

Centre for Archaeological Fieldwork
School of Archaeology and Palaeoecology
Queen's University Belfast



Data Structure Report: No.8.

Investigations at Carrickfergus Castle, Co. Antrim
AE/02/106

On behalf of



Data Structure Report: Carrickfergus Castle, Co. Antrim

John Ó Néill and Ruth Logue

(Grid Reference J 4143 8725)

(CAF DSR 008)

(Licence No. AE/02/106)

(SMR No. ANT 052:059)

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1. Summary

- 1.1 The site of the 2002 Carrickfergus Castle investigations was within the inner ward of the castle in a building believed to be a magazine constructed in the 1850s. The excavations took place in advance of the construction of a lift. Carrickfergus Castle is recorded in the SMR as ANT 052:059 and is located at National Grid Reference J 4143 8725.
- 1.2 The inner ward of the castle has been investigated by excavation on several previous occasions. Professor Martin Jope, formerly of Queen's University, excavated a test trench within the inner ward of the castle sometime in the 1950s. The location of this trench and the results of the excavation were not found among Prof. Jopes notes and it is presumed that nothing of archaeological significance was noted (T. McNeill, *pers.comm.*). A service trench opened within the inner ward of the castle was too narrow to reveal anything of major significance (Brannon 1991). In 1993 an excavation in a similar location alongside the keep revealed the east wall as constructed on a foundation raft of beach boulders in a trench dug into the land surface (Donnelly *et al* 1998). The raft was covered by a layer of crushed Cultra stone.
- 1.3 None of the pre-Ordnance Survey maps of Carrickfergus show buildings at the site of the proposed lift shaft. The single-storey building, within which the excavation took place, lies within the inner ward of the castle. Measuring 8.90 m by 3.00 m internally, it has 1.45 m thick granite walls. The building was built as a magazine following the re-commissioning of the castle as the headquarters of the Antrim Artillery after 1855 (McNeill 1981, 51). An ope linking the magazine to the keep, appears to date from this time.
- 1.4 The excavations uncovered a number of structural features which reflected the use of the building as a magazine. Two earlier walls were sealed by activity associated with the magazine. These walls had been inserted through soil levels associated with the inner ward of the castle, which had formed across the top of the basal levels of the keep wall which was partly constructed onto bedrock. A large quantity of prehistoric lithics was recovered from the trench, indicating pre-castle occupation of the promontory.
- 1.7 The excavations revealed traces of the construction elements of the keep wall, along with earlier (prehistoric) and later (post-medieval) features. It is recommended that a programme of post-excavation is conducted, in order to complete the excavation and bring the project to completion and publication.

2. Introduction

2.1 General

2.1.1 The following report details the preliminary results of the archaeological excavation at Carrickfergus Castle, undertaken by the Centre for Archaeological Fieldwork, School of Archaeology and Palaeoecology at Queen's University Belfast in October 2002. This programme of work was undertaken on behalf of the Environment and Heritage Service, DOE NI, who funded the excavations.

2.2 Background

2.2.1 Carrickfergus Castle is recorded in the Northern Ireland Sites and Monuments Record as ANT052:059 and is located at National Grid Reference J 4143 8725 (see figure 1). The excavation took place in advance of the construction of a lift shaft, within a single storey building abutting the south wall of the keep (see figure 2 and Plate 1). The excavation took place during November 2002, under licence number AE/02/106.

2.2.2 The castle has a long history and has been continuously occupied since the twelfth century. John de Courcy built the inner ward and keep in the 1180s. The keep is a four-storey tower, ninety feet high, with a second storey entrance. Constables were appointed following its capture by the crown in 1210. In 1217 £100 was assigned to build a new curtain wall to protect the approach to the castle promontory. This middle ward wall was reduced to ground level in eighteenth century, except along the seaward side, where it survives with a postern gate and the east tower.

2.2.3 Hugh de Lacy took over the castle in 1227 and the rest of the promontory was enclosed to form an outer ward. This doubled the area of the castle and included the construction of two polygonal towers at the west and a twin-towered gatehouse at the north. The castle was besieged and damaged by Edward Bruce in 1315-16 and the O'Neills in the 1380s.

2.2.4 Along with various other improvements during the sixteenth and seventeenth centuries, the towers were cut in half to accommodate artillery. Schomberg captured the castle as Williams beach head in Ireland in 1689. In 1760, Thurot captured the castle for the French and demanded provisions from Belfast before departing. Later it became a prison and was heavily defended during the Napoleonic Wars. It remained in use as a magazine and armoury until it was transferred into State Care in 1928.

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- 2.2.5 The castle complex has been investigated by excavation on numerous occasions since the 1950s. In 1993, an excavation in a similar location alongside the keep revealed the east wall as constructed on a foundation raft of beach boulders in a trench dug into the land surface (Donnelly *et al* 1998). The raft was covered by a layer of crushed Cultra stone.
- 2.2.6 Professor Martin Jope, formerly of Queen's University, excavated a test trench within the inner ward of the castle sometime in the 1950s. The location of this trench and the results of the excavation were not found among Prof. Jopes notes and it is presumed that nothing of archaeological significance was noted (T. McNeill, *pers.comm.*).
- 2.2.6 None of the pre-Ordnance Survey maps of Carrickfergus show buildings at the site of the proposed lift shaft. The single-storey building, within which the excavation is to take place, lies within the inner ward of the castle. Measuring 8.90 m by 3.00 m internally, it has 1.45 m thick granite walls. The building was built as a magazine following the re-commissioning of the castle as the headquarters of the Antrim Artillery after 1855 (McNeill 1981, 51). An ope linking the magazine to the keep, appears to date from this time. A service trench opened within the inner ward of the castle lay outside this building (Brannon 1991).

2.3 *Reason for Excavation and Research Objectives*

- 2.3.1 Carrickfergus Castle has long been considered as one of the finest Norman castles to survive in Ireland. On this basis, the Environment and Heritage Service, DOE NI, requested the excavation in advance of the construction of the lift-shaft, to ensure preservation by full record of any and all archaeological materials which would have to be removed to facilitate insertion of the lift shaft.
- 2.3.2 As limited excavation was to take place, a number of objectives were decided upon, addressing several issues relevant to the castle. As the main objective of the excavation was to fully excavate the footprint of the lift, no limit was imposed on the potential directions of research on the materials that might be encountered. The previous excavation of the eastern face of the keep wall identified elements of the construction raft (Donnelly *et al* 1998), and the location of the lift shaft, against the southern face afforded an opportunity to examine the construction sequence of this portion of the keep.

2.4 *Archiving*

- 2.4.1 A copy of this report has been deposited with the Environment and Heritage Service, DOE NI. All site records and finds are temporarily archived within the School of Archaeology and Palaeoecology, Queen's University Belfast.

2.5 *Credits and Acknowledgements*

- 2.5.1 The excavations were directed by John Ó Néill, assisted by Ruth Logue and Janet Bell. Assistance in writing the text was provided by Dr. T. McNeill and Nick Beer. Illustrations were prepared by John Ó Néill and Bronagh Murray. Access to the site was facilitated by the EHS staff at Carrickfergus Castle.

3. Excavation

3.1 Methodology

3.1.1 The excavation of the archaeological deposits was undertaken once the existing ground slab was removed. A single trench was opened, measuring some 2.50 m by 2.30 m. Seven different phases of activity were represented by deposits examined within the trench (including modern activity).

3.1.2 The excavations were undertaken by hand and the context record for the site was created using the standard context recording method. Individual features were photographed both prior to, and following, excavation and included in a series of overall plans of the trench which were prepared throughout the course of the excavation (scales 1:10, with scale 1:20 for modern deposits). Section drawings (Scale 1:20) were undertaken of the exposed archaeological deposits visible in each baulk (for details of site photography see Appendix Three and for field illustrations see Appendix Four). In addition to the photography and illustration, the principal site records consisted of context sheets augmented by separate registers of small finds (Appendix Five) and samples (Appendix Six). Following the completion of the site recording, the excavation trench was left open pending further work relating to the construction of the lift shaft.

3.1.3 It is intended that the Harris Matrix for the site (see Appendix Two) is referred to whilst reading the following accounts of the stratigraphic sequences of the trench, along with the section drawings in figure 5.

3.2 Account of the excavations

3.2.1 Later disturbance of the site, including in-filling for the insertion of the modern ground slab and services had penetrated to a depth of 0.45 m. Finds from deposits of this phase included some strips of copper from the wall-lining of the magazine. The recent deposits were recorded as 101, 102, 103 and 109. The latest features on the site are indicated in figure 3.

3.2.2 A series of brick settings (105, 110, 114) were uncovered on removal of the recent deposits, aligned on the jambs of the ground floor ope into the keep from the magazine. These settings were 0.11 – 0.12 m in width. One (110) was present against the south keep wall, while the others (105 and 114) abutted two earlier walls (104 and 107/108), as shown on figure 4 and Plate 2. The brick averaged 105 mm in width and 70 mm in depth (lengths frequently could not be measured), and were set in a lime mortar (128), which extended to fill an ope in the wall 104. The tops of the brick settings was always higher than the adjacent walls.

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- 3.2.3 The brick settings described above post-dated the two brick walls (104 and 107/108) and a mortar floor (111 and 116). The two walls were aligned either side of the ground floor ope in the keep. The brick in the walls was very thin (less than 2 inches/60 mm), and the walls had been reduced to a single course over a hardcore and stone foundation. The walls were around 0.40 m thick and the eastern wall (107/108) extended across the width of the trench from the original sandstone plinth of the keep. The hard-cored foundation of the western wall (104) extended from the plinth of the keep, with a 0.70 m wide ope at the northern end. A sandy mortar floor was present across the area between the two walls (116) and to the west of 104 (where it was recorded as 111).
- 3.2.4 A layer of cobbles (117) may have been sealed by the insertion of the mortared floor. Few of these cobbles (flat water-rolled beach pebbles, up to 200 mm in length) survived and the status of the surface they represent is uncertain.
- 3.2.5 A series of soil deposits lay below the mortared floor and cobbles, and were recorded under a series of numbers due to the divisions created by the insertion of the later walls described above. Several mixed deposits were present, with 124, 127 and 119 to the west of 104, and 118, 120, 121, 122 and 123 to the east of 104. These deposits reached an overall depth of 0.25 m and are described below.
- 3.2.6 On both sides of the wall, 104, a mixed clay (alternately 119 and 118) overlay an intermediate horizon directly undisturbed soils. To the west of 104, the mixed clay deposit (118) included a lens of orange clay (124) and overlay a more compact deposit of 118 recorded separately as 127. To the east of 104, several lenses of clay were present below 119 (123 and 125). Some lenses of a silty orange clay (121 and 124) and compact lenses of clay (120, 122) were present within 118, suggesting it was a mixed deposit. Similarly, orange clay (121) and lenses of more compact clay were present within 119, which overlay an intermediate horizon, a slightly more compact soil (123) which was very similar to 119. The two main deposits (118 and 119) contained upwards of 1600 pieces of struck flint, including cores, blades, flakes, chunks and debitage. Some animal bone, small brick fragments, slate and mortar were intermixed with the lithics. Three tiny sherds of pottery were also present, including a single sherd of medieval pottery, a sherd of North Devon ware and a sherd of an English mottled ware/slip ware.
- 3.2.7 The removal of these soils revealed traces of the foundation cut (130) for the keep wall (106). When the soils 118 and 119, along with the intermediate horizons as listed above, were removed, traces of a cut were noted and recorded as 130. This cut had removed a lower soil deposit and facilitated the construction of the southern keep wall. The cut (130) was only

present where the bedrock had to be levelled off by the insertion of deposit of stones and sandy mortar (recorded as 129). The maximum visible depth of the foundation deposit was around 0.30 m. Some plinth stones (106) from the keep wall rested on the foundation deposit or bedrock (see Plates 3 and 4).

- 3.2.8 The foundations of the keep had been inserted into a fine, peat-derived clay subsoil which was present to a depth of 0.35 m. To the east of wall 104, this was recorded as 126, and to the west it was recorded as 125. This soil contained some struck flint but was mainly sterile. The soil overlay the basalt bedrock which was present to depths of 0.98 m below the modern ground surface.

3.3 *Phasing of the stratigraphic sequences*

- 3.3.1 The Harris Matrices for the trench has been provisionally phased (see Appendix Two). Seven different phases of activity were represented by deposits examined within the trench (including modern activity).

- 3.3.2 Phase 1 saw a deposit of peaty clay (125 and 126) overlying the bedrock. This contained some flakes and chunks of struck flint and the tracks of roots. The bedrock rises up towards the keep wall, roughly from south to north. A large quantity of struck flint was recovered from the Phase 3 deposits, which were effectively Phase 1 soils that had been subjected to later compaction and disturbance.

- 3.3.3 The Phase 2 activity was identified with the construction of the keep. This wall was built with a sandstone plinth (106) resting on a deposit of stones (129). These stones levelled off the surface provided by the bedrock. There is some suggestion of the Phase 1 soils being removed for the foundation deposit of stone (129). The layer of crushed Cultra stone noted in the 1993 excavation was not in evidence at this location.

- 3.3.4 The foundation deposit for the keep and the plinth were overlain by mixed clay soils of Phase 3, representing the use of the inner ward of the castle. The two main deposits (118 and 119) contained upwards of 1600 pieces of struck flint, including cores, blades, flakes, chunks and debitage. Some animal bone, small brick fragments, slate and mortar were intermixed with the lithics. Three tiny sherds of pottery were also present, including a single sherd of medieval pottery, a sherd of North Devon ware and a sherd of an English mottled ware/slip ware.

- 3.3.4 A layer of cobbles (117) may have sealed the Phase 3 deposits. A number of flat water rolled pebbles were present in patches, on top of the Phase 3 deposits and sealed (disturbed?) by

the Phase 3b deposits. These were identified with the possible addition of a formal surface to the inner ward in Phase 4.

- 3.3.4 Phase 4 was identified with two brick walls and a mortar floor. The two walls were aligned either side of the ground floor ope in the keep. The brick in the walls was very thin (less than 2 inches/60 mm), and the walls had been reduced to a single course over a hardcore and stone foundation. The walls were around 0.40 m thick and the eastern wall (107/108) extended across the width of the trench from the original sandstone plinth of the keep. The hard-cored foundation of the western wall (104) extended from the plinth of the keep, with a 0.70 m wide ope at the northern end. A sandy mortar floor was present across the area between the two walls and to the west of 104.
- 3.3.5 In Phase 5, a second set of brick settings (105, 110, 114) would have supported a floor over these walls. This may date to the magazine, or a modification of the magazine (if the brick walls are merely 1855 in date). At this time, the ope in 104 was in-filled with hardcore and crushed granite. The brick settings would have supported a floor with clearance over the Phase 5 brick walls.
- 3.3.6 Later disturbance of the site were assigned to Phases 6 and 7, and included in-filling for the insertion of the modern ground slab and services. Finds from deposits of this phase included some strips of copper from the wall-lining of the magazine.

3.4 *Artefactual Dating*

- 3.4.1 A quantity of lithics, pottery and other finds were recovered during the excavation (see Appendix Five). Provisional analysis of the artefacts suggests that they are consistent with a range of cultural phases, dated by the presence of Neolithic flintwork, medieval and post-medieval pottery and early modern finds. The majority of the finds are from the two disturbed soil levels, 118 and 119. As such, the finds are not relevant to the dating of individual phases since the majority are in the disturbed soils of the inner ward.

4. Results and Discussion

4.1 Results

4.1.1 The Phase 1 deposits and re-worked Phase 3 material suggest prehistoric activity pre-dating de Courcy's construction of the castle. A preliminary examination of the assemblage suggests it is primarily Neolithic in date (E. Nellis, *pers.comm.*).

4.1.2 The exposed sections of the keep wall and foundations (the Phase 2 deposits) did not produce the crushed Cultra stone layer that was identified in the 1993 excavations (Donnelly *et al* 1998), or the two layers of basalt boulders within the foundation cut. Rather, there was a single deposit of basalt boulders, set within voids in the bedrock where soil deposits had been removed. A plinth, which included sandstone, seems to have been placed directly onto this material and the south keep wall erected over this plinth. Cultra stone appears to be absent from this element of the keep.

4.1.3 There is no evidence of further building episodes until the post-medieval period, with soils having accumulated during the use of the inner ward of the castle. These Phase 3 deposits produced a large quantity of the lithics described in Section 4.1.1 and some animal bone. Some tiny sherds of pottery were recovered at this level, including medieval and post-medieval types. It is possible that the few cobbles recorded as 117 represent the remainder of a formal surface within the inner ward.

4.1.4 Two walls, assigned to Phase 4, and positioned either side of the ope through the keep wall, contain bricks of possible 16th century date (Logue, *pers.comm.*), although this does not preclude their re-use here at a much later date. A rough mortared floor overlay the foundations of the Phase 4 walls.

4.1.5 An ope in the western Phase 4 wall was backfilled when a series of plinths were constructed in Phase 5. Some cut offs of sheet bronze were recovered from deposits at this level.

4.2 Discussion.

4.2.1 The flint assemblage from the 2002 excavations is only one of a number of recorded finds of prehistoric lithics within the castle. The 1993 excavation and Basil Wilsons' 1955 excavations at the east tower also produced quantities of struck flint (McNeill 1981; Donnelly *pers.comm.*, McNeill *pers.comm.*). The 1955 excavations, published by McNeill (1981, Appendix 1) revealed largely sterile deposits of brown soil or earth overlying bedrock in Trenches BI (labelled 12), BII (labelled 11 and 13), T8 (labelled 5) A layers with finds of flint is also

described from Trench W2, and labelled 23, where they are described as a heterogeneous collection in a layer of blue clay. The absence of recorded finds of lithics from other trenches in 1955 may be a product of the focus of those investigations, although the location of W2, at the east tower, and the 1993 excavations, may suggest that prehistoric material originally lay across the area from the magazine to the east tower.

- 4.2.2 The difference in the character of the foundations of the east and south walls may be significant in the light of the slight variation in the alignment of the keep walls. Given that the initial construction of the curtain pre-dated the use of Cultra stone, it may be the case that there was a modification to the layout of the keep at an early stage, rather than there being two distinct building phases (McNeill 1981, 41). The south wall is not perpendicularly aligned to the rest of the keep, which is on a grid several degrees off the alignment of the south wall.
- 4.2.3 There could be a number of explanations for this difference. When de Courcy began with the curtain wall, minus the Cultra stone, he appears to have been prepared to expend resources on the construction of the wall without a concept of the finished appearance. Jope had considered this to represent a distinct entity from the keep and curtain wall, since sandstone quoins were employed (Jope 1962). McNeill (1981, 41) has stressed the choice of hard chalk for the lower quoins on the forework against the east wall as evidence that de Courcy tinkered with the details, rather than retaining a dogmatic concept with regard to the appearance of the keep and curtain wall.
- 4.2.4 A close examination of the layout of the keep suggests that, initially, the scheme was far from planned. The scale of the foundations of the east wall, using basalt toothed into the bedrock, as well as a number of foundation layers, implies a level of problem solving that does not sit well with the peculiar angle of the south wall. It would be presumed that the design solutions for the east wall could have been employed on the south wall, to provide a regular base, particularly on a clear site. Considering, again, the absence of Cultra stone quoins on the base of the buttress to the west of the south wall and the forework in the eastern wall, one could be forgiven for seeing, as did Jope, the remnants of an earlier structure. However, the Cultra stone quoins on the buttress at the eastern end of the south wall may be the significant factor in this story.
- 4.2.5 The initial building work seems to have involved the construction of the curtain wall, as happened at Dundrum (Waterman 1952). It may be that de Courcy had initiated construction, but following the setback at Fir Lí, his building programme was curtailed. In 1181 the Annals of Ulster record an attack on Fir Lí and Uí Turtrí from the west, and in 1182 the 'foreigners' are victorious in a battle at Dun-mBo (Ó Muraíle 1998). The Annals of the Four Masters have de Courcy fleeing as far as Dublin, at this point (O'Donovan 1848-51), while Giraldus

Cambrensis claims he fought his way through to his castle, covering thirty miles on foot, implying that he reached Carrickfergus (McNeill 1981, 3). Further references in the Annals of Ulster, such as in 1189, again put the 'foreigners' including de Courcy, in the ascendant in the north-east. These could be seen as favourable conditions for the further building at the keep.

- 4.2.6 In this scenario, de Courcys original intent may have been clear from 1177 when construction of the curtain wall and elements of the keep (possibly its layout) were established. Given the volatile atmosphere, it may be unlikely that he could have brought in the necessary skills to execute his plans at this stage. The detail of the initial construction, with sandstone and hard chalk quoins and the alignment of the south wall may be haphazard for this reason. It is worth noting that the plinth of the south keep wall included sandstone. Once the political position had stabilised in the mid-1180s, when he could safely introduce Cultra stone from the opposite shore of Belfast Lough, he could bring in people with a higher level of technical expertise, who produced design solutions to counter some existing problems such as buttresses to the south wall and the position of the east wall. The position of the forework, projecting beyond the staircase at the eastern wall may also reflect the decision to include a hall and possibly the formal staircase. This may indicate an upgrading of the castle, in line with the improvement of de Courcys position.
- 4.2.7 It is possible, if not likely, that the bricks used in the Phase 4 walls were merely re-used in the renovations following 1793, or during the erection of the magazine following 1855. However, the Board of Ordnance reported in 1769 that the 'large and square tower which is used as a magazine and ordnance store house, is in good repair' (McSkimin 1823, 164). It may be that the ope through the keep pre-dates both the 1793 and 1855 episodes and provided access for the storage of ordnance below the vaults.
- 4.2.8 The brick walls identified with the Phase 5 deposits may indicate that the ope in the south keep wall pre-dates the construction of the magazine, although some examination of comparable magazines will be required to determine whether they are integral part of the structure.

5. Recommendations for further work

5.1 It is proposed that a programme of post-excavation analysis of material recovered during the 2002 excavations should be undertaken. The proposed post-excavation programme is required to meaningfully publish the 2002 and 1993 season excavations and successfully bring the project to completion.

5.2 *Programme of post-excavation analysis of materials recovered during the 2002 excavations.*

5.2.1 Various materials recovered from the 2002 excavation require analysis prior to full publication of the excavation. These include processing of the lithic material, ceramics, bone and shell, ferrous and non-ferrous objects, glass and building materials. Two soils samples were also retained for analysis. All of these materials are listed in Appendices Five (Small Finds) and Six (Samples).

5.3 *Programme of post-excavation analysis of materials recovered during the 2002 excavations.*

5.3.1 Around 2000 pieces of worked flint were recovered during the excavation. This assemblage appears to be largely Neolithic in date, and along with finds from the previous excavations (see Section 4.2.1 above), suggest the presence of substantial prehistoric deposits. This assemblage requires a proper study to inform our understanding of activity on the promontory prior to the building of the castle.

5.3.2 The other small finds from the excavation require analysis to see if they can shed further light on the history of the castle prior to the construction of the magazine.

5.4 *Publication.*

5.4.1 It would be hoped that a full report on the initial construction of the keep at Carrickfergus Castle will be prepared as soon as possible for the journal *Medieval Archaeology*, combining the previous excavations and the 2002 excavations. On completion of the analysis of the lithic material, it would be hoped that a further report will be prepared for inclusion in the *Ulster Journal of Archaeology*.

6. Bibliography:

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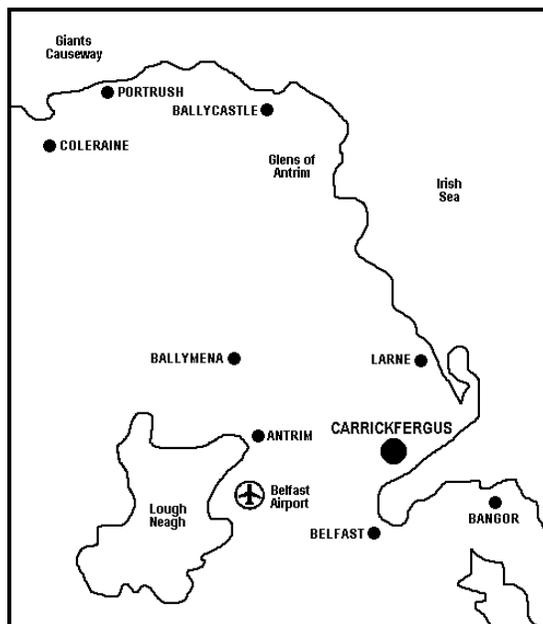


Figure 1: Location map.

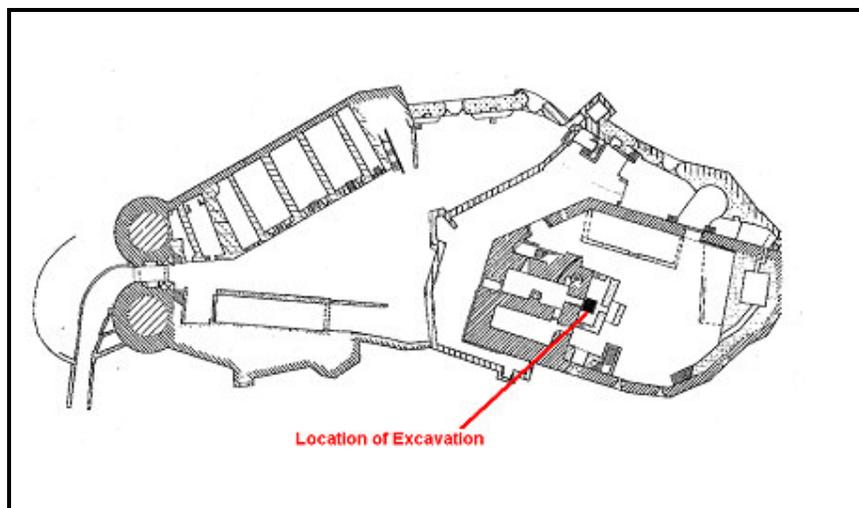


Figure 2: Location of excavation within Carrickfergus Castle.

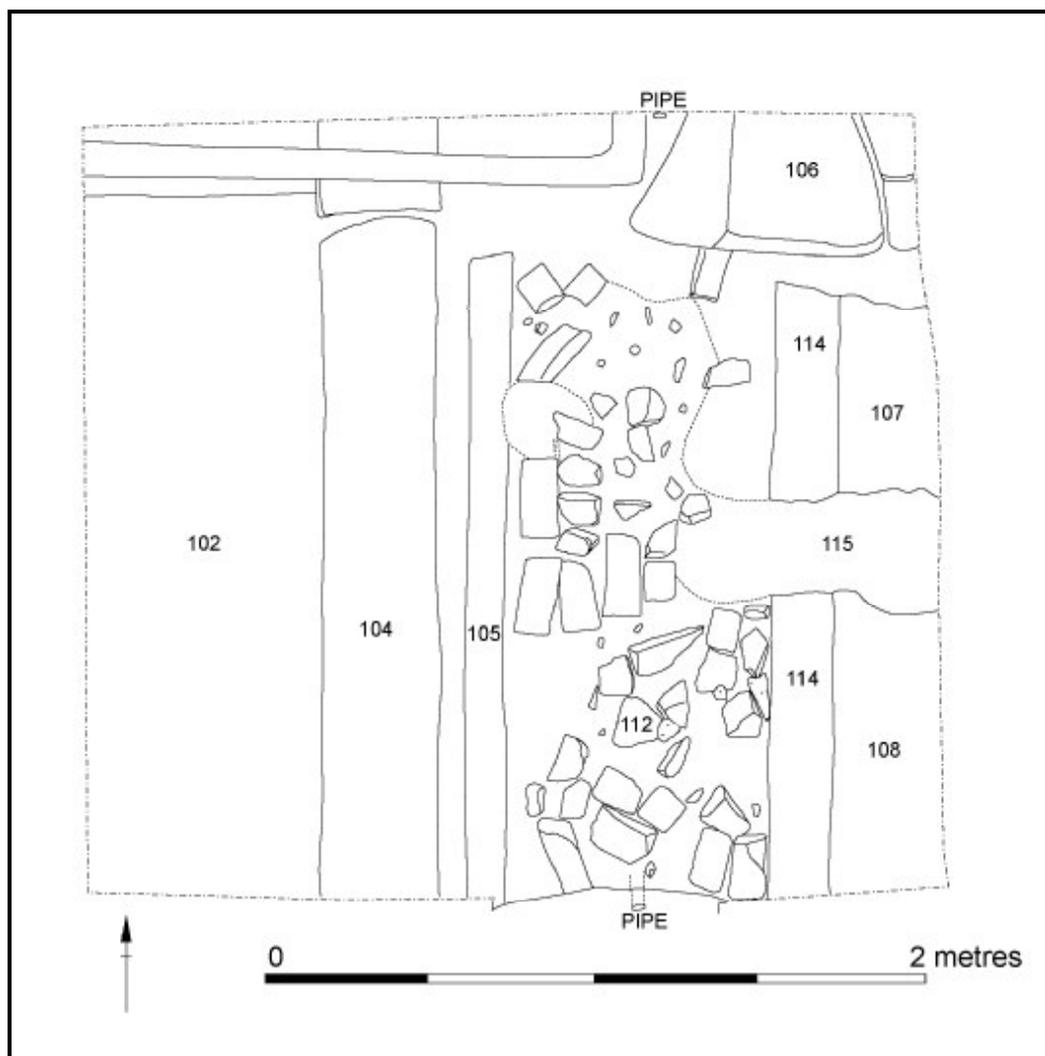


Figure 3: Plan of features relating to the twentieth century disturbance and the nineteenth century magazine.

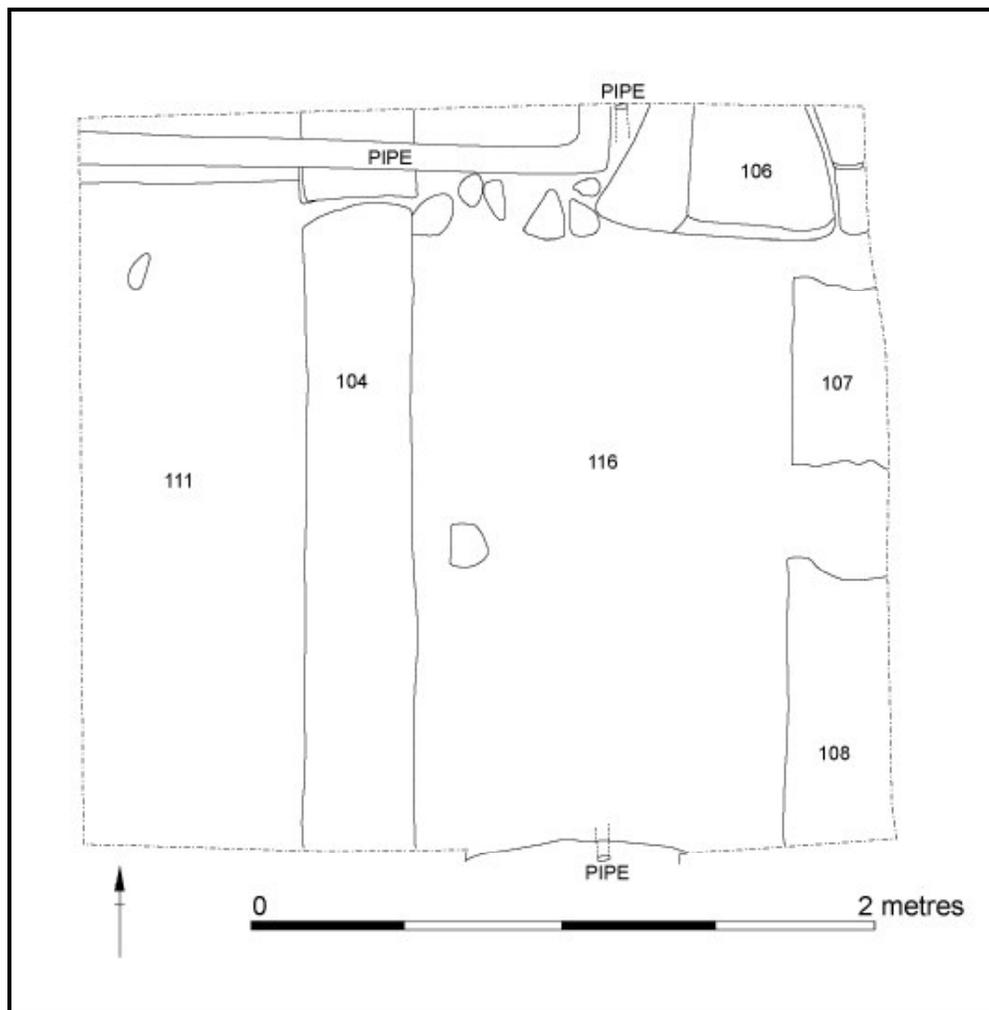


Figure 4: Plan of features that appear to pre-date the nineteenth century magazine, including the walls 104 and 107/108 and the mortared floors (111, 118).

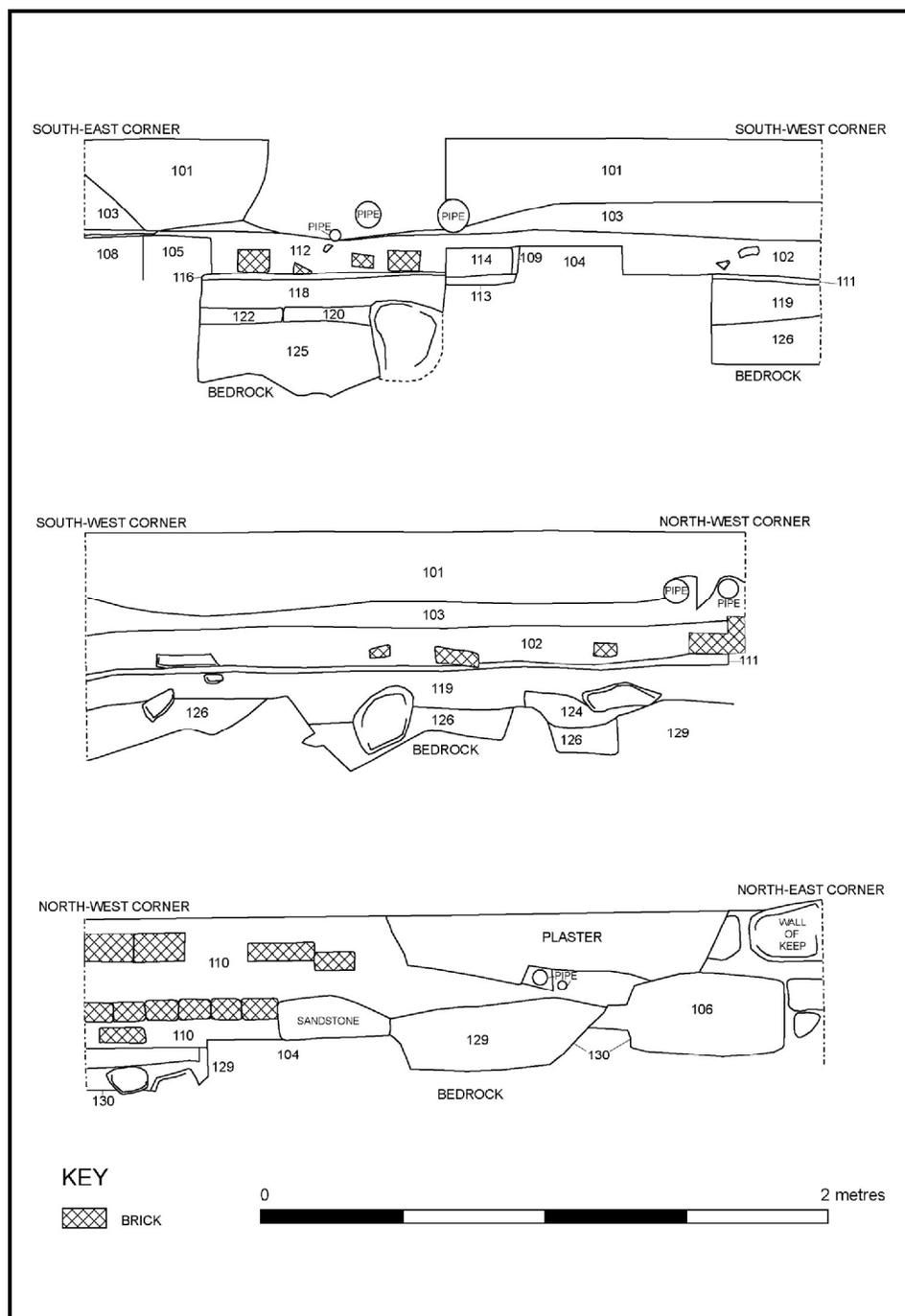


Figure 5: Recorded section faces on completion of the excavation.

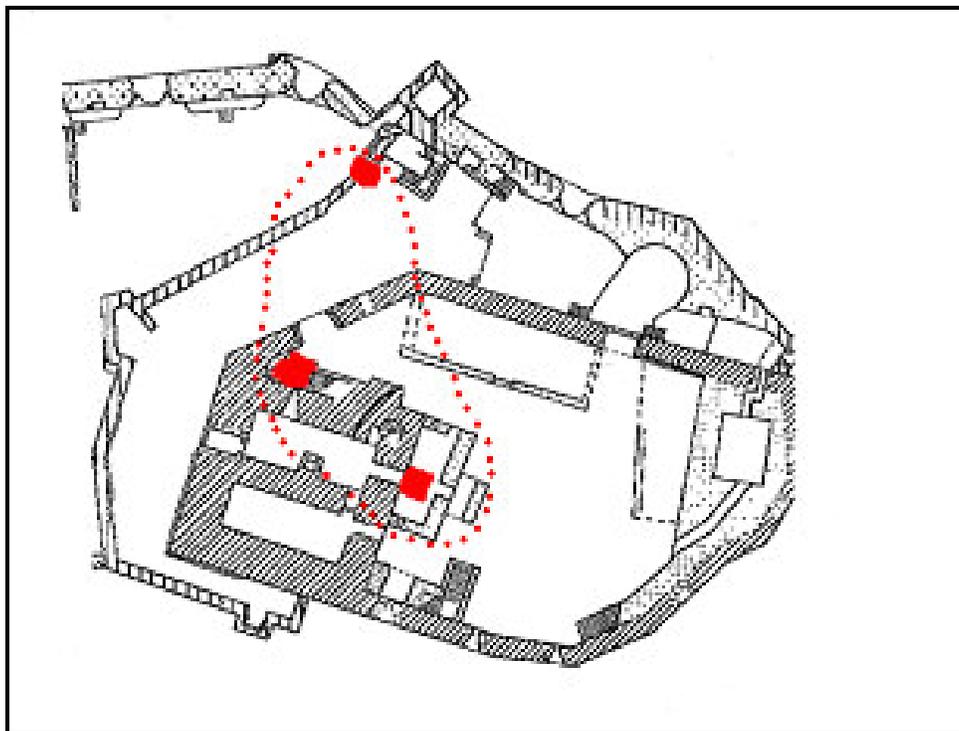
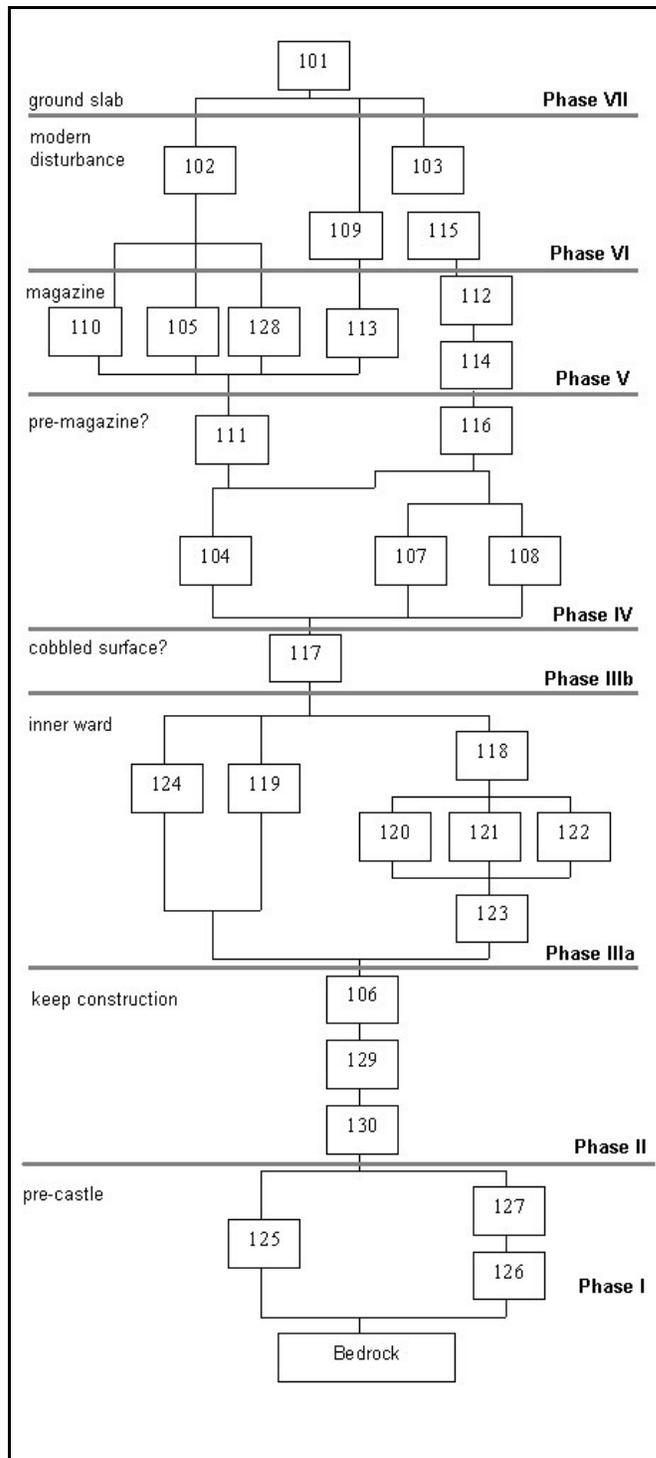


Figure 6: Areas where prehistoric material have been uncovered (red boxes) along with suggested extent of prehistoric activity.

Appendix One: Context list

Context Number	Description
101	Concrete and tile ground slab.
102	Rubble fill over C. 111.
103	Rubble fill (to the East of C. 105).
104	Brick wall, single course survives.
105	End-to-end brick wall.
106	Stone Block (foundation raft?) or plinth for keep wall.
107	Brick floor.
108	Brick floor, same as C. 107?
109	Loose rubble fill between C. 104 and C. 105.
110	Brick feature at the North end of the trench
111	Mortar floor below C. 102, some shadow where timbers etc were originally fitted?
112	Brick / rubble fill / surface.
113	Mortar adhering to C. 104 (not present).
114	Mortar collar similar to C. 105.
115	Extent of cut / disturbance (into which C. 103).
116	Surface below C. 112 (same as C. 111?)
117	Cobbles.
118	Soil West of C. 104.
119	Soil layer East of C. 104.
120	Soil layer below C. 118.
121	Orange clay below C. 104.
122	Dark soil around C. 120.
123	Soil layer.
124	Orange clay (lens within C. 119).
125	Soil below C. 120 / C. 122.
126	Soil below C. 119.
127	Soil layer (upper horizon of 126).
128	Deposit of mortar
129	Deposit of stones below 106 and within 130.
130	Cut containing 106 and 129.

Appendix Two: Harris Matrices



Matrix 1: Schematic overall phasing of the archaeological deposits at Ballyarnet occupation site.

Appendix Three: Photographic Record

Film One, Pentax MZ7, Kodak Ektachrome, Colour Reversal Film, 100 ISO, 24 Exp?

1. Leveled floor after removal of ground slab, from West.
2. Leveled floor after removal of ground slab, from West.
3. Leveled floor after removal of ground slab, from West.
4. Leveled floor after removal of ground slab, from West.
5. Photograph after removal of C102 and C109 and small find 115 (C103).
6. Photograph after removal of C102 and C109 and small find 115 (C103).
7. Photograph after removal of C102 and C109 and small find 115 (C103).
8. Photograph after removal of C102 and C109 and small find 115 (C103).
9. Photograph after removal of C112.
10. Photograph after removal of C112.
11. Photograph after removal of C112.
12. Photograph after removal of C112.
13. Photograph after removal of C112.
14. Photograph after removal of C112.
15. Photograph after removal of C112.
16. Photograph after removal of C112.
17. Photograph after removal of C104 and C114 Including close up of "cobble" = C117.
18. Photograph after removal of C104 and C114 Including close up of "cobble" = C117.
19. Photograph after removal of C104 and C114 Including close up of "cobble" = C117.
20. Photograph after removal of C104 and C114 Including close up of "cobble" = C117.
21. Photograph after removal of C104 and C114 Including close up of "cobble" = C117.
22. Photograph after removal of C111 and C116.
23. Photograph after removal of C111 and C116.
24. Photograph after removal of C111 and C116.
25. Photograph after removal of C111 and C116.

Appendix Four: Field Drawing Register

Drawing number	Scale	Type	Description	Initials
1	1:20	Plan	Floor plan after removal of toilet floor	R.L. & J.B.
2	1:10	Plan	-	R.L. & J.B.
3	1:10	Plan	-	R.L. & J.B.
4	1:10	Plan	-	R.L. & J.B.
5	1:10	Plan	Plan after removal of mortar floor (context 118)	R.L. & J.B.
6	1:10	Plan	-	R.L. & J.B.
7	1:10	Plan	-	R.L. & J.B.
8	1:10	Section	North facing section	R.L. & J.B.

Appendix Five: Small Finds Register

The co-ordinates for find locations are not given below, since the vast majority of finds are from topsoil or upcast, while others were recovered from the exposed sections through the drainage ditch (as indicated on figures 8 and 9)

Find Number	Material	Description	Context Number	Find Number	Material
1-100	Flint	Bag x 100 pieces	119	1-100	Flint
101-200	Flint	Bag x 100 pieces	119	101-200	Flint
201-300	Flint	Bag x 100 pieces	119	201-300	Flint
301-400	Flint	Bag x 100 pieces	119	301-400	Flint
401-500	Flint	Bag x 100 pieces	119	401-500	Flint
501-600	Flint	Bag x 100 pieces	119	501-600	Flint
601-700	Flint	Bag x 100 pieces	119	601-700	Flint
701-800	Flint	Bag x 100 pieces	119	701-800	Flint
801-900	Flint	Bag x 100 pieces	119	801-900	Flint
901-1000	Flint	Bag x 100 pieces	119	901-1000	Flint
1001-1100	Flint	Bag x 100 pieces	119	1001-1100	Flint
1101-1179	Flint	Bag x 79 pieces	119	1101-1179	Flint
1180-1182	Pottery	3 small sherds	119	1180-1182	Pottery
1183	Shell	1 x bag (4 pieces)	119	1183	Shell
1184	Bone	1 x bag	119	1184	Bone
1185	Iron	1 piece	119	1185	Iron
1186	Slag	1 x bag	119	1186	Slag
1187	Ceramic	Modern	103	1187	Ceramic
1188	Flint	-	103	1188	Flint
1189	Metal	Copper / Bronze rod?	103	1189	Metal
1190	Ceramic	Tile? x 3	111	1190	Ceramic
1191	Slate	1 x bag	111	1191	Slate
1192	Slag	2 pieces	111	1192	Slag
1193	Shell	1	111	1193	Shell
1194	Bone	1 x bag	111	1194	Bone
1195	Mortar	1 x bag	111	1195	Mortar
1196	Stone	1 x bag cultra stone fragments	111	1196	Stone
1197	Brick	1 x bag	111	1197	Brick

1198-1221	Flint	1 x bag (24 pieces)	111	1198-1221	Flint
1222	Glass	1 fragment	112	1222	Glass
1223-1225	Flint	3 pieces	112	1223-1225	Flint
1226-1229	Metal	4 x Copper / Bronze rods	112	1226-1229	Metal
1230	Bone	1 x small bag	116	1230	Bone
1231	Metal	Iron nail?	116	1231	Metal
1232	Shell	1 x bag	116	1232	Shell
1233	Glass	2 x fragments	116	1233	Glass
1234-1239	Flint	6 pieces	116	1234-1239	Flint
1240	Shell	1 x bag	118	1240	Shell
1241	Bone	1 x bag (2 pieces)	118	1241	Bone
1242	Metal	Iron nail?	118	1242	Metal
1243-1337	Flint	1 x bag (95 pieces)	118	1243-1337	Flint
1338	Glass	1 fragment	120	1338	Glass
1339	Quartz	1 piece	120	1339	Quartz
1340	Bone	2 pieces	120	1340	Bone
1341-1440	Flint	Bag x 100 pieces	120	1341-1440	Flint
1441-1540	Flint	Bag x 100 pieces	120	1441-1540	Flint
1541-1640	Flint	Bag x 100 pieces	120	1541-1640	Flint
1641-1740	Flint	Bag x 100 pieces	120	1641-1740	Flint
1741	Shell	1 x bag	120	1741	Shell
1742	Brick	1 piece	120	1742	Brick
1743	Slag	1 lump	120	1743	Slag
1744	Brick	1 fragment	121	1744	Brick
1745-1754	Flint	1 x bag (10 pieces)	121	1745-1754	Flint
1755	Shell	1 x bag (4 fragments)	121	1755	Shell
1756-1795	Flint	1 x bag (40 pieces)	122	1756-1795	Flint
1796	Shell	1 x bag (4 fragments)	123	1796	Shell
1797	Brick	1 fragment	123	1797	Brick
1798	Bone	2 fragments	123	1798	Bone
1799	Shell	4 fragments	123	1799	Shell

1800	Brick	4 fragments	123	1800	Brick
1801-1900	Flint	1 x bag (100 pieces)	123	1801-1900	Flint
1901-1964	Flint	1 x bag (64 pieces)	123	1901-1964	Flint
1965-1967	Flint	1 x bag (3 pieces)	124	1965-1967	Flint
1968	Shell	1 fragment	125	1968	Shell
1969	Bone	1 fragment	125	1969	Bone
1970	Brick	4 fragments	125	1970	Brick
1971-2112	Flint	1 x bag (41 pieces)	125	1971-2112	Flint
2113-2134	Flint	1 x bag (21 pieces)	126	?	
2135-2137	Flint	1 x bag (3 pieces)	127	2113-2134	Flint
2138-2146	Flint	1 x bag (8 pieces)	129	2135-2137	Flint
				2138-2146	Flint

Appendix Six: Samples Record

Sample Number	Sample Material	Context	Number of bags
1	Soil	119	2
2	Soil	125	2
3	Mortar	104	1
4	Mortar	128	1
5	Mortar	129	1
6	Brick	102	2
7	Brick	103	2
8	Brick	110	1

Plates

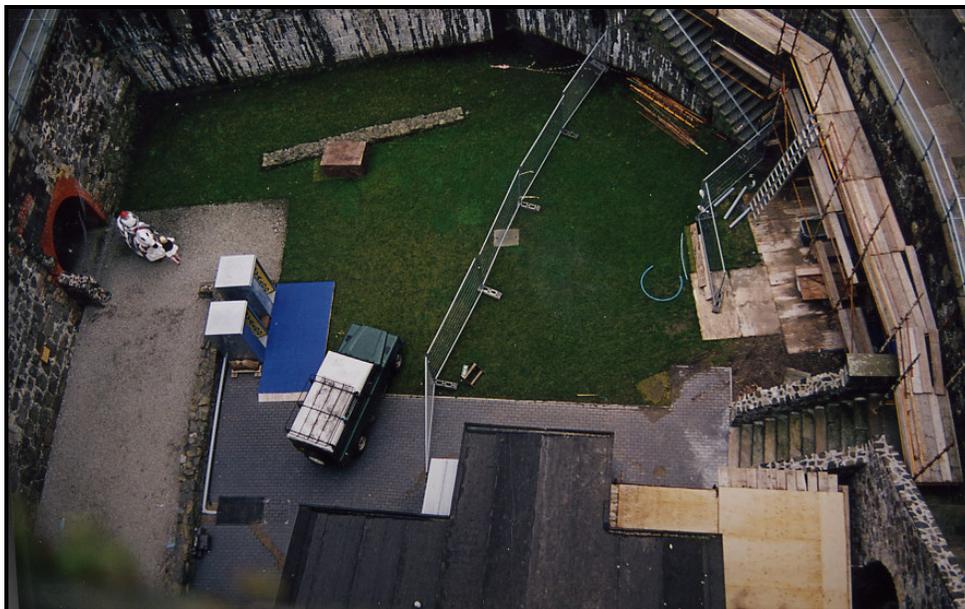


Plate 1: View of the magazine and inner ward from the roof of the keep.



Plate 2: View of the Phase 4 walls and mortared floor during excavation (from the east).



Plate 3: View of the visible traces of the plinth at the base of the keep wall.



Plate 4: The exposed bedrock at the base of the excavation trench (from the south).