LOW CROSBY FLOOD ALLEVIATION SCHEME, SCALEBY, CUMBRIA

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SUMMARY

In 2009 the Environment Agency (EA) submitted proposals for the improvement and of the flood defences within and around Low Crosby, Scaleby, Cumbria (NGR NY 446 593). The site is located within an area of archaeological potential, with Hadrian's Wall less than 1 mile to the north and the route of the Roman Stanegate road believed to traverse the village itself. Moreover, a geophysical survey within the area of the flood defence suggested the presence of putative archaeological remains, several of which were identified as possible brick clamps in a subsequent archaeological evaluation. Development groundworks commenced in the autumn of 2010 and, accordingly, the Environment Agency Archaeologist requested that an archaeological watching brief be maintained during ground disturbance activities within specific areas of the site. Established in agreement with Cumbria County Council Historic Environment Service (CCCHES), these monitored groundworks comprised: the construction of a new road section; alterations to the walls and access at Low Crosby church; and the cutting of a service trench across the existing road through the village. Following submission of a project design to meet CCCHES requirements, Oxford Archaeology North (OA North) was commissioned to undertake the watching brief, which took place between 16th of November and 16th of December 2010.

The removal of a section of the church wall revealed evidence of ground raising within the churchyard itself, together with several discreet charnel deposits. These groups of human remains represented the disparate elements of over 20 individuals of either sex and various ages; weathering and damage from spades indicated where they had been disturbed in the past, presumably from many centuries of grave-digging within the churchyard, before being removed, piecemeal, to unused locations at the edge of the churchyard. Stripping of the tarmac from the main road and from the adjoining section of the road to the river bank revealed an older surface of compacted river stones and pebbles in both locations. Monitoring of the excavation of the drainage trench across the road adjacent to the church enabled this former road surface to be examined in section. Post-medieval made ground deposits were identified beneath the cobbles, indicating that the surface was unlikely to relate to the Roman Stanegate.

No archaeological remains were identified during soil stripping for the new road junction on the southern side of the main road, but similar activity did reveal archaeological remains to the north of the road. Corresponding with a putative clamp kiln identified during the trial-trench evaluation of the site in 2009, this area technically lay outside of the watching brief area, and would receive only very localised impact from the insertion of piles. However, in consultation with the EA Archaeologist and with CCCHES, it was agreed that a rapid record should be made of the surface characteristics of the 10m x 5.75m area of localised burning.

ACKNOWLEDGEMENTS

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The watching brief was undertaken by Andrew Frudd, Kelly Clapperton and Vickie Jameson. The report was compiled by Andrew Frudd and illustrated by Marie Rowland, whilst Vickie Jamieson assessed the human remains. The project was managed by Stephen Rowland, who also edited the report.

1. INTRODUCTION

1.1 CIRCUMSTANCES OF PROJECT

1.1.1 In 2009 the Environment Agency (EA) submitted proposals for a programme of improvements to the flood defences within and around Low Crosby, Scaleby, Cumbria (NGR NY 446 593; Fig 1). The improvement works are located at the eastern end of the village and comprised:

- the construction of a curved earthen embankment anchored by sheet piles and cupping the eastern part of the village;
- the grubbing-up of a *c* 60m-section of the existing road to the River Eden and the sewage works, where it adjoins the main road through the village;
- the construction of a new, embanked, road junction slightly to the east of its predecessor;
- the demolition and replacement of the existing churchyard southern wall and improvements to access on the eastern wall;
- the excavation of new drainage channels.

The development site is located within an area of archaeological potential, with Hadrian's Wall less than 1 mile to the north and the route of the Stanegate Roman road believed to traverse the village itself. Accordingly, it was agreed between the EA Archaeologist and Cumbria County Council Historic Environment Service (CCCHES) that the improvements would take place in association with a programme of archaeological works. As a result, several archaeological investigations were undertaken during preliminary works at the site. A small-scale watching brief of geotechnical works in 2009 identified no archaeological remains (Oxford Archaeology North (OA North) 2009a), but a more extensive geophysical survey suggested the presence of several putative features within the zone of development impact, particularly in the area of proposed flood embankment on the north side of the village's main road (WYAS 2009). These anomalies, and areas around them, were investigated through the excavation of six evaluation trenches either side of the road along the route of the proposed flood embankment (OA North 2009b). One of the strongest geophysical anomalies was found to relate to a putative brick clamp, which was identified as an area of burning and brick rubble (*ibid*).

1.1.2 Groundworks for the development commenced in autumn 2010. In consideration of the impact of the development, and of the results of previous archaeological investigations, CCCHES and the EA Archaeologist established that only certain groundworks should be monitored during the watching brief. These comprised soil stripping in the area of the new road junction; the removal of the churchyard's southern retaining wall and deposits behind it; and the digging of a trench across the main road for the installation of new drains (Fig 2). Following compilation of a project design (*Appendix 1*), OA North was commissioned by EA to undertake the watching brief which took place between the 16th of November and the 16th of December 2010.

1.2 LOCATION, TOPOGRAPHY AND GEOLOGY

1.2.1 Low Crosby is a small village located on the north bank of the River Eden, north-east of Carlisle, and is surrounded mainly by arable and pasture fields. To the west, Low Crosby is skirted by the Willow Beck, which discharges into the Eden. The solid geology of Low Crosby consists of Mercia mudstone, St Bees sandstone, and Kirklinton sandstone. Low Crosby is directly underlain by Quaternary river terrace deposits consisting of a combination of sand, gravel, clay and silt (British Geological Survey nd).

1.3 HISTORICAL AND ARCHAEOLOGICAL BACKGROUND

1.3.1 ***Introduction:*** the following section is intended only as a brief summary of the site's archaeological context and is derived from the CCCHER online resource (Cumbria County Council nd) and relevant texts.

1.3.2 ***Prehistoric and Roman:*** there is widespread evidence for prehistoric, particularly Bronze Age, activity within the wider area, with a number of cremation cemeteries known from the outskirts of Carlisle, as well as a putative settlement between High and Low Crosby. Bronze Age collared urns were found in the grounds of Garlands Hospital; however, their exact find spot is unknown (Perriman 1992). Further evidence of Bronze Age activity at Garlands comprised a burnt mound excavated by Lancaster University Archaeology Unit (LUAU) in 1996. Further isolated finds, including barbed and tanged arrowheads, also provide evidence for Bronze Age activity in this part of Cumbria (McCarthy 2000). The Iron Age is typified by large numbers of settlement sites within the area, including those at Scotby Road and the Cumberland Infirmary site, Carlisle (Bewley 1994). No evidence for Iron Age activity has been found within Low Crosby.

1.3.3 Low Crosby, between the Roman forts at Carlisle and Brampton, lies very close to, if not on, the line of the Stanegate Frontier, a late first-century AD precursor to Hadrian's Wall, which, together with the associated *vallum*, stands just under 1km to the north of the village. The east/west main road through Low Crosby follows the route of the Stanegate Roman road, an element of which may be an upstanding earthwork extant to the east of Low Crosby. Other Roman remains within the vicinity include several marching camps (www.gis1.cumbria.gov.uk). Previous excavations close to the village (160m west of St John's Church) revealed three undated phases of rough D-shaped buildings. Although similar timber buildings are known from later Prehistoric/Romano-British sites within the north of England, a medieval date cannot be discounted (Zant 1998).

1.3.4 ***Medieval:*** although the present church of St John in Low Crosby was built in 1854, it is built over the site of a medieval predecessor, and contains a Norman font. It has been suggested that the church is built on the site of a motte, as there is an oval mound *c* 2m high and a crescent-shaped mound in the churchyard (OA North 2008).

1.3.5 ***Post-medieval:*** documentary evidence suggests that Low Crosby's Stag Inn dates to the late seventeenth century. Located nearby is the possible site of Low Crosby Model Farm, which dates to the early nineteenth century. The site of Crosby on Eden Toll House, which dated to at least the late eighteenth century and was demolished in the 1970s, is also within the village (OA North 2008). Previous fieldwork undertaken by OA North in 2009 revealed the remains of likely brick clamp kilns (OA North 2009b).

2. METHODOLOGY

2.1 PROJECT DESIGN

2.1.1 The OA North project design (*Appendix 1*) was adhered to in full and the work was consistent with the relevant standards and procedures of the Institute for Archaeologists, and generally accepted best practice. In consultation with CCCHES and the EA Archaeologist, there were two variations to the original scope of works, both of which extended the zone of archaeological recording into areas where monitoring was not originally required. The first followed the identification of areas of burning revealed by the topsoil strip for the embankment on the north side of the road. It was agreed that a photographic record of this evidence should be made. Secondly, removal of the modern tarmac from the area of the old road junction revealed a cobbled surface. Sample areas of this surface were cleaned and recorded.

2.2 WATCHING BRIEF

2.2.1 Close liaison was maintained with the groundworks contractor at all times, and all works were monitored by an experienced archaeologist. Most works were undertaken by a mechanical excavator, fitted with a wide toothless ditching bucket for soil stripping and a toothed bucket for excavation of the drainage runs and lifting of road surfaces. Removal of the church wall and reduction of the soil behind was done by hand, with the aid of a small mechanical excavator. The programme of field observation comprised the systematic examination, characterisation and recording of any subsoil horizons exposed during the course of the excavation. Removed spoil was systematically searched for human remains, artefacts and other dating evidence. Recording was by means of OA North's standard system, with *pro-forma* record sheets and supporting registers and indices. A fully indexed photographic record in digital and monochrome formats was maintained.

2.3 HUMAN REMAINS

2.3.1 The human remains recovered from the watching brief were cleaned, bagged and boxed by context and, using standard Oxford Archaeology protocols, were assessed for their potential for further analysis. The assessment sought to characterise the assemblage through the examination of five taphonomic and physical anthropological criteria: preservation and completeness; age at death; sex; and pathology.

2.3.2 ***Preservation and Completeness:*** bone preservation of the assemblage was rated on a four-point scale, ranging from 1 (poor) to 4 (excellent). Skeletal completeness has been scored by the percentage of the bone element surviving, <25%, 25-50%, 50-75% and 75-100%. Where the bone is complete and measurable it has scored 100%.

2.3.3 ***Estimation of Age at Death:*** adult skeletons were aged by the pubic symphysis (Brooks and Suchey 1990; Todd 1920); degeneration of the auricular surface of the pelvis (Lovejoy *et al*. 1985) and dental attrition (Miles 1963). The ageing of foetuses and neonates was based on diaphyseal long bone length (Scheuer and Black 2000). Sub-adults were aged by the stage of dental eruption (Moorees *et al* 1963a and 1963b) and epiphyseal fusion (Scheuer and Black 2000). Age group are defined in Table 1.

Sub-adults		**Adults**	
Age Bracket	**Age Range**	**Age Bracket**	**Age Range**
Pre-term	<37 weeks	Adolescent	13-17 years
Neonate	Birth - 28 days (38-44 weeks)	Young adult	18-25 years
Infant	1 month - 1 year	Prime adult	26-35 years
Young child	1-5 years	Mature adult	36-45 years
Older child	6-12 years	Older adult	45+ years
Child	<12 years	Adult	18+ years

Table 1 Age groups used in osteological assessment

2.3.4 ***Estimation of Sex:*** sexually dimorphic features of the pelvis and cranium were used to diagnose osteological sex based on standards set out in Buikstra and Ubelaker (1994).

2.3.5 ***Skeletal and Dental Pathologies:*** the descriptions of skeletal pathologies in this report are based upon palaeopathology texts by Aufderheide and Rodríguez-Martín (1998) and Ortner (2003). Degenerative joint disease was recorded as osteophytic growth, porosity and eburnation, according to the recommendations of Rogers and Waldron (1994). Dental pathologies were described in accordance with Hillson (2003), and dental calculus was recorded according to Brothwell's methods (1981).

2.4 ARCHIVE AND REBURIAL

2.4.1 A full professional archive has been compiled in accordance with the project design (*Appendix 1*), and with IfA and English Heritage guidelines (EH 1991). The paper and digital archive of the original field records and supporting information, together with a copy of this report, will be deposited with the County Record Office in Carlisle. A copy of this report will be submitted to the Cumbria HER in Kendal. The human remains recovered during the watching brief will be reburied at Low Crosby churchyard in a location close to their site of discovery in the watching brief.

3. RESULTS

3.1 INTRODUCTION

3.1.1 The following section presents a synthesised summary of the results of the watching brief in each of the areas of investigation. For the sake of brevity and clarity, more detailed context descriptions are tabulated in *Appendix 2*.

3.2 WATCHING BRIEF RESULTS

3.2.1 ***Northern Embankment:*** as indicated in *Section 2.1.1*, this area adjacent to the church fell outside of the original zone of archaeological monitoring. However, upon arrival on site, it was clear that the completed topsoil strip had partially revealed several burnt areas. These were considered to be analogous to the brick clamp identified during the evaluation of the site (OA North 2009b). A walkover of the stripped area identified widespread evidence of brick clamps, although any coherent picture was obscured by spoil heaps, track marks and patches of *in-situ* subsoil (Plate 1). A sketch plan was rapidly generated, and an area 10m x 5.75m was cleaned and recorded. Surface deposits associated with the main brick clamp (group number ***101***) consisted of crushed brick deposits ***104*** and ***109*** and pale clays ***107*** and ***108***, seemingly a local natural material, probably used to seal the clamp kilns. Charcoal and sand deposits ***105*** are probably the remains of the fire pits. No dating evidence was recovered from the area of the brick clamps.

3.2.2 ***The Churchyard:*** groundworks for improved access through the churchyard's eastern wall were extremely shallow, and did not reveal anything of archaeological significance. Removal of the churchyard's southern wall, and the battering back of the exposed cemetery soils to a depth of *c* 0.6m, revealed a sequence of three layers and six charnel deposits (*Section 3.3*; Plates 3-5). The natural drift geology was not observed during the works, and the lowest deposit was subsoil ***114***. This was sealed by a layer of pink clay, ***121***, which probably represents a deposit of made ground for raising the level of the churchyard. This was overlain by topsoil ***118***. Each of these deposits was quite heavily bioturbated, and it was thus not possible to see the edges of any specific cuts for pits into which the six identified charnel deposits might have been buried (Fig 3; Plates 6 and 7). It is possible that charnel deposits ***116*** and ***117***, found at shallow depth within topsoil ***118***, could have been placed at the edge of cemetery, to become gradually enveloped through the formation of the topsoil. Charnel deposits ***112***, ***113*** and ***115*** were found at the interface between the subsoil ***114*** and the made ground ***121***. An articulated lamb skeleton (***120***) laid on its right side, was also recovered from the churchyard deposits (Plate 8). It was found in a situation analogous to the human charnel deposits, again, without an obvious cut for a pit into which it had been placed. No dating evidence was observed within the churchyard deposits.

3.2.3 ***Existing Road Junction and Drainage Trench:*** immediately to the south of the church wall the tarmac road surface was planed away for the new surface

to tie in either side of the ramp over the flood bund. This revealed surface ***128*** (=***131***=***145***), formed from very close-set compacted rounded stones 10-100mm across. Within the main road this surface was revealed across an area of *c* 21m x 6.5m (Plate 2), a large portion of which was cleaned by hand. A 1m square representative area was planned by hand, with the extent of the remainder recorded digitally. Evidence of a similar surface was revealed about 30m to the south when the tarmac was planed off of part of the side road to the River Eden.

3.2.4 Monitoring of the excavation of the 16.5m-long drainage trench diagonally across the road allowed the investigation of the deposits underlying the modern road to a depth of 1m below the modern ground level. A sequence of several deposits was revealed within the section that was examined (fig 4), although there was no evidence for any surface that might have been the Stanegate Roman road. At the base of the sequence, possible natural sandy alluvium (***136***, ***141*** and ***144***) was identified. This was sealed by sandy silt layers (***134***, ***133***, ***132***, ***135***, ***147*** and ***143***) amongst which 0.43m-thick deposit ***147*** contained brick and cinder fragments, likely to be of post-medieval or industrial-period date. These deposits appeared to be cut by a putative 4m-wide road-side ditches (ditch ***149***, re-cut as ditch ***148***). The ditch fills were very similar in character to the silty sand deposits through which they had been cut. The cobbled surface ***128/131/145*** would appear to have been contemporary with this ditch, as there was a close correlation between its edges and those of the ditch.

3.2.5 ***New Road Junction:*** no archaeological remains were identified following the stripping of the area for the new road junction, the only features comprising several land drains and, nearer the main road, a larger water pipe (Plate 9).

3.3 HUMAN REMAINS

3.3.1 Quantification: the following sections summarise by context the results of the osteological assessment, with a full catalogue presented in *Appendix 3*. None of the deposits represented an *in situ* human burial, rather, all would appear to be charnel deposits.

3.3.2 Context ***112*** contained a total of 122 skeletal fragments among which there was a minimum number of two adults. One of the individuals was identified as female from the diagnostic features of the cranium. Evidence of osteoarthritis was evident on both the right humeri within the assemblage, along with dental calculus on the well-worn teeth of two maxillae fragments. Tool marks present on the frontal bone of a skull fragment.

3.3.3 Context ***113*** contained a total of 46 fragments among which it was possible to determine a minimum number of one neonate and one adult individual. It was not possible to age or sex the remains due to lack of pelvis or diagnostic features on the skull. The adult skeleton had evidence of infection in the left tibia; it also had evidence of cut/chop marks on both femurs and the right humerus.

3.3.4 Context ***115*** contained a total of 50 skeletal fragments representing a minimum number of four adults. It was possible to identify one of the skeletons as female and one as male, and to record the lengths of a left and right radius and a right humerus. Pinprick porosity was observed on the superciliary arch and supraorbital margin of one of the skulls, which may suggest the presence of a range of pathological conditions, including syphilis. Four thoracic vertebrae (T8, T9, T10 and T11) were fused together on the right side by the 'candle-wax' osteophytic growth typical of DISH (diffuse ideopathic skeletal hypertrophy). One of the femurs had cut marks on the anterior femoral head.

3.3.5 Context ***116*** yielded a total of 37 fragments, with a minimum number of four adults represented. The skeletal remains of this context were heavily weathered and showed a high number of cut/chop marks on the long bones.

3.3.6 Context ***117*** contained the highest number of skeletal remains with a total of 162 fragments. The majority of the elements were severely weathered and fragmented, and represented a minimum of one young child and six adults. It was possible to identify at least two males and one potential female within the assemblage. Limited pathology was observed within this context, with evidence of osteoarthritis noted on the coronoid process of a left ulna. New woven bone, perhaps indicative of infection, was observed on the distal lateral epicondyle of a right femur and on both sides of a rib fragment. One of the male skulls had pinprick porosity around the superciliary arch leading up into the frontal eminence, possibly evidence of syphilis.

3.3.7 Context ***119*** had a total of 45 bone fragments, all from the skull and maxilla of the same individual. From the diagnostic features of the cranium it this individual was determined to be an adult male. There was evidence of thickening of the metopic suture and pitting of the superciliary arch, indicating that that this individual may have suffered from an infectious disease. The maxilla also showed evidence of dental caries.

3.3.8 ***Assessment:*** tool marks observed on several of the bones are likely to have been made by spades and to relate to the disturbance of burials during later grave-digging. Overall, a range of ages and both sexes were represented, as was evidence for a variety of pathological conditions. The origin of the bones from charnel deposits, however, made it impossible to gain a coherent understanding of the demography and epidemiology of the population, and the bones thus have no real potential for further analysis.

3.4 FINDS

3.4.1 Context ***120*** contained 155 fragments from the articulated skeleton of a juvenile sheep. From the dentition, epiphyseal and vertebral fusion, it was determined that the skeleton was less than 3 months old at the time of death. Part of a pig maxilla was recovered from charnel deposit ***115***, whilst deposit ***112*** yielded a small fragment of window glass: these may merely represent domestic refuse that has been incorporated into the churchyard soil.

4. CONCLUSION

4.1 DISCUSSION

4.1.1 The watching brief at Low Crosby revealed a number of features of interest. The human remains recovered from the churchyard would appear to represent deposits of charnel material. As evidenced by the presence of chop marks, likely to have been produced by the judicious usage of a spades, all of the bones were likely to have been disturbed from their original place of deposition. There are two possible explanations for this disturbance: grave-digging activities across the churchyard; or truncation of *in-situ* burials when the churchyard wall was built in the later nineteenth century. The latter hypothesis seems less likely, given that any foundation cut for the wall was probably on the road side (certainly, no cut was observed on the raised, churchyard, side), but is not unthinkable, considering the potential Norman origins of burial on the site and the fact that churchyard boundaries are not always static.

4.1.2 Assuming that the bones derive from burials disturbed during grave digging, it is not possible to determine whether each deposit relates to a single grave-digging episode (disturbance of several stacked burials could even account for the seven individuals from deposit ***117***), or a more gradual accumulation. The latter might be suggested by the degree of weathering in the cases of deposits ***116*** and ***117***, but such effects might equally have been produced by leaving the bones on the ground surface by the churchyard wall, or the result of root action where shallowly buried. Although it was possible to identify the age and sex of various bones, together with evidence for a range of infectious, arthropathies and dental diseases, the fact that none of the bones could be related to a specific skeleton means this data is of limited value in reconstructing the demography and epidemiology of Low Crosby. The problem is further exacerbated by the fact that individual bones could derive from any time over the best part of a millennium. The burial of the lamb is curious, but may be evidence of a clandestine act: perhaps a pet, or maybe even an accompaniment to a human burial within the churchyard.

4.1.3 The surface recording of elements of the putative brick clamps allowed a greater understanding of the distribution of these features, but any deeper understanding of their character, date and function was precluded by the ground conditions and lack of intrusive investigation. It is possible that the extensive distribution of these remains reflects the periodic use of the location on multiple occasions, rather than contemporary activity on a large scale.

4.1.4 Although it was initially hoped that the extensive cobbled surface identified beneath the modern road through the village might be the Roman Stanegate road (which is thought to follow this route), evidence suggested otherwise. First, it would be highly unlikely that the Roman road also followed the side road to the River Eden, beneath which an analogous cobbled surface was identified. More importantly, the presence of coke and brick fragments within underlying make-up deposit ***147*** would suggest that the cobbled surface is

post-medieval, or industrial-period, in date. Indeed, it is even possible that make-up deposit ***147*** represents waste from the nearby brick clamps, and that the features are thus contemporary. The 6":1 mile Ordnance survey map shows that the pre-development road configuration was in existence in 1868, and so, in all likelihood, the cobbled surface represents an element of the village's road network prior to the laying of more modern tarmac. Nor was there any evidence within the depth of investigation for an underlying surface that might have been a Roman road: all of the lower deposits appeared to be either *in-situ* or redeposited natural alluvium. It is possible that the route of the Roman road lies to the north or south of the modern road through the village. If so, however, it must do so by some distance, for no evidence was found during the extensive monitored soil strip to the south of the road, nor during a walkover of the stripped field to the north.

4.2 IMPACT ASSESSMENT

4.2.1 Overall, the impact of the improvement to Low Crosby's flood defences has been fairly limited, and has largely been mitigated by the programme of archaeological recording. No remains were observed in the area for the new road junction, whilst impact upon the brick clamps on the northern side of the road will be very limited, being restricted to the driving of steel sheet piles and the associated machine movement. Although there was an impact upon human remains within the churchyard, this was limited by the fact that these remains had been disturbed previously, did not represent complete skeletons, and will be reburied in a location close to their place of discovery.

4.2.2 The post-medieval/industrial-period cobbled road surface was generally left undisturbed, with only limited damage from the drainage runs. It is possible that the Stanegate Roman road does indeed follow the road through the village, but was completely truncated away at the point of investigation. As such, there has been no obvious impact upon this significant feature.

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6. ILLUSTRATIONS

6.1 FIGURES

Figure 1: Site location

Figure 2: Location of formal watching brief areas and of brick clamp surface recording

Figure 3: north-west-facing section through drainage trench

Figure 4: Location of deposits identified behind the southern churchyard wall

6.2 PLATES

Plate 1: Patches of burning thought to relate to brick clamps in the area stripped of soil for the northern flood embankment

Plate 2: Cobbled surface revealed beneath the modern tarmac of the road junction

Plate 3: The southern church wall prior to removal

Plate 4: Working shot of the removal of the church wall and the revealed churchyard deposits

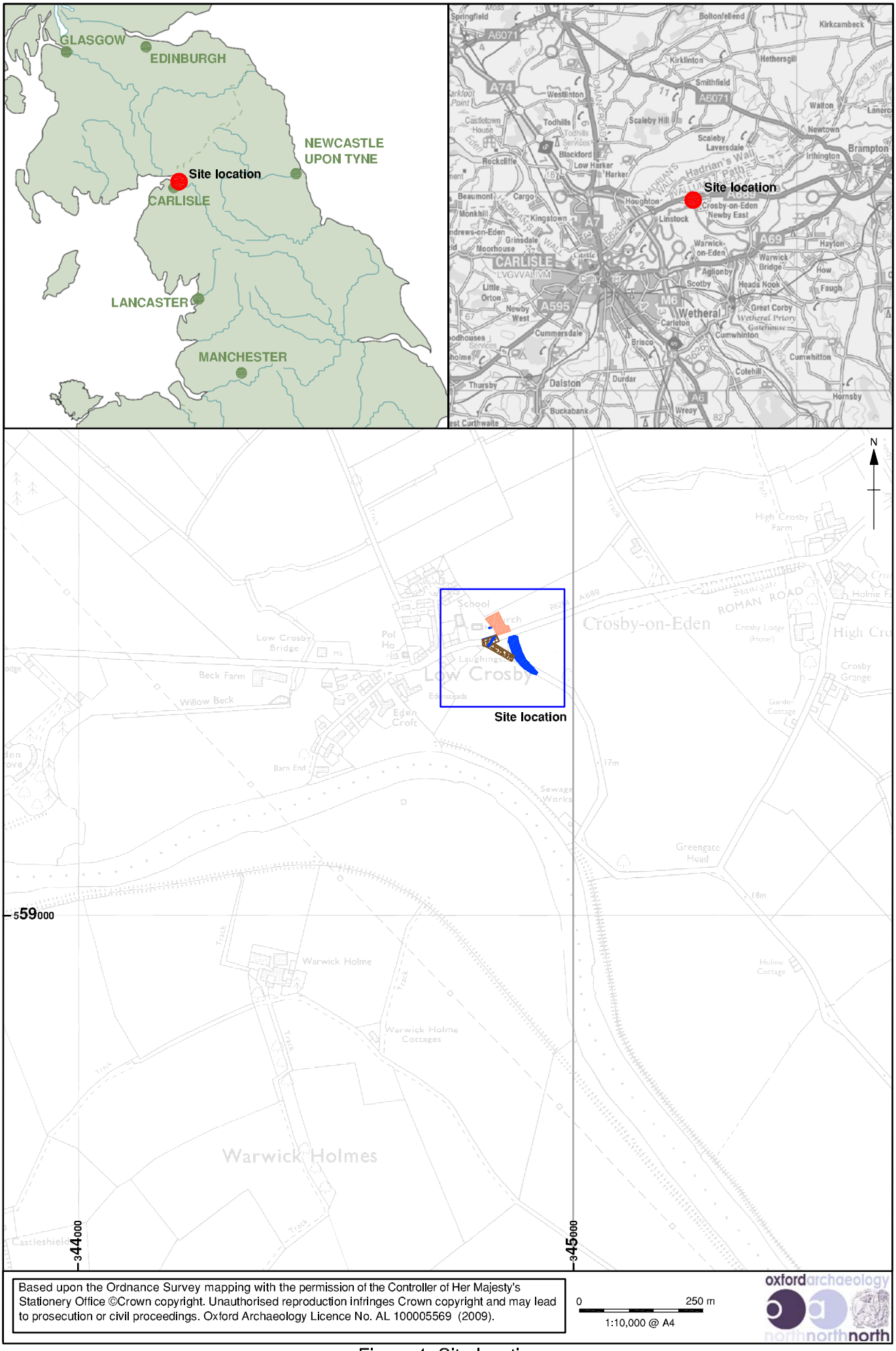
Plate 5: Foundations of the levelled churchyard wall and the battered-back churchyard deposits, revealing a charnel deposit in the foreground

Plate 6: Example of a charnel deposit

Plate 7: Charnel deposit ***119***, a disembodied skull

Plate 8: Articulated lamb skeleton ***115***

Plate 9: Field drains and a modern service revealed by the soil strip for the new road junction



SPR*L10316*MECR*21.01.11

Figure 1: Site location

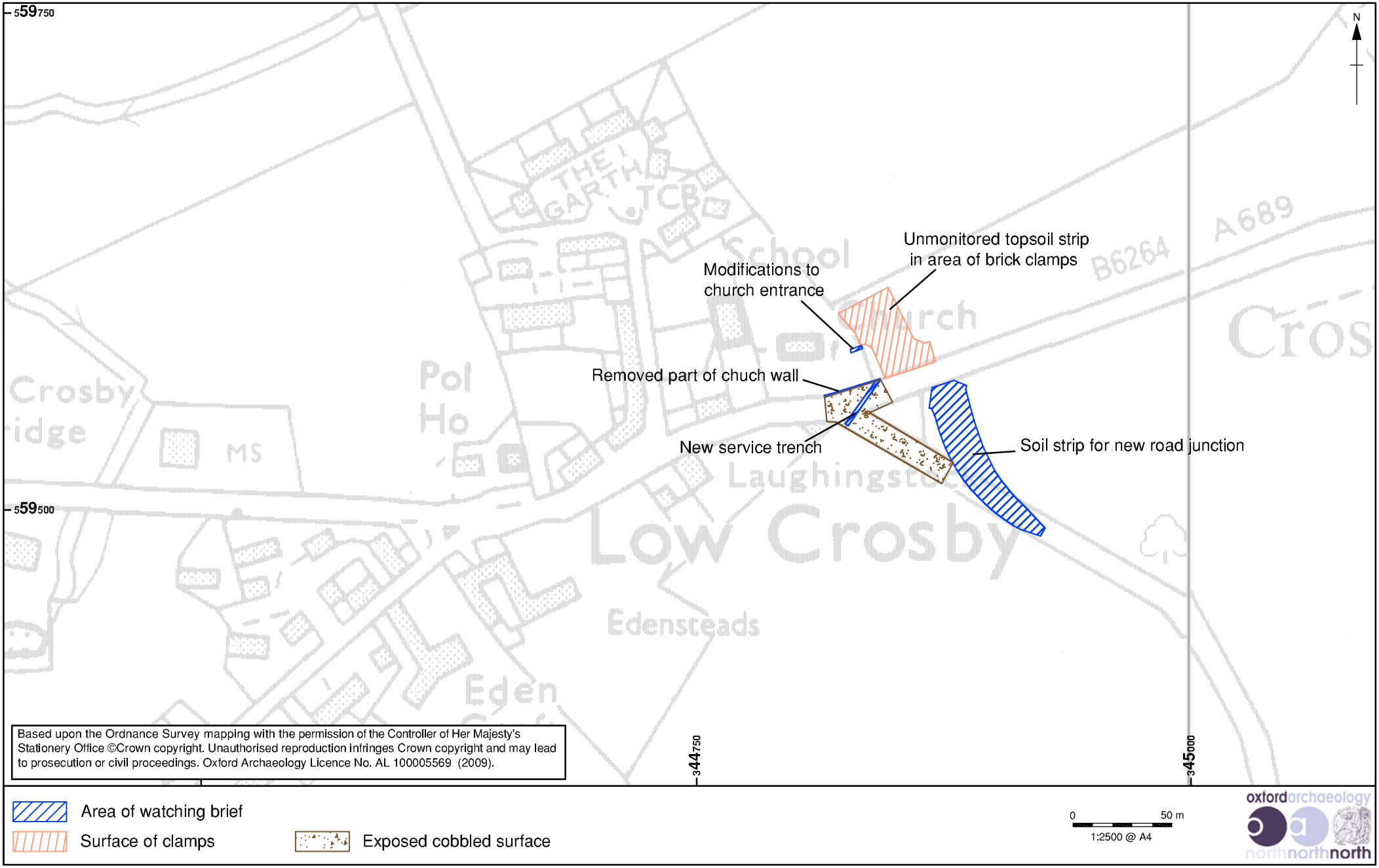
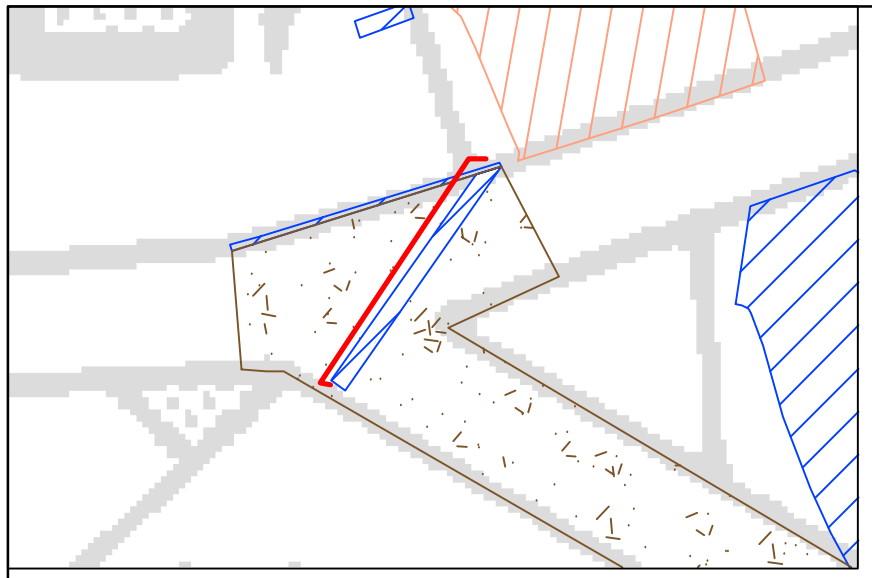
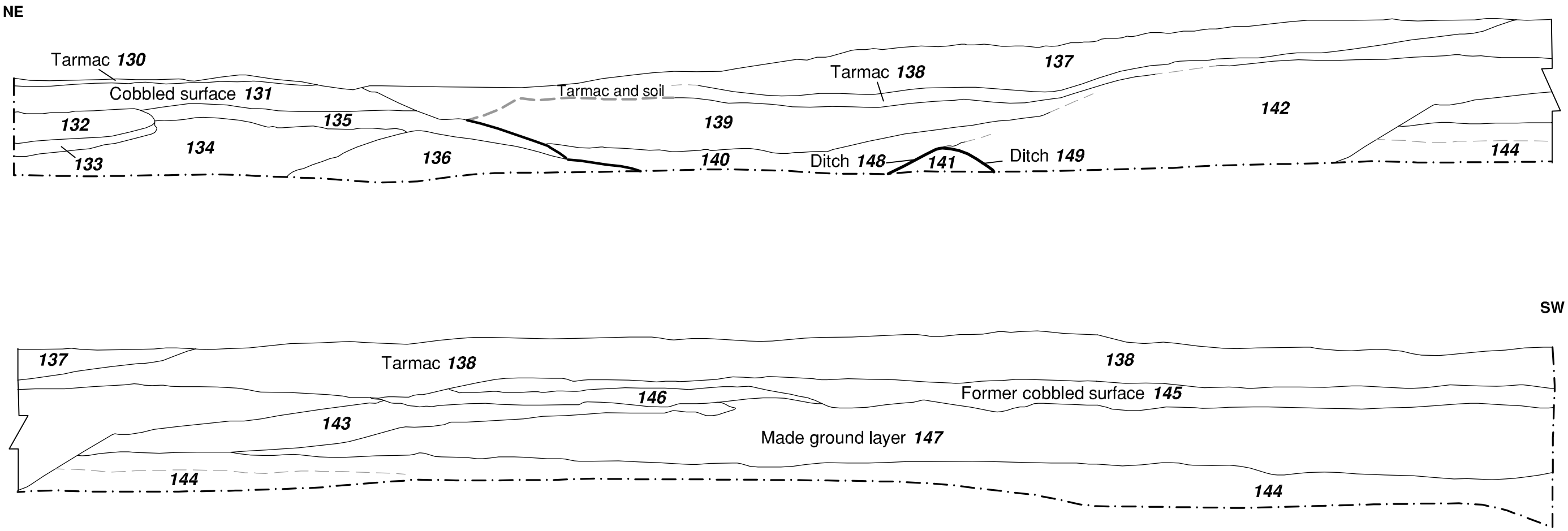


Figure 2: Location of formal watching brief areas, and brick clamp surface





Limit of excavation

Layer

Uncertain edge

0 0.5 m

1:25 @ A3

oxfordarchaeology north

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Figure 3: North-west-facing section through drainage trench

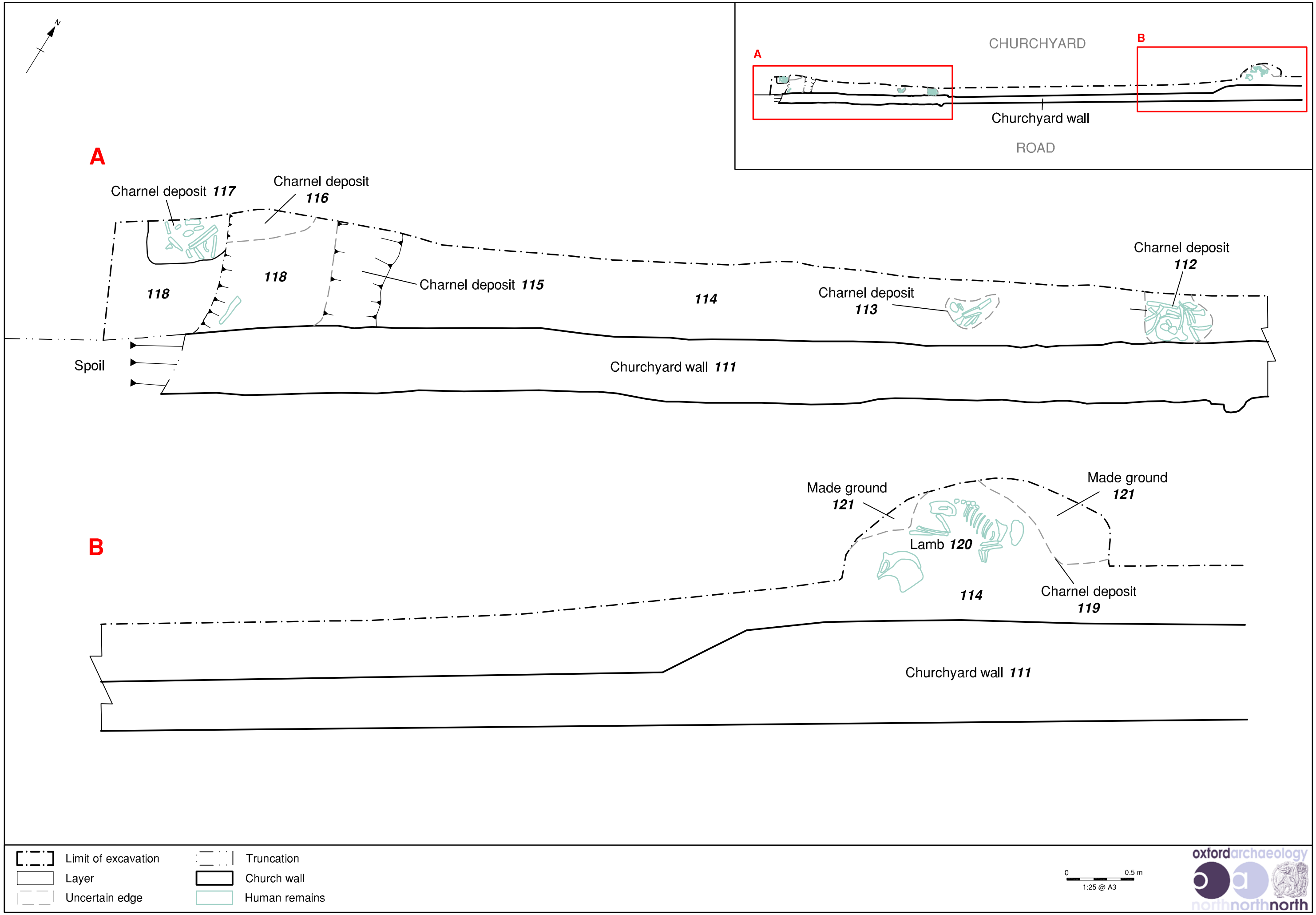

Figure 4: Location of deposits identified behind the southern churchyard wall

Plate 1: Patches of burning thought to relate to brick clamps in the area stripped of soil for the northern flood embankment

Plate 2: Cobbled surface revealed beneath the modern tarmac of the road junction

Plate 3: The southern church wall prior to removal

Plate 4: Working shot of the removal of the church wall and the revealed churchyard deposits

Plate 5: Foundations of the levelled churchyard wall and the battered-back churchyard deposits, revealing a charnel deposit in the foreground

Plate 6: Example of a charnel deposit

Plate 7: Charnel deposit ***119***, a disembodied skull

Plate 8: Articulated lamb skeleton ***115***

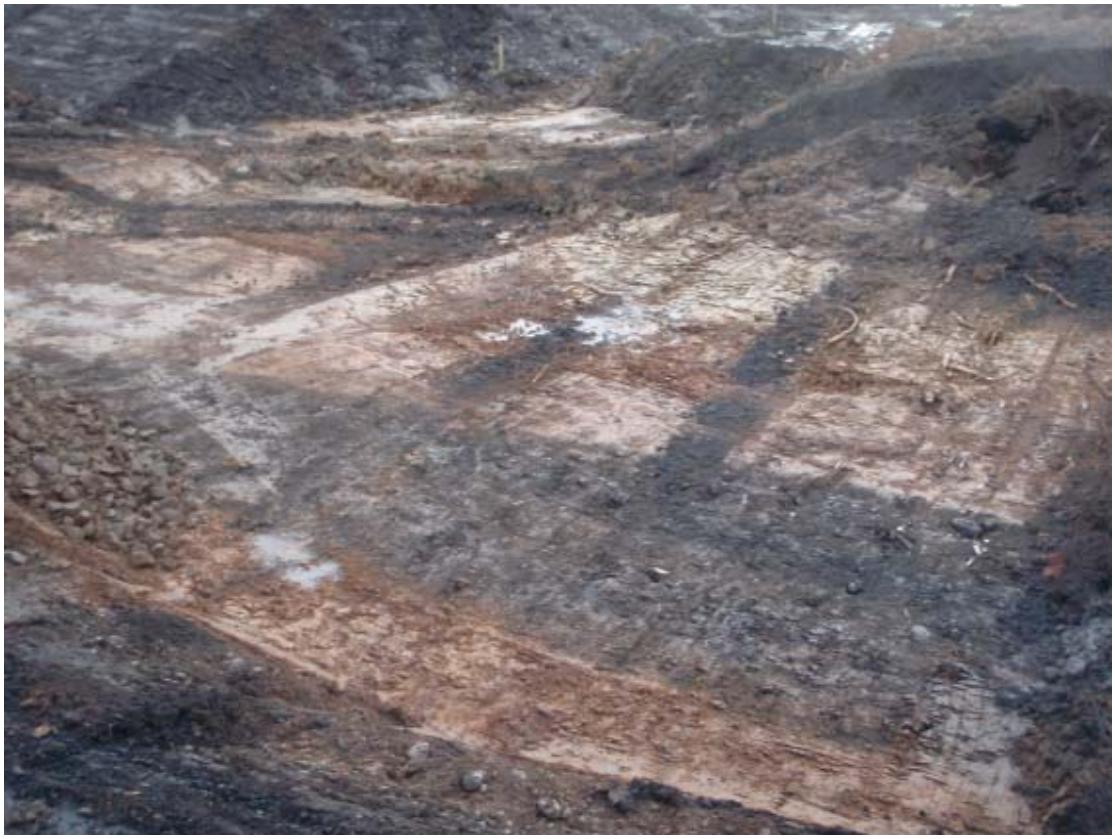

Plate 9: Field drains and a modern service revealed by the soil strip for the new road junction

APPENDIX 1: PROJECT DESIGN

LOW CROSBY FLOOD ALLEVIATION SCHEME, SCALEBY,

CUMBRIA

Watching Brief Project Design

Oxford Archaeology North

September 2010

The Environment Agency

OA North Reference No: t12418
NGR: SD 446 593

1 INTRODUCTION

1.1 PROJECT BACKGROUND

1.1.1 The Environment Agency (hereafter 'the Client'), has requested that Oxford Archaeology North (OA North) submit proposals for a programme of archaeological work to be undertaken during construction works for a flood alleviation scheme within and around the village of Low Crosby, Scaleby, Cumbria (NGR SD 446 593). The development site is located within an area of archaeological potential and, consequently, the Environment Agency Archaeological Advisor and Cumbria County Council Historic Environment Service (CCCHES) requested that a programme of archaeological works should be undertaken in association with the proposed development. The majority of the flood bank will be constructed on sheet piles within areas that had previously been evaluated (OA North 2009a), and CCCHES concluded that these areas required no further attention. However, CCCHES did request that a watching brief be conducted during specific ground-disturbing activities, including the construction of a new road section, alterations to the walls and access at the church, and also the insertion of a section of new services. The following document represents a project design to carry out the above programme of work and has been prepared in accordance with standard CCCHES requirements.

1.2 HISTORICAL AND ARCHAEOLOGICAL BACKGROUND

1.2.1 The investigation area lies on the north bank of the River Eden, with the Willow Beck to the west. There is widespread evidence for prehistoric, particularly Bronze Age, activity within the wider area, with a number of cremation cemeteries known from the outskirts of Carlisle, as well as a putative settlement site between High and Low Crosby. Low Crosby, between the Roman forts at Carlisle and Brampton, lies very close, if not on, the line of the Stanegate frontier, a late first-century AD precursor to Hadrian's Wall, which, together with the associated vallum, lies just under 1 km to the north. Elements of the proposed works impact upon the east/west main road through the village, which follows the route of the Stanegate Roman road; an upstanding earthwork just to the east of Low Crosby is thought to be an element of the Stanegate. Other Roman remains within the vicinity include several marching camps. Low Crosby's church, St John's, dates to the medieval period and its walls and points of access will be affected during the proposed development. It should be borne in mind that the boundaries of features even as permanent as churches can expand or contract over time, leaving earlier burials stranded beyond the current limits of the site.

1.2.2 The site has been subject to several archaeological investigations, including a watching brief during site investigation works (OA North 2009b), geophysical survey, and a trial trench evaluation (OA North 2009a). The latter investigation identified (within Trench 4, opposite the church) part of a post-medieval feature filled with burnt material, industrial waste and crushed brick, which may represent a clamp kiln. A number of other earthworks, including several putative platforms (perhaps for structures), were also identified in this area.

1.3 OXFORD ARCHAEOLOGY NORTH

1.3.1 OA North has considerable experience of excavation of sites of all periods, having undertaken a great number of small and large scale projects throughout Northern England during the past 25 years. Evaluations, desk-based assessments, watching briefs and excavations have taken place within the planning process, to fulfil the requirements of clients and planning authorities, to very rigorous timetables. OA North has the professional expertise and resources to undertake the project detailed below to a high level of quality and efficiency. OA North is an **Institute for Archaeologists (IfA) registered organisation, registration number 17**, and all its members of staff operate subject to the IFA Code of Conduct.

2 OBJECTIVES

2.1.1 The following programme has been designed to identify and record any archaeological deposits affected by the proposed development of the site, in order that they can be preserved

by record. To this end, the following programme has been designed, in accordance with normal CCCHES standards, to provide a watching brief. The required stages to achieve these ends are as follows:

2.1.2 ***Archaeological Watching Brief:*** to undertake a programme of observation and recording during any ground disturbance to determine the presence, quality, extent and importance of any archaeological remains on the site.

2.1.3 ***Report and Archive:*** a report will be produced for the Client within eight weeks of completion of the fieldwork. A site archive will be produced to English Heritage guidelines (1991) and in accordance with the *Guidelines for the Preparation of Excavation Archives for Long Term Storage* (UKIC 1990).

3 METHOD STATEMENT

3.1 WATCHING BRIEF

3.1.1 ***Methodology:*** a programme of field observation will accurately record the location, extent, and character of any surviving archaeological features and/or deposits during the ground disturbance of areas of archaeological potential, as defined by CCCHES and the EA Archaeologist. These comprise all ground disturbance works within the graveyard (including the demolition of the churchyard wall if it retains churchyard deposits, the alterations to the access to the churchyard and the excavation of the new drainage runs) and the proposed realigned road. This work will comprise continuous observation during groundworks, the systematic examination of any subsoil horizons exposed during the course of the groundworks, and the accurate recording of all archaeological features and horizons, and any artefacts, identified during observation.

3.1.2 The watching brief will cover the whole of the area to be disturbed by the development including, topsoil and subsoil stripping, the removal of any peat deposits and any other groundworks which would expose the natural drift geology.

3.1.3 Putative archaeological features and/or deposits identified during the observation of groundworks, together with the immediate vicinity of any such features, will be cleaned by hand, using either hoes, shovel scraping, and/or trowels depending on the subsoil conditions and, where appropriate, sections will be studied and drawn. Any such features will be sample excavated (ie. selected pits and postholes will normally only be half-sectioned, linear features will be subject to no more than a 10% sample, and extensive layers will, where possible, be sampled by partial rather than complete removal).

3.1.4 During this phase of work, recording will comprise a full description and preliminary classification of features or materials revealed, and their accurate location (either on plan and/or section, and as grid co-ordinates where appropriate). Features will be planned accurately at appropriate scales and annotated on to a large-scale plan provided by the Client. A photographic record will be undertaken simultaneously.

3.1.5 A plan will be produced of the areas of groundworks showing the location and extent of the ground disturbance and one or more dimensioned sections will be produced.

3.1.6 ***Treatment of finds:*** all finds will be exposed, lifted, cleaned, conserved, marked, bagged and boxed in accordance with the United Kingdom Institute for Conservation (UKIC) *First Aid For Finds*, 1998 (new edition) and the recipient museum's guidelines.

3.1.7 ***Treasure:*** any gold and silver artefacts recovered during the course of the excavation will be removed to a safe place and reported to the local Coroner according to the procedures relating to the Treasure Act, 1996. Where removal cannot take place on the same working day as discovery, suitable security will be employed to protect the finds from theft.

3.1.8 All identified finds and artefacts will be retained, although certain classes of building material can sometimes be discarded after recording if an appropriate sample is retained on advice from the recipient museum's archive curator.

3.1.9 ***Human Remains****:* any human remains uncovered will be left *in situ*, covered and protected. No further investigation will continue beyond that required to establish the date and character of the burial. CCCHES and the local Coroner will be informed immediately. If removal is essential, the exhumation of any funerary remains will require the provision of a Home Office license, under section 25 of the Burial Act of 1857. The removal of human remains will be carried out with due care and sensitivity under the environmental health regulations.

3.1.10 ***Contingency plan:*** in the event of significant archaeological features being encountered during the watching brief, discussions will take place with the Planning Archaeologist or his representative, as to the extent of further works to be carried out. All further works would be subject to a variation to this project design. In the event of environmental/organic deposits being present on site, it would be necessary to discuss and agree a programme of palaeoenvironmental sampling and or dating with the Planning Archaeologist.

3.2 REPORT AND ARCHIVE

3.2.1 ***Report:*** one bound and one unbound copy of a written synthetic report will be submitted to the Client, and a further three copies submitted to the Cumbria HER within eight weeks of completion. Copies of the desk-based assessment, and interim statements on the results of the watching brief can be issued within three weeks of the completion of these elements. The report will include:

- a front cover to include the planning application number and the NGR
- a site location plan, related to the national grid
- the dates on which the fieldwork was undertaken
- a concise, non-technical summary of the results
- a description of the methodology employed, work undertaken and results obtained
- plans and sections at an appropriate scale, showing the location of features
- other illustrations and photographic plates showing, as appropriate, features of interest or to demonstrate the absence of archaeological features.
- a description of any environmental, finds, or other specialist work undertaken, and the results obtained
- the report will also include a complete bibliography of sources from which data has been derived.
- a copy of this project design in the appendices, and indications of any agreed departure from that design

3.2.2 This report will be in the same basic format as this project design; a copy of the report can be provided on CD, if required.

3.2.3 ***Archive:*** the results of all archaeological work carried out will form the basis for a full archive to professional standards, in accordance with current English Heritage guidelines (Management of Archaeological Projects, 2nd edition, 1991). The project archive represents the collation and indexing of all the data and material gathered during the course of the project. It will include summary processing and analysis of all features, finds, or palaeoenvironmental data recovered during fieldwork, which will be catalogued by context.

All artefacts will be processed to MAP2 standards and will be assessed by our in-house finds specialists.

3.2.4 The deposition of a properly ordered and indexed project archive in an appropriate repository is considered an essential and integral element of all archaeological projects by the IFA in that organisation's code of conduct. OA North conforms to best practice in the preparation of project archives for long-term storage. This archive will be provided in the English Heritage Centre for Archaeology format and a synthesis will be submitted to the Cumbria HER (the index to the archive and a copy of the report). OA North practice is to deposit the original record archive of projects with the County Record Office, Kendal. The material archive (artefacts and ecofacts) will be deposited with an appropriate museum following agreement with the client.

3.2.5 ***Collation of data:*** the data generated will be collated and analysed in order to provide an assessment of the nature and significance of the known surface and subsurface remains within the designated area. It will also serve as a guide to the archaeological potential of the area to be investigated, and the basis for the formulation of any detailed field programme and associated sampling strategy, should these be required in the future.

3.2.6 The Arts and Humanities Data Service (AHDS) online database project Online Access to index of Archaeological Investigations (OASIS) will be completed as part of the archiving phase of the project.

3.2.7 ***Confidentiality:*** all internal reports to the client are designed as documents for the specific use of the client, for the particular purpose as defined in the project brief and project design, and should be treated as such. They are not suitable for publication as academic documents or otherwise without amendment or revision. Any requirement to revise or reorder the material for submission or presentation to third parties beyond the project brief and project design, or for any other explicit purpose, can be fulfilled, but will require separate discussion and funding.

4 HEALTH AND SAFETY

4.1 OA North provides a Health and Safety Statement for all projects and maintains a Unit Safety policy. All site procedures are in accordance with the guidance set out in the Health and Safety Manual compiled by the Standing Conference of Archaeological Unit Managers (1997). A risk assessment will be completed in advance of any on-site works and copies will be made available on request to all interested parties.

5 WORK TIMETABLE

5.1.1 ***Archaeological Watching Brief:*** the duration of this element is dependant upon the duration of any ground disturbing activities on the site.

5.1.2 ***Report and Archive:*** an evaluation report will be submitted within eight weeks of the completion of the fieldwork. However, should an interim statement be required this can be issued within two weeks but instruction must be received from the client prior to completion of the fieldwork.

5.1.3 ***Written Instruction:*** OA North can execute projects at very short notice once written confirmation of commission has been received from the Client. One weeks notice would be sufficient to allow the necessary arrangements to be made to commence the task and inform CCCHES.

6 PROJECT MONITORING

6.1.1 ***Access:*** liaison for site access during the evaluation will be arranged with the client unless otherwise instructed prior to commencement of the archaeological investigation.

6.1.2 Whilst the work is undertaken for the client, the County Archaeologist will be kept fully informed of the work and its results, and will be notified a week in advance of the commencement of the fieldwork. Any proposed changes to the project design will be agreed with CCCHES in consultation with the Client.

7 STAFFING PROPOSALS

7.1.1 The project will be under the direct management of **Stephen Rowland** (OA North project manager) to whom all correspondence should be addressed.

7.1.2 All elements of the archaeological investigation will be supervised by either an OA North project officer or supervisor experienced in this type of project. Due to scheduling requirements it is not possible to provide these details at the present time. All OA North project officers and supervisors are experienced field archaeologists capable of carrying out projects of all sizes.

7.1.3 Assessment of the finds from the evaluation will be undertaken under the auspices of OA North's in-house finds specialist **Christine Howard-Davis BA MIFA** (OA North project officer). Christine has extensive knowledge of all finds of all periods from archaeological sites in northern England. However, she has specialist knowledge regarding glass, metalwork, and leather, the recording and management of waterlogged wood, and most aspects of wetland and environmental archaeology.

7.1.4 Assessment of any palaeoenvironmental samples which may be taken will be undertaken by **Elizabeth Huckerby MSc** (OA North project officer). Elizabeth has extensive knowledge of the palaeoecology of the North West through her work on the English Heritage-funded North West Wetlands Survey. Assessment of any faunal material will be undertaken by **Andrew Bates MSc** (OA North Supervisor).

8. BIBLIOGRAPHY

Institute of Field Archaeologists (IFA), 1992, *Guidelines for data collection and compilation*

OA North 2009a *Low Crosby, Scaleby, Cumbria: Archaeological Watching Brief*, unpubl rep

OA North 2009b *Low Crosby Flood Alleviation Scheme, Scaleby, Cumbria: Archaeological Evaluation*, unpubl rep

SCAUM (Standing Conference of Archaeological Unit Managers), 1997, *Health and Safety Manual*, Poole

United Kingdom Institute for Conservation (UKIC), 1990, *Guidelines for the preparation of archives for long-term storage*, London

United Kingdom Institute for Conservation (UKIC), 1998, *First Aid for Finds*, London

APPENDIX 2: SUMMARY OF DEPOSITS

Context	Category	Form	Description
101	Group	Brick Clamp	Group number for various elements of a brick clamp complex. 10m x 5.75m exposed
102	Cut	Pit	Sub-circular in plan, 1m x 0.75m deep
103	Deposit	Fill	Fill of ***103***. Mix of crushed brick, charcoal and topsoil. Deliberate backfill; 1m x 0.75m
104	Deposit	Layer	Crushed brick, extends over an area 8.5m x 4.5m
105	Deposit	Layer	Black patches, 50:50 charcoal to sand mix, across ***101***
106	Deposit	Layer	Fine sand; colour varies from straw to orange; heat affected
107	Deposit	Layer	Pale beige-/straw-coloured firm silty clay; possible natural subsoil
108	Deposit	Layer	Pale beige/off-white clay and topsoil mix; probably backfill of 2009 evaluation trench; clay may have been originally used to seal kiln
109	Deposit	Layer	Crushed brick and burnt natural; very similar to ***104***, but contains more red sand
110	Cut	Drain	Modern Land drain
111	Structure	Wall	Churchyard wall; faced with squared pink/red sandstone. Rear face river cobbles. Bonded with lime mortar
112	Deposit	Charnel	Discreet deposit of human remains; redeposited charnel material
113	Deposit	Charnel	Charnel deposit; MNI 3; mix of neonatal and adult remains
114	Deposit	Subsoil	Mid-pinkish-brown silty clay
115	Deposit	Charnel	Charnel deposit; possibly several individuals
116	Deposit	Charnel	Charnel deposit; long bones of several individuals
117	Deposit	Charnel	Charnel deposit
118	Deposit	Topsoil	Dark orange/brown clay silt.
119	Deposit	Charnel	Charnel deposit; badly damaged skull
120	Deposit	Skeleton	Articulated animal skeleton; a lamb
121	Deposit	Layer	Reddish-orange/pink, very firm silty clay. Possibly made ground
122	Deposit	Surface	Compact sandstone layer; relict road surface
123	Deposit	Surface	Compacted river pebble surface; relict road surface
124	Deposit	Layer	Compacted mid-grey sand and small angular pebbles
125	Deposit	Layer	Firm dark grey sand; levelling deposit
126	Deposit	Layer	Firm orange/yellow sandy clay
127	Deposit	Layer	Greenish-grey friable sand; 0.16m thick
128	Deposit	Surface	Dark grey cobbles set in yellowish sand; 90% rounded stones
129	Cut	Drain	Red brick and concrete drain manhole. 1.6m x 0.45m x 0.45m deep.
130	Deposit	Surface	Indurated black gravel surface (tarmac); 99% angular stone, 1.8m x 0.04m thick.
131	Deposit	Surface	Grey/brown, rounded and sub-rounded river stones; 2.32m wide x 0.15m thick.
132	Deposit	Layer	Pale brownish-grey compact silty clay; 0.82m wide x 0.18m thick
133	Deposit	Layer	Dark brownish-grey, very organic silty clay; 0.84m wide x 0.08m thick
134	Deposit	Layer	Mid-blue/greyish-brown, silty coarse sand; 2.34m wide x 0.32m thick
135	Deposit	Layer	Compact mid-brown sand and gravel levelling deposit; 2.54m x 0.1m thick
136	Deposit	Layer	Friable, pale yellow/brown sand, some iron panning and mottling; 2.04m wide x 0.29m thick.
137	Deposit	Layer	Friable, mid- to dark brown sandy clay silt topsoil deposit; *c* 4.95m wide x 0.26m thick
138	Deposit	Surface	Black gravel, loose to compact (tarmac); 14.6m wide x 0.32m thick.

Context	Category	Form	Description
139	Deposit	Layer	Pale greyish-brown and brownish-grey (banded), firm to friable, clay silty sands; fill of ***148***; 2.64m x 0.29m thick.
140	Deposit	Layer	Dark grey/brown and brownish-grey (banded) friable silty sand; *c* 2.7m wide x 0.2m thick
141	Deposit	Layer	Pale yellowish-brown sand, friable, some iron panning; natural alluvial sand; 0.5m wide x 0.13m thick.
142	Deposit	Layer	Dark greyish-brown friable sandy clay silt; *c* 4.44m wide x 0.65m thick.
143	Deposit	Layer	Lenses of pinkish-brown and yellowish-brown friable silty coarse sand with iron panning/mottling; 4.3m wide x 0.21m thick
144	Deposit	Layer	Light to mid-yellowish-brown becoming more blue/grey/brown to the north-east, coarse sand with river cobbles; 8.95m wide x 0.3m thick
145	Deposit	Surface	Former cobbled road surface of rounded river pebbles; 6.43m wide x 0.17m thick
146	Deposit	Layer	Coarse brown sand with rounded river pebbles (60:40); 2.63m wide x 0.11m thick
147	Deposit	Layer	Dark brownish-grey with some pale grey and brown patches, firm silty sand, charcoal, coke and brick fragments; modern made-ground deposit; 7.65m wide x 0.43m thick
148	Cut	Ditch	Possible ditch cut observed in section #107; appears to be cut at 45 degree angle with shallow sides; base not observed; filled by ***139*** and ***140***. Possibly road-side drainage ditch
149	Cut	Ditch	Ditch cut observed in section; base not observed, may be same as one seen to east which contained nineteenth- to twentieth-century ceramic drain

APPENDIX 3: CATALOGUE OF HUMAN REMAINS

C=Context; No=number of fragments; Compl=completeness; Pres=preservation

C	Element	No	Side	Age	Sex	Compl	Pres	Comments
112	Scapula	1	L	Adult		<25%	4	
112	Scapula	1	R	Adult		<25%	4	
112	Clavicle	1	L	Adult		75-100%	4	
112	Clavicle	1	R	Adult		75-100%	4	
112	Maxilla	1	L	Adult		50-75%	4	Teeth well worn with dental calculus.
112	Maxilla	1	R	Adult		50-75%	4	Teeth well worn with dental calculus, 1st molar has evidence of dental caries
112	Temporal	1	L	Adult	F	75-100%	4	
112	Temporal	1	R	Adult	F	75-100%	4	
112	Humerus	1	R	Adult		75-100%	2	Eburnation of the distal end of the trochlea
112	Humerus	1	R	Adult		75-100%	2	Osteophytic growth within the olecronon fossa.
112	Skull	3		Adult	F	50-75%	3	Tool marks on the frontal bone. Possibly from the removal from original burial place
112	Rib	21		Adult		<25	4	
112	Skull	36		Adult		25-50%	4	
112	Loose teeth	9		Adult		75-100%	4	
112	Unid	43				<25%	4	
113	Skull - frontal	4	L	Neonate		<25%	4	Porous
113	Long bone	1		Neonate		25-50%	3	Unable to identify element
113	Skull	2		Adult		<25%	4	
113	Tibia	1	L	Adult		75-100%	4	Slight thickening of medial shaft towards distal end. Onset of osteomyelitis
113	Femur	1	L	Adult		50-75%	2	Posterior mid-shaft two oblique cut marks from heavy bladed instrument
113	Femur	1	R	Adult		50-75%	2	
113	Humerus	1	R	Adult		25-50%	2	Posterior distal end missing as chopped obliquely from proximal - distal with heavy blade
113	Fibula	2	L	Adult		75-100%	2	
113	Unid	33					2	
115	Femur	2	L	Adult		25-50%	1	Large cut marks on anterior femoral head
115	Humerus	1	L	Adult		75-100%	2	
115	Humerus	2	L	Adult		<25%	2	
115	Humerus	1	R	Adult		75-100%	1	
115	Tibia	1	L	Adult		75-100%	1	
115	Humerus	1	R	Adult		25-50%	1	
115	Femur	1	L	Adult		<25%	1	
115	Tibia	1	L	Adult		<25%	2	
115	Ulna	2	L	Adult		75-100%	1	
115	Radius	1	L	Adult		75-100%	2	
115	Fibula	2	L	Adult		25-50%	1	
115	Tibia	3	L	Adult		50-75%	2	

C	Element	No	Side	Age	Sex	Compl	Pres	Comments
115	Tibia	1	R	Adult		<25%	1	
115	Fibula	1	L	Adult		75-100%	2	
115	Humerus	2	R	Adult		75-100%	1	
115	Femur	1	R	Adult		<25%	2	
115	Humerus	1	L	Adult		25-50%	1	
115	Radius	1	R	Adult		100%	2	265mm in length
115	Radius	1	L	Adult		100%	2	263mm in length. Has iron staining on the shaft
115	Humerus	1	R	Adult		100%	1	357mm in length. Has a possible chop mark on the anterior fossa
115	Pelvis	1	L	Prime adult	F	75-100%	2	
115	Pelvis	1	R	Adult	F	75-100%	2	
115	Skull - frontal	1	L	Adult	M	50-75%	3	Pinprick porosity on the superciliary arch and supraorbital margin
115	Skull	1		Adult	M	25-50%	3	
115	Mandible	1		Prime adult	M	75-100%	4	Evidence of dental calculus.
115	Vertebrae	4		Adult		75-100%	4	T8, T9, T10 and T11 fused together on the R side. Extensive osteophytic growth. Suffered from DISH
115	Skull	4				<25%	4	
115	Unid	10				<25%	4	
116	Skull - occipital	1		Adult		<25%	4	
116	Femur	2	R	Adult		75-100%	1	Anterior distal shaft has two horizontal cut marks and one oblique chop mark
116	Femur	2	R	Adult		50-75%	1	Posterior shaft has chop mark that has sliced out part of the bone with the blade angled distal - proximal, may have been caused by a shovel
116	Femur	1	L	Adult		75-100%	1	Anterior shaft has five horizontal cut marks and six horizontal chop marks
116	Tibia	2	L	Adult		75-100%	1	Posterior distal shaft has oblique cut mark
116	Femur	1	R	Adult		50-75%	1	Proximal medial shaft has tool marks, possibly from a shovel
116	Femur	1	R	Adult		<25%	4	
116	Tibia	2	L	Adult		75-100%	1	Posterior proximal shaft has oblique cut mark
116	Pelvis	1		Adult		<25%	4	Unable to sex or age
116	Unid	24				<25%	4	
117	Tibia	1	R	Adult		100%	3	397mm in length. Evidence of periostitis on the tibial tuberosity
117	Mandible	1		Adult	F?	75-100%	4	The third molars have erupted and been lost with the bone healing over.
117	Humerus	2	R	Adult		75-100%	4	Has iron residue concretion attached to part of the shaft
117	Humerus	2	L	Adult		75-100%	4	Has iron residue concretions attached to part of the shaft
117	Femur	1	L	Adult		50-75%	2	
117	Femur	1		Adult		<25%	4	
117	Femur	1	R	Adult		75-100%	1	
117	Femur	2	R	Adult		75-100%	1	
117	Femur	2	R	Adult		50-75%	2	Has iron residue concretions attached

C	Element	No	Side	Age	Sex	Compl	Pres	Comments
								to part of the shaft
117	Tibia	1	L	Adult		75-100%	1	
117	Humerus	2	L	Adult		50-75%	1	Has iron residue concretions attached to part of the shaft
117	Ulna	1	L	Adult		75-100%	1	Osteophytic growth on the coronoid process, osteoarthritis
117	Ulna	1	R	Adult		25-50%	4	
117	Ulna	1	L	Adult		50-75%	1	
117	Radius	1	R	Adult		75-100%	1	Has tool/shovel marks on the shaft
117	Radius	1	L	Adult		75-100%	2	
117	Radius	1	L	Adult		75-100%	2	
117	Fibula	1	R	Adult		50-75%	4	
117	Fibula	1	L	Adult		50-75%	2	
117	Femur	1	R	Adult		<25%	1	
117	Pelvis	1	R	Adult		25-50%	3	
117	Pelvis	1	R	Adult	M	75-100%	2	
117	Pelvis	1	L	Adult		<25%	2	
117	Tibia	1	L	Adult		75-100%	1	
117	Femur	1	R	Adult		75-100%	2	
117	Tibia	1	R	Adult		75-100%	1	
117	Femur	1	R	Adult		75-100%	4	New woven bone on the distal lateral epicondyle. Possible infection of the knee
117	Femur	1	L	Young child		75-100%	4	
117	Skull	1		Adult	M	75-100%	4	Pinprick porosity around superciliary arch leading up into the frontal eminence, possibly syphilis
117	Skull - frontal	1	R	Adult	M ?	50-75%	2	
117	Maxilla	2				25-50%	4	
117	Lumbar Vertebra	1		Adult		25-50%	2	
117	Thoracic Vertebra	2				<25%	2	
117	Skull	9				<25%	3	
117	Femur	2		Adult		<25%	2	
117	Loose teeth	5		Adult		75-100%		
117	Rib	8		Adult		<25%	3	One fragment has new woven bone on either side
117	Unid	98					4	
119	Skull	44		Adult	M	50-75%	4	Thickening of metopic suture and pitting of the superciliary arch from infectious disease, possibly syphilis
119	Maxilla	1	L	Adult		50-75%	4	Pre-molar well worn with evidence of dental caries