

ARCHAEOLOGICAL  
SERVICES  
DURHAM UNIVERSITY

on behalf of  
Altogether Archaeology



St Botolph's Chapel  
Frosterley  
County Durham

archaeological excavation

report 3679  
May 2015

## Contents

|                                     |  |    |
|-------------------------------------|--|----|
| 1.                                  | Summary                                  | 1  |
| 2.                                  | Project background                       | 2  |
| 3.                                  | Landuse, topography and geology          | 3  |
| 4.                                  | Historical and archaeological background | 3  |
| 5.                                  | The excavation                           | 5  |
| 6.                                  | The human remains                        | 8  |
| 7.                                  | The artefacts                            | 11 |
| 8.                                  | The palaeoenvironmental evidence         | 31 |
| 9.                                  | The archaeological resource              | 34 |
| 10.                                 | Sources                                  | 34 |
| Appendix 1: Data tables             |  | 36 |
| Appendix 2: Stratigraphic matrix    |  | 38 |
| Appendix 3: Radiocarbon certificate |  | 39 |
| Appendix 4: Updated Project Design  |  | 41 |

## Figures

|            |   |
|------------|---|
| Figure 1:  | Site location   |
| Figure 2:  | Location of trenches on geophysical survey interpretation               |
| Figure 3:  | Trench plan   |
| Figure 4:  | Sections  |
| Figure 5:  | Trench 1, 2013, east end of the chapel, looking east                    |
| Figure 6:  | Trench 5, 2014, south wall of the chapel, looking north (Eastmead 2014) |
| Figure 7:  | Trench 5, burial SK1, looking north                                     |
| Figure 8:  | Trench 5, south part of the chapel, looking west                        |
| Figure 9:  | Trench 5, interface between walls F69 and F108, looking west            |
| Figure 10: | Trench 6, kiln pit F78 with stokehole F106 to south, looking north      |
| Figure 11: | Trench 6, wall F67, looking north                                       |
| Figure 12: | Trench 7, wall F67, looking north                                       |
| Figure 13: | Trench 8, wall F90, looking north                                       |
| Figure 14: | Possible reconstruction of the chapel, by Peter Ryder                   |

## **1. Summary**

### **The project**

- 1.1 This report presents the results of a second phase of archaeological excavations conducted as part of the 'Altogether Archaeology' community project at St Botolph's chapel, Frosterley.
- 1.2 The works were commissioned by the North Pennines AONB, through Durham County Council, and conducted by Archaeological Services Durham University.

### **Results**

- 1.3 Previous excavations at the chapel had uncovered the chancel as well as the west wall of the chapel. These excavations revealed the south wall of the nave, the southern part of its interior, and areas to the south.
- 1.4 The excavations have demonstrated St Botolph's chapel has Anglo-Saxon origins: several further fragments of the Anglo-Saxon cross head uncovered in the 2013 excavations were found, and the burial of an adult male adjacent to the chapel produced a radiocarbon date of 871-1013 AD. The demolition and robbing of the site has caused significant disturbance to the earlier deposits.
- 1.5 Two postholes within the chapel may be evidence of an earlier timber structure on the site, predating the stone chapel. Two distinct phases of construction of the south wall suggest it was rebuilt or extended. Post settings and floor surfaces associated with the chapel also survived.
- 1.6 A large stone-lined pit, probably a lime kiln pit, was dug into the hillside below the chapel. The kiln, which can be described as a clamp or sow kiln, comprised the pit itself in which the lime was heated, and a connecting horizontal flue. The quicklime produced by the kiln may have been used to provide mortar for the construction of the chapel or its rebuilding, or for agricultural purposes. The kiln was backfilled with rubble, some of which may have been the superstructure of the kiln itself, although fragments of architectural stone and the head of a statue indicate it also contained demolition debris from the chapel.
- 1.7 Two parallel stone walls leading up to the chapel were uncovered; these could be directly associated with either the chapel or the kiln, or land divisions.
- 1.8 The excavation has provided a wealth of artefacts including further fragments of Anglo-Saxon cross, a medieval stone-carved head, medieval architectural window tracery, millstones, beads and a fragment of font. There were also significant assemblages of pottery, bone, and metal objects including arrowheads, blades and pins.

### **Recommendations**

- 1.9 As a significant archaeological resource was uncovered by the excavation, full analysis of the data and its publication is recommended. An Updated Project Design has been included as Appendix 4, which lists the tasks to be undertaken to achieve this.

## 2. Project background

### Location (Figure 1)

- 2.1 The site is located at Chapel Close in Frosterley, Weardale, County Durham (NGR centre: NZ 02534 36990). It covers an area of approximately 0.3ha. The field is bounded by a recent housing development to the north and east, housing and a car park to the south, and garages and a former access track to the west.

### Objective

- 2.2 The objective of the scheme of works was to identify, excavate and record significant archaeological features in accordance with the research proposal, and to provide an opportunity for members of the North Pennines AONB 'Altogether Archaeology' project to receive training and engage in local heritage research. The regional research framework (Petts & Gerrard 2006) contains an agenda for archaeological research in the region. In this instance, the scheme of works was designed to address agenda items EMvi: Early medieval Christianity and MDv Churches and religion.

### Specification

- 2.3 The works have been undertaken in accordance with a Project Design produced by Paul Frodsham (North Pennines AONB).

### Dates

- 2.4 Fieldwork was undertaken between 13th and 25th September 2014. This report was prepared for May 2015.

### Personnel

- 2.5 Fieldwork was conducted by members of the North Pennines AONB Altogether Archaeology project with the assistance of Matthew Claydon (supervisor). This report was prepared by Matthew Claydon, with illustrations by David Graham. Specialist reporting was conducted by Dr Anwen Caffell (human remains), Lorne Elliott (palaeoenvironmental), Rosemary Cramp (cross fragments), and Helen Drinkall and Jennifer Jones (other artefacts). The academic advisor to the project is Dr David Petts. Sample processing was undertaken by Dr Magdolna Szilágyi. The Project Manager was Peter Carne and the project was directed by Paul Frodsham.

### Volunteers

- 2.6 Fieldwork was conducted by the following volunteers from Altogether Archaeology: Jules Agnew, Wendy Aird, Michelle Arthy, Isla Ballard, Zoe Ballard, Liz Bregazzi, Ruth Brewis, Kay Crossling, Gabriel Damaszk, Paul Durnan, Stephen Eastmead (also responsible for overhead photography), Clare Finn, Colin Goodfellow, Martin Green, Derek Gunby, Michael Hall, Hils Hawkins, John Henderson, Gail Hildreth, John Hinchliffe, Siriol Hinchliffe, Alex Jackson, Kathy King, Freda Lodge, Linda Longstaff, Jane McCurrach, John Mansell, Heather Morris, Alan Newham, Sanjay Patel, Hillary Patel, Rob Pearson, James Pease, Chris Powell, Mike Powell, Joan Raine, Elaine Reedman, Ian Reedman, Karen Robertson, Liz Ryan, Aversa Sheldon, Vanessa Stafford, Mark Thornton, Martha Warren, Paul Warren, Lorraine Watkinson, Stuart White, John Whitfield, Jan Widmer, Chris Wilson, Susan Wilson, and Yvonne Worden.

### **Archive/OASIS**

- 2.7 The site code is **FSB14**, for Frosterley St Botolph's Chapel 2014. The archive is currently held by Archaeological Services Durham University and will be deposited with the Bowes Museum in due course. Archaeological Services Durham University is registered with the Online Access to the Index of archaeological investigations project (**OASIS**). The OASIS ID number for this project is **archaeol3-204091**.

### **3. Landuse, topography and geology**

- 3.1 The field is pasture and occupies a gentle south-facing slope on the north side of the River Wear with elevations between approximately 177-183m OD. There is a clear mound in the north of the field, on which both earthworks and stone rubble are evident; this is now known to be the site of the chapel.
- 3.2 South of the mound, and to the south-east, the land slopes away with alternate steep and shallow gradients, creating subtle terraces; three slight terraces are apparent in the eastern half of the field. Two earthwork banks are evident on the ground heading south from the mound. The eastern bank is relatively short, however, while the western bank can be traced as far as the level ground in the south of the field.
- 3.3 The underlying solid geology of the area comprises Visean-Namurian limestone of the Alston Formation, which is overlain by Quaternary river terrace deposits. The famous 'Frosterley Marble' is sourced just north and north-west of the site in Rogerley Quarry.

### **4. Historical and archaeological background**

#### **Previous archaeological work**

- 4.1 Trial archaeological excavations were undertaken at three locations in the field in 1995 (Archaeological Services 1995). The excavations uncovered the east end of a rectangular stone building standing to a maximum height of two courses. An earthwork bank was initially targeted but this proved to be a bank of rubble, parallel with and outside the east wall of the rectangular structure. The presence of a robbed floor was inferred from an internal sand deposit, and the remains of painted wall plaster survived *in situ* at the base of the walls. Painted plaster would have been rare in any medieval structure other than a chapel, church or manor house (*ibid.*, 9). It was considered that this evidence, together with the rectangular, narrow shape of the earthwork, made the structure likely to be St Botolph's Chapel. The excavation also uncovered evidence of stone-robbing and several phases of demolition. Potsherds of 18th- and 19th-century date were recovered from post-demolition deposits.
- 4.2 A substantial deposit of stone rubble was recorded in a trench to the south of the chapel mound. It was postulated that this could possibly be associated with the construction of a ramp from the road up to the chapel for stone-robbing (*ibid.*). Tees Valley Ware pottery of 13th or 14th-century date was recovered from this deposit, though the sherds may have been residual. Beneath the rubble were colluvial deposits which sealed a possible wall trench. No structures or features were found in a trench to the west of the presumed chapel, although abraded sherds dating to the 11th-13th centuries were recovered. Overall, the evaluation established that "St

*Botolph's Chapel at Frosterley survives well and retains significant archaeological deposits. It is of particular importance as it is the most northerly church dedicated to St Botolph and is a rare example of its type."*

(<http://list.english-heritage.org.uk/resultsingle.aspx?uid=1016466>).

- 4.3 A geophysical survey was undertaken in 2013 (Archaeological Services 2013). This established the presence of deposits of stone rubble and probable stone footings around the presumed location of the chapel. Further stone features were also detected around the mound and elsewhere in the field, along with potential ditches and gullies and a possible area of burning (Figure 2).
- 4.4 Four trenches were excavated in September 2013, with Trench 1 located to find what was presumed to be the east end of the chapel, and Trench 2 placed to establish where the west end was. Trench 3 was placed to the south of the chapel, and Trench 4 was placed across some terracing towards the base of the slope. Due to inclement weather and also the wealth of archaeological remains in the first two trenches, little work was eventually carried out in Trenches 3 and 4. The remains of the medieval chapel of St Botolph were uncovered in Trenches 1 and 2. This has established the overall length of the chapel and the width of the chancel. Human remains were recovered from external deposits, indicating the presence of an associated graveyard. Also found during the course of the excavation was a fragment of an Anglo-Saxon cross head, indicating that the site was probably the focus for pre-Conquest Christian worship. A fragment of a font made of Frosterley marble was also recovered.

#### **Prehistoric and Roman periods (to 5th century)**

- 4.5 There is no direct evidence of any prehistoric or Roman activity on the site, although the potential remains for an as yet unidentified resource to be present.

#### **Early medieval period (5th century to 1066)**

- 4.6 Prior to the first phase of excavation, the pre-Conquest evidence for Frosterley was limited to a 9th-Century copper alloy strap end recovered during construction work for houses to the north and east of the site, although this was not found under archaeological conditions. References to Bot's Well in the vicinity of the chapel indicate an early religious association. Holy wells frequently relate to late Romano-British or early Saxon shrines, and many of these later developed into chapel, church or monastic sites. If the original well was dedicated to St Botolph, it may indeed be a much earlier precursor to the chapel.
- 4.7 Botolph himself is a relatively early saint, although there is some argument about the precise details of his life. The surviving life, written by Abbot Folcard of Thorney in 1068, was supposedly based on information received from Botolph's disciples (Baring Gould 1874, 247-8). He is thought to have been born in East Anglia in the second quarter of the 7th Century AD (Farmer 1992, 66). He petitioned King Ethelwold (654-64) for land to build a monastery. According to an Anglo-Saxon Chronicle entry (Garmonsway 1967, 28), the monastery was built at *Icanho*. This can probably best be associated with Iken in Essex. Excavations at Iken church in 1977 confirmed that the Norman church had a wooden predecessor, and led to the recovery of a fragment of an Anglo-Saxon cross shaft. The name Iken appears to be an early derivation from the Iron Age tribe of East Anglia, the *Iceni* (West and Scarfe 1977). Botolph was apparently buried at his monastery, but King Edgar I gave

permission in AD 970 for his remains to be transferred to Burgh, near Woodbridge, only for them to be moved to Bury St Edmunds Abbey by order of King Cnut some 50 years later. Subsequently his relics were transferred to Thorney Abbey, although his head went to Ely Cathedral and other bones were distributed to various other churches, including Westminster Abbey.

- 4.8 Botolph's links with Northumbria are recorded in the life of Ceolfrith, who became Bishop of Jarrow. Ceolfrith is said to have gone to *Icanho* to visit Botolph (or Botulf) and hear his teaching before joining Benedict Biscop at Wearmouth. Botolph is credited with being one of the pioneers of the Benedictine Rule in England (Bond 1914, 90), and his influence on the Saxon church is reflected in the large number of church dedications in his name. The Frosterley dedication is the most northerly known in England. It is possible that the dedication at Frosterley may belong to the period of Benedictine reform under Dunstan (Archbishop of York from 961-988AD), especially perhaps as Botolph had influenced an early leading figure in the Northumbrian church (Ceolfrith).

#### **Later medieval period (1066 to 1540)**

- 4.9 Frosterley is an Anglo-French name meaning '*the forester's portion of Lee*' which, with the adjoining Rogerley, formed a parcel of land known as *Lee*, which is Old English for '*the clearing*' Watts (2002,46). It is first documented in Boldon Book, which was compiled in 1183. The Boldon Book entry is very brief, stating only that "*Ralph the Crafty holds Frosterley for half a mark*" (Austin 1982, 43). The village was again mentioned in Close Rolls of 1239, but the chapel itself was not documented until 1346 in an Inquest Post Mortem: "*Henry de Bradley cum Constancia ux. eq. in frank. marr. - The rent 2s 10d at the Exch. and 9s to the chaplain of the Chapel of Frosterley ...*" (Victoria County History 1968, 334).

#### **Post-medieval period 1540 to 1899)**

- 4.10 The chapel came into possession of the squires of Stanhope after the reformation: they advertised in 1522 for a priest to fill the vacant benefice (Archaeological Services 1995, 5). By the late 18th century the chapel had disappeared: "*The chapel named in the records has been many years disused and gone to decay, the site of it only known by the name of the Chapel Close, which, the field where it stood retains*" (Hutchinson 1787, 297-8).

#### **Modern period (1900 to present)**

- 4.11 Today, the site of the chapel consists of a flat-topped mound, perhaps an artificial construction, measuring approximately 30 metres east-west by 22 metres north-south, and standing some 1.5 metres high.

## **5. The excavation (Figure 3)**

### **Introduction**

- 5.1 Continuing on from the trenches excavated in 2013 (Figure 5), the purpose of this excavation was to further understanding of the site by excavating the area between Trenches 1 and 2 from 2013 to uncover the south part of the chapel, and to examine the area south of it where the geophysical survey and visible earthworks indicated potential for further features and structures. A further objective was to find further fragments of the early medieval stone cross.

### **Trench 5/6**

- 5.2 Trench 5 was initially opened to uncover the south part of the chapel (Figure 6), and Trench 6 was intended to investigate a possible wall or track-way to the south-east. The trenches were subsequently joined in order to investigate an anomaly detected in the geophysical survey. The maximum dimensions of the trench were 13m by 13m.

### **Burial (Figure 7)**

- 5.3 Natural subsoil, a yellow stony sandy clay [107], was intermittently reached at a depth of 0.3-0.7m below ground level (c.182m OD). This was overlain by orange-brown sandy clay subsoil [68: 0.1-0.2m thick]. Towards the east end of the trench, this was cut by a shallow, ill-defined grave [F95: c.1.8m by 0.5m, 0.15m deep]. Buried in the grave was a prone skeleton (SK1) aligned east/west with head to the west. The skeleton was cleaned and recorded *in situ* and not completely excavated. The hands appeared to be in front of the pelvis. Radiocarbon analysis of the skeleton produced a date range of 871-1013 cal AD (94.4% probability), dating it to the late Anglo-Saxon period. A large fragment of the Anglo-Saxon cross (SF65) was on the back of the skeleton. Its position suggested that it had been deliberately placed. The grave was backfilled with orange-brown sandy clay [94] that was difficult to distinguish from the subsoil, thus making the grave cut difficult to define. A smaller fragment of cross (SF56) was also recovered from the fill. A layer of orange-brown silty clay [63: 0.2m thick] overlay the grave. Frequent finds including pottery suggest that this was the medieval churchyard soil. Above the grave was a linear bank of stones [83], initially thought to be a crude wall, but as the stones coincide closely with the edge of the grave, they may have marked the burial, despite overlying later medieval soil.

### **Chapel (Figures 6, 8 and 9)**

- 5.4 The burial was located 1.5m south of the south wall of the chapel. As with the grave cut, no convincing construction cut for the wall was evident, with the wall being built up from the subsoil, which was recorded beneath the wall as context 98. The wall comprised two distinct builds (Figure 9). The east end of the wall [F69: 2.65m+ by 0.8m, 0.25m high] was well constructed, surviving as a single course of large, faced sandstone blocks bonded with crumbly lime mortar, consistent with the surviving structure of the north and east walls [F35] uncovered in the 2013 excavations. This was abutted by the west part of the wall [F108: 8.35m+ by 0.8m, 0.25m high] which was built from smaller, roughly-faced sandstone with soil bonding [104]. In some places the west part of the wall had a lower course of sub-angular blocks. At the far west end was a very large roughly cut block (Figure 6). This was interpreted as a disturbed quoin, possibly moved when the rest of the wall was robbed. Such quoins were used in pre-conquest construction; a quoin was also recorded at the opposite corner of the chapel in 2013. The two builds of wall F69/F108 did not align perfectly, with the east part of the wall set slightly further north. As the two phases abutted each other, no certain distinction could be made as to which was the earlier; either could be a rebuild or an extension of the chapel. If the chapel had been extended, evidence of an earlier gable end would probably have been identified. As the eastern end of the wall was of similar quality build to the surviving courses of the north, east and west walls of the chapel, the western part of the wall could be a repair or part of an earlier building. Also



- 5.5 Internal to the chapel wall, near the east end of the trench, a posthole [F93: 0.5m diam, 0.2m deep] filled with grey-brown silty clay [92] containing possible packing stones cut the subsoil [68]. A second posthole [F97: 0.5m diam, 0.3m deep] of similar dimensions and filled with similar material [96] was identified 1.5m to the west. The postholes were aligned parallel to the chapel wall. It is probable they are associated with internal structures, or are evidence of an earlier building. Overlying the postholes was a deposit of grey-brown silty clay [86: 0.2m thick]. Set in to this deposit, built up against the internal (north) face of wall F69, was a stone surface [F87: 2.3m+ by 1.2m, 0.2m thick] constructed from vertically-set rectangular blocks. These may have been foundations for an internal cross wall, or may have been an internal floor surface, although the unusual building technique may also have provided drainage: the surface was similar in construction to a surface recorded externally along the north wall of the chapel in 2013.
- 5.6 Internal to the chapel, overlying surface F87 and compacted into deposit 86, was an intermittent spread of roughly cut sandstone blocks [89: 0.2m thick]. These may have been the remnants of a heavily disturbed floor surface.
- 5.7 Also cut into deposit 86 were two small stone-lined post settings [F100 and F102: each 0.2m, 0.15m deep] filled with grey-brown silty clay [99 and 101]. The holes were 1m apart, aligned north/south and could have held posts c.0.1m diameter. Three similar features, also aligned north to south, were recorded in 2013 inside the east end of the chapel.

**Lime kiln pit (Figure 10)**

- 5.8 South of the chapel, a large pit [F78] was cut into the hillside. The edge of the pit had been banked up with stone rubble, which also formed a stony bank around the top of it. The pit was probably a kiln pit to heat limestone to create quicklime which was used to make mortar and could be used in agriculture to reduce soil acidity. A rough alignment of stones high up on the west side of the kiln, and a single large square cut block defining the internal east edge of the associated flue, which extended south from near the base of the pit, were the only evidence of careful structure. The kiln measured 2.5m in diameter internally at the base, widening to 3m at the top. The overall structure was approximately 4m diameter and 1.5m deep, with a 1m wide stokehole [F106: 0.5m deep] on the south side. The floor of the kiln comprised compacted white limestone [103: 0.05m thick], which extended up the sides of the kiln for c.0.5m, and for 0.4m along the base of the flue. The lower fill of the pit was black ash with mixed clay, sand and rubble [88: 0.5m thick]. The remainder of the pit was filled by loose soil and stone rubble [79]. The flue was backfilled with ashy silty sand [105: 0.15m thick], overlain by mixed brown clayey silt [91]. Over this was a single large, flat stone slab: this may have been a capstone over the flue.

**Wall (Figure 11)**

- 5.9 West of the kiln pit was a north/south aligned stone wall [F67: 1m wide, 0.4m high] built up from the subsoil. This wall corresponded to a linear anomaly detected in the geophysical survey, and was also visible as a low linear bank. The wall was constructed from unworked stones bonded only with soil. Larger stones were used to form the outer faces, with smaller stones used for the core. The north end of the wall was identified protruding from the south edge of Trench 5. Its appearance suggested it had collapsed or been roughly demolished here.

### **Demolition**

- 5.10 Wall F67 was abutted and overlain by deposits of soil and stone rubble [65=76; 66], presumably from the demolition of upper courses. Between rubble layer 76 and the chapel wall F69 was a distinct linear mound of orange-brown clayey silty sand [80=81: 0.4m thick] containing flakes of mortar and occasional stone rubble. It is probable that this mound was made of re-deposited medieval soil after the abandonment of the chapel.
- 5.11 A thin deposit of brown clayey sandy silt [82: up to 0.2m thick] covered the possible floor and the post-settings of the chapel, and filled the areas between. This was overlain by a demolition horizon comprising limestone and mortar rubble [77: up to 0.4m thick]. A robber trench [F71: 0.8m wide] cut through this material along the length of the south wall of the chapel. The discarded debris from the removal of the wall had been banked-up on either side, forming two distinct ridges [72; 73: up to 0.3m thick] which overlay deposits 77 and 80=81. The robber trench was filled with the same material [70] (Figure 4; Section 6).
- 5.12 At the west end of the trench was a mound of stone rubble [74=75: 4m by 2m, 0.2m high] which overlay the stony ridge 72 and the backfill of the robber trench. This may be unwanted dumped material from a later phase of stone removal, or perhaps be a deliberate construction for a specific, but unknown, purpose. Topsoil, a brown sandy silt loam [62: up to 0.2m thick] overlay the features.

### **Trench 7**

- 5.13 This trench was excavated to examine whether wall F67 extended further south, as the geophysical survey and a visible low bank suggested. Natural subsoil [107] was reached at a depth of 0.4m (180.8m OD). The wall (Figure 12) was identified built up from the natural subsoil, standing 0.4m high. Either side of the wall was a deposit of grey-brown sandy silt [109] full of stone rubble, probably from the demolition of the upper courses. This was overlain by topsoil [64].

### **Trench 8**

- 5.14 This small trench was opened to investigate a linear anomaly detected in the geophysical survey. A low linear earthwork was apparent here, corresponding to the anomaly, and characteristically similar to the bank over wall F67. Natural subsoil [107] was reached at a depth of 0.4m (181.5m OD). Built up from this was a north/south aligned stone wall [F90: 1m wide, 0.35m high; Figure 13] of similar construction to wall F67 (Figure 13). The west face of the wall was better constructed and more clearly defined. Either side of the wall was a deposit of grey-brown sandy silt [84] full of stone rubble, probably from the demolition of the upper courses. This was overlain by a thin layer of topsoil [64].

## **6. The human remains**

### **Human remains assessment**

#### **Introduction**

- 6.1 A skeleton (SK 1) was uncovered in context [94]. The skeleton was not lifted, although a single loose fragment of bone was recovered. The bone has been radiocarbon dated to 779-1013 cal AD (95.4% probability), indicating a late Anglo-Saxon date.

- 6.2 The following observations are made based on the skeleton context sheet and *in situ* photographs taken of SK 1. Observations were limited by which parts of the skeleton were visible, the position of the skeleton in the ground, and the presence of soil obscuring some features. The bone fragment was also examined prior to being sent for dating, and identified as a distal left fibula.
- 6.3 Small pieces of human bone and teeth were also extracted from amongst the animal bone in several contexts (Table 1).

| Context      | No fragments | Teeth    |
|--------------|--------------|----------|
| 27           |              | 2        |
| 62           | 1            |          |
| 63           | 7            |          |
| 70           | 1            |          |
| 80           | 10           | 1        |
| 84           | 2            |          |
| 86           | 35           | 1        |
| 94           | 13           |          |
| <b>Total</b> | <b>69</b>    | <b>4</b> |

**Table 1: Human remains extracted from amongst animal bone**

## Results

### Skeleton 1

#### Preservation

- 6.4 SK1 was over 75% complete, but the feet were not exposed. Based on the photographs, the surface preservation appears to be relatively good and fragmentation appears to be fairly slight. However, the distal left fibula fragment has moderate surface preservation (McKinley 2004), indicating that some loss of surface detail has occurred.

#### Age at Death

- 6.5 The skeleton is an adult individual, probably over 25 years of age. All visible long bone epiphyses have fused, including the distal left fibula which was sent for dating. The ischial tuberosity (part of the pelvis) had completed fusion indicating an age greater than ~18 years (Scheuer and Black 2000, 368), the iliac crest (part of the pelvis) was completely fused indicating an age greater than ~23 years (*ibid.*, 365), and the bodies of the first and second sacral vertebrae had completely fused indicating an age probably greater than ~25 years (*ibid.*, 213). Although the right auricular surface was exposed (part of the pelvis used in age estimation, Lovejoy *et al.* 1985), the presence of soil particles on the surface and the resolution of the photograph means that the fine detail necessary for age estimation could not be observed. The context sheet notes that the cranial sutures were fused, which supports the conclusion that this is an adult individual.

#### Sex

- 6.6 The skeleton is a male. Aspects of the pelvis displaying strong male traits were clearly visible in the photographs. These include a narrow left greater sciatic notch (also noted to be narrow on the skeleton context form), and a broad sacral body associated with narrow alae (Mays and Cox 2000). The left side of the mandible is also clearly visible in the photographs. This has a broad and fairly upright ramus, both features typical of male individuals. The mental eminence (chin) was probably square, but the right half of the mentum was buried in the soil, so it is difficult to be

certain. The gonial angle may have been flared, but the angle of the photograph makes it difficult to be sure. Both features would support a male sex estimation (*ibid.*).

#### Stature

- 6.7 Two measurements were taken of long bones *in situ* by the excavators, and these have been used to provide a general indication as to stature using the formulae of Trotter (1970). The femur measured around 40cm, which would indicate a stature of 156.6cm  $\pm$ 3.27cm (5'1½"). However, the head of the femur was not exposed and it is likely that the femur was a little longer. The humerus was measured at around 27cm, which would indicate a stature of 153.6cm  $\pm$ 4.05cm (5'0½"). The humerus was probably mostly exposed (viewed from the side), although the distal end is partially obscured by the ulna when viewed from above.
- 6.8 These estimates should be regarded with caution as they are based on rough measurements taken in the field of incompletely exposed bones. However, they do suggest that the individual was probably fairly small for the medieval period, as average male stature of the time was 171cm (5'7¼"; Roberts and Cox 2003, 248).

#### Pathology

- 6.9 It is possible that some of the posterior left teeth had been lost ante-mortem, as the posterior teeth do not seem to be present and the alveolar bone appears somewhat remodelled. However, it is difficult to be certain of this based on the photographs alone. Ante-mortem tooth loss can occur as a result of several conditions, including periodontal disease, dental caries (tooth decay), and dental abscesses (Roberts and Manchester 2005, 74). Roberts and Cox (2003, 193) found that 19.44% of teeth had been lost in later medieval British populations. No other pathological conditions were observed.

#### Burial Position

- 6.10 Skeleton 1 was buried in a shallow, poorly-defined grave on a west-east orientation (head to the west). He was buried prone with legs extended, and a large stone (SF65, part of the Anglo-Saxon cross shaft) was located over his upper back, potentially deliberately placed. His skull was turned so it was lying on the right side. His left arm was slightly extended at the shoulder and slightly flexed at the elbow, with the result that the left elbow was slightly raised. His left hand was probably beneath his left hip, but this was not exposed during excavation. His right arm was not visible and was probably lying beneath the torso. Both legs were straight with the knees and ankles close together. The pelvis had been disturbed and is partially disarticulated. The right os coxa was still in its correct position, but the left os coxa was displaced and lying (posterior surface uppermost) over the posterior surface of the right femur shaft. The sacrum was turned so the anterior surface was facing uppermost (in a prone burial the posterior surface would have been uppermost) and positioned so the inferior end lay over the left femur head. The rest of the skeleton appears to be perfectly articulated.

#### Recommendation

- 6.11 The 70+ small fragments of human bone and teeth listed in Table 1 should be examined by a specialist for identification and to try to determine whether the pieces from context [94] might be associated with Skeleton 1.

## 7. The artefacts

### Pottery assessment

#### Results

- 7.1 The site produced 1058 sherds weighing 7909g from 16 contexts and unstratified. Of these, 268 sherds are medieval/late medieval (c.12th-15th century), 50 are post-medieval (c.15th-18th century) and the remaining 740 are late 18th to 20th century (Table 2).

| Context      | No   | Med/late med | Post-med | L18-20C |
|--------------|------|--------------|----------|---------|
| u/s          | 17   | 5            |          | 12      |
| 62           | 460  | 18           | 30       | 412     |
| 63           | 41   | 22           | 2        | 17      |
| 64           | 273  | 8            | 7        | 258     |
| 65           | 11   | 3            |          | 8       |
| 66           | 1    | 1            |          |         |
| 68           | 5    | 3            |          | 2       |
| 70           | 80   | 77           |          | 3       |
| 72           | 25   | 20           | 3        | 2       |
| 75           | 5    | 5            |          |         |
| 76           | 5    | 4            | 1        |         |
| 79           | 22   | 7            |          | 15      |
| 80           | 30   | 19           | 1        | 10      |
| 81           | 22   | 22           |          |         |
| 84           | 27   | 23           | 4        |         |
| 88           | 33   | 30           | 2        | 1       |
| 94           | 1    | 1            |          |         |
| % of total   |      | 25.4%        | 4.4%     | 70.2%   |
| Total sherds | 1058 | 268          | 50       | 740     |

Table 2: sherd numbers by context

- 7.2 Most deposits show a mixed date range, and much of the material (750 sherds = 71%) is unstratified or comes from topsoil contexts. Just one of the contexts with a provisional medieval date [81] produced only medieval pottery.
- 7.3 The earliest sherds are a few pieces of unglazed white/buff or pink sandy or gritty fabric, some abraded, dating to the c.12th or 13th century, from contexts [70 & 84]. Glazed (some splashed) oxidised sandy ware (c.13th century) came from contexts [63, 70, 72, 76, 81, 84, 88 & 94]. But the medieval assemblage is dominated by 13-15th century reduced greenware type pottery, found in 10 contexts [63, 64, 68, 70, 75, 76, 79, 81, 84 & 88].
- 7.4 Post-medieval material includes a piece of Frechen type German stoneware of c.14-16th century date in [76], sherds of 15/16th century Cistercian ware in contexts [63, 84, 88], a few pieces of 16/17th century slipware in contexts [62, 80, 84], mid-16th – mid-18th century tin-glazed earthenware in [62, 64 & 72] and 17th/18th century blackware/late blackware type material in [62, 63, 64 and 72].
- 7.5 The later material has a piece of 18th century white salt-glazed stoneware in [64] and pieces of early 19th century edged ware in [62, 64]. Much of the later material is made up of plain, transfer printed and sponge printed earthenware, yellow, brown and mottled glazed earthenware, colour glazed ware, cane coloured ware, blue

banded ware, mocha ware, jasper ware and pieces of utilitarian stoneware, dating to the 19th and early 20th century.

#### **Discussion**

- 7.6 Though the assemblage is dominated by 19/20th century material, there is clear evidence for medieval activity on the site and also no ceramic evidence for activity earlier than c.12th century. Evidence of activity between c.15th-c.18th century is also limited.

#### **Recommendation**

- 7.7 Further study of the pre-19th century pottery is recommended to refine its date range to inform on the periods of activity on site.

### **Animal bone assessment**

#### **Introduction**

- 7.8 Faunal remains were found in stratified post-medieval and medieval deposits in addition to topsoil and unstratified finds. Preservation is variable with medieval finds from sealed deposits in excellent condition but some fragments in poor condition from medieval soil horizons.
- 7.9 Fragments were counted as identifiable for this assessment if they encompassed a 'zone', or unique non-replicable feature. Unidentifiable fragments were only noted if all fragments from a context were unidentifiable. Rib and vertebra fragments were assigned to the categories cattle-size or sheep-size. Some of the cattle-size fragments require checking against red deer. The standard term sheep/goat is used. No evidence for the presence of goat was seen in contrast to positive identification of sheep horn cores. However, some of the fragments in the sheep/goat category require checking against both goat and roe deer to confirm identification to species.

#### **Results**

##### **Hand recovered material**

- 7.10 Comparatively recent finds in the topsoil were indicated by the presence of two cattle size vertebrae with saw mark butchery and one sheep leg joint bone with carving knife marks.
- 7.11 Dog gnawing marks were observed throughout the assemblage, to the extent that refuse from the deliberate feeding of bones to hounds may be represented. Examples of sheep, pig and deer carpals and phalanges are present with the acid etched surfaces characteristic of passage through the canine digestive system. The swallowing of such bones whole indicates that large types of dog were kept. The gnawing damage has largely obscured butchery marks but those visible in stratified contexts are chop marks. The extent of canid gnawing throughout the assemblage means that much evidence for the presence of juvenile animals from the epiphysial fusion stages of the limb bones and vertebrae has been obscured. The eruption and wear stages of the teeth will be the better source of evidence for the culling of younger livestock. Fine puncture marks from cat gnawing were also observed, particularly on bird bones.
- 7.12 It can be seen from Table 3 that the majority of the bones derive from cattle and sheep. Sheep remains are the more abundant in all groupings with the exception of the medieval soils, where cattle fragments predominate. This suggests taphonomic

bias favouring the survival of the larger and more robust cattle fragments in such open and disturbed deposits.

- 7.13 The cattle bones include pelvis fragments clearly deriving from female animals and both teeth and limb bones from veal calves. Consumption of beef from mature animals and veal is indicated. One mandibular molar 3 lacks the hypoconulid, a congenital trait. A fragmented skull from an animal less than 3 years old was found in context [88], the backfill of a kiln pit.
- 7.14 There is good representation of fragments from the head and feet of sheep, as well as meat-bearing limb bones. This suggests that animals may have been procured on the hoof and that all body parts were utilised. Context [88] produced the cranium of a horned female sheep.
- 7.15 There are several examples of noticeably large pig metapodials with fused epiphyses and one large adult male mandibular canine tooth, or tusk. While these may be merely from large domestic breeding stock, it is also possible that wild boar is represented. Comparison with a reference specimen is required. Unfortunately, metrical data cannot be used for comparison with wild boar data as the relevant fragments have all been damaged.
- 7.16 Cat remains are more numerous and widely distributed than those of dog. One pair of mandibles is a stratified medieval find rather than potentially disturbed pet burials in the topsoil. Dog bones were only found in context [70], with two animals indicated. The paucity of dog bones contrasts with the ubiquity of gnawed bones.
- 7.17 The horse remains are concentrated in the medieval soil, with four teeth, possibly indicating a decayed skull, and one poorly preserved lower limb bone.
- 7.18 Red and roe deer bones in the stratified medieval contexts are clear evidence of hunting. The post-medieval finds, particularly in the robber trench, context [70], are presumably disturbed from earlier deposits. The red deer bones are large and robust compared to a female reference specimen. The medieval quarry of the chase *par force des chiens* was explicitly the red deer stag and these bones appear to represent the successful conclusion of such sport. The documentary evidence for medieval pursuit of red deer in Weardale is largely over-shadowed by the Bishops' Great Roe Hunt. These archaeological finds suggest that the red deer stag hunt was of equal merit and yielded rather more venison. The deer fragments not identified to species include a fragment of antler, almost certainly of red deer, and limb bone fragments that require comparison with fallow deer. Other fragments in the sheep/goat category will require checking against roe deer.
- 7.19 The small wild mammal species include mole and vole in the topsoil, probably natural mortalities. However, small mammal bones of mouse/vole/shrew size are also present in stratified medieval deposits, indicating a long history of these commensal species living in association with the human occupation. Besides the small mammals, amphibian bones were recovered from the robber trench and a pit fill. Toads, in particular, live alongside human habitations.
- 7.20 The bird bones are predominantly of domestic fowl and goose. The domestic fowl bones span the medieval and post-medieval deposits, whereas goose bones are

confined to the robber trench and medieval deposits. These include a goose humerus found in medieval posthole fill [92] with cut marks and also piercings probably caused by the teeth of a cat. The two more recent corvid bones are of rook/crow and jackdaw/magpie size and probably represent natural mortalities of these commensal species. The corvid bone from medieval pit fill [79] is from a much larger bird, almost certainly raven, but the identification needs confirming. One pigeon bone was found in the robber trench. The unidentified birds include examples probably of the thrush and sparrow families in the more recent deposits. The group of bird bones from the kiln pit fill [88] are of rather more interest. These are all wild species, of a range of sizes, and need identification from a reference collection. One large ulna is possibly from a bird of prey. There is the tantalising reference in Boldon Book to the hawk eyries in the bailiwick of Ralph the Crafty, who held Frosterley.

- 7.21 The marine shells indicate that oysters, mussels and cockles formed part of the medieval diet. The land snail shells are of common garden snails, which burrow to hibernate. Such snails were part of the commensal fauna of the medieval occupation.

| Context          | U/S | 62 & 64 | 65, 66, 72, 75 | 70                     | 63, 68         | 80, 81, 84, 91, 92, 94 | 79, 88         |
|------------------|-----|---------|----------------|------------------------|----------------|------------------------|----------------|
| Context type     |     | Topsoil | Post-medieval  | Robber trench backfill | Medieval soils | Medieval deposits      | Kiln pit fills |
| Cattle           |     | 13      | 11             | 11                     | 32             | 16                     | 5              |
| Cattle-size      | 1   | 2       | 2              | 2                      | 8              | 1                      | 1              |
| Sheep/goat       | 2   | 29      | 25             | 20                     | 22             | 24                     | 9              |
| Sheep            |     | 1       |                |                        |                |                        | 1              |
| Sheep-size       |     | 1       | 2              | 1                      |                |                        | 3              |
| Pig              |     | 5       | 5              | 5                      | 11             | 11                     | 2              |
| Cat              |     | 3       | 1              | 1                      |                | 2                      |                |
| Dog              |     |         |                | 2                      |                |                        |                |
| Horse            | 1   | 1       |                |                        | 5              | 1                      |                |
| Red deer         |     |         |                | 6                      | 7              | 1                      |                |
| Roe deer         |     |         | 1              | 2                      | 2              | 6                      |                |
| Deer sp.         |     |         |                |                        | 5              |                        |                |
| Mole             |     | 1       |                |                        |                |                        |                |
| Vole sp.         |     | 1       |                |                        |                | 1                      |                |
| Small mammal     |     | 1       |                | 1                      |                | 1                      | 1              |
| Domestic fowl    |     | 4       | 2              | 2                      | 3              |                        |                |
| Goose            |     |         |                | 2                      | 3              | 1                      | 1              |
| Rook/crow/corvid |     |         | 1              |                        |                |                        | 1              |
| Jackdaw/magpie   |     | 1       |                |                        |                |                        |                |
| Pigeon           |     |         |                | 1                      |                |                        |                |
| Bird sp.         |     | 1       | 1              |                        |                |                        | 4              |
| Frog/toad        |     |         |                | 1                      |                |                        | 1              |
| Oyster           |     | 1       |                |                        | 1              | 1                      |                |
| Mussel           |     | 1       |                |                        | 1              |                        |                |
| Cockle           |     | 1       |                |                        |                |                        | 1              |
| <i>Helix</i> sp. |     |         | 1              |                        | 3              | 5                      | 1              |

Table 3: Fragment counts for the species present



### Samples

- 7.22 Animal bone fragments were retrieved from the samples taken from three contexts (Table 4). Context [88] is a pit fill and the pit, when open, may have entrapped a range of both vole and shrew species, together with frog/toads, more probably the latter. One pair of mandibles appears to have tooth sockets for mouse rather than shrew teeth, but need checking under magnification. The site clearly supported an abundant population of these small commensal species.

|               | Context 88 | Context 96 | Context 98 |
|---------------|------------|------------|------------|
| Domestic fowl | X          |            |            |
| Vole sp.      | X          |            | X          |
| Shrew sp.     | X          |            |            |
| Mouse sp.     | X          |            |            |
| Small mammal  | X          | X          | X          |
| Frog/toad     | X          |            |            |

**Table 4: Species present in the samples. X = present**

### Recommendation

- 7.23 The medieval deposits are of particular interest with evidence of deer hunting and indirect evidence for the victualling of hounds. The pits appear to show evidence for some form of structured deposition with cattle and sheep skulls and a suite of wild bird species, not necessarily the remains of food. Full analysis is recommended to confirm some of the provisional identifications and suggest the dietary importance of the game species.

### Clay pipe assessment

#### Results

- 7.24 A total of 497 stem and 38 bowl fragments were recovered unstratified and from 10 contexts across the site (Table 5). Most are fragmentary with relatively few dating clues beyond being obviously post-medieval. Traces of decoration survive on several bowl fragments, including ribbed, leaf and floral elements, all suggesting a late 18th to 19th century date. A pipe bowl from [62] has Masonic symbols, its shape also suggesting a late 18th to 19th century date. Heel and bowl shapes, where discernible, support this dating. Only one plain bowl fragment from topsoil context [62] has a shape suggesting an early to mid-18th century date.

| Context       | Stems      | Stamps                | Bowls     | Stamps           | Dating             |
|---------------|------------|-----------------------|-----------|------------------|--------------------|
| u/s           | 2          |                       |           |                  |                    |
| 62            | 292        | x5 all indecipherable | 29        | 'ES' x2; 'OC/CO' | L18/19C; E-mid 18C |
| 63            | 11         |                       |           |                  | L18/E19C           |
| 64            | 163        |                       | 9         |                  | L18/19C            |
| 65            | 9          |                       |           |                  |                    |
| 70            | 1          |                       |           |                  |                    |
| 72            | 5          |                       |           |                  |                    |
| 75            | 1          |                       |           |                  |                    |
| 79            | 7          |                       |           |                  |                    |
| 80            | 4          |                       |           |                  |                    |
| 88            | 2          |                       |           |                  |                    |
| <b>Totals</b> | <b>497</b> |                       | <b>38</b> |                  |                    |

**Table 5: Tobacco pipe stems and bowl fragments by context**

- 7.25 Most of the stem fragments are plain, but 13 have traces of orange or red colouring and a further 15 have the remains of green, brown or yellow glaze. Glaze was sometimes applied to the mouthpiece of the pipe stem for decoration and to prevent the clay adhering to the smoker's lips.
- 7.26 Just five stem fragments have makers' stamps – all from context [62] - but these are faint, poorly executed and indecipherable. Four bowls from [62] have the maker's initials stamped either side of the heel. One is indecipherable. The pipe bowl with Masonic symbols has the initials 'OC' or 'CO', an unknown maker. Two bowls have the initials 'ES', probably referring to maker Elizabeth Sephton, known to be working in Stockton 1851-64.

#### Discussion

- 7.27 Tobacco pipe came from a range of contexts, including some [63, 80, 88] of possible medieval date. The presence of post-medieval clay tobacco pipe fragments, including a piece of bowl from [63] with 18th/19th century decoration, suggests some later disturbance to the deposits.

#### Recommendation

- 7.28 Though a relatively large number of fragments was recovered, there is little potential for further research due to the small number of examples with decoration and makers' stamps. No further work is therefore recommended.

#### Glass assessment

##### Results

- 7.29 A total of 190 pieces of glass were recovered from 11 contexts and unstratified (Table 6). The vast majority of pieces (177/93%) are fragments of post-medieval to modern window and bottle/vessel glass. These include pieces of weathered green wine bottle found in context [62] and two pieces from the same unweathered 19th/20th century octagonal green glass ?medicine bottle found in contexts [62] and [63]. Twenty one fragments of melted glass were found, along with one green/clear mould-made Codd bottle stopper marble (1870's +), also from [62].

| Context | Post med bottle/vessel | Post-med window | Med window | Other                     |
|---------|------------------------|-----------------|------------|---------------------------|
| 62      | 48                     | 42              |            | 18 melted frags; 1 marble |
| 63      | 3                      | 2               | 2          | 2 melted frags            |
| 64      | 36                     | 8               |            |                           |
| 65      | 2                      |                 |            |                           |
| 72      | 1                      |                 |            |                           |
| 79      | 2                      | 1               |            |                           |
| 80      |                        | 8               |            |                           |
| 81      |                        |                 | 2          |                           |
| 84      |                        |                 | 1          | 1 melted frag's           |
| 88      |                        |                 | 6          |                           |
| 94      |                        |                 | 1          |                           |
| u/s     |                        | 2               | 1          |                           |
| Totals  | 92                     | 63              | 13         | 22                        |

Table 6: glass numbers by context

- 7.30 There were 13 pieces of medieval glass. Three are plain pieces of very thin green/clear glass, distinguishable as medieval because of the very rough surfaces left by the loss of the outer weathered crust. One is a not quite flat fragment of light blue glass with no weathering crust. The remaining nine are fragments with a dark

weathered crust, the interior of the glass crazed and fragile. Two of these fragments from medieval pit fill [88] have visible traces of decoration in red paint, suggesting a c.14th century date.

#### **Recommendation**

- 7.31 The fragile pieces of medieval glass from contexts [63, 81, 84, 88, 94 and u/s] should be cleaned and stabilised to ensure their survival. No other work is recommended.

### **Building materials and fired clay assessment**

#### **Results**

##### **Fired clay**

- 7.32 Small quantities of fired clay fragments (60g wt) were recovered from the samples from contexts [88 & 98]. These cannot be identified or dated, but could possibly be the degraded remains of fired daub.

##### **Brick/tile**

- 7.33 Small flakes of undateable brick or tile (73g wt) came from contexts [62, 63, 64, 75, 76 and 79], along with a fragment of brown-glazed, modern service pipe and a piece of 20th century white glazed tile from [62]. Fragments of post-medieval grey roofing slate came from context [62] and u/s.

##### **Stone roof tiles**

- 7.34 Fourteen complete, partial or fragmentary stone roof tiles came from 5 contexts. A group of nine were found in [72], a post-medieval ridge context, possibly garnered from demolition of a nearby building.
- 7.35 Four of these are similar in shape, two of them apparently complete: they are slightly trapezoidal, the larger 382mm long x 209-231mm wide x c.22mm thick with a circular perforation, 7mm diameter, centrally placed near the top edge. The other five tiles from this context are differently shaped: probably originally rectangular (though none is complete), they have a 'U' shaped notch on each side near to the top edge. The most complete example of this type is 292+mm long x c.88mm wide x 24mm thick. This example also has an 11mm centrally placed perforation.
- 7.36 A further five small, fragmentary tiles were identified by the remains of the perforation. These come from contexts [64, 65, 80 & 88].
- 7.37 Where intact, all the tiles have roughly-shaped edges and are made from hard, moderately fine micaceous sandstone with plentiful bedding planes. Not easily dated.
- 7.38 Stone roof tiles have been in use since the Roman period. They were more expensive than traditional materials such as thatch and in the past were more likely to be used on higher status buildings, as their weight meant they needed a more substantial roof structure for support. However, they are durable and offer a much greater resistance to fire. They were likely to be used, where possible or affordable, when plentiful suitable building stone was available.

#### **Recommendation**

- 7.39 No further work is recommended.

## Wallplaster assessment

### Summary

- 7.40 A total of 223 pieces of wallplaster were recovered, far fewer than in the 2013 season. The pieces come from 13 contexts (Table 7) and weigh 2120g. Only 20 (9% by number, 4% by weight) were found to have traces of paint.

### Results

- 7.41 Many of the fragments are small and those recovered from the samples are often very abraded. Most do not survive to full thickness, usually with only the roughcast layer surviving. Thickness of the fragments ranges from c.8-47mm.

| Context      | No         | Wt (g)      | No Painted |
|--------------|------------|-------------|------------|
| 62           | 3          | 125         | 2          |
| 63           | 28         | 675         |            |
| 64           | 8          | 10          | 3          |
| 70           | 5          | 245         | 1          |
| 72           | 22         | 125         | 11         |
| 81           | 13         | 385         |            |
| 88           | 47         | 180         | 3          |
| 92           | 26         | 285         |            |
| 96           | 11         | 35          |            |
| 98           | 14         | 35          |            |
| 99           | 25         | <5          |            |
| 101          | 1          | <5          |            |
| 104          | 20         | 15          |            |
| <b>Total</b> | <b>223</b> | <b>2120</b> | <b>20</b>  |

Table 7: Wallplaster numbers and weight by context

- 7.42 Examination found that the plaster fabric falls into three types. Most have a mid-grey roughcast layer liberally tempered with sand and less frequent inclusions of very small pieces of coal or charcoal, limestone/chalk, fragments of angular crushed rock and ironstone. Where it survives, the fine top coat is white/off white and very thin (c.1-2mm).
- 7.43 A smaller number of pieces from contexts [62, 63, 64, 72] are made of a paler roughcast with a similar range of inclusions, and a thin layer (c.1-2mm) of fine white/off white plaster top coat, where it survives.
- 7.44 A few pieces from contexts [92 & 98] have a similar range of inclusions in the roughcast, but the plaster colour is a pinkish grey.
- 7.45 A restricted range of colours was observed. Shades of red are most frequent, occurring on fragments in contexts [62, 64, 72 & 88] (Plate 1). Orange/red (Plate 2) is found in [70], yellow and buff in [72] and black in [88].



**Plate 1: Faint red curved lines on fragment from [62].**



**Plate 2: Orange/red overpainted with white from [70]**

- 7.46 Fragments from [70 and 88] show evidence of two different colour schemes or overpainting. The piece from [70] has bright orange/red paint which has been covered with a further top coat, painted white (Plate 2). A small piece from [88] was painted red and then later re-coated and painted white with a black stripe (Plate 3). Apart from this stripe, there is no evidence for the type of decorative schemes in use.



**Plate 3: Red overpainted with white with black stripe from [88]**

- 7.47 A few pieces of thick roughcast have evidence of angular shaping on the back from the plaster substrate, suggesting application to stone walls.

#### **Recommendation**

- 7.48 Most of the pieces are small and many are abraded. No further work is therefore recommended, but the data should be included with any work done on the plaster assemblage as a whole.

#### **Stone cross fragments assessment**

##### **Results**

##### Head fragments

- 7.49 The additional fragments discovered in the 2014 excavations are part of the same monument and one, SF70 from context [80], has added to the design of the centre of the cross head. The actual width of the two cross head pieces is now c.350mm (13.5in) and the estimated width is c.370mm (14.5 in).
- 7.50 SF70 is formed of the same finely dressed and smoothed limestone as the previous pieces. The centre roundel is plain and encircled by a slightly rounded moulding and then a plain incised ring. There are two marks in the centre where it can be assumed the point of a tool for setting out the rings was placed. The fact that there are two marks probably explains the unevenness of the inscribed circles.
- 7.51 The back of the head has a roughly circular mark in the centre where some shallow feature has been chipped away. There are two other fragments of what seem to be part of the same head, one of which (SF69) is curved, as for an arm, and marked with vertical lines which resemble the crude balusters seen on the head fragment SF7 from 2013 (see earlier report). The other, SF68, has traces of curved lines similar to SF's 7 and 70. These two pieces have however no signs of burning and could be from another cross or another face.

##### Shaft fragments

- 7.52 SF65 from context [94] is a substantial block which tapers slightly and is plausibly the top of a shaft with a section of a central dowel hole. Measurements Max. 200 x 129 x 25mm; possible full width for the shaft c.280 mm (11in). The upper face of the shaft is scored with sharp diagonal lines, presumably to hold the head more firmly when dowelled on to the shaft. The rounded tip of the dowel hole is visible, so the length can be precisely measured as 110mm. There is iron staining and scale in the hole showing that the dowel was of metal. There is one other fragment, SF110 from context [63], with part of a dowel hole, iron stained, but it is not possible to join it to the larger piece. Another piece of probable shaft (SF111) with similar edge moulding was found in context [63].
- 7.53 Each face of the shaft appears to be plain and very smoothly dressed to an almost polished surface. Two of the other small shaft fragments from [63] have diagonal lines which are clearly cut and might *possibly* be part of inscriptions.
- 7.54 The edge moulding on the block and the loose pieces of mouldings from [63 and 94] are very finely and precisely carved, and some appear more worn than others.

### **Discussion**

- 7.55 This is an important find : the smooth polished dressing and fine edge moulding are found on the early Northumbrian pieces and although this is not quite as competent as some of the Whitby or Hexham pieces with which I compared the head in the 2013 assessment report, Frosterley is still a very well made piece. It compares with Whitby 1, and 2 (Lang 2001, 231), Hexham 8 and 9, and Jarrow 7 (Cramp 1984, 179-80 & 109). Although there are more plain crosses at Whitby than the other sites, the baluster ornament is not found there, as it is at Hexham and Jarrow, so I would still place this cross within their circle. The iron dowel is unique I believe, as usually there is no trace of iron in the holes and it is assumed the dowels were of wood. More work on the comparative material is needed, but I would now be inclined to place the Frosterley cross in the first half of the 8th century.

### **Frosterley marble font fragment assessment**

#### **Results**

- 7.56 A further small fragment (SF36) of the Frosterley marble font was recovered from context [80], a medieval deposit. This joins to the left hand side (viewed from the inside) of the larger font fragment, SF8, found in the 2013 season.
- 7.57 The latest piece is another curving rim fragment 102mm long x c.68mm deep x c.49mm thick. It has the same flat rim slightly overhanging the outer face, and the inside is smooth and slightly dished. There is a small moulded bead on the outside below the rim, and traces of deep carving below this. All surfaces have been well-finished and were originally polished, though there is again evidence of extensive ancient and more recent surface scratches.
- 7.58 The font has been provisionally identified by Dr Pam Graves as being 13th century in date, or possibly late 12th century.

#### **Recommendation**

- 7.59 SF36, the latest fragment, has been adhered to SF8 from 2013 and the two are being curated together. Further study of the font and comparative material is recommended.

### **Stone objects assessment**

#### **Results**

##### **Carved head**

- 7.60 SF67 from medieval deposit context [81] is a carved head with distinctive zigzag decoration. It is 168mm high, well carved and finished at the front, but rough and unfinished at the back with the tool marks clearly visible. It has a damaged and broken sub-rectangular base c.129 x 90mm, which supported the head at an angle. The top of the forehead, most of one eye and part of the nose have been lost and there is damage to the chin and below.
- 7.61 The head is front facing with its right side largely intact. The eyes are well modelled and the hair finely depicted using zigzag motif, though only on the right side of the head. The cheeks are smoothly finished and a trace of the mouth survives. It is carved from pale yellow oolitic limestone and there is evidence of light burning over much of the surface, with some possible sooting.

- 7.62 The head was clearly meant to be only seen from the front and it may be part of a corbel. It is likely to come from the chapel and the freshness of the carving suggests it was part of the interior structure. Zigzag carving suggests an 11th or 12th century date.

#### Structural/architectural stone

- 7.63 SF40 from context [79] and SF52 from [88]: fragments of architectural tracery, both recovered from medieval pit fills. The fragments do not join, but are very similar and are likely to come from the same structure. Both are worn, damaged and show signs of burning. They are made from coarse, pale grey sandstone, the surfaces very eroded, which gives the carving a rough appearance. SF40, the larger piece, is 231 x 159 x 98mm thick max. It has an intact central 58mm diam perforation with evidence of at least two other perforated elements broken off from it. SF52 is 144 x 110 x c.100mm thick with one partial perforation 55+mm diam and evidence of at least two others. These are pieces of geometric bar tracery, usually found above window mullions. This particular type was most common in the later 13th and early 14th centuries (Pevsner 2010, 127).
- 7.64 SF109 from [63], the medieval soil: a worked block of very dense ironstone, slightly trapezoidal in shape. It is 83mm high x 45mm wide max x 110mm deep – the only intact dimension. The underside and faces are very flat, the top shaped but less flatly finished. An intact corner is rounded. It does not have the shape or appearance of a masonry block, and there is no adhering mortar. Date and use unknown.

#### Grindstones and whetstones

- 7.65 SF71: a small circular grindstone (or possible stone lid) from medieval soil context [63]. It is 41mm diam x 9.5mm thick, made from grey, medium-grained sandstone with two flat faces, one of which has a small central lathe mark. This face has several linear scratches, as though it has been used or re-used as a whetstone.
- 7.66 SF43: a second small grindstone, came from medieval pit fill context [88]. The object is sub-circular 39mm diam x 17mm thick, with central lathe marks on both sides. It is made from fine-grained, pale yellow micaceous sandstone and feels smoothed and slightly polished, probably through use.
- 7.67 SF98: part of a slate whetstone from post-medieval ridge context [72]. Its (broken) length is 74mm x 17-19mm wide x 9-10mm thick. The intact end is rounded, the surfaces feel smoothed with a slightly dished area on one face and a series of fine, deep scratches on one of the sides. Such a soft material as slate could only have been used for fine finishing of metals or polishing of softer (perhaps organic) materials. None of the above three objects can be easily dated.

#### Lids

- 7.68 Four 'circular' stone lids were found, all but one (SF101) from medieval contexts (Table 8).



| SF  | Cont | Shape                      | Diam  | Thickness |
|-----|------|----------------------------|-------|-----------|
| 91  | 84   | Sub-circular to polyhedral | 92mm  | 18mm      |
| 101 | 65   | Sub-circular               | 86mm  | 13mm      |
| 103 | 63   | Sub-circular               | 54mm  | 7mm       |
| 107 | 80   | Sub-circular to polyhedral | 124mm | 22mm      |

**Table 8: Stone lids by context**

- 7.69 The lids are all roughly-made and variable in size. They are in hard, moderately fine sandstone, similar to the material used for the roof tiles. The rough manufacture suggests they have been re-purposed from other objects, a suggestion supported by the trace of a circular perforation observed on the edge of SF107, possibly indicating a re-worked stone tile. Not easily dated, but such objects were in common use during medieval and later periods.

#### Floor tile

- 7.70 SF108: from medieval context [80] is part of a floor tile with one polished face, made from Frosterley marble. It is 118+ x 156+ x 46mm thick, with just one original edge, which has been cut. The top is well-finished and fairly smooth, but the underside is irregular and unworked. Such hard stone would have been very difficult to work and the underside may have been left rough, with mortar bedding used to compensate for the unevenness when the tiles were laid.

- 7.71 Further fragments of Frosterley marble (905g wt) came from context [88]. These may have been shattered by heat. They could be pieces of floor tile or possibly further fragments of the font. No surface or shaping survives, however.

#### Millstones

- 7.72 SF66 from context 81: part of a small top stone 291mm wide x 167mm deep x 51mm thick, its outer edge chamfered. The piece comprises c.30-40% of the original stone. The underside is smoothed, with one area particularly shiny. No evidence of perforations. Possibly medieval.
- 7.73 SF102: a fragment of heavily burnt millstone found in topsoil context [62]. It is roughly triangular 116 x 97 x 24-46mm thick, with one original curved edge and one intact face with a lip 45mm wide x c.5mm deep. The remainder of this face is flat. The edges of the piece are broken and the back is part flat and part broken. Possibly medieval.

#### Recommendation

- 7.74 Further study of the c.11th/12th century carved head SF67 and the tracery fragments SF's 40 & 52 is recommended, to seek parallels for closer dating. No further work is recommended for the remaining stone objects.

#### Beads assessment

##### Results

- 7.75 Three beads were found.
- SF1: from topsoil context [62] is a multi-faceted gemstone bead, made from opaque, white streaked red jasper or carnelian. It is 9mm diam x 8mm long, its ends slightly flattened. There is chipping and wear around the perforation. Its multi-faceted shape and highly polished finish suggest it is modern.

- 7.76 SF42: from medieval deposit [84] is a complete spheroidal amber bead with slightly flattened ends 9.5mm diam x 6mm long with a 2mm perforation. The bead is covered by an opaque weathered crust, obscuring any drill marks inside the perforation, but was originally translucent orange. Amber beads are found in contexts from the Palaeolithic onwards, but a worked example such as this is likely to be historic in date. The amber used has a significant imperfection, however, suggesting the bead is of some antiquity.
- 7.77 SF92: a polyhedral ?jet bead from medieval pit fill context [88]. It is 10mm long x 8.5mm diam with a slightly off-centre 2mm perforation. The bead is basically oblong with faceted corners and is well-finished with only a few file marks visible. There is wear/chipping to the corners and use scratches on the surfaces. Its slight irregularity and imperfect finish suggests a pre-industrial date.

#### **Discussion**

- 7.78 It is thought that beads found in medieval contexts are likely to come from rosaries rather than bead necklaces, which were not very popular during this period (Margeson 1993, 5). Both amber and jet were used for rosary beads, though circular beads were more usual than faceted examples. However, differently shaped beads known as gauds or paternoster beads, were used to mark intervals along the rosary.

#### **Recommendation**

- 7.79 Further study of the amber and ?jet beads (SF's 42 & 92) is recommended to find parallels for identification and closer dating.

#### **Iron objects assessment**

##### **Results**

- 7.80 Excavations recovered a total of 515 iron objects, unstratified and from 17 contexts (Table 9). The assemblage is dominated by 423 nails, which were found in 16 contexts. The nails come in a wide variety of shapes and sizes, from large examples 142mm+ long, from [62], down to small tacks less than 20mm in length. Many are complete, or nearly so, and straight.
- 7.81 Most of the nails appear (in their corroded state) to be hand wrought, though some contexts also have examples of 19th century cut nails (Table 9). Topsoil context [62] has a few rose-headed examples, but also has modern wire nails. Contexts thought to be of medieval date produced only hand wrought nails. Examples of horseshoe nails were seen in contexts [63, 80 and 94] and a single screw was identified in context [72].
- 7.82 The wide variety of nail types and sizes suggests they derive from several different sources and probably represent demolition, disposal or discard over a long period.

| Context      | Nails      | Cut/wire? | Other Fe  | Includes   |
|--------------|------------|-----------|-----------|--|
| u/s          |            |           | 1         | Band frag  |
| 62           | 94         | Yes       | 44        | Heel plates; lock; chain; bar frags; knife                 |
| 63           | 35         |           | 6         | Folding knives; tenterhook; horseshoe frag; arrow head     |
| 64           | 62         | Yes       | 14        | Pierced bar; hooked rod; heel plates; punch; half scissors |
| 65           | 7          |           | 1         | Bar frag   |
| 66           | 1          |           |           |  |
| 68           | 4          |           | 4         | Horseshoe; split pin; spur hook                            |
| 70           | 56         | Yes       | 4         | Plate frags; arrow heads                                   |
| 72           | 36         | Yes       | 3         | Heel plate; cauldron leg?                                  |
| 75           | 20         | Yes       | 1         | Horseshoe frag   |
| 76           | 15         | Yes       | 1         | Latch rest   |
| 79           | 10         |           |           |  |
| 80           | 20         |           | 4         | Chain link; horseshoe frag                                 |
| 81           | 39         |           | 2         | Small hinge  |
| 84           | 16         |           | 3         | Buckles; cauldron leg?                                     |
| 86           |            |           | 1         | Ferrule/end cap, pierced                                   |
| 88           | 4          |           | 3         | Pierced bar; needle  |
| 94           | 2          |           |           |  |
| <b>Total</b> | <b>423</b> |           | <b>90</b> |  |

Table 9: Iron objects by context

- 7.83 The remaining 92 objects cover a range of material, some of it identifiable and dateable, including modern aerosol can fragments [62], 19th or 20th century heel plates [62, 64, 72], medieval/late medieval buckles [62, 84], two possible cauldron leg fragments [72, 84], lengths of chain [62, 64] probably for animal tethering, knife blades [62], folding knives [63] and tool fragments [64]. Small fragments of possibly medieval or late medieval horseshoes were found in [63 and 68]. The assemblage also includes many fragmentary parts of hooks, rings, pierced bars and other unidentifiable and difficult to date objects.
- 7.84 Notable iron objects include:
- SF4 [76] part of a broken latch rest (post-med).
  - SF21 [81] a small ?casket hinge with leaf-shaped terminals, possibly with adhering mineralised material, from a medieval deposit.
  - SF33 [68] spur leather hook (medieval).
  - SF37 [84] spur leather buckle (med/late med).
  - SF38 [86] large (82mm diam) cone-shaped end piece or ferrule from a medieval deposit. X-ray shows piercing for attachment.
  - SF39 [84] possible cauldron leg fragment.
  - SF73 [62] part of whittle tang knife blade and handle. The X-ray shows the handle has ?bone bands decorated with dot and ring interspersed with non-ferrous plates. Medieval.
  - SF74 [62] lock with rectangular mounting plate, 80 x 60mm, and intact encased mechanism (shown on X-ray) at back, with decorative ?lead key hole cover. Possibly for box or chest. Probably post-med.
  - SF75 [62] spur leather buckle (med/late med).
  - SF76 [62] highly corroded blade fragment, with straight cutting edge and slightly rounded back. ?Med.

- SF77 [62] highly corroded blade fragment, with straight cutting edge and slightly rounded back. ?Med.
- SF78 [62] curved handle fragment with leaf shaped terminal, possibly from window catch. Post-med.
- SF79 [63] arrow head from medieval soil.
- SF80 [63] folding knife with iron blade and corkscrew in a non-ferrous frame. From medieval soil but likely to be 19/20th century.
- SF81 [63] folding iron knife with single blade. From medieval soil.
- SF82 [63] notched ?hinge with incised decoration from medieval soil.
- SF83 [64] half of a pair of scissors. Post-med.
- SF84 [64] punch.
- SF85 [64] c7 small round to oval chain links corroded together. ?post-med.
- SF86 [70] arrow head, medieval/late medieval?
- SF87 [70] arrow head, medieval/late medieval?
- SF88 [84] sub-rectangular shoe buckle with double spike 18thC.
- SF89 [88] complete needle 75mm long. ?Medieval.
- SF90 [63] part of tenterhook from medieval soil.
- SF115 [72] strongly curved ?cauldron leg fragment.

#### **Discussion**

- 7.85 The assemblage is dominated by nails, suggesting demolition or the accumulation of discarded timbers. The rest of the material suggests casual loss (buckles, needle, knives) or discard and/or loss of broken scraps, with little indication of domestic debris. None of the artefacts appear to be earlier than medieval.

#### **Recommendation**

- 7.86 Though many of the more notable objects come from topsoil, further study could provide information for the dating of activity on site. It is recommended that most of the notable objects are conserved to reveal their form and surface detail. Together with a selection of other iron objects, these should be further studied by a specialist to assign function and for closer dating of the assemblage.

#### **Copper alloy objects assessment**

##### **Results**

- 7.87 Fifty-seven copper alloy objects were recovered, including significant numbers of lace tags and pins, both of which are of medieval date.

##### Lace tags or chapes

- 7.88 Ten were found in four contexts (three medieval) and unstratified (Table 10). Lace tags are made from very thin sheet copper alloy rolled into a tube with the long edges butted, overlapped or slightly turned in. Some examples have a tiny transverse rivet (SF's 93, 97) to hold the lace in place. They were worn in large numbers from the 15th century until around the 17th, and were used to facilitate the threading of laces (leather, fibre or cord) through garments. There is a proposed typology, with the tapered and transverse riveted examples thought to be the earlier 15th century type (Oakley 1979, 262). Four examples here appear to be complete, ranging in size from 21.5-34.5mm long x 2-2.25mm diameter. Two (SF's 93 & 94) have visible fibres or thread inside.

| SF | Cont | Complete | Tapering | Riveted | Fibre | Size                |
|----|------|----------|----------|---------|-------|---------------------|
| 7  | 81   | Y        | Y        |         |       | 27l x 2mm diam      |
| 30 | 81   | Y        | Y        |         |       | 27.5l x 2.25mm diam |
| 32 | 72   |          |          |         |       |                     |
| 49 | 81   |          |          |         |       |                     |
| 74 | 84   | Y        | Y        |         |       | 34.5l x 2.25mm diam |
| 93 | u/s  | Y        |          | Y       | Y     | 21.5l x 2mm diam    |
| 94 | 81   |          | Y        |         | Y     |                     |
| 95 | 88   |          |          |         |       |                     |
| 96 | 88   |          | Y        |         |       |                     |
| 97 | 88   |          | Y        | Y       |       |                     |

Table 10: Lace tags

## Pins

- 7.89 Twenty eight pins were found, all of them plausibly medieval, from six contexts, three of which are medieval (Table 11). Many are complete.

| SF  | Context | Head Type | Complete | Dimensions (mm)                  |
|-----|---------|-----------|----------|----------------------------------|
| 2   | 62      | wound     | Y        | 47 x 1 x 2                       |
| 6   | 81      | solid     | N        | 34 x 0.6 x 3.1                   |
| 8   | 62      | ?         | N        | 46 x 1.5 head lost               |
| 9   | 62      | solid     | Y        | 41.5 x 1 x 2.2                   |
| 10  | 62      | solid     | Y        | 41.5 x 0.7 x 2.7                 |
| 11  | 62      | solid     | Y        | 65 x 0.8 x 3.2                   |
| 12  | 81      | wound     | Y        | 38 x 0.8 x 2.2                   |
| 14  | 81      | solid     | Y        | 40 x 0.8 x 2                     |
| 15  | 81      | solid     | Y        | 37 x 0.8 x 4.1 ?dark head        |
| 16  | 81      | wound     | Y        | 33.5 x 0.8 x 1.8                 |
| 17  | 81      | wound     | Y        | 47 x 0.8 x 2.7                   |
| 18  | 81      | wound     | N        | 35 x 0.7 x 1.7                   |
| 19  | 81      | solid     | Y        | 38 x 0.7 x 3.3 ?dark head        |
| 20  | 81      | ?         | N        | 17.5 x 0.7 shank frag            |
| 23  | 81      | solid     | Y        | 43.5 x 0.8 x 4.4 ?dark head      |
| 24  | 81      | solid     | Y        | 39.5 x 0.7 x 1.7                 |
| 27  | 76      | wound     | Y        | 50 x 0.9 x 1.2                   |
| 28  | 76      | solid     | Y        | 38 x 0.7 x 2.8                   |
| 31  | 76      | solid     | Y        | 126 x 1.2 x 3.6 faceted head     |
| 41  | 63      | solid     | N        | 35 x 0.8 x 4.4 ?dark head        |
| 46  | 81      | ?         | N        | 37 x 0.8 head lost               |
| 48  | 81      | ?         | N        | 52 x 0.7 head lost               |
| 55  | 91      | wound     | Y        | 59 x 1.6 x 4 ?dark surface       |
| 57  | 63      | ?         | N        | 38 x 0.8 head lost               |
| 59  | 81      | solid     | Y        | 42.5 x 1.6 x 2.6 x 2.9 rect head |
| 64  | 81      | wound     | Y        | 43 x 0.9 x 3                     |
| 75  | 72      | wound     | Y        | 49 x 0.9 x 2.5                   |
| 118 | 72      | solid     | Y        | 40.5 x 0.9 x 2.7                 |

Table 11: pins by type and context

Measurements show length x shank diam x head diam

- 7.90 The pin heads are of two types:  
 Wound (9 found), where a wire is wound once or twice around the top of the shank to form the head.  
 Solid (14 found) where a solid head, often circular, is attached to the top of the shank.

A few pins were missing the head and the type could not be determined.

- 7.91 Pin making improved from the 12th century onwards with the introduction of finer, drawn wire enabling the manufacture of finer pins (Egan & Pritchard 2002, 297). Shank diameters of the smaller pins seen here are mainly less than 1mm, and together with the head types, this suggests that all the complete pins are medieval. Most are of a similar size, but a few are larger (SF7, 48, 55), the largest being SF31 at 126mm. Most of the solid headed pins have circular or sub-circular tops, but SF31 has a slightly faceted head and the head of SF59 is rectangular with a slightly pointed top. The heads of a few pins appear to have a darker patination than the shanks (Table 11), suggesting either surface plating or the use of a different alloy for the heads, which were made and applied separately. The pins form a well-preserved group.

#### Other CuA objects

- 7.92 Nineteen other copper alloy objects were found, including 20th century coins [62, 80], 19/20th century buttons [62, 63, 64, 88], a probable medieval buckle, strap or stud fragments/fittings [64, 70, 76, 81], a medieval ferrule/chape [81], a complete, post-medieval thimble [62] and undateable rings/loops [62, 63].
- 7.93 Notable copper alloy objects include:  
SF22 [81] small rectangular buckle 11 x 9mm with external rivet. Medieval.  
SF26 [81] hollow backed ?belt/strap mount 16 x 10mm with embossed design resembling double ended fleur de lys. Medieval?  
SF50 [81] small tapering ferrule/chape, almost complete, 30 x 15mm max, roughly made from folded thin sheet copper alloy. Medieval.  
SF114 [64] strap end 25 x 25mm (folded) made from sheet CuA with three rivet holes. Medieval?

#### Recommendation

- 7.94 The fragile lace tags should be examined for the recovery of any surviving fibres and cleaned and consolidated to ensure their survival. Fibres should be identified if possible. The pins, along with a selection of other notable copper alloy objects, should also be cleaned and consolidated, and the observed darker pin head surfaces should be analysed using EDXRF, alongside the shanks, to determine alloy composition. The conserved objects should be further studied by a specialist to assign function and for closer dating of the assemblage.

#### Lead objects assessment

##### Results

- 7.95 Fourteen lead/lead alloy objects were recovered, 8 of them fragments of window came (Table 12). Window came was found in 7 contexts, all but one provisionally medieval. Most of the came fragments are just lightly corroded and several appear undamaged. They all have an 'H' shaped profile, but no milling marks were found inside the webs, suggesting a pre-16th century date. They vary in depth from c.4.5 – 7.5mm, the thicker pieces from contexts [63 & 94] having a slightly faceted outer profile. They are all likely to be medieval, but several are curiously well-preserved.
- 7.96 The remaining fragmentary objects come mainly from post-medieval and topsoil contexts and are of unknown date. They include offcuts and rod fragments, probably waste from refurbishment or repair work.

- 7.97 SF13 from context [76] is part of a roughly-finished object 77mm long x 12mm wide x 2.5mm thick, with one rounded intact end. There is a small perforation close to this end. Of unknown date and function.

| Context | SF | No | ID                      |
|---------|----|----|-------------------------|
| 62      |    | 1  | Square-sectioned rod    |
| 63      |    | 3  | Window came frag's      |
| 63      |    | 1  | Unworked lead frag      |
| 65      |    | 1  | Chip                    |
| 70      |    | 1  | Window came frag        |
| 72      |    | 1  | Offcut                  |
| 76      | 13 | 1  | Object with rounded end |
| 79      |    | 1  | Window came frag        |
| 81      |    | 1  | Window came frag        |
| 81      |    | 1  | Round-sectioned rod     |
| 88      | 62 | 1  | Window came frag        |
| 94      | 58 | 1  | Window came frag        |

Table 12: Lead objects

#### Recommendation

- 7.98 No further work is recommended.

#### Flint assessment

##### Results

- 7.99 The flint assemblage comprises five pieces, all of them flakes, from contexts [62, 63, 64, 84].
- 7.100 The first artefact [62] is a flake manufactured on light grey, good quality flint. The dorsal is battered and displays 50-75% cortex, with damage at the distal end and a dihedral butt (Dimensions: L=19.84mm, W=22.42mm, Th=6.06mm). This piece and a shaping flake [64] were found in secondary contexts in topsoil. The shaping flake is on a similar light grey flint, but with a slightly coarser consistency. Cortex is again present on the dorsal surface (25-50%) and the nature is indicative of river cobble origin. There are three removals on the dorsal, all originating from the proximal, with a soft hammer butt and plunged overshoot termination (Dimensions: L=34.97mm, W=23.42mm, Th=9.08mm).
- 7.101 The remaining three pieces are all from medieval contexts, again demonstrating secondary deposition. Two artefacts are from context [63]. The first flake is again on light grey specked flint. There is no cortex present, only five removals on the dorsal. The artefact demonstrates a marginal butt with a plunged overshoot termination (Dimensions: L=21.11mm, W=15.43mm, Th=4.48mm). The second is on black, good quality flint. There are four removals on the dorsal, three from the proximal end and one from the right, with 50-75% cortex covering the surface. There is a break at the distal right side and at the proximal. The butt has been removed and the termination is of a hinge type (Dimensions: L=41.36mm, W=32.18mm, Th=7.18mm). The final artefact [84] is a broken distal flake displaying a step termination and 50-75% cortex. Similar to the majority of pieces from this site, it is manufactured on light grey flint. (Dimensions: L=18.04mm, W=28.46mm, Th=8.77mm).

### **Discussion**

- 7.102 The artefacts are unfortunately all debitage pieces in secondary contexts and cannot provide a date. However, it is interesting to note that all except one piece are manufactured on light grey material, suggesting perhaps a similar origin. The black flint flake stands out, indicating that it was from a different source to the rest of the assemblage.

### **Recommendation**

- 7.103 No future recommendations.

## **Industrial residues and burnt waste assessment**

### **Results**

- 7.104 Little metalworking waste was recovered: a broken piece (145g wt) of smithing hearth base, with traces of its characteristic plano-convex shape, came from post-medieval context [72] and a lump of indeterminate ironworking slag (175g wt) from medieval context [81]; two very small fragments of probable iron smelting slag (15g wt) came from contexts [63 & 72] and a piece of galena (lead ore, 55g wt) was found in [88].
- 7.105 Limestone fragments were found in several contexts, the largest quantity (1725g) from sample <6> taken from context [103], the probable lime kiln below the chapel. A further 380g came from several contexts including 135g from kiln pit fill [88]. Other contexts producing small quantities of lime fragments are [62, 63, 64, 70, 79 and 84]. Lime may have been produced on site during construction of the stone chapel for making mortar and wallplaster.
- 7.106 Five small 'heat-glazed' stone fragments (150g wt) were found in contexts [63, 70 & 79]. These may be worked stone fragments or natural geology, but shaping and surface details are obscured. The surfaces are covered with pale green/white or brown glaze. This happens when temperatures are sufficiently high to cause the mineral-rich ground surface to melt, covering the stones. Though the melting point of silicon alone is very high (1400°C), when it is mixed with other earth elements – as in a ground surface - the melting point is lowered to within the range achievable in a domestic hearth or conflagration.
- 7.107 The rest of the material is burnt and unburnt waste or fuel residues. There is 105g of burnt and unburnt coal fragments from contexts [62, 63, 64, 70, 81 & 103] and 1005g of mainly cinder and clinker from hearths and furnaces, along with a little fuel ash slag from contexts [62, 64, 65, 68, 72, 75, 79, 80, 84, 88, 94 and u/s].
- 7.108 None of this material suggests metalworking activity on site. The slender evidence for iron working suggests some possible activity in the vicinity at some period, but equally the area may have been a convenient dumping ground for residues from elsewhere. This notion is supported by the quantities of (probably domestic) waste cinder and clinker found. Lime mortar and plaster production is likely to have been taking place, however.

### **Recommendation**

- 7.109 No further work is recommended.



### **Bone object assessment**

#### **Results**

- 7.110 Two thin plates of worked bone came from topsoil [62]. One has an intact width of 15mm and is 32mm long with one intact short edge. The other is 50mm long x 12mm wide with only one long edge intact. They are 1.5-2mm thick with one polished and one unfinished face. These may be plates from knife handles or possibly piano key tops. Their fresh appearance and topsoil context suggests they may be of recent date.

#### **Recommendation**

- 7.111 No further work is recommended.

### **Other materials assessment**

#### **Results**

- 7.112 Context [94], the burial, produced a single long 200mm+, relatively thick (0.2mm) animal hair (SF61).
- 7.113 Fragments of two 19th/early 20th century slate pencils came from context [62]. A 19th/early 20th century clay marble (SF73) was found in context [65].

#### **Recommendation**

- 7.114 No further work is recommended.

### **Conservation assessment**

#### Quantification and condition

- 7.115 Seventy-one iron and two copper alloy objects were received for x-radiography and conservation assessment. The iron objects were found to be minimally to highly corroded while the copper alloy objects were seen to be minimally corroded.
- 7.116 Moderately corroded metallic material is defined as having the surface detail, but not usually the general form of the object, obscured by corrosion products, and has some metal remaining below the corrosion. Highly corroded metallic material is defined as having both the form and the surface detail of the object obscured by corrosion, and/or having little or no metal remaining in its core.

#### X-radiography

- 7.117 The objects were briefly visually examined to assess their condition and stability, to determine the material from which they were made, and to look for surface and technological detail. The metal objects were X-rayed in plan view.

#### Storage

- 7.118 The objects are packed for medium to long term storage. The metal should be stored in airtight containers at a stable temperature and below 15% RH, to inhibit further corrosion. The RH should be controlled by active silica gel, which is regularly monitored and regenerated as necessary.

## **8. Palaeoenvironmental assessment**

### **Methods**

- 8.1 A palaeoenvironmental assessment was carried out on nine bulk samples, taken from archaeological features (a wall, postholes and kiln deposits) provisionally dated

to the medieval period. Previous excavation of the chapel walls recovered large quantities of mortar and charcoal, and a few charred plant macrofossils remains of the cultivated crops oat, barley and possibly pea (Archaeological Services 2014). The samples were manually floated and sieved through a 500 $\mu$ m mesh. The residues were examined for shells, fruitstones, nutshells, charcoal, small bones, pottery, glass, flint and industrial residues, and were scanned using a magnet for ferrous fragments. The flots were examined at up to x60 magnification using a Leica MZ7.5 stereomicroscope for waterlogged and charred botanical remains. Identification of these was undertaken by comparison with modern reference material held in the Environmental Laboratory at Archaeological Services Durham University. Habitat classification follows Preston *et al.* (2002). Plant nomenclature follows Stace (1997).

- 8.2 Selected charcoal fragments were identified, in order to provide material suitable for radiocarbon dating. The transverse, radial and tangential sections were examined at up to x600 magnification using a Leica DMLM microscope. Identifications were assisted by the descriptions of Schweingruber (1990) and Hather (2000), and modern reference material held in the Environmental Laboratory at Archaeological Services Durham University.
- 8.3 Snail remains were identified to species using the descriptions of Cameron (2008) and Kerney & Cameron (1979). Nomenclature follows Anderson (2005) and habitat classifications follow Cameron (2008) and Kerney & Cameron (1979).
- 8.4 The works were undertaken in accordance with the palaeoenvironmental research aims and objectives outlined in the regional archaeological research framework and resource agendas (Petts & Gerrard 2006; Hall & Huntley 2007; Huntley 2010).

## Results

- 8.5 Kiln deposits [88] and [103] contained sizeable amounts of lime and mortar, small fragments of coal, clinker/cinder and fuel waste, and occasional charcoal. Deposit [88] also comprised fractured fragments of galena (lead mineral), fired clay, glass, pottery, a faceted jet bead and small copper objects. Evidence of domestic waste included the charred remains of hazel nutshell and an oat grain. The large size of the oat grain suggests the presence of cultivated oat (*Avena sativa*), although diagnostic chaff was absent. Identified charcoal from [88] was the most diverse assemblage, comprising elm, oak, ash, hazel and cherries (blackthorn, wild and bird cherry).
- 8.6 Posthole fill [92] contained large fragments (>60mm) of oak charcoal exhibiting radial cracks, weak ring curvature and more than 40 growth rings. The common occurrence of tyloses indicates the presence of heartwood. The fill of posthole [96] also predominantly comprised oak charcoal, although the absence of tyloses from the narrow radially fractured fragments implies sapwood. Both of these fills included fragments of hazel charcoal, comprising strong ring curvature and anatomical characteristics typical of small calibre branchwood. The charred remains of a sedge nutlet and grass tuber were present in [96].
- 8.7 Fragments of charcoal from posthole fills [99] and [101] were mainly identified as ash with moderate ring curvature. Other species noted from posthole fills included alder, willow/poplar and Maloideae. The absence of spiral thickening, ray size and diffuse porous nature suggest the latter is hawthorn or apple. Deposit [98] below

the chapel wall comprised fragments of charcoal predominantly identified as yew (*Taxus baccata*), with weak ring curvature indicating stemwood.

- 8.8 Occasional fragments of unburnt bone (possibly small mammal) were present in several samples and small quantities of land snails included *Cochlicopa* cf. *lubrica* (Müller), *Arianta arbustorum* (Linnaeus), *Trochulus* cf. *striolatus* (Pfeiffer), *Oxychilus cellarius* (Müller), *Discus rotundatus* (Müller) and *Carychium tridentatum* (Risso). Material for radiocarbon dating is available for all of the samples, although most of the charcoal from posthole fill [92] may not be suitable due to the long-lived nature of oak heartwood. The results are presented in Table A1.2.

### Discussion

- 8.9 The sparsity of charred plant macrofossils and absence of diagnostic remains prevent further interpretation of the age of the deposits, although cultivated oat and barley are common cereal crops from the early medieval period onwards (Huntley & Stallibrass 1995). A minimum of nine tree/shrub species were identified from the charcoal assemblages, providing considerable evidence for woodland disturbance. Initial assessment of the charcoal remains from the postholes appears to suggest the use of oak and ash. In particular, the anatomical properties of the charcoal recovered from [92] imply the presence of large structural material and the large fragment size of the remains is not characteristic of hearth waste. Radial cracks noted in this material are generally associated with smaller pieces of wood such as branchwood or twigs (Marguerie & Hunot 2007). However, these fissures can be caused by rapid combustion at high temperatures (Schweingruber 1990) and may reflect the demolition of the site.
- 8.10 Yew charcoal recovered from [98] rarely occurs in archaeological deposits, although the high tensile strength and attractive nature of this wood has many uses. Wood of yew has a high calorific value producing a fierce heat, but this can be explosive on an open fire unless seasoned for two years (Gale & Cutler 2000), which may explain its usual absence from domestic hearth waste. This native tree mainly occurs on well-drained calcareous soils such as the limestone valley around Frosterley, although it is widely planted in churchyards (Preston *et al.* 2002).
- 8.11 Fragmented deposits of coal and clinker/cinder from the kiln fills probably represent fuel remains. This material may be domestic hearth waste rather than industrial residues, due the dumping of rubbish and evidence of food waste in deposit [88].
- 8.12 Overall the land snail remains are of ubiquitous species and have little interpretative value, although species typical of damp calcareous grassland were noted.

### Recommendations

- 8.13 The regional research framework (Petts & Gerrard 2006) contains an agenda for archaeological research in the region. In this instance, the archaeological resource addresses a number of agenda items, specifically AG13 Charcoal analysis and SEii Palaeoenvironmental evidence.
- 8.14 No further work is required for the palaeoenvironmental remains as the flots were scanned in their entirety and no additional information would be provided from an analysis. AMS dating of carefully selected terrestrial plant remains could be undertaken to confirm the origin of the deposits.

## 9. The archaeological resource

- 9.1 The excavations have demonstrated that St Botolph's chapel has Anglo-Saxon origins: several further fragments of the Anglo-Saxon cross head uncovered in the 2013 excavations were found, and an adult male burial adjacent to the chapel produced a radiocarbon date of 871-1013 AD. The demolition and robbing of the site has caused significant disturbance to the earlier deposits. An illustration of the possible construction of the chapel has been provided by Peter Ryder (Figure 14)
- 9.2 Two postholes within the chapel may be evidence of an earlier timber structure on the site, predating the stone chapel. Two distinct phases of construction of the south wall suggest the west part of the chapel was rebuilt or extended. Post settings and floor surfaces associated with the chapel also survived.
- 9.3 A large stone-lined pit, probably a lime kiln pit was dug in to the hillside below the chapel. The kiln, which can be described as a clamp or sow kiln, comprised the pit itself in which the lime was heated, and a connecting horizontal flue. A grid would have been added near the base to start the fire on using kindling, then alternate layers of coal (or other fuel) and limestone were stacked. The kiln could have been covered with turf or clay, and left to cook. Eventually, the whole thing was broken apart to recover the lime (GeoLancashire 2012). The quicklime produced by the kiln may have been used to provide mortar for the construction of the chapel or its rebuilding, but could also have been used agriculturally as it was traditionally spread on fields to neutralize acidic soil. The kiln was backfilled with rubble, some of which may have been the superstructure of the kiln itself, although fragments of architectural stone and the head of a statue indicate it also contained demolition debris from the chapel. Post-medieval bottle glass and fragments of clay pipe were also found in the backfilled deposits. The kiln could therefore have been used before the abandonment of the chapel, but was not finally backfilled until the late post-medieval period.
- 9.4 Two parallel stone walls leading up to the chapel were uncovered; these could be directly associated with either the chapel or the kiln, or land divisions.
- 9.5 The excavation has provided a wealth of artefacts including further fragments of Anglo-Saxon cross, a medieval stone-carved head, medieval architectural window tracery, millstones, beads and a fragment of font. There were also significant assemblages of pottery, bone, and metal objects including arrowheads, blades and pins.
- 9.6 As a significant archaeological resource was uncovered by the excavation, full analysis of the data and its publication is recommended. An Updated Project Design has been included as Appendix 4, which lists the tasks to be undertaken to achieve this.

## 10. Sources

- Anderson, R, 2005 An annotated list of the non-marine Mollusca of Britain and Ireland. *J Conch* 38, 607-637
- Archaeological Services 2014 *St Botolph's Chapel, Frosterley, County Durham: archaeological excavation*. Unpublished report 3427, Archaeological Services Durham University

- Cameron, R, 2008 *Land Snails in the British Isles*. Field Studies Council Occasional Publication 79. Shrewsbury
- Cramp, R, 1984 *Corpus of Anglo-Saxon Stone Sculpture 1: County Durham and Northumberland*, 2 vols. Oxford
- Gale, R, & Cutler, D, 2000 *Plants in archaeology; identification manual of artefacts of plant origin from Europe and the Mediterranean*. Otley
- GeoLancashire 2012: <http://www.lancashirerigs.org.uk/lime-kilns.html>
- Egan, G, & Pritchard, F, 2002 Dress accessories c.1150-1450 *Medieval Finds from Excavations in London*, 3. London
- Hall, A R, & Huntley, J P, 2007 *A review of the evidence for macrofossil plant remains from archaeological deposits in northern England*, Research Department Report Series no. 87. London
- Hather, J G, 2000 *The identification of the Northern European Woods: a guide for archaeologists and conservators*. London
- Huntley, J P, 2010 *A review of wood and charcoal recovered from archaeological excavations in Northern England*. Research Department Report Series no. 68. London
- Huntley, J P, & Stallibrass, S, 1995 *Plant and vertebrate remains from archaeological sites in northern England: data reviews and future directions*. Research Report No. 4, Architectural and Archaeological Society of Durham and Northumberland. Durham
- Kerney, M P, & Cameron, R A D, 1979 *A Field Guide to the Land Snails of Britain and North-west Europe*. London
- Lang, J T, 2001 *Corpus of Anglo-Saxon Stone Sculpture VI: Northern Yorkshire*. Oxford
- Lovejoy, C O, Meindl, R S, Pryzbeck, T R, & Mensforth, R P, 1985 Chronological metamorphosis of the auricular surface of the ilium: A new method for the determination of adult skeletal age at death, *Am J Phys Anthropol* 68, 15-28
- Marguerie, D, & Hunot, J-Y, 2007 Charcoal analysis and dendrology: data from archaeological sites in north-western France. *J Archaeol Sci* 34, 1417-1433
- Mays, S A & Cox, M, 2000 Sex determination in skeletal remains, in M Cox & S A Mays (eds) *Human Osteology in Archaeology and Forensic Science*, 117-130. London
- McKinley, J I, 2004 Compiling a skeletal inventory: disarticulated and co-mingled remains, in M Brickley & J I McKinley (eds) *Guidelines to the Standards for Recording Human Remains*, IFA Paper 7, 14-17.
- Oakley, G, 1979 The copper alloy objects, in Williams, J, St Peter's St, Northampton: Excavations 1973-76, Northampton Development Corporation Monograph 2
- Petts, D, & Gerrard, C, 2006 *Shared Visions: The North-East Regional Research Framework for the Historic environment*. Durham
- Pevsner, N, 2010 *Pevsner's Architectural Glossary*. London
- Preston, C D, Pearman, D A, & Dines, T D, 2002 *New Atlas of the British and Irish Flora*. Oxford
- Roberts, C A, & Cox, M, 2003 *Health and Disease in Britain: From Prehistory to the Present Day*. Stroud
- Roberts, C A, & Manchester, K, 2005 *The Archaeology of Disease*. Stroud
- Scheuer, L, & Black, S, 2000 *Developmental Juvenile Osteology*. San Diego
- Schweingruber, F H, 1990 *Microscopic wood anatomy*. Birmensdorf
- Stace, C, 1997 *New Flora of the British Isles*. Cambridge
- Trotter, M, 1970 Estimation of stature from intact long limb bones, in T D Stewart (ed) *Personal Identification in Mass Disasters*, 71-83. Washington DC

## Appendix 1: Data tables

**Table A1.1: Context data**

The \* symbols in the columns at the right indicate the presence of artefacts of the following types: P pottery, B bone, M metals, F flint, I industrial residues, G glass, C ceramic building material, O other materials.

| No   | Trench | Description                           | P | B | M | F | I | G | C | O |
|------|--------|---------------------------------------|---|---|---|---|---|---|---|---|
| 62   | 5/6    | Topsoil                               | * | * | * | * | * | * | * | * |
| 63   | 5      | Medieval soil horizon?                | * | * | * | * | * | * | * | * |
| 64   | 7, 8   | Topsoil                               | * | * | * | * | * | * | * | * |
| 65   | 5      | Rubble deposit, same as 76            | * | * | * |   |   | * |   | * |
| 66   | 5      | Rubble deposit over wall F67          | * | * | * |   |   |   |   |   |
| F67  | 5/6, 7 | Wall                                  |   |   |   |   |   |   |   |   |
| 68   | 2      | Subsoil                               | * | * | * |   |   |   |   |   |
| F69  | 5      | South wall of chapel                  |   |   |   |   |   |   |   |   |
| 70   | 5      | Backfill of robber cut                | * | * | * |   | * |   |   | * |
| F71  | 5      | Robber cut for removal of chapel wall |   |   |   |   |   |   |   |   |
| 72   | 5      | Stony ridge                           | * | * | * |   | * | * |   | * |
| 73   | 5      | Stony ridge                           |   |   |   |   |   |   |   |   |
| 74   | 5      | Stony bank, same as 75                |   |   |   |   |   |   |   |   |
| 75   | 5      | Stony bank                            | * | * | * |   |   |   | * | * |
| 76   | 5      | Stony bank                            | * |   | * |   |   |   | * |   |
| 77   | 5      | Rubble deposit                        |   |   |   |   |   |   |   |   |
| F78  | 6      | Cut for kiln pit                      |   |   |   |   |   |   |   |   |
| 79   | 6      | Fill of kiln pit                      | * | * | * |   | * | * | * | * |
| 80   | 5      | Deposit below 72                      | * | * | * |   |   | * |   | * |
| 81   | 5      | Deposit below 72, same as 80          | * | * | * |   |   | * |   |   |
| 82   | 5      | Deposit below 77                      |   |   |   |   |   |   |   |   |
| 83   | 5      | Stony ridge                           |   |   |   |   |   |   |   |   |
| 84   | 8      | Rubble and soil below topsoil         | * | * | * | * | * | * |   |   |
| 85   |        | Void                                  |   |   |   |   |   |   |   |   |
| 86   | 5      | Soil deposit abutting 87              |   |   | * |   |   |   |   |   |
| 87   | 5      | Stone floor                           |   |   |   |   |   |   |   |   |
| 88   | 6      | Lower fill of kiln pit                | * | * | * |   | * | * |   | * |
| 89   | 5      | Stones forming possible floor         |   |   |   |   |   |   |   |   |
| F90  | 4      | Wall                                  |   |   |   |   |   |   |   |   |
| 91   | 6      | Fill of kiln stoke hole               |   | * | * |   |   |   |   |   |
| 92   | 5      | Fill of posthole F93                  |   | * |   |   |   |   |   |   |
| F93  | 5      | Cut for posthole                      |   |   |   |   |   |   |   |   |
| 94   | 5      | Fill of grave                         | * | * | * |   | * |   |   |   |
| F95  | 5      | Grave cut                             |   |   |   |   |   |   |   |   |
| 96   | 5      | Fill of posthole F97                  |   |   |   |   |   |   |   | * |
| F97  | 5      | Cut for posthole                      |   |   |   |   |   |   |   |   |
| 98   | 5      | Deposit below chapel wall             |   |   |   |   |   |   |   | * |
| 99   | 5      | Fill of stone-lined posthole          |   |   |   |   |   |   |   | * |
| F110 | 5      | Cut for stone-lined posthole          |   |   |   |   |   |   |   |   |
| 101  | 5      | Fill of stone-lined posthole          |   |   |   |   |   |   |   | * |
| F102 | 5      | Cut for stone-lined posthole          |   |   |   |   |   |   |   |   |
| 103  | 6      | Lime at base of kiln                  |   |   |   |   | * |   |   |   |
| 104  | 5      | Soil bonding of wall F108             |   |   |   |   |   |   |   | * |
| 105  | 6      | Fill of kiln stoke hole               |   |   |   |   |   |   |   |   |
| F106 | 6      | Cut for kiln stoke hole               |   |   |   |   |   |   |   |   |
| 107  | All    | Natural                               |   |   |   |   |   |   |   |   |
| F108 | 5      | Rebuilt south wall of chapel          |   |   |   |   |   |   |   |   |
| 109  | 7      | Stone rubble deposit                  |   |   |   |   |   |   |   |   |

Table A1.2: Data from palaeoenvironmental assessment

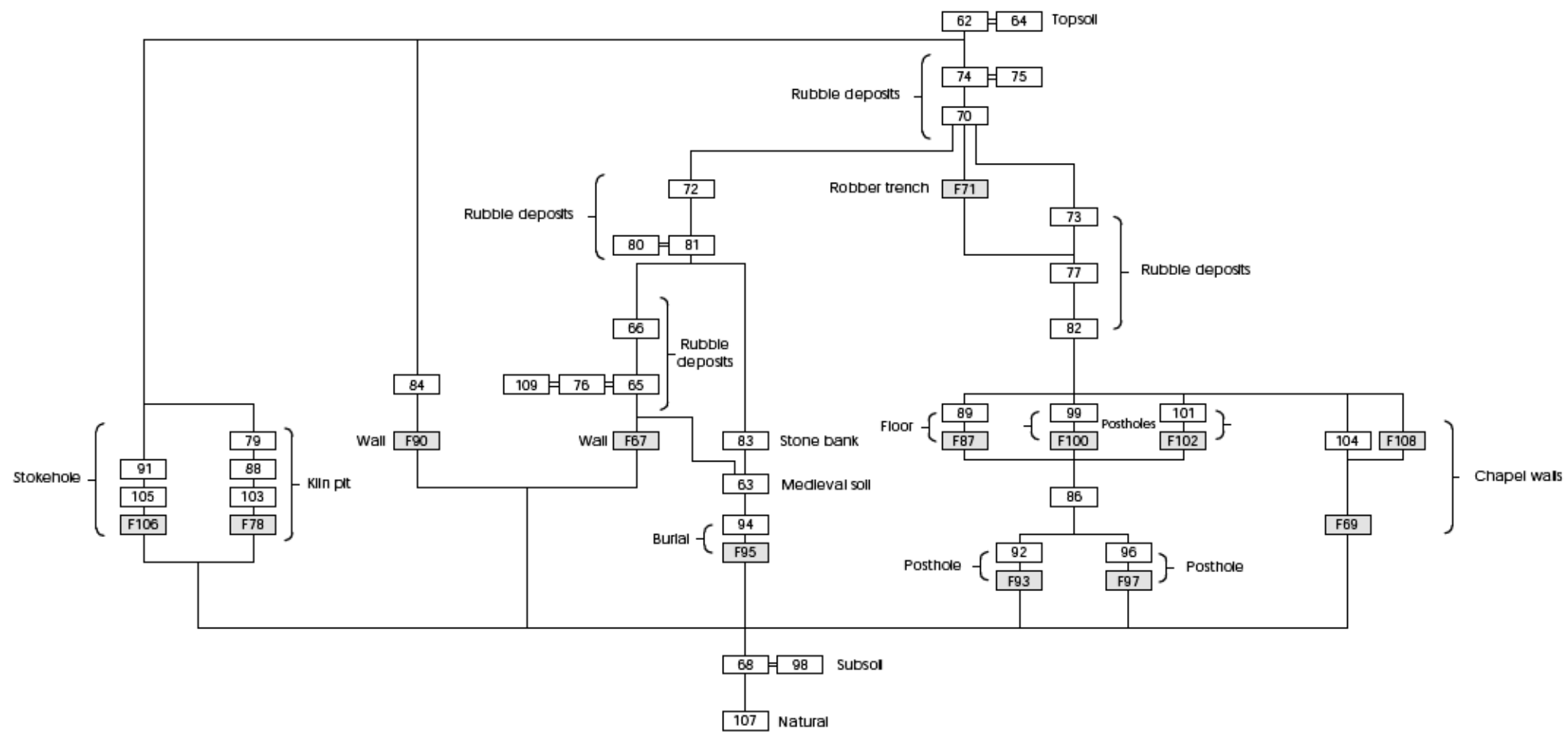
| Sample   | 1                | 2   | 3   | 4   | 5   | 6    | 7    | 8    | 9    |
|--|------------------|-----|-----|-----|-----|------|------|------|------|
| Context  | 88               | 92  | 96  | 98  | 99  | 103  | 101  | 92   | 104  |
| Feature number   | 78               | 93  | 97  | -   | 100 | 78   | 102  | 93   | 69   |
| Feature  | kiln             | PH  | PH  | DP  | PH  | kiln | PH   | PH   | wall |
| Material available for radiocarbon dating                              | ✓                | ✓   | ✓   | ✓   | ✓   | ✓    | ✓    | (✓)  | ✓    |
| Volume processed (l)   | 15               | 15  | 11  | 3   | 1   | 6    | 1    | 0.15 | 4    |
| Volume of flot (ml)  | 800              | 100 | 40  | 5   | 5   | 100  | 2    | 150  | 50   |
| Residue contents   |                  |     |     |     |     |      |      |      |      |
| Bead   | jet              | 1   | -   | -   | -   | -    | -    | -    | -    |
| Bone (unburnt)   | indet. frags     | ++  | +   | -   | -   | (+)  | -    | -    | (+)  |
| Bone (unburnt)   | ?small mammal    | ++  | -   | -   | +   | -    | -    | -    | -    |
| Charcoal   |                  | +   | -   | -   | -   | -    | (+)  | -    | -    |
| Clinker / cinder   |                  | +   | -   | -   | -   | +    | -    | -    | -    |
| Coal   |                  | +++ | -   | -   | -   | +    | ++   | -    | -    |
| Fired clay   |                  | +++ | -   | -   | ++  | -    | -    | -    | -    |
| Fuel waste   |                  | +++ | -   | -   | -   | -    | -    | -    | -    |
| Galena (mineral fragments)   | Pb               | 3   | -   | -   | -   | -    | -    | -    | -    |
| Glass (number of fragments)  |                  | 2   | -   | -   | -   | -    | -    | -    | -    |
| Lime   |                  | ++  | -   | -   | -   | -    | ++++ | +    | ++   |
| Metal object   | Cu               | 3   | -   | -   | -   | -    | -    | -    | -    |
| Mortar   |                  | +++ | +++ | +++ | ++  | ++   | -    | +    | +++  |
| Plaster  |                  | (+) | -   | -   | -   | +    | -    | -    | -    |
| Pot (number of fragments)  |                  | 2   | -   | -   | -   | -    | -    | -    | -    |
| Snails   | terrestrial      | +   | -   | -   | -   | -    | -    | -    | -    |
| Flot matrix  |                  |     |     |     |     |      |      |      |      |
| Bone (unburnt)   | indet. frags     | +   | -   | +   | -   | (+)  | -    | (+)  | -    |
| Charcoal   |                  | ++  | +++ | ++  | +   | +    | +    | +++  | +    |
| Clinker / cinder   |                  | +++ | -   | +   | -   | -    | ++   | -    | +    |
| Coal   |                  | +++ | -   | +   | +   | +    | ++   | +    | +    |
| Fired clay   |                  | +   | -   | -   | -   | -    | -    | -    | -    |
| Lime   |                  | ++  | +   | ++  | +   | +    | +++  | +    | ++   |
| Semi-vitrified fuel waste  |                  | -   | -   | -   | -   | -    | +    | -    | -    |
| Snails   | terrestrial      | ++  | ++  | ++  | +   | (+)  | +    | -    | +    |
| Charred remains (total count)  |                  |     |     |     |     |      |      |      |      |
| (c) <i>Avena</i> sp (Oat species)                                      | large grain      | 1   | -   | -   | -   | -    | -    | -    | -    |
| (g) <i>Arrhenatherum elatius</i> ssp <i>bulbosum</i> (False Oat-grass) | tuber            | -   | -   | 1   | -   | -    | -    | -    | -    |
| (t) <i>Corylus avellana</i> (Hazel)                                    | nutshell frag.   | 1   | -   | -   | -   | -    | -    | -    | -    |
| (w) <i>Carex</i> sp (Sedges)   | trigonous nutlet | -   | -   | 1   | -   | -    | -    | -    | -    |
| (x) Poaceae undiff. >2mm (Grass family)                                | caryopsis        | 2   | -   | -   | -   | -    | -    | -    | -    |
| Identified charcoal (✓ presence)                                       |                  |     |     |     |     |      |      |      |      |
| <i>Alnus glutinosa</i> (alder)   |                  | -   | -   | -   | -   | ✓    | -    | -    | -    |
| <i>Corylus avellana</i> (Hazel)  |                  | ✓   | ✓   | ✓   | -   | -    | -    | -    | -    |
| <i>Fraxinus excelsior</i> (Ash)  |                  | ✓   | -   | -   | -   | ✓    | ✓    | ✓    | ✓    |
| Maloideae (Hawthorn, apple)  |                  | -   | ✓   | -   | -   | ✓    | -    | -    | -    |
| <i>Quercus</i> sp (Oaks)   |                  | ✓   | ✓   | ✓   | ✓   | -    | -    | ✓    | ✓    |
| <i>Prunus</i> sp (Blackthorn, wild and bird cherry)                    |                  | ✓   | -   | -   | -   | -    | -    | -    | -    |
| Salicaceae (Willow, poplar)  |                  | -   | -   | ✓   | -   | -    | -    | -    | -    |
| <i>Taxus baccata</i> (Yew)   |                  | -   | -   | -   | ✓   | -    | -    | -    | -    |
| <i>Ulmus</i> sp (Elms)   |                  | ✓   | -   | -   | -   | -    | ✓    | -    | ✓    |

[c-cultivated; g-grassland; t-tree/shrub; w-wet/damp ground; x-wide niche. PH-posthole; DP-deposit

(+): trace; +: rare; ++: occasional; +++: common; ++++: abundant. (✓) may be unsuitable for dating due to oak heartwood]

## Appendix 2: Stratigraphic matrix





## Appendix 3: Radiocarbon certificate



### Scottish Universities Environmental Research Centre

Director: Professor R M Eilam  
Rankine Avenue, Scottish Enterprise Technology Park,  
East Kilbride, Glasgow G75 0QF, Scotland, UK  
Tel: +44 (0)1355 223332 Fax: +44 (0)1355 229896 www.glasgow.ac.uk/suerc

### RADIOCARBON DATING CERTIFICATE

19 December 2014

|  |   |
|--|---|
| <b>Laboratory Code</b>                                   | SUERC-56997 (GU35799)   |
| <b>Submitter</b>   | Charlotte O'Brien<br>Archaeological Services<br>Durham University<br>South Road<br>Durham DH1 3LE |
| <b>Site Reference</b>                                    | Frosterley St Botolph's Chapel  |
| <b>Context Reference</b>                                 | 94  |
| <b>Sample Reference</b>                                  | SK1   |
| <b>Material</b>  | Bone - fibula : Human   |
| <b><math>\delta^{13}\text{C}</math> relative to VPDB</b> | -20.3 ‰   |
| <b><math>\delta^{15}\text{N}</math> relative to air</b>  | 10.9 ‰  |
| <b>C/N ratio (Molar)</b>                                 | 3.3   |
| <b>Radiocarbon Age BP</b>                                | 1114 ± 30   |

**N.B.** The above  $^{14}\text{C}$  age is quoted in conventional years BP (before 1950 AD). The error, which is expressed at the one sigma level of confidence, includes components from the counting statistics on the sample, modern reference standard and blank and the random machine error.

The calibrated age ranges are determined from the University of Oxford Radiocarbon Accelerator Unit calibration program (OxCal4).

Samples with a SUERC coding are measured at the Scottish Universities Environmental Research Centre AMS Facility and should be quoted as such in any reports within the scientific literature. Any questions directed to the Radiocarbon Laboratory should also quote the GU coding given in parentheses after the SUERC code. The contact details for the laboratory are email [g.cook@suerc.gla.ac.uk](mailto:g.cook@suerc.gla.ac.uk) or telephone 01355 270136 direct line.

Conventional age and calibration age ranges calculated by :- *E. Dunbar*

Date :- 19/12/2014

Checked and signed off by :- *P. Nayant*

Date :- 19/12/2014

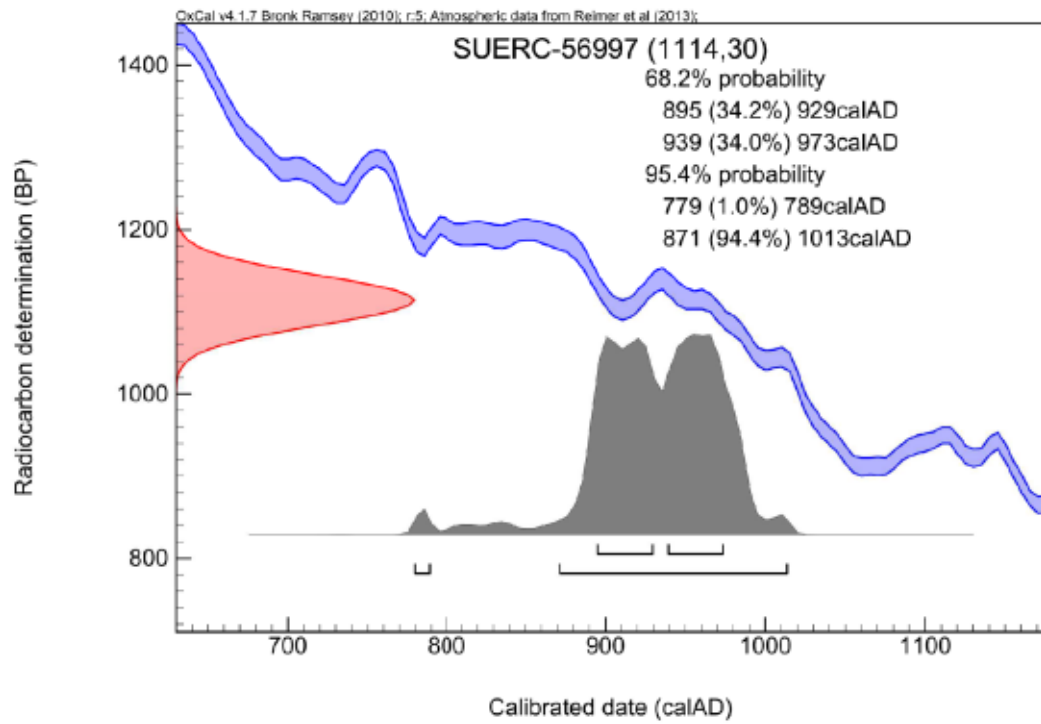


The University of Glasgow, charity number SC008061



The University of Edinburgh is a charitable body, registered in Scotland, with registration number SC008026

### Calibration Plot



## Appendix 4: Updated Project Design

### Project management

1. The project manager will be responsible for the management and coordination of the timetable, personnel, and resources, and for quality control.

### Conservation

2. EDXRF plaster pigments and a selection of pin heads & shanks
3. Medieval glass stabilisation
4. Conservation of c.25 Fe objects
5. Conservation of c.42 CuA plus c.5 fibre identifications

### Ceramic assemblage

6. Full analysis of the pre-19th century ceramic assemblage

### Animal bone

7. Full analysis of the assemblage

### Architectural stone

8. Analysis of 1 stone head; 2 pieces of architectural tracery; 1 worked stone block for comparanda and dating

### Human remains

9. Analysis of c.75 small fragments picked out from animal bone

### Font

10. Further study of the fragments of font and comparative material

### Cross

11. Further study of the fragments of cross and comparative material

### Metal

12. Further study of c.35 Fe, c.4 CuA objects and 30 CuA pins for function and dating

### Beads

13. Further study of the beads to find parallels for identification and closer dating

### Radio-carbon (AMS) dating

14. Four deposits have been selected as suitable candidates for radio-carbon (AMS) dating. Substitutes may be used where sample dating fails:
  - Context 57 (sample 5 from FSB13) – deposit below east wall
  - Context 92 (sample 2 from FSB14) – fill of posthole F93
  - Context 98 (sample 4 from FSB14) – deposit below west end of south wall
  - Context 103 (sample 6 from FSB14) – deposit at base of kiln

### Artefact illustration

15. The stone head and 2 pieces of architectural tracery will be drawn

16. Selected fragments of cross will be drawn

**Artefact photography**

17. Photographs of the 2 cross fragments together and the cross shaft fragment, the joined font fragments and the carved head SF67

**Digitising**

18. Selected plans and sections from the site archive will be digitised.

**Excavation graphics**

19. Phased plans and section drawings will be prepared for the full analysis report.

**Report preparation**

20. Phased data structure incorporating the results of both seasons of excavation will be written and integrated with the illustrations.

21. Preparation of report, including collation of specialist reports and illustrations.

22. Integration of specialist reports into data structure.

23. Research into relevant parallels for the data and analysis of the data will be conducted in accordance with defined research objectives.

24. A synthesis of the site will be prepared, bringing together all the results of the excavations.

25. The report will be edited by the Project Manager.

26. Full analysis report production.

**Publication**

27. Preparation of text for publication.

28. Reformatting of illustrations for publication.

29. Editing of publication text by the Project Manager.

30. Submission of publication report to the editor of Church Archaeology

31. Revision of text / illustrations following referee's comments

**Archive**

32. Preparation of the project archive.

33. Transfer of the site archive to the Bowes Museum.

34. Transportation of artefacts between specialists.

Figure 1: Site location

Reproduced from Explorer 307 & OL31 1:25 000 by permission of Ordnance Survey on behalf of The Controller of Her Majesty's Stationery Office. © Crown copyright 2009. All rights reserved. Licence number AL100002176

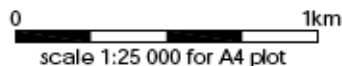
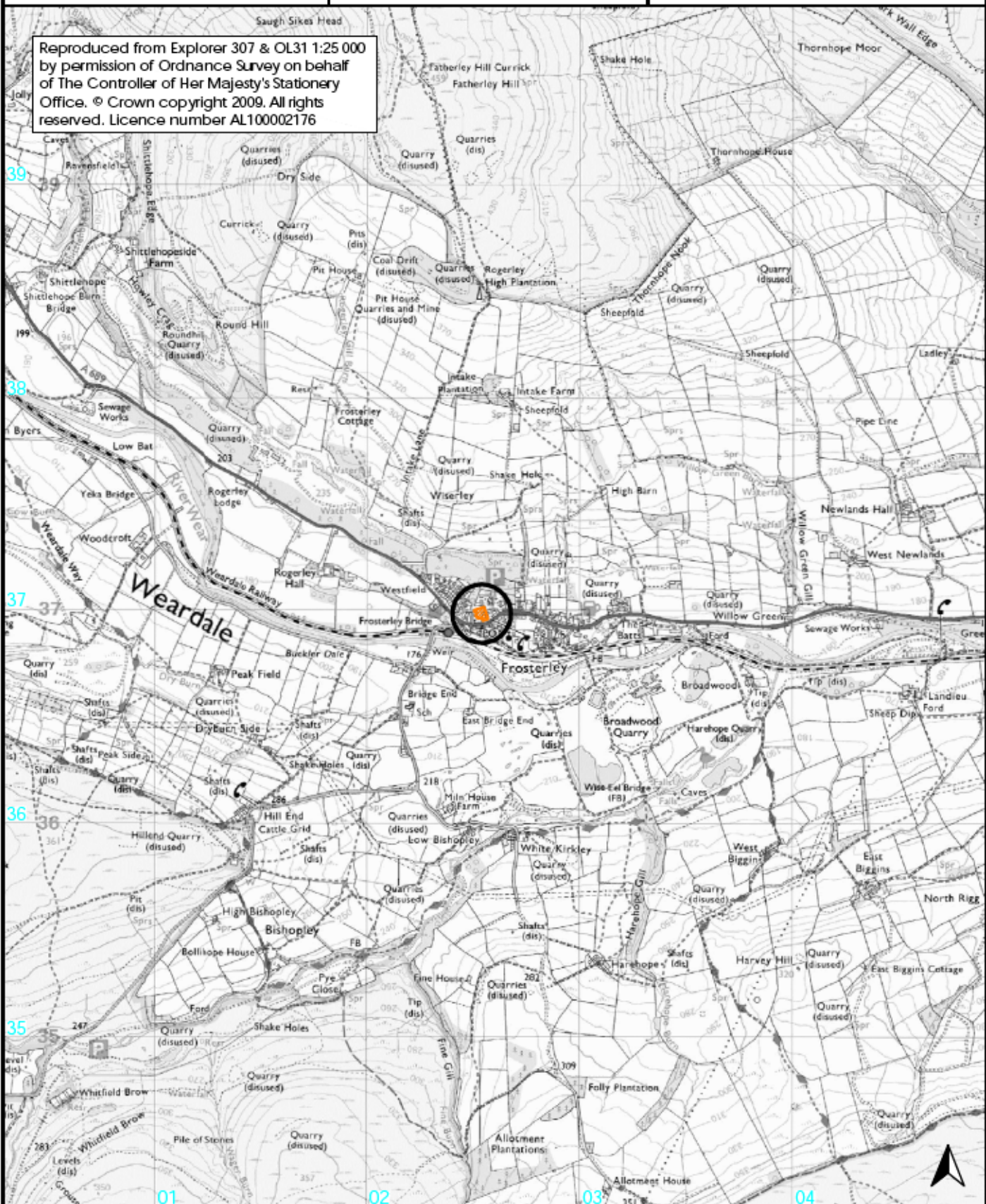
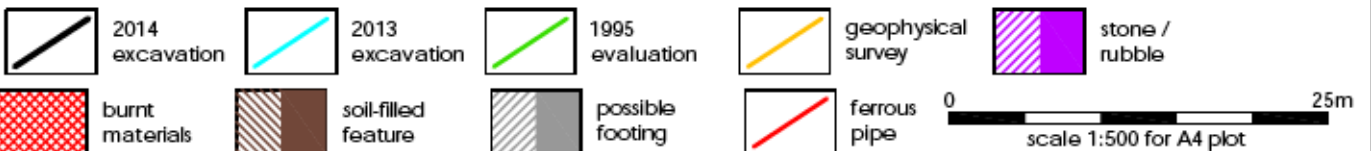
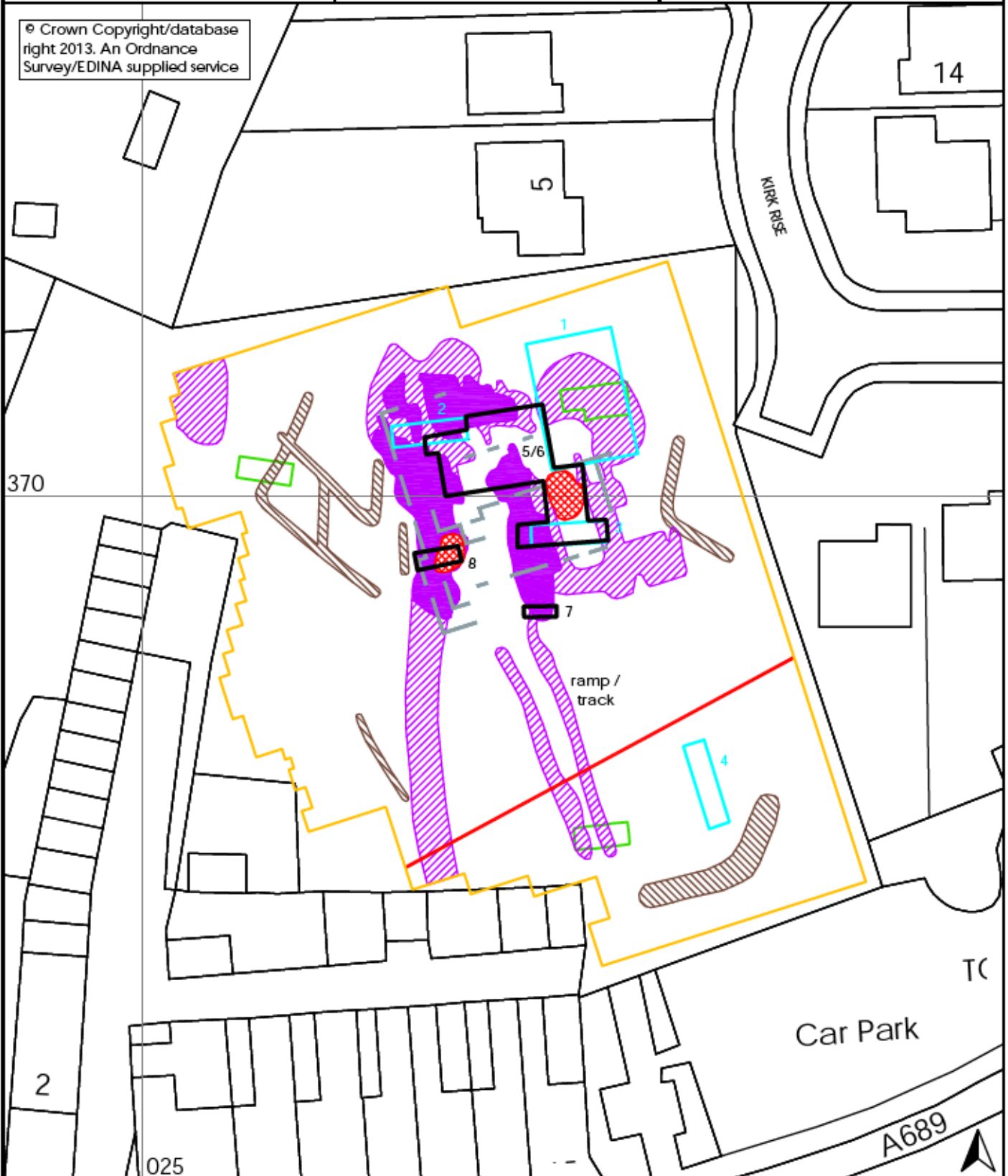


Figure 2: Location of trenches on geophysical survey interpretation

© Crown Copyright/database right 2013. An Ordnance Survey/EDINA supplied service



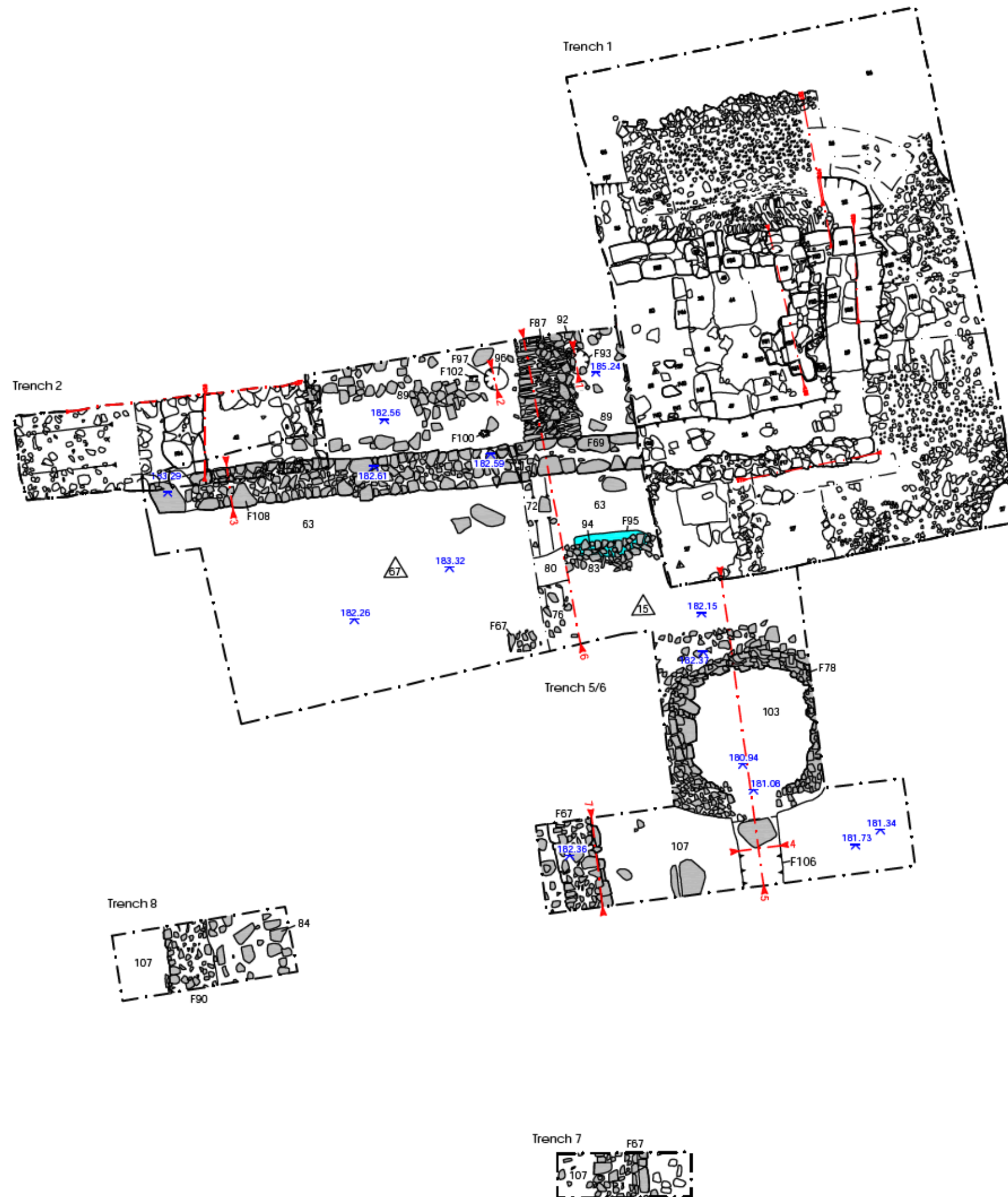
on behalf of  
Altogether Archaeology








St Botolph's Chapel  
Frosterley  
County Durham

archaeological excavation  
report 3679

Figure 3: Trench plan



0 5m  
scale 1:100 for A3 plot

-  extent of excavation
-  section
-  burial
-  stone
-  height m OD



on behalf of  
**Altogether Archaeology**



St Botolph's Chapel  
 Frosterley  
 County Durham

archaeological excavation  
 report 3427

Figure 4: Sections

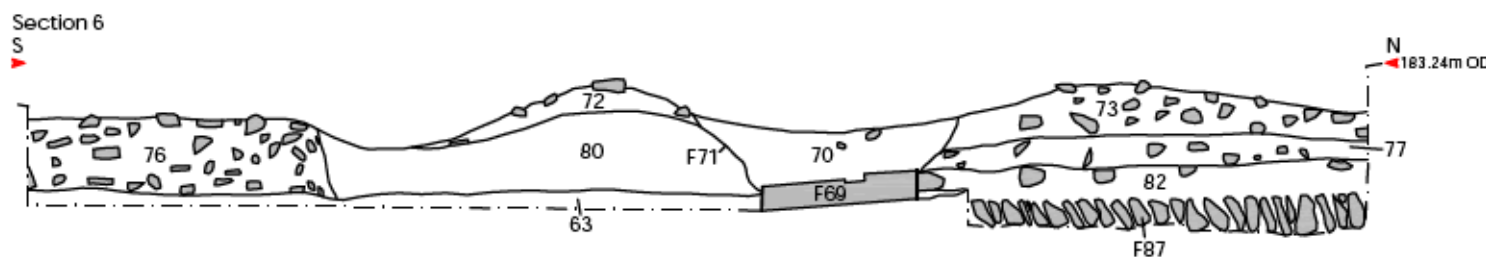
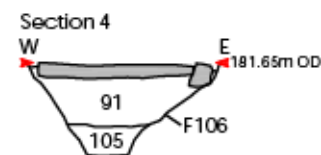
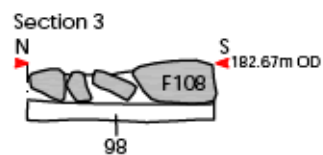
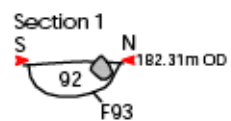
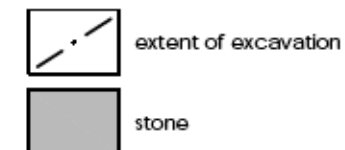
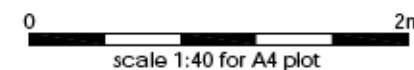




Figure 5: Trench 1, 2013, east end of the chapel, looking east



Figure 6: Trench 5, 2014, south wall of the chapel, looking north (Photograph by Steven Eastmead 2014)



Figure 7: Trench 5, burial SK1, looking north



Figure 8: Trench 5, south part of the chapel, looking west



Figure 9: Trench 5,  
interface between walls  
F69 and F108, looking  
west



Figure 10: Trench 6, kiln  
pit F78 with stokehole  
F106 to south, looking  
north



Figure 11: Trench 6,  
wall F67, looking north



Figure 12: Trench 7,  
wall F67, looking north



Figure 13: Trench 8,  
wall F90, looking north



Figure 14: Possible reconstruction of the chapel, by Peter Ryder