	mortar deposit overlying southern haunch of vault 175; underlying 240; over 245
244	layer	orange-brown clay under 243; over 248
245	layer - stone	flat-stone setting; below 243; above 244
246	layer	dark grey brown clay loam below 244; above 249 (same as 215?)
247	<i>void</i>	<i>not used</i>
248	layer	gravel layer; below 244; above 246
249	layer	layer of perforated roof slates at base of 246; above 251
250	<i>void</i>	<i>not used</i>
251	layer	light-brown sandy loam below 246; above 252
252	layer	ash and cinder layer below 251; above vault 175
253	layer	mortar and rubble layer overlying cobbles, 111, Room 4; cut by C.124
254	cut	modern exploratory hole in Room 2; contemporary with 142; filled by 262
255	layer	red clay bedding layer for cobbles 155, Room 1; not excavated
256	vault	top of Vault 6; Room 3/4, underlies 224

C	Type	Description
257	fill	fill of wall cut C.136 for wall 109; below 113 & 187
258	layer	mortar/rubble layer Room 3; over cobbles 183 and under wall 184; cut by 180
259	<i>void</i>	<i>not used</i>
260	layer	layer above Vault 5; below 248 and above 240
261	<i>void</i>	<i>not used</i>
262	fill	fill of 254
263	fill	dark brown organic garden soil; fill of 264, Room 4
264	cut (hedge)	semi-circular cut for hedge; contemporary with 115; filled by 263, Room 4
265	fill	dark brown organic garden soil; fill of 266, Room 4
266	cut (hedge)	semi-circular cut for hedge; contemporary with 115; filled by 265, Room 4
267	fill	dark brown organic garden soil; fill of 268, Room 4
268	cut (hedge)	semi-circular cut for hedge; contemporary with 115; filled by 267, Room 4
269	fill	dark brown organic garden soil; fill of 270, Room 3
270	cut (hedge)	semi-circular cut for hedge; contemporary with 115; filled by 269, Room 3
271	fill	dark brown organic garden soil; fill of 272, Room 3
272	cut (hedge)	semi-circular cut for hedge; contemporary with 115; filled by 271, Room 3
273	fill	dark brown organic garden soil; fill of 274, Room 2
274	cut (hedge)	semi-circular cut for hedge; contemporary with 115; filled by 273, Room 2
275	fill	dark brown organic garden soil; fill of 276, Room 2
276	cut (hedge)	semi-circular cut for hedge; contemporary with 115; filled by 275, Room 2
277	fill	dark brown organic garden soil; fill of 278, Room 2
278	cut (hedge)	semi-circular cut for hedge; contemporary with 115; filled by 277, Room 2
279	fill	dark brown organic garden soil; fill of 280, Room 1/2
280	cut (hedge)	semi-circular cut for hedge; contemporary with 115; filled by 279, Room 1/2
281	fill	dark brown organic garden soil; fill of 282, Room 1
282	cut (hedge)	semi-circular cut for hedge; contemporary with 115; filled by 281, Room 1

Appendix 2: Harris matrix

Appendix 3: Finds lists

The finds from the 2010 excavation are quantified (by weight and number) and listed here by artefact type and context number in the following order: ceramics; clay pipes; flint; shell; animal bone; slate and tile; metalwork; brick, building stone, mortar and render; glass and miscellaneous finds.

Ceramics

Context No.	Description	Quantity	Weight (g)
130	Unsorted	2	17.2
131	Unsorted	13	205.5
133	Unsorted	10	28.9
134	Unsorted	1	38.7
135	Unsorted	1	1.9
136	Unsorted	1	70.8
137	Unsorted	12	118.2
137	Unsorted	15	127.0
138	Unsorted	78	1328.3
138	Unsorted	1	4.2
139	Unsorted	5	92.9
140 = 218	Unsorted	2	7.5
163	Unsorted	1	10.8
165	Unsorted	2	40.8
172	Unsorted	2	10.5
174	Unsorted	2	26.1
189	Unsorted	2	9.6
190	Unsorted	1	3.5
193	Ceramic	2	8.8
198 = 201	Unsorted	2	23.6
199/174	Basal remains of pot	9	1474.8
199	Unsorted	3	27.9
199	Unsorted	2	326.6
202	Everted Rim ware	9	152.1
202	Unsorted	10	138.0
202	Unsorted	1	20.1
214	Unsorted	1	2.8
215	Unsorted	28	1108.3
218	Unsorted	3	227.2
222	Unsorted	3	3.1
229 (Room 2)	Unsorted	5	8.3
233	Unsorted	7	105.5
235	Unsorted	3	57.9
237 (Room 2)	Unsorted	7	43.0
237	Unsorted	1	11.9
242	Unsorted	3	87.0
244	Unsorted	4	44.1
246	Unsorted	1	10.6
248	Unsorted	10	117.1
Unstratified (Adjacent to slate-capped drain - monitoring)	Unsorted	7	174.6
Unstratified (Adjacent to drain-	Unsorted	14	161.7

feature in cobbling 132 - cleaning of curtain wall			
Unstratified (curtain wall cleaning back)	Unsorted	1	23.5
Unstratified (monitoring)	Unsorted	1	1.9
Unstratified (monitoring)	Unsorted	73	665.6
Unstratified (monitoring, east of standing building)	Unsorted	7	36.4
Unstratified (from general cleaning)	Unsorted	10	26.3
Room 2 (above cobbles)	Unsorted	11	77.1
Room 2 (from cobble layer & rubble)	Unsorted	14	172.4
Room 3 (cleaning disturbed area)	Unsorted	8	113.2
Room 4 (above cobbles)	Unsorted	1	35.0
Disturbed deposit	Unsorted	6	188.3

Clay Pipes

Context No.	Description	Weight (g)
119	1 stem	2.3
131	9 stems, 1 bowl fragment	32.3
133 (edge of cobbling E of 109)	1 stem	2.8
133 (found on cobbling)	1 bowl	11.3
137	1 bowl & stem	12.2
137	23 stems, 2 bowl fragments	68.1
138	46 stems	133.5
138	9 bowls	59.5
139	2 stems	7.4
140 = 218	1 bowl	7.7
163	1 stem	2.4
165	1 stem	3.4
172	3 stems	7.4
189	1 bowl	6.3
190 = 201	2 stems	7.1
198	1 stem	1.6
202	1 stem	2.0
209	1 bowl	9.0
229 (Room 2)	3 stems	5.9
233	1 stem	2.8
237 (Room 2)	1 stem, 1 bowl fragment	1.1
238	1 stem	1.2
Room 2 (above cobbles)	2 stems	5.6
Room 2 (cobble layer & rubble)	4 stems	8.6
Unstratified (monitoring)	26 stems. 1 bowl	93.2
Unstratified (from general cleaning)	8 stems	8.1
Unstratified (Room 3, cleaning disturbed area)	1 stem	2.3
Unstratified (monitoring, E of standing building)	5 stems	13.7
Unstratified (adjacent to slate-capped drain, monitoring)	1 stem, 1 bowl fragment	4.1

Unstratified (cleaning castle wall)	2 stems	6.5
Unstratified (cleaning of curtain wall, adjacent to drain-feature in cobbling 132)	2 stems	3.2
Unstratified (disturbed deposit)	2 stems	6.0

Flint & quartz

Context No.	Weight (g)
119	6.2
131 Gun Flint	4.6
134	13.7
137	20.1
137	99.7
138	93.5
139	135.1
163	27.8
165	14.8
190	13.7
199	22.6
222	23.3
229	15.5
233	16.5
235 Quartz	3.2
238	7.6
244	21.9
248	53.7
Unstratified (Room 3, cleaning disturbed area)	9.4
Unstratified (monitoring, adjacent to slate-capped drain)	6.5
Unstratified (cleaning curtain wall) Gun flint	9.0
Unstratified (monitoring)	121.6

Shell

Context no.	Weight (g)
131	54.5
137	51.9
138	168.5
138	91.5
172	16.0
174	20.4
199	7.8
201	57.7
202	52.6
202	5.7
214	16.9
215	98.8
218	34.6
237	19.4
242	93.2
246	34.9
248	304.5

252	17.0
Room 2 from rubble layer	17.4
Directly overlying cobbles C.133, E of Room 1	4.3
Unstratified (monitoring)	17.7
Unstratified (monitoring)	2.7
Unstratified (cleaning of curtain wall, adjacent to drain in cobbling 132)	17.5
Unstratified (adjacent to slate-capped drain, monitoring)	3.0
Unstratified (from general cleaning)	27.4

Animal Bone

Context no.	Description	Weight (g)
124 (Room 4)	Unidentified & mixed	223.6
131	Unidentified	29.4
133 (edge of cobbling, E of C.109)	Unidentified	5.7
133	Unidentified & mixed	28.7
134	Unidentified	0.1
135	Unidentified & mixed	75.2
137	Unidentified	31.5
137	Unidentified & mixed	571.0
137	Unidentified & mixed	435.1
138	Unidentified, adj. to C.144	58.0
138	Unidentified & mixed	715.3
138	Unidentified & mixed	708.2
139	Unidentified & mixed	324.7
140 = 218	Unidentified & mixed	143.3
163	Unidentified & mixed	10.9
164	Unidentified & mixed	77.7
172	Unidentified & mixed	139.2
174	Unidentified & mixed	288.7
174	Unidentified & mixed	170.5
189	Unidentified & mixed	18.6
190	Unidentified & mixed	54.8
193	Unidentified & mixed	99.8
198 = 201	Unidentified & mixed	774.6
199	Unidentified & mixed	288.7
199	Unidentified & mixed	526.9
201	Unidentified & mixed	238.5
202	Unidentified & mixed	445.5
202	Unidentified & mixed	855.6
214	Unidentified & mixed	153.5
214	Unidentified & mixed	91.6
215	Unidentified animal teeth	26.6
215	Unidentified & mixed	1538.8
216	Unidentified & mixed	732.5
218	Suitable for C14 dating	58.0
218	Unidentified & mixed	1155.5
222	Unidentified & mixed	67.6
233	Unidentified & mixed	1288.1
235	Unidentified & mixed	486.8
237	Burnt bone	1.4
237 (Room 2)	Unidentified & mixed	542.1

240	Unidentified & mixed	549.1
242	Burnt bone	5.9
242	Unidentified & mixed	451.4
244	Unidentified & mixed	567.6
246	Unidentified & mixed	1586.0
248	Unidentified & mixed	1636.5
248	Unidentified & mixed	868.4
252	Suitable of C14 dating	18.8
252	Unidentified & mixed	1513.2
Disturbed deposit	Unidentified	11.7
Above cobbles Room 2	Unidentified & mixed	12.8
Unstratified (monitoring)	Unidentified & mixed	202.7
Unstratified (monitoring)	Unidentified & mixed	657.2
Unstratified (cleaning of curtain wall, adjacent to drain in cobbles 132)	Unidentified & mixed	245.2

Slate and tile

Context no.	Description	Quantity	Weight (g)
131	Perforated slate	1	618.2
134	Tile	1	695.7
137	Perforated stone roof tile	1	426.6
137	Perforated roof slate	2	366.3
138	Slate	1	2223.1
	Perforated roof slate	4	
139	Tile	1	537.4
139	Perforated stone roof tile & perforated slate	2	1168.1
165	Roof slate	3	295.0
178	Tile	3	118.4
202	Perforated stone roof tile	1	435.6
237	Perforated stone roof tile	1	1136.2
237	Slate	1	12.3
238	Tile	1	145.3
246	Tile	1	296.6
248	Stone roof tile	2	2050.1
249	Perforated stone roof tile	4	6001.1
Room 3 (cleaning disturbed area)	Perforated Slate	1	7.5
Room 2, cobble layer & rubble	Slate	1	12.6
Unstratified (monitoring)	Perforated stone roof tile	2	627.3
	Perforated slate	2	
Unstratified (monitoring)	Tile	1	45.8
Unstratified (disturbed deposit)	Tile	1	200.4
Unstratified (disturbed deposit)	Perforated slate	1	25.4
Unstratified	Stone roof tile	1	1307.7
Unstratified	Perforated roof slate	1	602.2

Metal work

Context no.	Description	Quantity	Weight (g)
131	Copper strip?	1	13.4
133	Non-ferrous object	1	3.0
137	Unidentified iron object	5	130.5

137	Iron nail	1	16.3
137	Copper pin	1	0.2
137	Metal coin/token	1	29.7
137	Arrowhead	1	17.4
137	Unidentified coin	1	6.2
138	Unidentified metalwork	7	347.5
139	Miscellaneous iron objects including 1 iron nail	3	71.6
139	Metal bracket/mount	1	20.0
172	Unidentified iron work	3	23.2
174	Miscellaneous copper and iron objects	19	332.2
174	Lead weight	1	30.6
190	Possible metal work	1	4.5
193	Miscellaneous iron work including 1 iron nail	4	27.4
198 = 201	Unidentified non-ferrous material	3	25.3
199	Unidentified iron work	7	130.0
202	Iron slag, iron nail, copper object	7	105.7
202	Unidentified iron work	9	80.7
214	Possible metalwork	2	13.0
215	Unidentified metalwork	8	74.6
216	Iron nails	3	36.8
222	Iron nail	1	12.1
233	Unidentified metalwork	1	13.7
237 (box section room 2)	Unidentified metalwork	1	24.0
238	Fragments of iron nail	2	8.3
244	Miscellaneous iron work including 1 iron nail	2	490.8
246	Miscellaneous iron work	4	74.4
248	Miscellaneous iron work including 3 iron nails	10	168.7
252	Miscellaneous iron work including 2 iron nails	7	99.1
Above cobbles Room 2	Iron nails	3	10.1
Room 2, from cobble layer and rubble	Iron nails	2	13.4
Directly over top of vault	Copper fragments	12	3.9
Directly overlying cobbles C.133, E of room 1	Square iron nail	1	27.2
Adjacent to slated drain (monitoring)	Iron nail	1	5.6
In cobbles running below castle wall	Unidentified metalwork	4	35.9
Unstratified (Room 3, cleaning disturbed area)	Miscellaneous including iron nail & copper object	3	193.8
Unstratified (on wall C.109)	Coin - 1931 sixpence	1	2.6
Unstratified (cleaning of curtain wall, adjacent to drain 132)	Iron nails	2	18.6
Unstratified (monitoring, E of building)	Miscellaneous iron work	3	377.5
Unstratified (monitoring)	8 iron nails, 1 button, 1 copper strip	10	78.8
Unstratified (disturbed deposit)	Miscellaneous iron work, including 1 square iron nail	5	36.3

Unstratified (from general cleaning)	Unidentified iron work	1	4.3
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Brick, building stone, mortar & render

Context no.	Description	Weight (g)
110 (from wall 220, Room 4)	Plaster/render	82.4
138	Brick	2.0
151	Plaster	31.8
193	Brick	58.0
199	Worked stone	3904.4
229 (Room 2, upper cobbling)	Brick	42.1
237 (Room 2)	Brick	197.5
Unstratified	Brick	1824.3
Unstratified (monitoring)	Mortar/render	55.0

Glass

Context no.	Description	Quantity	Weight (g)
131	Glassware handle	1	9.2
133 (edge of cobbling, E of 109)	Patinated glass	1	1.2
137	Patinated glass	1	8.4
138	Patinated window glass	2	1.3
172	Base of bottle	1	22.1
193	Modern glass	1	1.8
215	Patinated window glass	1	3.9
234 (between stones)	Patinated glass	1	5.9
252	Patinated window glass	1	3.0
Room 2, cobble layer and rubble	Patinated glass	2	27.6
Unstratified (from general cleaning)	Miscellaneous glass	4	5.0
Unstratified (monitoring)	Miscellaneous glass	4	124.3

Other finds

Context no.	Description	Weight (g)
137	Coal	4.4
137	Hone stone	34.5
139	Stone	28.8
165	Stone	30.4
174	Hone stone	91.2
202	Stone	36.3
215	Coal	38.9
252	Short-lived charcoal	2.2
Room 3 (cleaning disturbed area)	Musket ball?	6.1
Adjacent to slated drain (monitoring)	Coal	5.8

Appendix 4: Catalogue of photos

Copies of the photos listed in this table are included on the accompanying CDs.

Photo No.	Content	Facing
FEB 25-26 (4)	Wall between Rooms 1 & 2; walls 120 & 126 & feature 121	West
FEB 25-26 (5)	Rooms 2 & 1	North
FEB 25-26 (7)	Room 2, wall 113	East
FEB 25-26 (8)	Room 2 before hand-excavation	West
FEB 25-26 (10)	Rooms 2 & 1 & wall 112	North
FEB 25-26 (13)	Room 1, hedge bed (118 & 119)	West
FEB 25-26 (14)	Room 1, hedge bed (118 & 119)	West
FEB 25-26 (17)	Rooms 4-1, before hand-excavation	North
FEB 25-26 (20)	Rooms 4-1, before hand-excavation	North-east
FEB 25-26 (26)	Brick "skin" walls; Rooms 1-4	South
FEB 26 (1)	Rooms 3 & 4; walls 184 (brick) & 185 (stone)	West
FEB 26 (2)	Rooms 1 & 2; walls 120 & 126; stone feature 121	West
FEB 26 (4)	Rooms 3 & 2; wall 184	West
FEB 26 (5)	Rooms 3 & 2; wall 184	West
FEB 26 (10)	Room 4 & 3; wall (stone) 130	West
FEB 26 (11)	Rooms 2 & 1 after machining	North-east
FEB 26 (13)	Room 4, working shot (Great tower in background)	South-west
FEB 26 (19)	Battery surface after machinery	North-east
MAR 01 (2)	Wall 103, mortar 104 over 105 & 106	West
MAR 01 (4)	Plaster/render on wall 107, Room 1	-
MAR 01 (5)	Room 3, cobbling 183 under wall 130	South
MAR 01 (6)	Gable wall 112, cobbling 155 (Room 1)	North-west
MAR 01 (14)	Room 2, west wall & 118 & 119	West
MAR 01 (15)	Junction of walls 185 & 107	North-west
MAR 01 (16)	Junction of walls 185 & 107	North-west
MAR 01 (18)	Room 4, working shot	South
MAR 01 (22)	General shot	South
MAR 01 (25)	Room 4; cobbling 111; cut 124 and wall 130	West
MAR 01 (26)	Room 4; cobbling 111; cut 124 and wall 130	West
MAR 01 (27)	Rooms 4, 3 & 2; East junction of walls 130, 186 (brick) & 109	North
MAR 01 (28)	Working shot	North
MAR 01 (30)	Room 4 cobbling (111)	North
MAR 01 (31)	General working shot	North
MAR 01 (32)	Plaster on wall in Room 4 & cobbles 111	South
MAR 01 (33)	Room 4; cobbles 111 & wall 123 (right foreground)	North
MAR 01 (35)	Rooms 2-3; walls 184 (brick) & 185 (stone)	West
MAR 01 (36)	Rooms 3-4; wall 130 & with 124	East
MAR 01 (41)	Outer ward and battery excavation – general shot	North-east
MAR 01 (48)	Cleaning back cobbles 133 and robbed wall 134	North-east
MAR 02 (2)	Room 2; wall 113 over deposit 232	East
MAR 02 (3)	Cobbling 133; rubble/demolition 167 & robbed wall 134	North
MAR 02 (5)	Air vent and drain 143	North
MAR 02 (6)	Air vent and drain 143 and levelling-up deposit 211	South
MAR 02 (9)	Rubble 167/209 over robbed out wall 134	-
MAR 02 (10)	Room 2 cobbling 129 & 173; cut 254	West
MAR 02 (11)	Room 2 cobbling 173, cut 177 and walls 120 & 126	West
MAR 02 (13)	Room 2 cobbling 173 & 129; cut 254	South
MAR 02 (14)	Room 2 feature 179, NW corner	West
MAR 02 (16)	Room 2 cobbling 129 and depression/cut 178	North
MAR 02 (17)	Room 2 cobbling 129 and wall 113	East
MAR 02 (23)	Room 2 cut 254, cobbling and walls 120 & 126	North
MAR 02 (24)	Room 2 cut 177; cobbling 174 & 129; walls 120, 126 & 113	East
MAR 02 (25)	Room 2 cut 177; cobbling 174 & 129; walls 120, 126 & 113	East
MAR 02 (27)	Room 2 SW corner, cobbling 129 and wall 185	South
MAR 02 (31)	Room 3 general shot after cleaning	West
MAR 02 (32)	Room 3 feature 181 at west end	South
MAR 02 (36)	Room 3, general shot after cleaning	East
MAR 02 (37)	Rooms 2 & 1 showing cobbles surfaces	North-east

MAR 02 (38)	Room 3 east side, cobbles 190 and wall 186	East
MAR 02 (39)	Room 2 cobbled surface	East
MAR 02 (42)	Rooms 3 & 4, general shot after cleaning	South-east
MAR 02 (44)	Rooms 2 & 3, west end	North
MAR 02 (45)	Room 1 working shot	North-east
MAR 02 (46)	Room 2 cobbled surface; embrasure in background	East
MAR 02 (47)	Battery surface after machining and cobbles 132 appearing	North
MAR 02 (48)	Staffordshire slipware sherds in demolition/rubble overlying cobbles	-
MAR 09 (2)	Cobbles 132 and plinths/piers 144 (right) and 146 (left) and pit 153	East
MAR 09 (3)	General shot of cobbles 137 and wall 109	South
MAR 09 (6)	Working shot – (ROB) cleaning back over cobbles 173	East
MAR 09 (12)	Working shot	East
MAR 09 (13)	Plinths/piers 146 (left) and 144 (right); cobbles 132 and pit 153	East
MAR 09 (14)	Pier 146	South
MAR 09 (15)	Pier 146	South
MAR 09 (16)	Sandy bedding layer 139	East
MAR 09 (18)	Sandy bedding layer 139	East
MAR 09 (19)	Sandy bedding layer 139 and excavated baulk	North
MAR 09 (23)	Sandy bedding layer 139 over 233	North
MAR 09 (24)	Sand layer, linear cobbles 173 and piers 146 & 145	North-east
MAR 09 (26)	Sand layer, linear cobbles 173, piers 146 & 145 and cobbles 133	South-east
MAR 09 (28)	Sand bedding layer 139, cobbling 173 (foreground) and 133 & 132	North-west
MAR 09 (30)	Modern test pit 142	North
MAR 09 (31)	Modern test pit 142 and cobbles 132 & 133	West
MAR 09 (33)	Modern test pit 142 and cobbles 132 & 133	North
MAR 09 (36)	General shot showing wall 133 and overlying clay 161 in foreground	North-west
MAR 09 (38)	Wall 207 and concrete (left) 162	West
MAR 09 (40)	Stone wall 109, brick wall 207 and cobbles 133	North
MAR 09 (41)	Stone feature 208 and brick walls 217 & 207	South-east
MAR 09 (43)	Stone feature 208 and brick wall 217	East
MAR 09 (44)	Cobbling 133 and walls 169 (left) and 208 & 217 (right)	East
MAR 09 (45)	Battery and cobbled surface – general shot	South-east
MAR 09 (48)	Masonry 165, piers 196 & 145 and 170 (foreground)	East
MAR 09 (50)	Cobbles 132, piers 146 (left) and 144 (right)	East
MAR 10-11 (1)	Collapsed masonry 165 and cobbles 173 (left) and 206 (right)	East
MAR 10-11 (2)	Wall 109, cobbles 206 and collapsed masonry 165	North
MAR 10-11 (6)	General view with Great Tower	South-west
MAR 10-11 (10)	Masonry 165, cobbles 206 and walls 169 & 109	South
MAR 10-11 (11)	Layer 138 over sandy bedding layer 139	South-east
MAR 10-11 (12)	Working shot with Great tower and Room 4 (BS)	South-west
MAR 10-11 (13)	Slate-capped drain 143	North
MAR 10-11 (14)	Cobbling 133 and linear feature east of standing building	East
MAR 10-11 (15)	Cobbling 132 and drain feature and embrasures	East
MAR 10-11 (16)	General shot	East
MAR 10-11 (18)	Stone layer/surface 194	North
MAR 10-11 (20)	Room 4 box section NW corner	West
MAR 10-11 (22)	Room 4 general working shot	South-west
MAR 10-11 (24)	Room 4 box section: wall 210 (looking down)	-
MAR 10-11 (25)	Room 4 box section: wall 210 (looking down)	-
MAR 10-11 (31)	Room 4 box section: west facing section and wall 130 (left)	East
MAR 10 (1)	Collapsed masonry 165	North
MAR 10 (2)	Collapsed masonry 165, rubble 167 and loam 170	North
MAR 10 (5)	Brick pier 145 and cobbles 173 & 133	West
MAR 10 (6)	Brick pier 145 and cobbles 173 & 133	West
MAR 10 (7)	Brick pier 145 and cobbles 173 & 133	West
MAR 10 (9)	Brick pier 145: southern face	North
MAR 10 (11)	Compacted rubble/demolition material 209/211, south of 208 & 217	West
MAR 10 (12)	Linear stone arrangement over cobbles 133; between 208 (left) and 207 (right)	East
MAR 10 (15)	Linear stone arrangement over cobbles 133; between 208 (left) and 207 (right)	West
MAR 10 (16)	Drain 143 and cobbles 132	South
MAR 10 (18)	Drain 143 and crown of vault	-
MAR 10 (19)	Piers 218 (left) and 215 (right) and cobbles 133 above cobbles 132	West
MAR 10 (24)	Piers 218 (left) and 215 (right) and cobbles 133 above cobbles 132	West
MAR 10 (32)	Cobbles 206 and collapsed masonry 165	-

MAR 10 (34)	Wall 109, cobbles 206 and masonry 165	North-west
MAR 10 (35)	Wall 109, cobbles 206 and masonry 165	West
MAR 10 (37)	Pier 144 and pit 153; cobbles 132	North-west
MAR 10 (41)	Hedge bed 118, Room 1; half sectioned	-
MAR 10 (43)	Cut 121 – rubble removed	South
MAR 10 (46)	Room 1: 118 & 121 both excavated	North-east
MAR 10 (47)	Vault 5 transect upper deposits	North
MAR 10 (49)	Cobbling 132 & Vault 5 transect – general view	East
MAR 10 (50)	Pier 144, cobbles 132, drain 143 & Vault 5 transect	South
MAR 10 (51)	Pier 144, cobbles 132, drain 143 & Vault 5 transect	North
MAR 10 (52)	Stone horizon 194 below cobbles 132	West
MAR 10 (54)	Pier 144, cobbles 132 and stone horizon 194	West
MAR 11 (1)	Brick pier (200)	-
MAR 11 (3)	General view of battery from northern end during excavation	South
MAR 11 (6)	Working shot – Northern end of battery (RL, BS, EM)	North
MAR 11 (7)	Working shot – Northern end of battery (RL, BS, EM)	North
MAR 11 (34)	General view of site	North-west
MAR 11 (36)	Excavated section east of room 2	West
MAR 11 (38)	Excavated section east of Room 2; piers 196 (left) & 145 (right)	North
MAR 11 (39)	Excavated section east of Room 2; piers 196 (left) & 145 (right)	North
MAR 11 (40)	Excavated section east of Room 2; piers 196 (left) & 145 (right) & drain 143	East
MAR 11 (41)	Pier 145	North
MAR 11 (42)	Working shot	North
MAR 11 (43)	Cobbles 206, masonry 165 and piers 196 & 145	East
MAR 12 (1)	Corroded metal	-
MAR 12 (6)	Base of pot, in situ (215) – vault 5 transect	-
MAR 12 (8)	Base of pot, in situ (215) – vault 5 transect	-
MAR 12 (17)	General shot of Grand Battery under excavation from East tower	North
MAR 12 (21)	Concrete 162 over levelling and demolition deposits 211 & 209; red clay 161; cobbles 133	South
MAR 12 (29)	Box sections: NW corner of Room 4 and northern end of Room 3	North
MAR 12 (30)	General shot showing box-sections under excavation	North
MAR 12 (32)	Box sections Rooms 4 & 3 and feature 181	West
MAR 12 (34)	Box section Room 4	-
MAR 12 (36)	Working shot – vault 5 transect and quern stone	South
MAR 12 (37)	Cobbles 206	North
MAR 12 (38)	Wall 109 & cobbles 206	North
MAR 12 (39)	Wall 109, cobbles 133 and wall 134	North
MAR 12 (42)	Wall 109, cobbles 133 and wall 134	North
MAR 12 (43)	Cobbles 133 and wall 134	-
MAR 12 (44)	Cobbles 133 and robbed wall 134	West
MAR 12 (46)	Cobbles 133 and robbed wall 134	South
MAR 12 (47)	Cobbles 133 and robbed wall 134	South
MAR 12 (48)	Cobbles 206	South
MAR 12 (50)	Wall 109, cobbles 133 and wall 134	North
MAR 12 (51)	Working shot – vault 5 transect under excavation	North
MAR 12 (52)	Cobbles 133 and wall 134	-
MAR 12 (55)	Drain 143 under excavation – slate capstones removed	North
MAR 12 (57)	Cobbles 206 & 173 and sand 229	North
MAR 12 (60)	Cobbles 206 & 173 and sand 229	West
MAR 12 (63)	Cobbles 133 and wall 143; lower cobbling visible	-
MAR 12 (65)	Wall 109, cut 136 and fill 157; cobbles 133 and wall 134	West
MAR 12 (66)	Southern end of standing office building	West
MAR 15 (3)	Gable wall 112	North-west
MAR 15 (28)	General shot from top of ramp	North
MAR 15 (30)	General shot of vault 5 transect	North-east
MAR 15 (33)	Vault 5 transect- northern section	South
MAR 15 (34)	Vault 5 transect- northern section	North
MAR 15 (38)	Room 3 – eastern end and cobbles 183 & 190	South
MAR 15 (40)	Room 3 – eastern end and cobbles 183 & 190	South
MAR 15 (41)	Room 1: deposits below wall 112 and above cobbles 155	North
MAR 15 (44)	Room 1: wall 223	North
MAR 15 (46)	Northern haunch of vault 5	North
MAR 15 (48)	East-facing section; Northern haunch of vault 5	West

MAR 15 (52)	East-facing section; Northern haunch of vault 5	West
MAR 15 (53)	North facing haunch of vault 5	South
MAR 15 (57)	Embrasures	-
MAR 15 (58)	Junction of walls 109 & 220	West
MAR 15 (59)	Junction of walls 109 & 220	-
MAR 15 (60)	Paving & concrete	-
MAR 15 (61)	Room 1; 112, 114, 117, 223	-
MAR 15 (62)	Room 1	-
MAR 15 (64)	Room 1; 112, 231, 114, 117 & 230	-
MAR 15 (65)	Room 1 NW corner	-
MAR 15 (66)	Room 1 NW corner	-
MAR 15 (67)	Room 3; 183, 190 & 202	West
MAR 15 (68)	Room 3; 183, 190, 202	East
MAR 15 (69)	Room 3; 202, 190, 183, 130	-
MAR 15 (70)	Room 4; wall 220, plaster & 111	-
MAR 15 (72)	Walls 123, 109 & 220	East
MAR 15-18 (1)	Box-section, south-east corner of Room 3	-
MAR 15-18 (3)	Top of vault 6 at base of box section, south-east corner of Room 3	-
MAR 15-18 (5)	Room 2 cobbling 129 (left) & 173 (right) and cut 254 extended	West
MAR 15-18 (6)	Room 2 cobbling 129 (left) & 173 (right) and cut 254 extended	East
MAR 15-18 (10)	Box-section, north-west corner of Room 2	West
MAR 15-18 (13)	Box-section, north-west corner of Room 2	West
MAR 15-18 (16)	Box-sections Room 2 (foreground) & Room 3	South
MAR 15-18 (19)	Top of vault 5 and stone surface 194	South
MAR 15-18 (23)	Stone layer 194, south	North
MAR 15-18 (24)	Cobbles 206, sand 139 and stone layer 194	North-east
MAR 15-18 (27)	Vault 5 transect with stone layer 195 and crown of vault 5	North-east
MAR 15-18 (28)	Layer 199; southern side of vault 5 transect	North
MAR 15-18 (29)	Layer 199; southern side of vault 5 transect	South
MAR 15-18 (32)	Southern half of vault 5 transect	North
MAR 15-18 (38)	Cleaning of East Curtain	East
MAR 15-18 (39)	Cleaning back – Curtain wall above lower cobbling 132	North-east
MAR 15-18 (40)	Working shot	South
MAR 15-18 (42)	Stone layer	-
MAR 19 (2)	Stone layer; southern end of vault 5 transect	North
MAR 19 (3)	Cobbling 132 and embrasure	East
MAR 19 (7)	Cobbling 132 under east curtain	East
MAR 22 (5)	South-western corner Room 4	South-west
MAR 22 (6)	South-western corner Room 4	South
MAR 22 (10)	Brian Black filming CMcS	South-west
MAR 22 (19)	Brian Black filming CMcS	North-east
MAR 22 (24)	Brian Black filming CMcS	South-east
MAR 22 (26)	Brian Black filming CMcS	East
MAR 22 (28)	Lower cobbling 132, east curtain and embrasure	East
MAR 22 (29)	Lower cobbling 132, east curtain and embrasure	East
MAR 22 (31)	Cobbling 132 and drain under east curtain	South
MAR 22 (33)	Cobbling 132 and drain under east curtain	North
MAR 22 (37)	East-facing section, southern end of vault 5 transect	West
MAR 22 (39)	East-facing section, southern end of vault 5 transect	West
MAR 22 (40)	West-facing section, southern end of vault 5 transect	East
MAR 22 (42)	West-facing section, southern end of vault 5 transect	East
MAR 22 (44)	West-facing section, southern end of vault 5 transect	East
MAR 22 (45)	West-facing section, southern end of vault 5 transect	East
MAR 22 (47)	South-facing aspect of vault 5 haunches	North
MAR 22 (49)	West-facing aspect, southern end of vault 5 transect	North
MAR 22 (50)	West-facing aspect, southern end of vault 5 transect	East
MAR 22 (53)	Crown of vault 5	East
MAR 22 (56)	Crown of vault 5	West
MAR 22 (57)	Crown of vault 5	West
MAR 22 (59)	Southern haunch of vault 5	North
MAR 22 (60)	Southern haunch of vault 5	North
MAR 22 (62)	East curtain after cleaning	East
MAR 22 (64)	South-facing haunch of vault 5	North
MAR 22 (65)	Southern end of vault 5 transect and east curtain	East

MAR 22 (66)	Crown of vault 5	East
MAR 22 (68)	Crown of vault 5	West
MAR 22 (70)	Crown of vault 5 & Room 1	West
MAR 22 (72)	General view of site – post-excavation	South-west
MAR 22 (73)	North-facing section of vault 5 transect	South
MAR 22 (77)	Southern end of vault 5 transect	-
MAR 22 (78)	Cobbling 132 and east curtain	East
MAR 22 (81)	Drain feature and cobbling 132 under curtain	East
MAR 22 (83)	Northern end of vault 5 transect	South
MAR 22 (84)	Northern haunch, vault 5	West
MAR 23 (2)	North-facing aspect of vault 5 transect	South
MAR 23 (4)	General view of site – post-ex	South
MAR 23 (5)	General view of site – post-ex	South-west
MAR 23 (6)	Crown of vault 5	West
MAR 23 (10)	Box-section, north-west corner Room 2	West
MAR 23 (11)	Box-section, north-west corner Room 2	West
MAR 23 (12)	Cobbling Room 2 and cut/depression 178	West
MAR 23 (15)	Room 1 and hedge bed 119/118 half-section	West
MAR 23 (16)	Room 1 and hedge bed 119/118 half-section	West

9 FIGURES

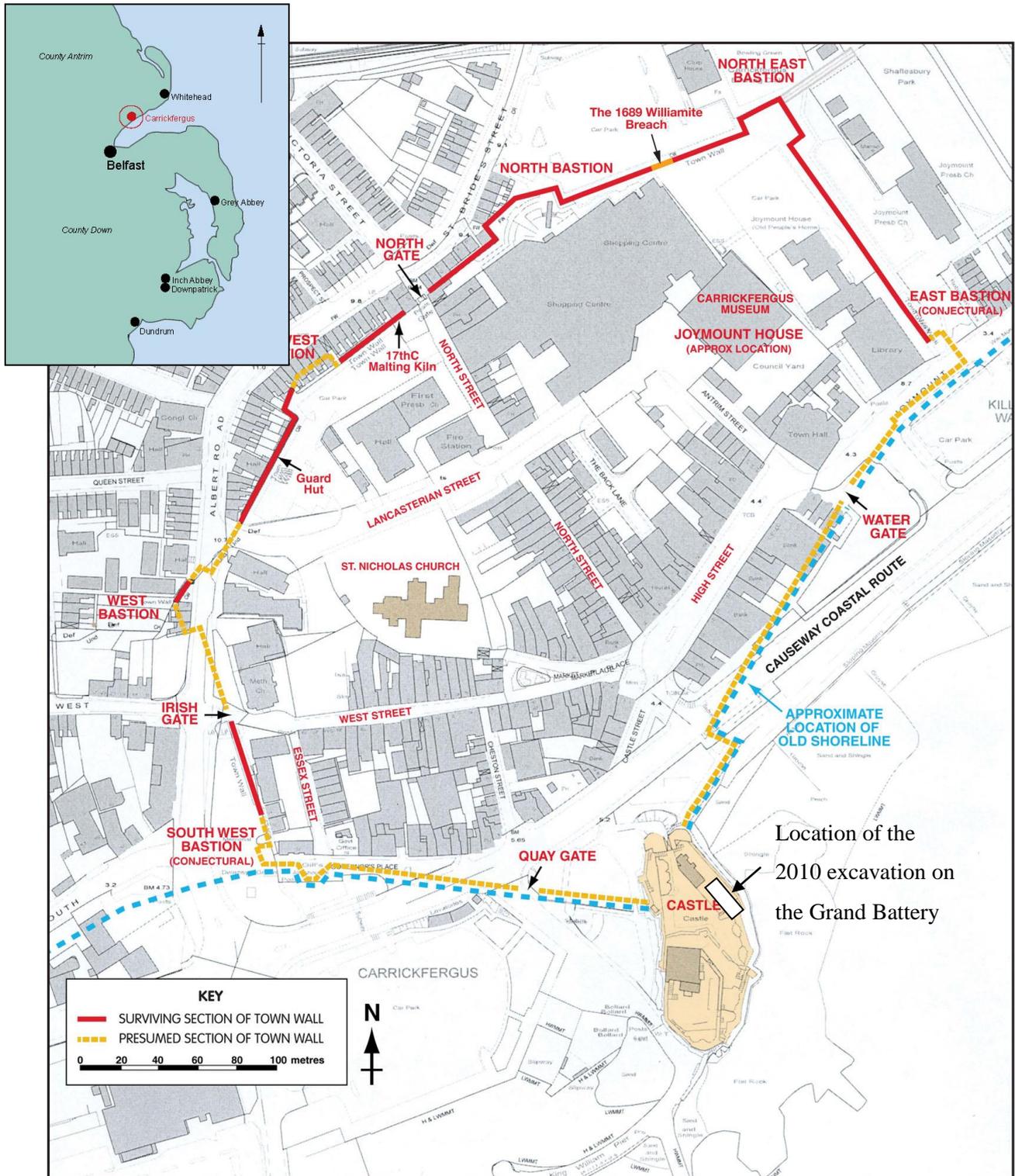


Figure 1 Location maps: the inset shows the location of Carrickfergus on the northern shore of Belfast Lough. The main map shows the modern town of Carrickfergus with the location of the castle, town wall and old shoreline all highlighted (both taken from Ó Baoill 2008).

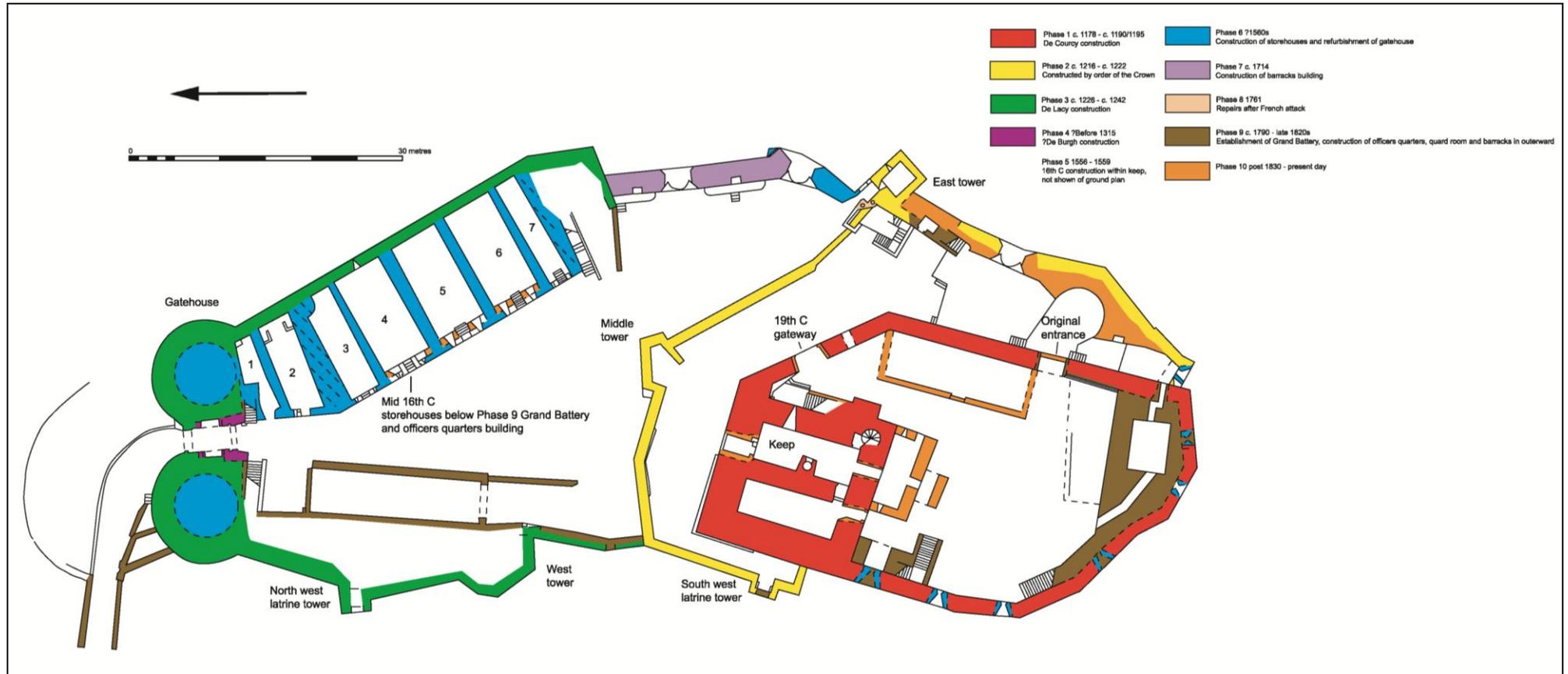


Figure 2 Plan of Carrickfergus Castle showing the main structural phases of development (from Ó Baoill 2008 - after McNeill 1981).

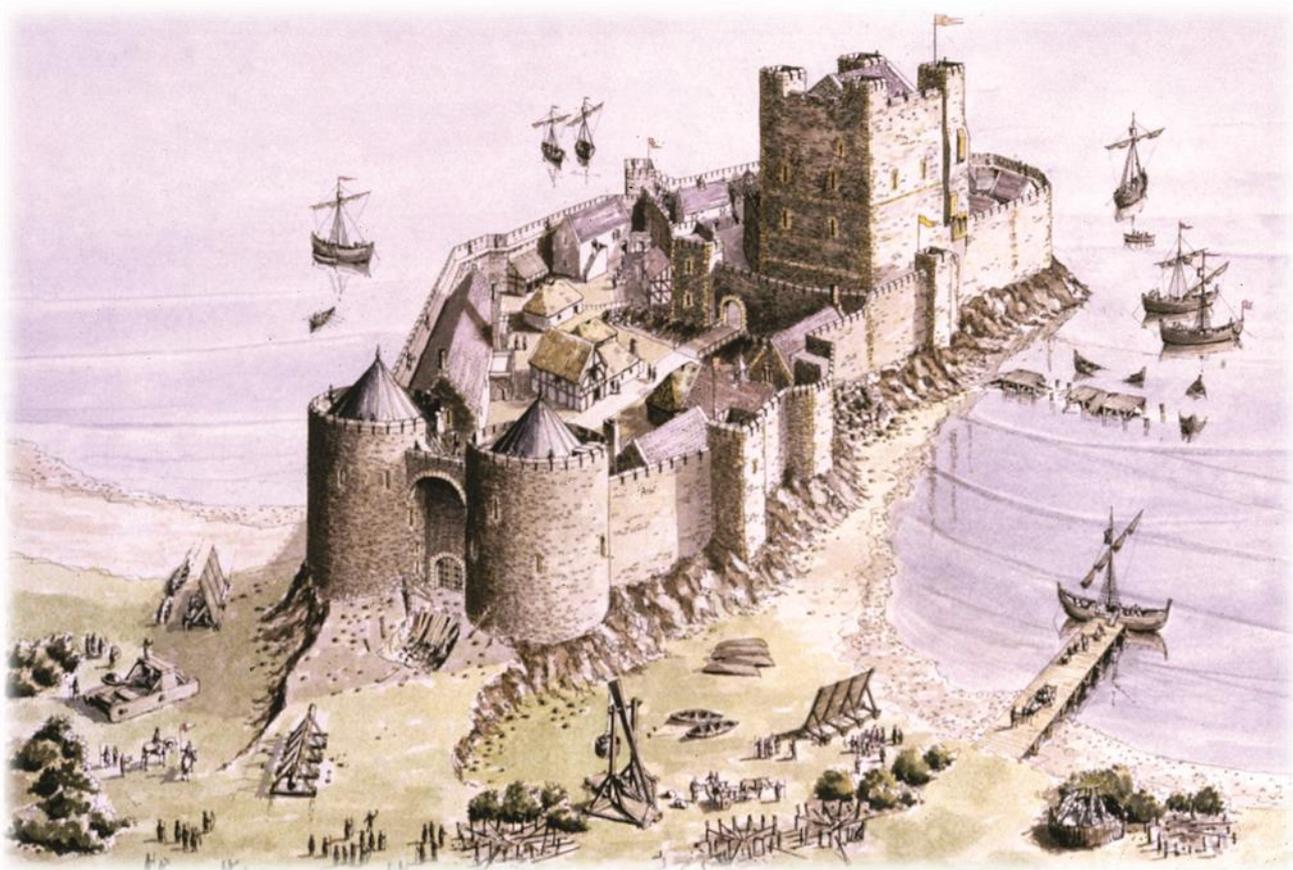


Figure 3 Reconstruction drawing by Philip Armstrong of Hugh de Lacy's castle, as imagined under siege in 1315 (taken from Ó Baoill 2008).



Figure 4 A pictorial map of *circa* 1560 of Carrickfergus showing the castle with the storehouses unroofed and the gate towers in a ruinous condition (BL Cotton Augustus I ii f42; copied from Ó Baoill 2008).

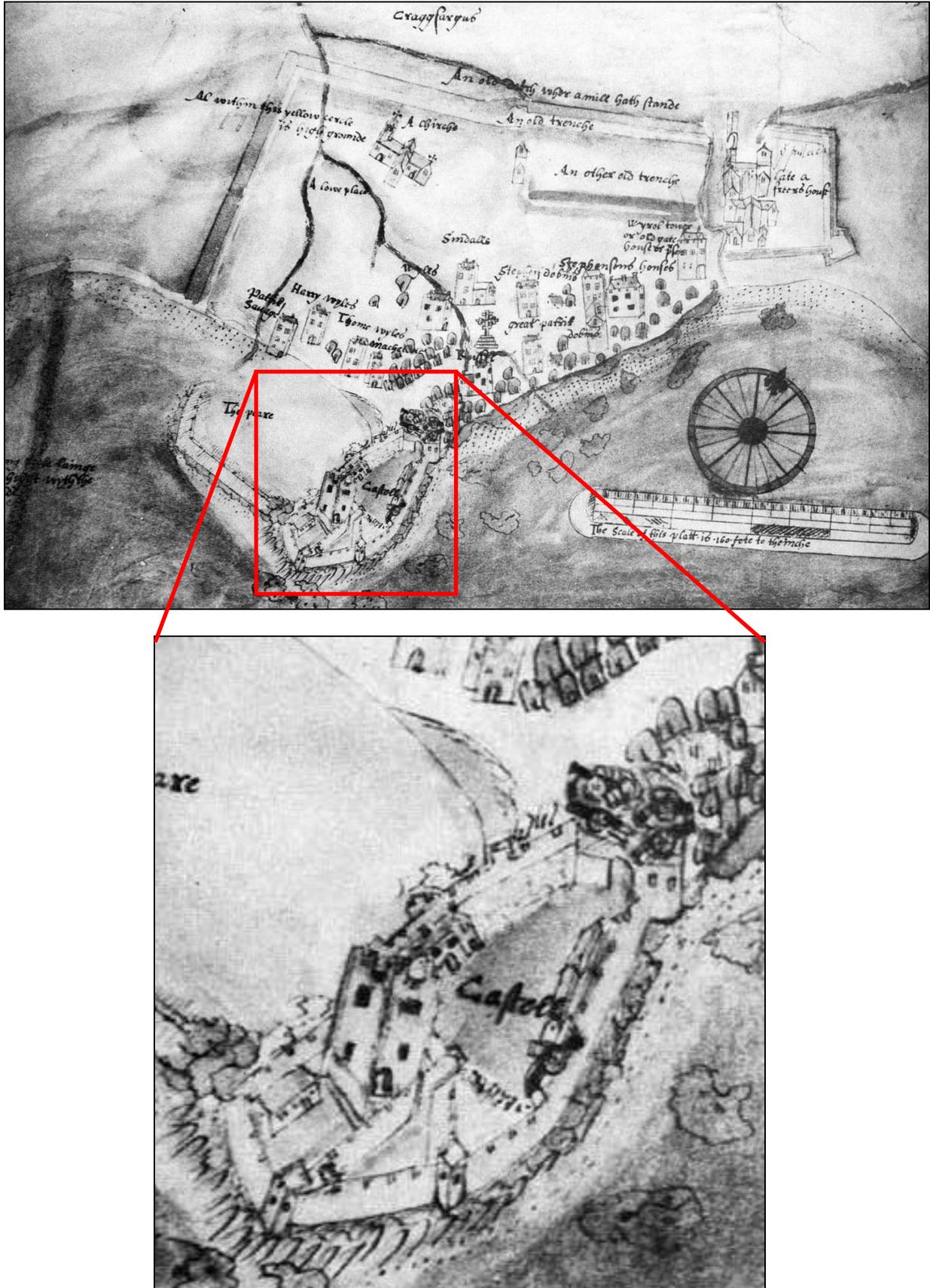


Figure 5 Map of Carrickfergus in 1567 by Robert Lythe (top) and detail of the castle (bottom) (TCD MS 1209(26). Copied from Ó Baoill 2008).

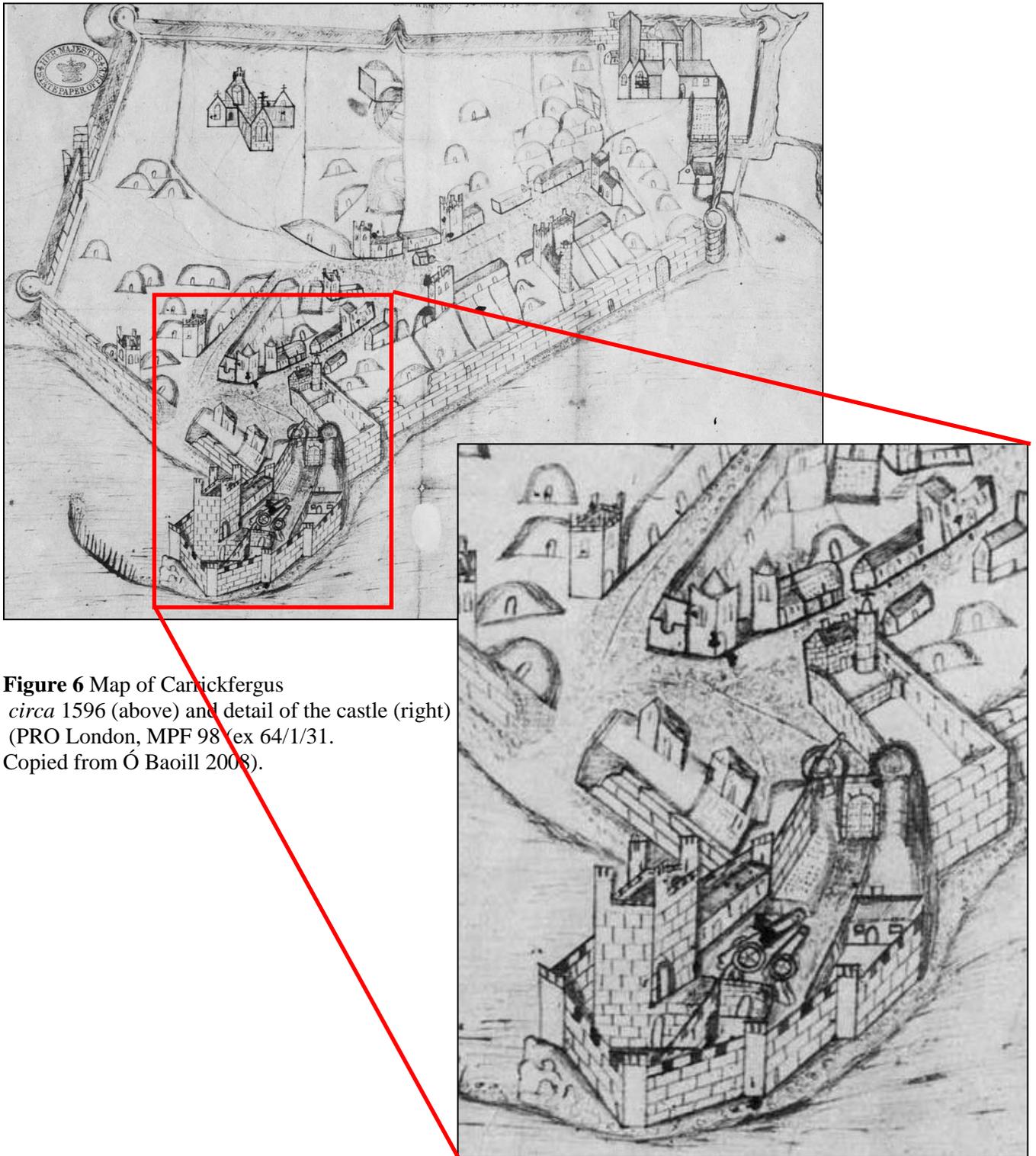


Figure 6 Map of Carrickfergus
circa 1596 (above) and detail of the castle (right)
(PRO London, MPF 98, ex 64/1/31.
Copied from Ó Baoill 2008).

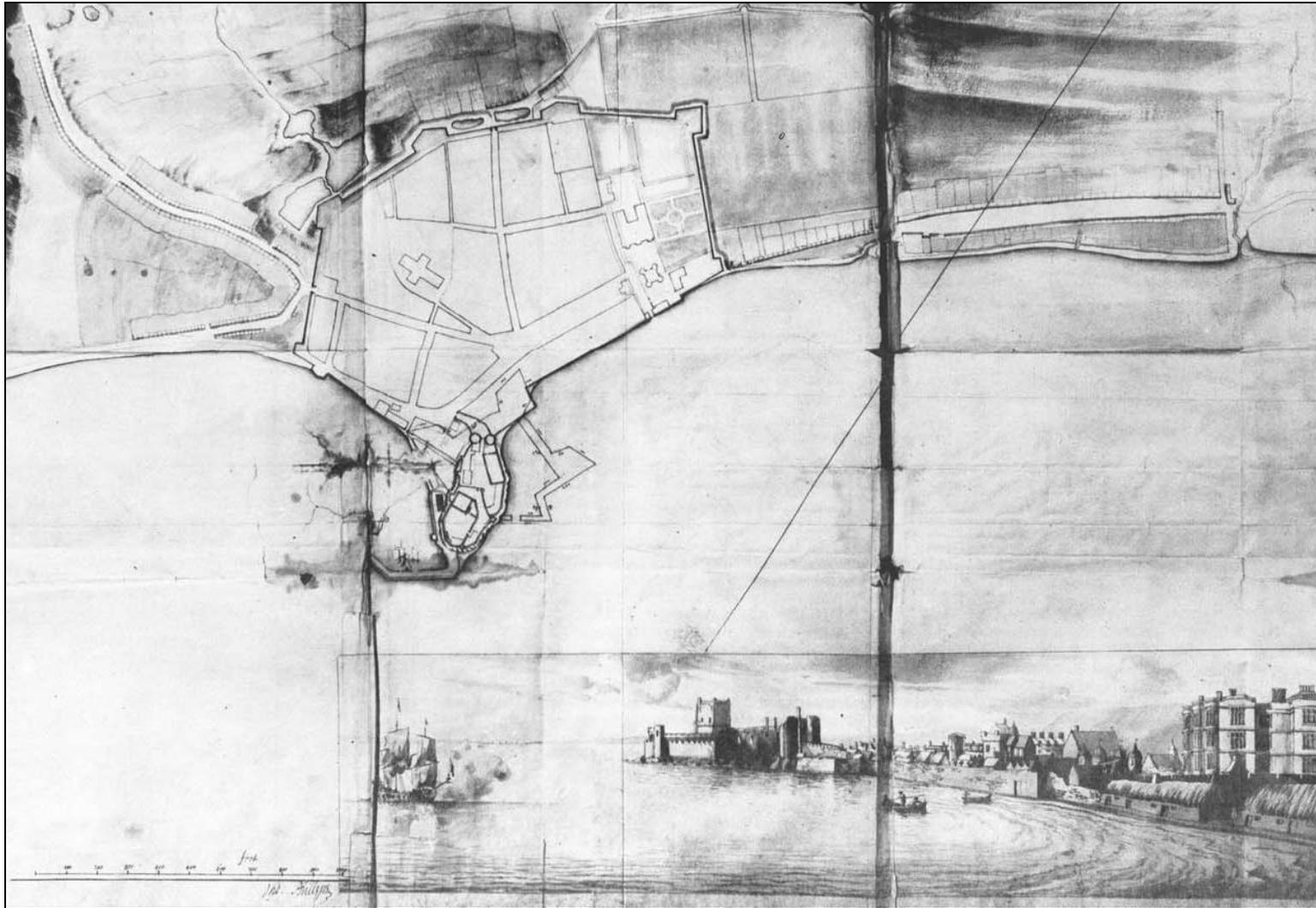


Figure 7 Thomas Phillips' 1685 map of Carrickfergus held in the NLI (MS 3137- 42); copied from Ó Baoill 2008).

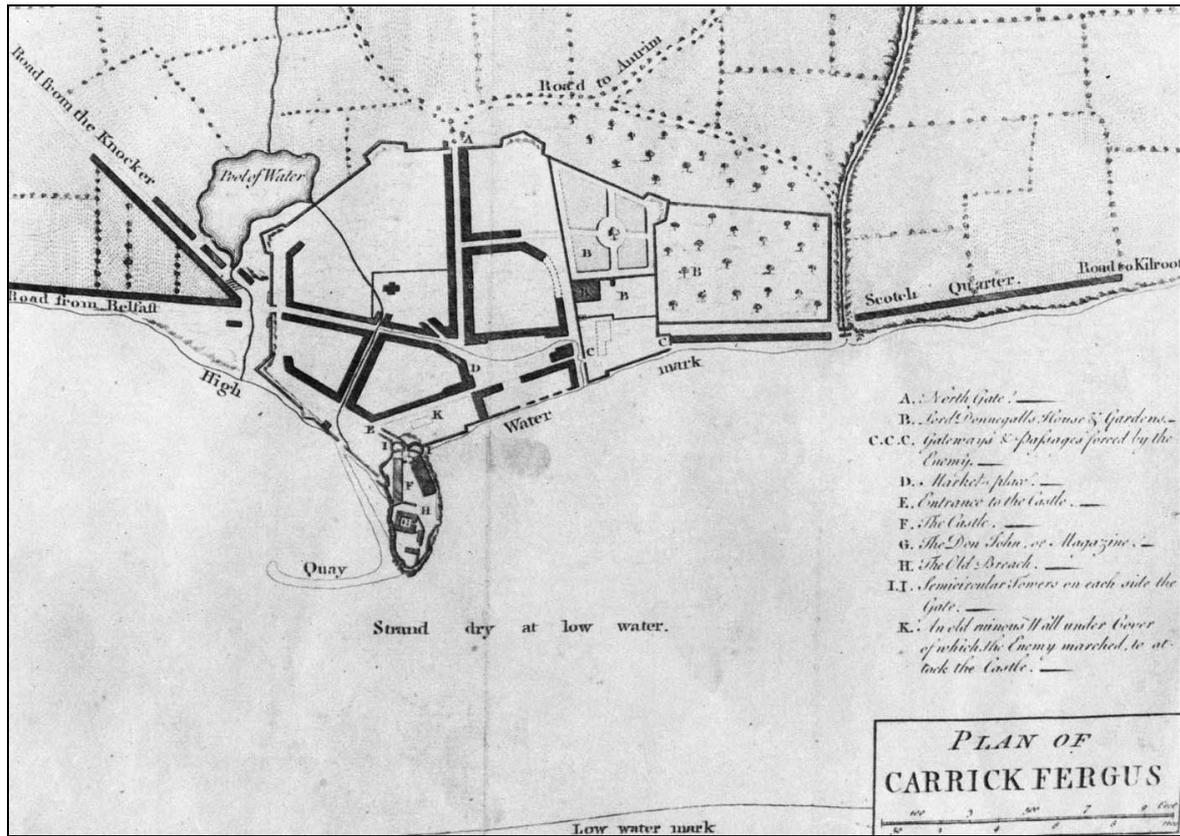


Figure 8 Plan of Carrickfergus in 1760 from the *British Magazine*, May 1760 (copied from Ó Baoill 2008, 80).

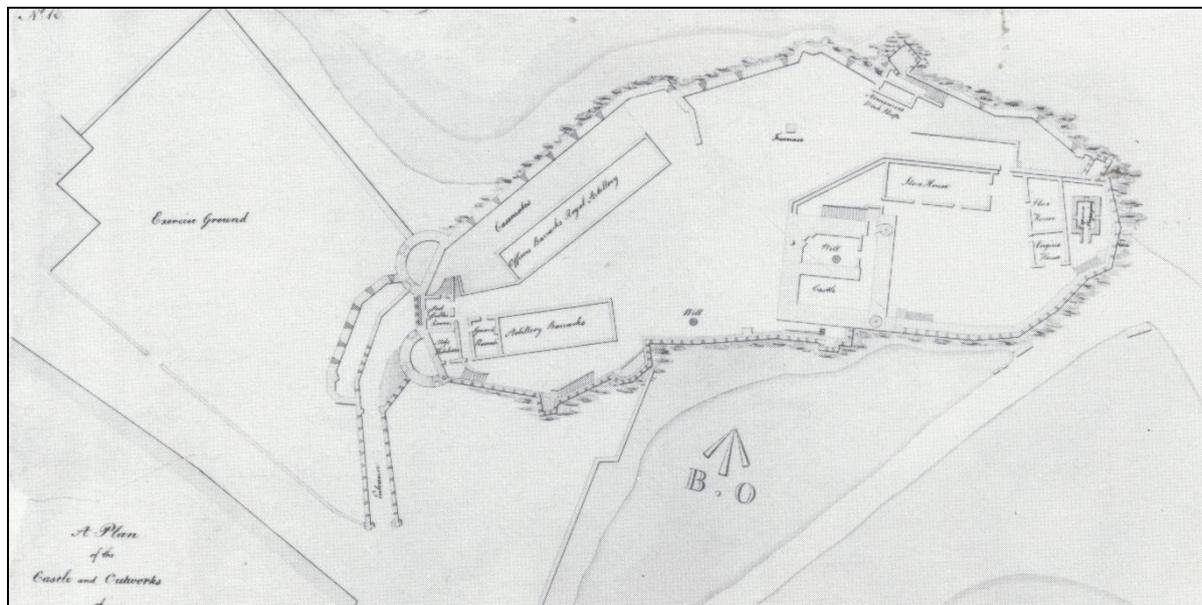


Figure 9 Plan of the castle in 1811 held in the public record office (PRO wo 78/1158. Copied from McNeill 1981, plate 29).

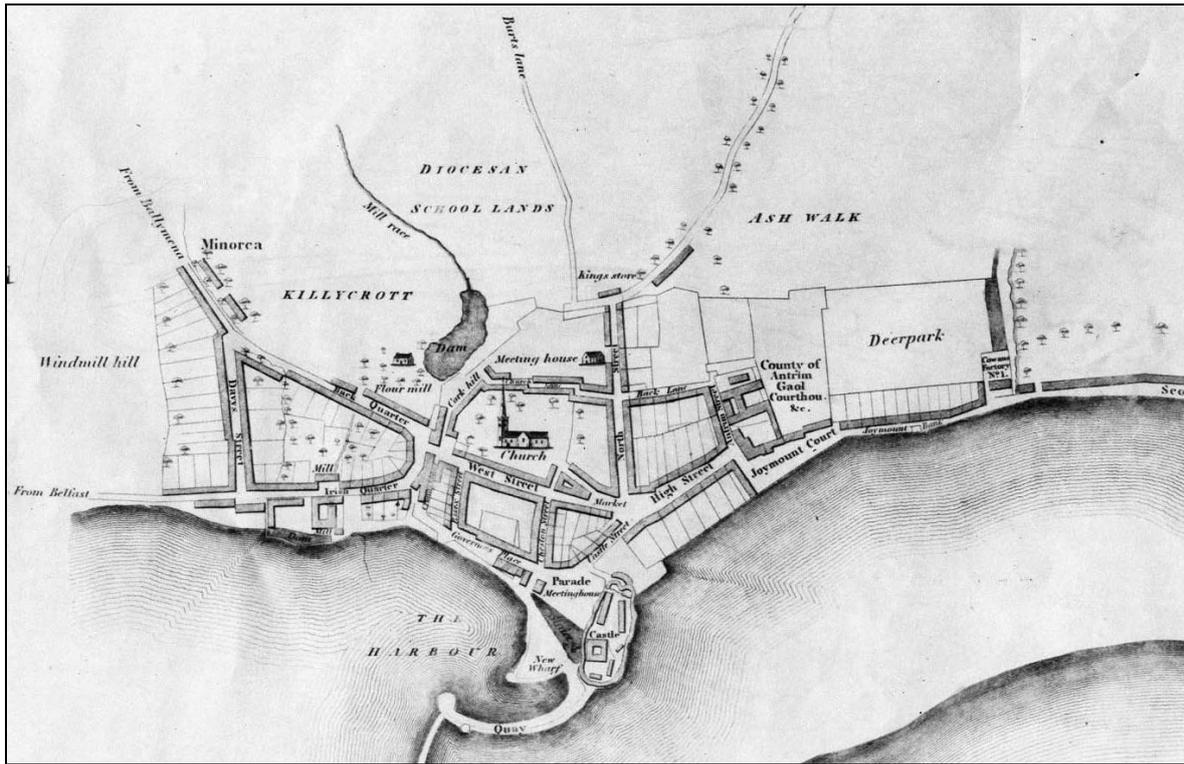


Figure 10 Map of Carrickfergus in 1821 by James O’Kane, held in PRONI , showing the castle and the Officers’ Quarters building on the Grand Battery (copied from Robinson 1986, Map 9).

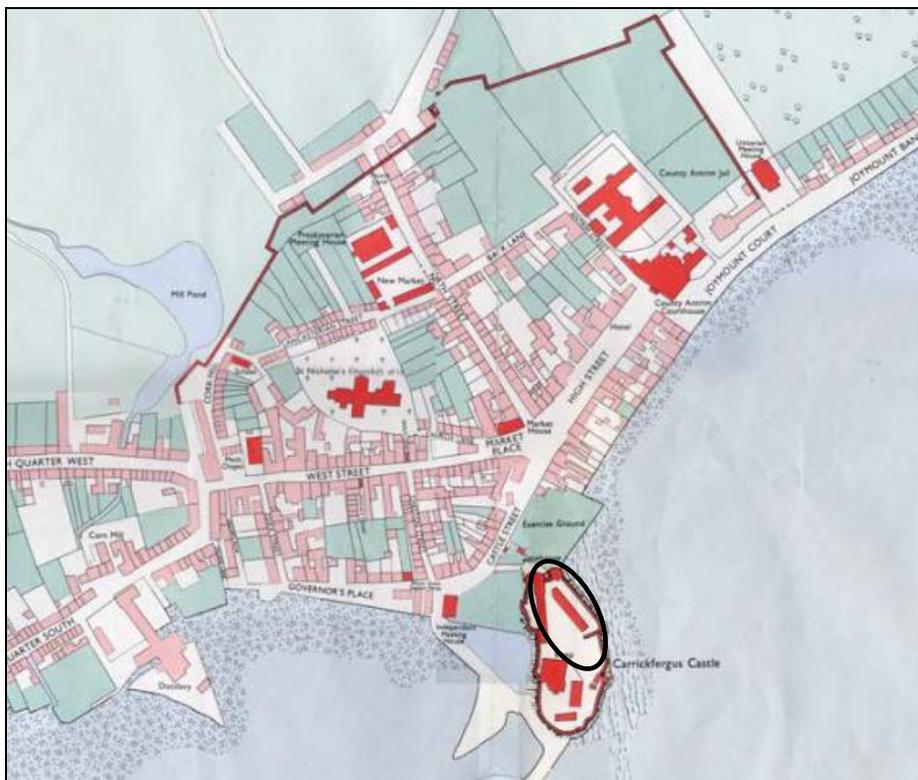


Figure 11 Detail from a map of Carrickfergus circa 1840 showing the castle and the Officers’ Quarters building on the Grand Battery (copy provided by R Ó Baoill).

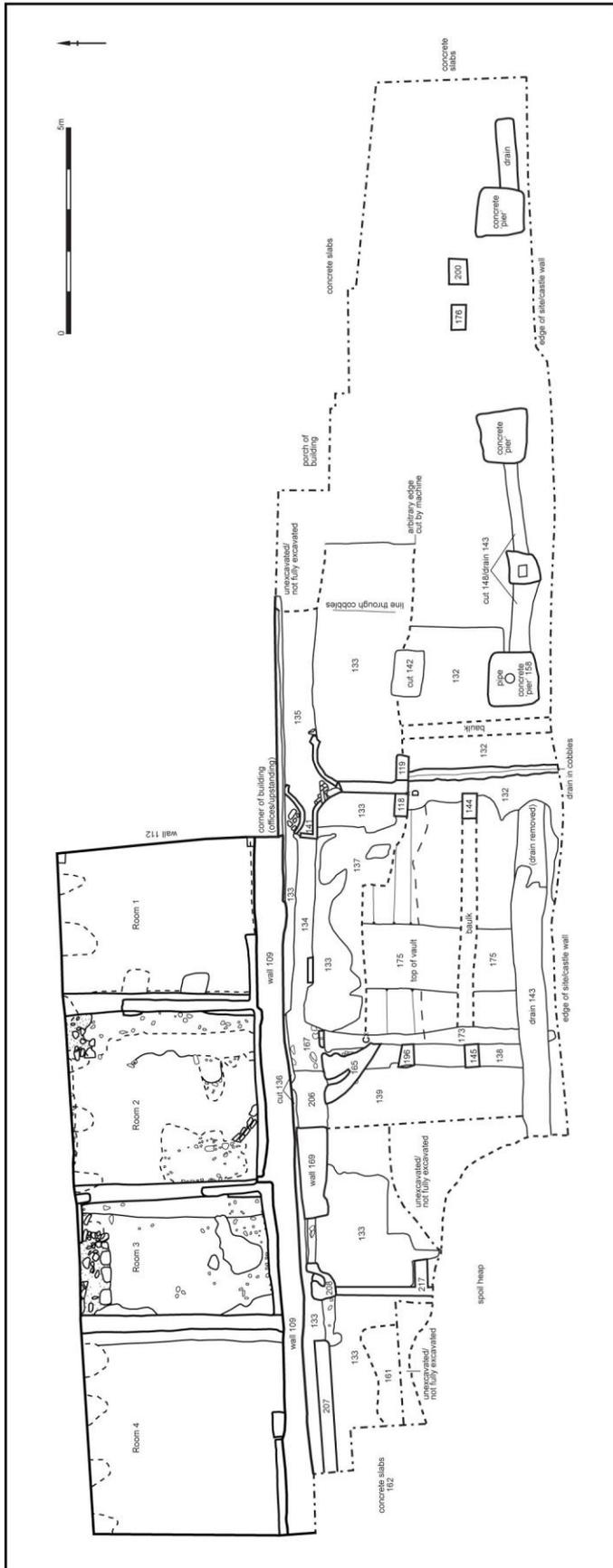


Figure 12: Post-excavation plan of the Grand Battery. The four rooms and southern end of the former Officers' Quarters building is shown in detail in Figure 13. The location of the Vault 5 transect (Figure 15) is marked by points 'C' and 'D'.

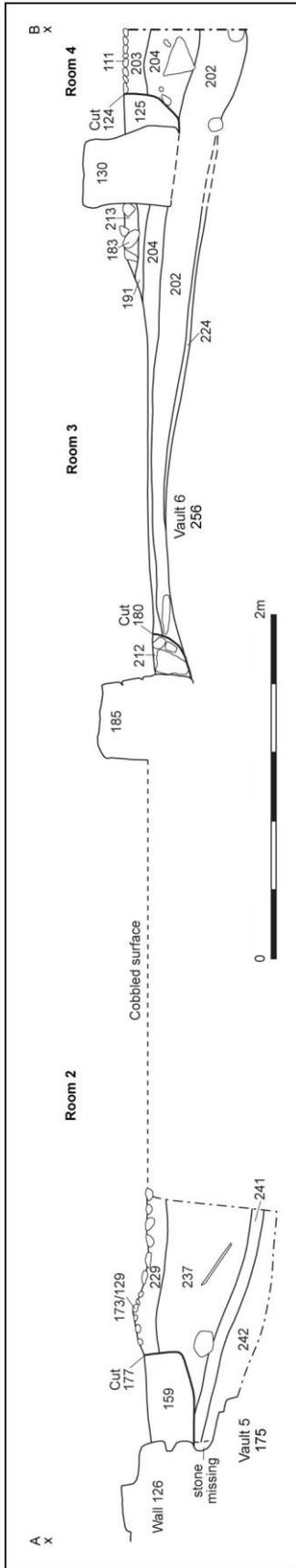


Figure 14: West-facing running section drawing of a series of box-trenches excavated across the western ends of Rooms 4-2 (see Figure 13 for the location of the section).

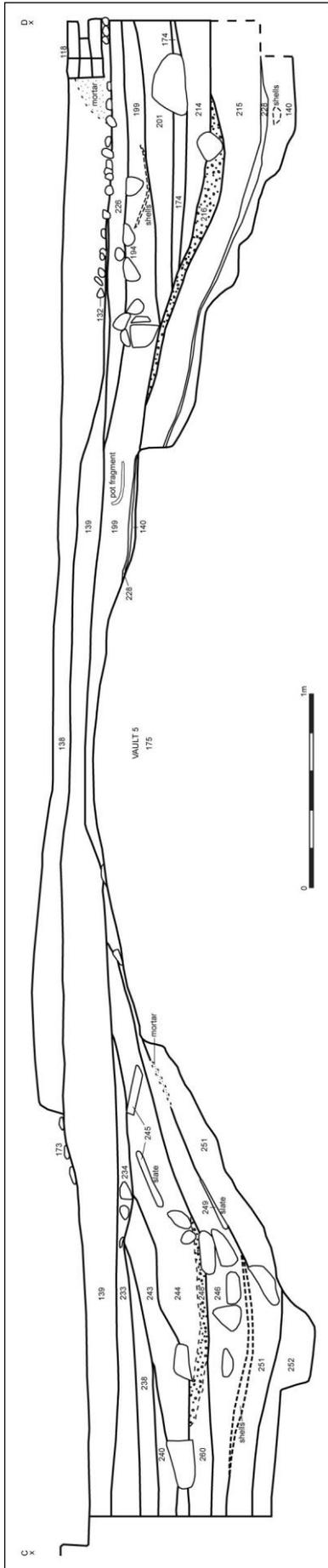


Figure 15: East-facing section drawing of the Vault 5 transect (see Figure 12 for the location of the section).

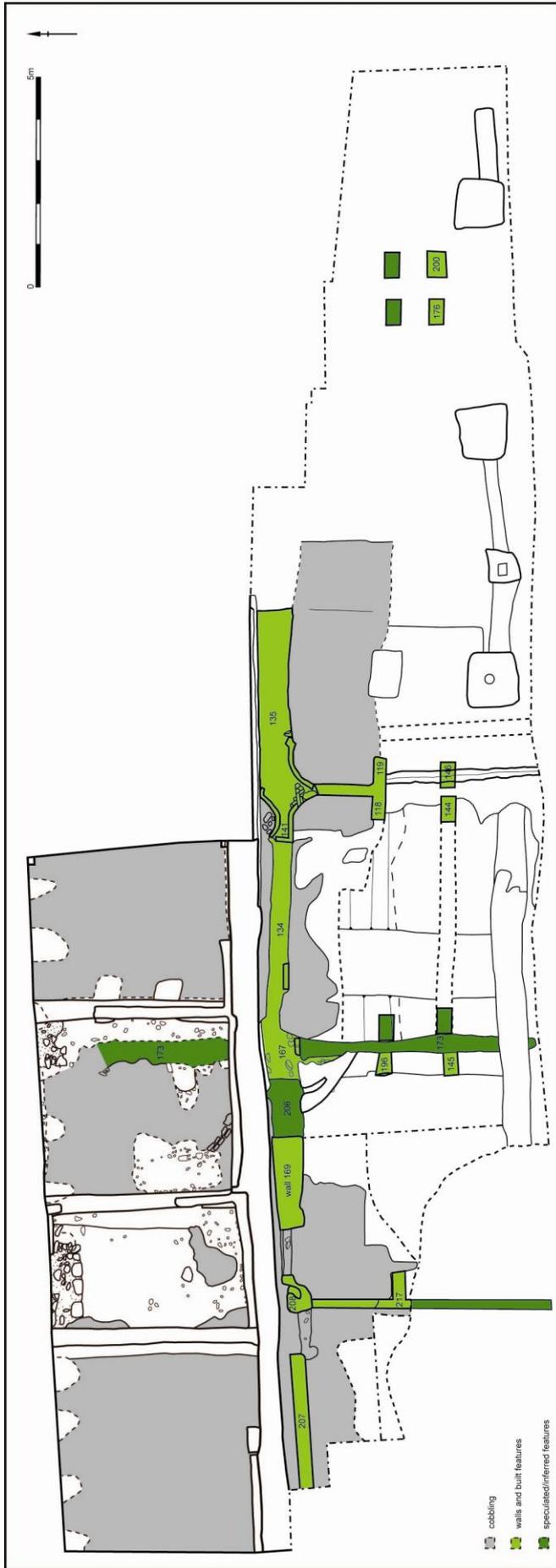


Figure 16: Post-excavation site plan with the surviving remains of the eighteenth-century Infantry Barracks highlighted. Uncertain features and speculated features that may once have existed and been part of the barracks are also added and highlighted.

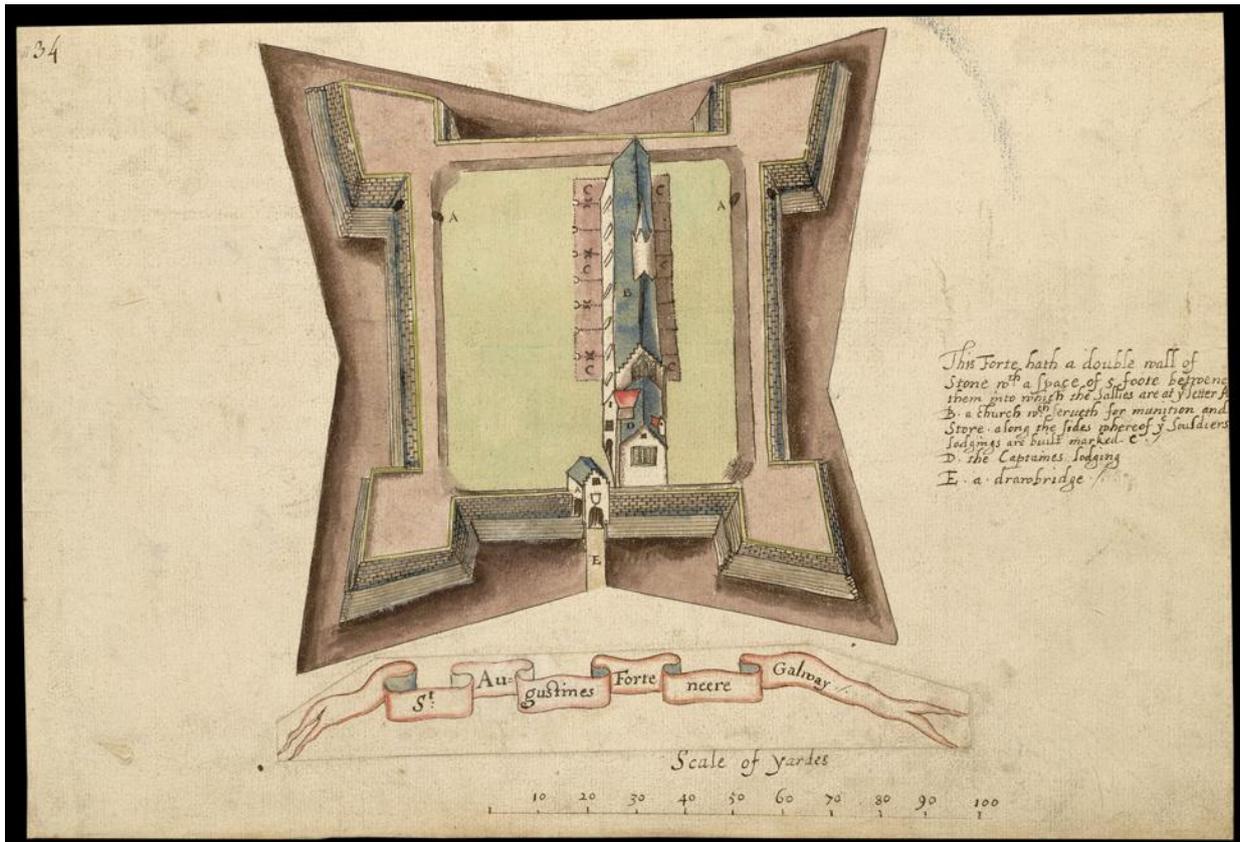


Figure 17 Manuscript map of 'St Augustine's fort neere Galway' by Sir Josias Bodley dated to circa 1611. The internal buildings are named via an alphabetical key and include soldiers' lodgings marked 'C' represented by two rows, back-to-back, of eight square rooms (British Library. Cotton Augustus I.ii; f.34. Accessed online 25.11.1 <http://www.bl.uk/onlinegallery/onlineex/unvbrit/s/largeimage82888.html>).

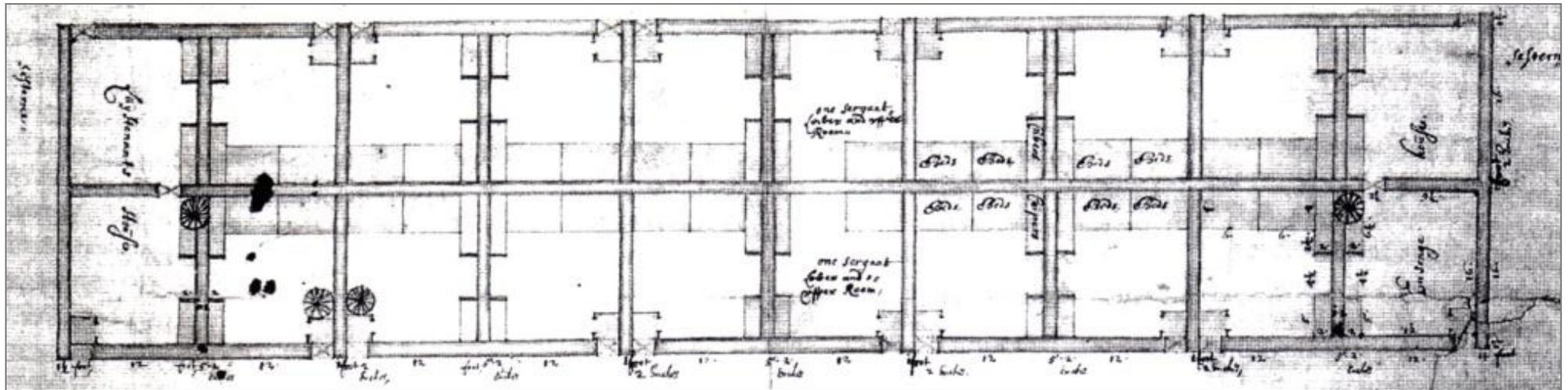


Figure 18 De Gomme's ground-floor plan of the barracks at Portsmouth, circa 1679 (from Douet 1998, 10).

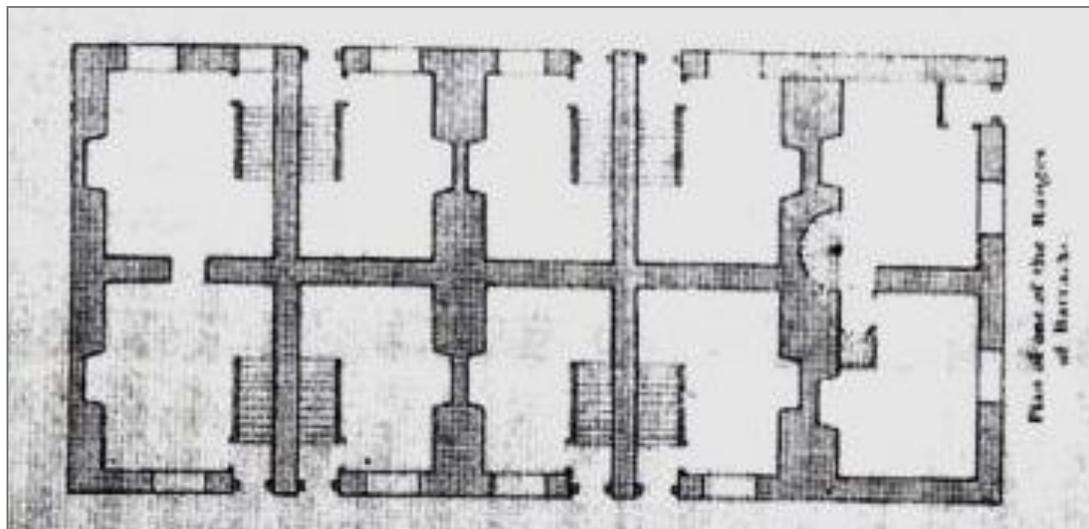


Figure 19 A 1715 plan of de Gomme's barrack range of the 1670s in Plymouth citadel (from Douet 1998, 14).

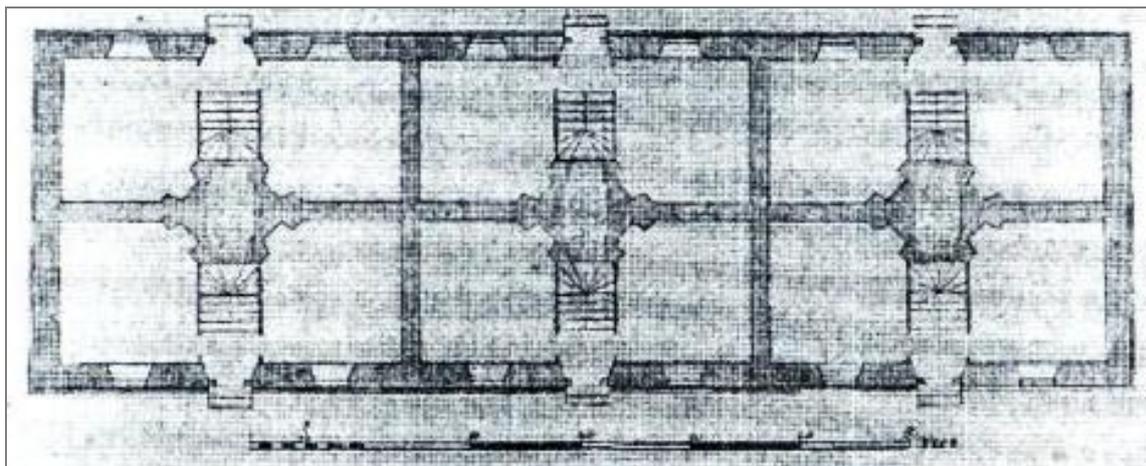


Figure 20 Lily's 1715 plan for a proposed new barracks on St Mary's, Isles of Scilly (from Douet 1998, 17).

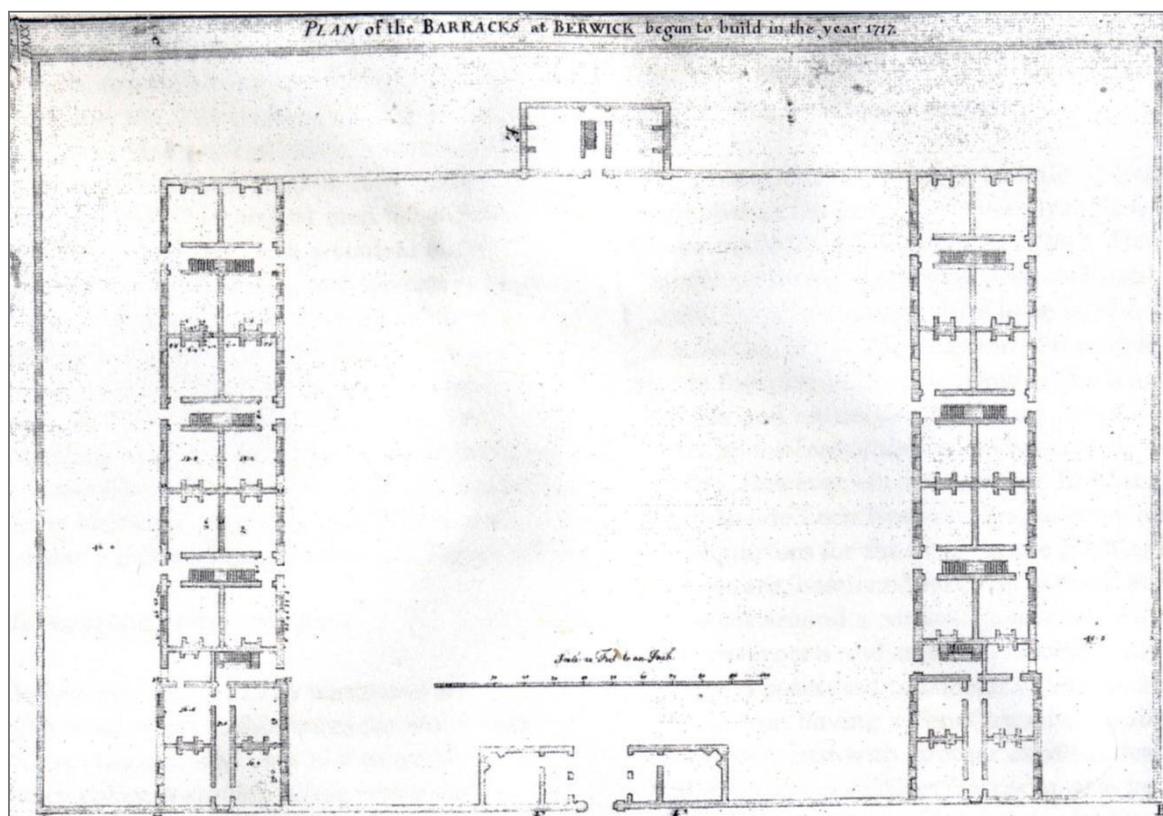


Figure 21 Plan of the barracks at Berwick upon Tweed built in 1717 (from Douet 1998, 19).

10 Plates



Plate 1 View of the Outer Ward of Carrickfergus Castle taken from the roof of the Great Tower showing the gatehouse at the top left-hand side of the photo, the vaulted storehouses and Grand Battery, under excavation, at the right of the photo and the town in the background (T. Corey, NIEA).



Plate 2 Aerial photo of the castle pre-1927 (NIEA) before the southern half of the Officers' Quarters Building located on the Grand Battery (seen here between the gatehouses on the left, and the Great Tower, on the right) was pulled down.



Plate 3 The Outer Ward showing the Grand Battery when it was partly laid-out with a garden and hedge (NIEA: date unknown).



Plate 4 The surface of the Grand Battery in 1990 when the garden was removed and the southern end was re-laid in concrete (ANT052:059-738. NIEA).



Plate 5 The surviving foundations of the Officers' Quarters building and other features exposed when the garden was removed in 1990 (ANT052:059-727. NIEA).



Plate 6 The surviving foundations of the Officers' Quarters building and other features exposed when the garden was removed in 1990 (ANT052:059-734. NIEA).



Plate 7 The Grand Battery after the removal of the concrete by mechanical excavation in February 2010 and when the CAF began working at the site (Feb. 25th).



Plate 8 Concrete (C.162) overlying levelling and demolition deposits C.211 and C.209, and clay layer C.161 (over cobbles C.133) at the top of the ramp at the southern end of the Grand Battery (facing south).



Plate 9 General view of the northern end of the Grand Battery after the removal of the concrete and some of the levelling deposits by machine (facing north east).



Plate 10 Surviving plaster/render on wall C.220 in Room 4; below tarp (C.105) and contemporary wall infill (C.106).



Plate 11 Western wall in Room 1 showing modern wall (C.101-106) with C.105 above C.106 (see Plate 10) and the hedge bed C.118 and fill C.119.



Plate 12 Demolition rubble and mortar and dark organic soil of the former hedge beds (Rooms 2 and 1; facing west).



Plate 13 Room 1 wall 187 in the north eastern corner of the room under gable wall C.112 and wall C.109 (right).



Plate 14 Base of western pier (fireplace?) in Room 1 after removal of demolition debris.



Plate 15 Subdividing wall between Rooms 2 (L) and 1(R), and pier and possible fireplace feature, C.121 & C.122 (facing W).



Plate 16 Wall C.223 in the north-western corner of Room 1.



Plate 17 Room 2: cobbling C.173 and c.129 (facing E).



Plate 18 Room 2; cobbling C.129 and C.173 and cut C.254 (extended).



Plate 19 Room 2, feature C.179 in the northwestern corner and cut C.177 (facing W).



Plate 20 Box section in the south-eastern corner of Room 3 showing the two cobble horizons – C.183 (upper) overlying clay bedding layer, C.213, and lower cobbles, C.190.



Plate 21 South-western corner of room 4 showing juncture of walls.



Plate 22 Juncture of southern end of wall C.109 and wall C.220.



Plate 23 Stone surface, C.194, northern side of Vault 5 transect (facing north).



Plate 24 Stone surface, C.234, southern side of Vault 5 transect (facing north).



Plate 25 Drain C.143 and integrated vent/access point with concrete pier (C.158) and pipe [covered with a stone] in the background (facing north).



Plate 26 Slate-capped drain (C.143), ceramic pipe (C.127) and top of Vault 5 (facing south).



Plate 27 Slate-capped drain C.143 with slates removed (facing north).



Plate 28 Box-section in the north-western corner of Room 2 showing stone feature C.179 bonded to wall C.107 and both built above wall C.210.



Plate 29 Box section in Room 2 (foreground) and Room 3 (background). **Plate 30** feature C.181 at the western end of Room 3.



Plate 31 The foundations of the Officers' Barracks and other features exposed when the garden was removed in 1990s (NIEA). The three linear walls set side by side did not survive in 2010 the structure of the inner and outer one apparently with slate is not dissimilar to linear section of feature C.165.



Plate 32 Cobbles C.173 and C.206 and masonry feature C.165.



Plate 33 The Grand Battery in 1990 when the garden was removed and concrete surface relaid (ANT052:059-726. NIEA).



Plate 34 The east-facing section of the Vault 5 transect showing depth of stratigraphy.