



St Ebba's Chapel, Beadell, Northumberland

*Archaeological evaluation and
Assessment of results*



***Ref: 77504.01
September 2013***



**St Ebba's Chapel
Beadnell, Northumberland**

Archaeological Evaluation and Assessment of Results

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September 2013

**Report Ref: 77504.01
SAM 25055**



Quality Assurance

Project Code	77504	Accession Code	N/A	Client Ref.	N/A
Planning Application Ref.	N/A	Ordnance Survey (OS) national grid reference (NGR)	423905 628701		

Version	Status*	Prepared by	Checked and Approved By	Approver's Signature	Date
v01	F	C Harrison	L Mephram	<i>Lorraine Mephram</i>	25/09/13
File:					
File:					
File:					
File:					
File:					
File:					

* I = Internal Draft; E = External Draft; F = Final

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St Ebba's Chapel Beadnell, Northumberland

Archaeological Evaluation and Assessment of Results

Summary

Wessex Archaeology was commissioned by Videotext Communications Ltd to undertake a programme of archaeological recording and post-excavation work on an evaluation undertaken by Channel 4's 'Time Team' at St Ebba's Chapel in Beadnell, Northumberland (NGR 423905 628701). St Ebba's Chapel occupies a small coastal promontory to the south-east of Beadnell, and is designated a Scheduled Ancient Monument (SAM 25055). Due to sustained visitor and coastal erosion, the chapel has been placed on the 'Heritage at Risk Register'. The state of the monument is considered as 'declining'.

The remains of the chapel at Beadnell were first investigated by John Hodgson-Hinde in 1853. The excavations revealed a rectangular rubble wall chapel composed of a nave and chancel with another division at the west end of the nave. The architecture of the doorways indicated a date no earlier than the 12th century, although no other datable evidence was uncovered or recorded.

In September 1994, rescue excavations were carried out 20m to the east of the Site by the Archaeology Section of Northumberland County Council, in order to record archaeological features exposed by coastal erosion. The excavation uncovered a well-preserved lime kiln dated archaeomagnetically to the late 15th to early 16th century.

Five evaluation trenches were excavated, one within the structure of the chapel, in the location of Hodgson-Hinde's excavation; one over the supposed position of a cist also excavated by Hodgson-Hinde; one located on a small mound to the east of the chapel that may have been the location of a cross; one on the northern cliff face to assess the deposits currently under erosive pressure from the sea and wind; and one on the location of visible human bone seen in a modern abraded track way to the north of the chapel.

The excavations demonstrated that the chapel was originally constructed as a single cell, with an extension added to the east at a later date, although no dating evidence for either building episode was recovered. Trenches 3, 4 and 5 revealed that the area was chosen for burial up until the 18th century and may have functioned as a burial ground at the same time as the new church constructed in the village of Beadnell.

The area to the east of the chapel appeared to contain almost exclusively the remains of fetuses/neonates, which were probably buried at some point during the 16th or early 17th century. The chapel may have functioned as the burial place of unbaptised infants and other individuals otherwise excluded from the parish graveyard.

The results of the evaluation warrant further dissemination, and a short report, based on the results as presented here, will be prepared for *Archaeologia Aeliana*.



St Ebba's Chapel Beadnell, Northumberland

Archaeological Evaluation and Assessment of Results

Acknowledgements

This programme of post-excavation and assessment work was commissioned and funded by Videotext Communications Ltd, and Wessex Archaeology would like to thank the staff at Videotext, and in particular Jobim Sampson (Series Editor), Val Croft (Head of Production), Ellie Hunt (Researcher) and Laura Meacham (Production Co-ordinator) for their considerable help during the recording and post-excavation work. The landscape survey included in this report was prepared by Cathy Tuck.

The geophysical survey and field survey was undertaken by John Gater, Jimmy Adcock, Claire Stephens and Emma Wood of GSB Prospection. The landscape survey and map regression was undertaken by Cathy Tuck. The excavation strategy was devised by Professor Mick Aston. The on-site recording was co-ordinated by Chris Harrison, and on-site finds processing was carried out by Justin Wiles, both of Wessex Archaeology.

The excavations were undertaken by Time Team's retained archaeologists, Phil Harding (Wessex Archaeology), Matt Williams, Ian Powlesland, Raksha Dave, Cassie Newland, and Tracey Smith, assisted by John Castling, Jon Welsh, Sean Johnson, Ron Brown, and Brian Grey. The human remains were excavated and assessed by Jacqueline McKinley (Wessex Archaeology).

The archive was collated and all post-excavation assessment undertaken by Wessex Archaeology. This report was compiled by Chris Harrison, with specialist reports prepared by Lorraine Mephram (finds) and Sarah Wyles (palaeoenvironmental). The illustrations were prepared by Chris Swales. The post-excavation project was managed on behalf of Wessex Archaeology by Lorraine Mephram.

Wessex Archaeology acknowledges the support of Kate Wilson and Rob Young (English Heritage) and Sara Rushton (County Archaeologist, Northumberland County Council), instigators of the project. Thanks are also due to Northumberland County Council for allowing access to the Site for geophysical survey and archaeological evaluation.



St Ebba's Chapel Beadnell, Northumberland

Archaeological Evaluation and Assessment of Results

1 INTRODUCTION

1.1 Project Background

- 1.1.1 Wessex Archaeology was commissioned by Videotext Communications Ltd to undertake a programme of archaeological recording and post-excavation work on an evaluation undertaken by Channel 4's 'Time Team' at St Ebba's Chapel in Beadnell, Northumberland (NGR 423905 628701; hereafter 'the Site').
- 1.1.2 St Ebba's Chapel is designated a Scheduled Ancient Monument (SAM 25055). Due to sustained visitor and coastal erosion, the chapel has been placed on the 'Heritage at Risk Register'. The state of the monument is considered as 'declining'.
- 1.1.3 The chapel was proposed as the subject of non-invasive and invasive archaeological investigation following discussions with Kate Wilson and Rob Young (English Heritage), and Sara Rushton (County Archaeologist, Northumberland County Council).
- 1.1.4 This report documents the results of the archaeological survey and evaluation undertaken by Time Team, and presents an assessment of the results of these works.

1.2 The Site, Location and Geology

- 1.2.1 St Ebba's Chapel, located at a height of approximately 9m aOD, is situated on a thin promontory jutting out into the North Sea, to the south-east of the village of Beadnell and south-west of the Farne Islands. The underlying geology consists of Carboniferous Limestones overlain by sandy deposits (BGS Sheet 4). Beadnell is approximately 10 miles (16km) north-east of Alnwick and approximately 5 miles (8km) south-east of Bamburgh.
- 1.2.2 The principal area under investigation is owned by Northumberland County Council and managed by the Asset Management Team. The promontory is also part of an area designated as a Northumberland Shore Site of Special Scientific Interest and Northumbria Shore Special Protection Area. These areas are largely for migratory and wintering birds. The inter-tidal and sub-tidal areas are within the Berwickshire and North Northumberland Coast Special Area of Conservation, which is designated for grey seals and for a range of inter-tidal and sub-tidal habitats such as rocky reefs and mud- and sand-flats.

2 ARCHAEOLOGICAL AND HISTORICAL BACKGROUND

2.1 General

Prehistoric and Romano-British

- 2.1.1 In and around the village of Beadnell, several Neolithic and Bronze Age artefacts have been discovered, as well as the remains of a Bronze Age burial mound and two burial cairns containing human remains. Two further cists, containing at least 20 inhumations,



were discovered in the 1970s during land improvement prior to the construction of a campsite near Lanton Quarry.

Medieval

- 2.1.2 The Site is situated on a coastline subjected to early Christian occupation and hermitage. It is reasonable, therefore, to assume that the Site may have originated in the early Christian era – if St Ebba (the daughter of the Anglo-Saxon King Aethelfrith) did indeed found the chapel, it would date to around AD660. However, no evidence has been discovered to support this. The only confirmed date for the chapel so far (12th to 13th century) was postulated from architectural elements observed during excavations in the 19th century.
- 2.1.3 The earliest medieval reference to Beadnell is in 1161, though there must have been settlement there before this point; it was held by the manor of nearby Bamburgh. North of Beadnell are the sites of Lindisfarne and Bamburgh, the spiritual and administrative centres for Northumberland and Beadnell during the medieval period. To the east, and accessible from the Site, lie the Farne Islands, the hermitage location of St Cuthbert.
- 2.1.4 Close to Beadnell are the deserted medieval villages of Tughall, Elford and Fleetham. Ridge and furrow earthworks are visible around each of these villages.

Post-Medieval

- 2.1.5 Beadnell Harbour was constructed during the post-medieval period, and facilitated the export of dried herring. The harbour also contained a lime kiln, which may have replaced smaller kilns within and around Beadnell.
- 2.1.6 During World War II the building of sea and air defences, in particular large trenches to accommodate watchmen and riflemen in an attempt to provide an alarm and some cover if enemy boats landed near to Beadnell, destroyed much of the Site. The trenching utilised the chapel walling which would have provided some cover, but the graveyard was extensively dug into to create the defensive trenches, resulting in the disturbance and redeposition of many burials.

2.2 The Site

- 2.2.1 The remains of St Ebba's Chapel were first investigated by John Hodgson-Hinde in 1853 (Hodgson 1893). The excavations revealed a rectangular rubble wall chapel (55ft x 16ft; 16.8 x 4.9m), composed of a nave and chancel with another division at the west end of the nave. The nave had two doors, north and south, immediately opposite one another. In the south-east corner of the nave was a cavity for a piscina and near the south door a roughly formed stone basin, supposed to be a font. The nature of the roof was indicated by the finding of numerous slates among the ruins. The architecture of the doorways indicates a date no earlier than the 12th century, although no other datable evidence was uncovered or recorded.
- 2.2.2 Although other features surrounding the chapel were noted in the 19th century, they were not subjected to an assessment until 1992 (Fowler 1993). Immediately to the east of the chapel, a rectangular stony earthwork measuring 3m north-south by 4m east-west was thought to be the remains of an earlier building, built on a slightly different axis to the later chapel. This structure and the chapel form the south side of a walled enclosure 22m by 13m, the other sides being formed by low rubble walls. This complex is situated at the east end of a larger enclosure (55m by 25m), whose perimeter is formed by a large bank of earth which cuts off the promontory at the western, landward end; the bank runs around the edge of the promontory on the west and north-east sides, varies in width from 1m to



2m and stands to a maximum height of 1m. The bank is originally thought to have continued along the south side of the promontory; however, cliff edge erosion here has left no trace.

2.2.3 Surrounding the monument are the remains of a range of earthwork features, some of which were considered to pre-date the chapel and provide evidence for an earlier monastic site. The chapel is situated at the centre of the complex. Within the enclosure there are several hollows at the west end and a linear hollow which cuts the north-east perimeter bank; these were interpreted as the result of later quarrying and military activity.

2.2.4 In September 1994, rescue excavations were carried out to the east of the Site, in order to record archaeological features exposed by coastal erosion (Hardie 1994; Williams and Goodrick 1994). The excavation uncovered a well-preserved lime kiln dated archaeomagnetically to the late 15th to early 16th century (Williams and Williams 1996; Geoquest 1995). The kiln was constructed of substantial limestone and sandstone blocks resting directly on a fired and reddened limestone outcrop which formed the base of the structure. Flues were found to lead from the east and north sides of the oven.

2.3 Landscape Survey

2.3.1 As part of the project, an analysis of cartographic and documentary evidence was undertaken, specifically looking at developing a landscape narrative/context within which the site operated.

Landscape context

2.3.2 The Cheviot Hills of Northumberland peak at over 800 metres above sea level; from here the terrain slopes down to a broad coastal plain that flanks the eastern edge of the county. The village of Beadnell lies on the coast in an area characterised by sweeping beaches and rocky headlands. The village's proximity to the sea, combined with the geology of this part of Northumberland, lie behind its origins and historic land-use. The coast here is predominantly formed of a ridge of basaltic rock but a section 2.5 km in length - from the Site in the south to Annstead Bay in the north - contains layers of sandstones and limestones, as well as seams of coal. These are visible at the Site where a headland of limestone nearly 10m thick runs out to the sea (Tomlinson 1888, 449). This geological make-up provided the raw materials for activities and industries that supported the local community.

A working landscape

2.3.3 The resources which attracted settlers to this part of the Northumbrian coast from the Mesolithic period onwards evidently continued to attract inhabitants over the following centuries. While the shoreline offered sheltered access to the North Sea for fishing, the coastal plain inland proved suitable for the development of farming. In addition, geological layers of both limestone and coal provided the perfect raw materials for limestone processing.

2.3.4 Beadnell village to the north of the Site is shown on an early estate map of 1707; the basic pattern of houses arranged along two converging roads is still visible today but the origins of the village may be considerably older. Although subsequently much developed, the remnant outlines of long narrow property boundaries are still discernible in the modern gardens south of the church between The Haven and Meadow Lane. These are typical of early burgage-type plots and suggest that this part of the village is medieval in date. There is evidence, too, of early farming. The fields around Beadnell village are filled by swathes of ridge and furrow - even the rocky headland to the east is covered in a characteristic corduroy pattern of reverse 'S' shape lines. Arranged in the open 'strip' formation typical of

medieval cultivation these remnants indicate an early origin for the fields around Beadnell. The estate map of 1707 suggests that by this date the open medieval fields were being fenced off.

- 2.3.5 The natural shape of the coastline here has long been exploited for the protection it offers from the North Sea. In particular the headland opposite the Site has been used for this purpose: Beadnell harbour, dating to the 18th century, is the only west-facing harbour on the east coast of Britain which explains why it nurtured a fishing industry, predominantly for herring. Natural rock 'groins' marked on a map of 1759 as 'Boat Haven' and 'Key Harbour' also provided shelter for fishing boats.
- 2.3.6 The landscape around Beadnell also shows evidence of another industry. The geology of the area provided the raw materials necessary for limestone processing and the sea cliffs provided the height difference and access necessary for the construction of 'draw' kilns which were loaded from the top and emptied at the base. Disused quarries and coal pits are shown on early maps and are still visible in the landscape around Beadnell today and the coastline is dotted with derelict lime kilns. The earliest type of lime kiln was the simple pot kiln and the remains of one (with a last firing date in the late 15th or early 16th century) were recorded adjacent to the Site in 1994 (Williams and Williams 1996). The pot kiln was superseded by much larger draw kilns. The remains of these can still be seen where large, roughly coursed stone blocks eroding out of the cliff on the south side of the headland north of the Site. These are shown as a row of four kilns together with a fifth just to the south, on the 1759 map. A group of kilns by the harbour, dating to 1798, are largely intact. It seems that at Beadnell, raw materials were transported down the headland and processed lime was exported via a small tramway. This is shown on the OS map of 1865 but had fallen out of use by 1897 when it is shown as 'Old Tramway'.

A ritual landscape

- 2.3.7 Coastal inter-visibility was a key factor for early Christian sites in this part of Northumberland and particularly important to a community so closely linked to the sea. The prominent headland of Ebb's Nook is itself highly visible and from it there are open views up and down the coast, out to sea, and to the nearby Farne Islands. Although highly visible, the position is also an isolated one which may be a requisite of an early medieval chapel location.
- 2.3.8 A map dating to 1759 depicts two distinctive boundaries: straight lines that cut off the very end of the promontory known as Ebb's Nook (or Beadnell Point) and the wider headland. The larger feature is shown by this date as 'An Old Wall', suggesting that by this date the feature was already regarded as being of some antiquity. It is not shown on subsequent maps and does not survive as a clear landscape feature today; geophysical prospection showed no trace of its alignment, although a slight mounding in the road appears to correspond with its position. A second boundary shown on the 1759 map corresponds with a slight earthwork oriented north-south that may be a remnant of a former enclosure associated with a chapel, no longer extant, on the headland. It is possible that one or both of these post-medieval boundaries re-used and perpetuated much earlier features. If a prominent ridge or headland had been adopted as a ritual place by early occupants of the region then it is possible that the area was defined by such a feature, cut off from the surrounding area, and that this significance was recognised and upheld for many centuries; the last recorded burial took place in the grounds of St Ebba's Chapel in 1679 (Fowler 1993, 46).
- 2.3.9 In Beadnell village, another church is thought to have been constructed in the medieval period near the site of the present parish church of St Ebba. A church is shown here on

the estate map of 1707. By the early 18th century the original church had fallen into poor condition and was replaced by the current parish church in around 1746.

3 AIMS AND SCOPE OF WORK

3.1 Research Aims

- 3.1.1 A project design for the work was compiled (Videotext Communications 2011), providing full details of the research aims and methods. A brief summary is provided here.
- 3.1.2 On the basis of current knowledge relating to the Site, the principal question of interest is one of chronology – are the earthwork remains at St Ebba's Chapel capable of providing secure datable evidence and placing the origin of the chapel temporally? The three aims of the project are as follows:
- to characterise the archaeology within the area of the Site in regard its extent, condition and chronology
 - to characterise earthwork remains and structural remains on site in regard to their chronological, spatial and functional relationships
 - to identify, excavate and date samples taken from inhumations or cremations likely to be associated with the earliest phase of occupation on the Site, if those layers are easily reached without the unnecessary destruction of inhumations.

4 METHODOLOGY

- 4.1.1 The research aims were seen to be best addressed through geophysical survey, landscape survey, cartographic evidence, and targeted archaeological trenching. Any disturbance to secure archaeological remains was kept to a minimum by identifying and excavating previously disturbed ground (19th century trenches, World War II trenches). Where trenching was required to understand the chronology of the Site, the state and stability of the archaeological remains was considered before excavations commenced. It was also deemed important to understand the impact of erosive measures to better inform the future management of the Site.

4.2 Geophysical Survey

- 4.2.1 Prior to the excavation of evaluation trenches, a geophysical survey was carried out across the Site using a combination of resistance and magnetic survey. The survey grid was tied in to the Ordnance Survey grid using a Trimble real time differential GPS system.

4.3 Evaluation Trenches

- 4.3.1 Five trenches of varying sizes were excavated, their locations determined in order to investigate and to clarify geophysical anomalies and to address specific research objectives (**Figure 1**).
- 4.3.2 The trenches were excavated by hand as much of the archaeological remains existed immediately below a very thin turf layer. At various stages during excavation the trenches were scanned by a metal detector and signals marked in order to facilitate investigation. The excavated up-cast was also scanned by metal detector.
- 4.3.3 All archaeological deposits were recorded using Wessex Archaeology's pro forma record sheets with a unique numbering system for individual contexts. Trenches were located using a Trimble Real Time Differential GPS survey system. All archaeological features

and deposits were planned at a scale of 1:20 with sections drawn at 1:10. All principal strata and features were related to the Ordnance Survey datum.

- 4.3.4 A full photographic record of the investigations and individual features was maintained, utilising digital images. The photographic record illustrated both the detail and general context of the archaeology revealed and the Site as a whole. Where appropriate digital rectified photography (in RAW format) was utilised to complement the paper record. All human remains were photographed with rectification tags in shot to aid post-excavation assessment, illustration and detailing.
- 4.3.5 At the completion of site work, all trenches were reinstated using the excavated soil and monitored by English Heritage.

4.4 Location of Trenches

- 4.4.1 The location of the trenches is shown in **Figure 1**. Trench 1 was placed within the structure of the chapel. The destructive nature of excavation here was limited as the trench location occupied an area previously excavated by Hodgson-Hinde in 1853. Trench 1 was intended to deliver secure datable deposits to inform a chronology of the extant chapel. Trench 3 was located over the supposed position of a cist also excavated by Hodgson Hinde, whilst Trench 5 focused on a small mound to the east of the chapel that may have been the location of a cross or earlier chapel.
- 4.4.2 Trench 1 was extended to the north of the Chapel to help understand the impact of erosive conditions on the promontory as well as to provide a site formation profile of the extant building and its supposed graveyard. In addition, Trench 2 was located on the northern cliff face to assess the deposits currently under erosive pressure from the sea and wind, whilst Trench 4 was placed over the location of visible human bone seen in a modern abraded track way to the north of the chapel.

4.5 Human Remains

- 4.5.1 Human remains were uncovered on site. All remains exposed were cleaned and recorded *in situ*. Human remains were not lifted unless it was archaeologically irresponsible not to do so. Remains were excavated according to national standards and guidelines (McKinley and Roberts 1993; Brickley and McKinley 2004).
- 4.5.2 Only those *in situ* burial remains in immediate danger of erosion/destruction were lifted. These comprised the two burials within Trench 4, which was sited over already partly exposed bone in the modern footpath, and one of the neonatal skeletons from a very shallow eroding grave in Trench 5. The contents of the rest of the graves were left *in situ* and in only one other case (grave **506**) were the burial remains fully exposed. This material was examined on site by Jacqueline McKinley and assessed for basic demographic data with a note on condition and any readily observable pathological lesions. Samples of bone were taken from four burials for radiocarbon dating (skeletons 122, 314, 403, 508).
- 4.5.3 The disarticulated bone exposed and/or lifted during the investigations was subject to a rapid scan to enable the minimum numbers of individuals (MNI) to be assessed, together with some data pertaining to age/sex and a record of readily observable pathology. This material was all subsequently reburied within the confines of the chapel (Trench 1).

4.6 Copyright

- 4.6.1 This report may contain material that is non-Wessex Archaeology copyright (e.g. Ordnance Survey, British Geological Survey, Crown Copyright), or the intellectual property of third parties, which we are able to provide for limited reproduction under the terms of our own copyright licences, but for which copyright itself is non-transferrable by Wessex Archaeology. You are reminded that you remain bound by the conditions of the Copyright, Designs and Patents Act 1988 with regard to multiple copying and electronic dissemination of the report.

5 RESULTS

- 5.1.1 Details of individual excavated contexts and features and the full geophysical report (GSB 2011) are retained in the archive. Summaries of the excavated sequences can be found in **Appendix 1**.

5.2 Geophysical Survey

- 5.2.1 The Site was unsuitable for effective GPR data collection and the magnetic survey was limited due to the rough terrain. A topographic survey was conducted over the whole of the promontory and the results can be seen in **Figure 2**. Further survey was carried out at St Ebba's Church in the centre of Beadnell, to assess the possibility of an earlier building at this site. Conditions at St Ebba's Church were better, although there were numerous headstones and ledger slabs within the churchyard itself.
- 5.2.2 All GPR interpretations are based on the assessment of both raw and filtered depth-slice datasets as well as the original radargrams.

The Chapel and Promontory

- 5.2.3 Due to the small size of the survey area, the magnetic data show little in the way of archaeological remains associated with the chapel. There is a suggestion of World War II trench layouts from linear trends in the results.
- 5.2.4 Topographic points were collected over the whole of the promontory; the results clearly show the remains of the chapel and modern footpaths (**Figure 2**). Aerial photography dating from World War II, when overlain on the topography, shows trenching which appears to have taken advantage of the chapel as part of their 'structure'.
- 5.2.5 GPR survey was confined to a small number of unrecorded 'search' traverses which aimed to identify the location of a feature shown on early drawings called the 'Olde Wall'. This feature appeared to cut off the headland from which Ebb's Nook (Beadnell Point) projects. The traverses detailed a considerable depth of made ground around modern housing, undulating sand dunes and, in those accessible areas, the data showed largely geological formations. It is possible that the 'Olde Wall' took advantage of a natural feature in the landscape, as its purported line is very similar to the predominant strike of the geology in the area. Another possibility is that the 'Olde Wall' was robbed in aid of the construction and repair of other buildings in the vicinity of the Site.

St Ebba's Church

- 5.2.6 This area was surveyed in order to look for evidence of an earlier church (**Figure 3**). Because of time constraints, the open area on the south side of the churchyard was surveyed at 0.5m intervals whilst the churchyard, dotted with headstones and ledger slabs, was surveyed at 1.0m intervals; this broader spacing should still be sufficient to identify any major structural remains.

- 5.2.7 None of the anomalies identified within the churchyard present a response character in the radargrams that would suggest their origin being anything other than burial activity and natural features, such as tree root-masses and pedological/geological horizons.
- 5.2.8 South of the churchyard there is much more disturbance, which is likely to be modern given the increase in small ringing (metallic) reflectors. Some of the anomalies are attributable to known buildings [1], shown on early (1897) Ordnance Survey mapping (OS 2012) whilst other shallow responses [2] look to be the result of a previous planting layout.
- 5.2.9 A service run [3] crosses the southern half of the survey area, which at its eastern end is surrounded by relatively strong reflectors which originate near-surface and can be seen clearly in the radargrams. The presence of the service running through here complicates interpretation, as there is potential for this zone being related. On the other hand, the service trench cuts through this response (seen as a low-amplitude linear band in the shallower slices) and the alignments are different. The zone [3] could be evidence of a former building plot on the corner, pre-dating the available OS mapping, and thus linear trends [e.g. 4] and other isolated areas of response might relate to this phase of activity. There has been a change in the layout of roads and footpaths on this south side, so this may also have played a part in the recorded pattern of response.
- 5.2.10 Anomalies [5] seem more coherent than the remainder of the shallow disturbance and, given their alignment, they may be part of an earlier layout, perhaps a southern entrance to the churchyard.

5.3 EVALUATION TRENCHES

Trench 1 (Figure 4)

- 5.3.1 Trench 1 was placed over the remains of the chapel, as well as in open ground to the north. It was excavated to a maximum depth of 2m from the highest point of the trench (the top of the material over the walls). It was hoped that by excavating within the chapel, over the area of the 19th century excavations, an assessment of the walling, the ground within which the chapel was built, and the sequence of its origin, use and demise would be better understood. Trench 1 was positioned near to the location of the possible altar, in the hope that a burial of the founder of the chapel or early priest would be uncovered, thus supplying a possible date for the foundation of the chapel. The northern part of Trench 1, outside the chapel, was excavated to assess the connection of the chapel to the surrounding graveyard, to assess the condition in which burials survived, and to what degree graves were likely to be lost or damaged by erosive action by site visitors and the elements.
- 5.3.2 Trench 1 contained evidence for six main phases of activity, including a sequence of the construction of the chapel, an extension to the east, a blocking within the eastern wall/chancel wall, and subsequent topsoil build-up which was buried by windblown sand. The northern part of the trench produced a sequence of: burials, and a World War II defensive trench, over which topsoil had formed, followed by windblown sand. Above the windblown sand on both sides was a humic topsoil.
- 5.3.3 The topsoil (**109** and **114**), windblown sand (**102/106** and **108**) and subsequent topsoil (**101** and **107**) are similar on either side of the north wall of the chapel, suggesting a continuity of activity on each side. These phases are most likely formed from a constant battering of the site by the elements on the site via erosion and windblown deposition.

Phase 1

- 5.3.4 The earliest phase encountered on site comprised the creation of the east, north, and south walls of the single-celled chapel (**104**) which were cut into the natural (**143**) and created an internal space 2.8m in width. The walls of the chapel were constructed from irregular coursed, roughly hewn sandstone blocks which increased in size towards the base (**Plate 1**). The core of the walling was created from randomly laid rubble and mortar. The walls survived to a maximum height of 2.2m (averaging six courses) and were bonded using a soft pea-grit, lime and charcoal mortar. The foundations extended out from the wall by a further 0.5-1m and possibly formed a lip on which an internal floor could have been supported.
- 5.3.5 The north and south walls were not exposed to their full width during excavations due to their precarious nature. A small sondage was excavated on the north side of the north wall (not shown on **Figure 4**) to assess the type of construction of the outer face of the walling, which appeared to be more consistent with the core of the wall rather than the interior face. Either the outer wall face was never meant to be seen and the chapel was built as a subterranean building, or as the chapel declined the outer face (which would have been exposed to extreme weather conditions) fell away. The outer face of what would have been the eastern wall was faced, although this wall was only 0.6m thick, not the observed 1.5m width of the north or south walls. Erosion of the outer face was not visible on the east face of the eastern wall, possibly due to an extension built to the east of the chapel that would have enclosed and protected it.

Phase 2

- 5.3.6 Sometime after the initial cell of the chapel was constructed, an extension (**105**) was built to the east (**Plate 1**). The extension was constructed in a similar fashion to the original cell, with roughly hewn sandstone fragments regularly coursed but at irregular depths and bonded with sandy reddish-brown clay. Some pea-grit, lime and charcoal mortar was noticed as smears on some of the faces and internal bonds, suggesting elements of the original chapel were reused to create the walling for the later extension. No dating evidence for this second construction phase was recovered.
- 5.3.7 The extension was accessed via a doorway created by the removal of the central segment of the eastern wall of the original cell. Two spurs of the wall were left *in situ* (a maximum of 1m out from the north and south walls) and would have created a narrow entrance into what may have been the chancel (**Plate 2**). During the creation of the extension to the east the floor was removed and a trample zone was created (**125/142**) directly over the natural. This layer lipped over and onto **104** and **105**, suggesting that the layer was created below what could have been the floor in the original chapel and across the entire chapel (extension and original) footprint. Above this layer was a compact layer (**124/141**) which may have been the base of, or the actual flooring of, the later chapel.
- 5.3.8 Below the buried topsoil on the north side of the chapel, in the extreme south of the trench and close to the north wall of the chapel, was a layer of redeposited natural (**139**). Within **139**, several grave cuts were uncovered (**Figure 4**), although their relationships, dimensions, and edges were not fully understood due to later bioturbation. Above the grave cuts was a sandy layer that may be the remnants of a graveyard soil, or possibly a backfill following excavation in the 1850s. A single inhumation of an adult female (**SK122**) was uncovered and cleaned (**Plate 3**). This individual was sampled for radiocarbon dating and was found to have been buried in the 17th or 18th century (see **Appendix 2**).
- 5.3.9 A set of articulated feet belonging to a juvenile (c. 6-7 years) were found at the north of the trench, although these were uncovered just beneath a modern footpath and had suffered from extensive trampling (**SK119**).

- 5.3.10 The probable *in situ* remains of an infant (**SK121**, c. 8-10 months), orientation unknown, were observed in the east-facing section of Trench 1, but not excavated.

Phase 3

- 5.3.11 Overlying the chapel floor and the graves to the north of the chapel was a buried topsoil (**109/114**) which contained redeposited elements of the chapel, including a stone roof tile (**Plate 2**). This may have been created following the abandonment of the chapel as the roof elements and other architectural remains within the buried topsoil would indicate a removal of the roof and some of the standing walls. However, the excavations carried out in the 1850s uncovered layers with roofing slabs in, suggesting that this deposit may well have formed after the excavations as topsoil over the exposed remains. Some 19th/20th century pottery found in the layer would certainly support this interpretation.
- 5.3.12 The buried soil to the north of the northern chapel wall overlay a windblown sand deposit which was indistinguishable from the graves below, both of which had suffered from heavy bioturbation.

Phase 4

- 5.3.13 Above the buried topsoil layer **109/114**, the gap in the chancel wall, which had been partially demolished at its southern end, was filled in with rubble (**123**) reused from the chapel and bonded with a cement-based mortar (**Plate 2**). This mortar was also found over some of the walls (**104** but not **105**). It is also possible that the top surviving courses of **104** were rebuilt in an effort to consolidate the deteriorating chapel. A photograph of the 1994 excavation/clearing trenches shows the chancel/nave wall at its top (Williams and Williams 1994, plates 1-4). The wall was in place by this point and was probably constructed following the 1850s excavation, but prior to the World War II trenching.
- 5.3.14 Abutting and formed up against the rebuilt wall **123** was a layer of light sand (**102/106**) that may have been blown in or dumped rapidly, sealing the former topsoil. This was found both inside and outside the chapel and probably represents the upcast of the excavation of the World War II defensive trenches, one of which was found in Trench 1 (**128**).

Trench 2

- 5.3.15 A small (1m) section of the cliff face was excavated to assess the site stratigraphy and likely erosion of human remains from the cliff face (**Plate 4**). The layers encountered were consistent with the upper phases of Trench 1 in that a topsoil (**201**) and yellowish windblown sand (**202**) overlay a buried topsoil (**203**), formed from a yellowish-brown sand (**204**), which contained redeposited human remains. These layers correspond to the phase 3 and 4 deposits uncovered in Trench 1.

Trench 3 (Figure 5)

- 5.3.16 Trench 3 was excavated over the supposed location of a cist burial uncovered during the 1850s to the west of the chapel. Although large stones forming a possible 'L' shape around potential burials were encountered in the trench, these stones were loose within a buried soil containing demolition debris and represent the degradation of a wall that may have created a linear division across the promontory. This wall apparently continued into Trench 4.
- 5.3.17 Trench 3 was excavated to the first archaeological horizon, into which two slots were excavated to safe working levels or the natural geology, whichever were reached first. One slot, in the eastern part of the trench, was excavated within the confines of an irregular 'L' shape of large stones (**305**), thought to be the remains of a cist but later found

to form part of a spread of demolition debris within a buried soil (**307/308/312/320**). Below these stones were a series of intercutting graves, the earliest being **313 (SK314)**, which was cut into by grave **317** (for **SK318**). The latter grave was subsequently cut by **319** (containing **SK315**) which was in turn cut by grave **309** (containing redeposited skull **310**). A radiocarbon date on bone taken from **314** has identified the inhumation as dating to the 18th/19th century, suggesting that all the other remains were inhumed after the 18th century. The disturbed grave fill (**311**) in grave **309** may represent the antiquarian excavations which identified a cist and inhumation. However it is more likely that the 'cist' excavated was in fact the tumbled stone deriving from the chapel in Trench 1 and from wall **326**.

- 5.3.18 Overlying the graves, the buried soil (**307/308/312/320**) was similar to that found elsewhere on the Site. This buried soil had formed against a north-south randomly coursed sandstone wall (**326**) which had once contained very large stones (**304** and **305**). This wall (**326**) was extant when the burials at the east end of the trench entered the ground.
- 5.3.19 Two other layers (**321** and **322**) were found abutting wall **326**, both of which were derived from the underlying natural geology (**323**) and probably represent grave-digging episodes. On the east side of **326**, an windblown sand deposit had formed against the tumble from wall **304**, which may have been dumped or blown in after the World War II trenches had been created.
- 5.3.20 Above the buried topsoil was a thin sand layer (**303**) which had settled through a thick tumble layer (**302**) underneath the topsoil (**301**).

Trench 4 (Figure 6)

- 5.3.21 Trench 4 lay immediately south of Trench 2 and was positioned to investigate human remains that had been eroded to the surface within a footpath. Excavation of Trench 4 revealed two heavily eroded inhumations that were 0.01m below the modern pathway (**Plate 5**). A west-east juvenile skeleton (**405**) was found to be cut through by a south-west – north-east adult inhumation (**403**). Bone taken from skeleton 403 provided a radiocarbon date in the 18th century (see **Appendix 2**). At the west end of the trench, a north-south wall (**408**) was uncovered, similar in construction to **326** and on a similar alignment, suggesting a loose association that may have followed a line cutting the peninsula off from the mainland.

Trench 5 (Figure 7)

- 5.3.22 Trench 5 was located over a mound identified to the east of the chapel and believed to have been the location of a cross, a common feature on early Christian churches. Removal of the topsoil revealed very shallow graves of at least five foetal/neonatal individuals (**504, 506, 508, 509** and **510; Plates 6-8**). An attempt to excavate a small square believed to be blank was attempted, although quickly abandoned as other foetal or neonatal remains were encountered. As a result of the delicacy of the findings in Trench 5, no further work was undertaken.
- 5.3.23 The inhumations within Trench 5 were all laid south-west – north-east. Inhumation **508** was sampled for radiocarbon dating and produced a date of 16th-17th century, the earliest of all the dated inhumations. It is most likely that these individuals represent an attempt to bury unbaptised infants and fetuses within consecrated ground and may signal the initial abandonment of the chapel, replaced by a new church built in the centre of Beadnell.

6 HUMAN REMAINS

6.1 Introduction

- 6.1.1 Human bone was recovered from 28 contexts spread across all five trenches, including the *in situ* remains of up to 15 inhumation burials. Most of the redeposited bone (all/parts >200 skeletal elements) was recovered from the upper levels inside and to the north of the chapel. Within the chapel these layers may have partly comprised backfill from the mid-19th century antiquarian diggings within and possibly (to a less degree) to the south of the structure, at which time the buildings were buried under windblown sand (Fowler 1993). Further disturbance appears to have occurred both within and to the north of the chapel during World War II. The precise origin of these layers of probable redeposited material is, therefore, unclear, but it is likely to have been within the immediate vicinity of the chapel itself. Previous and subsequent deposits of windblown sand have further masked any distinction between these potential episodes of redeposition.
- 6.1.2 No human remains appear to have been discovered inside the chapel during the antiquarian investigations, but there are records to the effect that burial remains were observed 'near to the south door of the chapel' and that animal burrowing had brought human bone to the surface in an unspecified location within the cemetery (Fowler 1993, footnote 10).
- 6.1.3 No artefactual remains or coffin furniture was found with any of the *in situ* burial remains, although copper alloy staining from shroud pins was observed on several areas of the skull vault within grave **130** (**Figure 4**; **Plate 3**) suggesting a probable post-medieval date for this burial.
- 6.1.4 Given the potential 12th century origin of the chapel and the late 17th century date of the last known burial to have been made within the cemetery (Fowler 1993), it was deemed essential that radiocarbon analysis be undertaken to provide a date for the deposits exposed in different parts of the cemetery. Consequently, bone samples were taken from four of the *in situ* burial deposits: **122**, the individual with copper alloy staining to the skull from below the depth of windblown sand and World War II defence disturbance to the north of the chapel; **314**, the stratigraphically earliest in a series of four *in situ* burial remains to the south-west of the main chapel building; **403**, the adult remains laying immediately below (and partly exposed) in the pathway running east-west along the peninsula to the north of the chapel; and **508**, one of the foetal/neonatal burials made to the east of the chapel. All except the latter returned results indicative of a date within the range of 17th to 19th century (**Appendix 2**), the earliest date - 16th-early 17th century - being obtained from the neonatal remains.

6.2 Methods

- 6.2.1 The minimum number of individuals was assessed from counts of the most commonly occurring skeletal elements in corroboration with the assessed age of the individuals represented (McKinley 2004). The context and location of the various skeletal elements and the likelihood of transfer of material over any distance was also considered. Age and sex were assessed from the stage of skeletal development (Scheuer and Black 2000) and the sexually dimorphic traits of the skeleton (Buikstra and Ubelaker 1994). The degree of erosion to the bone was recorded using a system of grading (McKinley 2004, fig. 7.1-7). No measurements were taken above those required to assist with the aging of immature individuals.

6.3 Results

- 6.3.1 Most of the bone was in good condition (Grade 0-1) with just slight root erosion to some of those situated closest to the surface (Grade 1-2). Much of the neonatal/young infant bone was undamaged, but both the redeposited adult bone and some of that from the shallow/disturbed graves (**313** and **402**) had been subject to moderate fragmentation. This suggests that the adult bone at least had been subject to repeat episodes of disturbance and redeposition.
- 6.3.2 The remains of a minimum of 29 individuals (MNI) were observed comprising 21 (72%) immature individuals and eight (28%) adults. The majority of the immature (<18 yr.) individuals were less than a year old (55% assemblage); the numbers included four fetuses which had not reached full term, the youngest of which was only c. 17-21 weeks. It was not possible to suggest a close age range for all of the adults but the numbers included two young adults (18-20 years; minimum one female), one female of 23-35 years, and two individuals over 35 years of age (including at least one male). Similar numbers of males (four) and females (three) were identified (see Trench Summary for details).
- 6.3.3 Pathological lesions were observed in bone from two of the *in situ* burials (**318** and **403**) and in fragments of redeposited bone from two contexts in Trench 1 (**107** and **117**, possibly from the same older adult male). The latter comprised moderate lesions indicative of various forms of (generally age-related) joint disease in elements of the spine and foot. Gross dental caries (tooth decay) was observed in the one tooth (maxillary M3) recovered from the *in situ* adult female remains (**403**) in Trench 4. The same individual had Schmorl's nodes (pressure defects in vertebral body surfaces caused by the protrusion of material from ruptured intervertebral discs; Rogers and Waldron 1995, 27) in several lumbar vertebrae; these lesions are reflective of stress-related trauma generally in young adults (Roberts and Manchester 1997, 107). She also had mild-moderate lesions indicative of costo-vertebral osteoarthritis in at least the lower part of the thorax. One of the right lower ribs had an area of lamellar (healed) new bone and slight plastic changes on the dorsal shaft indicative of an infection in the overlying soft tissue. Given its location this is most likely to have been caused by an open wound which became infected.

7 FINDS

- 7.1.1 A small quantity of finds was recovered, from contexts in Trenches 1, 3, 4 and 5 (no finds were recovered from Trench 2). Quantities by context and by material type are presented in **Table 1**. Datable finds range from medieval to post-medieval, but no definitive dating evidence for the construction or extension of the chapel was forthcoming, and no finds of grave goods, or grave furnishing, were made in any of the inhumation graves uncovered.
- 7.1.2 Structural material included a few stone roof tiles (from Trenches 1 and 3) and a small carved architectural fragment (found unstratified), all of which probably derive from the original chapel structure. Ceramic pantiles (17th century or later), also from Trenches 1 and 3, and a small fragment of lead window came may also be related, although these must relate to a later phase.
- 7.1.3 Domestic refuse (19th/20th century pottery and bottle glass) were incidental finds; some of these were recovered from around the chapel walls (**104**) and may relate to the 19th century excavations. Much of the animal bone consists of rabbit (much disturbance from rabbit burrows was recorded on the Site), but there are also bones of sheep/goat, cattle and pig; interestingly, these include one or two immature or even neonatal individuals.

Table 1: All finds by context (number / weight in grammes)

Context	Animal Bone	CBM	Glass	Other Metal	Pottery	Stone	Other Finds
102	7/38	5/602	10/116	7 Fe	1/1		
103	1/1		1/6	3 Fe	3/76		2 clay pipe
104		5/304	2/8	4 Fe	6/52	1/142	
106					1/1		
107	8/50					1/160	
108	1/10						
109	1/1	2/10			4/14		
110	32/58						
123	2/2						
124	2/12						
139						1/2000	
302	14/26	2/146				6/5797	
304	3/32						
306	1/4						
320	1/10						
403	1/1						
404				1 Pb	1/8		
406							
501	4/10		1/4				538g slag
502	13/20						
508							
Unstrat					1/2	1/2000	
TOTAL	91/275	14/1062	14/34	14 Fe; 1 Pb	17/154	10/10,099	

CBM = ceramic building material

8 ENVIRONMENTAL REMAINS

8.1 Introduction

8.1.1 Two bulk samples were taken from buried soils **320** and **323** in Trench 3 and were processed for the recovery and assessment of charred plant remains and charcoals.

8.1.2 Bulk samples were processed by standard flotation methods; the flot retained on a 0.5 mm mesh, residues fractionated into 5.6mm, 2mm and 1mm fractions and dried. The coarse fractions (>5.6mm) were sorted, weighed and discarded. Flots were scanned under a x10 – x40 stereo-binocular microscope and the preservation and nature of the charred plant and wood charcoal remains recorded in **Table 2**. Preliminary identifications of dominant or important taxa are noted below, following the nomenclature of Stace (1997).

8.1.3 The flots varied in size and contained c. 30-35% rooty material that may be indicative of stratigraphic movement and the possibility of contamination by later intrusive elements. Charred material comprised varying degrees of preservation.

8.2 Charred Plant Remains

8.2.1 The moderate quantities of cereal remains included grain fragments of barley (*Hordeum vulgare*) and grain and rachis fragments free-threshing wheat (*Triticum turgidum/aestivum*). Free-threshing wheat is thought to become common within the Saxon and medieval periods (Greig 1991).

- 8.2.2 The few weed seeds recorded within layer **320** included seeds of oat (*Avena* sp.), oat/brome grass (*Avena/Bromus* sp.) and vetch/wild pea (*Vicia/Lathyrus* sp.). These species are all typical of cultivated ground and field margins. A single seed of branched burr-reed (*Sparganium erectum*) was observed within the layer **323**. This species is more indicative of a wetter environment such as by ponds, lakes, slow rivers and canals, in marshy fields and ditches.

Table 2: Assessment of the charred plant remains and charcoal

Context	Sample	Vol (L)	Flot size	Roots %	Grain	Chaff	Cereal Notes	Charred Other	Notes for Table	Charcl > 4/2mm	Other
320	301	20	300	30	A	C	F-t wheat grain x 6, Barley grain x 1, Indet. grain frags, F-t wheat rachis x 1	C	<i>Avena</i> x 1, <i>Avena/Bromus</i> x 1, <i>Vicia/Lathyrus</i> x 1	35/25 ml	Sab/f (B), Moll-t (A*), Moll-f (A**), marine shell, forams, coal
323	302	20	70	35	B	-	Barley grain frags x 6	C	<i>Sparganium erectum</i>	3/2 ml	Coal, Moll-t (A), Moll-f (A*), forams

Key: A*** = exceptional, A** = 100+, A* = 30-99, A = >10, B = 9-5, C = <5; sab/f = small animal/fish bones, Moll-t = terrestrial molluscs, Moll-f = freshwater molluscs

8.3 Wood charcoal

- 8.3.1 Wood charcoal was noted from the flots of the bulk samples and is recorded in **Table 2**. Wood charcoal fragments of >4mm were retrieved in a large quantity from layer **320**. It appeared to comprise mainly mature wood pieces.

8.4 Land, fresh-water, brackish water and marine shells

- 8.4.1 The bulk sample flots were rapidly assessed by scanning under a x 10 – x 40 stereobinocular microscope to provide some information about shell preservation and species representation within these layers. The numbers of shells and the presence of taxonomic groups were quantified (**Table 3**). Nomenclature and habitat information is according to Kerney (1999) and Barrett and Yonge (1958).
- 8.4.2 The shell assemblages were dominated by *Hydrobia* sp., a brackish water species and there were also a number of rissoides, marine species. The shell assemblages reflect the exploitation of a variety of different landscape and aquatic environments including open grassland, more shady niches, marshy areas, fresh-water, brackish water and marine areas. This may be indicative of an estuarine environment with fresh-water input.
- 8.4.3 The presence of *Truncatellina cylindrica* in one of the samples is noteworthy as this is a rare obligatory xerophile, typically found in short dry grassland. However it has also been recorded from coastal sand hills in East Yorkshire and Lincolnshire (Kerney 1999, 89).

8.5 Small animal and fish bones

- 8.5.1 During the processing of bulk soil samples for the recovery of charred plant remains and charcoals, small animal bones were noted, and recorded (**Table 2**), in the flots. These included a small quantity of fish vertebrae and scales.

Table 3: Land, fresh-water, brackish water and marine shells

Context	320	323
Sample	301	302
Open country species		
<i>Pupilla muscorum</i>	B	-
<i>Helicella itala</i>	C	-
<i>Vertigo</i> sp.	C	-
<i>Vallonia</i> spp.	B	-
<i>Truncatellina cylindrica</i>	-	C
Introduced helicellids	C	C
Intermediate species		
<i>Cochlicopa</i> sp.	C	-
Shade-loving species		
<i>Carychium</i> sp.	-	C
Fresh-water species		
<i>Lymnaea truncatula</i>	-	C
<i>Pisidium</i> sp.	C	C
Brackish water species		
<i>Hydrobia</i> sp.	A*	A
Marine shell		
Rissoides	A	A
Gibbula	-	C
Small Scallop	C	-
Total	100+	35
Forams	A	A

Key: A* = 30+, A = >10, B = 9-5, C = <5;

9 DISCUSSION

- 9.1.1 From the evidence of prehistoric burial in the vicinity of Beadnell village and the absence to date of any indication of early settlement, it seems possible that this area may have been of some special significance. This may have been partly due to the land formation here - a prominent ridge in an area of otherwise low-lying ground. It is possible that the same qualities that made this place special to prehistoric people continued to imbue the Site with spiritual meaning into the following centuries.
- 9.1.2 Suggestions of an early Christian chapel here have not been discounted. The chapel is within the sphere of several important early Christian sites (including Lindisfarne and the Farne Islands). The chapel was originally constructed as a single cell, and subsequently expanded to the east and west, similar to chapels found in the in the Hebrides, and more locally on the Farne Islands. Earlier survey (Fowler 1993) recorded the chapel standing at the centre of a series of earthworks, possibly representing a monastic complex. The western boundary of the site may have been marked by the wall recorded in Trenches 3 (326) and 4 (408).
- 9.1.3 Subsequent investigations have certainly shown that the headland was chosen as the location for a medieval chapel and that this continued to be used as a place for burial ceremonies long after a church was built in Beadnell village. It is unlikely that this continued use can be explained by the distance between the chapel and churches, i.e. that each served a geographically different group, since this is very short. It is more probable that social differentiation accounts for the simultaneous use of both church and chapel. The village church adjacent to Beadnell Hall may have been associated with a

slightly higher status congregation, while the ancient chapel site continued to serve a population perhaps located outside the main village, and in particular was used for the burial of any unbaptised members of the community.

- 9.1.4 As well as possibly marking the western extent of the chapel complex, the line of wall **326/408** also appears to have marked the western limit of the cemetery. The cemetery's eastern extent was not established (although the area to the east of Trench 5 predominantly comprises weathered rock) but it does appear that this side of the chapel may have largely been designated for the burial of pre-term fetuses and neonates at least in the latter phase of its use.
- 9.1.5 Although the human bone assemblage reported on here represents only a sample of the total cemetery population, the proportion of immature individuals recorded is unusually high. The material recovered could have been skewed in favour of these young individuals due to their commonly observed deposition in relatively shallow graves. For example, only a very shallow depth of stratigraphy was investigated in Trench 5 due to the density of neonatal remains which could not be disturbed and the 'mound' of sand in which they were buried may contain the remains of older individuals at a greater depth. Not all the adults in the cemetery had been buried in deeper graves, however. Although a shallow 'hollow-way' had been created by the passage of many feet along the east-west footpath north of the chapel, the adult female in grave **402** must still have been buried relatively close to the surface.
- 9.1.6 On the basis of the available data, the proportion of immature individuals is considerably higher than that noted in most other archaeologically recorded cemetery populations. Other post-medieval cemeteries (1550-mid 19th century) subject to archaeological analysis have been found to comprise 9-30% immature individuals with the exception of one mid-19th century London cemetery with 70% (McKinley 2008, table 17). The rate is also above the c. 50% of deaths of those below the age of 20 years shown in the London Bills of Mortality for the early 18th century (Roberts and Cox 2003, 303-4, table 6.5). Whilst this may indicate an abnormally high mortality rate amongst infants in the locality of Beadnell, it seems improbable that they would suffer to a greater extent than children born and living in the teeming urban environment of 18th century London. Rather than reflecting the infant mortality rate as such, the high numbers may be related to the location and date of the burials, and reveal the nature of the cemetery in which they lay.
- 9.1.7 The date of the excavated burials, established by radiocarbon analysis, was later than had been anticipated. The last recorded burial had been made in 1679 (Fowler 1993, 46), though there is some evidence to suggest it was the late 18th century before a replacement chapel was erected in the village (presumably with its own burial ground; Way 1854). Two, not necessarily mutually exclusive, explanations may be proposed: the villagers could have continued to bury their dead in the old chapel burial ground without formal recognition of the fact; and/or those buried there may represent individuals who were excluded from the parish churchyard for some reason. A third possibility is that the chapel may have held family plots that were utilised for sentimental reasons: although one would expect that burials of such type would have been recorded.
- 9.1.8 It has already been noted that the area to the east of the chapel appeared to contain almost exclusively the remains of fetuses/neonates, which were probably buried at some point during the 16th-early 17th century (a few small fragments of redeposited adult bone could have originated from the immediate vicinity or have been brought in from elsewhere in the cemetery). The immature assemblage includes the remains from a very young fetus (c. 17-21 weeks gestation) redeposited in Trench 1 together with remains from a minimum of four other foetal/neonatal individuals and adults (**107**); the presence of this

bone suggests this very premature and presumably still-born baby was afforded burial within the same area of the cemetery as the other individuals. The overall assemblage includes a number of individuals who may have suffered the same fate, being still-born or dying very shortly after birth. Those dying unchristened were often excluded from the parish cemetery or relegated to a specific area within it (Daniell 1997, 127-8; Roberts and Cox 2003, 316-8), and this may, in the 16th century, have been what the area to the east of the chapel functioned as.

- 9.1.9 Deserted churchyards and the sea-shore are amongst two of the locations that were considered appropriate burial grounds for those excluded from formal active church yards in post-medieval Ireland (Donnelly and Murphy 2008). These locations, known as *cillíní*, were traditionally associated with the burial of unbaptised infants, but could also have been used for other classes of individual including the shipwrecked, strangers, suicides and the mentally disabled. It may be that the burial ground attached to the deserted chapel of St. Ebba represents an English example of one such burial ground, for which, as yet, there is little published evidence.
- 9.1.10 The project has not been able to identify a suitable construction date for the chapel, or for its later extension. However, the project has shown that the chapel was the focus for burials well into the 18th and possibly early 19th century. It is not known, however, if the chapel was still in operation as a place of worship at this point.
- 9.1.11 The burial of natal and neonatal individuals at the east end of the church formed a dense mound and suggests that the site may have been deserted by the 16th century, although a depiction of the chapel exists on early estate maps of the 18th century. Whether operational or not, the collection of neonates and fetuses resulting in a dense mound confined to this space may suggest that a monument or structure formed the focus for these burials. This may help to suggest a possibly early Christian origin for the chapel. If the construction of the chapel was as a single cell, as indicated by the excavations, the monument to the east may have been a cross, something consistent with other single-celled chapels in the region. However, this evidence is speculative and has yet to be proved. What is certain is that the chapel of St Ebba formed an important part of the life and death for the population of Beadnell up until the 18th and possibly 19th century.

10 RECOMMENDATIONS

- 10.1.1 An OASIS online record (<http://ads.ahds.ac.uk/projects/oasis/>) will be initiated and key fields completed on Details, Location and Creators Forms. All appropriate parts of the OASIS online form will be completed for submission to the AHBR. This will include an uploaded .pdf version of the entire report (a paper copy will also be included with the archive).
- 10.1.2 No further analysis on stratigraphic, artefactual or environmental data is proposed; all have been recorded to an appropriate archive level. The results of the evaluation, however, warrant further dissemination, and it is proposed that a short report, summarising the results as presented in this document, be submitted for publication in *Archaeologia Aeliana*.

11 ARCHIVE

- 11.1.1 The project archive, which comprises artefacts, written and graphic records, digital photographs and other selected digital data, has been prepared in accordance with nationally recommended guidelines (SMA 1995; Brown 2011). The excavated material and archive, including plans, photographs and written records, are currently held at the



Wessex Archaeology offices under the project code **77504**. It is intended that the archive should ultimately be deposited with the Great North Museum, Newcastle upon Tyne.

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APPENDIX 1: TRENCH SUMMARIES

Trench No. 1	Ground Level 10.24 on top of wall, 9.48 ground (m AOD):	Dimensions: 12 x 2.8m Max depth: 1.72m
Context	Description	Depth (bgl)
101	Dark humic friable sandy clay topsoil formed from windblown sand and stabilised by grass. Contained modern glass bottles, etc. 101 specifically relates to topsoil in the chapel 104/105.	0-0.2m
102	Deposit of very light yellowish-brown sand containing redeposited human remains, rabbit burrows, modern pottery; same as 106. Within chapel 104/105. Human bone (redep.): adult axial element; foetal/neonate (38-40 weeks)	0.2-0.7m
103	Lens within 102/106. Although part of the dumping episode 102/106, this specifically containing more tumble from walls 104 and 105, suggesting that the deposition of 102/106 incorporated an event where by the walling collapsed. The sandy deposit within is indistinguishable from 102/106.	0.4-0.5m
104	Early chapel walls, 1.5m in surviving in 10 courses of generally well coursed sandstone of varying sizes. Some large stones disrupt the coursing pattern. Bonded with pea-grit lime mortar overlain by cement mortar used to rebuild elements. Eastern wall cut through and rebuilt; human bone found within the rebuild (redep.: adult axial element; foetal/neonate, 38-40 weeks). The rebuild lies on 141, a later floor level within the chapel. Basal course juts out to form a lip on which a floor could have rested. The inside of the chapel was roughly 2.8m in width (north-south).	0-1.5m
105	Later build of a similar type to 104 to the west of and abutting 104. Differs only in that it was bonded with natural clay, possibly as the ground had already built up along the outsides of the chapel creating a 'turf mound' around the building. Extension of chapel eastwards to create a new chancel. Undated.	0-1.5m
106	Deposit of very light yellowish-brown sand containing rabbit burrows, modern pottery; same as 102.	0.2-0.7m
107	Dark humic friable sandy clay topsoil formed from windblown sand and stabilised by grass. Contained modern glass bottles, etc. 107 specifically relates to topsoil to the north of chapel 104/105. Human bone (redep.): adult skull, axial skeleton, upper & lower limb elements (MNI 2: one c. 18-20 yr. & one older adult >40 yr; degenerative disc disease & vertebral osteophytes). Foetal (c. 17-21 weeks), foetal/neonate (36-38 weeks foetal) & neonatal (c. 5-6 mth) skull, axial skeleton & lower limb elements.	0-0.2m
108	Deposit of very light yellowish-brown sand containing redeposited human remains, rabbit burrows, modern pottery; same as 102/106, but to the north of 104/105. Human bone (redep.): fragments adult skull & upper limb elements; neonate (39 weeks foetal-1 week) axial skeleton & upper limb elements.	0.2-0.4m
109	Buried topsoil found across site and most likely formed after antiquarian excavations, as lips over parts of wall 104 exposed during their excavations. Modern glass and pottery.	0.7-1.1m
110	Light greyish windblown sand with evidence of bioturbation in the form of rabbit burrows. Contained medieval-post medieval pot suggesting the material has come in from elsewhere, either through rabbits or as a dump (preceding the 1850s excavations).	1.1-1.4m



111	Light orange sand at north of trench, possibly part of the buried soil found across the site (109). Human bone (redep.): fragments adult skull & lower limb; fragment infant lower limb.	0.2-0.3m
112	VOID	
113	VOID	
114	Same as 109, but external to chapel 104/105.	0.4-0.5m
115	Bioturbated mix of 101 and 111 – possible rabbit burrow. Human bone (redep.): subadult male (c. 15-17 yr) upper limb element; min. 1 adult male skull, axial skeleton & lower limb elements.	0.1-0.3m
116	VOID	
117	Light greyish-yellow windblown sand; same as 110 but on north side of 104/105. Indistinguishable from the mixed grave earth. Human bone (redep.): large quantity adult & immature bone. Inc.: - fragments adult axial skeleton & lower limb (MNI 1 >35 yr. male, osteoarthritis in tarsal bone); fragments neonatal skull, infant (c. 8-10 mth.) upper limb, & juvenile (5-6 yr) skull & lower limb elements.	0.5-1m
118	VOID	
119	<i>In situ</i> remains juvenile (c. 6-7 yr) foot bone . Redeposited human bone: fragments infant (c. 1-2 yr.) upper limb elements.	0.4-0.6m
120	Same as 111. Human bone (redep.): infant c. 2-3 yr (tooth crowns).	0.2-0.3m
121	Juvenile skeleton recorded in the east-facing section of Trench 1. Probable <i>in situ</i> remains infant (c. 8-10 mth), orientation unknown (inc. elements of axial skeleton & upper limb).	0.8m
122	Remains supine, extended W-E burial, in grave 130. Adult female c. 18-20 yr. Medial clavicle metaphyses; vertebral end plate unossified; retained m2 molar very little wear. Radiocarbon dating = 18th century.	
123	Rebuild of 104 within cut for chancel arch, using cement-based mortar and reused stone. No facing or coursing, suggesting wall never meant to be seen or used as part of the chapel structure. Sits on 124/141.	0-1.5m
124	Compact orangey-brown clay sand abutting but lower than the lips within 104 for flooring. Possible earth floor of chapel. Sterile.	1.1-1.3m
125	Trample layer of similar material to 124 within 104 that is below 124 and corresponds with 142. Part of floor reworking and possibly associated with the build of the eastern chapel extension.	1.3-1.5m
126	Possible grave fill, indistinguishable from 117, although slightly darker.	0.8m
127	Part of the World War II defence trench network.	0.5m
128	Natural same as 143 but on north side of 104.	0.3m
129	Mid reddish-brown sandy clay; redeposited grave earth.	0.3m
130	Grave cut for skeleton 122, indistinguishable from 117; shape and size unknown.	0.8m
131	Grave fill of 130, indistinguishable from 117.	0.8m
132	Probable grave, indistinguishable from 117.	0.8m



133	VOID	
134	Possible grave fill, indistinguishable from 117.	0.8m
135	Possible grave fill, indistinguishable from 117.	0.8m
136	Possible grave fill, indistinguishable from 117.	0.8m
137	Possible grave fill, indistinguishable from 117.	0.8m
138	Possible grave fill, indistinguishable from 117.	0.8m
139	Part of material derived from collapse of chapel after phase 2 build and banking near to chapel. Pre-dates 18th century burials which possibly cut through it.	0.3m
140	Windblown sand deposit.	0.8-1m
141	Compact orangey-brown clay sand abutting but lower than the lips within 105 for flooring. Possible earth floor of chapel. Sterile.	1-1.3m
142	Trample layer of similar material to 124 within 104 and 141 in 105 that is below 141 and corresponds with 124. Part of floor reworking and possibly associated with the build of the eastern chapel extension.	1.3-1.4m
143	Natural reddish-brown sandy clay	1.4m

Trench No. 2	Ground Level, 9.5 ground (m AOD):	Dimensions: 1m x 0.2m Max depth: 0.6m
Context	Description	Depth (bgl)
201	Dark humic friable sandy clay topsoil formed from windblown sand and stabilised by grass. Contained modern glass bottles, etc.	0-0.2m
202	Deposit of very light reddish-brown sand; windblown sand deposit overlying buried soil 203. Contained redeposited human bone: adult axial & upper limb elements.	0.2-0.4m
203	Mid greyish-brown sand with sea coal inclusions. Buried soil below 202.	0.4-0.5m
204	Deposit of very light yellowish-brown sand; windblown sand deposit underlying buried soil 203. Contained redeposited human bone, left <i>in situ</i> .	0.5-0.6m

Trench No. 3	9.48 ground (m AOD):	Dimensions: 6.75 x 2.8m Max depth: 1.01m
Context	Description	Depth (bgl)
301	Dark humic friable sandy clay topsoil formed from windblown sand and stabilised by grass. Contained modern glass bottles, etc.	0-0.1m
302	Deposit of very light yellowish-brown sand containing rabbit burrows, modern pottery. Possibly WWII disturbance.	0.1-0.2m
303	Reddish-brown sandy clay over 304, possibly part of 302, and part of upcast in WWII trench excavation.	0.2-0.3m



304	Masonry forming a tumble layer from the chapel and wall 326. Human bone (redep.): adult axial element.	0.3-0.6m
305	Originally thought to be a possible stone-lined grave, but later found to be part of 304: tumble from chapel and wall 326.	0.3-0.6m
306	Deposit of very light yellowish-brown sand containing redeposited human remains, within area thought to be a cist. Human bone (redep.): large quantity adult & immature bone. Fragments adult (MNI 2) axial skeleton, upper & lower limb (inc. Navicular with calcaneal coalition); fragments infant (c. 3-5 yr) skull & axial elements, & subadult (c. 12-14 yr) upper limb.	0.3-0.6m
307	Dark humic friable sandy clay; buried topsoil beneath 304. Same as 312 and 320. Possibly buried after antiquarian excavations and during WWII trench excavations.	0.3-0.6m
308	Redeposited natural; reddish-brown sand clay within 305, cut through by later graves.	0.6-0.7m
309	Cut for burial 310.	0.6-0.7m
310	Remains W-E burial; not fully excavated. Remains in mixed deposit possibly all disturbed by antiquarian excavations. Neonate (0-1 week). Skull, scapula & left humerus (63mm), left lower limb (femur 74mm) Redep. human bone: fragments mostly of adult (>30 yr ?female) skull (with occipital bunning) & fragments axial & lower limb elements.	0.6-0.7m
311	Yellow redeposited windblown sand within 309.	0.6-0.7m
312	Dark humic friable sandy clay; buried topsoil beneath 304. Same as 307 and 320. Possibly buried after antiquarian excavations and during WWII trench excavations.	0.3-0.4m
313	Earliest grave cut in sequence. Contained inhumation burial 314.	0.9-1m
314	Remains supine extended W-E burial, grave 313. 18-19 th C Adult >18 yr., probable female. Leg only. Redep. human bone: fragments adult (>18 yr., male) axial skeleton & upper limb elements; fragment infant/juvenile axial element	0.9-1m
315	Distal end W-E burial remains, feet only, in grave 319. Adult >18 yr., possibly male.	0.8-0.9m
316	Reddish brown sandy clay; natural.	0.9m
317	Grave cut, containing inhumation burial 318. Cut through backfill of grave 313, and cut in turn by grave 319.	
318	Remains supine extended W-E burial, grave 317. Adult male >35 yr. Innominate actuate greater sciatic notch; osteophytes lumbar body surface margins. Redep. human bone: adult axial skeleton & upper limb elements; infant (4-5 yr.) lower limb elements.	0.9-0.1m
319	Grave cut, containing inhumation burial 315 (feet only); cut through backfill of grave 317; cut in turn by grave 309.	
320	Buried soil; same as 307 and 312.	0.3-0.4m
321	Gravel lens at the base of what may be a layer of windblown sand, or filtered out sand within 320.	0.4-0.45m
322	Redeposited natural layer, possibly upcast from foundation trench excavated for walling 326. Abuts wall 326.	0.45-0.5m
323	Mid reddish-brown sandy clay; natural.	0.5m
324	Tumble layer east of 326. Same as 304 and 305.	0.4-0.6m



325	Trench cut for wall 326 into natural 323.	0.3-0.6m
326	North – south sandstone wall constructed from thin stones, and possibly source of larger stones which subsequently tumbled away (304, 305 and 324). Both faces roughly hewn to form a consistent face on both sides. Stones bonded with pea-grit lime mortar; on same alignment as wall 408, possibly forming boundary across the peninsula. Survives to 4 courses.	0.3-0.6m

Trench No. 4	9.48 (m AOD):	Dimensions: 4.78 x 1m Max depth: 0.04m
Context	Description	Depth (bgl)
400	Dark humic friable sandy clay topsoil formed from windblown sand and stabilised by grass. Contained modern glass bottles, etc.	0-0.01m
401	Modern abraded pathway, above 402.	0.01-0.02m
402	Grave cut for 403 and 404.	0.02-0.03m
403	Remains supine & extended burial, SW-NE alignment, grave 402 18 th C Adult female c. 23-35 yr (c. 70% skeletal recovery); dental caries, healed soft tissue infection affecting right 11th/12th rib dorsal surface, Schmorl's nodes - lumbar vertebrae, costo-vertebral osteoarthritis, Sacralisation L5, 13th ribs Redep. human bone: fragments neonate/young infant axial skeleton (redep. with 406).	0.03-0.04m
404	Light yellowish-brown sandy clay filling grave 402, containing redeposited human remains Human bone (redep.): fragments adult axial skeleton (=403); fragments neonate/infant axial skeleton & upper limb.	0.03-0.04m
405	Grave cut for inhumation burial 406.	0.03-0.04m
406	Remains supine & extended W-E burial, grave 405, cut by grave 402. Infant c. 10-12 mth, ??female (c. 58% skeletal recovery) Redep. human bone: skeletal elements & fragments all areas infant c. 9-12 mth (slightly smaller than <i>in situ</i>).	0.03-0.04m
407	Redeposited natural reddish-brown sand clay, cut through by later graves. Possibly buried after antiquarian excavations and during WWII trench excavations.	0.03-0.04m
408	Sandstone wall running north-south, on same alignment as wall 326 and possibly forming a boundary across the peninsula.	0.03-0.04m

Trench No. 5	Co-ordinates: 9.55 (m AOD):	Dimensions: 2 x 2m Max depth: 0.03m
Context	Description	Depth (bgl)
501	Dark humic friable sandy clay topsoil formed from windblown sand and stabilised by grass. Human bone (redep.): few fragments adult skeletal elements all areas;	0-0.02m



	fragments neonatal (0-1 week) upper & lower limb elements & infant (c. 1 yr) upper limb element.	
502	Deposit of very light yellowish-brown sand containing filtered out sand at base of topsoil from post-depositional change. Human bone (redep.): few fragments adult bone all skeletal areas; foetal/neonate fragments skull (inc. mandible <30 weeks foetal), axial skeleton, upper & lower limb elements min. 2 neonates (0-1 week).	0.02-0.03m
503	Grave cut for inhumation burial 504.	0.03m
504	<i>In situ</i> burial remains in grave 503, SW-NE orientation, on right side (some slight disturbance parts forearm & axial skeleton). Foetal/neonate (36-40 weeks foetal). Redep. human bone: fragment adult skull.	0.03m
505	Grave cut for inhumation burial 506.	0.03m
506	<i>In situ</i> burial remains in grave 505, SW-NE slightly on right side? Foetal/neonate (38-40 weeks foetal - 1 week neonate).	0.03m
507	Grave cut for inhumation burial 508.	0.03m
508	<i>In situ</i> burial remains in grave 507, W-E alignment, much disturbance 16th-E17th C. Neonate c. 0-1 week (c. 20% skeletal recovery).	0.03m
509	Burial of neonate/foetus disarticulated and disturbed. Elements unclear and survival very poor. Unexplored.	0.03m
510	Burial of neonatal/foetus disarticulated and disturbed. Elements unclear and survival very poor. Unexplored.	0.03m
511	Probable neonatal or foetus burial found below other burials only, femur uncovered. Recovered due to fragile nature.	0.03m
512	Same as 502.	0.02-0.03m

APPENDIX 2: RADIOCARBON REPORT

Four samples of human bone from four graves of post-medieval date were submitted to the Scottish Universities Environmental Research Centre, East Kilbride (SUERC) for radiocarbon dating.

Results

The radiocarbon determinations were calibrated using OxCal 4.1.7 (Bronk Ramsey 2001; 2009) and the IntCal09 calibration curve (Reimer *et al.* 2009) and are quoted in the form recommended by Mook (1986) with the end points rounded outward to 10 years (**Table 4; Figure 8**).

The returned dates indicate probable 17th to 18th century dates for three of the burials while burial 508 that is far more likely 16th to early 17th century in date.

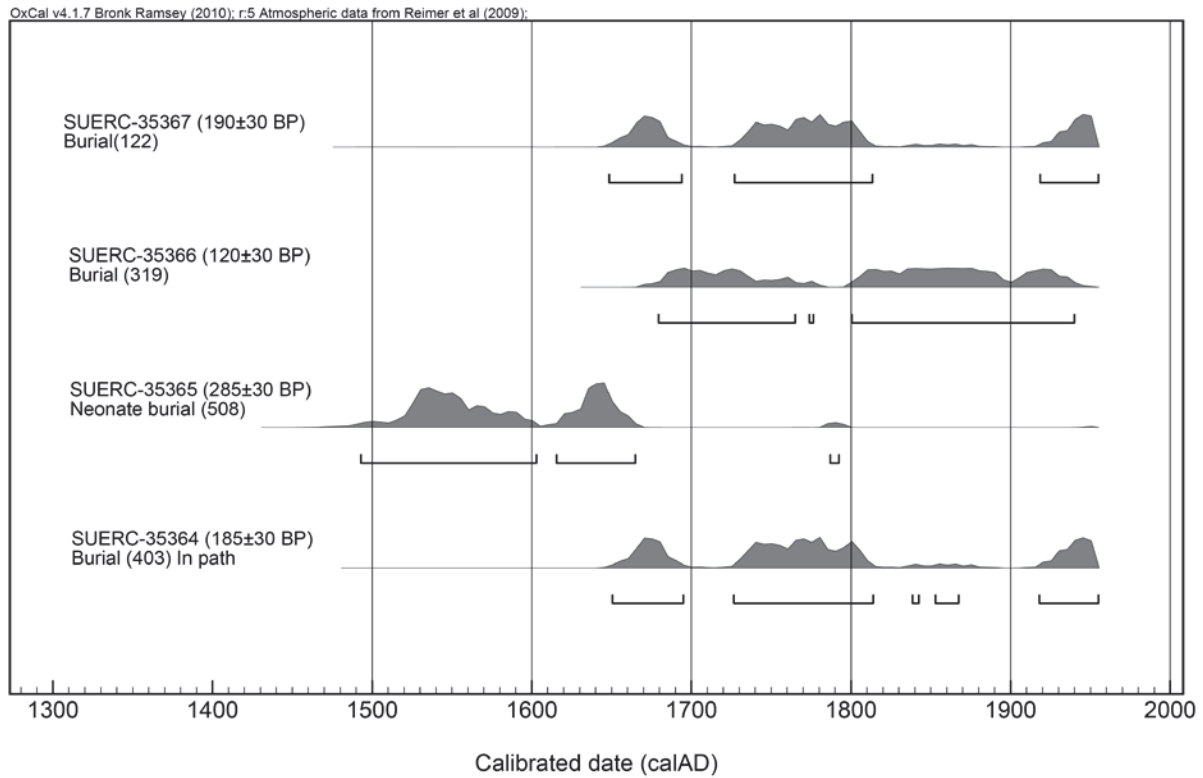
References

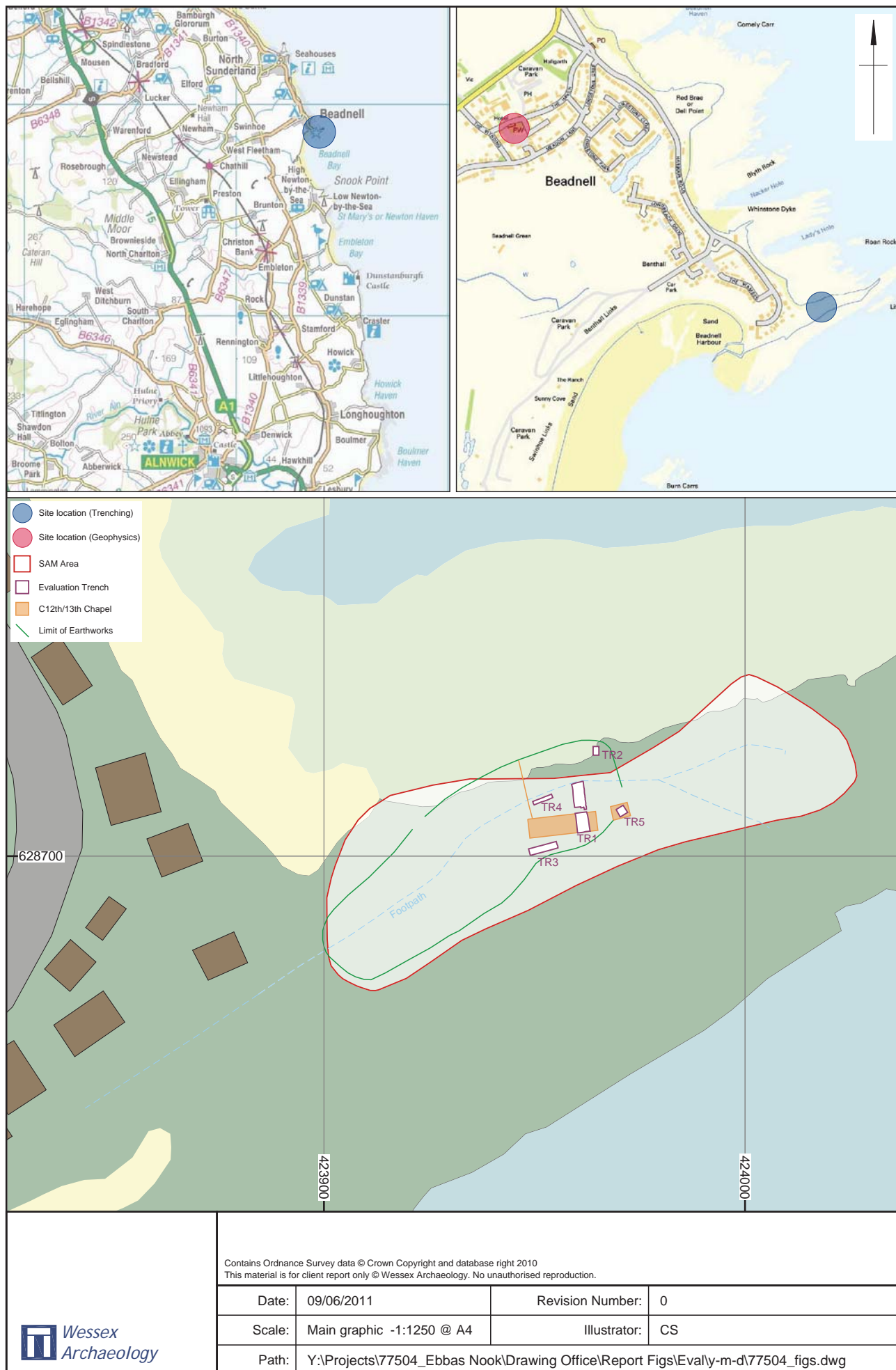
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Table 4: Radiocarbon determination for the four inhumation burials

Context	Material	Lab Code	uncalibrated date BP	$\delta^{13}\text{C}_{\text{‰}}$	$\delta^{15}\text{N}_{\text{‰}}$	C:N Ratio	Calibrated Date (2 sigma 95.4%)
Burial (122)	Right humerus	SUERC-35367	190±30 BP	-19.1	11.3	3.3	cal. AD 1640-1960
Burial (314)	Right Tibia Shaft 4g,	SUERC-35366	120±30 BP	-20.4	9.0	3.2	cal. AD 1670-1940
Neonate Burial (508)	Left Arm	SUERC-35365	285±30 BP	-19.7	13.2	3.6	cal. AD 1490-1800
Burial (403)	Left tibia 2.5g	SUERC-35364	185±30 BP	-19.6	11.1	3.3	cal. AD 1650-1960

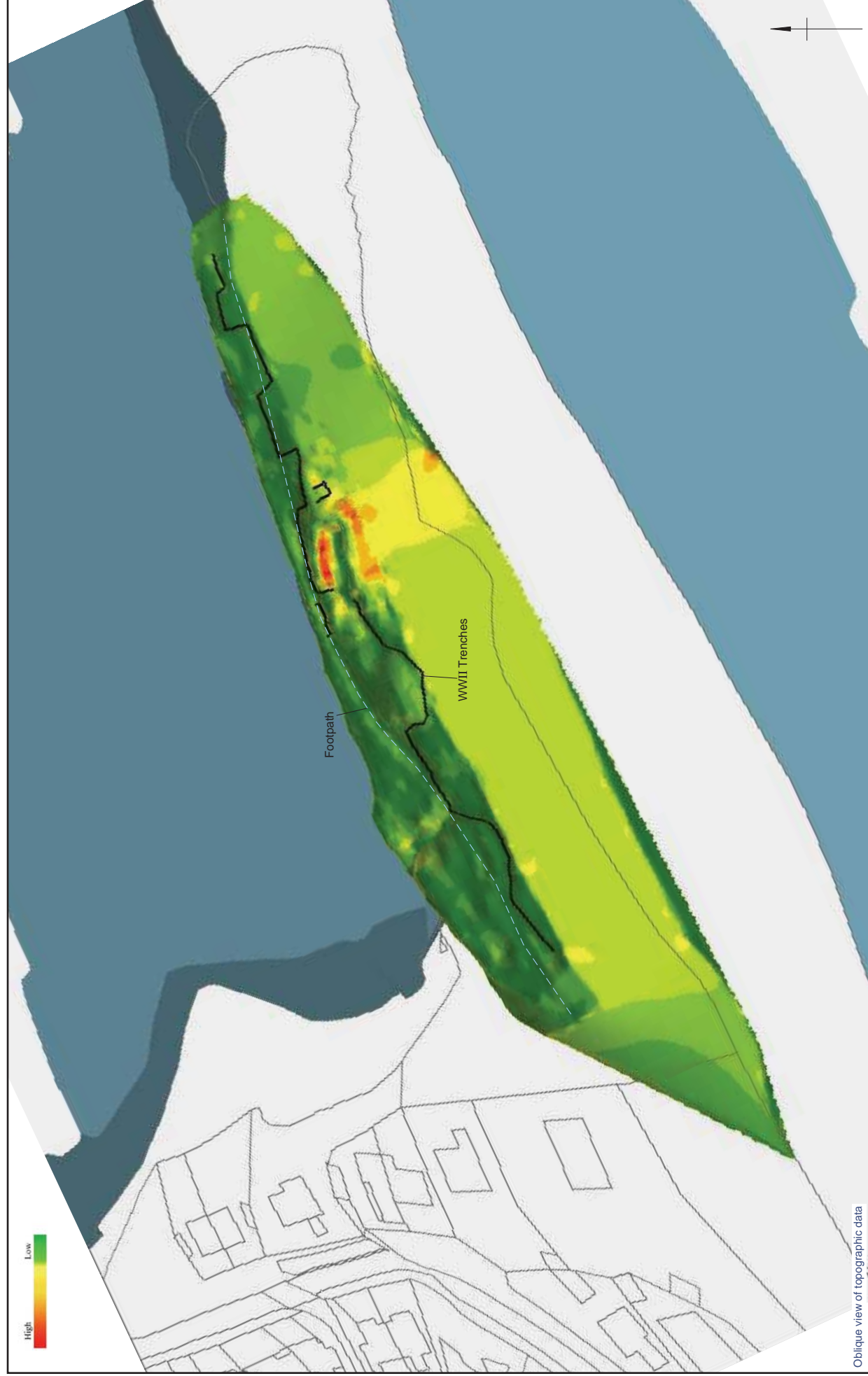
Figure 8: Probability distribution for the four inhumation burials





Site and trench location

Figure 1

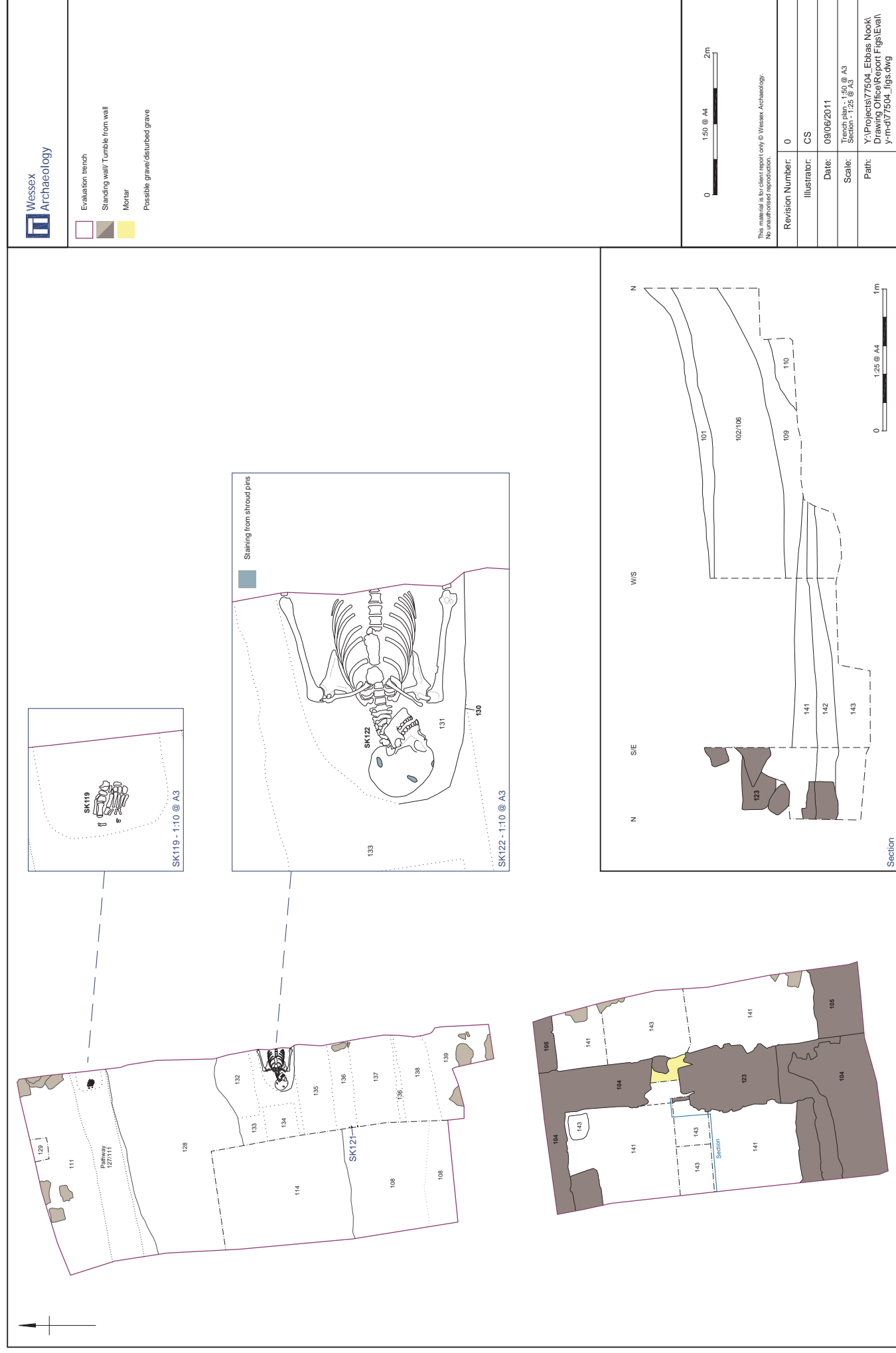


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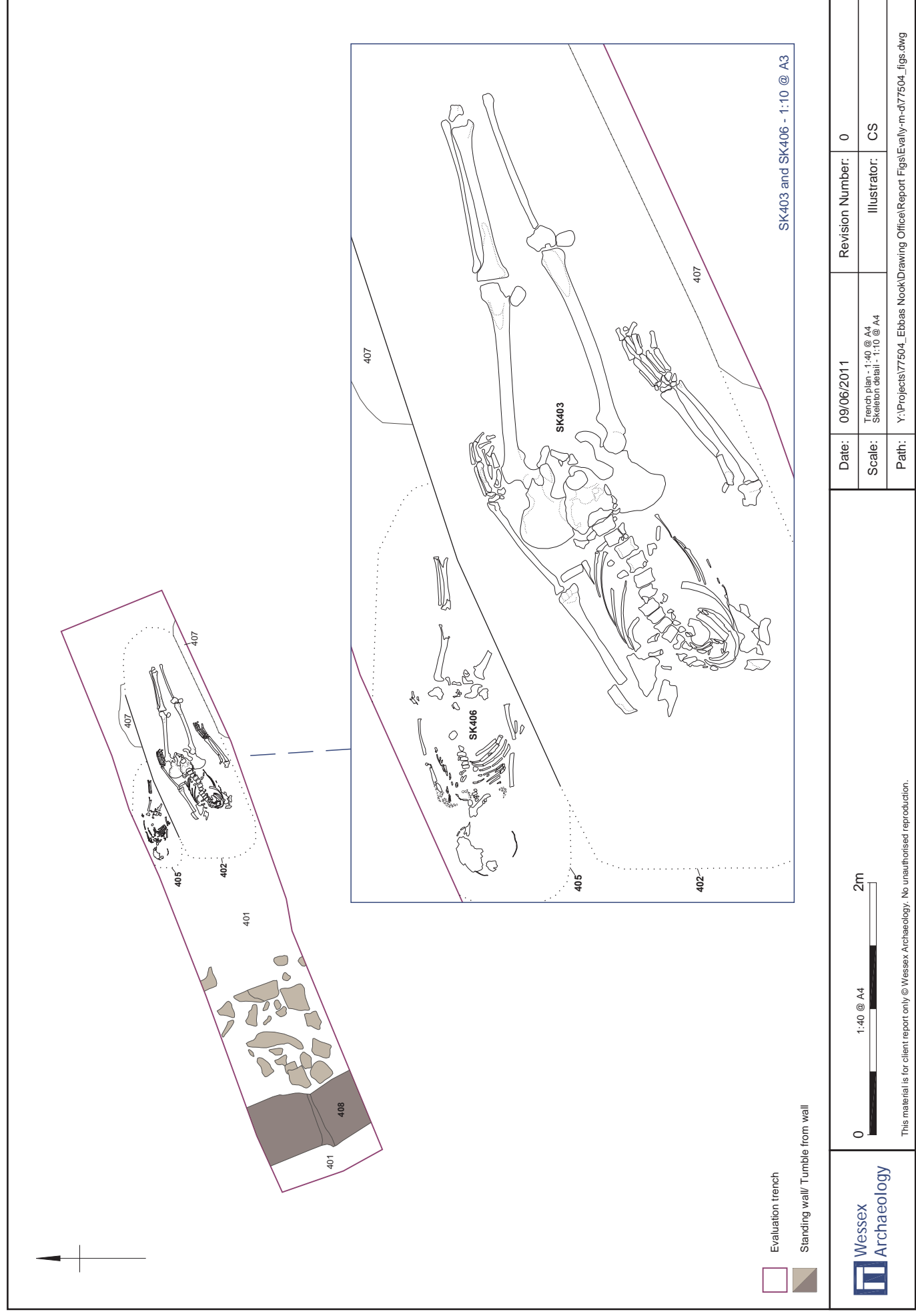


Geophysical results from Beadnell Church



Trench 1

Figure 4



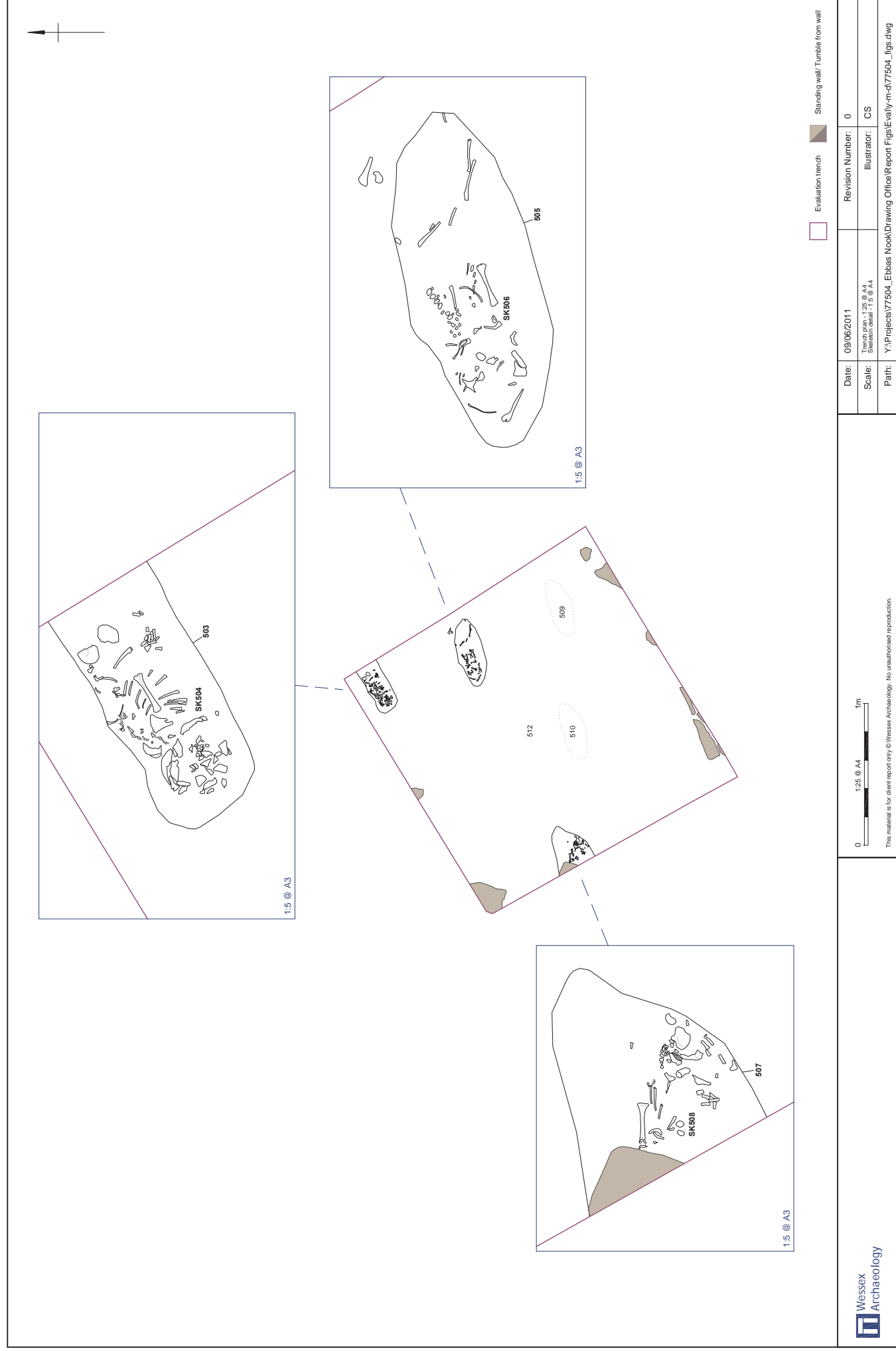




Plate 1: South face of north wall **104** of chapel, showing extension **105** to the east



Plate 2: West facing section of Trench 1 south (within the chapel), showing deposit build up and late rebuild of chancel wall **123**



Plate 3: Skeleton 122, from the east, showing shroud pin stains



Plate 4: North facing section of Trench 2



Plate 5: View of skeleton **403**, from the south west, showing the depth at which the body lies and proximity to the cliff edge



Plate 6: View of Trench 5, from the east, showing infant/still born burials

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Plate 7: Skeleton **504**, from the east



Plate 8: Skeleton **506**, from the east



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