FAS

Castle Sinclair Girnigoe

Archaeological Evaluation

Wick
Caithness

Report
March 2005

EVALUATION

CASTLE SINCLAIR GIRNIGOE

CAITHNESS

SITE CODE: GSC03-04

NGR: ND 3781 5492

REPORT

March 2005

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Summary

During 2003 and 2004, as part of an ongoing programme of conservation for the Clan Sinclair Trust, Field Archaeology Specialists Ltd carried out an archaeological evaluation in the Outer Bailey and West Barbican areas of Castle Sinclair Girnigoe, which included the excavation and recording of a total of eighteen interventions. The investigation provided evidence for three main aspects of the castle's history, revealing evidence relating to the structure of the castle itself, material derived from mid-17th century occupation by Civil War garrisons, and material resulting from the decay and collapse of the castle buildings. The results of this investigation allowed conclusions to be drawn regarding the layout and use of the castle, and also facilitated access to, and structural assessment of, buried fabric of the castle, in order to inform future decisions regarding consolidation, conservation and access to the site.

The exposure of previously unrecorded walls and doorways, has demonstrated that the castle layout is more complex than previously believed. Investigation of the upper storeys of the West Gatehouse produced evidence that may be related to the use of this space as a chapel; parts of a turret and a number of architectural details were revealed. Within the North and East Ranges of the Outer Bailey, evidence for the layout of buildings, and for changes to internal space and access, has demonstrated previously unrecorded phases of development within the castle. A small Porter's Lodge and an adjacent structure and slab surface were identified in the postulated area of the East Range, and have tentatively been associated with access to the Tower House.

Evidence for occupation was limited, and confined to middens and occupation layers that have been dated by ceramic to the mid-17th century, and have therefore been related to the documented occupation of the castle by Cromwellian troops in 1651. Occupation debris appears to have been dumped in courtyard spaces and within buildings, concurring with historical sources that the garrison were a damaging force within the castle. No evidence has yet been revealed which might relate to the medieval occupation of the castle.

Most of the material that was excavated during the evaluation consisted of successive layers of rubble and clay, which represent the collapse of structures; within these layers, Old Red Sandstone architectural fragments were recovered, as well as glass and lead cames which have allowed for reconstruction of glazing schemes and window detail.

Acknowledgements

Field Archaeology Specialists would like to thank the Earl of Caithness and Iain Sinclair of the Clan Sinclair Trust, Lachlan Stewart, John Addison and Andrew Morgan for their help and support throughout the project. We would also like to thank Sabina Strachan and Richard Fawcett of Historic Scotland, John Wood, Highland Council Archaeologist and Andrew Heald, Caithness Archaeologist, for their kind advice and assistance.

1.0 INTRODUCTION

This document reports on an evaluation undertaken by Field Archaeology Specialists (FAS) Ltd on behalf of the Clan Sinclair Trust. The evaluation forms part of a broader archaeological investigation of Castle Sinclair Girnigoe, Caithness, which has involved two phases of evaluation, undertaken in August 2003, and between August and November 2004. The 2003 season saw the excavation of three small trenches in and around the West Gatehouse of the castle, and work continued in 2004 with the excavation of a further sixteen trenches.

Classified as a Scheduled Ancient Monument by Historic Scotland in October 2001, the castle was included by the World Monument Fund in a list of the 100 Most Endangered Sites in the World. Castle Sinclair Girnigoe is currently owned by the Clan Sinclair Trust, which was formed in 1999 to ensure the castle's future preservation. As part of an ongoing programme of conservation, a Conservation Plan was completed in 2003; the archaeological evaluation which this document reports represents part of a further stage within this process.

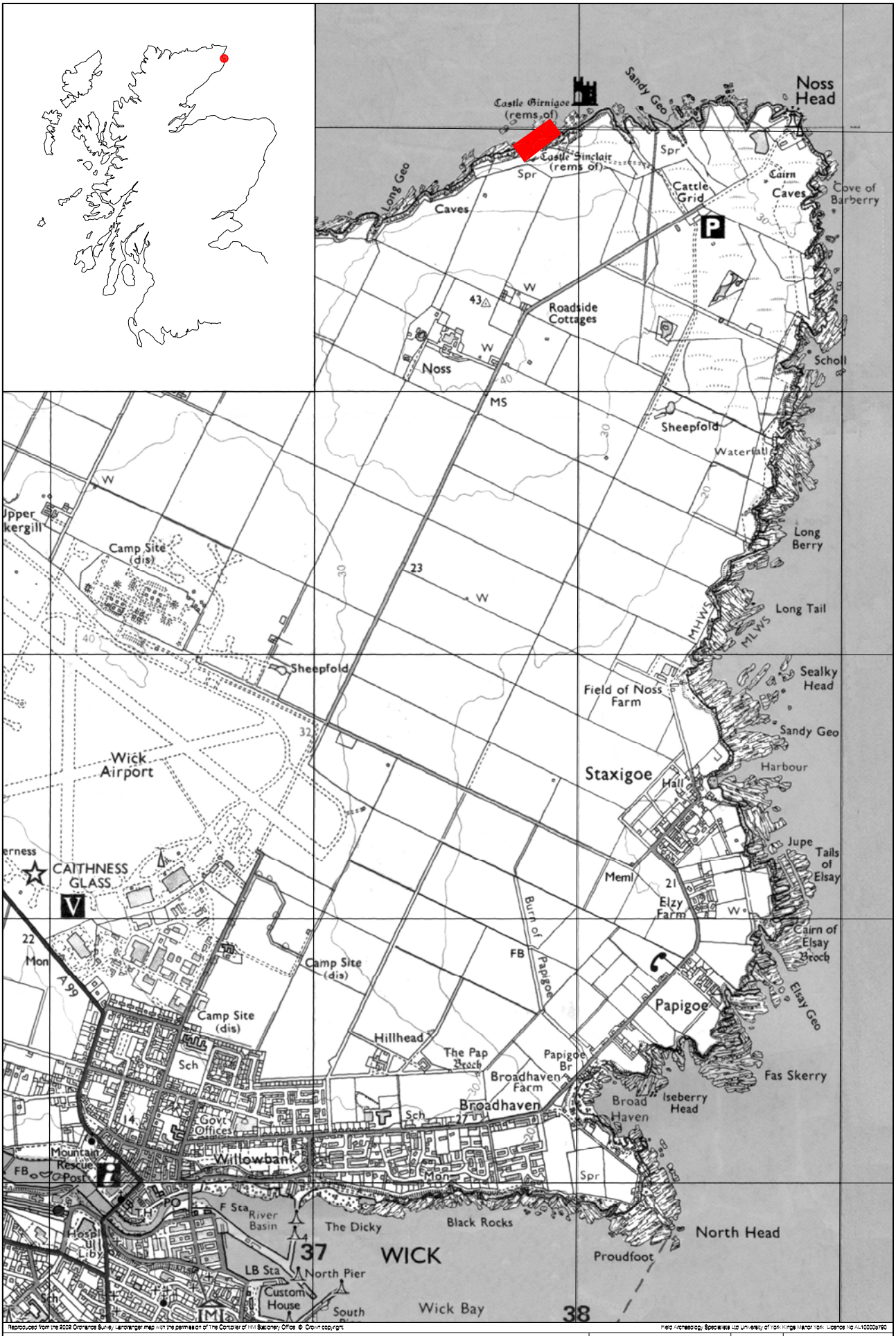
1.1 LOCATION AND LAND USE

Castle Sinclair Girnigoe lies approximately four miles north of Wick, Caithness, situated in a dramatic location on Sinclair Bay (NGR: ND 3781 5492)(Figure 1). The site is defined by dry moats to the southeast and southwest, and cliffs overlooking the sea to the northwest and northeast (Plate 1). To the south, the surrounding land is primarily open and agricultural, enclosed by a regular field system.

Plate 1 Castle Sinclair Girnigoe from the north

Castle Sinclair Girnigoe consists principally of an Outer and Inner Bailey, to either side of the Tower House, with a West Barbican located to the southwest of a dry moat. The work undertaken in 2003 and 2004 concentrated on the Outer Bailey, West Gatehouse and West Barbican of the castle, in which structures were found be in various states of disrepair. The Outer Bailey is defined by a substantial curtain wall to the southeast and southwest, and cliffs to the northwest, divided from the Inner Bailey by a dry moat. Within this area, the North Range, constructed against the northwest rock face, is formed by three interlinked buildings: the East Wing, the Central Block and the West Tower (FAS 2003). Some upstanding masonry survives, although much of the building has suffered collapse and has been concealed by turf. Of the East Range, nothing survives at ground level, with structural remains concealed by overlying masonry and turf.

The West Gatehouse provided access into the Outer Bailey Courtyard, and from there into the Tower House complex to the northeast. Currently, much of the Gatehouse survives to first floor height, although now largely filled with collapse from upper storeys. The northwest wall survives to first-floor level, and a chimney stack continues to nearly full height. The structure of the attached Porter's Lodge survives in a more fragmentary state at ground level. The West Barbican would have formed the outermost defences of the castle. Prior to evaluation, fragments of masonry were visible beneath the turf in these areas, but little was known of the layout of this area.



Location map	Scale 1:25000	Figure 1

1.2 ARCHAEOLOGICAL AND HISTORICAL BACKGROUND

Caithness was inhabited by a native Pictish population during the first millennium, taking its name from the Pictish Kingdom of Cat, first recorded in the 12th century map *de Situ Albanie* (McNeill and MacQueen 1996, 52). During the 9th century, Scandinavian influence was increasing throughout much of Scotland, particularly in the Orkney Isles and north of Scotland, and Caithness was settled by the incoming Scandinavian population. The first historical reference to the region is contained within the Orkneyinga Saga, which records the Mormaer (meaning great Earl or Steward in Gaelic) Moddan contesting the possession of Caithness with Sigurd, brother of the Norwegian Jarl of Orkney and Shetland, in the later 9th century. Integration between the native and incoming populations in Caithness was rapid, demonstrated by the linguistic dominance of a Norse dialect within the region. In contrast to other areas of Norse settlement which focussed on maritime resources and raiding, a sedentary stratified society developed in Caithness, based primarily upon a farming economy.

Despite its strong regionality, the Scottish Crown sought Caithness as an integral part of the Kingdom, and was particularly worried by the close relationship between Caithness and the Northern Isles. A treaty of 1098 between Scotland and Norway implicitly recognised Caithness as a Scottish territory (Brockhampton Reference 1995, 73), despite the region being held by the Earls of Orkney, who were also vassals of the Norwegian King. Attempts by the Scottish Crown to break the close relationship between Caithness and Orkney by force failed consistently, and it was finally through marriage and succession that the region was secured for Scotland. After being taken hostage in 1415, the daughter of Earl John Haraldson was married to a vassal of the Scottish King, exploiting the Scandinavian practice of succession through the female line where the male line failed. In 1232, Magnus, a member of the Scottish Angus family, is recorded as Earl of Angus and Caithness (Anderson 1907, 422). This seems to have been a principally titular position, as the lands of Caithness were still largely held by the Earl of Orkney, without committal title attached. The breakdown of ties between the Earldom of Orkney and Caithness was a gradual process, and by the mid-13th century, the region was increasingly considered an integral part of mainland Scotland (Crawford 1985a, 37).

Following a fight over succession to the Earldom of Orkney in the 1350s, the Earldom of Caithness passed to the Scottish Crown in 1375, finally being settled on David, Earl of Strathearn, the son of King David II. The lands associated with this position, however, were in decline, following continued succession disputes. In 1379, the Earldom of Orkney passed by marriage to Henry (Hay 1835, 17), a member of the powerful Scottish Sinclair family. As Earl of Orkney, Henry was second in command to the King of Norway and held the lands of Caithness without committal title. A castle was founded on the site of Sinclair Girnigoe at this time, providing the Earl with a residence on the mainland. The programme of construction ranged across the peninsula, including the creation of the sallyport to the east, and the erection of a gatehouse/tower house at the west of the site, now preserved in the lower storeys of the West Gatehouse. The Earldom of Caithness continued to be awarded by the Scottish Crown.

The lands and title of Caithness were finally united under William Sinclair, 3rd Earl of Orkney and Shetland, one of the most prolific magnates in Scotland, when he was created 1st Earl of Caithness in 1455 (Hay 1835, 74). Earl William seems to have been resident principally at the family seat of Roslin, Midlothian, but was greatly involved in disputes with local magnates in the north of Scotland. In 1468, however, Earl William lost the Earldom of Orkney when the Northern Isles were pledged as the dowry for the marriage of Princess Margaret

of Norway to King James of Scotland. The title of Earl was required to be renewed upon succession and was not affirmed by King James, enabling him to assume control of the estates (Crawford 1985b, 239).

Earl William made a settlement of his lands in 1476, and the Earldom of Caithness passed to the first son of his second marriage, also named William. The 2nd Earl was resident in Caithness and undertook a major scheme of rebuilding at Sinclair Girnigoe, including the construction of curtain walls around the site with ranges on their interior. These works are likely to have taken place to fit the site for more intensive use as the residence of the Earl. William was resident in the Castle by 1496, when a charter was executed there in favour of John o' Groat (Saint-Clair 1898, 187). Earl William was politically active in Caithness, constructing and acquiring several other strongholds in the region, and frequently feuding with the Clan Gunn. Earl William died in service of his King at the Battle of Flodden in 1513.

The reign of the 3rd Earl, John, was characterised by struggle over lands within the North Isles and culminated in the battle of Summerdale in 1529, when John and a force of 500 men were defeated by a force of Orkneymen led by Sir James Sinclair.

The 4th Earl of Caithness, George, succeeded at the age of fifteen and was to become one of the most powerful magnates within the region, as Justiciary for the north of Scotland, a member of the Privy Council and Lord of the Articles (Miller 1997, 85). In accordance with his position, Earl George undertook a substantial programme of rebuilding at Sinclair Girnigoe, modernising its structures in line with the emergent tastes of the Scottish renaissance. Earl George is the most notorious of the Earls of Caithness due to the traditions surrounding his relationship with his son John, the Master of Caithness. It is popularly believed that following an altercation between the two, the Earl imprisoned John at Sinclair Girnigoe, where he eventually died following a period of starvation and dehydration, culminating in a deadly meal of salt beef (Morrison 1883, 57).

Following the death of the 5th Earl in 1582, he was succeeded by his grandson, 'Wicked' Earl George, whose reign was characterised by continuous feuds and battles with surrounding magnates, and particularly the Clan Gunn. Following a long-running dispute with the Clan Gunn from the 1570s, the Earl of Sutherland burnt Wick and laid siege to Castle Sinclair Girnigoe for twelve days in 1588, without success. The 6th Earl completed the building works at Sinclair Girnigoe started by his predecessor, resulting in the major reconstruction of the site to create its present layout. Principal among these works was the erection of the Tower House within the Inner Bailey, and the remodelling of the tower house/gatehouse as a high-status lodging. In 1607, the Earl gained an Act of Parliament declaring that the Castle should be known as Castle Sinclair, rather than its old name of Girnigoe (*APS* vol IV, 312). The rebuilding works incurred considerable expense, necessitating the Earl to mortgage large parts of his estates (Calder 1861, 118). Continued lawless behaviour resulted in Royal proclamations against the Earl in 1622, and the following year a force was led into Caithness against him. The Earl fled to Orkney and the administration of his debt-ridden estates was passed to his son. The Earl later returned to Caithness to live in seclusion until his death in 1643.

The mid-17th century was dominated by unrest and the movement of Cromwellian troops in the Highlands. In 1651, a Parliamentarian garrison of seventy foot and fifteen horses was placed in Castle Sinclair Girnigoe, and its continued strategic importance may be seen in the decision four years later to continue the garrison, to pay for a governor and to give an allowance for fire or candles (CPSD 1655, vol 8, 279). The occupation of the

castle caused considerable damage and no compensation was received by the Earl.

Following continued financial troubles, the 6th Earl was forced to sell large parts of his estates and, in 1661 and 1672, he sold the remainder of his estates and title to Campbell of Glenorchy. The Earl died in 1679 without issue, and Glenorchy took the title of Earl of Caithness, marrying the dowager widow. George Sinclair of Keiss disputed Glenorchy's succession, considering himself to be the rightful heir and assumed the title himself (Morrison 1883, 58). The Privy Council upheld Glenorchy's claim and, in 1680, he invaded Caithness, defeating George Sinclair and an army of 700 local men at the Battle of Altimarlach. Sinclair continued to fight for his inheritance and laid siege to Castle Sinclair Girnigoe in the same year. The artillery used in this attack badly damaged the castle, and it has been uninhabitable since. In 1681, Sinclair was recognised as the Earl of Caithness and, in compensation, Glenorchy was created Earl of Breadalbane and Baron of Wick (Calder 1865, 166). The ruins of Castle Sinclair Girnigoe passed to the Dunbar family with the lands of Ackergill on which it stands. The Sinclairs continued to hold the Earldom and moved their seat to the Castle of Mey on the north coast.

Following its ruin, the castle became an object of antiquarian interest, visited by antiquarians such as Reverend Brand (1701) and Reverend Pococke (1887) (Plates 2 and 3), and also illustrated by Cordiner (1780), Daniel (1814) and Calder (1861) (Plates 4, 5 and 6). The castle was not subject to academic investigation until the later 19th century, when MacGibbon and Ross recorded the site for their *Castellated and Domestic Architecture of Scotland* (1884) (Plate 7). The site was re-examined by the Royal Commission for the Ancient and Historic Monuments and Constructions of Scotland in the early 20th century (1911). Since that time, academic interest in the castle seems to have waned and it has been left to local researchers and members of the Sinclair Clan to examine its history.

The castle remained in the Dunbar family until 1953, when Lady Duff-Dunbar sold it back to the Earl of Caithness. The present Earl sold the castle to the Clan Sinclair Trust in 2000, in order that its future preservation may be ensured.

Plate 2 Pococke's 1760 illustration of Castle Sinclair Girnigoe from the southeast

Plate 3 Pococke's 1760 illustration of Castle Sinclair Girnigoe from the southwest

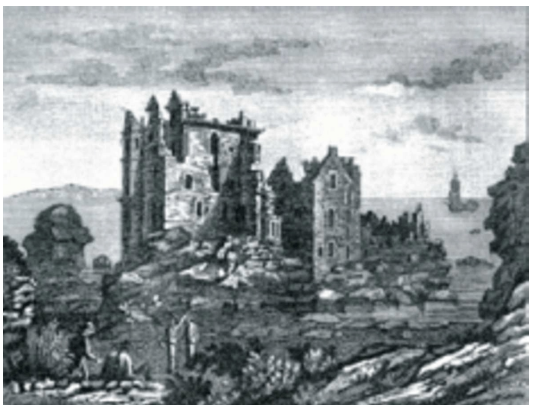


Plate 4 Cordiner's 1780 illustration of the castle from the south

Plate 5 Daniell's 1814 illustration of the castle from the east

1.3 CONSERVATION PLAN

In comparison with other Scottish castle sites of similar size, relatively little research has been carried out on Castle Sinclair Girnigoe prior to the current archaeological investigation. A Conservation Plan has been prepared for the site for which a great variety of sources and techniques have been employed in order that the castle might be understood at the highest possible level (FAS 2003).

Plate 6 Calder's 1861 illustration of the castle from the east

As part of the Conservation Plan, a metric survey has been carried out to provide a permanent and accurate record of the castle in its current state. The interior of the castle and the surrounding area were the subject of a detailed contour survey, and a hachure plan of the castle interior has been prepared.

All of the standing elevations were recorded using medium-format monochrome photography. Where possible, rectified photography was used, targets being placed on the elevations and surveyed according to the site grid. Less accessible elevations, such as the exterior of the Tower House and the northwest elevation of the site, were recorded using computer rectified photography. Total photographic coverage of elevations was undertaken, and significant features, such as the wall head and window openings, were surveyed. The resulting photographs were then digitised using AutoCAD, and calibrated against the survey data. A series of scaled drawings of the castle were produced and later enhanced on site.

In conjunction with the above field techniques, considerable documentary research has been carried out, involving archive searches in the North Highland Archive, the National Monuments Record of Scotland (NMRS) and the National Library of Scotland. A number of antiquarian sources on the castle have been consulted for further information, and written and drawn sources have been subject to a detailed examination for information on fabric and structures which are no longer extant.

The structural description and interpretation contained in the Conservation Plan used a combination of the above techniques in order to achieve the best possible understanding of the castle and its development. The integration of the results of fabric recording with historic research has enabled an understanding of site development and phasing. Of particular use in this process was the creation of a composite drawing, integrating the metric and contour surveys with both the published and field survey drawings of MacGibbon and Ross. This provided an accurate plan of the location of structures and their form as currently known, enabling detailed consideration of site layout and development when used in conjunction with the results of the fabric recording (Figure 2).

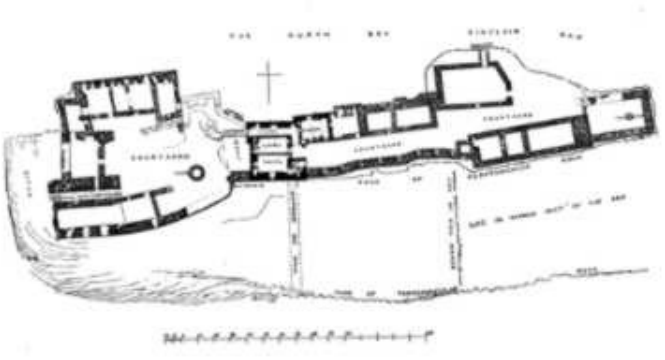
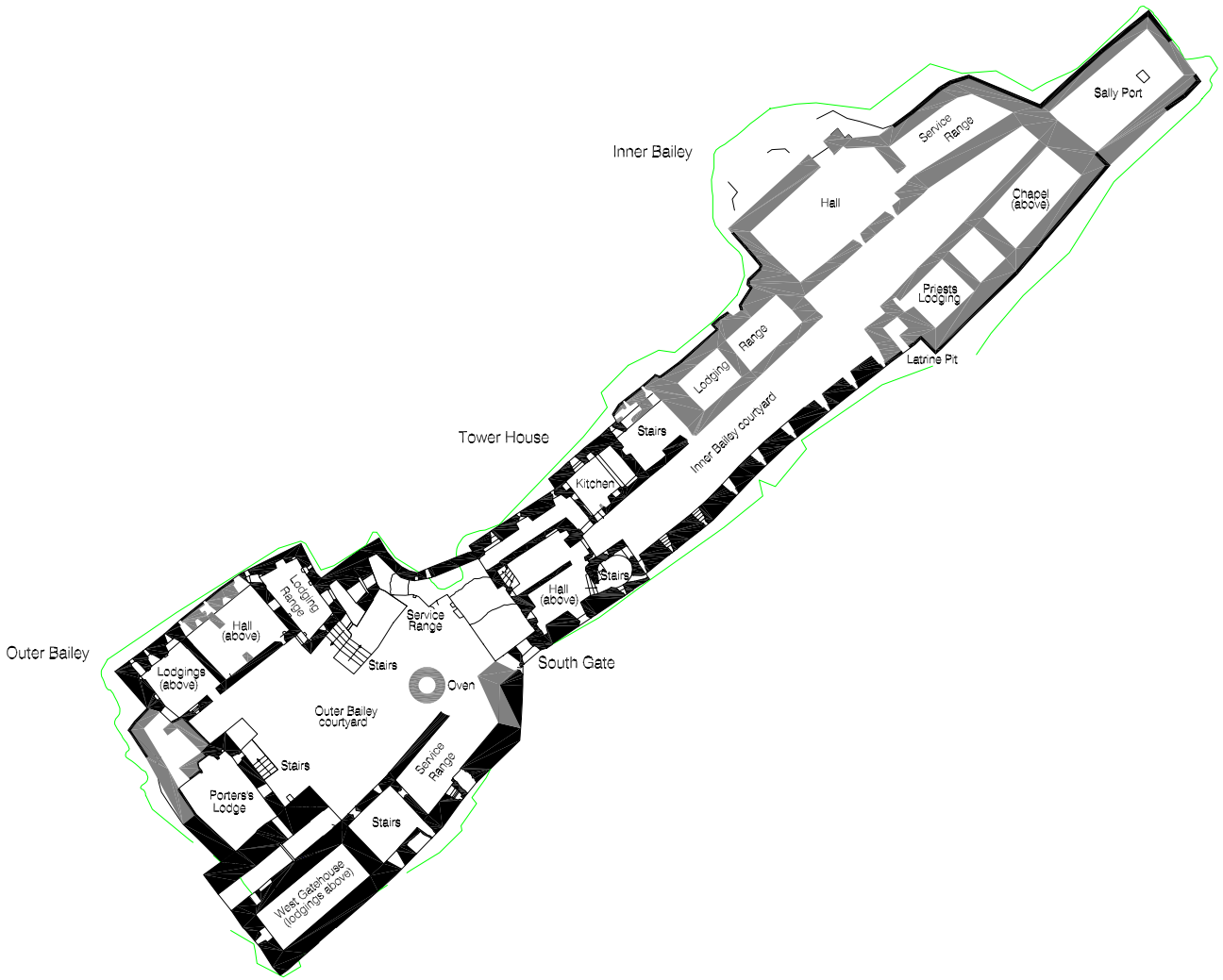


Plate 7 MacGibbon and Ross' 1884 plan of the castle



Reconstructed site plan

Figure 2

1.4 AIMS AND OBJECTIVES

The primary aim of the first phase of evaluation in 2003 was to provide access to selected parts of the fabric and foundations of the West Gatehouse, and to evaluate the nature of archaeological remains in its vicinity, which were concealed by collapsed building material (Appendix A). Elements of the upstanding structure of the castle, were noted to be in critical structural condition. In order to establish the causes of problems with the structural integrity of the buildings, and to define methods to avoid further deterioration, the exposure of parts of the fabric of the walls, and their foundations was necessary. This allowed for structural assessment of the building to be undertaken, prior to the construction of scaffolding in 2004.

The 2004 evaluation was designed to further define the extent and nature of buried structural remains, to characterise primary archaeological deposits sealing these structural remains, and to provide access to selected parts of the building fabric for structural assessment (Appendix B). The results of these investigations will subsequently be used to inform the excavation strategy for further archaeological work, and engineering and conservation solutions for future phases of conservation and access work to the Outer Bailey area.

Specific areas of the Outer Bailey were targeted for investigation, with the intention of addressing predefined questions. Five main objectives were outlined prior to evaluation:

- Definition of the extent of the East Range of the Outer Bailey;
- Assessment of the condition of the staircase areas to the south of th east wing of the North Range;
- Characterisation of the deposits sealing the latest surface of the Outer Bailey courtyard;
- Characterisation and definition of the level of the latest use horizon in the West Barbican;
- Determination of the height of the latest floor level of the Gatehouse passage.

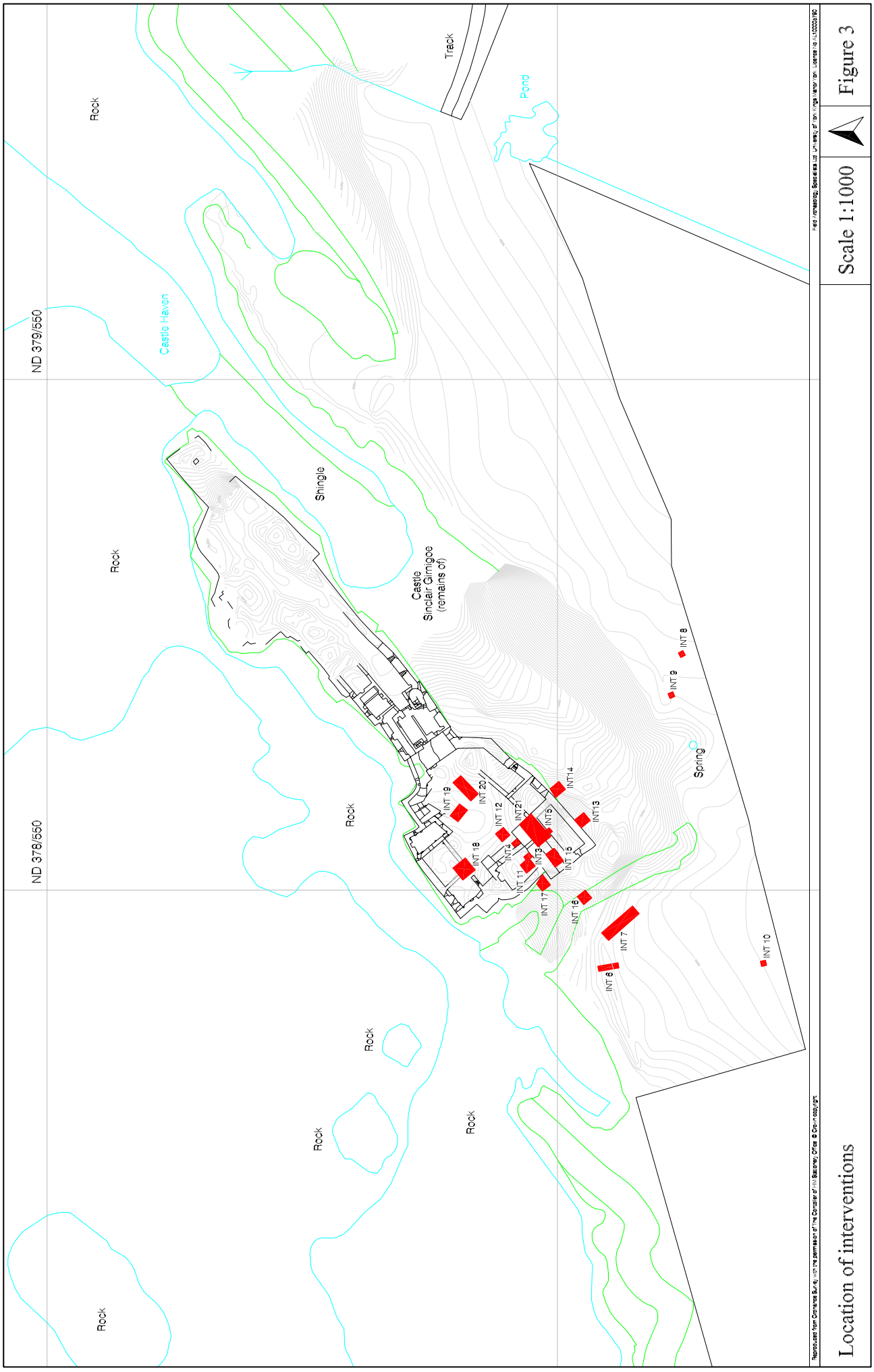
The subsequent positioning of interventions, and the levels of recording employed throughout, were specifically designed in order to address these questions.

2.0 FIELDWORK PROCEDURE

The fieldwork carried out at Castle Sinclair Girnigoe has comprised twenty-one interventions to date, undertaken in three main phases of work in 2002, 2003 and 2004 (Table 1; Figure 3). Interventions 1 and 2 were allocated to surveys undertaken during the preparation of the Conservation Plan, while Interventions 3 to 21 represent two phases of archaeological evaluation. In advance of archaeological evaluation, Scheduled Monument Consent was obtained for the proposed Schemes of Works. The Zones referred to in Table 1 represent those used to discuss the elements of the castle in the Conservation Plan (FAS 2003).

Table 1 List of interventions

Intervention	Activity	Zone	Location	Date
1	Topographic survey	1, 2, 4, 5, 6		July - September 2002
2	Building recording	1, 2, 3, 4		July - September 2002



Location of interventions

Scale 1:1000

Figure 3

Intervention	Activity	Zone	Location	Date
3	Evaluation trench	1		August 2003
4	Evaluation trench	1		August 2003
5	Evaluation trench	1		August 2003
6	Evaluation trench	1		July 2004
7	Evaluation trench	1	West Barbican	August 2004
8	Test pit (1m x 1m)	1		August 2004
9	Test pit (1m x 1m)	1		August 2004
10	Test pit (1m x 1m)	1		August 2004
11	Evaluation trench (scaffold base)	1	Porter's Lodge	August 2004
12	Evaluation trench (scaffold base)	1	Courtyard	August 2004
13	Evaluation trench (scaffold base)	1	Dry moat	August 2004
14	Evaluation trench (scaffold base)	1	Dry moat	August 2004
15	Evaluation trench	1	Passage	August 2004
16	Evaluation trench (scaffold base)	1	Dry moat	August 2004
17	Evaluation trench (scaffold base)	1	Dry moat	August 2004
18	Evaluation trench	2	North Range	August 2004
19	Evaluation trench	1	Courtyard	August 2004
20	Evaluation trench	1	East range	August 2004
21	Excavation of overburden	1	West gatehouse	August 2004

2.1 FIELDWORK CONSTRAINTS

The steep cliffs surrounding the castle, and the precarious nature of some of the extant structures, presented significant health and safety hazards, particularly with the adverse weather conditions and strong winds that prevailed during fieldwork. As such, a number of safety measures were imposed in advance of fieldwork. Hard hats, safety boots and high visibility clothing were worn at all times, and harnesses and safety ropes provided an added safety measure when working close to the cliff edges. When weather conditions were deemed too dangerous, fieldwork was suspended.

2.2 SITE GRID

The site grid established for the metric and topographic survey of the site was employed for the evaluation. The Above Ordnance Datum height (AOD) had already been transferred from an Ordnance Survey benchmark on the Noss Head Lighthouse. The site grid has not been aligned with Ordnance Survey National Grid coordinates, due to significant inconsistencies in the Ordnance Survey mapping of the castle and its immediate environs. All co-ordinates and alignments in this report therefore relate to the site grid, while all heights are expressed in metres above Ordnance Datum (AOD).

2.3 EXCAVATION PROCEDURE

The 2003 interventions were set out in accordance with the Scheme of Works approved by Historic Scotland

(see Figure 3). Interventions 3 and 4 measured 1.0m x 1.5m and were excavated to the base of the northwest elevation of the Gatehouse. Intervention 5 measured 1.0m x 2.0m and was excavated through the rubble infill of the gatehouse in order to expose the southeastern wall of the vaulted gate passage.

The 2004 interventions were also set out in accordance with a Scheme of Works approved by Historic Scotland (see Figure 3). Interventions 6 and 7 lay to the southwest of the outer moat, and were designed to assess the nature of activity in the area of the West Barbican. The trenches measured 4.0m x 1.0m and 8.0m x 2.0m respectively. Interventions 8, 9 and 10 were all 1.0m x 1.0m test pits, excavated prior to the insertion of posts for a new fence-line to the south of the castle, in order to ascertain the nature of any deposits that were to be disturbed. Interventions 11, 12, 13, 14 and 17 represented 2.0m x 2.0m trenches for the bases of scaffolding around the West Gatehouse, and were therefore situated around its perimeter. Intervention 16 was located in the central line of the temporary bridge, to receive one of the bases of the bridge supports. Intervention 15, measuring 3.0m x 2.0m was located within the entrance passage of the West Gatehouse, to assess the depth and nature of accumulated deposits, while Intervention 21 cleared overburden from the overhead vault to provide access for structural assessment and consolidation (approximately 3.0m x 5.0m).

Within the Outer Bailey, a 3.0m x 3.0m trench was positioned to evaluate the nature of remains in the North Range (Intervention 18), while a 2.0m x 2.5m trench was designed to investigate the East Range (Intervention 20). Intervention 19 measured 3.0m x 2.0m and was located within the courtyard area.

The interventions were marked out and carefully de-turfed to allow reinstatement where necessary. All subsequent excavation was undertaken by hand, in some cases followed by reinstatement by hand.

2.4 RECORDING PROCEDURE

The recording system followed *Field Research Procedure* (Carver 1999), the standard operating system employed by FAS. A single index was created for contexts, starting at C1000, and for features starting at F1. Written and drawn records were made of all archaeological deposits (Appendix C, D and E); plan and section drawings were undertaken at a scale of 1:10 (Appendix F). All archaeological deposits, features and structures identified during the excavation were recorded photographically with a high resolution digital camera and a 35mm monochrome camera using silver-based film (Appendix G). All record photographs included an appropriate scale. Elevations and other structural elements were recorded using a combination of instrument survey (Reflectorless Total Station Theodolite) and computer rectified or rectified photography. Stone-by-stone drawings were created at a scale of 1:20, in order to achieve a dimensional accuracy of within 20mm.

2.4 ENVIRONMENTAL AND FINDS PROCEDURE

A systematic environmental sampling strategy was employed during evaluation. Deposits which were clearly of a mixed/secondary origin, such as rubble layers or deposits, which displayed a high degree of residual/intrusive artefactual material, were not subject to environmental sampling unless a specific question relating to function or social status could be addressed. Where deposits were thought to be of primary origin and had potential to contain biological remains, the following sampling regime was undertaken:

Flotation samples were collected from deposits for general biological analysis (gba) for the recovery of small vertebrate and mollusc assemblages, charred plant remains, organic plant remains, or cess and insect remains. Samples of 20-40 litres were collected and processed using a water-recycling tank with rapid water-flow washover. A 1mm mesh was used to recover the dense residue and a 300 micron mesh was used to recover light fractions. 10 litres (*GBA*) would be retained for sub-sampling for paraffination for insects remains, and other specialist analyses (for example parasites, pollen etc), where deemed appropriate by the Environmental Officer (Appendix H). Residues recovered as part of the environmental sampling strategy were routinely sorted for cultural material and scanned with a magnet for small ferrous objects and hammerscale.

All finds identified during excavation were hand-collected, processed to archival standard and catalogued (Appendix I). Post-excavation finds treatment was undertaken in accordance with guidelines set down in *First Aid for Finds* (Watkinson and Neal 1998); archive preparation was undertaken in accordance with *Guidelines for the preparation of excavation archives for long-term storage* (Walker 1990). Metalwork was submitted for X-radiography prior to assessment.

3.0 FIELDWORK RESULTS

The majority of archaeological deposits revealed during excavation in all trenches represented collapse and disuse of the castle structure, and a large quantity of masonry, including identifiable architectural fragments, was excavated. This provided access to previously concealed elevations and surfaces, and also revealed occupation deposits in some trenches, which provided evidence for activity within the castle.

3.1 PHASE 1 EVALUATION

3.1.1 Intervention 3

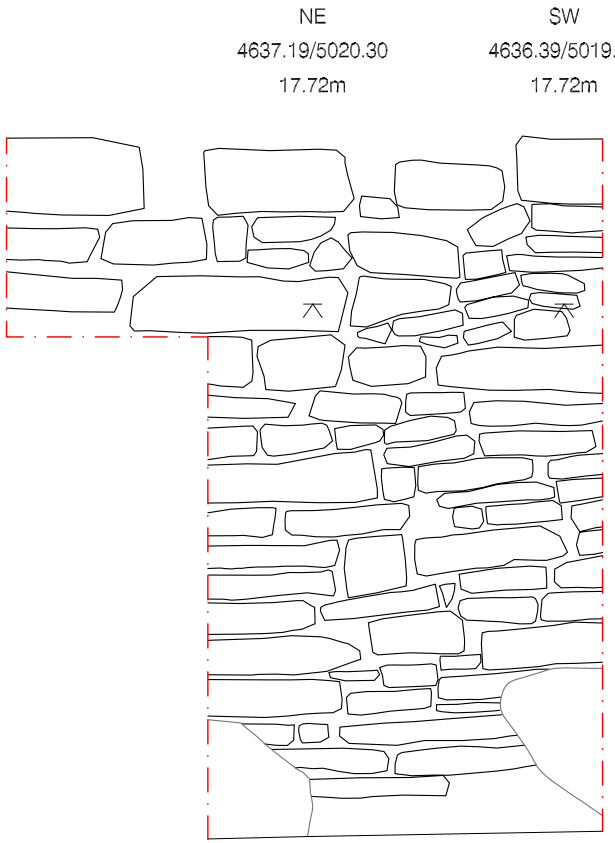
Intervention 3 was situated within the Porter's Lodge of the Outer Bailey, adjacent to the northwest elevation of the late 14th to 15th century West Gatehouse (Figure 4). The 1.0m x 1.5m trench was excavated to a depth of 1.40m, at which point a flagstone floor (F37) was encountered (16.21m AOD)(Plate 8). In addition to revealing the nature and extent of archaeological deposits overlying and abutting structural remains, the removal of deposits to this depth exposed the lower 1.5m of the northwest wall of the gatehouse. This provided access for structural assessment to be made of the foundations of this elevation, in order to inform future consolidation works, and also allowing a record to be made of stonework that had previously been concealed by accumulated deposits (Figure 5).

Plate 8 Intervention 3 from the southwest

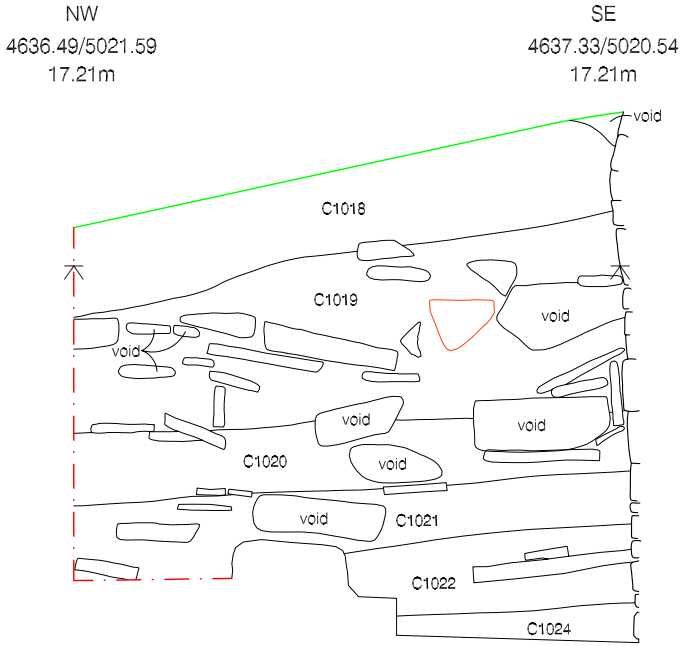
Detailed intervention location showing structural features revealed during the evaluation

Scale 1:250

Figure 4



Intervention 3 northwest facing elevation | Scale 1:20 | Figure 5



Intervention 3 southwest facing section | Scale 1:20 | Figure 6

The flagstone floor (F37, C1025) was recorded and photographed, but not investigated further. The surface of this floor, which abutted the northwest wall of the gatehouse, had been constructed with slate slabs, fractured in places, covering all of the accessible areas of the intervention, though concealed in part by large fragments of overlying rubble.

Overlying this surface, a series of four silty clay deposits was identified and recorded (C1021, C1022, C1023, C1024), each measuring between 0.10m and 0.21m in depth (Figure 6). The earliest of these (C1024), lay directly over the slab floor, reaching a depth of approximately 0.10m, and comprising a very light brown clay deposit with occasional charcoal flecks. Overlying this, C1023 represented a very similar context, consisting of a thin layer of very dark brown clayey silt; flotation of a soil sample from C1023 recovered fragments of charcoal and carbonised seed (Appendix J).

C1023 was overlain by a thin layer of yellowish-brown silty clay (C1022), which in addition to angular fragments of slate, produced animal bone and clay pipe. The clay tobacco pipe was dated to the mid-17th century (Appendix K). Thirteen fragments of clay pipe were also recovered from the overlying clay deposit (C1021), which was found to contain flecks of mortar, and covered the whole intervention, measuring 0.21m deep. Animal bone and shell was recovered from C1021, as well as a small cowrie shell bead identified during the processing of a soil sample (Plate 9). These layers appear to have accumulated during occupation of the castle during the mid-17th century, and would suggest that domestic waste was being dumped within internal spaces, rather than disposed of elsewhere.

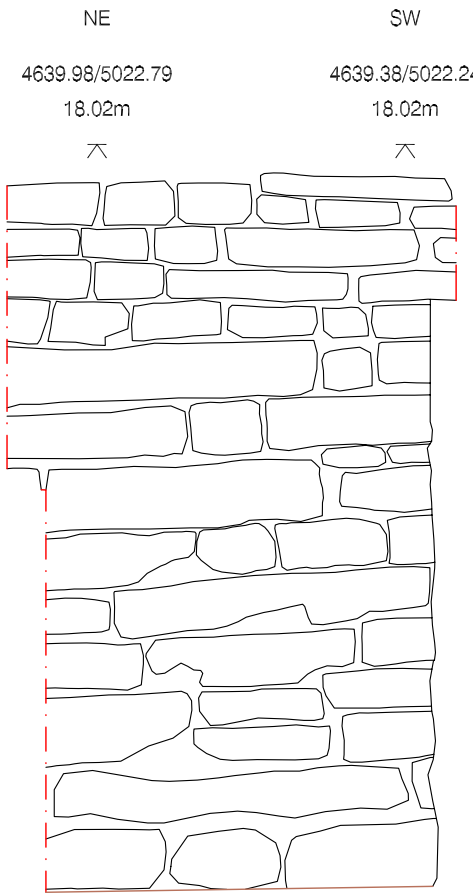
Plate 9 Cowrie shell bead from C1021

Following the accumulation of these deposits, the structure fell into disuse, and the overlying contexts (C1020, C1019) represent collapsed building material. Sealing C1021 was a layer of sandy clay and mortar measuring 0.17m and containing a large quantity of disordered slate slabs (C1020). This preceded a second rubble layer (C1019), 0.25m deep, which included slate and fragments of Old Red Sandstone. Finally, C1019 was sealed by a deposit of yellowish-brown sandy clay, containing fewer stone fragments (C1018), over which turf had developed (C1017).

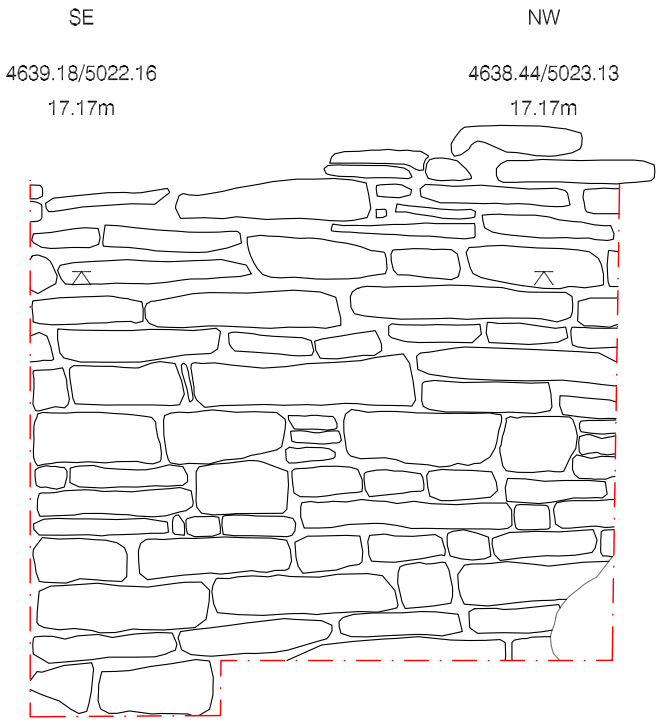
3.1.2 Intervention 4

Intervention 4 was positioned to the northeast of Intervention 3, outside the Porter's Lodge, again with the intention of revealing the fabric of the northwestern elevation of the West Gatehouse to foundation level (Figure 7). The trench was located in the angle formed by the wall of the West Gatehouse (F2), and the northeast elevation of the Porter's Lodge (F3)(see Figure 4). The 1.5m x 1.0m trench was orientated roughly NW-SE, and was excavated to a depth of 1.20m, at which depth a cobble layer was identified (F38).

Again, the removal of over 1.0m of deposits allowed the exposure of wall elevations that had previously been



Intervention 4 northwest facing elevation | Scale 1:20 | Figure 7



Intervention 4 northeast facing elevation | Scale 1:20 | Figure 8

inaccessible, and for detailed recording of the lower 1.20m of the West Gatehouse (F2 C1006). The northeast wall of the Porter's Lodge had previously been totally concealed, and the excavation revealed 1.20m of this elevation (F3 C1007)(Figure 8). The deposits which had accumulated against these walls were similar in sequence to those of Intervention 3, comprising the accumulation of deposits deriving from the occupation of the castle, and the later collapse of building material.

The cobble layer (F38 C1016), identified at 16.25m AOD, covered all but the northwest part of Intervention 4, abutting both adjacent elevations (Figure 9; Plate 10). This level surface consisted of tightly packed waterworn cobbles. A sondage was excavated adjacent to the southwest edge of the Intervention, and revealed that the cobble surface represented the earliest structural activity in this area, overlying bedrock and natural clay subsoil. A single, sub-rectangular flagstone was noted overlying C1016, which suggested the cobbles formed a preparation layer for a slabbed surface that was later disturbed or robbed out.

Plate 10 Cobble layer (C1016)

Overlying the cobble surface, a series of three layers of clay was identified (C1015, C1014, C1013), each less than 0.10m in depth, and found to contain artefacts of 17th century date (Figure 10). A thin deposit of strong brown clay (C1015), 0.04m deep, sealed the cobble surface (F38), and produced no further finds. In contrast, the overlying layer (C1014), measuring 0.06m in depth, produced several fragments of clay pipe, a copper alloy pin, and sherds of window glass. Similar finds were produced from C1013, which also produced fragments of lead window came (Plate 11).

Plate 11 Lead came and window glass

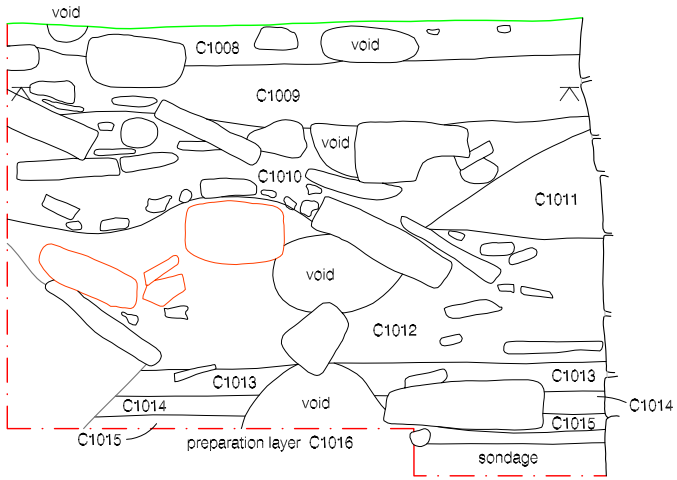
The finds from C1013 and C1014 represent evidence for two main types of activity: the domestic occupation of the site (represented by clay pipes, animal bone and dress accessories), and structural elements relating to the castle itself (represented by window glass, lead cames and roof tile).

The majority of clay pipe fragments from within these contexts have been identified as a type produced in London between *c*.1640 and 1660 (Appendix K), and therefore provided a relatively close date in the mid-17th century. The copper alloy pins (from C1013 and C1014) also concur with a date in the 16th or 17th century (Appendix L). The associated assemblage of animal bone from these contexts provided evidence for a relatively high consumption of fish (haddock and gadids)(Appendix M), and further evidence for human activity is represented by fuelash and slag. These finds seem to relate to the occupation of this part of the castle in the mid-17th century, a date which corresponds closely with the presence in the castle of the Cromwellian garrisons, documented from 1651.

Intervention 4 plan of C1016 | Scale 1:20 | Figure 9

NE
4639.07/5023.88
16.95m

SW
4640.04/5022.92
16.95m



Intervention 4 southwest facing section | Scale 1:20 | Figure 10

As noted, some of the artefactual finds relate to structural elements, derived from the adjacent castle buildings. Fragment of stone roof tile were retained, although these artefacts tend to be largely undiagnostic in terms of date (Appendix N). Sherds of window glass were recovered, and could be dated roughly to the late 16th or early 17th century; the associated lead cames provided a closer, mid-17th century date (Appendix O), and has allowed for the reconstruction of the scheme of glazing of the overhead oriel window (Plate 12).

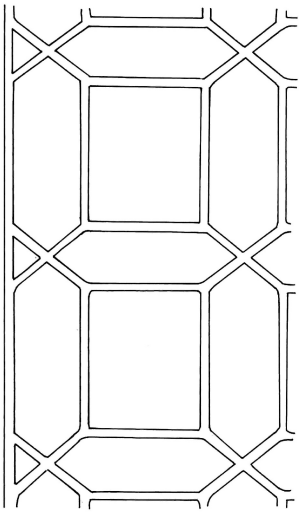


Plate 12 Reconstructed glazing scheme (Willmott)

The nature of artefacts from these deposits appear to indicate a period when the castle was beginning to decline (with the collapse of roof and window panes, which would be expected to decay first), but while at least parts of the castle were still in use, indicated by the accumulation of domestic debris.

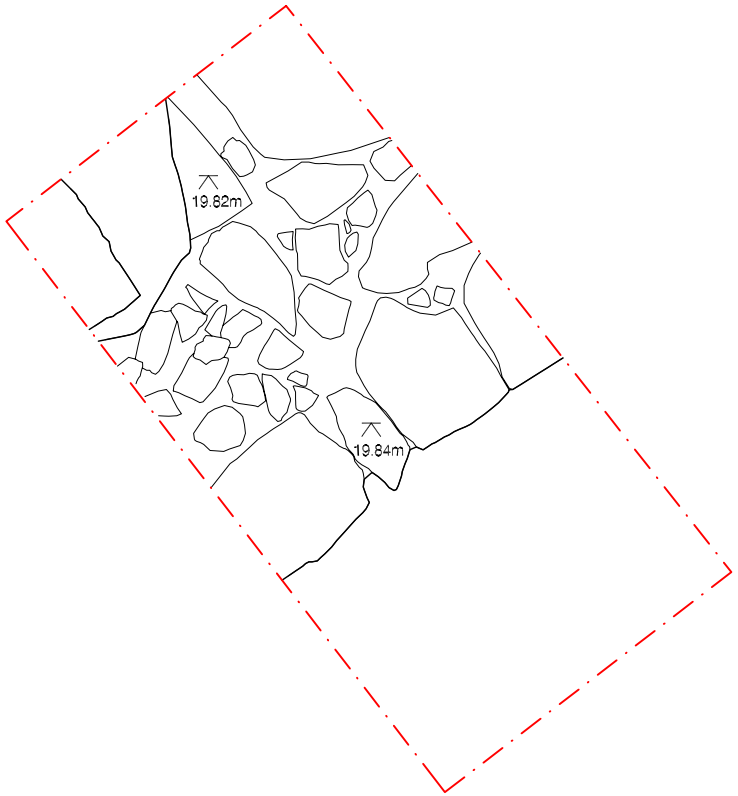
These layers were sealed by much deeper deposits of rubble, which appear to represent the collapse of the stone structure itself (C1012, C1011, C1010, C1009). C1012, directly overlying C1013, was allocated to a deposit of rubble, which included a number of fragments of Old Red Sandstone. These sandstone fragments can be related directly to the remains of an oriel window, which overhangs this area, the lower part of which remains *in situ* (Plate 13; Appendix P). A deposit of clean yellowish-brown clay (C1011) was identified abutting the wall of the Gatehouse, beneath a later deposit of rubble (C1010). Fragments of slate were also identified in clay and rubble layers which overlay C1011 (C1010, C1009), representing continued gradual collapse of the building, at the same time as natural accumulation of sandy silt deposits. As with the remainder of the castle, Intervention 4 was then sealed by turf (C1009).

Plate 13 *In situ* part of oriel window

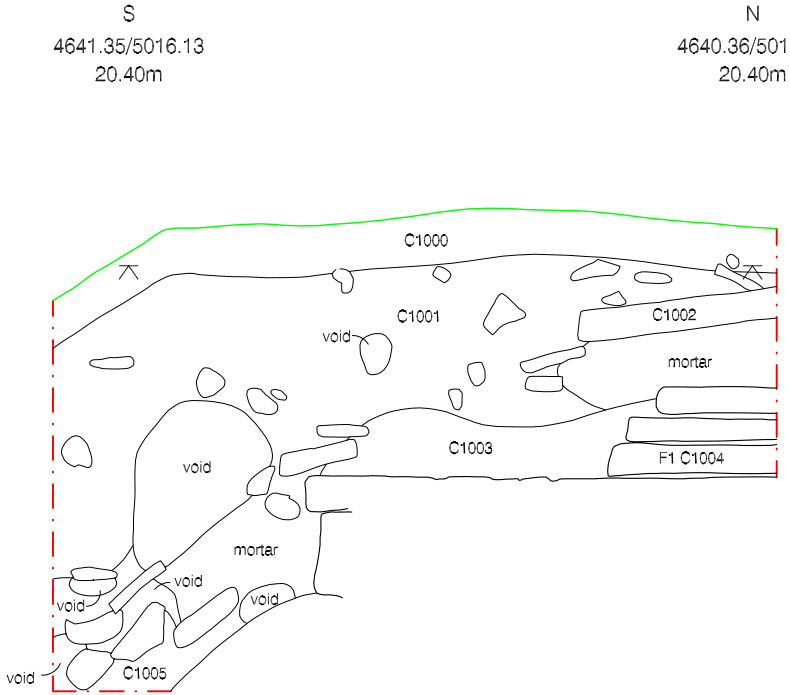
3.1.3 Intervention 5

Intervention 5 was at a higher level than Interventions 3 and 4, being situated on the first floor of the West Gatehouse. The 2.0m x 1.0m trench was aligned NW-SE, and was positioned over the internal wall of the vaulted passage below (see Figure 3). This formed the third part of the 2003 phase of evaluation, and allowed structural assessment of the nature of the remains relating to the vaulted passage through the West Gatehouse. Excavation was undertaken to a depth of approximately 1.10m, reaching *c.* 19.29m AOD, and revealing evidence for the upper courses of the surviving wall (F1 C1004).

F1 C1004 was identified in plan as a NE-SW aligned wall, running across the western end of Intervention 4, measuring over 1.10m wide (Plate 14). The construction of the wall was visible, comprising two faces of roughly squared slate slabs, between which a core of slate rubble was identified (Figure 11). Excavation of overlying deposits exposed the wall to a height of 0.15m, but did not continue further; it is assumed that F1 represents the upper courses of the wall dividing the vaulted passage and adjacent room within the Gatehouse, and as such, overlying deposits will have accumulated throughout the internal areas of the underlying storey.



Intervention 5 plan of F1 C1004 | Scale 1:20 | Figure 11



Intervention 5 southeast facing section | Scale 1:20 | Figure 12

Against F1, a loose deposit of mortar and rubble (C1005) appeared to represent building collapse, which reached depths of 0.20m, but was not fully excavated (Figure 12). Following the accumulation of this deposit, an homogenous layer of yellowish-brown clay was identified, sealing the wall and the initial rubble/mortar collapse, producing no further finds (C1003). C1003 was found to have preceded a further phase of rubble collapse, represented by 0.31m of slate rubble set in a clay and mortar matrix (C1001), within which large fragments of bonded masonry were still identifiable (C1002). From the rubble layer, pieces of 17th-century clay pipe were recovered, with fragments of possible 'saddlebar', which would have formed part of window structures supporting glazed panels (see Appendix L). These layers had concealed the upper part of the surviving wall completely, before the whole area become covered in turf (C1000).

Plate 14 Wall F1, C1004

3.2 PHASE 2 EVALUATION

The 2004 evaluation covered a much wider area, and involved the excavation of sixteen trenches across the Outer Bailey and West Barbican areas, some of which were located in the vicinity of Interventions 3, 4 and 5 (see Figure 4). The evaluation was undertaken in two fieldwork sessions: in August 2004, the evaluation of the West Barbican (Intervention 6 and 7), footprint trenches in advance of scaffolding (Intervention 11, 12, 13, 14, 17) and the bridge (Intervention 15 and 16) was undertaken; the evaluation of the Outer Bailey (Intervention 18, 19, 20, 21) was carried out during a second phase of work during October and November 2004.

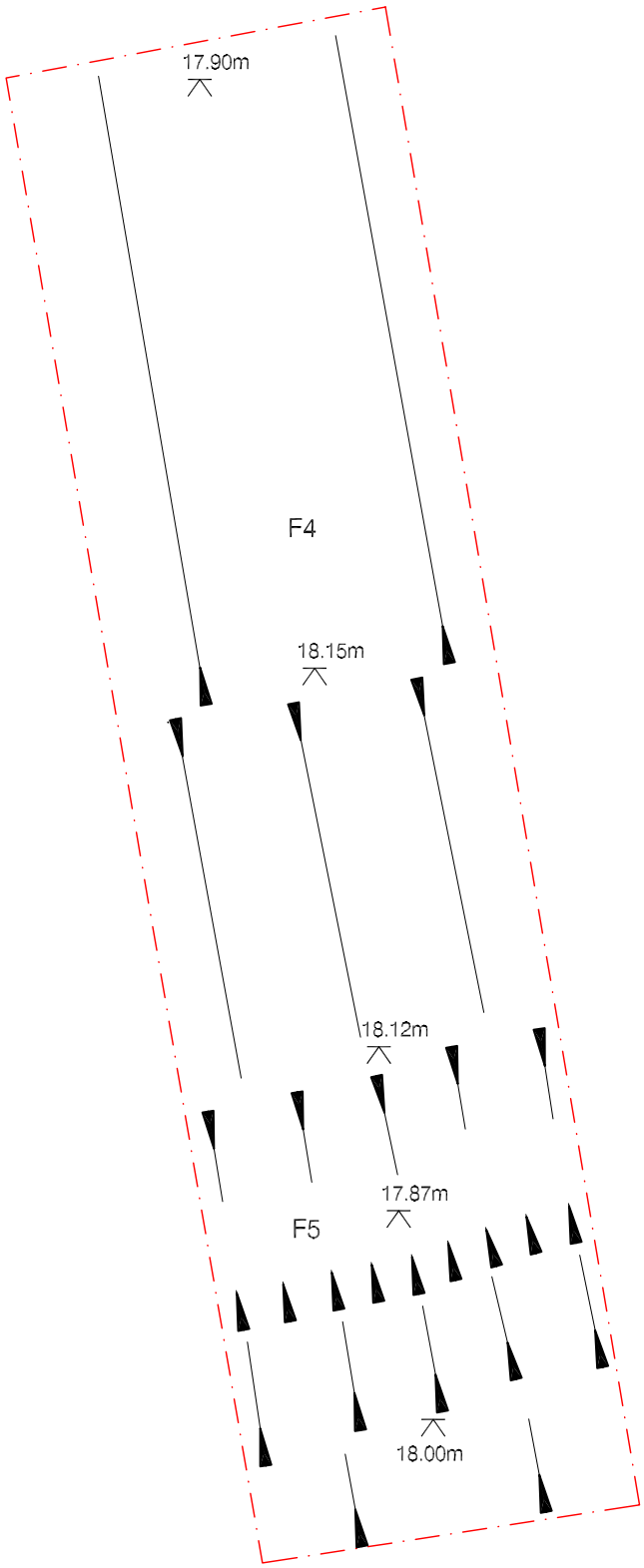
3.2.1 Intervention 6

Intervention 6 represented the westernmost trench, situated outside the dry moat, in the area of the West Barbican. The 4.0m x 1.0m trench was aligned NNW-SSE, designed to investigate the nature of a linear earthwork that is visible at ground level, and to provide details of the nature of the archaeological deposits in this area in order to inform the design of the proposed bridge/link walkway into the castle. The excavations revealed a bank (F4) and ditch (F5), crossing the trench on a NW-SE alignment (Figure 13 and 14; Plate 15).

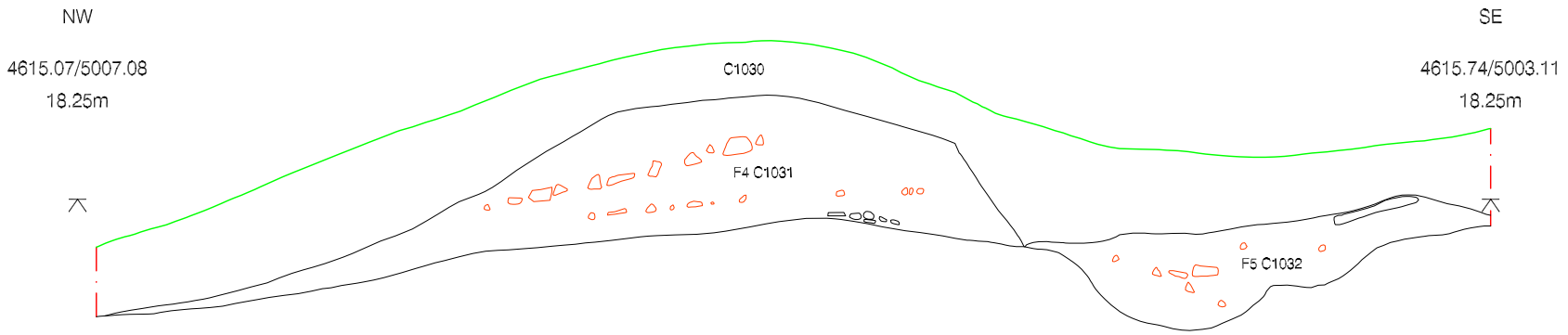
Plate 15 Bank (F4) and ditch (F5)

The bank (F4) was not substantial, reaching only 0.33m in height, and measuring 2.11m wide, with gently sloping sides. The make-up of this structure comprised a friable sandy clay (C1031), which appears to have been quarried from the adjacent and parallel ditch (F5). The ditch, which measured 0.90m wide, was found to measure at least 0.25m in depth, backfilled with a light greyish-brown sandy clay with sandstone and mortar inclusions (C1032).

The make-up of the bank, nor the backfill of the ditch, produced datable material, although both contained



Intervention 6 plan of features	Scale 1:20		Figure 13



Intervention 6 southwest facing section | Scale 1:20 | Figure 14

fragments of sandstone and mortar that are likely to represent collapsed building material of the castle. The feature is considered to have post-dated the main phases of activity associated with the castle; the boundary is shown on the Ordnance Survey map skirting the cliff edge to the west for some distance, and is interpreted as a field boundary, potentially to prevent livestock nearing the cliff edge.

3.2.2 Intervention 7

Intervention 7 was situated approximately 5.0m to the east of Intervention 6, with the intention of investigating the West Barbican area (see Figure 3). This trench was designed to assess and characterise structural remains in this area, and to establish the level and position of the original link to the West Gatehouse entrance. The intervention, aligned NW-SE, was excavated to a depth of only *c.*0.30m, at which point a flagstone floor (F11) and a wall (F7) were identified (Figure 15).

A flagstone surface (F11 C1049) was found to cover much of the northwestern part of the intervention (Plate 16). F11 overlay a rubble and sandy clay layer which was recorded, but not excavated further. The floor surface comprised irregular but tightly fitted slabs, generally Caithness slate, but with occasional rounded cobbles (C1049). Generally, the surface was found to be level, although sloping gently from southeast to northwest, possibly representing changes in levels associated with erosion of the cliff.

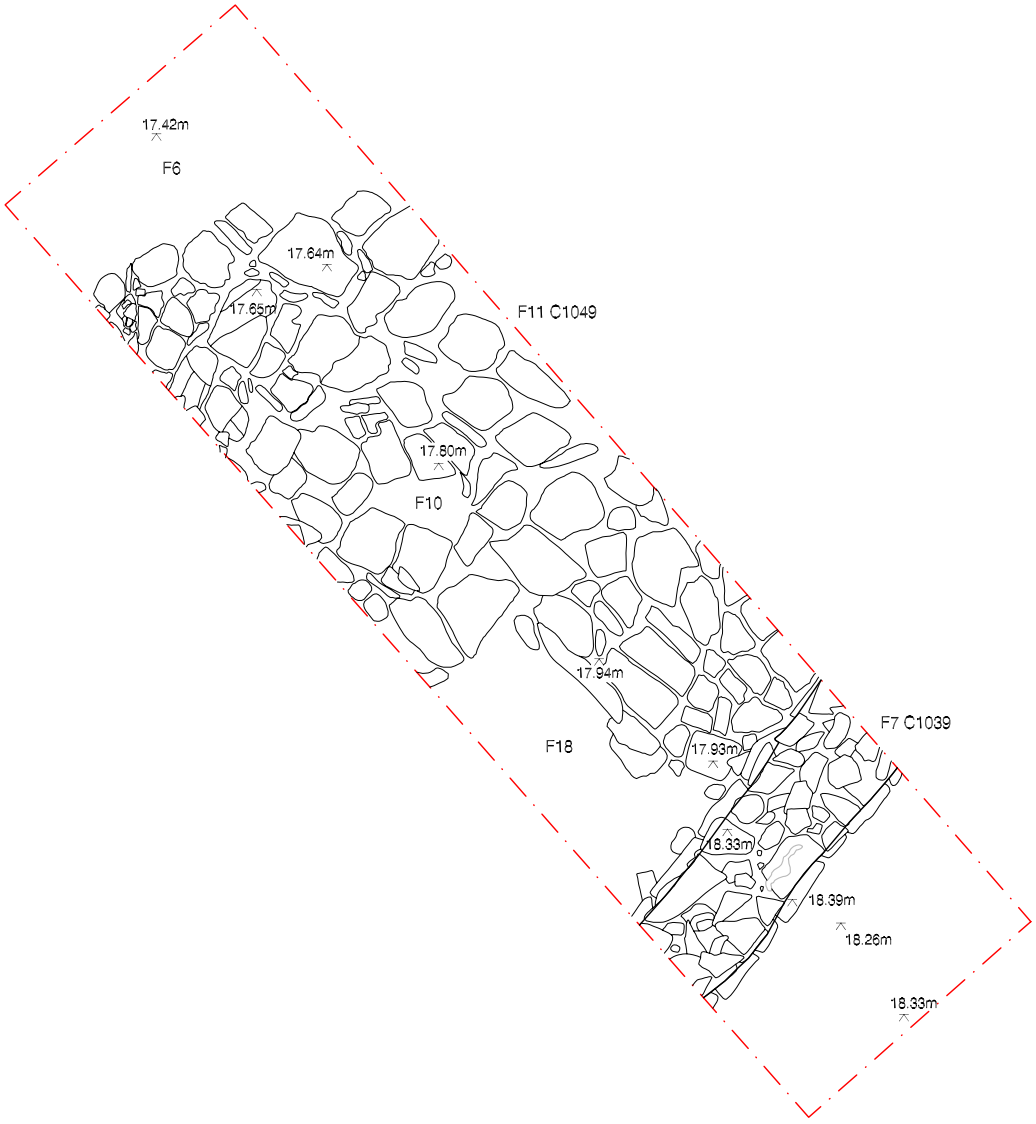
Plate 16 Slab floor (F11) with pit (F18) to the left

The flagstone floor appears to have been cut by two features: a triangular posthole (F10) and a possibly rectangular pit (F18); the regularity of slabs surrounding these features may indicate that they were contemporary with the surface.

The triangular posthole, F10, was clearly defined against the slab surface, backfilled with C1048, a dark greyish-brown silty clay, with flecks of mortar and large stone slabs, which may represent displaced packing material. The alignment of slabs around the upper edge of F10 may suggest that the feature was either in place (or intended) when the floor was constructed. The feature, measuring 0.69m by 0.48m in plan, was excavated to a depth of 0.35m, and was found to cut into the rubble layer below, resulting in an irregular profile (Plate 17).

Plate 17 Intervention 7 posthole F10

To the west of F10, a possibly rectilinear feature (F18) was also found to interrupt the flagstone surface. This feature extended beyond the southwestern edge of excavation, with the visible extent measuring 0.50m NE-SW and 0.80m NW-SE. The pit appears to have been lined with a series of vertically placed slate slabs (C1122), and was found to have been backfilled with a loose, brownish-grey silty clay (C1093)(see Plate 16). No finds were recovered from F18 during excavation.



Intervention 7 plan of features | Scale 1:50 | Figure 15

The flagstone floor, posthole and rectangular pit were all found to have been sealed by C1047, a very dark grey silty clay with mortar flecks and slate inclusions. This layer was found to predate a NE-SW aligned stone wall (F7), running across the intervention at its southeastern end. The exposed length of wall measured 2.0m long and 0.80m wide, and was found to have been constructed from slate slabs, with roughly squared facing stones and a rubble core (C1039). The wall survived to only two courses; removal of overlying and abutting deposits revealed that the lower course formed a footing (Plate 18).

Plate 18 Wall F7 C1039

The rubble layer (C1047) and wall (F7) were found to have been sealed by a deposit of slate rubble (C1037), within a greyish-brown silty clay matrix. Both C1037 and C1047 seem to represent rubble associated with building collapse, following disuse of associated structures. No datable finds were recovered, although a large iron object was recovered during excavation of C1037, which may be of modern date.

Cutting C1037, at the northwestern end of Intervention 7, a shallow ditch was identified (F6), running on a NW-SE alignment, truncating the lower part of the slabbed surface (F11). Also at this end of the trench, a large granite boulder was clearly visible, partly buried, with a surrounding backfill of black silty clay with frequent slate inclusions (F35 C1034). This feature could not easily be interpreted, but may represent an erratic boulder cleared for agricultural or building purposes. The backfill of ditch F6 (C1036) was seen in section to partly overlie this boulder; which may have represented a major obstacle to the initial excavation of the ditch.

The ditch, F6, was backfilled with C1036, a brown silty clay with flecks of mortar and large slate fragments, and measured up to 0.16m in depth; in plan, F6 was seen to represent a continuation of the ditch identified in Intervention 6 as F5. The turf layer identified across the whole of the intervention (C1035) formed following the backfilling of this ditch, and was found to contain a fragment of 19th-century clay pipe stem, and a coin of George V, dated 1929 (see Appendix K and Appendix L).

3.2.3 Intervention 8

Intervention 8, located *c*.30m to the southeast of the West Gatehouse represented the first of three 1.0m x 1.0m trenches which were excavated to receive fence-posts, undertaken with the aim of recording any archaeological remains that were to be disturbed (see Figure 3). Intervention 8 was excavated to a depth of 0.50m, and was found to contain no material of archaeological significance. The upper deposit consisted of a dark grey sandy silt ploughsoil, with charcoal flecks and sandstone inclusions, directly overlying a natural clay subsoil (C1042)(Plate 19).


Plate 19 Intervention 8

3.2.4 Intervention 9

Intervention 9 was situated *c.*7.0m west of Intervention 8, and was excavated to a similar depth. This trench did, however, produce evidence for possible structural remains and associated material. Excavation stopped at a depth of approximately 0.50m, at which point a possible wall footing was contacted, lying directly over subsoil (C1042).

The possible wall footing (F9) was found to have been constructed from unbonded irregular slate slabs (C1045) roughly fitted together, and extending beyond all limits of excavation (Figure 16). F9 had been sealed by a deposit of rubble and mortar, containing large, irregular fragments of slate (C1044), lying directly beneath the turf (C1043); no finds were recovered, and it is unclear what date can be ascribed to these remains. This trench did, however, demonstrate the possibility that structural remains are to be encountered in the wider area surrounding the castle.

3.2.5 Intervention 10

The third of the 1.0m x 1.0m test pits was situated, approximately 35m to the southwest of the West Gatehouse (see Figure 3). The trench was excavated to a depth of 0.60m, revealing 0.50m of ploughsoil (C1040), overlying a dark deposit which appeared to contain evidence for occupation (C1041)(Figure 17).

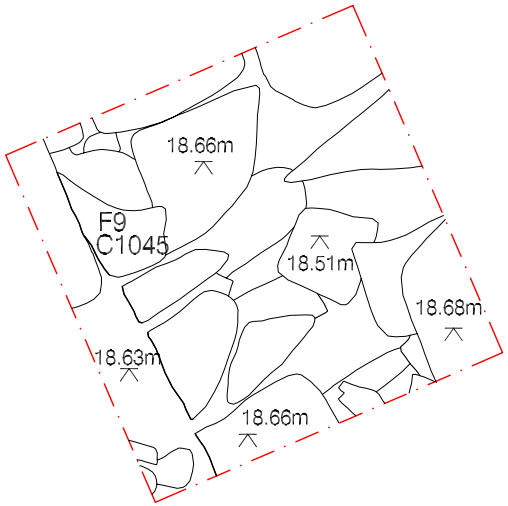
C1041 measured up to 0.10m in depth, and comprised a black sandy clay, containing pieces of charcoal and fragments of mollusc shell, directly overlying the subsoil (C1042). No finds were recovered from this excavation, although the potential for archaeological remains and deposits at a distance from the main internal area of the castle has been highlighted.

3.2.6 Intervention 11

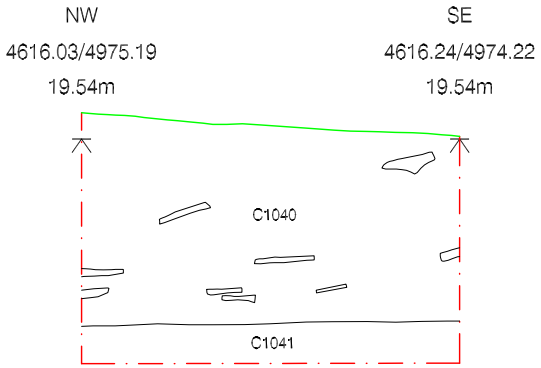
Intervention 11 was situated adjacent to the existing trench representing Intervention 3, within the walls of the Porter's Lodge (see Figure 4). The 2.0m x 2.0m trench was excavated to a maximum depth of 0.80m, ceasing at *c.*16.29m AOD, when identifiable occupation deposits were encountered.

Intervention 11 was bisected by a wall running NE-SW, of which a length of 2.0m was exposed (F12)(Figure 18). The wall was found to measure 0.55m wide, and was constructed from roughly shaped blocks of slate (C1062), with yellowish-brown clay bonding (C1063). Upon removal of abutting and overlying deposits, F12 was found to survive to ten courses (0.78m)(Plate 20). The wall was not anticipated by earlier research into the layout and plan of the castle, and appears to represent an internal wall within the Porter's Lodge. Without examination of the relationship between this feature and the external walls of the Lodge, it is not possible to

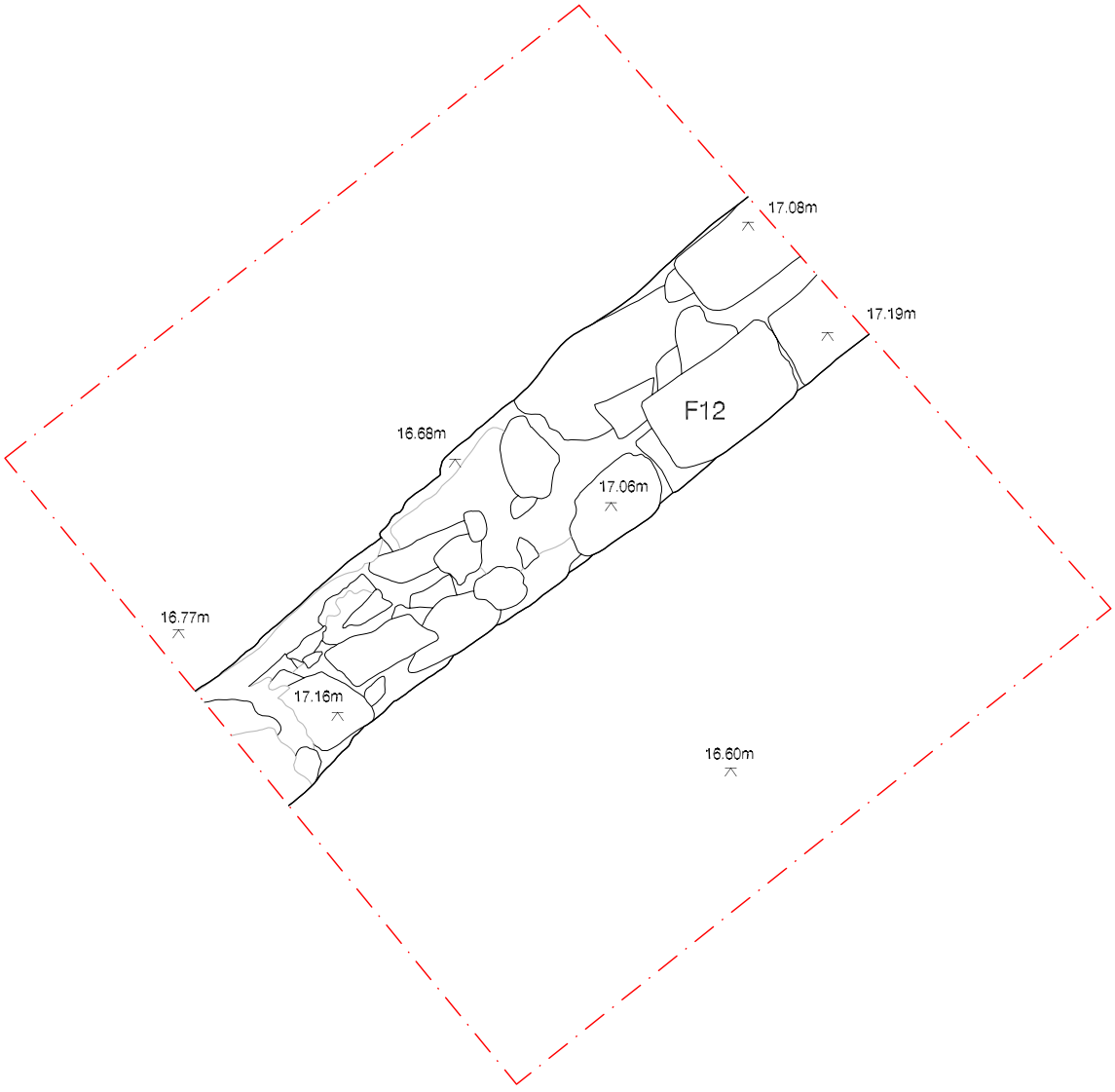
Plate 20 Intervention 11 wall F12



Intervention 9 plan of F9 | Scale 1:20 | Figure 16



Intervention 10 southwest facing section | Scale 1:20 | Figure 17



Intervention 11 plan of F12	Scale 1:20	Figure 18

ascertain whether this represents a later insertion, or part of the original layout of the building; this issue will be resolved during further investigations in the area.

Potential occupation deposits were identified on both sides of F12, but were not excavated further during the 2004 evaluation. To the southeast, C1066 consisted of a mottled, dark brown silty clay; to the northwest, C1065 was similar in composition, with fragments of animal bone identifiable on the surface. Although not investigated further, the nature of the deposits, and the presence of animal bone, suggest that they derive from occupation within the building. Despite their similarity, C1066 is approximately 0.30m higher than C1065, suggesting that F12 may have divided spaces that were on slightly different levels, or used to different extents (Figure 19).

The accumulation of C1065 and C1066 appears to have ceased simultaneously; both were identified directly beneath a deep layer of mortar and rubble, up to 0.75m in depth (C1046). The matrix of C1046 comprised a brown sandy clay, containing both slate and Old Red Sandstone (including architectural fragments), with occasional fragments of animal bone and an iron nail. A fragment of rainwater spout was identified within this material (Plate 21; Appendix P). C1046 appears to represent building material that accumulated against the northwest elevation of the Gatehouse; the ground level, on which turf layer C1060 had formed, slopes away from this wall towards the northwest.

Plate 21 Old Red Sandstone rainwater spout

3.2.7 Intervention 12

Intervention 12 was situated within the courtyard of the castle, located close to the northern corner of the West Gatehouse (see Figure 4). This intervention represented the first of six 2.0m x 2.0m trenches surrounding the perimeter of the West Gatehouse to form foundation trenches for concrete bases to support scaffolding, with the aim of mitigating the effect of the scaffold bases, while assessing and characterising the nature of archaeological deposits within these areas. In particular, this trench provided information regarding the nature of deposits within the courtyard area, as outlined in the Scheme of Works.

Intervention 12 was excavated to a depth of 1.0m, at which point slate bedrock was encountered (C1064). The castle courtyard is situated directly on top of the slate sea-stack, parallel to the bedding plane, resulting in a smooth level bedrock at this point, which provides a suitable surface for both internal and external areas.

A deposit of dark brown clayey silt, up to 0.20m deep (C1075) was identified and excavated at the western edge of Intervention 12, lying directly over slate bedrock (Figure 20). The context contained large quantities of shell and animal bone, and has therefore been interpreted as a possible midden deposit. Only a small part of this deposit was identified in Intervention 12 and so the context could not be extensively sampled in 2004; C1075 was recorded and noted for future investigations in this part of the courtyard.

NW

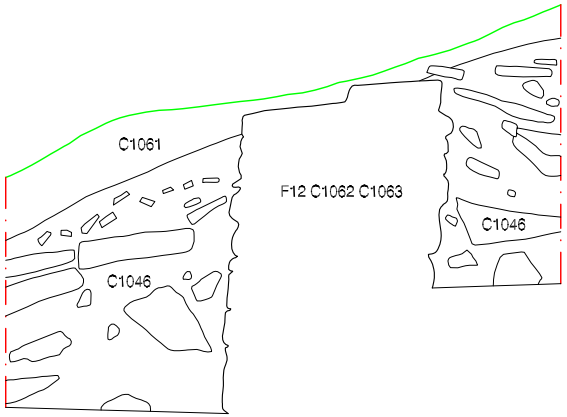
4634.54/5022.71

17.26m

SE

4636.14/5020.53

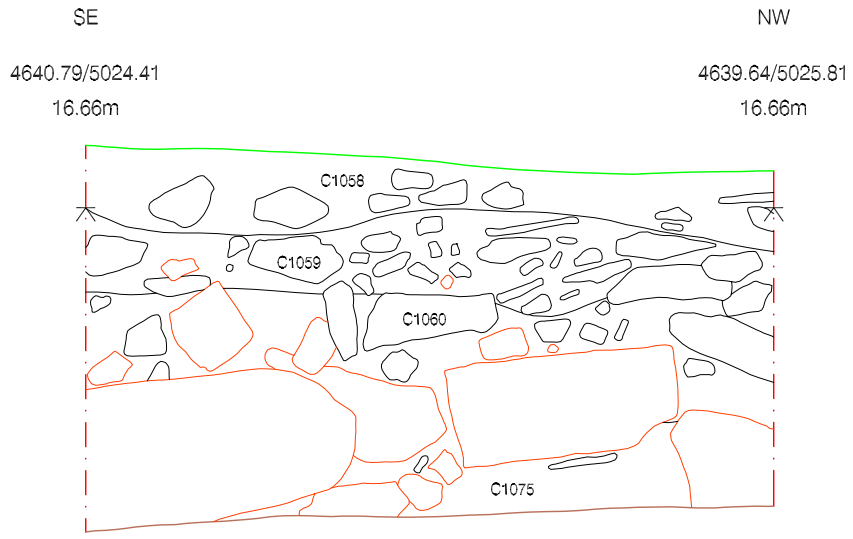
17.26m



Intervention 11 southwest facing section

Scale 1:20

Figure 19



Intervention 12 northeast facing section	Scale 1:20	Figure 20

C1075 was overlain by C1060, a 0.60m deep deposit of rubble and mortar. C1060 contained a large proportion of slate fragments, and also a considerable number of Old Red Sandstone pieces, many of which were found to be moulded architectural fragments. These fragments were planned *in situ*, 3-D coordinates recorded, and then were retained for more detailed architectural recording (Figure 21; Plate 22). This rubble layer was sealed by a similar deposit of collapsed building material, C1059, distinguished from C1060 due to the lower frequency of sandstone fragments. C1059 was identified directly beneath the turf which now covers all of the courtyard (C1058).

Plate 22 Architectural stone fragments

The remains identified within Intervention 12 relate primarily to the collapse of adjacent structures, although the presence of a possible midden (C1075) suggests that rubbish was disposed of within the courtyard area at some stage.

3.2.8 Intervention 13

Intervention 13 was excavated within the dry moat (see Figure 4), and was positioned to assess the nature of archaeological remains in the footprint of the scaffolding to support the West Gatehouse. The 2.0m x 1.5m trench was excavated adjacent to the bedrock stack on which the Gatehouse was constructed; the ground in this area was found to slope sharply from northwest to southeast (Plate 23). Intervention 13 was excavated to a maximum depth of 2.00m, at approximately 13.70m AOD.

The intervention encountered a total of four contexts, which contained slate, mortar and sandstone, all representing the build up of rubble collapse within the dry moat, against the near-vertical, stepped slate bedrock (Figure 22). The earliest context to be identified, C1053, was found to measure at least 0.35m in depth, but was not fully excavated. C1053 comprised approximately 75% angular slate blocks, within a matrix of dark yellowish-brown clay with rare charcoal flecks.

C1052, which sealed C1053, was found to measure up to 0.85m in depth, sloping downwards away from the slate bedrock. This context was found to contain a much higher mortar content, and fewer slate fragments, that C1053. Overlying the lower part of this deposit, a further layer of dark yellowish-brown sandy clay was identified (C1051), which was seen to contain only occasional stone fragments, and pieces of a modern glass bottle, apparently representing much more recent accumulation of material. C1051 was subsequently sealed by a layer of turf (C1050), up to 0.20m in depth, comprising a

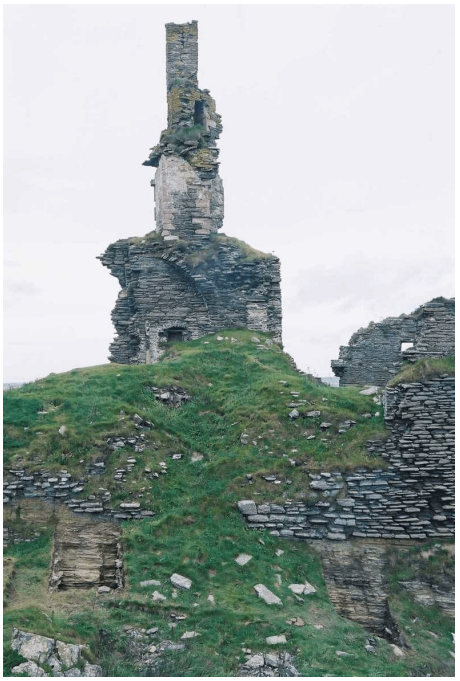
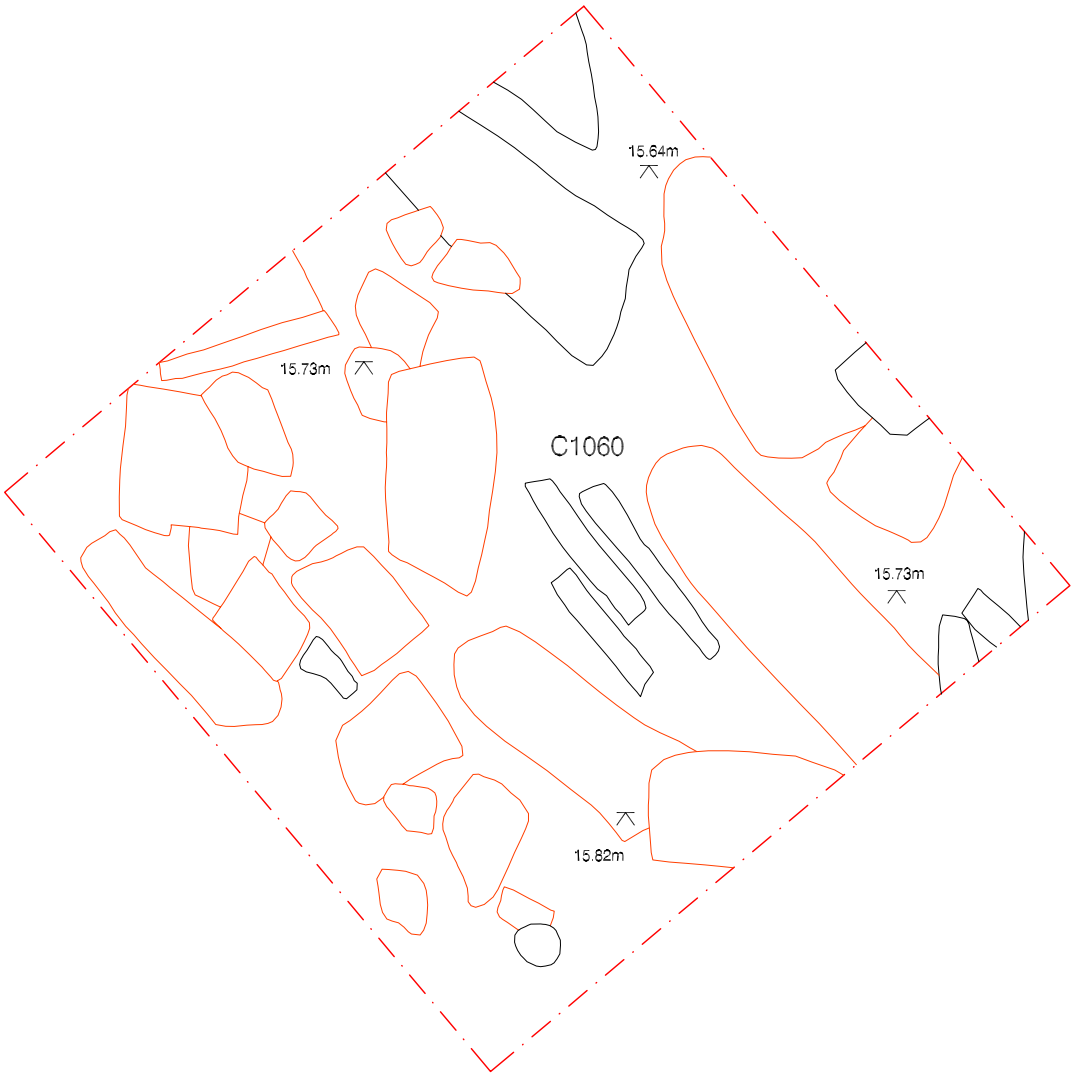
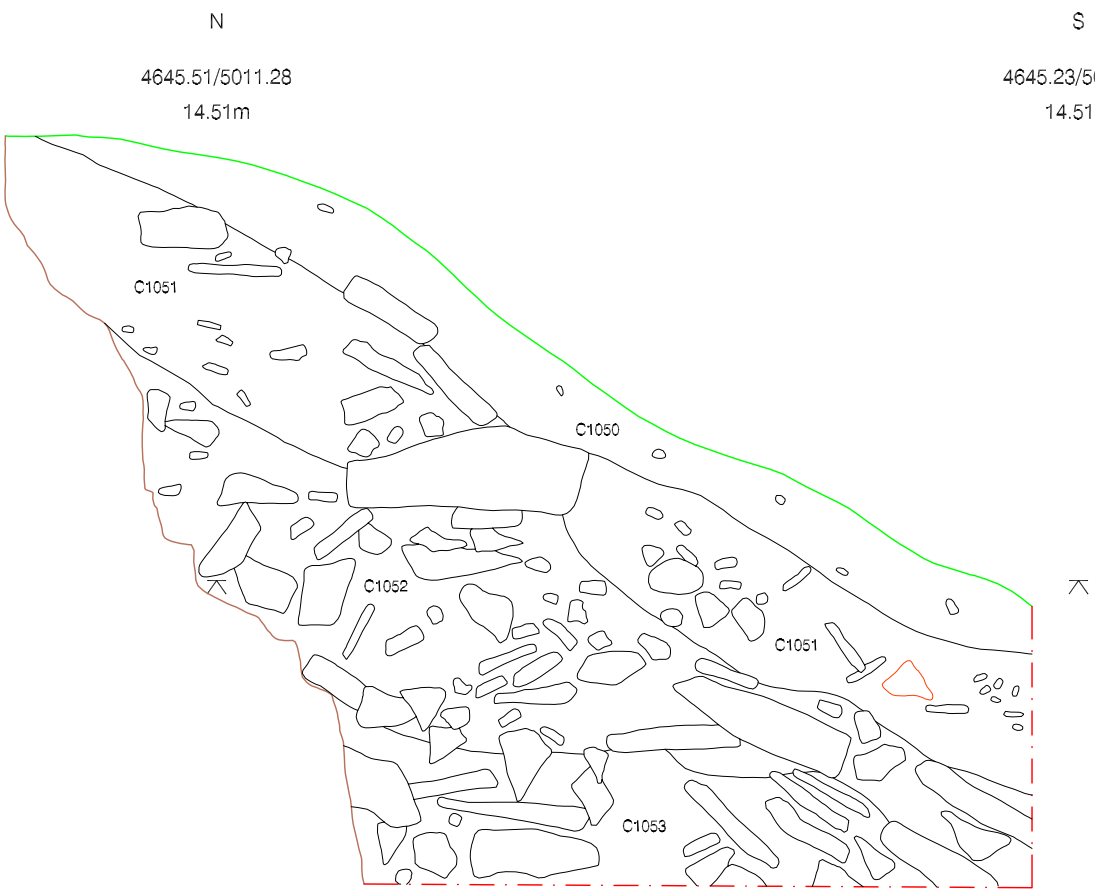


Plate 23 Interventions 13 and 14 beneath the West Gatehouse



Intervention 12 architectural fragments within C1060	Scale 1:20		Figure 21



Intervention 13 west facing section	Scale 1:20	Figure 22

dark brown silt with densely packed roots.

As might have been expected, no evidence for occupation was identified within Intervention 13, and remains related primarily to the collapse of building material from the adjacent structures.

3.2.9 Intervention 14

Intervention 14 was situated 6.0m to the northwest of Intervention 13, occupying a similar location in the dry moat, against the slate bedrock, again in a position to be occupied by a scaffold base (see Figure 4 and Plate 23). The sequence of deposits identified within Intervention 14 was also similar to that of Intervention 13; four contexts were identified, representing a series of rubble collapse layers.

The trench was excavated to a maximum depth of 2.40m, although as the ground sloped away to the southeast this depth decreased (Figure 23). Excavation ceased at *c*.12.40m AOD, with the partial excavation of C1057, a dark yellowish-brown clay, judged to comprise approximately 80% slate fragments, and excavated to a depth of 0.53m. The proximity to Intervention 13, and the similarity between deposits, suggests that this layer was the same as C1053.

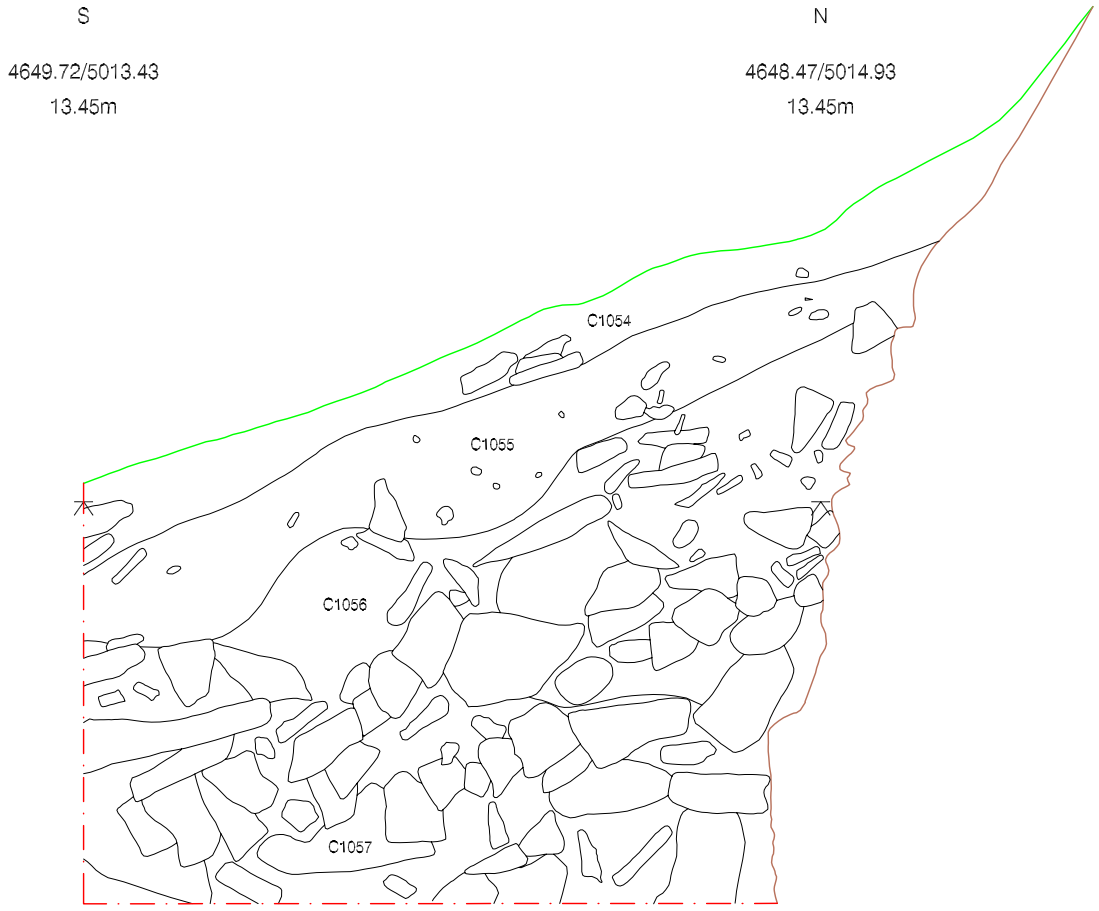
C1057 was sealed by C1056, a brown sandy clay and mortar deposit with frequent inclusions of slate, measuring up to 0.97m in maximum depth. This layer covered all of the intervention, and appears to be equivalent to C1052 in Intervention 13. This rubble and clay layer was subsequently overlain by 0.35m of dark yellowish-brown sandy clay, which contained only occasional angular slate fragments, over which turf layer (C1054) had formed.

As with Intervention 13, the accumulation of deposits within Intervention 14 would seem to represent successive phases of collapse of material from the castle structures into the dry moat, the date of which remains uncertain.

3.2.10 Intervention 15

Intervention 15 was located across the entrance to the vaulted passageway through the West Gatehouse (see Figure 4; Plate 24). The 3.0m x 2.0m trench was designed to assess the depth and nature of deposits that had accumulated within the passage, between the southwestern and northeastern walls (F13 and F14), and more specifically, to define the level of the latest floor surface within the passage. With the results obtained from Intervention 7, the information gained from Intervention 15 was used to inform the detailed design of the proposed bridge/link walkway to provide safe access into the castle. Excavation reached a maximum depth of 0.86m within the passageway, ceasing at approximately 16.40m AOD, at which point possible occupation deposits were identified (C1069), overlying a series of slabs (F36 C1076).

Plate 24 Intervention 15 from the southwest



Intervention 14 east facing section	Scale 1:20	Figure 23

The walls of the passage, as with the remainder of the castle, are constructed from roughly coursed slate slabs. Set into the southeastern wall (F14), the removal of abutting rubble deposits revealed a recessed bench, clearly integral to the original construction of the wall, with Old Red sandstone detail (F15; Plate 25). The seat itself, measuring 1.05m wide and 0.30m deep, was set at a height of 0.45m above the identified occupation deposits. Located in a hollowed area in the centre of this seat, an organic deposit (C1070) was tentatively identified as decayed wood. F15 has been interpreted as a 'visitor's seat', associated with the Gatehouse and with entry to the castle.

Plate 25 Bench F15

The removal of rubble revealed that, 0.95m from the southwestern edge of Intervention 15, the underlying bedrock stepped downwards at least 1.0m, and appeared to follow the circuit of the overhead wall (Plate 26). The full extent of this contour was not visible, since excavation reached the required depth.

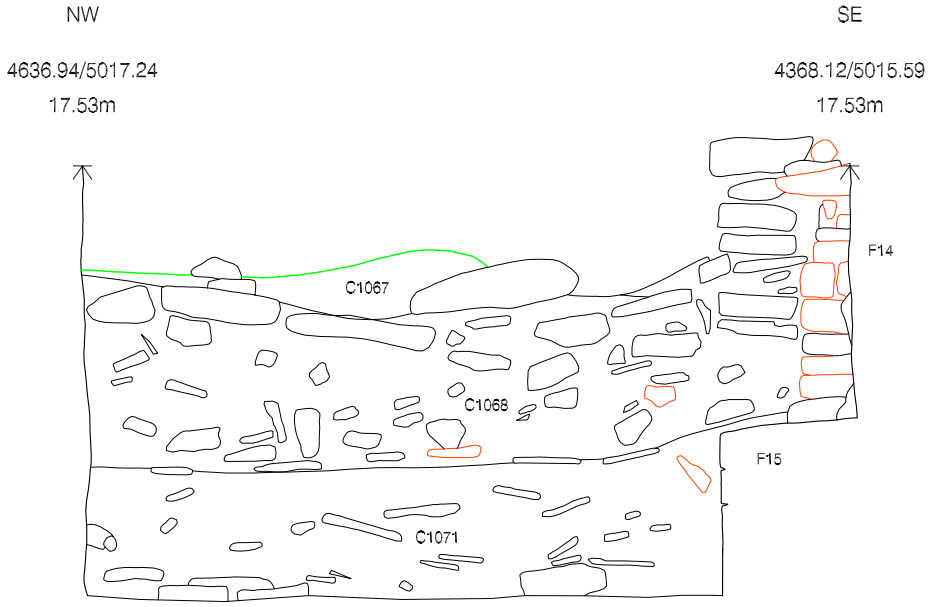
Plate 26 Shaped bedrock and F36, Intervention 15

Overlying the visible edge of the bedrock, a linear arrangement of stone slabs could be seen, partly concealed beneath deposit C1069. The visible part of this feature (F36 C1076) comprised at least five slabs, reaching a total width of 1.5m across the trench, aligned NW-SE. The full extent of the slabs (C1076) was not exposed, as the overlying deposits were not excavated, but the arrangement suggests the passageway contained a slab surface which may have been associated with the drawbridge that would have crossed the moat at this point.

Overlying F36, a highly varied deposit of silty clay (C1069) was identified and recorded, but not excavated further in 2004. Predominantly dark yellowish-brown in colour, C1069 contained lenses of grey clay, with patches of reddish-brown and some charcoal inclusions. Further dimensions were not seen and no finds were recovered, but C1069 has been interpreted as a surface or occupation deposit, associated with use of the passageway.

C1069 was sealed directly by C1071, which consisted of a layer of firmly compacted sandy clay with fragments of slate, mortar and some occasional clods of organic material that may represent peat (Figure 24). This deposit filled the width of the passageway to a depth of 0.35m and appears to represent collapsed building material; the presence of thin fragments of slate may represent pinnings from the overhead vault. The interface between C1071 and C1068 was almost perfectly level; the compaction of the underlying deposit, possibly by foot traffic, may indicate the continued use of the passage before the accumulation of more rubble.

Overlying C1071, C1068 represented a further 0.50m of a lighter yellowish-brown clay, with considerable inclusions of mortar and large slate fragments. Significantly more fragments of slate rubble were identified in C1068, possibly indicative of a more severe phase of building collapse, which was sealed subsequently by the



Intervention 15 southwest facing section	Scale 1:20	Figure 24

development of turf across the passageway (C1067). No datable artefacts were recovered from any of the excavated contexts in Intervention 15, and as such, the phases of activity that are represented by the rubble and clay deposits remain undated.

3.2.11 Intervention 16

Intervention 16 was situated in the centre of the dry moat to the southwest of the Gatehouse, within the footprint of a base for the temporary bridge (see Figure 4). The ground in this area sloped steeply downwards from southeast to northwest, towards the sea. The 2.0m x 2.0m trench, orientated NW-SE, was excavated to a maximum depth of 1.35m; the slope of the ground meant that the excavated deposits were only 0.07m deep at the western corner (Figure 25).

F16 (C1077) was allocated to a short section of masonry at the southwestern edge of Intervention 16, visible only in section. Four courses of slate were visible, measuring 0.70m in length, and 0.40m in height and bonded with a light yellowish-brown clay. As only one part of the elevation was visible, it was not clear whether this feature represented an *in situ* structure, although the horizontal position of the coursed masonry was suggestive of such (Plate 27).

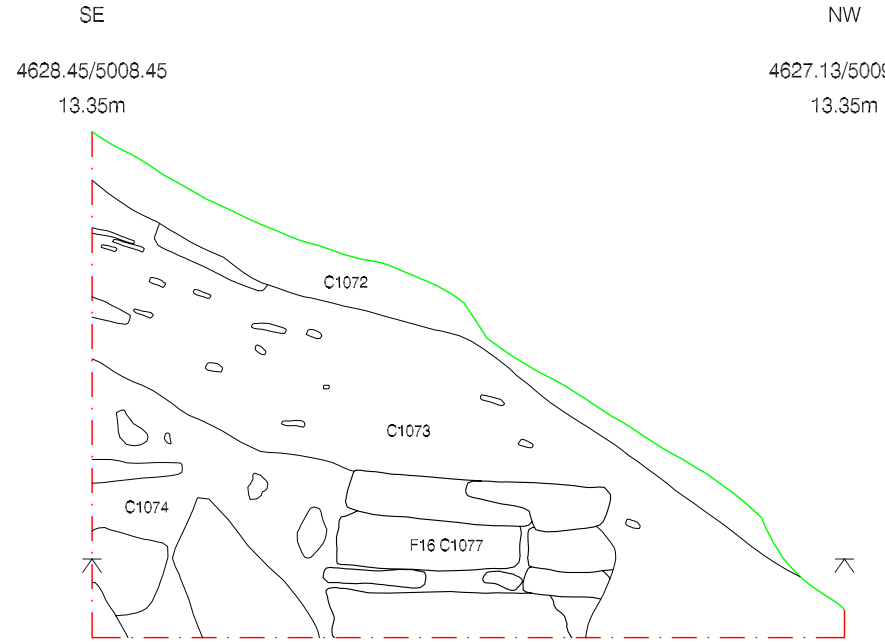
Plate 27 Intervention 16 northwest facing section

C1074 was allocated to a loosely compacted clay sand, containing a large quantity of mortar, and a considerable amount of slate building material, including intact bonded fragments. Ceramic material recovered from C1074 was dated to the 19th century (Appendix K). This layer abutted and partly covered the possible wall F16, and was found to measure up to 0.75m in depth. This deposit had been sealed by 0.30m of darker sandy clay, which contained more slate fragments (C1073), situated directly beneath the turf (C1072).

3.2.12 Intervention 17

Intervention 17 was situated 3.0m north of Intervention 16, in the dry moat abutting the bedrock stack (see Figure 4), in the proposed location of a concrete base for the scaffolding, but was later abandoned. This trench was also excavated to approximately 1.50m in depth, and two distinct contexts were allocated. C1079 comprised a deep rubble layer, which had accumulated against the bedrock, sloping downwards in all directions from the eastern corner of the trench (Plate 28). The matrix comprised a light yellowish-brown sandy clay, containing large fragments of slate and some mortar. This material was directly sealed by the overlying turf (C1078).

Plate 28 Intervention 17



Intervention 16 southwest facing section | Scale 1:20 | Figure 25

3.2.13 Intervention 18

Intervention 18 was the first of three trenches excavated to assess the nature of remains within the Outer Bailey area (see Figure 4). Intervention 18, measured 3.0m x 3.0m, aligned NW-SE and positioned in order to investigate the southeastern exterior of the North Range. Specifically, this intervention was designed to reveal the characteristics of deposits in the northern part of the Outer Bailey courtyard, and to determine the level of the latest use. This work also aimed to facilitate structural assessment of the exterior and dividing walls of the North range, with a view to designing an engineering solution for consolidation of structures in this area.

The trench was excavated to a depth of 1.25m (14.79m AOD), and revealed a relatively complex sequence of structures and deposits relating to two internal spaces, and the courtyard surface from which they were accessed. Two sections of stone wall (F22 and F23), with two slate-built door jambs (F24 and F25), defined the limits of these spaces, and are currently thought to represent three phases of modification to the layout of the structure (Plate 29).

Plate 29 Intervention 18 from the southeast

Structural changes to the layout of the North range

The earliest phase that has been proposed is represented by two lengths of wall, F23 and F22. F23 was allocated to a NW-SE aligned wall, running across the intervention for 1.27m. This wall survives to approximately 1.50m in height, constructed from roughly coursed slate slabs (C1109), and previously visible as an earthwork at ground level. F22 is a much shorter length of wall, of similar construction, running for 0.45m into the trench from the northeast edge of excavation, surviving to nine courses (0.90m). It is thought that F22 would have originally extended across the intervention, forming the external wall of the North Range; F23 would therefore have represented an abutting, internal division between two rooms.

The rough edges of F22 suggest that this wall was subsequently cut through to form access points into both internal areas. The construction of a central door jamb (F24), abutting the end of F23, would have consolidated these doorways. Again, this feature was made up of slate slabs (C1108), measuring 0.56m x 0.44m in plan, and surviving to a height of 0.90m. Evidence for a rebate for a doorway can be seen on the southwestern edge of the feature, and a vertical break in its northeastern edge might have been associated with the fitting of a doorway to the northeast. It is likely that the construction of a series of steps (F27) leading from the external courtyard into the building would have part of the same phase of alteration (Plate 30). The upper of the two steps appears to have been constructed from slate slabs; there is a possibility that the lower step was cut directly from the bedrock that forms the floor surface of the internal area.

Plate 30 Intervention 18, F22 and F27

Further modifications to the North Range occurred when the southeastern of the two doorways was narrowed, through the construction of a secondary door jamb, F25. This feature, constructed from the same roughly shaped slate slabs as the remainder of the building, measured 0.70m NW-SE and 0.42m NE-SW, abutting F25 and part of the southeastern end of F23. A vertical slot on the southwestern edge of this feature may be associated with its use as a door jamb.

The courtyard area was shown to have been paved with irregular slate slabs (F26 C1107), revealed over an area of 2.30m x 0.63m (Plate 31); this surface was not further investigated in 2004. Within both of the internal spaces, the area had been cleared to bedrock; as revealed in Intervention 12, the bedding plane provided a level and smooth surface.

Plate 31 Intervention 18 courtyard

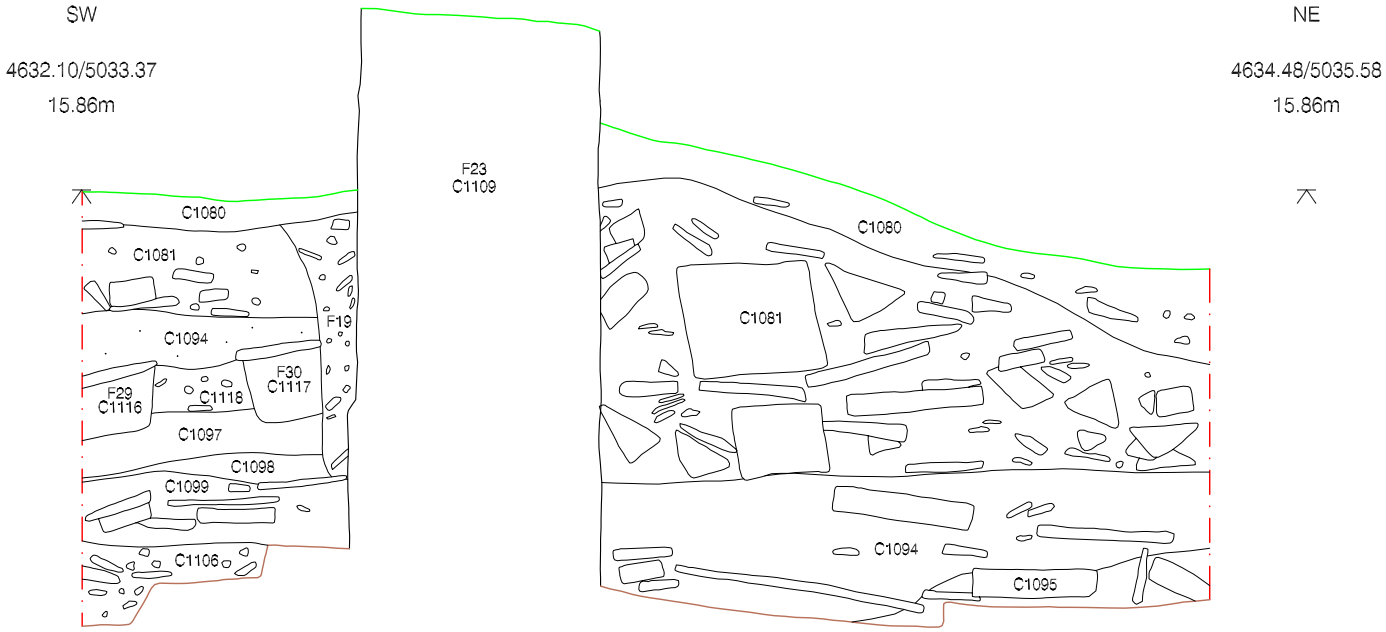
Archaeological features and deposits within Intervention 18

The sequence of deposits within each area of Intervention 18 differed significantly. The courtyard and the northeastern room were largely rubble filled, although occupation deposits were identified in both areas (C1100 and C1095). Within the southwestern room, however, the sequence of deposits was found to be more complex (Figure 26).

In the northern corner of Intervention 18, a dump of very dark brown clay was identified, measuring 0.50m x 0.50m in plan, and extending beyond the area of investigation (C1095). The deposit measured up to 0.10m in depth, and was found to contain mortar, shell and charcoal, and was interpreted as a midden deriving from the dumping of occupation waste. The presence of uncharred organics within this deposit (see Appendix J) can be attributed to the presence of peat, which is known from other features, and from clods of burnt material, to have been imported for fuel. This represented the only evidence for occupation within the northeastern room.

Within the courtyard area, the slabbed surface (F26 C1107) was found to have been overlain by a deposit of dark brown silty clay (C1100), which produced an assemblage of animal bone and ceramic, with fragments of window glass and iron objects. The ceramic material included 17th-century clay pipe, and a relatively large assemblage of pottery, which appears to have been locally produced and is known to have been in use from the medieval period onwards (see Appendix K).

In the southeastern room within Intervention 18, the sequence of deposits was found to be more complex. Directly over the bedrock surface, a deposit of reddish-brown silty clay was identified, which was found to contain a large quantity of slate slabs, possible derived from structural material or from a slabbed surface (C1106). This deposit was then sealed by 0.20m of darker reddish-brown silty clay which contained charcoal, mortar and fragments of shale (C1099). Further layers of silty clay followed: C1098 comprised 0.08m of mottled material containing mortar and charcoal, overlain by C1097, a 0.15m deposit of dark reddish-grey silty clay with occasional flecks of charcoal. The latter deposit was found to cover the whole of the internal room, but also extended into the courtyard area; its relationship with C1100 was not discernible at the time of



Intervention 18 southeast facing section | Scale 1:20 | Figure 26

excavation, but may be clarified with further investigation.

C1118 was situated directly over deposit C1097, and was found to be of similar composition, comprising a reddish-grey silty clay with occasional slate inclusions, 0.13m in depth. All of these deposits appeared to extend across the whole of the enclosed area, and it seems likely that they would have abutted dividing wall F23. These deposits appear to represent successive occupation layers within North Range, and the gradual accumulation of floor deposits within and outside the building. Unfortunately, no datable material has so far been recovered from these contexts.

C1118 was seen in section to have been cut by two U-shaped features (F29 and F30). The northernmost, F30, measured 0.20m across, and 0.17m in depth, backfilled with C1117, a clean, reddish-grey silty clay with rare inclusions of mortar and gravel. A single slate slab appears to have been placed over the feature following its disuse. F29 was cut from the same level, and similarities in form and backfill suggest that they may have been contemporaneous. F29 measured 0.14m in depth, and measured at least 0.18m in width, although its full extent was not visible within the intervention. It was backfilled with C1116, a firm silty clay with slate and mortar inclusions; a slate slab appeared to lie directly over the top of the cut. The function of F29 and F30 is unclear; they may represent internal structural features within the room, whether postholes or slots for timber; further investigation within this area will hopefully elucidate their function.

Following the disuse of these features, a linear slot (F19) was identified running along the length of F23. In plan, F19 measured 1.22m in length and 0.16m wide, terminating in a sub-rectangular butt-end, 0.27m wide, at its southeastern end (Figure 27). This feature is currently interpreted as a beam slot, intended to receive timber panelling to line the internal walls of the room, an idea which is supported by the fact that no evidence for render or plaster has been noted on the surviving elevations. The rectangular butt-end of the feature would therefore have contained a larger supporting timber; possibly squared in profile. This end sat within the angle between the latest door jamb (F25) and the wall (F23). The panelling of the internal walls therefore appears to have been associated with modification of the doorway into this area, which potentially saw a change in use of the internal space for higher status activities.

In section, the cut of F19 appears to measure approximately 0.38m in depth from the horizon at which it is believed to have been cut; above this the apparent fill seems more mixed, with a much higher rubble content, and is thought to represent disturbance caused by the removal of the panelling at a later date. This interpretation remain speculative, and should be further investigated in later phases of excavation.

F29 and F30 were then sealed by C1094, a silty clay layer that covered all of the intervention, sealing deposits in both rooms and the courtyard. The layer was found to contain occasional mortar and slate inclusions, and measured up to 0.39m in depth, being significantly deeper in the northern part of the trench, where the context was found to contain large slate slabs. C1094 did not contain any ceramic or animal bone, and would seem to represent the gradual accumulation of material as the castle buildings fell out of use. C1094 was subsequently sealed by a much deeper, rubble layer (C1081) across the whole of the intervention. C1081 was a grey sandy clay, up to 0.80m deep, containing large quantities of mortar and slate, which represents the accumulation of eroding building material following structural collapse. Subsequently, the area became covered by turf (C1080).

Intervention 18 plan of features | Scale 1:20 | Figure 27

Intervention 18 proved to be one of the more stratigraphically complex of the areas of investigation, and has allowed for preliminary conclusions to be drawn regarding structural modifications, internal features, and occupation within the building. The phases of building alteration within this area represent significant changes to the layout of the North Range, with the creation and modification of two new access points into the internal areas of the range. The further alteration of the eastern doorway appears to have coincided with the timber panelling of the building, which may indicate a change in use, potentially an upgrade, of the internal space.

The gradual accumulation of material within the southeastern room of the intervention provides evidence for use of the room prior to this change; this contrasts with the lack of deposits in the adjacent room, which may have been used for a different purpose, or may simply have been kept cleaner. At least some of the deposits (C1097 and later) accumulated after the first doorway had been created, but before the internal features represented by F29, F30 and F19 had been put in place. Unfortunately, few deposits contained securely datable material, and so the dating of this sequence must await further investigation. The accumulation of debris in the courtyard (C1100) represents evidence for mid-17th century occupation, and can be associated with the use of this part of the castle during the civil war.

3.2.14 Intervention 19

Intervention 19 was located 8.0m to the east of Intervention 18 (see Figure 4), and was situated over the postulated site of a set of stairs leading into the North Range (FAS 2003), with the intention of assessing the condition of the buried fabric, and establishing the respective levels of the courtyard and staircase. The results of the excavation were quite unexpected, revealing evidence for a previously unknown room, with associated hearth and bench, provisionally interpreted as a small Porter's Lodge.

The trench measured 2.5m x 1.5m, orientated NW-SE, and was excavated to a maximum depth of 1.00m (15.39m AOD). The excavation exposed the remains of three walls, incorporating the remains of a hearth and a recessed bench. The first NE-SW aligned wall was identified running along the northwestern edge of investigation (F34 C1121). The western part of the trench was dominated by a substantial stone construction, which has been interpreted as a NW-SE wall (F33 C1120), and joins a perpendicular wall (F31 C1119) running along the southeastern edge of excavation (see Figure 4; Plate 32).

Plate 32 Intervention 19 from the northeast

All of the structures within this area were constructed from the same roughly coursed slate as the remainder of the castle; a yellowish-brown clay bonding material was observed, and no sign of rendering or plaster was noted. The walls represent three sides of a small room, which would have had internal dimensions of 1.05m NW-SE, and over 0.70m NE-SW, extending beyond the area of investigation. A recessed bench, F32 (Plate 33), was found to be integral to the construction of F31. This feature was set 0.26m into the wall, approximately 0.30m above the identified ground surface of the room. This building was not anticipated prior to excavation and is

currently interpreted as a small Porter's Lodge that would have been associated with the southern entrance of the castle.

Plate 33 Intervention 19 F32 from the northwest

The excavation of Intervention 19 stopped upon identification of a possible floor surface (F39) at 15.40m AOD. The latest surface of this floor (F39 C1124) was found to comprise a compacted deposit of pale brown/cream mortar, abutting the wall to the northwest of the trench (F34), and occurring in patches throughout the internal space. The mortar overlay a roughly laid slab surface (C1125), visible abutting the bench (F32), but not exposed further. The mortar and slab surface may represent a slab preparation layer with mortar finish; alternatively, however, the stone surface may represent an earlier floor that was later resurfaced. The surface was not excavated further in 2004, and awaits investigation and more detailed recording in later phases of fieldwork.

In the western corner of Intervention 19, between the walls F34 and F33, a gap of 0.50m was identified. A large slab was situated between the butt ends of these walls, currently dislodged, but which appears to have been an integral part of the structure at some date; a notch in the northwestern end of F33 appears to have been designed to support the slab in a vertical position (see Plate 33). It is unclear at this stage whether the slab represents an original feature, or represents the blocking of a pre-existing doorway or opening; a rubble build up to the southwest of the slab was not excavated due to restricted working space within the intervention.

The recess formed between F34 and F33 was found to have been used as a hearth (F28), containing a single fill (C1113). This context was found to be charcoal-rich deposit of very dark grey silt, containing mortar, ceramic and animal bone. Evidence for peat was recovered from soil samples, which suggests that this material was imported for use as fuel (Appendix J). Ceramic material from C1113 included clay pipe fragments dated to the 17th century, and part of a pottery vessel which has been identified as a 17th-century copy of a type from the Low Countries (Appendix K), which would suggest that the hearth was in use during the Civil War occupation of the castle.

C1113, and the floor surface of F39, were sealed by a deposit of dark brown silt (C1114), up to 0.15m deep, which filled the internal space of the building (Figure 28). The context was found to contain a large quantity of animal and fish bone, clay pipe, mortar and again evidence for peat was identified within soil samples. Fragments of clay pipe within the layer could be dated quite precisely, identified as a type manufactured in London between 1640 and 1660. A mid-17th century date can therefore be ventured for this deposit, which would correspond well with the known presence of the Cromwellian garrison on the site (1651 onwards). It appears that after using the hearth within the Lodge, the internal space of the building was used for the deposition of domestic waste.

The midden represented by C1113 was subsequently sealed by C1104, a layer of yellowish-brown sandy clay, up to 0.25m deep. Animal bone was present, with sherds of a 17th-century tin-glazed mug or jug, but the context was characterised predominantly by the presence of collapsed building material, including slate slabs,

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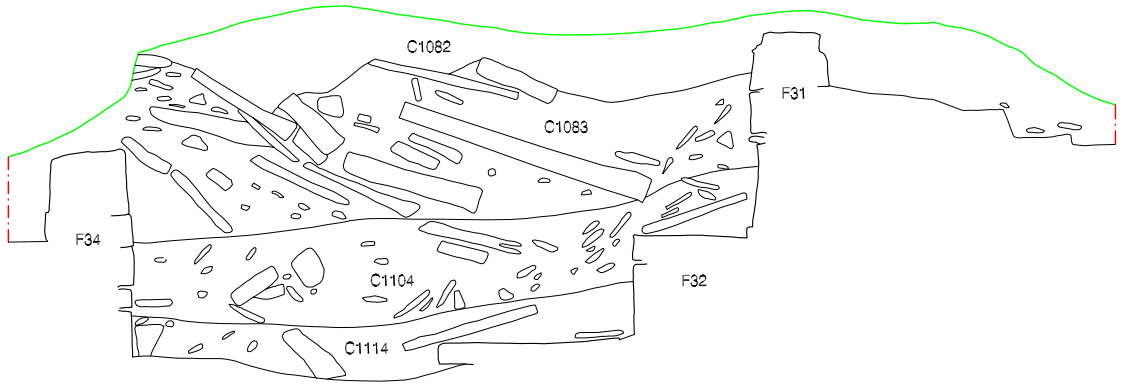
16.46m

SE
4647.05/5034.01
16.46m



Intervention 19 southwest facing section

Scale 1:20

Figure 28

architectural fragments, roof tile and mortar. C1114 would therefore seem to represent the start of the decay of the building following its use during the mid-17th century. The overlying layer, C1083, was similar, but contained much larger slabs of stone, representing more substantial episode of building collapse. C1083 was identified directly beneath turf layer C1082.

3.2.15 Intervention 20

Intervention 20 was situated 1.50m to the southeast of Intervention 19, and was located in the postulated position of the East Range of the Outer Bailey (see Figure 4). This intervention aimed to identify the western limits of the East Range, thereby defining the extent of the Outer Bailey courtyard. In addition, this trench also provided an opportunity to assess and characterise the structural remains of the buildings in this part of the castle, and the level of associated archaeological deposits relating to its use. Excavation revealed the remains of a previously unknown structure, the form and function of which will hopefully be elucidated with further work.

Intervention 20 measured 3.50m x 1.50m, and was situated on a NE-SW alignment. The trench was excavated to a depth of 0.84m (15.07m AOD), at which point possible stone footings (F17), possible slab floors (F21 C1105; F40 C1126) and degraded bedrock (C1127) were encountered.

The bedrock was exposed only at the southwestern edge of the trench, and comprised highly fragmented, degraded slate (C1127), which was not investigated further. The bedrock surface of the courtyard was also identified in Intervention 12, and would have formed part of same external area. Towards the northeastern edge of the trench, a right-angled length of stone wall-footing was identified (F17 C1089)(Figure 29). The feature, constructed from slate slabs, survived to one course high, and measured a maximum 0.65m wide, being 2.0m NE-SW and 1.35m NW-SE. The internal angle was a sharp right-angle, while the outer edge was more rounded; it is unclear whether this can be attributed to the robbing of building material, or whether this represents the original layout. The interpretation of F17 is preliminary; the stone structure may represent the footings for a timber-framed or half timbered building which may have been associated with the southern entrance to the castle.

There is some evidence for slabbed surfaces both within and without this structure. Partly overlying the make-up of F17, a series of irregular slate slabs was identified along the northwestern edge of Intervention 20, apparently representing an incomplete stone surface (F40 C1126)(Plate 34). If contemporary with F17, it is possible that the large, smoothed slab which overlies the wall represented a threshold.

Plate 34 Intervention 20, F17 and F40

In the eastern corner of Intervention 20, and visible only in section (Figure 30), a series of two courses of slabs appeared to represent the make-up of another stone surface or platform (F21 C1105). This feature, measuring 1.05m NE-SW and 0.13m high, was only visible in section and as such, interpretation is difficult.

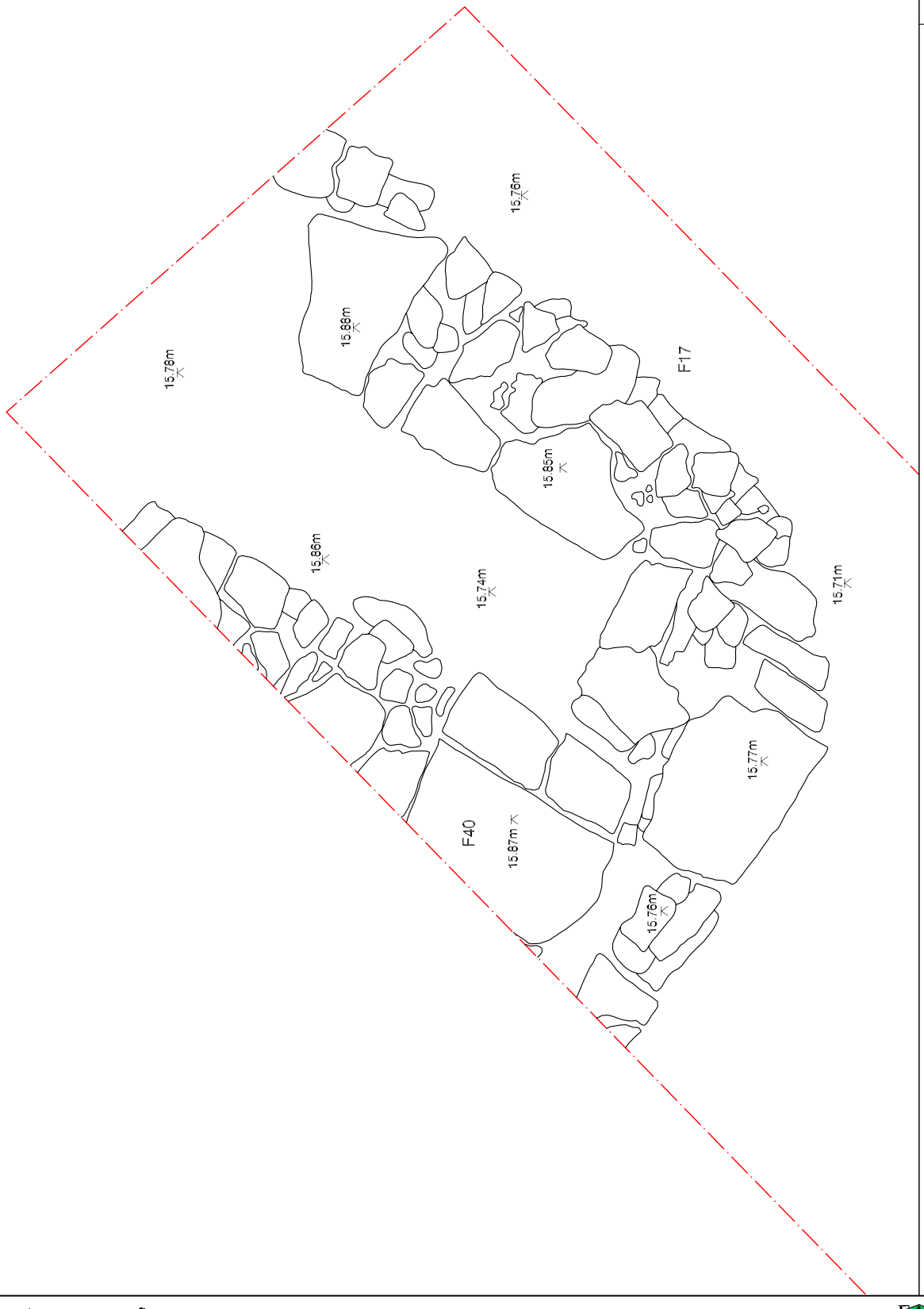
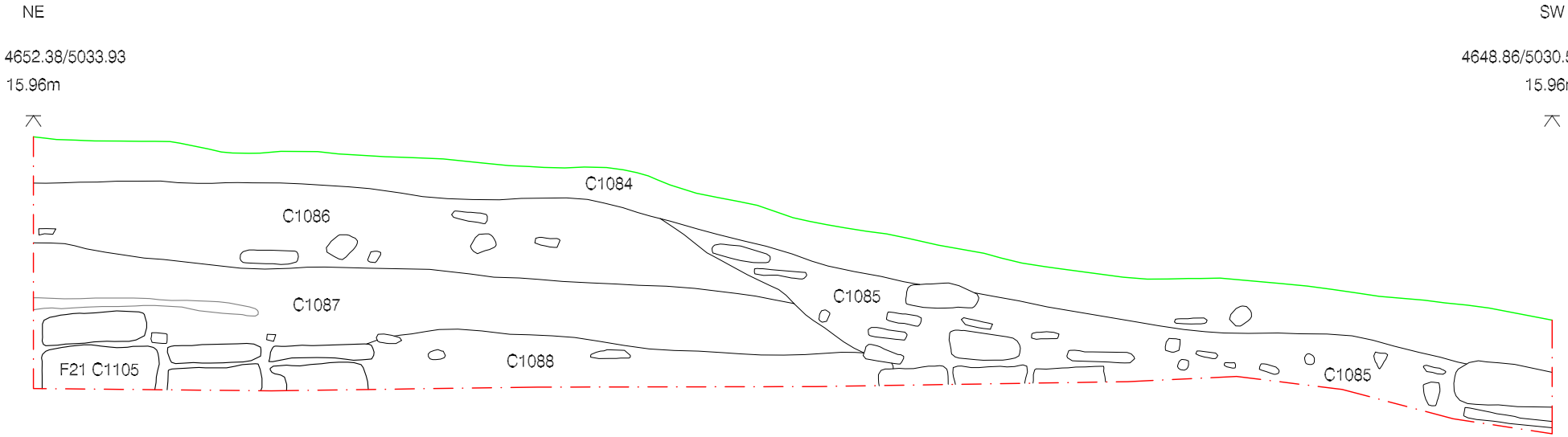


Figure 29

Scale 1:20

Intervention 20 plan of features



Intervention 20 southwest facing section | Scale 1:20 | Figure 30

Sealing F17, and F40, and abutting F21, was a layer of dark yellowish-brown clayey silt, up to 0.15m in depth (C1088). No finds were recovered, and the context was found to contain only occasional angular slate inclusions. It is possible that some of the deposits intact around F17, and extending southwest into the trench, are remnants of C1088.

C1088 was sealed by a more extensive layer of dark yellowish-brown sandy silt (C1087), which was found to contain lenses of mortar, and occasional fragments of slate rubble. This layer was overlain in turn by C1086, which was a layer of clayey silt containing mortar and slate measuring 0.15m deep. To the south, these deposits were partly overlain by a thick rubble layer (C1085), which extended across the southwestern 2.70m of the trench, up to 0.35m in depth. This layer would seem to represent more substantial building collapse, containing much larger and more frequent fragments of slate, within a very dark greyish-brown silty clay matrix; architectural fragments of Old Red Sandstone were recovered from this context. A fragment of 17th century clay pipe was recovered from C1085, which was subsequently sealed by turf (C1084). Few conclusions can be drawn regarding the interpretation of structural features with Intervention 20, as their extent has not yet been exposed sufficiently.

3.2.16 Intervention 21

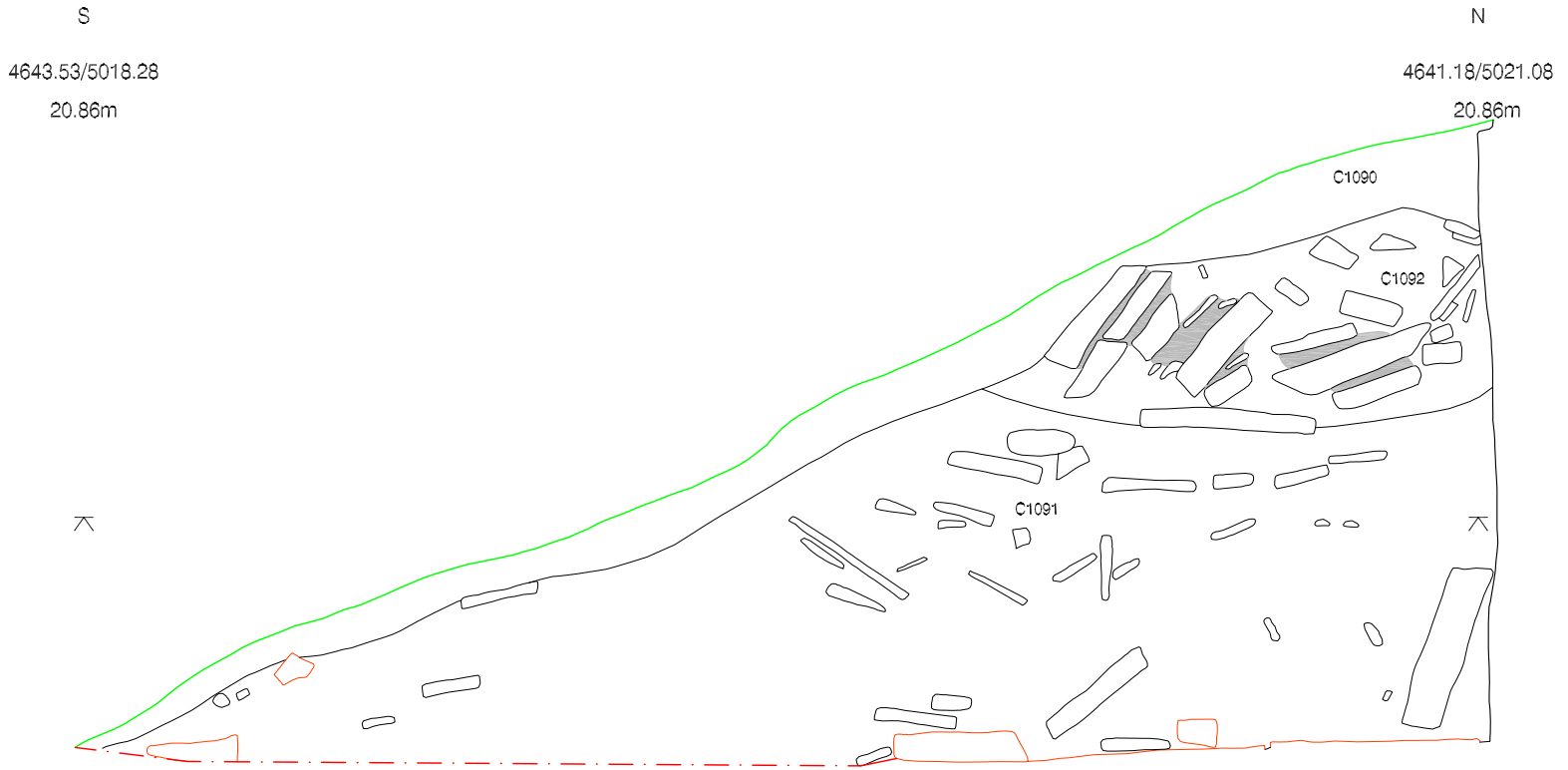
The final intervention was designed to remove the rubble overburden over the vaulted passageway through the West Gatehouse, recording the deposits that had accumulated, in order to facilitate structural assessment and consolidation of the vault. An area of approximately 2.30m x 1.15m was excavated and recorded in detail, before the excavation of a further 2.30m x 3.00m to the southwest (see Figure 4). The deposits had accumulated against the surviving northwestern elevation of the Gatehouse, and as such sloped downwards from northwest to southeast (Figure 31). The maximum depth of excavation, against the wall, was 1.65m, at which point a clayey silt layer was identified (C1103). Clearance of overlying deposits revealed a number of architectural features and structural elements that had not been recorded previously.

Structural elements identified within Intervention 21

Excavation of the collapsed building material revealed 1.65m of the northwestern(internal) elevation of the West Gatehouse that had not been accessible previously; this will be recorded and interpreted in more detail during forthcoming phases of investigation, but preliminary conclusions can be made regarding this elevation and associated features.

The most substantial feature to be identified was the fragmentary remains of a turret (F41 C1128), identified towards the centre of the area of investigation, and integral to the northeastern elevation of the West Gatehouse. The surviving structure measures approximately 0.60m NW-SE and 0.60m NE-SW, with the internal curve of structure facing east (Plate 35). The feature is interpreted tentatively as the remains of either a bell turret or a stair turret, which appears to correspond with an overhanging structure depicted on a drawing of

Plate 35 Intervention 21 turret and red sandstone detail



Intervention 21 east facing section | Scale 1:20 | Figure 31

the castle dating to 1814 (see Plate 5). An angular shaped fragment of red sandstone visible on the southern surviving edge of F41 may represent decorative elements which would have marked the entrance or doorway to this structure.

Close to F41, part of the internal elevation of the northwestern wall of the Gatehouse was seen to have been faced with red sandstone; the remainder of the wall appears to have been rendered (see Plate 35). Immediately to the east of this area of the wall, a relieving arch was identified within the northeastern elevation of the Gatehouse.

During clearance of material following the drawing and recording of the section across Intervention 21, a further feature was exposed in the northwestern elevation of the Gatehouse. A rectangular stone cupboard was identified (F42), containing a single slate shelf. The cupboard is currently framed by a moulded red sandstone sill at the bottom, and a slate arch at the top; irregular recesses at either side of the opening have been interpreted as resulting from the robbing out of vertical, red sandstone jambs (Plate 36).

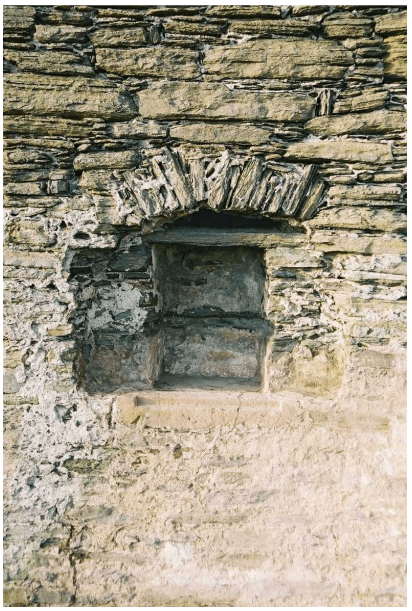


Plate 36 Intervention 21, cupboard F42

Red sandstone appears to have been favoured as a building material within this area; a stone floor identified in the northeastern part of the intervention was also constructed from red sandstone flags (F20 C1101). Upon further excavation, the stone slabs were found to have been laid over a sand preparation layer (C1102), directly over a mixed deposit of yellowish-brown clay (C1103), at which point excavation ceased.

C1103 comprised a very mixed deposit of yellowish-brown sandy clay, which was found to contain patches of reddish-brown material, charcoal, and frequent gravel inclusions. The deposit was not excavated further in 2004, but was interpreted as a levelling deposit, laid down over the vaulting of the passage below prior to the establishment of overlying floor F20.

Rubble layers

Overlying the sandstone floor that would have represented the original surface of this area, layers of building collapse were identified, found to have accumulated to over 1.50m in depth. The earliest of these, C1091, was found to represent 1.00m of yellowish-brown clay, containing several large fragments of slate, and Old Red Sandstone. The deposit was fairly homogenous, and few finds were recovered, although a well-preserved, bone-handled knife was recovered immediately beneath the rubble, for which a 17th century date has also been proposed (Plate 37; Appendix L).

Plate 37 Composite knife from C1091

C1091 was sealed by a further 0.55m of rubble, which included a number of large, bonded fragments of masonry (Plate 38). Some of these fragments may represent the collapse of the postulated vaulted ceiling that would have covered this internal space. Finally, the accumulated deposits identified within Intervention 21 were sealed by the development of a turf layer across the area (C1090).

Plate 38 Intervention 21, bonded masonry collapse

4.0 DISCUSSION

Analysis of the results of the evaluation has allowed the five main objectives outlined at the outset of the project to be addressed, the more refined questions posed for each intervention to be considered, and an overall picture to be gained of the type of material that is likely to be encountered during further excavation. The archaeological remains encountered during the evaluation fall within three clear groups: structural remains and artefacts relating to the construction of the castle itself; archaeological deposits deriving from the Civil War occupation of the site; and accumulated material representing phases of collapse that occurred from the 17th century onwards. Consideration of each in turn allows the results of specific interventions, and the way that they relate to the objectives of the evaluation, to be considered in more detail.

4.1 CASTLE STRUCTURES

4.1.1 The East Range, and the postulated stairs to the North Range

In the area of the East Range, the results from Interventions 19 and 20 have provided a much clearer idea of the extent and character of structural remains and archaeological deposits within this part of the Outer Bailey. Some of the results were unexpected; instead of revealing a staircase into the North Range, Intervention 19 provided evidence for a small Porter's Lodge. The surviving remains of this building demonstrate that at least part of the East Range complex is well-preserved, and with further investigation, its full extent should become clear. This structure is likely to have been associated with the drawbridge entrance into the Tower House from the Outer Bailey, although the precise mechanisms of access into and through the building requires clarification. The detail within the building was also well-preserved; the presence of a bench and possible hearth have provided evidence for the internal layout and use of the building.

The structural features encountered in Intervention 20 are less substantial, and appear to represent remains of a possible timber-framed or half-timbered building, also likely be associated with movement from one area of the castle to another; the alignment of this building suggests that it might have flanked the route between the Outer Bailey and the Tower House.

Together, the two structures suggest the limits of the East Range, and consequently the extent of the Outer Bailey courtyard has been clarified. The northwestern wall of the small Porter's Lodge appears to continue to meet a NW-SE aligned wall, which would connect it to the east wing of the North Range (see Figure 4). This

would in turn suggest that the east wing of the North Range was situated in the corner of the courtyard; the doorway in the southwest elevation therefore provides a logical access point. The two storey portcullis building located to the northeast of the North Range would have been accessed between the Porter's Lodge and the east wing.

4.1.2. The North Range

Investigation of the North Range (Intervention 18) revealed a more complex picture than previously anticipated, and allowed the identification of at least three phases of modification to this complex. It appears that, following occupation of the building and creation of a new access point, more significant changes were made to the northeastern room, involving the narrowing of a doorway, and possibly the timber panelling of the internal space. This appears to represent a change in the use of space, and possibly a move towards a more domestic function, possibly as lodgings. The date of this alteration remains uncertain, although this may be linked at a preliminary stage with a more widespread phase of modification in the late 16th or 17th century.

The exposure of standing remains in the North Range, up to a height of 1.50m in height, will facilitate more detailed structural assessment of the structural fabric and allow more informed decisions to be made regarding the consolidation of these buildings.

4.1.3 The Outer Bailey courtyard

The Outer Bailey courtyard was encountered within Intervention 4, 12, 18 to 20 inclusive, and the methodical and scientific removal of deposits within these areas has allowed for the character of both the surface of the courtyard, and the overlying deposits, to be assessed.

To the east of the courtyard, outside the East Range, the surface of the courtyard appears to have been the exposed slate bedrock of the top of the stack. The bedding plane provides a smooth and level surface which would have required no maintenance; its suitability for internal surfaces was also exploited in the North Range. To the west, however, the courtyard appears to have been surfaced; slabs were evident outside the North Range, and a possible cobble preparation layer, potentially for flagstones, was identified outside the Porter's Lodge and West Gatehouse.

The accumulated deposits within the courtyard were not found to be extensive; once the overlying rubble had been cleared, the silty clay deposits representing the use of the surfaces were found to measure not more than 0.20m in depth. The thin, silty clay layers in Intervention 4 demonstrate the gradual accumulation of deposits and the dating material from this, and from the deposits outside the North Range (Intervention 18) have demonstrated that these deposits date to the mid-17th century, and would have accumulated as a result of the deposition of domestic refuse by the Civil War garrison. The fact that bedrock was frequently encountered suggests that, once rubble overburden has been cleared, such deposits are unlikely to reach any great depth throughout the courtyard area.

4.1.4 The West Barbican

The excavations in the West Barbican (Interventions 6 and 7) succeeded in contacting structural evidence pertaining to occupation in this area. The shallow nature of deposits in this part of the site was demonstrated; rubble layers less than 0.50m in depth were found to overlie directly a flagstone surface and surviving building remains. The surviving wall, surface and cut features, established the archaeological potential of this area, and although the presence of stratified occupation deposits seems unlikely, further structural remains and a more complete layout of buildings are likely to be revealed with further investigation.

The potential for archaeological remains in the wider area was demonstrated by the burnt deposits in Intervention 10, and slabbed surface or wall footing in Intervention 9; although some distance from the core of the castle itself, it is likely that further investigation in the wider area would reveal evidence for human activity. Intervention 6 provided evidence for later activity, presumably agricultural; again, the shallow depth at which archaeology was contacted was notable.

4.1.5 The West Gatehouse and Porter's Lodge

The investigations within the passage of the West Gatehouse provided structural evidence for internal features, most notably the sandstone-detailed bench on its southeastern edge. Although the original ground surface within the passage was not reached, it seems possible that the slabs overlying bedrock at the limit of the intervention, represent the original level of activity, which would have been associated with the bridge to the West Barbican. The overlying surface would appear, therefore, to represent a floor level associated with this access, identified beneath 0.90m of rubble collapse. The distinct horizontal interface between two rubble and clay layers, might suggest continued use of the passage over time, following the onset of decay.

The evidence from Intervention 21 provided evidence for structural detail in the upper storey of the building. The red sandstone detailing, and the orientation of the room, have been used to suggest that this space would have been used for a time as a chapel. The sandstone detail may have been the site of a reredos, which would have been illuminated from a window directly above it, identified as a blocked feature within the northwest elevation. The situation of a chapel over the entrance to a castle has known parallels; the positioning may have been deliberate to provide spiritual protection for the site. The 'turret' within this room may therefore be interpreted as a bell turret, although use as a staircase is also a possibility. The means of accessing upper storeys prior to the installation of the later 16th to 17th century rectangular staircase to the east was previously unknown, and would be explained by the presence of an earlier spiral staircase in this location. This interpretation remains speculative, and will be considered in more detail with further research and recording; the scientific removal and recording of overburden in these areas has proved successful in providing such information to date.

Investigations in the adjacent Porter's Lodge have also provided evidence for structural layout, in the form of an internal dividing wall; this survived to a considerable height and appears to be well-preserved. The full layout of the internal divisions within this building, and layers relating to its use, are likely to be further revealed as the programme of investigation and conservation continues.

4.2 CASTLE OCCUPATION

During evaluation, in addition to identification and assessment of structural elements of the castle, analysis of archaeological deposits has allowed the nature of occupation deposits within these areas of the castle to be characterised. The archaeological deposits identified are relatively restricted in terms of complexity and depth, and have been shown to relate primarily to the occupation of the site during the 17th century. The presence of mid-17th century clay pipe within many contexts allows a relatively close date to be assigned to deposits, which corresponds well with the known occupation of the castle during the Civil War. The only deposits identified which displayed any complexity were those within the North Range (Intervention 18), potentially representing material derived from earlier periods.

Where excavation reached bedrock (Intervention 12, 18, 19, 20), it was demonstrated that the level bedrock was cleared to form surfaces both internally and externally. Occasionally, cobbled and slabbed surfaces then appear to have been laid down (Intervention 4, 20). Although potentially earlier deposits have been identified within some areas of the castle, 17th-century deposits were frequently found to directly overlie the slabbed and bedrock surfaces. This, with the lack of earlier occupation debris (both *in situ* and residually), suggests that evidence for medieval activity is unlikely to be extensive. The Cromwellian garrison were noted for having been a damaging force within the castle; prior to their arrival, waste may have been disposed of into the sea or within confined areas, rather than dumped within buildings or the courtyard, as demonstrated in Intervention 12 and 18. The castle was remodelled in the early 17th century, which might also have removed earlier material from the site.

4.3 CASTLE COLLAPSE AND DECAY

A vast proportion of the material removed during the evaluation relates to the accumulation of material following the disuse of the castle and collapse of its structures. All of the archaeological remains within the castle lie beneath substantial deposits of fallen masonry, mortar and accumulated clay. These represent successive, largely undated, phases of collapse, which appear to have commenced in the late 17th century.

These rubble and mortar layers were found to be largely homogenous, represented primarily by disordered slate rubble, and producing only limited finds. However, careful removal of these deposits has enabled the recovery of architectural fragments, glass and cames, which can be used in conjunction with upstanding remains to reveal more of the physical appearance of the castle. Most notably, material derived from the oriel window in the northwestern elevation of the West Gatehouse has provided a rare chance to reconstruct a specific glazing scheme.

5.0 ASSESSMENT

Although the basic layout of the castle has been reconstructed previously from historic plans and upstanding remains, the recent evaluation has revealed that the layout and development of the castle was more complex than originally supposed. Hitherto unknown buildings were identified, details of internal divisions revealed, and evidence for modifications was also demonstrated. The remains within each of the interventions have

demonstrated that, with further investigation, much more detail regarding the plan of the castle, its environs and its chronology, will be revealed. Notably, remains outside the outer moat were identified, suggesting the potential for surviving structures in a much wider area than anticipated previously.

The exposure of structural remains demonstrates that upstanding walls are generally well-preserved. Being less eroded that the exposed elevations, the buried walls produced evidence for mortaring, some limited evidence for rendering, and were generally found to be stable in terms of preservation and condition. The detailed assessment of these surviving remains will facilitate conservation and engineering solutions to be proposed regarding access and conservation issues involved with presentation of the site.

In contrast to the relatively complicated structural remains, the archaeological deposits encountered were found to be much more limited in terms of depth, complexity and scope for preservation. The vast bulk of the accumulated layers comprised homogenous clay deposits containing mortar, slate and sandstone, representing collapse from adjacent structures. Generally, the underlying archaeological deposits were found to be shallow in depth, and were related primarily to the mid-17th century occupation of the site. Only in some internal areas were significant stratigraphic deposits relating to occupation identified, potentially representing pre-Civil War remains, and these reached a maximum depth of only 0.60m before bedrock was encountered (Intervention 18). Material indicative of waterlogged deposits or high levels of organic preservation was not encountered during the evaluation. The presence of peat suggested by uncharred organics can be attributed to the importation of peat for use as a fuel source, rather than *in situ* formation or waterlogged preservation.

The method of evaluation employed throughout the 2003 and 2004 investigations proved well-suited to the nature of the archaeological deposits that survive at Castle Sinclair Girnigoe, and have allowed all of the objectives outlined at the outset to be achieved. Although the extant remains of the castle layout are sealed by relatively deep deposits, the majority represent rubble layers, which are suited to controlled, but rapid excavation. The archaeological deposits sealed by these layers, were found to be fairly limited, and proved manageable in terms of detailed recording, sampling and interpretation within the timescale and resources allocated.

6.0 ARCHIVE

Seventy-seven fragments of clay tobacco pipe and thirty-two sherds of vessel ceramic were recovered by hand and flotation. This assemblage has been the subject of specialist assessment and catalogue, and provides the principal dating evidence. All stone building material with recognisable features was retained during excavation and an assemblage of nine fragments of architectural stone recovered in 2003, and seventeen stone roof tile fragments, were the subject of specialist assessment identification and catalogue; the twenty five fragments of architectural stone recovered during 2004 await further assessment. An assemblage of 2.35kg of animal and fish bone was recovered by hand and flotation, and have been the subject of zooarchaeological assessment. A total of 111 litres of soil was taken from nine deposits for environmental assessment; all samples were fully processed during assessment. Sixteen fragments of window glass and two fragments set in lead cames have been the subject of a specialist assessment and catalogue. Thirteen metal objects were recovered during excavation and have been the subject of specialist identification, conservation assessment and x-ray.

The excavation archive will be declared to the Treasure Trove Advisory Panel, in order that the material archive be allocated accordingly by the Queen's and Lord Treasurer's Remembrancer. All material and records are currently held by Field Archaeology Specialists Ltd.

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APPENDIX A ARCHAEOLOGICAL EVALUATION - SCHEME OF WORKS (2003)
Field Archaeology Specialists

1.0 SUMMARY

This Scheme of Works concerns the excavation of three archaeological evaluation trenches at Castle Sinclair Girnigoe, Caithness. Although these trenches will provide valuable archaeological information, the primary function of the evaluation is to provide an opportunity for a structural inspection of selected areas of the fabric and foundations of one of the castle buildings.

2.0 PROJECT BACKGROUND

The site is currently the subject of a Conservation Plan and archaeological survey. However, parts of the surviving standing fabric of the castle is in a critical structural condition. It is proposed that selected emergency consolidation works are undertaken to prevent further loss of the castles standing remains.

In order to establish the causes of problems with the buildings structural integrity and define possible methods to prevent further deterioration it is necessary to undertake a structural investigation of the foundations of the northwest elevation of the West Gatehouse as well as the fabric of the southeastern wall of the gate passage. The following scheme of archaeological work is designed in response to specific engineering requirements. Scheduled Monument Consent (SMC) will be required for the implementation of this Scheme of Works.

3.0 OBJECTIVES

The aim of the evaluation is to provide access to selected parts of the fabric and foundations of the West Gatehouse which are currently concealed by archaeological deposits. These selected areas of fabric will then be the subject of structural assessment. The archaeological excavation of these trenches will ensure that any archaeological deposits destroyed or disturbed during this operation will be fully recorded. These archaeological interventions also provide the first opportunity to assess the character of buried archaeological deposits on the site.

4.0 SCHEME OF WORKS

4.1 SITE INVESTIGATION

4.1.1 It is proposed to open three interventions, 3, 4 and 5. Interventions 3 and 4 will measure 1.0m x 1.5m and will be excavated by hand to the base of the foundations or such a depth as can be achieved safely within the constraints imposed by the limited scale of the interventions. Intervention 5 will measure 1.0m x 2.0m and will be excavated through the rubble infill of the gatehouse in order to expose the south eastern wall of the vaulted gate passage.

4.1.2 All excavation will be undertaken by hand. The interventions will be carefully de-turfed prior to excavation.

4.1.3 Every effort will be made to remove the archaeological deposits in a sequential and scientific manner subject to the constraints imposed by the restricted scale of the trenches and overriding safety considerations.

4.1.4 Appropriate treatment and storage methods will be employed on site to ensure that the finds, samples and records are maintained in the optimum conditions.

4.1.5 Where deposits have clear environmental potential, an appropriate sampling strategy will be employed. Buried

soils and sediment sequences will be recorded and where necessary sampled.

4.1.6 Where appropriate, samples will be taken for scientific dating.

4.1.7 Every reasonable effort will be made to preserve the archaeological integrity of the remains against unrecorded damage or loss during excavation. This will apply to working techniques and site security.

4.1.8 On completion of the excavation of the trenches and subsequent structural inspection, the trenches will be backfilled by hand. The interventions will then be re-turfed and the excavation areas returned to their former state.

4.2 RECORDING

4.2.1 The site grid which was previously established for the metric survey will be employed during the site investigation. All heights will be recorded in relation to the Ordnance Survey datum.

4.2.2 All excavated features will be recorded textually, graphically and photographically. The recording system will be an integrated one.

4.2.3 Plan and section drawings will be undertaken at a scale of 1:10.

4.2.4 Archaeological deposits, features and exposed structures will be recorded using a standard system of context and other record forms. A series of indices will be maintained for all site records along with a working stratigraphic matrix.

4.2.5 All archaeological deposits, features and structures identified during the excavation will be recorded photographically with a high resolution digital camera and a 35mm monochrome camera using silver-based film. All record photographs will include an appropriate scale.

4.2.6 Elevations and other structural elements exposed by excavation will be recorded using a combination of instrument survey (Reflectorless Total Station Theodolite) and computer rectified or rectified photography. Stone-by-stone drawings will be created at a scale of 1:20, in order to achieve a dimensional accuracy of within 20mm.

4.3 POST-EXCAVATION

4.3.1 After completion of the site investigation all records will be ordered, quantified and checked for consistency.

4.3.2 The drawn record will be digitised in an appropriate format that will permit the output of standard AutoCAD type DWG and DXF files.

4.3.3 The archival record will include all material relating to the site investigation including correspondence, written, drawn and computerized records.

4.3.4 Artefacts, ecofacts and samples will be processed, quantified and described in an appropriate manner. In addition the stratigraphic matrices and a site summary will be prepared.

4.3.5 All artefacts and ecofacts recovered will be packed and stored in the appropriate materials and conditions.

4.3.6 The material archive and stratigraphic sequence will be assessed.

4.4 REPORTING

4.4.1 An evaluation report will be prepared within four weeks of completion of the site investigation. The report will contain the following:

i. A plan of the site showing the position of the trenches
ii. A portfolio of plans and sections and where appropriate, drawings of artefacts and a site matrix.
iii. A listing of all contexts, finds and samples.
iv. A description of the stratigraphic sequence encountered.
v. An interpretation of any stratigraphic or structural sequence encountered.
vi. An assessment of the results of the investigation.

5.0 HEALTH & SAFETY

5.1 In order to comply with Management of Health and Safety at Work Regulations 1992 a full risk assessment of risks will be undertaken prior to the commencement of site work.

5.2 Appropriate safety standards will be maintained during the archaeological site works.

5.3 Scaffolding shelters will be constructed above the site of each intervention in order to protect project personnel from falling masonry.

6.0 MONITORING

6.1 Historic Scotland will be notified at least two weeks in advance of the start of site works.

6.2 Facilities will be afforded to representatives of Historic Scotland to be directly involved in discussions on such matters as they arise during the course of the archaeological works.

7.0 CONCLUSION

The provisions outlined above will provide for a controlled and professional archaeological record to be made of all archaeological deposits that will be revealed in the course of the evaluation. Historic Scotland may require that further conditions are adhered to as part of the SMC for the archaeological investigation.

APPENDIX B ARCHAEOLOGICAL EVALUATION - SCHEME OF WORKS (2004)
Field Archaeology Specialists

1.0 INTRODUCTION

This Project Design has been prepared by members of the Castle Sinclair Girnigoe project team on behalf of the Clan Sinclair Trust in support of a grant application to Historic Scotland. The conservation and consolidation works have been specified by Lachlan Stewart RIAS RIBA BArch (ANTArchitecture) and John Addison BSc FFB C.Eng.MICE (Peter Stevens & Partners - Engineers) with costs estimated by Ewen Mann (Torrance Partnership - Quantity Surveyors). The archaeological programme of work has been prepared by Justin Garner-Lahire BA and Jonathan Clark BA MSc DPhil (Field Archaeology Specialists).

This proposal presents a detailed programme of work which forms the first phase of an ambitious conservation and presentation project. Following the policies outlined in Part 4 of the Conservation Plan, the project has four principle aims:

- Stabilising the monument and retaining its significance.
- Developing the site as a sustainable tourist asset of regional and national importance.
- Providing safe public and disabled access (in accordance with the Disability Discrimination Act of 1995) so that the significance of the monument can be appreciated by all.
- Presenting the understanding and significance of the monument to all.

2.0 PROJECT OUTLINE

A number of possible options for the treatment of each structure within the castle were identified in the Conservation Plan. These options have been considered in terms of their impact upon the significance of the castle, their implications for the structural stability of the building and their importance to the enhancement of our understanding of the site.

The project phasing not only reflects the order of priority in terms of conserving the most at risk and significant buildings as early as possible, but it also provides for staged safe public access to the site.

The current vision, and preferred options pending further investigation, for the development of the monument are as follows:

The West Gatehouse
A modern access route, in the form of a link walkway or bridge, would be created across the western dry moat from the West Barbican. The failing vault over the entrance passage would be strengthened and consolidated. The chimney stack would be retained through the partial reinstatement of the existing walls of the Porter's Lodge to form a strong structural buttress. This would also close the current access to the Porter's Lodge through the curtain wall from the moat. Rubble overburden inside the Porter's Lodge and passageway would be archaeologically excavated down to the latest occupation deposits / floor surface and protected. The walls and exposed wall core would be repointed.

The South Range
The curtain wall would be used as the site boundary with any gaps being closed with a suitable fence if necessary. Access to the Stair Tower would be prevented by a grille fitted to the entrance doorway, allowing visitors to view the collapsed interior.

The East Range
The rubble overburden would be archaeologically excavated. The outer eastern wall of the East Range would be exposed and consolidated to act as a barrier. The eastern face of the wall is already exposed and suggests that at least two metres

of the wall survives below the current ground surface.

The South Barbican and South Gate

The short-term solution for this area would involve the sealing of lower access route through the South Gate and dry moat with a metal grille. A new visitor route though the West Gatehouse route would be formed which avoids the South Barbican. The long-term aim for this area would involve restoring the access route through the South Gate, dry moat and North Range of the Outer Bailey, thus providing authenticity of access.

The Outer Bailey Courtyard

The current ground level would be excavated down to any occupation deposits or latest floor surface and protected with a membrane, topsoil and turf. The resulting level would then be utilised as the modern courtyard surface. This would effectively protect the visitor from most safety hazards, mainly vertical drops and trip hazards, which are present in the Outer Bailey. This approach would also provide a better visitor understanding of the castle plan and its use. Depending upon the treatment of the Courtyard buildings, either their original walls would act as a perimeter against vertical drops or a fencing system would be installed. Both alternatives would enable greater visitor access to the Outer Bailey buildings.

The North Range

The current ground level would be excavated down to the same level as the courtyard allowing the original fabric to act as a barrier system. This would also allow clear entrance into the buildings through original openings. The curtain wall would be anchored into the remaining rubble fill of the buildings and the wall heads consolidated. The West Tower would be consolidated through the introduction of a minimum of intrusive fabric. The West Tower would be tied into the new buttressing of the Porter's Lodge. The wall between the West Tower and the Central Block would be reformed in order to stabilise these structures. Further consolidation work would be undertaken in the East Wing. This would include the reforming of the ground and first floors of the East Wing, through the insertion of a lightweight timber structure resting on wall plates within the original joist sockets. Visual access would be provided between storeys through the skeleton of the floor and an external wooden stair would provide access to the upper floor.

The Tower House

A timber bridge would be constructed between the Outer Bailey and the Tower House. The second floor would be reinstated to tie the structure together and lessen the impact of wind action around the building. The benefits of inserting a diaphragm floor below the height of the wall head will be examined. A timber stair would be reinstated in place of the main stair up to the second floor, enabling visitor access from basement to second-floor level. The overburden in the basements, ground- and first-floor chambers would be cleared under archaeological supervision. The external sea wall and the junction with the cross-wall at the level of the hall would be rebuilt. The east gable chimney and stair masonry would also be stabilised. The walls and exposed stonework would be pointed and the wall heads protected. Wire mesh would be used to prevent further bird inhabitation. The opening forced through the southeast basement wall from the dry moat would be blocked up to prevent further access by this route. The area of the cliff face which is experiencing accelerated erosion would be consolidated.

The Inner Bailey

The rubble overburden would be excavated down to the latest phase of use and protected with a membrane, topsoil and turf. The wall heads would be consolidated and protected. Walls would be repointed, and unstable areas repaired. The curtain wall would be used as a barrier. Where necessary, a handrail or limited stone replacement would be carried out.

The East Barbican and Sea Gate

A barrier would be formed at the edge of the Eastern Barbican, preventing public access to the Sea Gate and seashore. A grille would be fitted to the upper opening and a gate to the lower opening of the Sea Gate, to prevent access from the seashore.

Visitor Centre

A remote visitor centre would be built which would include improved car parking, toilets, and interpretation and presentation.

3.0 PROGRAMME OF CONSERVATION WORKS 2004-2005

3.1 OBJECTIVES

Vision for the West Gatehouse

- The failing vault over the entrance passage will be examined, and an appropriate engineering solution identified and implemented allowing it to be strengthened and consolidated.
- The original walls of the Porter's Lodge will be exposed and partially rebuilt to act as structural buttresses to the chimney stack and West Tower of the North Range. The new masonry will be clearly differentiated from original fabric. This will also close the current access to the Porter's Lodge through the curtain wall from the moat. The rubble overburden within the Porter's Lodge will be archaeologically excavated to the latest phase of use.
- The repair and consolidation of the West Gatehouse will enable its use as the principal entrance route into the castle complex. The overburden within the passage will be archaeologically excavated to the latest phase of use.
- Archaeological evaluation of the West Barbican is necessary prior to the reinstatement of access across the western dry moat, and will examine the original form and location of access in order to improve our understanding of this significant structure. This work will inform the creation of the modern site entrance.
- A modern access route, in the form of a link walkway or bridge, will be created across the western dry moat from the west barbican.
- The Outer Bailey Courtyard will be archaeologically excavated to the latest phase of use to provide a safe and level ground surface and expose buried walls thereby creating barriers.

3.2 CONDITION OF THE OUTER BAILEY

The structural condition of the West Gatehouse is such that the fabric urgently requires major work to ensure its future survival, necessitating a scheme of integrated conservation, archaeology and structural engineering.

The Outer Bailey is badly affected by the extremes of weather resulting from the castle's exposed location on the edge of Sinclair Bay. High winds are destabilising the upper parts of structures, particularly the West Gatehouse stack, and are worsening the strains caused by off-centre loads. Damage caused by high wind speeds across the site is increased by the movement of blown particles, such as sand and grit, causing severe erosion to stonework and mortar. Considerable weathering and erosion is occurring both externally and internally in the clay mortar used across the Outer Bailey, causing shakes and splits in structures and threatening collapse. The decay and weakening of this mortar is also creating compressive strains. Water infiltration of wall cores has caused decay and weakening of the clay mortar matrix, and buried masonry tumble may be exerting forces upon the above-ground structures, causing them to shift as deterioration occurs.

The role of the Outer Bailey as the entrance route into the castle complex and former focus of visitor access has caused considerably high levels of visitor degradation. The original access route, via the West Gatehouse, was used as one of the entrances to the castle until the vaulting of the passageway became unstable, necessitating the insertion of temporary timber supports to prevent further movement in 2002. As this now blocked entrance is at some distance from the current path to the site, the South Gate became another means of visitor entry. Entrance by this route requires the visitor either to scramble over the dangerous slope in the dry moat and the remains of the East Range, or to retrace their steps and climb over the remains of the South Range; both of these routes are physically unsafe. Access across the South Barbican is causing general degradation, erosion and dislodging of stonework, while the possible east wall of the East Range is being degraded by access

through the South Gate from the dry moat. The fabric in and around the West Gatehouse is also being damaged by visitor access, with general degradation and erosion occurring in the area of the West Barbican, and high levels of surface erosion and frequent dislodging of stonework adjacent to the Gatehouse entrance passage, and damage to the party wall between the chamber and stair tower.

All structures within the Outer Bailey are endangered by ongoing erosion across the site; however, specific structural threats affect the most substantial and significant building within this area. The West Gatehouse is highly significant, preserving evidence for the earliest phase of the castle's occupation and for its final recasting as a renaissance residence. The surviving stack forms an important part of the castle's skyline; however, it is free standing above ground-floor level and is subject to considerable movement by the wind. At the base of the stack, the entrance passage is experiencing serious structural problems, which has resulted in the partial collapse of the vault. Without consolidation, this fabric is in imminent danger of collapse.

3.3 PROGRAMME OF WORK

A phased programme of work to be undertaken in accordance with the Conservation Plan and with the approval of Historic Scotland is proposed. This proposal also includes the development of safe access to the site, not only to facilitate consolidation and conservation work, but also to establish safe public access to the site.

Stage 1

Upgrading of the existing track for vehicle and pedestrian use. Construction of new access road along the route of the existing path to the south of the dry moat. The proposed new access road will be 3m wide consisting of hardcore laid over a terram textile foundation. Where possible, existing post and rail fences will be used, however, new post and rail fences and gates will also be required. Stage 1 will also include the preparation of a temporary site compound with hard standing. The temporary compound will be 30m x 20m and will consist of hardcore laid over a terram textile foundation. The compound will provide an area of hard standing for site facilities (accommodation, storage and toilets) and vehicle parking required for the proposed conservation project. The hardcore surface will also serve to protect any underlying archaeological remains. The reuse of the existing track will ensure that the proposed new access will have a minimal environmental and archaeological impact.

Stage 2

Archaeological evaluation of areas of the Outer Bailey and Western Barbican area to be the subject of consolidation and construction works. The aims of the evaluation will include:

i. Defining the extent of the East Range of the Outer Bailey
ii. Assessing the condition of the staircase area to the south of the east wing of the North Range
iii. Characterising the deposits sealing the latest surface of the Outer Bailey courtyard
iv. Characterising and defining the level of the latest use horizon in the West Barbican
v. Establishing the height of the latest floor level of the West Gatehouse passage

The evaluation will involve the excavation of five trenches.

Intervention 6 will measure 8m x 2m and will be located in the West Barbican area. The objectives for this intervention are to assess and characterise any structural remains of the West Barbican, and to establish the level and position of the original link to the West Gatehouse entrance.

Intervention 7 will measure 3m x 2m and will be located at the western end of the West Gatehouse passage in order to define the level of the latest floor surface.

Intervention 8 will measure 3m x 3m and will be situated over the southeast exterior wall of the North Range. The aims of this intervention are to assess and characterise the deposits in the northern part of the Outer Bailey courtyard, determine the level of latest use in the courtyard and facilitate the structural assessment of the southeast exterior wall and internal dividing wall of the North Range with a view to designing an appropriate engineering solution for the future consolidation of the northwest corner of the North Range.

Intervention 9 will measure 3m x 2m and will be positioned over the staircase area to the south of the east wing of the North Range with a view to assessing the condition of the buried fabric and establishing the level of the courtyard and staircase.

Intervention 10 will measure 6m x 2m and will be located over the East Range. This intervention should identify the western limit of the East Range, thereby defining the extent of the Outer Bailey courtyard. The excavation of Intervention 10 will also provide an opportunity to assess and characterise the structural remains of the East Range and define the level of the latest phase of use of the Outer Bailey courtyard.

This phase of archaeological investigation will also include the excavation of scaffold base positions and the bridge levels and spring points for the bridge/link walkway. Five 2m x 2m scaffold base positions and the spring point(s) for the bridge/link walkway will be archaeologically excavated. All standing fabric revealed by the excavation will be the subject of a measured survey which will be incorporated into the existing survey of the castle.

See Appendix A for a detailed Scheme of Works for the archaeological investigation.

Stage 3

Construction of the bridge/link walkway between the West Barbican and West Gatehouse. Erection of scaffolding around the West Gatehouse to facilitate consolidation/conservation work and provide a safe working environment.

Stage 3a

The construction of a bridge/link walkway allowing safe access to the Outer Bailey from the West Barbican area. The excavation of bridge levels and spring point formed part of the Stage 2 archaeological investigation. The level and gradient of the walkway will be defined during the Stage 2 works, although the gradient may have to be altered to accommodate wheelchair access. A temporary bridge will be constructed with vertical cross-braced timber poles founded in aggregate filled sandbags, supporting a scaffolding deck with handrails. If no evidence for the form of the original link between the Outer Bailey and the West Gatehouse is defined during the evaluation of these areas (Stage 2), excavated material from the Outer Bailey (excluding reusable stone and turf) will be deposited through the slatted deck onto terram textile to form a grassed causeway.

Stage 3b

The erection of scaffolding, preceded by archaeological excavation (Stage 2) to allow full and safe access for the excavation and consolidation of the Porter's Lodge and chimney stack of the West Gatehouse. The supports at ground level will be minimised by the use of a limited number of pads cast in specific locations in order to reduce the archaeological impact of the scaffolding structure. The scaffolding will consist of five support columns each sited on a shuttered concrete pad base constructed within the 2m x 2m trenches archaeologically excavated in Stage 2. The concrete pads will be tied down securely with anchors drilled through to bedrock.

Each of the scaffolding columns will also be supported by a guy wire which will also be anchored into bed rock. The scaffolding will be self-supporting and self-bracing, with no direct fixings between the scaffolding and the stack. The scaffold will form a collar around the stack in order to brace it, contact between the masonry and scaffold will be by means of sand- or lime-filled bags with timber wedging where required.

The scaffolding columns will support a main deck which will provide for safe inspections, consolidation/conservation work and a storage area for materials. The deck has also been designed to provide protection from falling masonry and collapse to members of the project team working around the West Gatehouse at ground level. The chimney stack will be supported by scaffold collars at 2m levels with working platforms at each level to provide safe access for inspection, survey and consolidation/conservation work.

Stage 3c

Although the site will be closed to the public during the proposed works, information signs will be prepared and installed in a safe area to the south of the dry moat.

Stage 4

Archaeological excavation and repair of the West Gatehouse vaulted passageway.

Stage 4a

Archaeological excavation of the rubble overburden over the gatehouse passage. The rubble deposits overlying the barrel vault of the West Gatehouse passage will be archaeologically excavated in order to expose the vault for structural assessment and consolidation. All standing fabric revealed by the excavation will be the subject of a measured survey which will be incorporated into the existing survey of the castle.

Stage 4b

Archaeological excavation of the rubble overburden in the Porter's Lodge and area to west. The resulting turf will be retained for reinstatement and turfing of the new wall heads. Stone recovered during this operation will be stockpiled for reuse. The remaining spoil will be stockpiled and, if required, later deposited in bridge/link walkway when access through the gatehouse passage is available. The top of archaeological deposits will be sealed with terram textile and a minimum of 100mm of soil. The area will then be re-turfed. All standing fabric revealed by the excavation will be the subject of a measured survey which will be incorporated into the existing survey of the castle.

Stage 4c

New structural support constructed for gatehouse passage. The engineering solution for the vaulted passage cannot be specified until the Project Engineer has examined the top of the vault and chimney stack. Possible solutions which would allow the passageway to be used as the principal entrance to the castle include:

i. Pouring a lime cement vault with ties and reinforcing over the top of the vault which would carry the weight of the vault from above.
ii. Dismantle and rebuild the worst sections of the vault.
iii. Upgrade the propping with a ply soffit. Insert pinnings and grout the voids in the top of the vault with lime grout/mortar. Cut into soft lime beds.
iv. Erect a sand bend on a timber or steel shutter system which would conceal the vault.
v. Introduce new arched ribs at approximately 2m centres built in dressed granite or brick.
vi. Construct a series of stone pillars in the passageway to support the vault.

The preferred option for stabilising the vault is Option 1. This approach would retain the original fabric, and would not introduce an obvious alien supporting structure, thereby retaining significance and enhancing visitor understanding. On completion of an appropriate engineering solution, the existing temporary timber supports will be removed and the vault stonework repointed and repinned.

Stage 4d

Archaeological excavation of the rubble overburden from the gatehouse passage. Stone recovered during this operation will

be stockpiled for reuse. The remaining spoil will be either stockpiled or deposited in bridge/link walkway. If present, the top of archaeological deposits will be sealed with terram textile and a minimum of 100mm of hardcore covered with a lime mortar/concrete surface. All standing fabric revealed by the excavation will be the subject of a measured survey which will be incorporated into the existing survey of the castle.

Stage 5

Stage 5a

Any vegetation will be carefully removed from the gatehouse. The higher levels of the gatehouse will be archaeologically inspected to ensure that the fabric has been adequately recorded prior to conservation. Surviving exterior and interior areas of render plaster or pointing which are still viable will be consolidated as necessary. Where necessary, areas of overhanging stonework will be supported with new masonry. Where pointing is absent or existing pointing has seriously eroded, repointing will be undertaken including the insertion of caithness slate pinnings where required. Areas of exposed wall core will also be pointed to prevent further water penetration and erosion.

Stage 5b and d

Consolidation and repointing of Porter's Lodge walls (interior and exterior) including the fireplace and any other features. The construction of new stonework buttresses on the Porter's Lodge walls with a 25mm setback in order to differentiate the new stonework from the original fabric. New stonework will also be kept clear of existing features. This arrangement should not only provide adequate support for the gatehouse chimney stack, but may also form the basis of the engineering solution for the future consolidation of the northwest corner of the North Range. An appropriate Cintec anchor system will also be installed to tie the chimney stack into the new buttressing stonework. Ties will also be installed for the future support of the northwest corner of the North Range. Turf capping will be laid on the wall heads of the new stonework.

Stage 5c

Archaeological excavation of rubble overburden from the Outer Bailey courtyard to reduce levels and facilitate consolidation works. Rubble deposits will be stratigraphically excavated with all dateable finds and architectural fragments being 3-D recorded. Once excavated, the latest use horizon will be sealed with terram textile and a minimum of 100mm of topsoil and the original turf relayed. The reduction of levels will also provide an even ground surface, thereby improving safe access and revealing buried walls which will enhance visitor understanding of the site. The revealed walls, including parts of the curtain wall, will also form physical barriers between the Outer Bailey and the cliff/dry moat edges. All standing fabric revealed by the excavation will be the subject of a measured survey which will be incorporated into the existing survey of the castle.

Stage 6

The sealing of stair turret entrance, south gate and north range portcullis entrances with metal grilles to prevent public access into dangerous areas of the site. The removal of the scaffolding from the Gatehouse. Opening the Outer Bailey to the public.

6.0 MONITORING

All conservation and consolidation works will be monitored by the Project Architect and Project Engineer. All archaeological works will be monitored by the Project Archaeologists. Facilities will be afforded to representatives of Historic Scotland to be directly involved in discussions on such matters as they arise during the course of the works. Historic Scotland will be notified of the start of each stage of works and of any significant problems or discoveries which may arise.

APPENDIX C INDEX TO FIELD FILE

CODE		DESCRIPTION	RECORD	FORMAT
		Indices		
YO1		Index of notebooks	-	-
YO2		Index of contexts	4	A4
YO3		Index of features	2	A4
YO4		Index of structures	-	-
YO5		Index of drawings	1	A4
YO6	.0	Index of photographs	11	A4
	.1	Index of film processing	2	A4
YO7	.0	Index of finds	8	A4
	.1	Index of finds by context	-	-
	.2	Index of finds by grid square	-	-
	.3	Sample Register	1	A4
	.4	Artefact Register	-	-
	.5	Finds Storage Register	-	-
YO8		Index of geophysical data files	-	-
YO9	.0	Index of survey stations	-	-
	.1	Index of co-ordinate files	-	-
	.2	Index of topographic files	-	-
YO10		Index of interventions	-	-
Y1		**Notebooks**	-	-
		Contexts		
Y2	.0	Context Record	125	A4
	.1	Skeleton Record	-	-
	.2	Coffin Record	-	-
	.3	Masonry Record	9	A4
	.4	Timber Record	-	-
		Features		
Y3	.0	Feature Record	42	A4
	.1	Auger Record	-	-
		Structures		
Y4		Structure Record	-	-
		Site drawing		
Y5	.0	Legend	-	-
	.1	Plans	4	A4
	.2	Maps	-	-
	.3	Sections	16	A4/A1
		Photographs		
Y6	.0	Black and white negatives	-	-
	.1	Colour negatives	212	35mm
	.2	Colour slides	-	-
	.3	Colour enprints	212	6 x 4
	.4	Black and white prints	103	35mm
		Finds		
Y7	.0	Finds Location Record	-	-
	.1	Artefact Record	-	-
		Survey		
Y8	.0	Record of geophysical data files	-	-
	.1	Record of .RAW data file	-	-
	.2	Record of .FLD data file	-	-
	.3	Surface Reconnaissance Record	-	

APPENDIX D SUMMARY OF CONTEXT RECORDS

Context	Int	Identity	Feature	Description	Munsell	Date
1000	5	turf	-	dark brown silt with dense roots, up to 0.10m in depth	10YR 2/2	
1001	5	layer	-	brown sandy clay with high mortar content and large number of slate slabs of various sizes, up to 0.31m deep; finds included clay pipe, iron object, animal bone and architectural stone	7.5YR 5/4	17th century (clay pipe)
1002	5	layer	-	large fragments of rubble within Intervention 5, apparently still bonded	-	
1003	5	layer	-	yellowish-brown clay with frequent but small inclusions of gravel and mortar, 0.12m deep	10YR 5/6	
1004	5	make-up	1	slate make-up of wall (F1), comprising facing stones represented by large irregular slabs, squared on one edge, with slate rubble core, bonded	-	
1005	5	layer	-	yellowish-brown sandy clay matrix, with high quantities of slate slabs and mortar, up to 0.20m in depth	10YR 5/4	
1006	4	make-up	2	allocated to the make-up of wall (F2) comprising roughly dressed slate slabs	-	
1007	4	make-up	3	allocated to the make-up of wall (F3) comprising roughly dressed slate slabs	-	
1008	4	turf	-	dark brown silt with dense roots, up to 0.11m in depth, with angular slate inclusionsd	10YR 2/2	
1009	4	layer	-	greyish-brown sandy clay with large angular slabs of slate, up to 0.17m deep	10YR 5/2	
1010	4	layer	-	brown sandy clay matrix with a large quantity of slate slabs, high mortar content and occasional fragments of animal bone	10YR 4/3	
1011	4	deposit	-	yellowish-brown clay with occasional gravel inclusions, up to 0.28m in depth	10YR 5/4	
1012	4	layer	-	very dark greyish-brown sandy clay matrix, with large quantities of collapsed building material, including slate and sandstone fragments (from oriel window) and mortar, up to 0.45m thick	10YR 3/2	
1013	4	layer	-	brown clay with occasional gravel inclusions, found to contain glass, lead cames, iron object and stone roof tile, up to 0.09m deep	7.5YR 4/3	mid-17th century (clay pipe)
1014	4	layer	-	brown clay with occasional gravel inclusions, some charcoal flecks and finds of animal bone, shell, clay pipe and mortar, up to 0.06m deep	7.5YR 6/3	17th century (clay pipe)
1015	4	layer	-	strong brown clay layer, with occasional gravel inclusions, up to 0.04m deep	7.5YR 4/6	
1016	4	layer	38	layer of tightly packed, rounded cobbles, across Intervention 4 (not excavated further in 2003)	-	
1017	3	turf	-	allocated to a very dark brown silt with a dense root system, up to 0.12m deep	10YR 2/2	
1018	3	layer	-	allocated to a layer of brown sandy clay, with frequent inclusions of small gravel and some root disturbance, up to 0.12m deep	10YR 4/3	

Context	Int	Identity	Feature	Description	Munsell	Date
1019	3	layer	-	layer of brown sandy clay, with large amount of slate rubble, occasional pieces of Old Red sandstone, and mortar flecks, up to 0.25m deep	10YR 4/3	
1020	3	layer	-	yellowish-brown sandy clay with large quantities of slate rubble, mortar flecks, up to 0.17m deep	10YR 5/4	
1021	3	layer	-	greyish-brown sandy clay with mortar and charcoal flecks and slate inclusions, covering all of Intervention and up to 0.21m deep; animal bone and shell were collected	10YR 5/2	17th century (clay pipe)
1022	3	layer	-	yellowish-brown silty clay with angular slate inclusions, containing animal bone and clay pipe	10YR 5/4	17th century (clay pipe)
1023	3	layer	-	dark brown clay silt, with occasional small fragments of slate, flecks of mortar, charcoal and charred seeds	10YR 3/3	
1024	3	layer	-	light brown clay with flecks of charcoal and inclusions of slate slabs, up to 0.10m deep	7.5YR 6/3	
1025	3	surface	37	slate make-up of floor surface, identified in Intervention 3 (not excavated further in 2003)	-	
1026				(not used)		
1027				(not used)		
1028				(not used)		
1029				(not used)		
1030	6	turf	-	light greyish-brown silty clay with angular stone inclusions and root disturbance	5YR 4/1	
1031	6	make-up	4	light brown friable sand layer with mortar flecks, fragments of red sandstone, forming make-up of bank (F4), 2.11m x 1.00m x 0.33m	5YR 4/2	
1032	6	backfill	5	light greyish-brown, firm sandy clay deposit with fragments of red sandstone, mortar and slate, forming backfill of ditch (F5) to a depth of 0.26m	2.5Y 4/2	
1033	6	subsoil	-	olive yellow sandy clay with small slate inclusions (gravel) identified as subsoil	2.5Y 6/6	
1034	7	backfill	35	friable, dark greyish-brown silt clay surrounding granite block (F35)	5YR 2.5/1	
1035	7	turf	-	black silty clay with angular stone inclusions and heavily root disturbed, measuring up to 0.12m in depth	2.5Y 2.5/1	19th century (clay pipe)
1036	7	backfill	6	friable, light yellowish-brown silty clay with occasional mortar flecks and stone inclusions	7.5YR 5/3	
1037	7	layer	-	rubble layer identified beneath turf (C1035) comprising large slate slabs, smaller angular fragments within a friable, greyish brown silty clay matrix	2.5Y 4/2	
1038	8	ploughsoil	-	identified as a layer of dark grey sandy silt with charcoal, sandstone and slate inclusions, 0.50m in depth	10YR 3/1	
1039	7	make-up	7	allocated to the make-up of wall (F7) comprising outer faces of Caithness slate and rubble core within a silty clay matrix	10YR 3/1	
1040	10	ploughsoil	-	allocated to a grey sandy silt with flecks of charcoal, rubble fragments and angular Caithness slate fragments, up to 0.50m in depth	10YR 3/1	

Context	Int	Identity	Feature	Description	Munsell	Date
1041	10	deposit	-	black sandy clay with inclusions of charcoal and mollusc shells, up to 0.10m in depth	10YR 2/1	
1042	8, 9, 10	subsoil	-	allocated to the variable sandy subsoil identified across three interventions, varying in colour from reddish brown to brown	10YR 6/6 10YR 5/2	
1043	9	turf	-	dark yellowish-brown clay site with inclusions of angular stone and showing heavy root disturbance	10YR 3/4	
1044	9	layer	-	disordered rubble layer, comprising large angular fragments of slate	-	
1045	9	make-up	9	Caithness slate make-up of floor surface	-	
1046	11	layer	-	brown sandy clay with inclusions of Caithness slate, Old red sandstone, animal bone and mortar flecks. A single iron object was recovered	10YR 4/3	
1047	7	layer	-	very dark grey silty clay with inclusions of mortar, and angular fragments of slate	5Y 3/1	
1048	7	backfill	10	allocated to the backfill of posthole (F10), comprising a friable, greyish brown silty clay with frequent mortar flecks and fragments of sandstone	10YR4/2	
1049	7	make-up	11	make-up of floor surface, comprising angular slabs of Caithness slate, and occasional rounded pebbles	-	
1050	13	turf	-	loose, brown sandy silt with fine roots throughout and rare gravel inclusions	10YR 3/3	
1051	13	layer	-	dark yellowish-brown sandy clay, up to 0.40m in depth, with occasional stone fragments and modern glass	10YR 4/4	
1052	13	layer	-	brown sandy clay layer, with a high proportion of rubble and mortar up to 0.60m in depth	10YR 5/3	
1053	13	layer	-	layer of rubble and clay bonding material, up to 0.35m in depth, with charcoal inclusions	10YR 4/6	
1054	14	turf	-	loose, dark brown sandy silt with occasional fragments of slate and a dense root system	10YR 3/3	
1055	14	layer	-	yellowish-brown sandy clay with gravel and pebble inclusions, up to 0.35m in depth	10YR 4/4	
1056	14	layer	-	dump of rubble and mortar, up to 0.70m in depth, believed to represent collapsed make-up	10YR 5/3	
1057	14	layer	-	deposit of slate rubble, mortar within a firmly compacted, yellowish-brown clay matrix	10YR 4/6	
1058	12	turf	-	very dark brown silt with dense root system	10YR 2/2	
1059	12	layer	-	dark yellowish-brown sandy clay with fragments of slate and Old red sandstone, measuring up to 0.27m in depth	10YR 4/4	
1060	12	layer	-	firm, yellowish-brown sandy clay with large fragments of Caithness slate and smaller fragments of Old Red Sandstone. Fragments of window glass were retrieved	10YR 5/4	
1061	11	turf	-	very dark brown silt, with dense roots	10YR 2/2	
1062	11	make-up	12	Caithness slate make-up of wall (F12), varying in size	-	
1063	11	make-up	12	yellowish-brown clay forming the bonding material of wall (F12)	10YR 5/6	

Context	Int	Identity	Feature	Description	Munsell	Date
1064	12	bedrock	-	allocated to the slate bedrock, identified following removal of C1075	-	
1065	11	layer	-	mottled, dark brown silty clay, with animal bone inclusions (not excavated in 2004)	10YR 3/3	
1066	11	layer	-	mottled, dark brown silty clay, with occasional gravel inclusions (not excavated in 2004)	10YR 3/3	
1067	15	turf	-	dark brown silt with dense root system	10YR 2/2	
1068	15	layer	-	light yellowish-brown clay sand, 0.50m in depth, with high mortar context, and large quantities of Caithness slate fragments	10YR 6/4	
1069	15	layer	-	varied deposit of silty clay, with lenses of grey clay, disturbed by roots	10YR 3/3	
1070	15	make-up	15	degraded wood, which is believed to have formed a bench within wall (F14)	10YR 2/2	
1071	15	layer	-	firm, dark yellowish-brown sandy clay with inclusions of Caithness slate, mortar and occasional clods of organic matter	10YR 4/6	
1072	16	turf	-	dark brown silt with dense roots, up to 0.12m in depth	10YR 2/2	
1073	16	layer	-	dark greyish-brown sandy clay with high proportion of large, angular slate fragments, up to 0.40m in depth	10YR 4/2	
1074	16	layer	-	loosely compacted clay sand, with high mortar context, and a large quantity of slate, including in tact segments of collapsed masonry (slate)	10YR 6/4	19th century (caly pipe)
1075	12	midden	-	dark brown clay silt containing animal bone and shell fragments, up to 0.20m in depth, at the W edge of intervention 12	10YR 3/4	
1076	15	make-up	36	ordered slate slabs, measuring up to 1.50m N-S (not excavated in 2004)	-	
1077	16	make-up	16	Caithness slate make-up of wall (F16)	10YR6/4	
1078	17	turf	-	dark brown silt with dense roots, up to 0.12m in depth	10YR 2/2	
1079	17	layer	-	rubble layer within a light yellowish brown sandy clay matrix	10YR 6/4	
1080	18	turf	-	turf layer, 0.08m deep, with inclusions of shale and mortar	7.5YR3/1	
1081	18	layer	-	layer of rubble (slate) and mortar in a grey sandy clay matrix, up to 0.80m deep	2.5Y6/1	
1082	19	turf	-	turf layer, 0.10m deep, with inclusions of shale and mortar	7.5YR3/1	
1083	19	layer	-	very dark greyish-brown sandy silt matrix containing a large number of slate slabs, occasional mortar flecks and animal bone, up to 0.45m in depth	10YR 3/2	
1084	20	turf	-	dark brown silt with dense roots, up to 0.10m in depth	10YR 2/2	
1085	20	layer	-	very dark greyish-brown silty clay with inclusions of slate, Old Red sandstone, mortar and charcoal, up to 0.15m in depth	10YR 3/2	17th century (clay pipe)
1086	20	layer	-	yellowish-brown clay silt with inclusions of mortar and slate, up to 0.15m in depth	10YR 5/6	

Context	Int	Identity	Feature	Description	Munsell	Date
1087	20	layer	-	dark yellowish-brown sandy silt layer, with inclusions of slate and mortar, and a defined mortar lens, up to 0.14m in depth	10YR 4/4	
1088	20	layer	-	dark yellowish-brown clay silt, with occasional angular slate inclusions, 0.15m in depth	10YR 4/6	
1089	20	make-up	17	slate make-up of wall F17, comprising irregular shaped slabs of Caithness slate	-	
1090	21	turf	-	dark brown silt with dense roots, up to 0.10m in depth	10YR 2/2	
1091	21	layer	-	light yellowish-brown clay sand matrix, with high mortar content, containing a large amount of Caithness slate	10YR 6/4	late 18th to 19th century (creamware)
1092	21	collapse	-	dark brown sandy silt surrounding large segments of collapsed wall (vault), of which up to 8 courses of slate had remained in tact	10YR 3/3	
1093	7	backfill	18	soft, greyish-brown silty clay forming backfill of sub-rectangular cut of F18	10YR 5/2	
1094	18	layer	-	allocated to a layer of grey silty clay, 0.15m thick, containing mortar and slate inclusions	5YR5/1	
1095	18	midden	-	very dark brown clay silt dump, 0.50m x 0.50m in plan, and found to be up to 0.10m deep, with inclusions of mortar, shell, charcoal and slate	10YR 2/2	
1096	18	backfill	19	grey sandy clay, with frequent inclusions of slate and mortar	7.5YR 6/1	
1097	18	layer	-	dark, reddish-grey layer of silty clay, up to 0.13m deep, with occasional flecks	2.5YR 3/1	
1098	18	layer	-	firm, mottled silty clay, with significant mortar and charcoal inclusions	2.5Y 6/6	
1099	18	layer	-	layer of dark reddish-brown silty clay with charcoal patches, mortar and shale inclusions, up to 0.20m deep	2.5YR 3/3	
1100	18	layer	-	dark brown deposit, with an assemblage of animal bone and ceramic, and fragments of iron and glass	10YR 3/3	17th century (ceramic and clay pipe)
1101	21	make-up	20	make-up of floor, comprising fragmented slabs of red sandstone	-	
1102	21	make-up	20	sand preparation layer for floor, comprising dark yellowish-brown sand	10YR 4/4	
1103	21	layer	-	yellowish-brown sandy clay with charcoal patches and angular slate inclusions (not excavated in 2004)	10YR 5/6	
1104	19	layer	-	yellowish-brown sandy clay silt with slate and mortar inclusions, up to 0.26m deep. Architectural stone, animal bone and roof tile were recovered	10YR 5/4	17th century (ceramic and clay pipe)
1105	20	make-up	21	make-up of possible floor F21, comprising courses of slate slabs (0.15m high), with clay bonding	-	
1106	18	layer	-	weak red silty clay, with a high proportion (60%) of slate slabs, possibly derived from underlying bedrock	2.5YR 4/2	
1107	18	make-up	26	slab make-up of external courtyard surface, comprising 5 visible, sub-rectangular slabs	-	

Context	Int	Identity	Feature	Description	Munsell	Date
1108	18	make-up	22	slate make-up of wall (F22) comprising at least 12 courses of Caithness slate, 0.45m wide and up to 1.00m in height	-	
1109	18	make-up	23	slate make-up of wall (F23), comprising at least 15 courses of roughly shaped slabs, with loose mortar bonding	-	
1110	18	make-up	24	slate make-up of door jamb (F24), comprsing at least 10 courses of roughly shaped slabs with mortar bonding	-	
1111	18	make-up	25	slate make-up of door jamb (F25), comprising at least 10 courses of roughly shaped slabs	-	
1112	18	make-up	27	allocated to the stone make-up of two steps, comprising slabs of Caithness slate	-	
1113	19	fill	28	very dark grey silt with charcoal, mortar, clay pipe, animal bone and slate inclusions	10YR 3/1	17th century (ceramic and clay pipe)
1114	19	midden	-	dark brown silt with inclusions of charcoal, ash, animal and fish bone, clay pipe and mortar, 0.15m deep	10YR3/3	mid-17th century (clay pipe)
1115	18	backfill	19	firm, brown silty clay with frequent slate and mortar inclusions, up to 0.15m deep	2.5YR 4/2	
1116	18	backfill	29	firm, very dark grey silty clay, with frequent slate and mortar inclusions, up to 0.15m deep	5YR 3/1	
1117	18	backfill	30	dark reddish-grey silty clay with occasional inclusions of angular slate and frequent mortar flecks, forming backfill of possible posthole (F30)	2.5YR 4/1	
1118	18	layer	-	reddish grey silty clay, with occasional slate inclusions, up to 0.13m deep	2.5YR 6/1	
1119	19	make-up	31	Caithness slate make-up of NE-SW aligned wall, comprising at least 5 courses of angular slabs	-	
1120	19	make-up	33	Caithness slate make-up of NW-SE aligned wall, comprising at least 5 courses of angular slabs	-	
1121	19	make-up	34	Caithness slate make-up of NE-SW aligned wall, comprising at least 5 courses of angular slabs	-	
1122	7	make-up	18	vertically placed slabs of Caithness slate, which seem to form a lining within F18	-	
1123	7	backfill	8	friable, light yellowish-brown silty clay with frequent cobble inclusions	7.5YR 5/3	
1124	19	make-up	39	allocated to a compacted mortar layer(not excavated in 2004)	10YR 6/3	
1125	19	make-up	39	roughly laid slate slabs, found to underlie mortar layer (C1124)	-	
1126	20	make-up	40	allocated to the make-up of possible floor surface F40, comprising irregular, smooth slate slabs	-	
1127	20	bedrock	-	degraded bedrock surface within the courtyard of the Outer Bailey	-	
1128	21	make-up	41	coursed and bonded slate and sandstone make-up of the possible turret identified in Intervention 21	-	

APPENDIX E FEATURE INDEX

Feature	Int.	Context	Identity	Description	Profile
1	5	1004	wall	NE-SW aligned wall, running across N part of Intervention 5, up to 0.15m high, 1.11m across and visible for 1.00m length. Constructed from slate faces and core	rectangular
2	4	1006	wall	NW-SE aligned wall of the porter's lodge surviving to 1.27m high and comprising at least 13 course of rough slate slabs	rectangular
3	4	1007	wall	NE-SW aligned wall of the Gatehouse, forming SE limit of excavation, comprising roughly coursed slate slabs	rectangular
4	6	1031	bank	NW-SE aligned bank, measuring 2.11m wide and 0.33m high	rounded
5	6	1032	ditch	NW-SE aligned ditch, 0.96m wide and 0.26m deep	U-shaped
6	7	1036	ditch	NW-SW aligned linear feature only partly identified in plan	U-shaped
7	7	1039	wall	NE-SW aligned wall of the West Barbican, comprising 2 courses of stone constructed from dressed stone with a tightly packed rubble core, stepped out at base, 1.92m wide x 0.90m wide 0.14m high	rectangular
8	7	1123	pit	very shallow sub-circular feature at the eastern corner of Intervention 7, dimensions unseen, less than 0.10m in depth	U-shaped
9	9	1045	surface	stone surface, made up of ordered slabs	rectangular
10	7	1048	posthole	triangular posthole(?), 0.69 x 0.40 and up to 0.35m deep	irregular
11	7	1049	surface	stone surface identified across much of Int 7, made up of large slabs of Caithness slate	rectangular
12	11	1062, 1063	wall	allocated to an east-west aligned wall, surviving to a height of 0.80m (10 courses)	rectangular
13	15	-	wall	allocated to the NW wall of West Gatehouse	rectangular
14	15	-	wall	allocated to the SE wall of West Gatehouse	rectangular
15	15	1070	visitor's seat	allocated to a recess in wall (F15), with surviving remnants of possible wooden seat	irregular
16	16	1077	wall	allocated to a small section of wall visible in section, standing to 4 courses in height (0.45m)	rectangular
17	20	1089	wall	identified in plan as a curvilinear section of slate wall, aligned NE-SW, and turning at a right angle to run NW-SE.	rectangular
18	7	1093, 1122	stone lined feature?	subrectangular feature cut into floor (F11), measuring 1.14 x 0.82m and up to 0.18m deep. vertical slabs tip into the E and N edges which may form a lining	rectangular
19	18	1096, 1115	beam slot	linear feature aligned NW-SE, against wall F23, backfilled with two contexts, C1096 and C1115	U-shaped
20	21	1101, 1102	sandstone floor	identified as a stone surface, comprising red sandstone slabs over a sand preparation layer	rectangular
21	20	1105	floor	identified at the edge of Intervention 19 as three courses of slate slabs, possibly part of a stone floor, 0.55m long, 0.15m high	rectangular
22	18	1108	wall	allocated to a NE-SW aligned wall, exposed for 0.45m, measuring 0.45m wide and up to 1.00m in height, made up of slate slabs	-
23	18	1109	wall	allocated to a length of wall, 1.21m in length, 0.42m wide and 1.41m high, constructed from slate blocks	rectangular
24	18	1110	door jamb	identified as a stone structure, 0.56m x 0.44m in plan, aligned NE-SW, with a wertical slot down one face, identified as a door jamb, set with wall F23	rectangular

Feature	Int.	Context	Identity	Description	Profile
25	18	1111	door jamb	identified as a stone construction, 0.70m x 0.42m in plan, aligned NE-SW, comprising up to 10 courses of slate	rectangular
26	18	1107	surface	flagstone floor of the courtyard at SE edge of Int 18, visible for 2.30m x 0.63m	rectangular
27	18	1112	steps	two steps leading from surface F26 into north range, constructed from slabs of Caithness slate, measuring 0.70m across and *c*. 0.28m deep	stepped
28	19	1113	hearth	identified at W end of Intervention 19 as a stone built hearth set into wall	rectangular
29	18	1116	posthole?	identified in section as a possible posthole, 0.20m across (extending beyond limit of excavation), and 0.15m deep, backfilled once with C1116	U-shaped
30	18	1117	posthole?	identified in section as a possible posthole, 0.20m across and up to 0.18m deep, backfilled once with C1117	U-shaped
31	19	1119	wall	NE-SW aligned wall, running for 1.11m across Intervention 19, and measuring at least 0.62m wide	rectangular
32	19	-	bench	recessed stone bench in wall F31, facing NW, and measuring 0.26m deep and at least 0.42m across, located at least 0.50m from stone floor	stepped
33	19	1120	wall	NW-SE aligned wall, measuring 1.66m in length and 0.48m in width, surviving to at least 5 courses in height	rectangular
34	19	1121	wall	NE-SW aligned wall, located at the NW edge of Intervention 19, measuring 1.28m in length and at least 0.26m wide	rectangular
35	7	1034	posthole?	Feature identified in plan as a possible sub-circular feature (not excavated in 2004)	unseen
36	15	1076	surface?	identified in plan as a possible slabbed surface at the W edge of Intervention 15	unseen
37	3	1025	surface	identified in plan as a flagstone floor, covering all but the NW edge of Intervention 3	rectangular
38	4	1016	surface	identified in plan as a cobble surface, covering all but the NW edge of Intervention 4 (not excavated in 2003)	irregular
39	19	1124, 1125	surface	mortar and slab floor identified within the small Porter's Lodge (not excavated in 2004)	unseen
40	20	1126	surface	slate slab floor identified in Intervention 20, possibly part of internal surface of structure represented by F17	rectangular
41	21	1128	stair turret	stair turret identified following clearance of Intervention 21 rubble layers. Not fully recorded in 2004	irregular
42	21	-	cupboard	stone cupboard identified following clearance of rubble layers in Intervention 21	rectangular

APPENDIX F DRAWING INDEX

Drawing No	Format	Scale	Type	Intervention	Description
1	A4L	1:10	section	3	northwest facing section
2	A4L	1:10	section	4	southwest facing section
3	A4L	1:10	section	5	southeast facing section
4	A4L	1:10	section	6	southwest facing section
5	A4P	1:10	hachure	6	F4, F5 post excavation hachure
6	A4P	1:10	plan	7	F7 pre-excavation plan
7	A4P	1:10	plan	8	F9, C1045 pre-excavation plan
8	A4L	1:10	section	11	southwest facing section
9	A4L	1:10	section	7	northeast facing section
10	A4P	1:20	hachure	18	F19 post excavation hachure
11	A4P	1:10	section	12	northeast facing section
12	A4L	1:10	section	13	southwest facing section
13	A4L	1:10	section	14	northeast facing section
14	A4L	1:10	section	15	southwest facing section
15	A4L	1:10	section	16	southwest facing section
16	A4P	1:10	section	18	southeast facing section
17	A4L	1:10	section	18	southeast facing section
18	A4L	1:10	section	19	southwest facing section
19	A4L	1:10	section	20	northwest facing section
20	A1L	1:10	section	21	northeast facing section

APPENDIX G PHOTO INDICES

Film: Ilford FP4+								Film No: N34
Frame	**Lens**	**Scale**	**Direction**	**Int. No.**	**Module**	**Subject**	**Details (F/C Nos.)**	**Notes**
0								
1	zoom	1.0m	e	4	-	plan	C1016	cobbled surface
2	zoom	0.5m	-	4	-	find	find no. 4	masonry fragment
3	zoom	0.5m	-	4	-	find	find no. 3	masonry fragment
4	zoom	0.5m	-	4	-	find	find no. 2	masonry fragment
5	zoom	0.5m	-	4	-	find	find no. 1	masonry fragment
6	zoom	0.5m	s	3	-	section	north-facing elevation	
7	zoom	0.5m	e	3	-	plan	C1025	post-ex
8	zoom	1.0m	e	3	-	section	west-facing section	
9	zoom	1.0m	w	3	-	section	east-facing section	
10	zoom	1.0m	w	3	-	section	east-facing section	
11	zoom	0.5m	s	3	-	section	north-facing elevation	
12	zoom	0.5m	s	3	-	section	north-facing elevation	rectified
13	zoom	0.5m	s	3	-	section		
14	zoom	0.5m	s	3	-	section	north-facing elevation	rectified
15	zoom	0.5m	w	5	-	plan	F1, C1004	
16	zoom	0.5m	s	5	-	plan	F1, C1004	
17	zoom	0.5m	s	5	-	plan	F1, C1004	
18	zoom	0.5m	n	5	-	plan	F1, C1004	
19	zoom	0.5m	n	5	-	plan	F1, C1004	
20	zoom	1.0m	e	5	-	section	west-facing section	
21	zoom	0.5m	w	5	-	section	east-facing section	
22	zoom	0.5m	w	5	-	plan	F1	with photo markers
23	zoom	0.5m	w	4	-	plan	F2, F3	
24	zoom	0.5m	s	4	-	plan	F2, F3	
25	zoom	0.5m	s	4	-	plan	F3	
26	zoom	0.5m	w	4	-	plan	F2	
27	zoom	0.5m	w	4	-	plan	F2	
28	zoom	1.0m	e	4	-	section	west-facing section	
29	zoom	-	s	4	-	section	north-facing elevation	with photo markers
30	zoom	-	s	4	-	section	north-facing elevation	with photo markers
31	zoom	-	s	4	-	section	north-facing elevation	
32	zoom	-	w	4	-	section	east-facing elevation	with photo markers
33	zoom	-	w	4	-	section	east-facing elevation	
34	zoom	-	w	4	-	section	east-facing elevation	

Film: Kodak Gold								Film No: N35
Frame	**Lens**	**Scale**	**Direction**	**Int. No.**	**Module**	**Subject**	**Details (F/C Nos.)**	**Notes**
0								
1	zoom	-	s	3	-	-	working shot	taking mortar sample 1
2	zoom	-	s	3	-	-	working shot	taking mortar sample 1

Frame	Lens	Scale	Direction	Int. No.	Module	Subject	Details (F/C Nos.)	Notes
3	zoom	-	s	3	-	-	working shot	taking mortar sample
4	zoom	-	s	3	-	-	working shot	taking mortar sample
5	zoom	-	s	3	-	-	working shot	taking mortar sample 2
6	zoom	-	s	3	-	-	working shot	taking mortar sample 2
7	zoom	-	s	3	-	-	working shot	taking mortar sample 3
8	zoom	-	s	3	-	-	working shot	taking mortar sample 3
9	zoom	-	w	4	-	-	working shot	taking mortar sample 4
10	zoom	-	s	4	-	-	working shot	taking mortar sample 5
11	zoom	-	s	4	-	-	working shot	taking mortar sample 6

Film: Kodak Gold **Film No: N36**

Frame	Lens	Scale	Direction	Int. No.	Module	Subject	Details (F/C Nos.)	Notes
0								
1	zoom	1.0m	w	12	-	plan	general shot Int12	
2	zoom	1.0m	w	12	-	plan	C1064, C1075	pre-excavation
3	zoom	1.0m	w	12	-	section	east-facing section	
4	zoom	1.0m	w	12	-	section	east-facing section	
5	zoom	1.0m	e	17	-	-	working shot	
6	zoom	1.0m	e	17	-	section	west-facing section	
7	zoom	1.0m	w	16	-	section	east-facing section	
8	zoom	1.0m	s	16	-	plan	general shot Int 16	
9	zoom	1.0m	n	16	-	plan	general shot Int 16	
10	zoom	1.0m	n	16	-	plan	general shot Int16	out of focus
11	zoom	1.0m	e	15	-	plan	C1676	out of focus
12	zoom	1.0m	e	15	-	plan	C1676	
13	zoom	1.0m	w	15	-	plan	C1676	pre-excavation
14	zoom	1.0m	w	15	-	plan	C1676	pre-excavation
15	zoom	1.0m	e	7	-	plan		
16	zoom	1.0m	n	7	-	plan	F11, C1049	pre-excavation
17	zoom	1.0m	n	7	-	plan	F11, C1049	pre-excavation
18	zoom	1.0m	n	7	-	plan	F11, C1049	with photo markers
19	zoom	1.0m	n	7	-	plan	F11, C1049	with photo markers
20	zoom	1.0m	n	7	-	plan	F11, C1049	with photo markers
21	zoom	1.0m	n	7	-	plan	F11, C1049	with photo markers
22	zoom	1.0m	n	7	-	plan	general shot Int 7	
23	zoom	1.0m	n	7	-	plan	general shot Int7	

Film: Kodak Gold								Film No: N37
Frame	**Lens**	**Scale**	**Direction**	**Int. No.**	**Module**	**Subject**	**Details (F/C Nos.)**	**Notes**
0								
1	zoom	1.0m	nw	7	-	Plan	F7, C1039	
2	zoom	1.0m	nw	7	-	plan	F7, C1039	
3	zoom	1.0m	n	13	-	plan	general shot Int13	
4	zoom	1.0m	n	13	-	plan	general shot Int13	
5	zoom	1.0m	e	13	-	section	west-facing section	
6	zoom	1.0m	w	13	-	section	east-facing section	
7	zoom	1.0m	w	13	-	section	east-facing section	
8	zoom	1.0m	e	14	-	section	west-facing section	
9	zoom	1.0m	n	14	-	plan	general shot Int 14	
10	zoom	1.0m	n	14	-	plan	general shot Int 14	
11	zoom	-	n	13/14	-	-	general shot Ints 13 & 14	
12	zoom	-	n	13/14	-	-	general shot Ints 13 & 14	
13	zoom	-	e	17	-	-	general shot Ints 17	
14	zoom	1.0m	e	12	-	plan	C1060	pre-excavation
15	zoom	1.0m	e	12	-	plan	C1060	with photo markers
16	zoom	1.0m	e	12	-	plan	C1060	with photo markers
17	zoom	1.0m	n	12	-	plan	C1060	with photo markers
18	zoom	1.0m	n	12	-	plan	C1060	with photo markers
19	zoom	1.0m	e	11	-	section	west-facing section	
20	zoom	1.0m	sw	11	-	p/s	F12, & n-facing section	
21	zoom	1.0m	sw	11	-	p	F12	
22	zoom	1.0m	se	11	-	p	F12	
23	zoom	1.0m	se	11	-	section	F12 elevation	with photo markers
24	zoom	1.0m	n	12	-	plan	C1064	pre-excavation
25	zoom	1.0m	n	12	-	plan	C1064	with photo markers
26	zoom	1.0m	w	15	-	plan	C1089 (burning)	pre-excavation
27	zoom	1.0m	w	15	-	plan	C1089 (burning)	pre-excavation
28	zoom	1.0m	e	15	-	plan	general shot Int 15	
29	zoom	1.0m	e	15	-	section	west-facing section	
30	zoom	1.0m	e	15	-	section	west-facing section	
31	zoom	1.0m	s	15	-	plan	F15	
32	zoom	1.0m	s	15	-	plan	F15	
33	zoom	1.0m	s	15	-	plan	F15	
34	zoom	-	e	15	-	-	general shot Int 15	
35	zoom	-	e	15	-	-	general shot Int 15	
36	zoom	1m	w	12	-	plan	general shot Int 12	

Film: Kodak Gold								Film No: N38
Frame	**Lens**	**Scale**	**Direction**	**Int. No.**	**Module**	**Subject**	**Details (F/C Nos.)**	**Notes**
0								
1	zoom							
2	zoom	-	ne	13	-	-	general shot Int 13	pre-excavation
3	zoom	-	ne	13	-	-	general shot Int 13	pre-excavation
4	zoom	-	ne	13	-	-	general shot Int 13	pre-excavation
5	zoom	-	nw	14	-	-	general working shot	
6	zoom	-	nw	14	-	-	general shot Int 14	pre-excavation
7	zoom	-	n	13/14	-	-	general shot Int13 & 14	pre-excavation
8	zoom	-	n	13/14	-	-	general shot Int13 & 14	pre-excavation
9	zoom							
10	zoom							
11	zoom	1.0m	se	8	-	plan	C1038	pre-excavation
12	zoom	1.0m	se	8	-	plan	C1038	pre-excavation
13	zoom	1.0m	n	7	-	plan	C1037	pre-excavation
14	zoom	1.0m	n	7	-	plan	C1037	pre-excavation
15	zoom	1.0m	n	7	-	plan	C1037	pre-excavation
16	zoom	1.0m	s	7	-	plan	C1037	pre-excavation
17	zoom	1.0m	s	7	-	plan	C1037	pre-excavation
18	zoom	1.0m	s	7	-	plan	C1037	pre-excavation
19	zoom	0.5m	ne	7	-	plan	F6 & F8	
20	zoom	0.5m	ne	7	-	plan	F7, C1039 & C1037	pre-excavation
21	zoom	0.5m	ne	7	-	plan	F7, C1039 & C1037	pre-excavation
22	zoom	0.5m	ne	7	-	plan	F7, C1039 & C1037	pre-excavation
23	zoom	1.0m	e	15	-	section	west-facing section	
24	zoom	1.0m	e	10	-	plan	C1040 & C1041	pre-excavation
25	zoom	1.0m	e	10	-	plan	C1040 & C1041	pre-excavation
26	zoom	1.0m	e	10	-	plan	C1042	pre-excavation
27	zoom	1.0m	e	10	-	plan	C1042	pre-excavation
28	zoom	1.0m	e	9	-	plan	C1045	pre-excavation
29	zoom	1.0m	e	9	-	plan	C1045	pre-excavation
30	zoom	0.5m	s	11	-	plan	C1046, find no. 81	in situ
31	zoom	0.5m	s	11	-	plan	C1046, find no. 81	in situ
32	zoom	0.5m	sw	7	-	plan	F10, C1048	pre-excavation
33	zoom	0.5m	sw	7	-	plan	F10, C1048	pre-excavation
34	zoom	0.5m	sw	7	-	plan	C1039	pre-excavation
35	zoom	0.5m	sw	7	-	plan	C1039	pre-excavation
36	zoom	0.5m	sw	7	-	plan	C1039	pre-excavation

Film: Kodak Gold								Film No: N39
Frame	**Lens**	**Scale**	**Direction**	**Int. No.**	**Module**	**Subject**	**Details (F/C Nos.)**	**Notes**
16	zoom	1.0m	-	-	-	-	general shot masonry	
17	zoom	1.0m	-	-	-	-	general shot arch	
18	zoom	1.0m	ne	8	-	plan	general shot of Int 8	
19	zoom	1.0m	ne	8	-	plan	general shot of Int 8	
20	zoom	1.0m	e	8	-	section	w-facing section F4 & F5	
21	zoom	1.0m	e	8	-	section	w-facing section F4 & F5	
22	zoom	1.0m	e	8	-	section	w-facing section F4 & F5	
23	zoom	0.5m	e	8	-	section	w-facing F5, C1032	

Film: Ilford HP5+								Film No: N40
Frame	**Lens**	**Scale**	**Direction**	**Int. No.**	**Module**	**Subject**	**Details (F/C Nos.)**	**Notes**
0								
1	zoom	1.0m	ne	8	-	plan	general shot Int 8	
2	zoom	1.0m	ne	8	-	plan	general shot Int 8	
3	zoom	1.0m	ne	8	-	plan	general shot Int 8	
4	zoom	1.0m	sw	8	-	plan	general shot Int 8	
5	zoom	1.0m	e	8	-	section	w-facing section F4 & F5	
6	zoom	1.0m	e	8	-	section	w-facing section F4 & F5	
7	zoom	1.0m	e	8	-	section	w-facing section F4 & F5	
8	zoom	0.5m	e	8	-	section	w-facing F5 C1032	
9	zoom	1.0m	n	7	-	plan	C1037	pre-excavation
10	zoom	1.0m	n	7	-	plan	C1037	pre-excavation
11	zoom	1.0m	n	7	-	plan	C1037	pre-excavation
12	zoom	1.0m	n	7	-	plan	C1037	pre-excavation
13	zoom	1.0m	s	7	-	plan	C1037	pre-excavation
14	zoom	1.0m	s	7	-	plan	C1037	pre-excavation
15	zoom	1.0m	s	7	-	plan	C1037	pre-excavation
16	zoom	0.5m	ne	7	-	plan	F6 & F8	
17	zoom	0.5m	ne	7	-	plan	F7, C1037 & C1039	pre-excavation
18	zoom	0.5m	ne	7	-	plan	F7, C1037 & C1039	pre-excavation
19	zoom	1.0m	e	15	-	section	west-facing section	
20	zoom	1.0m	s	9	-	plan	C1044	pre-excavation
21	zoom	1.0m	e	9	-	plan	C1044, F9 C1045	pre-excavation
22	zoom	0.5m	s	11	-	plan	C1049 find no. 81	in situ
23	zoom	0.5m	sw	10	-	plan	F10 C1048	pre-excavation
24	zoom	0.5m	sw	7	-	plan	F7 C1039	pre-excavation
25	zoom	1.0m	se	7	-	plan	F7 C1039	pre-excavation
26	zoom	1.0m	se	7	-	plan	F7 C1039	pre-excavation
27	zoom	1.0m	nw	7	-	plan	F7 C1039	pre-excavation
28	zoom	1.0m	nw	7	-	plan	F7 C1039	pre-excavation
29	zoom	1.0m	n	13	-	section	south-facing Int13	
30	zoom	1.0m	n	13	-	plan	general shot Int 13	
31	zoom	1.0m	e	13	-	section	west-facing Int 13	

Frame	Lens	Scale	Direction	Int. No.	Module	Subject	Details (F/C Nos.)	Notes
32	zoom	1.0m	w	13	-	section	east-facing Int 13	
33	zoom	1.0m	w	14	-	section	east-facing Int 14	
34	zoom	1.0m	w	14	-	section	east-facing Int 14	
35	zoom	1.0m	e	14	-	section	west-facing Int 14	
36	zoom	1.0m	e	14	-	section	west-facing Int 14	

Film: Ilford HP5+ **Film No: N41**

Frame	Lens	Scale	Direction	Int. No.	Module	Subject	Details (F/C Nos.)	Notes
0								
1	zoom	1.0m	n	14	-	section	south-facing Int14	
2	zoom	1.0m	n	14	-	plan	general shot Int14	
3	zoom	1.0m	se	12	-	plan	C1060	pre-excavation
4	zoom	1.0m	e	11	-	section	west-facing Int 11	
5	zoom	1.0m	sw	11	-	plan	general shot Int 11	
6	zoom	1.0m	sw	11	-	plan	F12	
7	zoom	1.0m	se	11	-	plan	F12	
8	zoom	1.0m	n	12	-	plan	C1064	pre-excavation
9	zoom	1.0m	w	15	-	plan	C1069 (burning)	pre-excavation
10	zoom	1.0m	w	15	-	plan	C1069 (burning)	pre-excavation
11	zoom	1.0m	e	15	-	plan	general shot Int 15	
12	zoom	1.0m	e	15	-	section	west-facing section Int 15	
13	zoom	1.0m	e	15	-	section	west-facing section Int 15	
14	zoom	1.0m	s	15	-	plan	F15	
15	zoom	1.0m	s	15	-	plan	F15	
16	zoom	1.0m	s	15	-	plan	F15	
17	zoom	1.0m	w	12	-	plan	general shot Int 12	
18	zoom	1.0m	w	12	-	plan	C1064, C1075	pre-excavation
19	zoom	1.0m	w	12	-	section	east-facing section Int12	
20	zoom	-	e	17	-	plan	Int 17	pre-excavation
21	zoom	-	e	17	-	plan	Int 17	pre-excavation
22	zoom	1.0m	w	16	-	section	east-facing section Int 16	
23	zoom	1.0m	w	16	-	section	east-facing section Int 16	
24	zoom	1.0m	s	16	-	plan	general shot Int 16	
25	zoom	1.0m	n	16	-	plan	general shot Int 16	
26	zoom	1.0m	e	15	-	section	w-facing section C1076	
27	zoom	1.0m	w	15	-	plan	C1076	pre-excavation
28	zoom	1.0m	w	15	-	plan	C1076	pre-excavation
29	zoom	1.0m	e	7	-	section	w-facing F11 C1049	
30	zoom	1.0m	n	7	-	plan	F11 C1049	pre-excavation
31	zoom	1.0m	n	7	-	plan	F11 C1049	pre-excavation
32	zoom	1.0m	n	7	-	plan	general shot of Int 7	
33	zoom	1.0m	n	7	-	plan	general shot of Int 7	

Film: Kodak Ultra								Film No: N42
Frame	**Lens**	**Scale**	**Direction**	**Int. No.**	**Module**	**Subject**	**Details (F/C Nos.)**	**Notes**
0								
1	zoom	1.0m	ne	19	-	plan	Int 19	pre-excavation
2	zoom	1.0m	ne	19	-	plan	Int 19	pre-excavation
3	zoom	1.0m	ne	18	-	plan	Int 18	pre-excavation
4	zoom	1.0m	ne	20	-	plan	Int 20	pre-excavation
5	zoom	-	ne	-	-	elev.	general shot of gatehouse	with scaffolding
6	zoom	-	ne	-	-	elev.	general shot of gatehouse	with scaffolding
7	zoom	-	n	-	-	elev.	general shot of gatehouse	with scaffolding
8	zoom	-	nw	-	-	-	general shot of bridge	
9	zoom	-	nw	-	-	elev.	general shot of gatehouse	with scaffolding
10	zoom	-	nw	-	-	elev.	general shot of gatehouse	with scaffolding
11	zoom	-	w	-	-	elev.	general shot of gatehouse	with scaffolding
12	zoom	-	sw	-	-	elev.	general shot of gatehouse	with scaffolding
13	zoom	-	ne	-	-	elev.	general shot of gatehouse	with scaffolding
14	zoom	-	ne	-	-	elev.	general shot of gatehouse	with scaffolding
15	zoom	-	ne	-	-	elev.	general shot of bridge	
16	zoom	-	ne	-	-	elev.	gatehouse passage roof	
17	zoom	-	nw	-	-	elev.	gatehouse passage roof	
18	zoom	-	nw	-	-	elev.	gatehouse passage roof	
19	zoom	-	ne	-	-	elev.	gatehouse passage roof	
20	zoom	-	ne	18	-	-	working shot	
21	zoom	-	w	18/19/20	-	-	working shot	
22	zoom	-	sw	-	-	elev.	general shot of gatehouse	with scaffolding
23	zoom	-	w	-	-	elev.	gatehouse passage roof	
24	zoom	-	w	-	-	elev.	gatehouse passage roof	
25	zoom	-	ne	-	-	elev.	gatehouse passage roof	
26	zoom	-	n	-	-	elev.	portcullis slot	
27	zoom	-	n	-	-	-	working shot	
28	zoom	-	n	-	-	-	working shot	
29	zoom	-	n	20	-	-	working shot	
30	zoom	-	n	20	-	-	working shot	
31	zoom	-	nw	-	-	-	general shot of castle	
32	zoom	1.0m	ne	20	-	plan	F17, C1088	pre-excavation
33	zoom	1.0m	ne	20	-	plan	F17, C1088	pre-excavation
34	zoom	0.5m	sw	20	-	plan	F17, C1088	pre-excavation
35	zoom	1.0m	nw	21	-	plan	C1092	pre-excavation
36	zoom	1.0m	nw	21	-	plan	C1092	pre-excavation

Film: Kodak Ultra								Film No: N43
Frame	**Lens**	**Scale**	**Direction**	**Int. No.**	**Module**	**Subject**	**Details (F/C Nos.)**	**Notes**
0								
1	zoom							
2	zoom	1.0m	nw	21	-	plan	C1092	pre-excavation

Frame	Lens	Scale	Direction	Int. No.	Module	Subject	Details (F/C Nos.)	Notes
3	zoom	-	w	21	-	-	gatehouse passage roof	
4	zoom	-	w	21	-	-	gatehouse passage roof	
5	zoom	1.0m	ne	21	-	plan	C1092	post-excavation
6	zoom	1.0m	ne	21	-	plan	C1092	post-excavation
7	zoom	0.5m	sw	7	-	plan	F10	pre-excavation
8	zoom	0.5m	sw	7	-	plan	F10	pre-excavation
9	zoom	1.0m	w	7	-	plan	F18, C1093	pre-excavation
10	zoom	1.0m	n	18	-	plan	C1094	pre-excavation
11	zoom	1.0m	n	18	-	plan	C1094	pre-excavation
12	zoom	1.0m	w	21	-	section	north-east facing section	
13	zoom	1.0m	w	21	-	section	north-east facing section	
14	zoom	1.0m	w	21	-	section	north-east facing section	
15	zoom	1.0m	sw	21	-	section	north-east facing section	
16	zoom	-	nw	21	-	elev.	general shot Int 21	post-ex
17	zoom	-	nw	21	-	elev.	general shot Int 21	post-ex
18	zoom	0.5m	e	18	-	plan	C1096	pre-excavation
19	zoom	0.5m	e	18	-	plan	C1096	pre-excavation
20	zoom	0.5m	e	18	-	plan	F19	post-excavation
21	zoom	0.5m	e	18	-	plan	F19	post-excavation
22	zoom	0.5m	e	18	-	plan	C1097	pre-excavation
23	zoom	0.5m	e	18	-	plan	C1097	pre-excavation
24	zoom	0.5m	e	18	-	plan	C1097	pre-excavation
25	zoom	0.5m	e	18	-	plan	C1097	pre-excavation
26	zoom	0.5m	s	18	-	plan	C1098	pre-excavation
27	zoom	0.5m	s	18	-	plan	C1098	pre-excavation
28	zoom	1.0m	sw	21	-	plan	C1103	pre-excavation
29	zoom	1.0m	ne	20	-	plan	F17	post-excavation
30	zoom	1.0m	ne	20	-	plan	F17	post-excavation
31	zoom	1.0m	nw	20	-	plan	F17	post-excavation
32	zoom	1.0m	se	20	-	section	nw-facing section Int 20	
33	zoom	1.0m	nw	20	-	plan	F17	with photo markers
34	zoom	1.0m	sw	20	-	plan	F17	with photo markers
35	zoom	-	nw	21	-	elev.	south-facing elevation	above g-house passsage
36	zoom	-	nw	21	-	elev.	cupboard/window	in south facing elevation
37	zoom	-	nw	21	-	elev.	cupboard/window	in south facing elevation

Film: Kodak Ultra **Film No: N44**

Frame	Lens	Scale	Direction	Int. No.	Module	Subject	Details (F/C Nos.)	Notes
0								
1	zoom							
2	zoom	1.0m	n	21	-	elev.	north corner Int 21	
3	zoom	-	n	19/20	-	-	working shot	
4	zoom	1.0m	ne	21	-	elev.	sw elevation	above gatehouse
5	zoom	-	w	21	-	elev.	east facing elevation	post-excavation

Frame	Lens	Scale	Direction	Int. No.	Module	Subject	Details (F/C Nos.)	Notes
6	zoom	-	nw	21	-	elev.	stair-wall elevation	
7	zoom	-	n	21	-	-	general shot	post-excavation
8	zoom	-	nw	21	-	-	general shot	post-excavation
9	zoom	-	nw	21	-	-	general shot	post-excavation
10	zoom	-	e	-	-	-	lighthouse	
11	zoom	-	e	-	-	-	lighthouse	
12	zoom	1.0m	nw	18	-	plan	Int 18	post-excavation
13	zoom	0.5m	sw	18	-	plan	F26	post-excavation
14	zoom	1.0m	w	18	-	plan	F23, F24	post-excavation
15	zoom	1.0m	n	18	-	plan	F23, F25	post-excavation
16	zoom	1.0m	n	18	-	plan	F22	post-excavation
17	zoom	0.5m	se	18	-	plan	F22, F24, F27	post-excavation
18	zoom	0.5m	nw	18	-	plan	F24, F25	post-excavation
19	zoom	1.0m	sw	18	-	plan	F23, F24	post-excavation
20	zoom	0.5m	nw	18	-	plan	F24, F25	post-excavation
21	zoom	1.0m	nw	18	-	section	se-facing section A	
22	zoom	0.5m	nw	18	-	section	se-facing section B	
23	zoom	0.5m	ne	19	-	section	sw-facing section	
24	zoom	1.0m	ne	19	-	plan	Int19	post-excavation
25	zoom	1.0m	se	19	-	plan	Int19	post-excavation
26	zoom	0.5m	se	19	-	plan	F32	post-excavation
27	zoom	0.5m	sw	19	-	plan	F28	post-excavation
28	zoom	0.5m	n	19	-	plan	F34	post-excavation
29	zoom	1.0m	n	19	-	plan	F33	post-excavation
30	zoom	1.0m	sw	19	-	plan	Int19	post-excavation

APPENDIX H SAMPLE REGISTER

Table 1 Sample register (all interventions)

Find No.	Sub - Sampled?	Context No.	Feature No.	Identity	Type	Box No.	Purpose	Processed
23	-	1013	-	environ	flotation	-	gba	✔
24	-	1014	-	environ	flotation	-	gba	✔
25	-	1021	-	environ	flotation	-	gba	✔
26	-	1023	-	environ	flotation	-	gba	✔
148	-	1095	-	environ	flotation	-	gba	✔
149	-	1097	-	environ	flotation	-	gba	✔
150	-	1100	-	environ	flotation	-	gba	✔
151	-	1113	28	environ	flotation	-	gba	✔
152	-	1114	-	environ	flotation	-	gba	✔

APPENDIX I FINDS INDEX

Find No	Int	East	North	Ht	CNo	FNo	Rec level	Material	Identity	Type	W (g)	Box	Description
1	4				1012		C	stone (a)			-	NB	large fragment
2	4				1012		C	stone (a)			-	NB	large fragment
3	4				1012		C	stone (a)			-	NB	small fragment
4	4				1012		C	stone (a)			-	NB	small fragment
5	4				1013		C	bone (a)	assemblage	mixed	504.0	Q1	
6	4				1010		C	bone (a)	assemblage	mixed	30.1	Q1	
7	4				1012		C	bone (a)	assemblage	mixed	21.3	Q1	
8	4				1014		C	bone (a)	assemblage	mixed	21.2	Q1	
9	4				1013		C	stone (a)	roof-tile		499.0	Q1	triangular with knapped edge
10	4				1013		C	glass	window	unid	42.0	Q1	3x loose frags, 2x frags still with came
11	4				1013		C	metal (fe)	nail (?)	unid	11.7	M1	
12	5				1001		C	ceramic (o)	clay-pipe	stem	1.8	Q1	
13	5				1001		C	bone (a)	assemblage	mixed	21.4	Q1	
14	5				1001		C	metal (fe)	unid	unid	245.0	Q1	2x iron rods
15	4				1012		C	stone (a)			754.0	Q1	moulding fragment
16	5				1001		C	stone (a)			1134.0	Q1	shaped
17	5				1001		C	stone (o)	unid	unid	43.9	Q1	
18	5				1001		C	mortar	assemblage		22.5	X1	
19	3				1021		C	bone (a)	mammal	foot	127.8	Q1	3x articulated foot bones
20	3				1021		C	bone (a)	assemblage	mixed	336.6	Q1	
21	3				1022		C	bone (a)	assemblage	mixed	111.0	Q1	
22	3				1022		C	wood	unid	unid	-	X1	
23	4				1013		C	matrix	environ	soil	-	-	10l sample for flotation
24	4				1014		C	matrix	environ	soil	-	-	10l sample for flotation
25	3				1021		C	matrix	environ	soil	-	-	10l sample for flotation
26	3				1023		C	matrix	environ	soil	-	-	1l sample for flotation
27	4				1013		C	matrix	environ	flot	1.7	X1	see sspr
28	4				1014		C	matrix	environ	flot	1.2	X1	see sspr
29	3				1021		C	matrix	environ	flot	6.8	X1	see sspr
30	3				1023		C	matrix	environ	flot	7.6	X1	see sspr
31	4				1013		C	matrix	environ	res	2447.0	X1	see sspr
32	4				1013		C	bone (a)	assemblage	mixed	46.5	Q1	see sspr
33	4				1013		C	shell	assemblage	mixed	20.0	Q1	see sspr
34	4				1013		C	mortar	assemblage		276.4	X1	see sspr
35	4				1013		C	ceramic	clay-pipe	frags	1.4	Q1	see sspr
36	4				1013		C	glass	window	unid	0.4	Q1	see sspr
37	4				1013		C	metal (fe)	unid	unid	6.9	M1	see sspr
38	4				1013		C	metal (cu)	pin	unid	<0.1	M1	see sspr
39	4				1013		C	daub	unid	unid	5.8	Q1	see sspr
40	4				1013		C	slag	ferrous	unid	0.4	Q1	see sspr
41	4				1013		C	slag	ferrous	hammerscale	3.2	Q1	see sspr
42	4				1013		C	slag	fuelash	unid	4.4	Q1	see sspr

Find No	Int	East	North	Ht	CNo	FNo	Rec level	Material	Identity	Type	W (g)	Box	Description
43	4				1013		C	wood?	unid	unid	0.3	Q1	see sspr
44	4				1014		C	matrix	environ	res	2660.0	Q1	see sspr
45	4				1014		C	bone (a)	assemblage	mixed	78.4	Q1	see sspr
46	4				1014		C	shell	assemblage	mixed	11.5	Q1	see sspr
47	4				1014		C	mortar	assemblage	unid	259.3	X1	see sspr
48	4				1014		C	ceramic	clay-pipe	frags	6.7	Q1	see sspr
49	4				1014		C	glass	window	unid	0.8	Q1	see sspr
50	4				1014		C	metal (fe)	nail	unid	3.1	M1	see sspr
51	4				1014		C	metal (cu)	pin	unid	<0.1	M1	see sspr
52	4				1014		C	flint	implement(?)	unid	1.3	Q1	see sspr
53	4				1014		C	slag	droplet(?)	unid	<0.1	Q1	see sspr
54	4				1014		C	slag	fuelash	unid	5.6	Q1	see sspr
55	4				1014		C	slag	ferrous	hammerscale	1.7	Q1	see sspr
56	3				1021		C	matrix	environ	res	1685.9	X1	see sspr
57	3				1021		C	bone (a)	assemblage	mixed	117.1	Q1	see sspr
58	3				1021		C	shell	assemblage	mixed	7.9	Q1	see sspr
59	3				1021		C	mortar	assemblage	unid	275.5	X1	see sspr
60	3				1021		C	ceramic	clay-pipe	frags	9.7	Q1	see sspr
61	3				1021		C	metal (fe)	nail (?)	unid	4.0	M1	see sspr
62	3				1021		C	flint	waste	flake	0.3	Q1	see sspr
63	3				1021		C	shell (o)	bead	unid	0.4	Q1	see sspr
64	3				1021		C	slag	fuelash	unid	15.9	Q1	see sspr
65	3				1021		C	slag	ferrous	hammerscale	2.6	Q1	see sspr
66	3				1023		C	matrix	environ	res	163.6	X1	see sspr
67	3				1023		C	bone (a)	assemblage	mixed	2.6	Q1	see sspr
68	3				1023		C	mortar	assemblage	mixed	4.4	X1	see sspr
69	3				1023		C	slag	fuelash	unid	3.5	Q1	see sspr
70	3				1023		C	slag	ferrous	hammerscale	0.4	Q1	see sspr
71	3				1023		C	wood(?)	unid	unid	1.2	Q1	see sspr
72	3				1021		C	ceramic	clay-pipe	unid	19.8	Q1	
73	3				1022		C	ceramic	clay-pipe	unid	3.0	Q1	
74	3				-		C	ceramic	clay-pipe	unid	21.9	Q1	unstratified
75	3				-		C	ceramic	pot (body)	post-med	3.7	Q1	unstratified
76	4				-		C	ceramic	clay-pipe	unid	5.5	Q1	unstratified
77	4				-		C	stone (a)	roof-tile		535.4	Q1	unstratified
78	3				-		C	stone (a)	roof-tile		1766.0	Q1	unstratified
79	5				1001		C	stone (a)			646.0	Q1	old red sandstone - rebated?
80	4				1001		C	stone (a)			138.0	Q1	Old red sandstone moulded 90°
81	11	4625.45	5020.30	17.01	1046		C	stone (a)			-	NB	
82	11	4635.23	5020.34	16.61	1046		C	stone (a)			3030.0	S(A)1	
83	11	4635.54	5020.88	16.68	1046		C	stone (a)			-	NB	
84	7				1037		C	metal (fe)			1176.0	NB	
85	12				1060		C	stone (a)				NB	old red sandstone
86	12				1060		C	stone (a)				NB	old red sandstone

Find No	Int	East	North	Ht	CNo	FNo	Rec level	Material	Identity	Type	W (g)	Box	Description
87	12				1060		C	stone (a)				NB	old red sandstone (large moulded fragment
88	12				1060		C	stone (a)				NB	old red sandstone
89	12				1060		C	stone (a)				NB	old red sandstone
90	12				1060		C	stone (a)				NB	old red sandstone (conjoins with △91)
91	12				1060		C	stone (a)				NB	old red sandstone (conjoins with △90)
92	12				1060		C	stone (a)				NB	old red sandstone
93	12				1060		C	stone (a)				NB	old red sandstone
94	12				1060		C	stone (a)				NB	old red sandstone
95	12				1060		C	stone (a)				NB	old red sandstone (left in situ)
96	12				1060		C	stone (a)				NB	old red sandstone
97	12				1060		C	stone (a)				NB	old red sandstone
98	12				1060		C	stone (a)				NB	old red sandstone
99	12				1060		C	stone (a)				NB	old red sandstone
100	12				1060		C	stone (a)				NB	old red sandstone
101	12				1060		C	stone (a)				NB	old red sandstone (conjoins with △102, 104)
102	12				1060		C	stone (a)				NB	old red sandstone (left in situ)(conjoins with △101, 104)
103	12				1060		C	glass	window		0.2	Q2	4x small fragments
104	12				1060		C	stone (a)				NB	old red sandstone (conjoins with △101, 102)
105	21				1091		C	composite	knife			TBA	bone & iron knife
106	20				1085		C	stone (a)	roof-tile		2546.0	S(A)1	caithness slate
107	21				1091		C	stone (a)	assemblage	roofing	5954.0	S(A)1	7x fragments caithness slate roof-tile
108	19				1104		C	stone (a)	roof-tile		1150.0	S(A)1	caithness slate
109	20				1085		C	stone (a)	unid		314.0	S(A)1	old red sandstone
110	16				1074		C	stone (a)	unid		194.0	S(A)1	old red sandstone (?)
111	19				1104		C	bone (a)	assemblage	mixed	1670.0	B(A)1	
112	19				1114		C	bone (a)	assemblage	mixed	2310.0	B(A)1	
113	19				1109		C	bone (a)	assemblage	mixed	684.0	B(A)1	
114	20				1085		C	bone (a)	assemblage	mixed	242.0	B(A)1	
115	19				1113	28	C	bone (a)	assemblage	mixed	576.0	B(A)1	
116	6				1031		C	bone (a)	assemblage	mixed	142.0	B(A)1	
117	18				1099		C	bone (a)	assemblage	mixed	8.0	B(A)1	
118	11				1046		C	bone (a)	assemblage	mixed	156.0	B(A)1	
119	19				1114		C	bone (a)	assemblage	mixed	1950.0	B(A)2	
120	18				1098		C	bone (a)	assemblage	mixed	10.0	B(A)2	
121	19				1083		C	bone (a)	assemblage	mixed	64.0	B(A)2	
122	18				1094		C	bone (a)	assemblage	mixed	82.0	B(A)2	

Find No	Int	East	North	Ht	CNo	FNo	Rec level	Material	Identity	Type	W (g)	Box	Description
123	21				1091		C	bone (a)	assemblage	mixed	90.0	B(A)2	
124	11				1046		C	bone (a)	mammal	unid	12.0	B(A)2	
125	19				1114		C	ceramic	assemblage	post-med	66.0	Q2	17x frag clay-pipe
126	19				1113	28	C	ceramic	assemblage	post-med	10.0	Q2	2x frag clay-pipe, 1x frag pot (body)
127	20				1085		C	ceramic	clay-pipe	post-med	4.0	Q2	2x frag stem
128	19				1104		C	ceramic	clay-pipe	post-med	14.0	Q2	4x frag stem
129	19				1104		C	ceramic	pot (body)	post-med	4.0	Q2	1x fragment
130	7				1035		C	ceramic	clay-pipe	post-med	8.0	Q2	3x fragment stem
131	21				1091		C	ceramic	pot (base-angle)	post-med	6.0	Q2	1x sherd
132	16				1074		C	ceramic	clay-pipe	post-med	0.8	Q2	1x frag painted stem
133	11				1046		C	metal (fe)	nail	unid	16.0	M1	
134	7				1035		C	metal (cu)	coin		6.0	M1	George V half-penny (1929)
135	21				1091		C	plaster	wall		430.0	Q2	4x fragments
136	10				1040		C	cbm	field drain		72.0	Q2	2x fragments
137	19				1114		C	stone (a)	tile (?)	unid	6.0	S(A)1	3x frag caithness slate
138	19				1104		C	stone (a)	assemblage	mixed	106.0	S(A)1	2x frag caithness slate, 1x frag old red sandstone
139	10				1040		C	slag	ferrous	smelting (?)	656.0	Q2	
140	18				1081		C	bone (a)	assemblage	mixed	106.4	Q2	
141	18				1100		C	bone (a)	assemblage	mixed	67.4	Q2	
142	18				1096		C	bone (a)	assemblage	mixed	10.7	Q2	
143	18				1100		C	metal (fe)	unid		19.6	M1	2x fragment
144	18				1100		C	metal (fe)	assemblage		41.9	M1	4x nail
145	18				1100		C	glass	window		1.4	Q2	1x fragment
146	18				1100		C	matrix	dating	c14	41.0	Q2	burnt peat
147	18				1100		C	ceramic	assemblage	post-med	184.0	Q2	clay-pipe & vessel ceramic (30x sherds)
148	18				1095		C	matrix	environ	soil	-	-	20l sample for flotation
149	18				1097		C	matrix	environ	soil	-	-	30l sample for flotation
150	18				1100		C	matrix	environ	soil	-	-	30l sample for flotation
151	19				1113	28	C	matrix	environ	soil	-	-	20l sample for flotation
152	19				1114		C	matrix	environ	soil	-	-	10l sample for flotation
153	18				1095		C	bone (a)	assemblage	mixed	5.7	B(A)2	see sspr (>5mm res)
154	18				1095		C	bone (a)	assemblage	mixed	1.2	B(A)2	see sspr (2-5mm res)
155	18				1100		C	bone (a)	assemblage	mixed	0.2	B(A)2	see sspr (2-5mm res)
156	18				1100		C	bone (a)	assemblage	mixed	0.3	B(A)2	see sspr (>5mm res)
157	19				1113	28	C	bone (a)	assemblage	mixed	9.9	B(A)2	see sspr (2-5mm res)
158	19				1113	28	C	bone (a)	assemblage	mixed	324.4	B(A)2	see sspr (>5mm res)
159	19				1114		C	bone (a)	assemblage	mixed	6.6	B(A)2	see sspr (2-5mm res)
160	19				1114		C	bone (a)	assemblage	mixed	148.1	B(A)2	see sspr (>5mm res)
161	18				1095		C	mortar	assemblage		70.8	Q2	see sspr (>5mm res)
162	18				1095		C	morrtar	assemblage		1.7	Q2	see sspr (2-5mm res)
163	18				1097		C	metal (fe)	nail		3.4	M1	see sspr (>5mm res)
164	18				1097		C	bone (a)	assemblage	mixed	0.4	B(A)2	see sspr (>5mm res)
165	18				1097		C	mortar	assemblage		2.7	Q2	see sspr (>5mm res)

Find No	Int	East	North	Ht	CNo	FNo	Rec level	Material	Identity	Type	W (g)	Box	Description
166	18				1097		C	bone (a)	assemblage	mixed	0.3	B(A)2	see sspr (>5mm res)
167	18				1100		C	ceramic	assemblage	post-med?	44.4	Q2	see sspr (>5mm res)
168	19				1113	28	C	daub	unid		0.6	Q2	see sspr (>5mm res)
169	19				1113	28	C	ceramic	assemblage	post-med	3.7	Q2	see sspr (>5mm res)
170	19				1113	28	C	mortar	assemblage			Q2	see sspr (>5mm res)
171	19				1113	28	C	glass	window	unid		Q2	see sspr (2-5mm res)
172	19				1113	28	C	ceramic	clay pipe	post-med		Q2	see sspr (2-5mm res)
173	19				1113	28	C	matrix	species	ident		Q2	see sspr (2-5mm res)
174	19				1113		C	ceramic	clay pipe	post-med		Q2	see sspr (>5mm res)
175	19				1113		C	mortar	assemblage			Q2	see sspr (>5mm res)
176	19				1113		C	mortar	assemblage			Q2	see sspr (2-5mm res)
177	19				1113		C	matrix	species	ident		Q2	see sspr (2-5mm res)
178	19				1113		C	bone (a)	mollusc	unid		B(A)2	see sspr (2-5mm res)

APPENDIX J ENVIRONMENTAL ASSESSMENT

Stephen Rowland

1.0 INTRODUCTION

During the course of an archaeological evaluation at Castle Sinclair Girnigoe, Caithness undertaken by Field Archaeology Specialists in 2003, four soil deposits were sampled for assessment (C1013, C1014, C1021 and C1023) and a further five samples were sampled during the 2004 season (C1095, C1097, C1100, F28, C1113 and C1114). Flotation of soils enhanced greatly the recovery of small faunal remains and artefacts, uncharred organic was rare and no insects remains were present in the samples.

1.1 AIMS AND OBJECTIVES

The aim of excavation was to record and characterise archaeological deposits for the purpose of evaluation of potential for further excavation. The aim of the sediment assessment was to establish the character of the archaeological sediments in terms of the presence and preservation of uncharred and charred organic material such as plants and insects that could be studied toward the elucidation of past diet, living conditions and building materials. Assessment was also designed to inform future sampling strategies for excavations at the site.

1.2 METHODOLOGY

Samples were washed down within a 1mm mesh held inside a water recycling flotation tank with the light fraction washed over into a 250 micron mesh. Dried residues from flotation were screened using 2mm and 5mm test sieves, producing three fractions (<2mm, 2-5mm and >5mm), only the larger two fractions were sorted for cultural objects. The finest and light fraction were scanned for environmental remains. Notes were made on the abundance (rare, occasional, common or very common) and retention (discarded, sampled or kept) of material. Once sorted the largest fraction of residue consisted of sterile gravel, small mortar lumps and slate chippings, and after sorting was discarded. The light fraction was scanned for the presence of uncharred and charred organics and insects remains but none were noted.

2.0 ASSESSMENT

C1013

Dark brown clay silt layer with occasional gravel inclusions

A 10L sub-sample was washed down yielding a moderate sized light fraction. This appeared to contain uncharred modern rootlets and contaminants. The residue consisted of slate chippings and gravel. Mortar, shell, animal bone, ceramic, glass, metal and fuelash slag was also present.

C1014

Dark brown clay layer with occasional gravel inclusions

A 10L sub-sample was washed down yielding a moderate sized light fraction. This appeared to contain uncharred modern rootlets and contaminants. The residue consisted of slate chippings and gravel. Mortar, shell, animal bone, a small flint flake, ceramic, glass, metal and fuelash slag was also present.

C1021

Dark yellowish-brown sandy clay layer with mortar flecks and slate inclusions

A 10L sub-sample was washed down yielding a moderate sized light fraction. This appeared to contain uncharred modern rootlets and contaminants. The residue consisted of slate chippings and gravel. Mortar, shell, animal bone, ceramic, glass, metal and fuelash slag was also present. A small bead fashioned from a cowrie shell was recovered from the residue. The

quantity of animal bone recovered from this deposit was greater than that of the other three sampled contexts.

C1023

Dark brown clay silt layer with occasional fragments of slate and mortar inclusions

A 1L sub-sample was washed down yielding a moderate sized light fraction. The sample was recovered due to the organic smell and texture of the deposit. The light fraction contained some charcoal and carbonised seeds; no uncharred organics were identified. The residue consisted of slate chippings and gravel. Mortar, animal bone and fuelash slag was also present.

C1095

Very dark brown clay silt dump (midden)

A 20L sample was washed down yielding a moderate sized light fraction, which was found to contain charcoal and peaty lumps, with modern grass inclusions and some mortar. The residue primarily comprised chippings of Caithness slate, occasional fragments of Old Red sandstone and mortar fragments. Rare animal bone was noted.

C1097

Dark reddish-grey silty clay layer

A 30L sample was washed down yielding a moderate sized light fraction. This was found to contain intrusive modern rootlets, and a large proportion of charcoal. The residue consisted of slate chippings, with rare animal bone fragments.

C1100

Dark brown silty clay layer

A 30L sample was washed down yielding a moderate sized light fraction, which contained charcoal and modern roots. The residue comprised chippings of Caithness slate, with occasional ceramic fragments.

F28 C1113

Very dark grey fill of hearth

A 20L sample was washed down yielding a moderate sized light fraction, which was found to contain charcoal, peaty lumps, a snail shell and modern rootlets. The main component of the residue was slate chippings, with frequent fragments of animal bone.

C1114

Dark brown silt layer (midden)

A 10L sub-sample was washed down yielding a moderate sized light fraction. The light fraction contained some charcoal and peaty lumps, with modern rootlets, a small snail shell and animal bone. The residue consisted primarily of slate chippings with animal bone and mortar also being present, and rare ceramic fragments.

3.0 DISCUSSION

While uncharred organics were rare during assessment, when present they clearly derived from fuel sources, for example the contents of hearth F28, rather than peat forming *in situ*. In addition, the presence of charred organics in C1023 suggests that burnt evidence for fuel and burnt food rubbish is also present and may add to the picture of subsistence and diet at the castle. Overall, the rarity of uncharred organic material and lack of insect remains suggests that the deposits encountered have not been sufficiently wet or that water levels have fluctuated and have contributed to the degradation of organic material. This, in addition to well-aerated soils suggests low environmental potential for the type of deposits encountered.

Flotation did however, enhance the recovery of small artefacts and animal bones. A fine-mesh sieving regime for future excavation at the site would benefit recovery particularly for the recovery of fish bone. An appropriate flotation and fine-

mesh sieving regime should be implemented for further excavation at the site. The nature of material recovered from all deposits, particularly the animal bone and fuelash slag sampled suggests midden or primary refuse material best characterises the nature of deposits sampled.

APPENDIX K CERAMIC ASSESSMENT

Dr Alan Vince

1.0 INTRODUCTION

Forty-six fragments of clay tobacco pipe and one potsherd were recovered from an archaeological evaluation at Castle Sinclair Girnigoe, Caithness, carried out by Field Archaeology Specialists Ltd in 2003. The finds are likely to be of mid-17th century date. A further, small collection of pottery and clay tobacco pipes was recovered from the second phase of evaluation carried out at Castle Sinclair Girnigoe by Field Archaeology Specialists Ltd in 2004. The finds from 2004 range in date from the medieval period or later to the 19th century but are mainly probably of mid/late 17th century date.

2.0 POTTERY

2.1 2003 ASSEMBLAGE

A single fragment of pottery was recovered in 2003. The sherd comes from a cylindrical vessel with a ribbed outer surface and glaze inside and out. The vessel might be a tankard or a jug with a cylindrical neck. The fabric is a fine-textured red earthenware. The vessel is likely to be of 17th century date but could be slightly earlier or later.

2.2 2004ASSEMBLAGE

In 2004, thirty-one fragments of pottery were recovered from the evaluation interventions. Most of these (twenty-eight) were recovered from C1100 and include several joining sherds. It is possible that all come from the same smashed vessel.

The fabric of this vessel contains numerous organic voids, abundant subangular quartz grains up to 1.0mm across together with sparse rounded polished grains. The groundmass is variegated and micaceous.

The polished quartz grains, in particular, are characteristic of lower Cretaceous clays and sands. Deposits of such strata are rare in Scotland but do outcrop along the east Caithness coast, from Wick southwards to Inverness and Elgin. Therefore, this vessel was probably locally produced.

The vessel has a flat base, curving body and a sloping shoulder with no sign of neck or rim sherds, nor of a handle. Several of the sherds were sooted on the exterior. The use of this chaff-tempered fabric is thought to have been introduced following Viking settlement and the tradition continues throughout the medieval period, in some areas into the 19th century (Quail 1979).

Two sherds of 17th century date were recovered. That from C1104 is a thin-walled body sherd from a tin-glazed mug or drinking jug with an external purple-mottled tin glaze and an internal plain white tin glaze (TGW). The use of this mottled glaze began in Antwerp in the mid-16th century (so-called Malling jugs) but continued into the early to mid17th century, for example at London.

That from C1113 is a glazed red earthenware of Low Countries character (DUTR). The fabric at x20 magnification consists of a fine-textured red-firing groundmass with abundant rounded quartz sand inclusions, some of which are coated with haematite. This might suggest the use of a sand derived from a red sandstone, such as the Old Red Sandstone, which outcrops in eastern Scotland. The vessel might therefore be a local copy of a Low Countries vessel.

A single sherd of Creamware, of later 18th or 19th-century date. was recovered from context 1091.

3.0 CLAY TOBACCO PIPE

3.1 2003 ASSEMBLAGE

Forty-six fragments of clay tobacco pipe were found in 2003. Most of these are very small and a number have been shattered, either by crushing or freeze-thaw weathering. Wherever the bore diameter of the pipe is discernable it is wide and likely to date to the earlier part of the 17th century. Fragments of several bowls are present and all are small bulbous types, of the kind produced in London *c*.1640-60. The fabric of the pipes is in the main extremely fine-textured with rare clay pellets, iron-rich compounds, organic impressions and quartz silt less than 0.1mm across (just visible at x20 magnification). The pipes were made from a clay with a high organic content, leading to the presence of a dark core to several of the stems and most of the bowl fragments (which are thicker). By contrast, there is little sign of soot blackening of the bores or bowls through use.

Some of the pipes have a burnished surface, including two examples where the mouthpiece has been reground. There are two examples with normal cut mouthpieces, neither of which has burnishing. One of the burnished bowl fragments has a continuous groove below the rim instead of the milling which is normally present.

A single fragment of a small bowl has a micaceous, silty fabric which is quite different from that of the remainder. This fabric is not common at London and suggests that whereas the majority might be London pipes this example is not. However, its actual source is unknown.

3.2 2004 ASSEMBLAGE

Thirty-one fragments of clay tobacco pipe were recovered. Most are featureless stem fragments but the collection includes one bowl and two decorated stems.

The pipe fabric was examined at x20 magnification and is mainly fine-textured with some visible quartz silt, sparse muscovite flakes up to 0.1mm across are visible on the surface of the pipes. This pipeclay is probably obtained from a deposit of Tertiary Ball Clay, such as those of the Isle of Wight and Dorset. This clay was used extensively from pipe manufacture in southern and eastern England (and quite possibly also in the Low Countries).

The pipes occur with three bore diameters, characteristic of the early to mid-17th century, the later 17th century and the later 18th and 19th century respectively.

The early to mid-17th century pipes include the single bowl, and the decorated stem fragments, as well as a cut mouthpiece. The bowl is milled with a plain knife-cut heel and probably dates to the period *c*.1640-60. It is similar in appearance to those produced in London. The decorated stems both have a single line of lozenge shaped stamps consisting of an elaborate fleur-de-lys in a diamond-shaped border. Such stamps were used in Amsterdam in the mid-17th century.

The later 17th century pipes consist solely of stem fragments, all from one context (1114). They have a similar appearance at x20 magnification to the earlier pipes.

The later 18th- to 19th-century pipes consist of a red wax coated mouthpiece and featureless stems.

4.0 ASSESSMENT

All of the finds are consistent with a 17th century or later date but apart from the single pipe bowl, from C1114 they cannot be closely dated. However, little of the material appears to date to the later part of the century.

It is unlikely that a profile can be reconstructed of the grass-tempered vessel from C1100. However, it would be possible to test the postulated local source through thin section analysis. The decorated clay pipe stems and the clay pipe bowl could be illustrated.

Table 1 2003 ceramic assemblage

Context	Find	Description	Cname	Form	Nosh	NoV	Weight	Subfabric	Condition
1001	12	17th c bore diam	Pipeclay	Pipe	1	1	1		
1013	35	17th c bore diam	Pipeclay	Pipe	6	3	1		shattered
1013	35	Small bowl	Pipeclay	Pipe	1	1	1	Silt/fine sand; abundant muscovite >0.2mm	
1014	48	17th c bore diam	Pipeclay	Pipe	13	1	1		shattered
1014	48	Small bowl; milled rim	Pipeclay	Pipe	1	1	3		
1014	48	Small bowl	Pipeclay	Pipe	1	1	1		
1014	48	17th c bore diam	Pipeclay	Pipe	1	1	1		
1014	48	Cut mouthpiece	Pipeclay	Pipe	1	1	3		
1021	60	Small bowl; milled rim	Pipeclay	Pipe	1	1	3		
1021	60	Small bowl; burnished with groove below rim	Pipeclay	Pipe	1	1	1		
1021	60	Small bowl; burnished	Pipeclay	Pipe	1	1	1		
1021	60	17th c bore diam	Pipeclay	Pipe	3	3	5		
1021	72	17th c bore diam	Pipeclay	Pipe	5	5	15		
1021	72	Burnished with ground down mouthpiece; 17th c bore diam	Pipeclay	Pipe	1	1	3		
1022	73	17th c bore diam; cut mouthpiece	Pipeclay	Pipe	1	1	3		
US	74	Small bowl; milled rim	Pipeclay	Pipe	1	1	1		
US	74	Burnished stems; 17th c bore diam	Pipeclay	Pipe	2	2	11		
US	74	17th c bore diam	Pipeclay	Pipe	4	4	11		
US	75	Ribbed cylindrical neck; plain glaze int and ext with dkbr glaze runnel down ext	Pmloc	Jug	1	1	3	Silty redware	
US	76	Burnished with ground down mouthpiece; 17th c bore diam	Pipeclay	Pipe	1	1	6		

Table 2 2004 ceramic assemblage

Context	Class	Cname	Subfabric	Form	Part	Description	Nosh	NoV	Weight	Use
1091	Pottery	Crea		Plate	BS		1	1	7	
1035	CTP	Pipeclay		Pipe	BS	19th C bore diam	3	3	8	

Context	Class	Cname	Subfabric	Form	Part	Description	Nosh	NoV	Weight	Use
1074	CTP	Pipeclay		Pipe	Mouthpiece	Red wax; 19th C bore diam	1	1	1	
1085	CTP	Pipeclay		Pipe	BS	17th C bore diam	2	2	4	
1100	CTP	Pipeclay		Pipe	BS	17th C bore diam	3	3	11	
1100	Pottery	Preh	A SA Q <0.5mm; M organics; variegated	Jar	BS	Flat base; curved body no rim or neck	28	1	166	Sooted
1104	CTP	Pipeclay		Pipe	BS	17th C bore diam	4	4	15	
1104	Pottery	TGW	Fine quartz in calc matrix	Mug/ DJ	BS	Purple mottled ext; malling	1	1	3	
1113	CTP	Pipeclay		Pipe	BS	17th C bore diam; stem stamps - fleur de lys	1	1	1	
1113	CTP	Pipeclay		Pipe	BS	17th C bore diam	1	1	5	
1113	Pottery	DUTR	Clean matrix; A RQ some red coated	Caul	BS	Int plain gl; ext horiz grooves/ combing	1	1	2	
1114	CTP	Pipeclay		Pipe	BS	17th C bore diam	10	10	38	
1114	CTP	Pipeclay		Pipe	Mouthpiece	Cut mouthpiece	1	1	3	
1114	CTP	Pipeclay		Pipe	Bowl	1640-60; heeled bowl; milled rim	1	1	11	
1114	CTP	Pipeclay		Pipe	BS	L 17th C bore diam	3	3	7	
1114	CTP	Pipeclay		Pipe	BS	17th C bore diam; stem stamps - fleur de lys	1	1	3	

Reference

Quail, G. 1979. 'Craggan ware' *Scottish Pottery Society Archive News* Volume 4: 39-46

APPENDIX L METALWORK AND CONSERVATION ASSESSMENT

Cecily Spall and Karen Barker

1.0 INTRODUCTION

A small assemblage of ferrous and non-ferrous metalwork was recovered during archaeological evaluation undertaken by Field Archaeology Specialists Ltd at Castle Sinclair Girnigoe, Caithness. The assemblage was submitted for x-ray and assessment in accordance with guidelines set out in Managing Archaeological Projects (English Heritage 1991). X-rays were undertaken on behalf of Field Archaeology Specialists by Karen Barker Antiquities Conservation.

1.1 METHODOLOGY

The objects were x-rayed at 110kv for one minute. Full identification of the objects was undertaken by examining the x-ray plates on a light box corrected to 5000k. Each plate was given a number from the series maintained by Antiquities Conservation and each finds bag was marked with the x-ray number. Find numbers were marked on each radiograph to allow comparison. All radiographs are stored to archival standard.

1.2 STORAGE

All metalwork is stored in polythene 'Stewart' boxes with 'jiffy' foam inserts to avoid damage during transit and silica gel to provide an appropriate dry environment of less than 15% for ferrous material and less than 35% for non-ferrous material in accordance with First Aid for Finds (Watkinson and Neal 1998). The metalwork is stable under these conditions and requires no treatment; no unstable non-ferrous objects were encountered during assessment.

2.0 FERROUS OBJECTS

Nine ferrous objects were recovered during excavation (Table 1). Two long, thin iron strips have been tentatively identified as saddlebars. Saddelbars are fitted between stone glazing bars in order to allow panels of leaded glass to be secured in positioned. The glazed panels are then fastened to the saddlebars used fine copper alloy wire or lead strips wire. One of the primary functions of saddlebars was to prevent glazing panels from being blown inwards into a building and it may be significant that they derive from Intervention 5, which was positioned in an area of the castle which represents internal space. The longest saddlebar measures 62cm in length and might suggest a minimum width or length for glazing panels.

Table 1 Catalogue of ferrous objects

Find no	Context no	Description	X-ray no
11	1013	Nail, 4.5cm in length	K03/131
14	1001	Two possible saddlebars, 62cm and 44cm in length, 0.5cm thick, round profile	K03/132
37	1013	Strip, broken, 4cm in length, mineral-preserved wood adhering in corrosion layers	K03/131
50	1014	Nail, head broken from shaft but conjoining, 2cm in length	K03/131
61	1021	Nail, shaft bent at end, 4.5cm in length	K03/131
84	1037	Large iron bar 75cm in length, 2.5cm in width	-
133	1046	Nail, complete, 6cm in length	-
163	1097	Nail shaft, broken at both ends, 3cm in length	-

3.0 NON-FERROUS OBJECTS

Three non-ferrous objects were recovered during excavation. Two were small non-ferrous pins, recovered by flotation and are common finds on sites of late and early post-medieval date, since they were used to pin hairstyles, headdresses and clothing in position. The pins are too small and thin to show manufacturing details in x-ray although under x10 magnification they appeared to have wire-wrapped not cast or hammered heads indicating that the pins were manufactured by drawing the copper alloy into a fine wire and then wrapping a wire in an S- or Z-pattern to form the head. Pins of similar manufacture are dated to the late 14th century onwards in London (Egan and Pritchard 2002, 301), although the length of shank of both pins, ie less than 30mm allows a 16th to 17th century date to be assigned to the pins (Oakley 1979, 260-1).

A half-penny of George V (minted 1929) was recovered from a turf layer in the West Barbican.

Find no	Context no	Description	X-ray no
38	1013	Small copper alloy pin, complete, 2.1cm in length, 0.1cm thick	K03/131
51	1014	Small copper alloy pin, broken but conjoining, 2.4cm in length, 0.1cm thick	K03/131
134	1035	Half-penny of George V, 1929	-

4.0 COMPOSITE OBJECTS

A composite bone-handled iron knife was recovered from the base of C1091, a rubble deposit overlying the sandstone floor of the first floor of the West Gatehouse (Find 105). The knife was recovered in a fragile state with large areas of the bone handle covered in sand concretions and the hollow chamber of the handle full of water. The concretions on the handle and the corrosion of the blade have been removed during conservation. In addition, the blade was removed from the handle, in order to allow the interior of the handle to dry thoroughly and following treatment was reinserted and fixed with HMG.

The blade is of shouldered whittle-tang form, but is incomplete measuring 78mm and the tang 29mm. The tang has been inserted into the hollow carved and burnished cylindrical bone handle. The handle measures 78mm in length, tapering from 13mm to 10mm, and has been fashioned from the long bone of a small animal forming a cylindrical hollow handle. The handle is highly burnished, and at the end two concentric circles have been carved below a substantial groove. The end of the hollow handle has been finished with the insertion of a small plug-finial probably to make the handle appear solid. The finial has the appearance of a 'pommel', which is a small knob found at the end of knives of scale-tang form; it is possible that the finial was also designed to give the knife the appearance of a scale-tang manufacture. The quality of the knife is comparatively fine and would have been intended for display and worn from a belt possibly within a sheath; both the burnishing of the bone and the insert of the plug-finial to make the handle appear solid may represent an attempt to imitate ivory. It is possible that the substantial groove at the end of the handle may have been to allow a cord to be fastened around the knife for suspension.

The form of the blade, though incomplete suggests a late or post-medieval date since blades of the medieval periled tended to have more or less equal blade-handle lengths. The Girnigoe knife, though incomplete already has the same blade to handle length; the blade was clearly longer originally and is indicative of a later date. However, the tang length might be expected to be longer, since the whittle-tang blade form persisted, but developed into a 'through'-tang form where the tang was as long as the handle (Cowgill, Neergard and Griffiths 2000, 25; Moore 1995, 8). The plug-finial might be imitating this form of blade manufacture, which could also indicate a late medieval or post-medieval date. A cylindrical knife-handle with plugged end from Norwich is dateable to the post-medieval period (MacGregor 1985, 170).

In the late medieval to early post-medieval period knives became increasingly bound into social behaviour following medieval dining traditions and were displayed in costume and during the meals. Despite its fragile condition the Girnigoe

knife is comparatively well-preserved and such finds are not common in Scotland.

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APPENDIX M ZOOARCHAEOLOGICAL ASSESSMENT

Stephen Rowland and Amy Thomson

Summary

Following an archaeological evaluation at Castle Sinclair Girnigoe, Caithness, in 2003 by Field Archaeology Specialists Ltd, a medium-sized assemblage of zooarchaeological remains was assessed by Stephen Rowland. This assemblage consisted of a small hand-collected assemblage of 154 fragments, of which 71 could be identified to species. In addition, flotation of four contexts recovered 1532 bones, primarily fish, of which 326 were identified. Species representation was somewhat limited, and the mammals consisted of ovicaprid, cattle (including elements of a perinatal calf) and small numbers of rabbit, mouse and rat. As well as a high proportion of domestic fowl, there was also the occasional goose bone. Fish remains were dominated by haddock with large numbers of gadids, mostly cod or saithe where identifiable, which were generally rather small. Salmonids were present in small numbers, including a single bone of artic charr. It was thought that due to the high level of preservation and the proportion of identifiable bone fragments, measurable bones, mandibles and unfused elements was high enough to suggest that further material from future excavations has the potential to yield significant information regarding diet, husbandry practices, economy supply and social relations of the past inhabitants of Castle Sinclair Girnigoe and its environs. It is thought likely that the deposits were the result of the occupation of the castle by Parliamentarian troops during the Civil War.

Further excavation at Castle Sinclair Girnigoe in 2004 recovered another medium-sized assemblage, which was assessed by Amy Thomson. This assemblage consisted of a medium-sized hand-collected assemblage and floatation of 15 contexts, of which 1040 fragments of bone were hand-collected and 169 could be identified to species, 540 fragments were recovered by flotation and 34 were identifiable to species. The species representation was relatively restricted, consisting of ovicaprid, cattle and a single example of a canid in the hand-collected material and probably intrusive rabbit bones and a small rodent present in the floatation material. Bird bones were fairly frequent, with domestic fowl being the most common, followed by goose, recovered mainly by flotation. Fish bones were recovered being mostly cod and haddock, recovered again by flotation. Overall preservation was good. The results and data from both phases of zooarchaeological assessment have been amalgamated and are presented together below.

1.0 INTRODUCTION

The work in 2004 by Stephen Rowland reports on the assessment of approximately 20 litres of faunal remains recovered by hand collection and flotation during an archaeological evaluation carried out in August 2003 by Field Archaeology Specialists Ltd at Castle Sinclair Girnigoe, Caithness on behalf of the Clan Sinclair Trust. After further excavations in 2004, another report was undertaken on the faunal remains recovered by hand collection and flotation of about 40 litres of faunal remains.

The evaluation in 2003 involved the hand-excavation of three interventions: Intervention 3 (1m x 1.5m) located within the porter's lodge against the north-west wall of the late 14th to early 15th century west gatehouse; Intervention 4 (1m x 1.5m) located in the southwest courtyard in the angle of the mid-16th to early 17th century wall of the Porter's Lodge and the northwest wall of the gatehouse; Intervention 5 (2m x 1m) situated on the first floor of the gatehouse against the northwest internal wall. Each of these interventions encountered layers of material relating to late occupation of the castle and its subsequent decay. Of 25 contexts encountered, seven yielded hand-collected bone and four assemblages of bone were recovered by flotation.

In 2004, nineteen evaluation trenches were excavated within the Outer Bailey of the Castle and in the area of the West Barbican, of which 15 produced animal bone; four faunal samples were recovered by floatation. Interventions which yielded

zooarchaeological remains were: Intervention 6 (C1031) (4m x 1m) was situated outside the dry moat in the area of the West Barbican, excavation revealed a post-medieval ditch and bank; Intervention 11, (C1046) (2m x 2m) lay within the Porter's Lodge, adjacent to the West Gatehouse; Intervention 18, (C1094, C1095, C1096, C1098, C1099 and C1100) (3m x 3m) situated within the North Range of the Outer Bailey; Intervention 19 (C1083, C1104, C1113 and C1114) (2.5m x 1.5m) revealed evidence for a smaller Porter's Lodge, which would have served the southern entrance to the castle. The majority of these deposits represent the collapse of building material, sealing the occupation deposits.

The castle was first built in the late 14th century as a residence of the Earls of Caithness, and over the ensuing centuries was added to, altered and changed hands until in 1680 it was laid siege to and rendered uninhabitable, becoming increasingly dilapidated ever since.

1.1 AIMS AND OBJECTIVES

Zooarchaeological assessment aimed to determine the potential of the excavated bone to provide information regarding the nature of socio-economic systems, diet and animal husbandry during the past. The potential was established through the assessment of preservation, fragmentation and the potential for the recovery of metric and aging data.

1.2 METHODOLOGY

The assessment of the zooarchaeological remains followed the protocol set out by the Environmental Archaeology Unit for recording animal bones (Dobney *et al*, 1999). To increase the speed of analysis and to maximise the potential of the most informative elements, strict criteria were used to selectively record a specific suite of "A" bones. Limb elements were only identified to species if they had at least 50% of an articular bone zone (Dobney and Reilly, 1988), skulls, maxillae, horn cores and teeth only if they were more than 50% complete and mandibles only if they contained teeth or the condyle was present and undamaged. Elements of the torso, the ribs, vertebrae and sternum were not identified to taxon, regardless of completeness. Instead, these along with other, less complete elements were identified to anatomic element where possible, but recorded generally as bird, fish, small mammal (rat-sized or below), medium mammal 2 (dog-, cat- or rabbit-sized), medium mammal 1 (ovicaprid- and small deer-sized) and large mammal (cow-, horse- and large deer-sized). Sheep and goats were distinguished on the basis of the horn core, deciduous forth premolar, distal humerus and tibia, proximal and distal radius, astragalus, calcaneus and the third phalanx, according to the criteria of Boessneck (1969), Payne (1985) and Prummel and Frisch (1986). Measurements following von den Driesch (1976) were only taken in the data gathered in 2004; time constraints meant that measurements were not taken for the assemblage studied in 2005.

Subjective notes were made on the state of preservation ("excellent", "good", "fair" or "poor"), angularity ("spiky", "battered", "rounded" or "variable") and colour, as well as the degree of fragmentation and the proportions of butcher, burning, gnawing and fresh breakages as expressed in percentage ranges. Information for each taxon was recorded into a database (the "York System"), using Microsoft Access 2002 and 2003 tables regarding the numbers of elements, mandibles, ageable or sexable teeth, measurable bones, unfused epiphyses and metaphyses and newborn bones as well as the total weight. Data was imported into Microsoft Excel 2002 and 2003 for presentation. Quantification was based on raw fragment numbers for all taxa.

2.0 ASSESSMENT

Bones were generally described as being in a good state of preservation with most contexts containing bones in good, fair or excellent condition, although those collected from C1014 were more variable and C1091 where the bone was much degraded. Angularity was recorded as "spiky" in all cases, indicating that the bones had been subjected to little post- or re-depositional activity. Colour was mostly beige for mammal and bird remains and gingery-brown for fish, with the exception of the hand-collected bones from C1021 (fawn), those from the flotation of C1023 which were more variable arising from

the high proportion of charred or calcined bones from this sample, and bird bones from C1046 being paler in colour. Fragmentation was low to moderate among the hand-collected material, most bones measuring between 5cm and 20cm across and with none larger than 20cm. Material from floatation was inevitably more fragmented, and a number of fish bones were quite badly damaged while others showed flattening consistent with being chewed. Evidence of carnivore gnawing was present in most contexts, being particularly common in C1014, C1022, C1104 and C1114, while rodent- and cat-gnawing was also observed, most prominently in C1021. Some mammal bones and several bird bones, particularly the phalanges, appeared to bear erosions most likely to have originated from digestive acids. Butchery was also common in most contexts, exceeding 50% in C1014, and generally consisted of multiple knife cuts or chop marks through bones. Butchery was observed on fish, mammal and bird bones. Burning was seen in C1023, one bone in C1021, one in C1095, four in C1113, seven in C1114 and none in any of the other contexts under study. Fresh breakage, consistent with the good state of preservation, was low or absent.

The hand-collected material comprised a rather limited range of taxa (Table 2), of which ovicaprid dominated (70 fragments) followed by cattle (56 fragments) and chicken (40 fragments). Two ovicaprid bone fragments had unfused epiphyses, indicating young animals, however all individuals had permanent teeth and three had the third molar in wear, indicating mature animals. A left and right ovicaprid mandible from C1114 appears to have come from the same individual, based on tooth wear. From the ovicaprid bones recovered, none could be identified to goat, and by looking at the distal humerus, six could be confidently identified as sheep. Most cattle bones appear to be from mature animals, however some juvenile bones from large mammals were recovered and may well be from cows. Three cattle bones were recovered from C1022 which appeared perinatal and included one-half of an un-conjoined metatarsal. There was also a fragment of a very young distal tibia epiphysis and metaphysis from C1013 and a very small tibia from C1010. Seven chicken bones were juvenile. Rabbit bones were recovered from C1001, C1014 and C1113; C1014 contained juvenile bones. Eleven goose bones were recovered as were eight cod bones. Only two pig bone fragments were recovered, a fragment of immature cranium from C1013 and a mandible fragment from 1104, from a young individual as the second molar was not in wear.

Pathology was visible on several bones, including an arthritic sheep humerus from C1021 with osteophyte development and eburnation, an arthritic rabbit phalange from C1113 and a medium mammal incisor with a cavity. In birds, an arthritic goose tibiotarsus and a chicken ulna with an apparent evulsion fracture, involving the distal articulation and shaft from C1012, a goose tarsometatarsus with inflamed bone (possibly arthritis) from C1114.

Material from floatation typically contained a high proportion of unidentified material, with a predominance of fish, but with bird bones well-represented (Tables 3-10). Fowl and goose were again present along with occasional sheep bones while there were two mouse jaws from C1014, a mouse maxilla and a rat-sized femoral head, a rabbit foot (one metapodial and several phalanges) from C1113 and two amphibian vertebra in C1095. The remaining identified fragments were fish, dominated by haddock which accounted for 175 (36%) of the 487 fish bones. The majority of the remainder included bones positively or closely identified as cod or saithe (the former being more common), as well as those identified as *Gadus pollachius* (cod, saithe and pollock are hard to distinguish). Thirty-four bones could only be identified as gadids, and included bones that were either very damaged, small or simply not particularly diagnostic. The rest of the identifiable fish assemblage was comprised of small numbers of herring, salmonids, ling, a single eel and a single arctic char vertebra.

3.0 DISCUSSION

The dataset from both assemblages from Castle Sinclair Girnigoe is relatively small; it does yield quite useful information. The high level of preservation seen means that any future excavations are also likely to recover well-preserved animal bone assemblages from rubbish left by Parliamentarian troops during the Civil War with good potential for husbandry and size and conformation analysis. Secondly, with recovering and analysing a large assemblage of faunal remains from the castle would provide a rare opportunity to both characterise the diet of encamped soldiers and to possibly compare the diet with remains from earlier occupation of the castle. The opportunity exists to compare the castle diet with evidence from other

high status sites, from Portchester, Castle Mall Norwich, Dudley or Dolforwyn, in order to test the hypothesis of a pan-European high status diet. The different cultural and geographic situation of the castle would have had an important effect on the procurement strategies that were practised. High status conspicuous consumption could have involved importation of exotic, rare or non-local goods in order to emulate general European trends of consumption and leisure activities, or, might have been rejected in favour of more local traditions and resources.

The species representation seems to indicate a diet dominated by cattle, sheep and gadidae, reflecting a degree of local exploitation. The lack of cattle cranial fragments may suggest that the cows were slaughtered elsewhere and the dressed carcasses were brought into the castle, while sheep being smaller could be either brought in on the hoof and slaughtered at the castle or whole carcasses were brought in. The very small number of pig bones recovered is interesting, as pigs are a cheap source of protein and ubiquitous in most post-medieval sites. Pork might not have been considered suitable for a high status settlement and may explain the lack of this species in the assemblage. The rabbit foot recovered from C1113 if not intrusive may have been the remains of someone's meal, or a good luck charm. The canid radius and ulna in C1031 are more difficult to explain, and may have come from a dog kept in the castle or the remains of a hunted fox.

The majority of fish recovered were saltwater, with a single eel bone being the only fresh water representative. The few herrings might also indicate some importation of processed fish, although they could also be caught by chance. The low frequency of these bones, particularly when compared to contemporary urban sites, might also relate to the nature of their consumption and disposal. Eels and herring have bones that are small enough to be swallowed comfortably, and thus might be considered more likely to appear in deposits with a component of faecal material.

Haddock, a deep-water fish, account for the majority of the gadidae, but this is only noticeable in C1021, where they are approximately twice as common as the other fish. In C1013 and C1014, the proportions of haddock and other gadids are more even. In addition, where it is possible to tell, many of these fish are quite small. The haddock range from approximately 10cm long to 45 cm, with the majority of size-indicating elements suggesting a length of about 30cm. Ling is another deep-water fish, and again the bones recovered indicate small fish. Cod and saithe bones indicate a larger size range between 30cm and 1m, with the majority, along with the salmon, at about 40-60cm in length. This could well imply that these fish were mostly caught when quite young when they breed in shallower inshore waters. The pelagic salmon could again have been caught in such a situation. In modern times, artic charr, a salmonid, normally inhabits the north Atlantic beyond Norway, but relict populations, including within inland waterways, have been observed in Britain. In the case of all fish head elements and ultimate vertebrae appear slightly under-represented, suggesting that while some fish were brought to the site whole, others may have arrived in a processed state.

4.0 POTENTIAL FOR FURTHER WORK

The information gained from zooarchaeological assessment suggests some further analytical potential for the assemblage. Continuing excavations at Castle Sinclair Girnigoe will help to build up a picture of how the site was used as well as understanding the food acquisition methods used at the castle, particularly during Parliamentarian occupation. Future animal bone assemblages should be recorded and analysed in full with a complete archive of metric and ageing data.

5.0 ARCHIVE

All material and records, both paper and electronic, are currently stored by FAS.

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Table 1 Summary of preservation data from Castle Sinclair Girnigoe

Int	CNo	Pres	Rec	Ang	Colour	Frag 0-5cm	Frag 5-20cm	Frag +20cm	Butchery	Burning	Gnawing	Fresh Breakages
5	1001	g	hc	s	be	2	5	n	n	n	n	n
3	1021	g	hc	s	f	n	5	n	n	n	n	n
3	1021	g	hc	s	be	1	5	n	2	n	0	1
3	1022	g	hc	s	be	0	5	n	2	n	2	n
4	1013	g	flot	s	b	5	n	n	n	n	n	n
4	1014	g	flot	s	b	5	n	n	n	n	n	n
4	1013	g	hc	s	be	1	5	n	n	n	n	n
3	1021	g	flot	s	b	5	n	n	0	0	0	n
4	1010	g	hc	s	be	n	5	n	n	n	n	n
3	1023	g	flot	s	b	5	n	n	n	2	n	n
4	1012	g	hc	s	be	n	5	n	1	n	1	n
4	1014	g	hc	s	be	1	5	n	5	n	2	n
6	1031	g	hc	s	b	0	5	n	0	n	n	1
11	1046	f	hc	s	be	n	5	n	n	n	n	n
19	1083	g	hc	s	b	0	5	n	n	n	0	n
20	1085	g	hc	s	b	0	5	n	0	n	n	n
21	1091	g	hc	s	be	0	5	n	n	n	n	n
18	1094	g	hc	s	b	n	5	n	2	n	n	n
18	1095	g	hc/flot	s	be	1	5	n	n	0	0	n
18	1098	g	hc	s	b	n	5	n	n	n	n	n
18	1099	g	ch	s	b	n	5	n	n	n	n	n
18	1100	g	hc/flot	s	b	5	0	n	n	n	n	n
19	1104	g	hc	s	be	1	5	n	1	2	2	0
19	1113	g	hc/flot	s	b	5	1	n	/1	0	0	n
19	1114	g	hc/flot	s	be	5	2	n	2	1	1	0

Key: Pres=Preservation - g=good, f=fair; Rec=Recovery method - hc-hand-collected, flot=flotation; Ang=Angularity - s=spiky; Frags 0-5= fragments less than 5cm across, Frags 5-20=fragments 5-20cm across, Frags+20cm=fragments more than 20cm across

Table 2 Summary of hand-collected remains from Castle Sinclair Girnigoe

Taxon		**Fragment counts**
Unidentifiable mammal		461
Unidentified fish		31
Large Mammal		149
Medium Mammal 1		162
Unidentifiable Bird		87
Small Mammal		1
Subtotal		**891**
Cattle	*Bos taurus*	56
Ovicaprid		70
Sheep	*Ovis aries*	6

Taxon		**Fragment counts**
Lagomorph		1
Canid		2
Pig	*Sus scrofa*	1
Subtotal		**136**
Chicken	*Gallus* f. domestic	40
Domestic/Wild greylag goose	*Anser* sp.	11
Subtotal		**51**
Cod family	*Gadidae*	8
Subtotal		**8**
Total		**1086**

Table 3 Summary of flotation material from C1013

Taxon		**Fragments**
Goose	*Anser* sp.	1
Chicken	*Gallus* f. domestic	1
Salmon family	Salmoindae	1
Cod	*Gadus morhua*	2
Cod/Saithe	Gauds/Pollachius	10
Cod family	*Gadus* f.	3
Haddock	*Melanogrammus aeglefinus*	9
cf. Haddock	cf. *M. Aeglefinus*	1
Subtotal		**28**
Medium Mammal 1		9
Aves		48
Pisces		120
Unidentified		100
Subtotal		277
Total		**308**

Table 4 Summary of flotation material from C1014

Taxon		**Fragments**
Mouse	*Mus* sp.	2
Rat	*Rattus* sp.	1
Sheep/Goat	Ovicaprid	8
Chicken	*Gallus* f. domestic	1
herring	*Clupea herengus*	1
Salmon	*Salmo salar*	1
Salmon family	Salmonidae	1
Eel	*Anguilla anguilla*	2
Cod	*Gadus morhua*	1
Cod/Saithe	Gadus/Pollachius	17
Saithe	*Pollachius virens*	1
cf. Saithe	cf. *Pollachius virens*	2
Haddock	*Melanogrammus aegelfinus*	27
Ling	*Molva molva*	1
Sub-total		**67**
Large Mammal		1
Medium Mammal 1		4
Aves		56
Pisces		300
Unidentified		45
Sub-total		**406**
Total		**473**

Table 5 Summary of flotation material from C1021

Taxon		**Fragments**
Sheep/Goat	Ovicaprid	3
Chicken	*Gallus* f. domestic	5
Herring	*Clupea herengus*	2
cf. Arctic charr	*Salvelinus alpinus*	1
cod	*Gadus morhua*	5
cf. Cod	cf. *Gadus morhua*	7
cod family	Gadidae	26
cod/saithe	Gadus/Pollachius	45
saithe	*Pollachius virens*	1
cf. saithe	cf. *Pollachius virens*	5
Haddock	*Melanogrammus aegelfinus*	128
cf. haddock	cf. *Melanogrammus aegelfinus*	1
cf. ling	cf. *Molva molva*	1
Sub-total		**230**
Large Mammal		1
Medium Mammal 1		22

Taxon	Fragments
Medium Mammal 2	5
Small Mammal	1
Amphibian	5
Aves	62
Pisces	350
Unidentified	40
Sub-total	**486**
Total	**716**

Table 6 Summary of flotation material from C1023

Taxon		Fragments
cf. haddock	cf. *Melanogrammus aegelfinus*	1
Pisces		4
Unidentified		33
Total		**38**

Table 7 Summary of flotation material from C1095

Taxon	Fragments
Small Mammal	6
Pisces	8
Aves	2
Unidentified Mammal	38
Amphibian	2
Total	**56**

Table 8 Summary of flotation material from C1100

Taxon	Fragments
Small Mammal	1
Unidentified Mammal	2
Total	**3**

Table 9 Summary of flotation material from C1113

Taxon		Fragments
Cattle	*Bos taurus*	4
Rabbit	*Orychtalagus cunicululs*	12
Sheep/Goat	Ovicaprid	6
cf. Haddock	cf. *Melanogrammus aegelfinus*	2
Subtotal		**24**
Small Mammal		2
Medium Mammal 1		13

Taxon	Fragments
Unidentified Mammal	199
Aves	15
Pisces	93
Subtotal	**322**
Total	**346**

Table 10 Summary of flotation material from C1114

Taxon		Fragment
Cod family	Gadidae	4
cf. Haddock	cf. *Melanogrammus aegelfinus*	6
Subtotal		**10**
Pisces		68
Aves		11
Unidentified Mammal		33
Large Mammal		5
Medium Mammal 1		7
Small Mammal		1
Subtotal		**125**
Total		**135**

APPENDIX N STONE ROOF TILE ASSESSMENT

Cecily Spall

1.0 INTRODUCTION

Seventeen stone roof tile fragments were recovered during an archaeological evaluation at Castle Sinclair Girnigoe undertaken by Field Archaeology Specialists. All fragments were made of Caithness slate and are likely to have been quarried in the vicinity of the castle.

2.0 CATALOGUE

Fourteen fragments were clearly part of larger pegtiles and had circular pegholes, which had been pecked from both sides initially and then smoothed or possibly drilled. Two fragments were triangular pieces of slate and appeared to be complete. It is unclear what the function of this shape of tile would be in a roofing system, but the tiles had clear signs of mortar and displayed similar weathering to the pegtiles and they may have been used in a change in angle in the roof form. Three tiles were sufficiently complete to assess their original dimensions and appear to fall into two broad categories. One fragment preserves the dimensions of a small slate measuring 123mm wide with a central peghole at one end. The remaining two are approaching flagstone proportions and are much larger measuring 380mm x 230mm and 300m wide (length incomplete). It is possible that the smaller slate was used for detailed tiling, possibly around smoke or chimney holes or for use on a roof of unusual form, for example a turret. It may be significant that the slate was recovered from the vicinity of a turret on the northeast elevation of the West Gatehouse. The dimensions of the remaining two near-complete tiles and the general dimensions of the less diagnostic pieces suggest that the majority of roof slates were much larger and presumably used for the majority of roof cover. A small fragment of incomplete slate preserves a rounded suspensory end and the reasons for this shaping are unclear, since this area of the tile would be hidden beneath overlapping slates.

Table 1 Catalogue of roof tile fragments

Find no	Context no	Description
9	1013	Triangular roof? tile, 19mm thick, mortar adhering to one edge, one side smooth the other pitted.
77		Pegtile, 11mm thick, circular peghole pecked and smoothed, peghole 16mm diameter, pale, weathered schist
77		Pegtile, 8mm thick, circular peghole pecked and smoothed only partially intact, pale, weathered schist sheared from larger fragment possibly from above pegtile
77		Pegtile, 14mm thick, circular peghole pecked and smoothed, peghole 16mm diameter, smooth and pitted sides, no mortar
78		Triangular roof? tile, bevelled edge 21mm thick
78		Pegtile, 14mm thick, circular peghole pecked and smoothed, peghole 14mm diameter, pale, mortar visible near peghole, smooth and pitted side
78		Pegtile, 10mm thick, circular peghole pecked and smoothed, peghole 12mm diameter
78		Pegtile, 14mm thick, circular peghole pecked and smoothed only partially intact
106	1085	Complete pegtile, 380mm x 230mm x 18mm thick, chamfered underside with lime mortar adhesions, smooth and pitted upper
107	1091	Near-complete pegtile, 300m wide, 15mm thick, central peghole, two corners intact smooth and pitted side
107	1104	Small fragment of pegtile with small pecked and drilled hole, 12mm thick, lime mortar adhesions
107	1104	Small fragment of pegtile with rounded suspensory end with circular peghole, 16mm thick, lime mortar adhesions

Find no	Context no	Description
107	1104	Small fragment of pegtile, 153mm wide x 16mm thick, central peghole, lime mortar adhesions
107	1104	Small fragment of pegtile, 16mm thick, lime mortar adhesions
107	1104	Small fragment of slate, no suspensory form, 12mm thick, lime mortar adhesions
107	1104	Small fragment of peg tile, 122mm wide, 14mm thick, central peghole
108	1104	Peg tile fragment, one corner intact, circular peg hole, 15mm thick

3.0 ASSESSMENT

Stone roof tile is notoriously difficult to date since in areas where ceramic roofing material is scarce stone has been used traditionally for centuries. Alternative roofing material that may have been available such as turf or thatch are unlikely to have been selected for a site of such status. The geology at the site lends itself to the easy, possibly on-site manufacture of slate roof tiles and roof furniture and the fragments are unlikely to have come from a distant source.

Where pegtiles displayed mortar it was only visible on one side, the underside. This was confirmed by the character of the underside, which was smooth, dark and mica inclusions in the material were still bright; the side of the tile exposed to the elements showed signs of frost damage and surface pitting due to erosion by wind and rain.

The nature of rooftile suspension has been confirmed by the evaluation and while the use of slate pegtiles is hardly surprising given the local availability of slate and the indicators of roof tile types may allow roof systems and patterns to be suggested. Under examination, it was clear from weathering which were original edges to a tile and which were broken edges presumably from the fall from the roof. This makes it possible to record the original dimensions of a single tile which may have had either one or two pegholes near to a short edge. Alternatively the slates may have been hung in a diagonal pattern in which case a single peghole would be present at a corner of a tile. Further excavations may yield tiles of sufficient dimensions in order that the roofing style at Castle Sinclair Girnigoe be reconstructed. Should significant quantities of roof slate be encountered during fieldwork, an appropriate on-site recording and disposal strategy regime could be designed.

APPENDIX O THE WINDOW GLASS AND CAMES

Dr Hugh Willmott

1.0 INTRODUCTION

A small assemblage of window glass and lead came was recovered from excavations at Castle Sinclair Girnigoe. None of the fragments are painted or stained and both the glass and the cames appear to be early post-medieval in date. The glass and leads are stable, well-packaged and require no further conservation or specialist treatment.

2.0 DISCUSSION

Glass and lead cames came from two contexts, summarised in Table 1 below.

Table 1 Summary of the window glass and lead cames

Find No	Context	Description
10	1013	Three detached fragments of glass, two with single grozed edges, and one with two. Two fragments of glass held in lead cames
36	1013	Four tiny chips of glass, no grozing visible
49	1014	Three small fragments of glass, no grozing visible
103	1060	Four tiny chips of glass, no grozing visible
145	1100	One small fragment, no grozing visible
171	1113	Tiny chip of glass, no grozing visible

Unlike painted glass, plain windows are notoriously difficult to date and only broad suggestions can be made based on observation of the quality and condition of the glass. All the fragments have a heavy green tint suggesting that they are earlier than 18th century in date. However, the relatively limited extent of surface weathering indicates that they probably date to the latter half of the 16th or 17th century.

The lead cames from C1013 are more informative. Prior to the mid-16th century, all cames were handmade, being casting in a two-piece mould and then finished manually (Egan *et al* 1986). However, by the mid-16th century cames were produced on a hand-cranked vice or milling machine, which enabled thinner more consistent leads to be produced at a considerably faster rate. This machine always left distinctive milling marks on the inside of the came and the spacing of these is often indicative of their date. Earlier milled leads, from the 16th century, often have as many as ten teeth marks per centimetre, but this decreased in number throughout the 17th century, so by the end of that century as few as two to four per centimetre was usual (Knight 1986, 31). The leads from Sinclair Girnigoe are all milled, confirming a post-medieval date, and have an average spacing of approximately five tooth marks per centimetre which would indicate that they roughly date to the middle of the 17th century. However, such dating must be treated with slight caution, as it is possible that windows were subject to later re-leading or may have been made using older leads.

Despite the relatively limited remains of both glass and cames, the glazing pattern can be reconstructed. One fragment of glass clearly shows two edges of grozing set at such an angle as to indicate that the original quarry was an elongated hexagonal lozenge rather than a more usual diamond quarry. This is uncommon, as the typical pattern for early post-medieval glazing was a window constructed from interlocking diamond quarries, with a series of half diamonds used as edging to provide a rectangular form.

The surviving cames confirm an alternative more complex pattern. The longest section is from the edge of the window

where it would have been attached to the frame, as along the whole of one side it has been pinched shut and clearly never held glass. On the other side the fragmentary remains of one triangular border piece remains *in situ*. Interestingly this has been cracked and repaired with a separate small strip. However, below the join of the side came and that holding the triangular quarry there is no evidence for the immediate attachment of another came. This would be necessary if the border purely consisted of triangles. The only explanation would be that a hexagonal lozenge quarry was below, and the faint remains of a lower came attachment over ten centimetres below confirm this.

Consequently, the glazing pattern can be fully reconstructed and this conforms to an established, if rare, pattern. The larger part of the window would have been glazed with rectangular quarries, surrounded by interlocking lozenges on all sides. The outside border, (the section that this piece comes from), was made up from alternating lozenges and triangles to form a straight edge.

References

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Egan, G., Hanna, S., & Knight, B. 1986. 'Marks on milled window leads' *Post-Medieval Archaeology* Volume 20: 303-9

APPENDIX P ARCHITECTURAL STONE ASSESSMENT

Amy Jones

1.0 INTRODUCTION

A total of eleven architectural stone fragments were recovered during an evaluation undertaken by Field Archaeology Specialists at Castle Sinclair Girnigoe, Caithness. Six architectural stone fragments were recovered from Intervention 4,three from Intervention 5 and one each from Intervention 6 and 11. A further nineteen fragments were recovered, but are stored on site and will be the subject of assessment during 2005 as well as two fragments which were noted in section and left *in situ*. All fragments are of Old Red Sandstone, and mirroring the *in situ* decorative stonework of the castle, and most have at least one worked surface.

2.0 ASSESSMENT

Find nos 1 (0.57m x 0.42m x 0.14m) and 2 (0.58m x 0.47m x 0.14m) fit together to produce a continuous decorative band. Both have ornately worked faces with horizontal band decoration, which is badly eroded. Similar decoration was identified on Find no 15 (0.08m x 0.21m x 0.04m) which represents the broken face of a single stone. This consists of small rolls flanking a central quarter hollow, with evidence of fine horizontal 'striated' tooling. A continuation can be assumed across the face of Find no 1, despite having broken along a fault in the stone. The top surface of the fragment has deep, diagonal tooling and retains traces of fine lime mortar which continues on the left face. This can also be seen on the top surface of Find no 2, suggesting that both were engaged in horizontal positions.

Find no 3 (0.32m x 0.23m x 0.14m) and 4 (0.39m x 0.29m x 0.14m) were also recovered from Intervention 4. Both exhibit similar working, which is in contrast to that of Find nos 1 and 2. The worked faces, although badly worn, appear to have a central horizontal roll decoration, with flanking hollows. Find no 3 is better preserved with horizontal 'striated' tooling visible on the face and top surface. The top also has traces of fine lime mortar, suggesting that this side was originally engaged in the wall. In addition, the left side is cut diagonally indicating that it was positioned at an angle. Find no 4 is badly damaged, but is also angled on its right side, possibly coming forming a point with Find no 3. There is further evidence of mortar on the top surface. Find no 80 (0.07m x 0.06m x 0.03m) is also angled, but both sides appear to have been visible, as shown by the fine tooling and absence of mortar. The find is only fragmentary, exhibiting a short distance of horizontal moulding, and probably formed part of a much longer stringcourse, or decorative band.

The three fragments from Intervention 5 are harder to interpret due to their small size. Only Find no 17 (0.01m x 0.04m x 0.04m) exhibits evidence of decorative moulding. This appears to be a small piece of column with fine vertical tooling. However, it has been broken off to the rear making it impossible to indicate if it was originally engaged or complete. Find nos 17, 79 and 110 appear to be more structural than decorative; all have evidence for simple rebates. Find no 17 is very shallow (0.008m in depth) and can be interpreted as a fragment of window with glazing rebate. Find no 79 is much deeper (0.18m) and harder to interpret. Find no 110 has an irregular rebate and is very eroded. It is possible that it formed part of a decorative or heraldic panel. There is evidence for a number of similar panels at the castle, particularly within the higher status buildings such as the tower house and gatehouse, although a broken edge on what would be the reverse of the panel makes this unlikely.

Find no 82 from Intervention 11is part of a carved rainwater spout with a flaring profile measuring 230mm (incomplete length) 120mm (widest) to 95mm (narrowest) with a central channel measuring 60mm wide and 60mm deep. The majority of the spout os very eroded and may have been in position for sometime. Only the channel is well-preserved and may have originally been lined with sheet lead.

3.0 DISCUSSION

The high degree of erosion on the fragments from Intervention 4 reveals that they originally occupied positions in an exposed external elevation. The proximity of intervention 4 to the northwest elevation of the west gatehouse, suggests that these fragments formed part of the gatehouse construction. Similar pieces can still be seen *in situ*, forming the corbelling of an extant oriel window. The roll and hollow decoration of Find nos 3 and 4 appears to be surmounted by the more complicated moulding of 1, 2 and 15, thus forming a continuous decorative scheme. It is likely that this continued upwards, alternating between the different mouldings. Those still *in situ* also project to a point, reinforced by the angled surfaces of Find nos 3 and 4.

There is piecemeal evidence for three oriel windows at Castle Girnigoe Sinclair. Two were positioned on the west gatehouse, providing light to a large chamber on the second floor. Another was situated on the tower house, illuminating the high-end of the hall, although little remains *in situ*. All three retain evidence of decorative corbelling, while the northwest example retains some evidence of its northwest window jamb. Reconstruction of the oriel is difficult due to its poor survival and the rarity of comparable examples. The oriel window was not a feature commonly used in Scottish buildings, being found more readily in English architecture from the 14th to 15th century, although documentary references to examples have been found dating to the 12th century (Wood 1990, 99). Development occurred rapidly over the following centuries, aided by improvements in glazing. During Edward I's siege of Stirling Castle in 1301, he included an oriel window in his construction of new apartments outside the castle walls, from which the Queen and her ladies could watch the siege of the castle (*ibid*, 102). However, this construction was exceptional in Scotland, since oriel windows were not widely adopted until the Renaissance period. The oriels at Girnigoe have been dated to the late 16th century, when the tower house was constructed and the west gatehouse heavily remodelled.

Comparable examples for the Girnigoe oriels are rare. However, two examples have been identified. Huntley Castle in Aberdeenshire has four oriels on its south front (MacGibbon and Ross 1971, 280). These each have decorative corbelling supporting large, three-sided openings, divided by stone mullions. A similar example can be seen at Maybole Castle, Ayreshire (*ibid*, 500). This also has a three-light window, but is a more ornate example with additional carved head decoration and a pitched roof. The MacGibbon and Ross (1971, 310) reconstruction at Girnigoe follows this later form; however, there is no physical evidence to support this superstructure. Finally, the rainwater spout has added more detail to the understanding of the form of Castle Sinclair Girnigoe and the construction of the roof form.

References

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