



7 Nelson Square, Levens

Cumbria

Excavation Assessment Report



Oxford Archaeology North

November 2004

D W Parsons

Issue No: 2004-5/297

OAN Job No: L9262

NGR: SD 4852 8569

Planning Application No: 5/02/1750

Document Title: 7 NELSON SQUARE, LEVENS, CUMBRIA

Document Type: Excavation Assessment Report

Client Name: D W Parsons

Issue Number: 2004-5/297

OA Job Number: L9262

Site Code: LEX02

National Grid Reference: SD 4852 8569

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SUMMARY

Oxford Archaeology North (OA North) was commissioned by DW Parsons to carry out an archaeological evaluation on land at 7 Nelson Square, Levens, Cumbria (SD 4852 8569) in December 2002 prior to a residential development. The work revealed a crouched inhumation of potential prehistoric date. Following discussions with Cumbria County Council Archaeological Service a fuller programme of excavation was agreed to establish the extent and character of the cemetery. The excavation was undertaken in July 2003.

The excavation area measured approximately 140m² and was found to contain four further crouched inhumations, along with several late post-medieval features. The post-medieval features were observed to contain nineteenth to twentieth century material.

No artefactual material was recovered from any of the graves and so dating relied on radiocarbon dating of the bones; this necessitated the unusual procedure of undertaking full analysis of the skeletal material in advance of the full post-excavation analysis of the site. Radiocarbon dating of one of the burials has produced a date in the late Iron Age (172-44 cal BC (2089±24 BP, KIA24385)). Flat inhumation cemeteries dating to the Iron Age are a very rare monument nationally and, until now, unknown in the North West of England. Indeed, our understanding of the Iron Age in general in the North West of England is incomplete; therefore, the Nelson Square site has the potential to add considerably to our understanding of the Iron Age in Cumbria and the North West in general.

This assessment has examined the results of the excavation, and evaluated the potential for future analysis of each category of data with regard to the project's research aims. The process has been designed to correspond to the objectives laid out in the guidance document *Management Of Archaeological Projects* 2nd edition (English Heritage 1991). Having assessed the significance of the data collected and considered the potential of individual datasets to sustain further analysis, several data categories have been recommended for post-excavation analysis, whilst others have already been sufficiently analysed. Revised research objectives are presented to guide further analysis, synthesis, and interpretation of the evidence, with a view to publication of the results as appropriate.

An updated research design has been compiled, and an appropriate programme of analysis outlined. It is recommended that, following analysis, a report be published within the *Transactions of the Cumberland and Westmorland Antiquarian and Archaeological Society*.

ACKNOWLEDGEMENTS

Oxford Archaeology North would like to thank DW Parsons for commissioning the work. Thanks are also due to Jeremy Parsons of the Cumbria County Council Archaeology Service for his help and advice in the course of the project.

The original evaluation was undertaken by Paul Clark, assisted by Cat Hopwood and Martin Sowerby, and the excavation was directed by Paul Gajos assisted by Karl Taylor and Martin Sowerby. Paul Gajos compiled this report. The environmental samples were processed and assessed by Frances Claxton and Elizabeth Huckerby. The drawings were by Kathryn Blythe. The human bone report was by Ceridwen Boston and the artefact report was by Jo Dawson. The report was edited by Jamie Quartermaine and Rachel Newman and the project was managed by Jamie Quartermaine.

1. INTRODUCTION

1.1 CIRCUMSTANCES OF THE PROJECT

- 1.1.1 A planning application was submitted to South Lakeland District Council by D W Parsons (hereafter the 'client') (Planning no 5/02/1750). The application proposed the demolition of buildings and the erection of a new house on land at 7 Nelson Square, Levens, Cumbria (SD 4852 8569) (Figs 1 and 2). The client was advised by Cumbria County Council's Archaeology Service (CCAS) that a programme of archaeological works was required prior to the development taking place.
- 1.1.2 OA North carried out an archaeological evaluation of the site in December 2002, excavating three 10m x 2m trenches. This evaluation revealed a single crouched inhumation believed to be of prehistoric date. Consequently, a full excavation of the footprint of the proposed building was undertaken in July 2003. The results of both the evaluation in the area of the inhumation cemetery and the excavation have been combined and are presented below (*Section 4*). The evaluation also examined the eastern, higher part of the site, which revealed only post-medieval remains (Trenches 1 and 3); the results of all the evaluation trenches are presented in *Appendix 7*.

1.2 LOCATION, GEOLOGY AND TOPOGRAPHY

- 1.2.1 **Location:** the site is situated in the centre of the village of Levens, South Cumbria, approximately 100m south of St Michael's church, and lies on gently sloping ground at around 45m OD. Levens is on the raised ground on the eastern side of the low-lying Lyth valley, which is edged on its western side by the imposing Whitbarrow ridge. The Lyth valley is an area of extensive wetland that was eventually drained in the nineteenth century (Hodgkinson *et al* 2000, 50).
- 1.2.2 **Solid geology:** the solid geology, as mapped by the Institute of Geological Sciences (1982) and described by Taylor *et al* (1971, 46-7 and pls V and XIII), comprises calcareous limestones belonging to the Viséan stage of the Dinantian, otherwise known as the Lower Carboniferous, with a total thickness of around 500m. In the Furness area, on the periphery of which the study area lies, Taylor *et al* (1971, 48-9) state that the upper strata belong to the Gleaston Group, comprising 'shales, thin sandstones, and thin dark cherty or crinoidal limestones ...'. It may be that the upper rock exposures belong to the underlying Urswick Limestone formation of the Asbian stage, since these 'rhythmic, thick-bedded, pale grey limestones with thin shale bands usually developed above potholed or palaeokarst surfaces' (Mitchell 1978, 175).
- 1.2.3 To the north, east, and west of the study area, the Dinantian rocks unconformably overlie banded mudstones and siltstones belonging to the Bannisdale Slates of the Silurian's Ludlow Series (Taylor *et al* 1971, 26-7). Where it is exposed, the top of the pre-Carboniferous surface is red-stained, indicating that it was exposed to arid conditions before being submerged (Mitchell 1978, 168).

- 1.2.4 **Soils:** the soils in the study area comprise very shallow, well-drained loamy soils of the Crwbin Association [map symbol 313c] (Jarvis *et al* 1984, 147-9).
- 1.2.5 **Geomorphology:** the late Quaternary origins of the modern South Cumbrian landscape can only be vaguely discerned, thanks to the paucity of environmental archives. From study of what stratigraphical evidence is available, it seems likely that after the maximum glaciation of the Devensian, perhaps c14,000-16,000 BC, deglaciation of the Morecambe Bay area was sufficiently well advanced by 12,000 BC to deposit clays, gravels, and sands over a wide area (King 1976). This probably formed the raw material for re-sorting by subsequent aeolian processes. Although the fragile soils which developed have long since been removed by overland flow in most areas, modified loess deposits survive to this day on the limestone knolls surrounding the Bay, thanks to the relative permeability of the bedrock-reducing erosive forces (Catt 1977).
- 1.2.6 **Marine Transgressions:** there is evidence that at least six marine transgressions, of varying intensity, affected the coasts around Morecambe Bay during the prehistoric and early Roman periods (Kidson and Tooley 1977, 138-9). The first transgression probably began to make its presence felt c 8980-7943 cal BC (9270±200 BP), and by 7060-6707 cal BC (7995±80 BP) the lowest reaches of the Levens Estuary had been inundated. A second transgression dating to between c 4500 cal BC - c 5000 cal BC has been recorded from Silverdale, Helsington, and Ellerside Mosses, and was probably short-lived (Oldfield 1960; Kidson and Tooley 1977, 138). A third transgression, reaching nearly +5.0m OD in places, seems likely to have affected the Duddon Estuary and Lyth valley in the north of Morecambe Bay, and Arnside Moss to the east, around 4300-3700 cal BC (Smith 1958, Kidson and Tooley 1977, 139, 142).
- 1.2.7 Even in between these transgressions, the Lyth valley was an area of wetland, and was not intensively farmed until the medieval period when the land was subject to agricultural encroachment from the fourteenth century AD onwards (Hodgkinson *et al* 2000, 50). The present Lyth valley landscape was largely formed as a result of the draining of the mosses between 1803 and 1843, and the corresponding enclosure (*op cit*, 53).

1.3 ARCHAEOLOGICAL AND HISTORICAL BACKGROUND

- 1.3.1 This historical background is compiled mostly from secondary sources, and is intended only as a brief summary of historical developments around the study area.
- 1.3.2 **Late Palaeolithic Period:** the first evidence of human activity in the county comes from the limestone coasts of southern Cumbria. Kirkhead Cave near Grange appears to have been occupied during the Upper Palaeolithic period and has produced artefacts defined typologically to this period, while three Palaeolithic-type blades have been claimed from Lindale Low Cave to the north-east of Kirkhead, near the mouth of the River Kent (Hodgkinson *et al* 2000). Radiocarbon dating of Elk antlers, considered by Gale and Hunt (1985) to be associated with the artefacts in Kirkhead Cave, produced a date of 11027-10077 cal BC (10650±200 BP). However, the association of the antlers with the

artefacts may be suspect due to sediment disturbance by previous attempts at excavation. Despite this, the Kirkhead and other South Cumbrian material would appear to represent scattered fragmentary evidence of early hunters exploiting the megafauna of the tundra on the edge of the retreating ice.

- 1.3.3 **Mesolithic Period:** the opening of the Flandrian period was marked by the rapid amelioration of the climate and the establishment of a shrubby mixed woodland on the newly formed soils. Birch led the invasion, followed by other trees, such as oak, elm, and alder, but it was hazel which was to become a dominant member of the flora after 9000-8000 cal BC (Hodgkinson *et al* 2000).
- 1.3.4 Work on the South Cumbrian Mires by Birks (1982) examined a short period *c* 4000-6000 cal BC and discovered that there was no evidence of local forest disturbance until the uppermost sediments, in which the Elm Decline was clearly discernible. The inference from this limited research is that, during the Neolithic period around the coastal fringes of the Furness peninsula (Smith 1958; 1959; Birks 1982), minor clearance was being undertaken by a small population which does not appear to have been engaged in cultivation of crops. This is suggested by the presence of open ground indicators such as *Plantago lanceolata* immediately prior to, and continuing after, the Elm Decline (dated regionally to *c* 3990-3640 cal BC, Hibbert *et al* 1971).
- 1.3.5 There is a certain amount of evidence that the caves around Morecambe Bay witnessed continued occupation during the Mesolithic period, such as the Whitbarrow Bone Cave (SD 450 860) which revealed faunal remains; there is some uncertainty, however, as to the date of this material.
- 1.3.6 **Early Neolithic Period:** whilst it has proved possible to characterise Mesolithic settlement across the landscape in a rather crude manner, the transition to the Neolithic period and the adoption of farming has proved elusive in South Cumbria. The lack of clear differences between assemblages of late Mesolithic and Neolithic date has meant that there is a period in the late fifth and early fourth millennia for which sites are difficult to identify, particularly in the absence of well-dated ceramic and lithic assemblages and monuments. For instance, a timber trackway, from Meathop Moss, could potentially be of early Neolithic date (Hodgkinson *et al* 2000).
- 1.3.7 **Late Neolithic and Bronze Age:** following *c* 3000 cal BC, information on human interaction with the Morecambe Bay landscape becomes more detailed, due to extensive studies undertaken at the Foulshaw and Helsington mire complexes by Guy Wimble (1986) and Wimble *et al* (2000). A small peak of cultural indicators (eg *Plantago* sp, Gramineae), and falls in the values of elm, ash, and lime, probably represent a small clearance episode during the late Neolithic period, *c*2570-2140 cal BC (3870±70 BP) (Hodgkinson *et al* 2000). Recovery of mixed oak forest followed this, with high values of hazel, and it seems probable that the clearance was concentrated on the nearby calcareous limestone soils. The limited palynological record probably reflects a genuinely low level of human activity in the hinterland of Morecambe Bay at this time, as other studies from around its fringes also record a similar story (eg Smith 1958; Oldfield and Statham 1963; Wells *et al* 1997; Hodgkinson *et al* 2000).
- 1.3.8 The first significant clearance evidence in the north Morecambe Bay area dates to after 2300-1890 cal BC (3690±70 BP) when steep falls in elm, ash, and lime

pollen occur (Wimble 1986; Wimble *et al* 2000). Pollen and spores of ‘cultural indicators’ (eg plantains, bracken, and nettles) then reach over 10% of the pollen sum for the first time. Three small-scale clearances followed at Foulshaw and Helsington. A birch-led regeneration followed each clearance and, once more, the mix of trees affected is suggestive of the attacks being concentrated on the surrounding limestone woodlands (Wimble 1986; Wimble *et al* 2000). The activity, which ended 1592-1260 cal BC (3140±70 BP), bears all the hallmarks of *landnam*-type clearances (*sensu* Iversen 1949), being of short duration with rapid recolonisation by trees after abandonment. They may be interpreted as representing either a few fairly large clearings, or many widely scattered smaller clearings, some of which occurred close to both Foulshaw and Helsington. There is a real paucity of cereal pollen or other arable indicators associated with these clearances, suggesting a lack of cultivation near the wetlands (Wimble 1986; Wimble *et al* 2000).

- 1.3.9 Between 1592-1260 cal BC (3140±70 BP) and 1158-820 cal BC (2805±65 BP) the Lyth Valley area seems to have suffered an episode of clearance and open conditions greater than any hitherto recorded. Non-arboreal pollen attained 30%, with elm and ash taking the brunt of the reductions, although alder was also greatly reduced. Cereal cultivation also appears to have been taking place for the first time, although conclusive evidence relates only to Foulshaw Moss (Hodgkinson *et al* 2000, 43).
- 1.3.10 The first significant clearance episodes in South Cumbria coincided with a marked increase in the frequency and variety of archaeological material from the north Morecambe Bay area. There are two known concentrations of Beaker burials within the eastern Morecambe Bay area, at Sizergh and at Levens Park (Turnbull and Walsh 1996), both of which have received antiquarian attention. Two of the Sizergh group were excavated at the beginning of the twentieth century, when five inhumations were revealed in what appears to have been a cist; fragments of an All Over Corded Beaker were recovered from a site to the immediate east (McKenny Hughes 1904a; 1904b; Fell 1953, 1-5).
- 1.3.11 The cairn excavated at Levens Park (Turnbull and Walsh 1996), although the work was carried out under modern conditions, had also been subjected to earlier investigations, which has had a consequent effect upon the interpretation of the site, although the excavation revealed a ring cairn with a primary burial associated with Beaker pottery and a pair of flint knives of possible Yorkshire origin (*ibid*). The site clearly had a continued funerary function with possibly two phases of subsequent inhumation after the primary burial. A polished axe of the Cumbrian type and four patinated flints, including a small scraper and two flakes with re-touch, were found near to the Levens Park ring cairn (SMR 2504; Cherry and Cherry 1987). One of the more pertinent sites for the present study was a Bronze Age cremation cemetery, which has recently been discovered in Allithwaite to the west of Levens (Wild 2003).
- 1.3.12 The most impressive archaeological structure recorded from the locality of the study area must be the brushwood corduroy trackway from Foulshaw Moss to the south-east of Whitbarrow, which is dated to the Bronze Age (Hodgkinson *et al* 2000).
- 1.3.13 **Iron Age:** the very end of the Bronze Age saw a return to a more densely forested landscape around the South Cumbrian mosslands as the clearances

were recolonised by secondary woodland (Hodgkinson *et al* 2000). This is in part reflected in the archaeological record where a steep drop in the recorded material from the late Bronze Age occurs in this area. The nature of the evidence also demonstrates a marked change from that which preceded it: from the relative abundance of archaeological material which typified the middle Bronze Age, with axes and other weapons represented, as well as ceramic material and extensive evidence for the settlement of formerly marginal land. The period is characterised by the introduction of defended sites, and hillforts; in particular there are several defended enclosed settlements which, perhaps significantly, appear to overlook the low-lying wetlands. These include Castlehead hillfort near Meathop (SD 2742 7517), which has produced a large number of artefacts. The evidence for the Iron Age in the vicinity of Levens relies on a few articles of metalwork and a number of large, yet poorly understood, settlement sites (*ibid*).

- 1.3.14 There have been no previously discovered human remains that have been dated to the Iron Age from the area; however, bog bodies have occasionally been recovered from Cumbrian mosses, such as one from Seascale Moss, in West Cumbria, which is believed to date to the Iron Age (Turner 1989) but the date of the remains has not been proved absolutely (Hodgkinson *et al* 2000, 78).
- 1.3.15 **Roman Period:** as in much of the North West, the pattern of rural settlement changed little with the Roman invasion, the greatest change being the appearance of Roman military sites, such as the forts at Watercrock (Kendal), Lancaster, and Ambleside (Shotter 1997). There are also records of scattered Romano-British finds from across the area, including ‘*a considerable number of Roman antiquities...found in various parts of the parish [Cartmel] (largely a coin hoard of 524 pieces), but no marks of forts, camps, roads, dikes, or other permanent works*’ (Baines 1836, 628). These coins and those also found at Grange-Over-Sands, the latest minted in AD 250, suggest some contact between the Roman military with local tribes, perhaps by trading. Other finds include a tombstone from Lindale and some finds from Kirkhead cave and Dog Holes, Warton, including an enamelled pin, an iron axe, a trefoil-shaped fibula, and a coin of Domitian (AD 81-96) (King 1974, 196) . A site within Levens Park (Turnbull and Walsh 1996, 15), known as ‘The Temple of Diana’, has yielded first century material with superimposed post-Roman structures. Burial cairns on Sizergh Fell and bracelets and other finds in a cave at Haverbrack provide evidence of a native population, continuing the Iron Age way of life, in the area during the Romano-British period (Satchel 1983, 31).
- 1.3.16 **Early Medieval Period:** as is the case throughout Cumbria, evidence for early medieval activity is extremely limited. Once the administration of Rome was finally rescinded *c* AD 410, the ‘native’ Britons reverted to autonomous rule, with the Kendal area perhaps becoming part of the British Kingdom of Rheged (Kirby 1962). From the early seventh century onwards the expanding kingdom of Northumbria began to influence the area, and a fragment of an Anglian cross, discovered in Trinity Church, Kendal, is one of the few tangible pieces of evidence relating to this period (Collingwood 1904). Kenyon (1991, 72 fig 3.2) credits nearby Cartmel as a British lordship, from the reference to King Ecgfrith of Northumbria endowing St Cuthbert with Cartmel ‘and all the Britons within it’ in AD 677, related in the twelfth-century history of Cuthbert by Simeon of Durham (Farrer and Brownbill 1914, 2, 4).

- 1.3.17 During and after this time, land use within the assessment and wider area seems to have been largely pastoral; Bryant's Gill, Kentmere, dating to the eighth century and consisting of a rectangular, stone-footed structures, is perhaps typical of contemporaneous farmsteads encountered in the uplands of the region (Dickinson 1985). Population movements from Scandinavia eventually led to the settlement of people of Hiberno-Norse extraction in Cumbria by the tenth century (Higham 1986, 330). The placename evidence (Smith 1967) indicates the influence of these people in the landscape throughout Cumbria, both settling new areas and also integrating into the local population (Fellows-Jensen 1985, 80). Norse cultural evidence, however, is rare from the immediate environs of the study area, although a pattern welded sword found near Whitbarrow in 1898 is one of only a few finds (Edwards 1998). Four skeletons were also discovered near Levens in 1911, which have been attributed, on somewhat doubtful evidence, to the early medieval period (McKenny-Hughes 1912, 403).
- 1.3.18 **Later Medieval and Post-medieval Periods:** the manor of Levens is one of the few in Cumbria to appear in the Domesday Book, where it is called 'Lefuenes', and listed as a subsidiary to Beetham, being in the possession of Roger de Poitou, and held by Earnwine the Priest (Faull and Stinson 1986, 30 w40). Little is known of the manor subsequent to this, until the construction of the present Levens Hall in the Elizabethan period, and a building which has been substantially modified over the centuries. The history of the village of Levens is even less certain; it lies within the manor of Levens and was originally known as Beathwaite Green. This name is probably of Danish origin meaning Bega's clearing, but was changed to Levens at some point in the early twentieth century, after 1912 (McKenny-Hughes 1912, 405). Little of the architecture of the village is of great antiquity and it is possible that its foundation relates to shrinkage in the boundaries of Levens Park.
- 1.3.19 In the Lyth valley area, settlement was, as previously, concentrated around the margins of the wetland areas. These lowland areas provided a source of peat, which was the principal domestic fuel (Hodgkinson *et al* 2000, 50). By the eighteenth century, peat was not only used for domestic needs, but also industrial purposes, such as fuel for lime kilns and, in conjunction with charcoal, for the firing of an iron furnace at nearby Leighton Beck in the 1730s (*op cit*, 51).
- 1.3.20 Between 1803 and 1843 a series of acts were passed which effectively established the modern landscape of the Lyth Valley through the implementation of a system of drainage which would both drain the mosses and act as a drain for the surrounding hard land. This drainage work included the raising of the river banks and the insertion of two sluices at the east and west of the River Gilpin, which emptied the waters into the River Kent (*op cit*, 53). This had the effect of creating a large area suitable for cultivation and the farms of Gilpin Bank and Lords Plain Farm were created by Levens Hall in 1808 (*ibid*).
- 1.3.21 The Cumbria Sites and Monuments Record holds 12 entries for the village of Levens, mostly of post-medieval date. Six of the Sites and Monuments Records are for quarries (SMR 12902-3, 12905, and 12924-6) of which five are datable to the nineteenth century. Other sites of interest include a field system associated with ridge-and-furrow ploughing, which may be indicative of a

medieval date (SMR 14906). A brick bake oven has also been identified at Greengate Farmhouse (SMR 6851) that probably dates to the eighteenth century.

2. METHODOLOGY

2.1 PROJECT DESIGN

2.1.1 The fieldwork was conducted in two phases, firstly an evaluation, which discovered the first inhumation (December 2002), and then an open area excavation which recorded the wider site centred on evaluation Trench 2 (July 2003). The excavation was undertaken in accordance with a project design produced by OA North (*Appendix 2*), which was based upon a brief issued by Cumbria County Council Archaeological Service (*Appendix 1*). The project design was adhered to in full, and the work was consistent with the relevant standards and procedures of the Institute of Field Archaeologists, generally accepted as best practice.

2.2 EVALUATION

2.2.1 The evaluation entailed the excavation of initially two trenches within the extent of the proposed development and then a third was excavated within the footprint of 7 Nelson Square, following the demolition of the building (Plate 1). The programme of field observation recorded accurately the location, extent, and character of any surviving archaeological features in a stratigraphic manner. This work comprised observation during the groundwork, the examination of any horizons exposed, and the accurate recording of all archaeological features, horizons and any artefacts found during the excavations. Following the discovery of human remains a burial licence was obtained from the Home Office before these were removed, which covered all subsequent bodies.

2.2.2 The recording comprised a full description and preliminary classification of features or structures revealed, on OA North *pro-forma* sheets, and their accurate location in plan. In addition, a photographic record in colour slide and monochrome formats was compiled.

2.3 EXCAVATION

2.3.1 The open area excavation encompassed the lower, western part of the development site, where Trench 2 of the evaluation had identified a crouched inhumation. The excavation area, approximately 140m² in extent, was stripped by mechanical excavator using a toothless ditching bucket under constant archaeological supervision. The entire site was extensively cleaned by hand and the archaeological features were manually excavated.

2.3.2 All features and deposits identified were excavated and recorded stratigraphically. Recording was by means of OA North's standard context recording system, based on that used by the Centre for Archaeology of English Heritage, using context record, photographic record and object record *pro-forma* sheets and supporting registers and indices. A photographic record in colour transparency (slides), colour print and monochrome formats was compiled. All features were planned by hand at a scale of 1:20 and burials were planned at 1:10; sections of individual features were drawn separately at a scale

of 1:10. The extents of excavation and features were surveyed digitally and a site plan was produced using CAD (release 14) .

2.4 FINDS AND ENVIRONMENTAL SAMPLES

- 2.4.1 All finds were retrieved, bagged and labelled by context number. These were recorded and analysed by OA North's in-house finds specialist and have been processed and temporarily stored according to standard practise (following current Institute of Field Archaeologist guidelines).
- 2.4.2 Four environmental samples, from grave fills **2**, **11**, **14**, and **17**, were taken for the retrieval of charred plant remains and small finds. The samples ranged in volume from 6 litres to 30 litres.
- 2.4.3 The samples were hand floated, the flots were collected on 250 μ mesh and air-dried. The flots were scanned with a Meiji EMT stereo dissecting microscope and plant material was recorded and provisionally identified. The data are shown on Table 3 (*Section 5*). Botanical nomenclature used is consistent with Stace (1991). Plant remains were recorded on a scale of abundance, where 1 indicates material is rare but present (1-5 items), 2 indicates material is frequent (5-25), 3 indicates material is common (25-100) and 4 indicates that material is abundant (more than 100 items).

2.5 ARCHIVE

- 2.5.1 A full professional archive has been compiled in accordance with the project design (*Appendix 2*) and with current IFA and English Heritage guidelines (English Heritage 1991). The paper archive will be deposited in the Cumbria Record Office in Kendal with a copy a copy of the report to the Cumbria SMR. The material archive will be deposited with Kendal Museum.

2.6 THE POST-EXCAVATION ASSESSMENT

- 2.6.1 The aim of this evaluation and report is to evaluate all classes of data generated by the OA North excavation, while incorporating the results of the 2002 evaluation, thus enabling an updated project design to be produced, which details a programme of relevant analysis and publication. The assessment process has been designed to correspond to the objectives laid out in the guidance document, *Management of Archaeological Projects, 2nd edition* (MAP 2, English Heritage 1991).

3. ORIGINAL RESEARCH AIMS

3.1 ACADEMIC AIMS

3.1.1 Following the evaluation which revealed archaeological remains of considerable significance, the excavation was designed to investigate the site of a crouched inhumation on the site of a proposed residential development, and there existed the potential that this was part of a much larger cemetery. At the time, the chronology was uncertain but it was recognised that it had the potential to be of later prehistoric date because of the crouched form of the burial. The 2003 excavation was designed to clarify and enlarge on the results of the 2002 evaluation. The original academic aims prior to the 2003 excavation were:

- firstly, given the commercial nature of the project, the main aim was to excavate the totality of the known site within the area affected by development and to characterise the surviving archaeological remains present;
- secondly, it was to uncover and excavate as much as possible of the possible cemetery and to establish its extent and character, and to record and exhume in controlled conditions any burials;
- the third aim of the excavation was to recover dating evidence and samples for radiocarbon assay to establish the chronology and duration of burial in the cemetery;
- Fourthly, it aimed to contribute to an understanding of burial practice in the region and, also if possible, establish the health of this ancient population.

3.2 OBJECTIVES

3.2.1 Four objectives were specified for the excavation:

- to excavate as much of the development area as possible given the constraints of health and safety;
- to record the character, extent, and form of any further burials and to obtain material for the dating of the remains;
- to relate the findings to comparable dated cemeteries, within the North West Region or further afield in Britain;
- in addition, to attempt to identify and characterise, if possible, any evidence of prehistoric, and indeed, later activity on the site.

4. EXCAVATION RESULTS

4.1 INTRODUCTION

- 4.1.1 Summary results of the excavation are presented below. The context list for the excavation and evaluation is reproduced in *Appendix 3*, with Figures 2 and 3 showing the position of the excavation and the archaeological features. Where relevant to the excavation, evaluation results have been incorporated into the following text.
- 4.1.2 An area of approximately 140m² was stripped of topsoil, which was found either to lie directly on top of natural deposits or to seal archaeological features. The topsoil, a loamy garden soil, reached a maximum depth of 0.5m in the south-east corner of the site; however, over the majority of the site topsoil only reached a depth of 0.1m. The natural geology consisted of limestone bedrock with occasional patches of orange-brown-sandy clay.

4.2 THE FEATURES

- 4.2.1 In total 11 features were identified, all cutting into bedrock. Of these, six were pits containing modern material. One of these pits, *I*, was excavated and measured 1.3m by 1.1m by 0.25m deep. Beyond an initial exploration to confirm that all these pits were of post-medieval date, the remaining pits were not excavated as it was considered highly unlikely that any earlier features or deposits would have survived beneath them. The remaining four features were, however, graves similar to grave 5 found in the evaluation.
- 4.2.2 **Grave 5:** Grave 5 (Fig 4; Plate 2) measured 1.35 x 0.85m, with the long axis aligned north-east/south-west, and was highly irregular in shape. It was cut into the limestone bedrock, with elements of the bedrock detached along natural cleave planes. A skeleton, *4*, was found within this grave in a crouched position, with *in situ* skull, pelvis and leg bones remaining; the skull was on the north-eastern side of the grave. The arm bones were removed on initial discovery and served to identify this as a human burial. Both ribs and vertebrae were almost entirely absent but root action was heaviest in the area where they should have been found, and had clearly caused considerable disturbance.
- 4.2.3 **Grave 6:** Grave 6 (Plate 3) measured 1.35m x 0.76m and reached a maximum depth of 0.15m. The grave was aligned roughly north / south and was trapezoidal in plan with a small extension to the north giving it an irregular 'hourglass' shape. It was cut into the limestone bedrock, with elements of the bedrock detached along natural cleave planes. An inhumation, *7*, had been placed in the grave in a semi-crouched position, lying on its left side with the head in the small extension to the north. The bone was very poorly preserved, with only c25% of the skeleton surviving. The grave had been backfilled with orange-brown silty clay containing limestone, forming slabs up to 0.2m in length. The quantity of limestone in the backfill, however, was substantially less than would have been removed from the cutting of the grave, and would indicate either that blocks from the excavation had been removed from the site, or that the grave cut had exploited an existing depression.

- 4.2.4 **Grave 9:** Grave 9 (Plate 4) was located c1.5m to the north of Grave 6. This grave, aligned north / south, measured 0.85m x 0.55m with a depth of 0.12m, and was very irregular in plan with stepped sides and an irregular base. Again it was cut into the bedrock utilising natural cleave planes. The skeleton, **10**, was very poorly preserved with only one tooth and some unidentifiable fragments of bone remaining. The grave had been backfilled with orange-brown silty clay and limestone slabs. Again, the quantity of limestone in the backfill was less than the volume generated by the grave cut.
- 4.2.5 Grave **12** (Plate 5) was located at the south-west extremity of the site and was very heavily truncated, having previously been under the boundary wall of the property. The grave measured 1.06m x 1.77m, was aligned north-east to south-west, and was a maximum of 0.05m deep. The cut was roughly trapezoidal in plan with an irregular base. The skeleton, **13**, was very badly degraded and only a few patches of unidentifiable bone were recovered from the central part of the grave, so the orientation of the body could not be established. As with the other graves, this had been backfilled with orange-brown silty clay and some limestone blocks.
- 4.2.6 Grave **15** (Plate 6) was located at the northern extremity of the site and was very irregular in plan. It measured 1.1m x 1.15m with a maximum depth of 0.15m and was cut into the limestone bedrock utilising natural cleavage planes. The skeleton, **16**, was fairly poorly preserved with only c20-25% surviving. The state of bone preservation made identifying the attitude of the burial problematic, as it appeared to be in a somewhat unnatural position with the legs up behind the head. It is possible that the body had been disarticulated, possibly excarnated, prior to internment. The head was situated in the northern part of the grave, but a mandible (**16a**) with much more worn teeth than those found in the north was situated in the southern part of the grave. It is therefore probable that more than one individual was present within the cut; however, such a conclusion must be tentative given the very poor survival of the bones.
- 4.2.7 **Dating:** no finds were recovered from any of the graves, which could be used as dating evidence. The results of the limited programme of radiocarbon dating were therefore crucial to the establishment of a date for the burials. A date was obtained from skeletal material from Grave 5 excavated in the evaluation. This placed the burial firmly within the Late Iron Age, at 172-44 cal BC (2089±24 BP; KIA-24385).

5. ASSESSMENT OF THE RESULTS

5.1 INTRODUCTION

5.1.1 The aim of this assessment was to evaluate all classes of data from the evaluation and excavation undertaken at 7 Nelson Square, Levens, Cumbria, in order to formulate a project design for a programme of further analysis, appropriate to the potential of the site. A statement of the significance of the results from each element of the archive is given below. These statements are based on the assessment work undertaken, related to the original academic themes expressed in the project design (OA North 2002).

5.1.2 The objectives of this assessment correspond to, and are prescribed by, *Appendix 4 of MAP2* (English Heritage 1991). They are to:

- assess the quantity, provenance and condition of all classes of material: stratigraphical, artefactual and environmental;
- comment on the range and variety of that material;
- assess the potential of the material to address questions raised in the course of this project design, or by the evaluation of the site;
- formulate any further questions arising from the assessment of this material.

5.1.3 This assessment will present:

- a factual summary, characterising the quantity and perceived quality of the data contained within the site archive;
- a statement of the academic potential of these data;
- recommendations on the storage and curation of these data.

5.2 MATERIAL ASSESSED

5.2.1 The entire paper and material archive was examined for the purposes of this assessment. Quantifications are incorporated within the individual assessments.

5.3 PROCEDURES FOR ASSESSMENT

5.3.1 The method of assessment used varied with the class of information examined. All classes of finds were examined in full, with observations supplemented by the finds records generated during the course of the excavation. Full details of all the recovered finds reside with the project archive.

5.4 STRUCTURAL AND STRATIGRAPHIC DATA

5.4.1 *Quantification:* the site archive from the OA North evaluations and excavation in 2002-2003 comprises the following:

5.4.2 Evaluation phase:	
context / photograph / plan / section indices	7
context records	7
digital CAD plan, with all features shown on separate drawing layers	1
plans on drawing film	5
sections on drawing film	1
colour transparency photographs	35
monochrome photographs	35
5.4.3 Excavation phase:	
context / photograph / plan / section indices	4
context records	14
digital CAD plan, with all features shown on separate drawing layers	1
plans on drawing film	4
colour transparencies	26
monochrome photographs	26
5.4.4 The seven context records from the evaluation phase relate to the following categories:	
Topsoil/natural	2
Grave	3
Post-medieval pit	2
5.4.5 The 14 context records from the excavation phase relate to the following categories:	
Topsoil/natural	2
Grave	12
5.4.6 Evaluation: excavation has allowed a complete stratigraphic record to be made of the site, from the Late Iron Age to the post-medieval period.	
5.4.7 Broad phasing has been ascribed to all features. This has allowed the provisional identification of two broad periods of archaeological activity. Five of the archaeological features pertain to a flat inhumation cemetery dated by radiocarbon assay to the Late Iron Age. The remaining six features are pits dated to the nineteenth to twentieth century by pottery sherds recovered from the fills.	
5.5 HUMAN BONE	
5.5.1 Introduction: the skeletal remains of six individuals were discovered during an archaeological evaluation and excavation preceding redevelopment work in Nelson Square, Levens, Cumbria.	

- 5.5.2 **Bone preservation and completeness:** the skeletal assemblage was composed of six poorly preserved and fragmentary skeletons. Completeness of the skeletons varied from 25-40% in skeleton **4** to only fragments of mandible and a few teeth representing skeletons **10** and **16a**. Poor cortical bone preservation, due to the leaching of inorganic components from the bone, root damage and truncation, made diagnosis of most pathological conditions impossible.
- 5.5.3 **Methodology:** osteologically, adults are usually aged using a combination of methods, including ageing from the pubic symphysis (Suchey and Brooks 1990; Todd 1920), auricular surface (Lovejoy *et al* 1985), dental attrition (Miles 1962), and ectocranial suture closure (Meindl and Lovejoy 1985). Due to the poor survival of the bone in this assemblage, only the latter two methods could be utilised. Skeleton **16**, the only sub-adult, was aged by dental development (Moorees *et al* 1963). This is regarded as the most precise and most accurate method for ageing sub-adults below the age of 12 years (Mays 1998, 44). Poor preservation of metaphyses and epiphyses of long bones precluded the use of additional ageing methods, such as epiphyseal fusion (Bass 1987, 15-19; Schwarz 1995) and diaphyseal long bone length (Maresh in Hoppa 1992) on this child.
- 5.5.4 Sexing of adults was determined solely from the skull morphology (Buikstra and Ubelaker 1994), analysis of pelvic morphology and metric measurements (Workshop of European Anthropologists 1980) not being possible due to the fragmentation and incompleteness of the skeletons. No attempt was made to sex the sub-adult, in accordance with accepted practice.
- 5.5.5 Stature estimation could not be made for any individuals in this assemblage due to the incompleteness of all long bones.
- 5.5.6 **Assemblage composition:** the assemblage comprised six individuals: skeleton **16** was a sub-adult (aged 7.5-8.5 years), skeleton **7** was a young adult (16-25 years), skeletons **4**, **13**, and **16a** were prime adults (28-44 years). Skeleton **10** was represented only by a fragment of maxilla and a right upper first premolar. A minimum age of 10 years could be assigned on the basis of dental development (Moorees *et al* 1963), but it is very possible that the individual was considerably older than this minimum age. Four skeletons (skeletons **4**, **7**, **10** and **16a**) were aged solely from the severity of dental attrition present, using the standards developed by Miles (1962). Since the rate of tooth wear is dependent on the coarseness of the diet consumed by individuals, and also the amount of non-food inclusions, such as sand and grit, that become incorporated in food during crop and food processing, this method has its limitations.
- 5.5.7 Poor preservation of cranial and pelvic elements precluded all but one individual (skeleton **4**) from being sexed. The use of metric indicators of sex was severely limited by the erosion of the bone in this assemblage. Skeleton **4** could be sexed as a probable male, on the basis of cranial and mandibular elements alone. This has been found to have an accuracy of 92% (Mays 1998, 38).
- 5.5.8 **Skeletal pathology:** the preservation of cortical bone was too poor to enable recognition of the most common types of pathology, such as infection, metabolic, neoplastic or degenerative bony changes. No evidence of trauma was identified in this assemblage.

- 5.5.9 **Bone infarction:** the femoral shaft of the approximately eight-year-old child (skeleton **16**) displayed evidence for bony infarction (the decay of bone tissue as result of the loss of blood supply). The 30mm x 15mm lesion was confined within the marrow cavity of the distal third of the right femoral shaft. The condyles and most of the distal part of the femoral shaft had broken off post-mortem at the level of the lesion. The lesion also shows evidence for breakage distally, and hence its true extent distally is not known. Macroscopically, the lesion manifested as a discrete growth of fairly dense bone adhering to the marrow cavity wall. The irregular, smooth, billowing surface was perforated by numerous small foramina. In cross-section, the lesion had a small hollow lumen, whose smooth billowing surface resembled the outer surface of the lesion. Much of the adjacent trabecular bone had been lost, but adjacent cortical bone appeared unaffected, showing no evidence of osteoclastic or osteoblastic activity.
- 5.5.10 The macroscopic presentation of the lesion suggests a bony infarction of the fatty bone marrow and intervening trabecular bone of the femoral shaft (Ortner and Putschar 1981, 235). A localised interruption of the arterial blood supply to this tissue results in an area of tissue death. The affected tissue undergoes calcification, particularly at the interface of the living and dead tissue due to the conversion of the liberated fat into calcified soaps (*ibid*). This may explain the hollow nature of the lesion on skeleton **16**. Anterio-posterior and lateral radiographs taken of the element confirm the diagnosis.
- 5.5.11 The underlying cause of such infarctions is poorly understood, but known causes for circulatory impairment of bony tissue is blood sludging related to haemoglobinopathies (such as chronic inherited anaemia), arteritis in systemic lupus erythrematosis, and nitrogen gas embolism in decompression disease following deep sea diving (Ortner and Putschar 1981, 235). Although a definitive diagnosis cannot be made on the basis of the presence of the ossified infarcted tissue in skeleton **16**, it may suggest that the child had suffered from one of the former two conditions. Chronic anaemia in childhood frequently manifests in bone as porotic hyperostosis of the cranial vault and eye orbits (Roberts and Manchester 1995, 169; Stuart-Macadam and Kent 1992, 10), and may have suggested that a haemoglobinopathy underlay the bony infarction observed on the right femur. Unfortunately all but a few tiny fragments of skull of this skeleton were missing, so that this avenue of enquiry could not be pursued. The alternative possible aetiology is systemic lupus erythrematosis. This autoimmune disease affects many organs in the body including the skin, kidneys, heart, lungs and joints, and is characterised by episodes of unexplained fever, joint pain and skin rashes (Chandrasoma and Taylor 1995, 227-8). However, this disease is very unlikely in this sub-adult, as its average age of onset is between 20 and 40 years (*ibid*). There are no joints sufficiently well preserved in skeleton **16** to support this hypothesis.
- 5.5.12 **Dental disease:** more evidence of dental pathology could be found in this assemblage due to the more favourable preservation of teeth over bone. All six skeletons had teeth present, although the number of teeth per individual varied from one (skeleton **10**) to 24 (skeleton **16**). The incompleteness and often the complete absence of maxillae and mandibles make accurate quantification of the prevalence of abscesses, ante-mortem tooth loss and periodontal disease very problematic. Nevertheless, with the bone and dentition available, the prevalence

of ante-mortem tooth loss (AMTL), caries, calculus, dental enamel hypoplasia and periodontal disease were calculated and are displayed below (Table 1). No dental abscesses were observed.

Dental Pathology (n=6)						
Skeleton	Age (y)	AMTL (per tooth)	Caries (per tooth)	Calculus (<i>per tooth</i>)	Enamel Hypoplasia (<i>per tooth</i>)	Periodontal Disease (<i>per individual</i>)
4	34-44	0	1/13	9/13	4/8	Vertical (severe)
7	16-28	0	1/14	0/14	6/14	-
10	unknown	0	0/1	0/1	1/1	-
13	35-40	0	0/4	0/4	1/4	-
16	7.5-8.5	0	0/18	0/6	15/16	-
16a	28-38	0	2/5	3/4	0/3	Vertical (severe)
Mean	27.9	0	7.27% (4/55)	28.57% (12/42)	28.2% (13/46)	40% (2/5)

Table 1: Prevalence of dental pathology in the Nelson Square assemblage (n= 6)

5.5.13 Dental pathology, such as periodontal disease, caries and AMTL, frequently relates to the consumption of carbohydrates and to poor oral hygiene practices (Roberts and Manchester 1995, 56). Food residues left on the teeth following consumption of carbohydrates rapidly become colonised by bacteria, and are broken down to form a corrosive plaque. It is this plaque that is responsible for the development of carious lesions on the teeth. Plaque may also mineralise, forming a hard unmovable coating of calculus on the tooth surface. Periodontal disease is the inflammation of the soft tissues of the mouth, namely the gums. Retraction of the gums exposes the vulnerable root of the tooth to attack by acidic plaques, commonly resulting in caries, abscesses and ante-mortem tooth loss. Periodontal disease may be localised to two or three teeth (as were both cases cited in Table 1 above), or may be more diffused. Prevalence of caries, calculus and periodontal disease in the Nelson Square, Levens, population were compared with those compiled for prehistoric farming populations of Britain (Roberts and Cox 2003, 82-4). The prevalence of caries per tooth (7.27%) was much higher in the Nelson Square, Levens, population than the average rate of 3.7% cited for prehistoric farmers by Roberts and Cox (*ibid*). Calculus rates per individual were also considerably higher (33% opposed to 21.1%), although the severity of the calculus build-up in the Nelson Square, Levens, assemblage varied greatly on different teeth. Calculus was really only severe on those teeth where vertical periodontal disease was present (skeleton **16a**). In this individual, the calculus extended half way down the tooth roots in large plaques on the mesial, distal and buccal surfaces. On other teeth, only flecks or slight deposits were present.

- 5.5.14 Dental enamel hypoplasia (DEH) was another dental pathology noted in the Nelson Square, Levens, population. DEH is the thinning of dental enamel that is observable on the crown of the tooth as pits or horizontal lines. DEH results when an individual has experienced a prolonged period of disease or malnutrition during the years of early childhood when the enamel of the teeth is forming (Roberts and Manchester 1995, 58). Prevalence per tooth in the Levens population was 28.2%, compared to an average of 5.7% in prehistoric farming populations in Britain (Roberts and Cox 2003, 85). In the Nelson Square, Levens, population, the number of lines per tooth varied between one and three, indicating at least three prolonged episodes of stress in childhood in affected individuals.
- 5.5.15 However, prevalences cited above should be treated with caution, given the small sample number in the assemblage, and the poor preservation of maxillae and mandibles.
- 5.5.16 Teeth and fragments of bone greater than 10mm were retrieved from the residues of the environmental samples, but have yet to be subject to detailed osteological analysis. These are presented in Table 2.

Sample number	Context	Number of teeth fragments	Number of fragments of bone >10mm	Weight (g) of bone fragments >10mm
1	3	7	42	53
11	11	13	2	2
12	14	20	22	8
13	17	25	79	52

Table 2 Nelson Square, Levens: fragments of bone (>10mm) and teeth retrieved from the residues of the environmental samples

5.6 RADIOCARBON DATING

- 5.6.1 With the absence of datable finds from the graves excavated on the site, radiocarbon dating was utilised to provide a date for the burials. A single radiocarbon date was obtained for this assessment from one of the long bones of skeleton **4**. The initial radiocarbon assay has produced a date in the first to second century BC (*Appendix 5*).
- 5.6.2 Whilst this radiocarbon assay has provided a date for inhumation **4**, and by inference the cemetery as a whole, dates from each of the burials could provide valuable evidence as to the longevity of the use of the cemetery.

5.7 ENVIRONMENTAL ASSESSMENT

- 5.7.1 The results of the assessment of charred plant remains from Nelson Square, Levens, are shown in Table 3. All samples assessed contained some charred plant material with variable levels of preservation. An oat (*Avena*) cereal grain was recorded in a sample from fill **1** (fill of shallow pit **2**), whilst occasional

charred weed seeds were recorded in fills **I** and **14** (fill of grave **12**), including bedstraw (*Galium*). There were also some other unidentified charred plant remains in the samples from fills **I** and **11** (fill of grave **9**). Charcoal was recorded in all samples, ranging in abundance from rare but present in the sample from fill **I** to common/abundant in that associated with skeleton **13** (skeleton of grave **12**). The charcoal included some from diffuse porous taxa. The matrix consisted of a diverse range of material, including bone, molluscs, coal, silt/clay, industrial waste, earthworm egg cases and amorphous charred material. All samples contained abundant modern contamination indicated by roots, seeds, insects and modern molluscs.

- 5.7.2 **Discussion:** the assessment of charred plant remains from Nelson Square, Levens, demonstrated that some charred material has been preserved in the grave fills. The data are very limited and no information about the economic or environmental conditions from the site was recorded.
- 5.7.3 Some uncharred seeds from woody taxa were recorded, for example *Sambucus* (elderflower) and *Rubus* (blackberry), which are more resistant to decay than many other seeds, It is, however, difficult to distinguish whether these are contemporary with the features or are the result of modern contamination. If, indeed, they are contemporary it implies that there has been differential preservation of uncharred plant remains thus resulting in a skewed data set and therefore the recording of these seeds is of little significance.
- 5.7.4 **Conclusions:** there is no potential for any further analysis of the charred plant remains from the excavation at Nelson Square, Levens.

Context	Feature	Sample vol (litres)	Flot description	Plant remains	Potential
2	Grave	20	420ml. Charcoal (1) plus bone, molluscs, coal, industrial waste, earthworm egg cases, silt/clay, and amorphous charred material. Modern contamination including roots and seeds.	Cereal (1) <i>Avena</i> , weeds (1) indet, other (1) indet.	None
11	Grave 11	6	50ml. Charcoal (1-2) plus molluscs, coal, industrial waste, silt/clay and amorphous charred material. Modern contamination including roots and seeds.		None
14	Grave 12	10	80ml. Charcoal (1-2) plus bone, molluscs, coal, industrial waste, silt/clay, coal and industrial waste. Modern contamination including roots and seeds.	Weed seed (1) <i>Galium</i> .	None
17	Grave 15	30	190ml. Charcoal (3-4) including ring porous. Plus bone, molluscs, industrial waste, fungal sclerotia, and amorphous charred material. Modern contamination including roots and seeds.		None

Table 3 Nelson Square, Levens, Cumbria: assessment of charred plant remains.

Key: The numbers in brackets relate to a scale of 1-4, where 1=1-5 items and 4 is abundant more than 100 items. Indet = indeterminable plant remains

5.8 POST-MEDIEVAL FINDS

- 5.8.1 In total, 36 artefacts were recovered during the excavation, the majority of which were fragments of pottery, with small quantities of glass, clay tobacco

pipe, and ceramic building material also present. The finds were recovered from unstratified deposits, and from a single stratified deposit - fill 2 of cut feature 1. All artefacts are tabulated in *Appendix 6*, and without exception date to the post-medieval period.

- 5.8.2 The pottery fragments represent a small domestic assemblage, including many brown-glazed red earthenware kitchenware vessels such as crocks and pancheons. The tableware present included a possible mug which had been sponge-printed, dinnerware such as the blue transfer pattern 'Willow', and vessels decorated with a blue shell edge. The tableware from, modern pit 2 dates this to the late eighteenth to twentieth centuries.

6. CURATION AND CONSERVATION

6.1 RECIPIENT MUSEUM

- 6.1.1 Kendal Museum has been nominated as the ultimate place of deposition for the material archive (artefacts and ecofacts) and the paper and electronic archive will be deposited with the Cumbria Record Office, at Kendal.

6.2 CONSERVATION

- 6.2.1 There were no immediate conservation requirements in the field.

6.3 STORAGE

- 6.3.1 The complete project archive, which will include records, plans, both black and white and colour photographs, and artefacts, will be prepared following the guidelines set out in *Environmental standards for the permanent storage of excavated material from archaeological sites* (UKIC 1990, Conservation Guidelines 3) and *Guidelines for the preparation of excavation archives for long-term storage* (Walker 1990).
- 6.3.2 All finds will be packaged according to the Museum's specifications, in either acid-free cardboard boxes, or in airtight plastic boxes for unstable material.

6.4 DISCARD POLICY

- 6.4.1 The evaluation produced a general scatter of post-medieval pottery which upon agreement with the client and the receiving museum, may be discarded at a later date, following processing and assessment.

6.5 CONSERVATION

- 6.5.1 While the bone assemblage is in poor condition, there is little that can be done to conserve the skeletal material (A Boyle pers comm).

6.6 PACKAGING

- 6.6.1 The assemblage is currently well-packed and will require no further packaging. Given the poor condition of the bone material, this needs to be kept in dry conditions within acid free tissue in order to preserve it. Box lists are prepared and will be updated from the database when the identification of objects is complete.

7. STATEMENT OF POTENTIAL FOR FURTHER POST-EXCAVATION ANALYSIS

7.1 INTRODUCTION

7.1.1 The archaeological potential of the 7 Nelson Square site was highlighted during a process of evaluation in December 2002, which uncovered a crouched inhumation. The subsequent excavation targeted an area of approximately 140m² centred on the burial within the footprint of the proposed development, and revealed a further four graves forming part of what seems to be an Iron Age inhumation cemetery. The only other features on the site were identified as post-medieval rubbish pits.

7.2 OVERALL POTENTIAL OF THE SITE

7.2.1 The site has produced five graves apparently forming a coherent cemetery of up to six individuals. Thus it is of considerable importance that all the individuals should be subject to absolute dating in an attempt to define the period of burial at Levens. One burial has provided an Iron Age date, which is of considerable importance, since graves of this period are almost totally unknown in the region. The Iron Age in the North West is very under-represented in the archaeological record as a whole and in a recent review of Iron Age studies the areas of Cumbria and Lancashire were described as a 'black hole' regarding the current state of archaeological knowledge (Hazelgrove 2001, 25).

7.2.2 Prehistoric inhumation cemeteries are defined in the Monuments Protection Programme as a formal burial ground, comprising two or more inhumations buried in graves dug into the subsoil or bedrock without overlying barrows, dating to between the later Neolithic period and the end of the Iron Age (<http://www.eng-h.gov.uk/mpp/mcd/pic.htm>). Iron Age inhumation cemeteries are nationally very rare monuments. At the time of the writing of the Monuments Protection Programme Monuments Class description in 1990 only 30 to 35 such sites were known in England, mostly in Cornwall and Dorset, with a number of other sites scattered across the country (*ibid*). The Nelson Square site has therefore considerable potential for comparison with other known Iron Age inhumation cemeteries in the country.

7.2.3 The tradition of individual inhumation cemeteries first appears in the late third millennium BC in Beaker contexts, then after around 1500 BC cremation became the more popular method for the disposal of the dead (*ibid*). The use of inhumation cemeteries reappears in the Middle Iron Age (fourth century BC) and continued in use up to and after the Roman conquest (*ibid*).

7.2.4 In the Iron Age, most articulated inhumations occur as fairly isolated entities within pits and ditches. However, an exception to this is the cemetery at Worton Rectory Farm, Yarnton, Oxfordshire, where a sample of nine of the 35 crouched, north/south orientated burials were radiocarbon dated, and found to be from the middle Iron Age (Hey *et al* 1999). Other Iron Age flat inhumation cemeteries are known from Devon, Cornwall, Scotland, and perhaps North Wales (www.heneb.co.uk/GAT_site/SMR/LaterPrehisoric). It is not known

how many other similar cemeteries lacking artefactual dating have been ascribed erroneously to earlier or later periods.

- 7.2.5 Most prehistoric inhumation cemeteries have been located on relatively low-lying land, the majority under 120m OD, and many are near to rivers, with Iron Age examples showing a preference for burial in a crouched position with the head to the north (<http://www.eng-h.gov.uk/mpp/mcd/pic.htm>). The Nelson Square site fits this trend as it lies at approximately 45m OD and overlooks the rivers Kent and Gilpin. Where the bone preservation was sufficient to establish orientation and position, all the burials were crouched with the head to the north.
- 7.2.6 Tightly crouched burials, often suggestive of the binding of the corpse after death, are a common feature in the treatment of the corpse in the prehistoric periods. Iron Age regional variations in funerary rituals, such as the Arras culture and Durotrigan warrior burials, also predominantly involve positioning the corpse on its side in a crouched position (Taylor 2001, 73-5), as do most Iron Age pit burials (Cunliffe 1978, 312; Whimster 1981, 211; Wait 1985, 83).
- 7.2.7 The rather unnatural positioning of skeleton **16** and the presence of the mandible of another individual, **16a**, within the same grave are suggestive of excarnation before burial. These ‘bag’ or ‘sack’ burials, where largely disarticulated bones were interred, are known from other Iron Age sites, such as that at Fengate, Peterborough (Pryor 1982, 369).

7.3 REGIONAL PRIORITIES

- 7.3.1 The Nelson Square site provides a unique opportunity to study an Iron Age inhumation cemetery in the North West. Assessment of the site has made it clear that further analysis will not only be of benefit for the local archaeological record, but will also considerably add to the body of knowledge at a regional and national level.
- 7.3.2 Evidence for overtly religious or ceremonial activity of the period is thinly spread across the North West and is predominated by finds from bogs or watery places, often discovered during peat cutting in antiquity (Leah *et al* 1997; Middleton *et al* 1995; Hodgkinson *et al* 2000). The burials that dominate the region in the Bronze Age all but disappear by 1000 BC and, until now, there have been no human remains dated specifically to the Iron Age. Research into the Iron Age is considered a high priority by the Regional Research Framework, which is presently being compiled for the North West Region (Mark Brennand pers comm). The study site will enhance the level of understanding with regard to the Iron Age and will provide an important insight into the population of Iron Age Cumbria.

7.4 STRATIGRAPHIC POTENTIAL

- 7.4.1 The morphology and distribution of the graves have the potential to provide direct comparisons with other inhumation cemeteries elsewhere in the country and there is consequently a need for detailed research to provide pertinent comparators.

7.5 DATING

7.5.1 **Potential for Radiocarbon Dating:** at present, to one burial has been subject to radiocarbon assay (*Appendix 5*), but others within the cemetery have the potential for a further programme of radiocarbon dating. Given the rarity and potential importance of the site for the understanding of the Iron Age in the North West, there is a need for a programme of dating to provide dates for all the bodies. This would give a good indication as to the length of time in which the cemetery was in use.

7.6 HUMAN REMAINS

7.6.1 Unfortunately poor bone preservation has limited the osteological information that potentially could have been extracted from these remains. Due to the small size of the population, no palaeodemographical analysis is possible.

7.6.1 **Isotope analysis:** the strontium isotope composition of tooth enamel can provide information about where an individual spent their childhood. Strontium isotopes provide a fingerprint for different rock types and as the distribution of rocks is well mapped in Britain and around the world, the geology provides the key to geographic location. Strontium isotope analysis can be used in conjunction with other lines of evidence such as oxygen isotope analysis to constrain possible areas where an individual could have spent their childhood and/or rule out areas where tooth data does not match environmental values.

7.6.2 Isotope analysis has been used to great effect to gain information pertaining to population movement in prehistory, for example on the remains of both the 'Amesbury Archer' and the 'Boscombe Bowmen' (www.wessexarch.co.uk). The technique could greatly further our understanding of the Iron Age in the North West by ascertaining whether or not the population of the cemetery is of local origin.

7.6.3 Additional fragments of teeth and bone were recovered from the environmental samples, following the programme of osteological analysis. Additional analysis on this limited assemblage needs to be undertaken to complete the osteological programme.

7.7 POST-MEDIEVAL FINDS

7.7.1 The post-medieval assemblage is for the most part from unstratified deposits and is of little archaeological significance. It is proposed that no further work be undertaken on the assemblage.

8. UPDATED RESEARCH AIMS AND OBJECTIVES

8.1 UPDATED RESEARCH AIMS

8.1.1 This section follows the guidance of English Heritage regarding the formulation of updated research aims (English Heritage 1991, 2-3). This recommends that it is useful to treat *aims* as major themes or goals to which specific *objectives* contribute, and think of these aims and objectives as questions.

8.1.2 **Updated research aim 1:** what is the nature and date range of the cemetery?

Objective 1: what is the date range for the use of the cemetery? Can radiocarbon assay of the remaining bodies provide this?

Objective 2: how does the Nelson Square cemetery compare in form, and plan with other similar sites nationally? How does the orientation of the graves compare with others of the same period?

8.1.3 **Updated Research Aim 2:** what is the character and origin of the population represented in the cemetery?

Objective 1: Can isotope analysis of tooth enamel from the skeletons enhance our knowledge of population movement in Iron Age Cumbria?

8.2.4 **Updated Research Aim 3:** what was the state of health of the population of Iron Age Levens?

Objective 1: what conclusions can be drawn from the osteological analysis of the human remains in relation to comparable regional and national datasets?

9. METHOD STATEMENT

9.1 INTRODUCTION

- 9.1.1 The following methods are required to fulfil the revised research aims outlined in *Section 9*. This will require a programme of analysis, followed by the preparation of an appropriate text for publication.

9.2 INFORMATION AND REVIEW

- 9.2.1 It is proposed that regular review meetings should be held to monitor the progress of the analysis, and to keep all parties informed. In addition, OA North will liaise with the radiocarbon laboratory to ensure that the critical dates are obtained within the defined programme.

9.3 PHASING, STRATIGRAPHY AND SITE DESCRIPTIONS

- 9.3.1 A stratigraphic outline has been produced for this assessment but this will need to be refined, and detail added.
- 9.3.2 It is considered essential that radiocarbon and osteology specialists should be able to commence work without undue delay. The radiocarbon dating and isotope analysis will take an extended period and therefore these samples need to be submitted as a matter of urgency. The stratigraphy and matrices will be completed as soon as possible, and the site database will be updated and amended, to be provided digitally for the use of the specialists. An analytical text will be drafted to cover the stratigraphic sequence and selected plans and sections from the site will be digitised and drafts prepared.
- 9.3.3 Further amendments to the database will be required when the specialists complete their reports and dating evidence will also be incorporated. The detailed analytical text of the stratigraphic information will then be written for the final report and relevant plans and sections prepared for integration into this.
- 9.3.4 Data will be compiled from the previous evaluation and assessment work undertaken at the site. Also, cartographic and documentary evidence will be consulted in order to determine the background information required to present coherent data on the historical and topographical background to the site.

9.4 HUMAN REMAINS

- 9.4.1 *Human bone*: the analytical data from the assessment will be refined and enhanced by the additional analysis of bone fragments and teeth recovered during the environmental processing. The full results will be incorporated into the final report.

9.5 DATING

- 9.5.1 **Radiocarbon dating:** a further five samples will be submitted for radiocarbon dating. Suitable samples are available from Skeletons **7, 10, 13, 16** and **16a**.

9.6 ISOTOPE ANALYSIS

- 9.6.1 **Human remains:** teeth from the individual skeletons recovered will be submitted for strontium and oxygen isotope analysis. The isotopic analysis will examine the enamel of the teeth, as this is typically formed between 3-4 months after birth to about 12 years old, so the strontium and oxygen isotopic make-up of the enamel will provide an indication of where the individuals were brought up.

9.7 ILLUSTRATION

- 9.7.1 During each part of the analytical programme, a selection will be made of appropriate material for illustration. This will cover general plans, phase plans, and sections. Experienced illustrators, using standard conventions, will compile these illustrations, and the plans and sections by electronic means.

9.8 PUBLICATION TEXT

- 9.8.1 Following the completion of the full analysis of all the stratigraphic and osteological evidence and the return of the carbon dates, a text suitable for publication within a journal will be produced. This will be either to the *Transactions of the Cumberland and Westmorland Antiquarian and Archaeological Society* or the *Proceedings of the Prehistoric Society*. This will be in the format described in *Section 10*, and will incorporate as necessary any information from comparable excavations. This text will be submitted for internal review, and then the edited text will be submitted to the journal who will appoint an external referee for formal academic review of the article.

10. PUBLICATION SYNOPSIS

10.1 INTRODUCTION

10.1.1 Following the analysis and interpretation of the excavation results, a text will be prepared suitable for publication as within the *Transactions of the Cumberland and Westmorland Antiquarian and Archaeological Society* or the *Proceedings of the Prehistoric Society*.

10.2 THE STRUCTURE OF THE REPORT

10.2.1 The following section represents an anticipated breakdown of the proposed publication. The publication article will address the revised and updated research aims and objectives detailed in *Section 8*.

10.2.2 The text will be supported by a number of graphics, comprising line drawings and photographs to illustrate the evidence, tables to summarise data and, where appropriate, interpretative phase drawings. The finished text will aim to present a high degree of integration between both the osteological and radiocarbon data and the structural/stratigraphical history of the site.

10.3 OUTLINE SYNOPSIS

Summary	300 words
The Excavation Background	
Circumstances of the project/site location	200 words
Archaeological and Historical Background	1000 words
Results	
The cemetery	1500 words
Later activity	200 words
The human bone	2000 words
Isotope analysis	1000 words
Post- medieval ceramics	100 words
Discussion	3000 words
Bibliography	
Acknowledgements	200 words
Plan / Section Illustrations	
Photographs	
Total	9500 words

11. RESOURCES AND PROGRAMMING

11.1 PROJECT TEAM

- 11.1.1 The project team will consist mainly of OA North internal staff, although an external laboratory will undertake the radiocarbon dating and isotope analysis. The quality assurance for the project will be maintained by OA North Director, Rachel Newman, the project being managed by Jamie Quartermaine, Senior Project Manager.
- 11.1.2 The following Oxford Archaeology North and Oxford Archaeology staff will work on the project: Paul Gajos, Angela Boyle, Christine Howard-Davis, Elizabeth Huckerby, Emma Carter, Jamie Quartermaine, and Rachel Newman.
- 11.1.3 The Strontium Isotopic Analysis on the teeth will be undertaken by Janet Montgomery / Mandy Jay at University of Bradford, Department of Archaeological Sciences.

11.2 HEALTH AND SAFETY

- 11.2.1 All OA North post-excavation work will be carried out under relevant Health and Safety Legislation, including Health and Safety at Work Act (1974). A copy of the Oxford Archaeology Health and Safety Policy can be supplied on request. The nature of the work means that the requirements of the following legislation are particularly relevant:

Workplace (Health, Safety and Welfare) Regulations (1992) – offices and finds processing areas.

Manual Handling Operations Regulations (1992) – transport of bulk finds and samples.

Health and Safety (Display Screen Equipment) Regulations (1992) – use of computers for word-processing and database work.

COSSH (1998) - finds conservation and environmental processing/analysis.

11.3 TASK LIST

- 11.3.1 The analysis and production of a text suitable for publication has been broken down into a series of tasks, which are set out in the Task List in *Appendix 8*.

11.4 COSTS

- 11.4.1 The total costs for the analysis stage and report production are set out in the Financial Breakdown section in *Appendix 9*.

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APPENDIX 1
PROJECT BRIEF

BRIEF FOR AN ARCHAEOLOGICAL EXCAVATION
AT
THE ORHARD, NELSON SQUARE, LEVENS, CUMBRIA

Issued by the

County Archaeology Service
Environment Division, Community Economy and Environment



COUNTY COUNCIL

Date of Brief: 11 June 2003

This Design Brief is only valid for 1 year after the above date. After this period the County Archaeology Service should be contacted. Any specification resulting from this Brief will only be considered for the same period.

1. SITE DESCRIPTION AND SUMMARY

Site: The Orchard, Nelson Square, Levens

Grid Reference: SD 4852 8570

Planning Application No.: 5/02/1750

Detailed specifications are invited from appropriately resourced, qualified and experienced archaeological contractors to undertake the archaeological project outlined by this Brief and to produce a report on that work. The work should be under the direct management of either an Associate or Member of the Institute of Field Archaeologists and any response to this Brief should follow IFA Standard and Guidance for Archaeological Field Excavations, 1994. No fieldwork may commence until approval of a specification has been issued by the County Archaeology Service.

2. PLANNING BACKGROUND

- 2.1 Cumbria County Council's Archaeology Service (CCAS) has been consulted by South Lakeland District Council regarding a planning application for 2 dwellings at The Orchard, Nelson Square, Levens.
- 2.2 An archaeological field evaluation has been undertaken in advance of development on the site and this revealed a human burial. Consequently, an archaeological mitigation scheme comprising the preservation by record of the archaeological remains (an excavation) is necessary in advance of development works on part of the site. That part of the site which revealed no archaeological remains is not subjected to further archaeological investigation.
- 2.3 This advice is given in accordance with guidance given in Planning Policy Guidance note 16 (Archaeology and Planning) and with policy 26 of the County Structure Plan and South Lakeland Local Plan.

3. ARCHAEOLOGICAL BACKGROUND

- 3.1 An archaeological evaluation has been undertaken on the site (Oxford Archaeology North, 2002, *7 Nelson Square, Levens, Cumbria Interim Archaeological Evaluation Report*) and this brief must be read in conjunction with that report. One of the evaluation trenches revealed the remains of a crouched inhumation burial cut into the natural limestone. There were no artefacts associated with the burial and its date is therefore unknown. However, the fact that the body was laid in a crouched may be indicative of a prehistoric origin.

4. SCOPE OF THE PROJECT

4.1 Objectives

- 4.1.1 To preserve by record the archaeological evidence contained within the site and to attempt a reconstruction of the history and use of the site.
- 4.1.2 To address a number of aims which should include:
 - ❖ to date the skeletal remains
 - ❖ to contribute to an understanding of burial practices in South Lakeland
 - ❖ to contribute to an understanding of the health of past populations living in South Lakeland

- 4.1.3 To inform wider regional, national and period based research frameworks.

4.2 Work Required

Archaeological Excavation

- 4.2.1 The archaeological excavation of the area illustrated in the attached plan. Any further ground disturbance that is proposed outside this area will also need to be investigated. Sufficient resource must be available for this programme of work and a contingency to cover for unexpected discoveries or poor weather conditions.
- 4.2.2 Initially, topsoil removal may be undertaken carefully using a mechanical excavator fitted with a wide toothless ditching blade and working under archaeological supervision.
- 4.2.3 The area should be hand cleaned to define the archaeological features and a base plan produced at an appropriate scale.
- 4.2.4 All identified archaeological features within the stripped area will be archaeologically excavated by hand. Archaeological hand excavations will continue to the depth of natural deposits. Any discrete archaeological features which extend beyond the areas agreed for excavation may need to be investigated beyond these areas. Decisions regarding any such features will be made by the County Archaeology Service following monitoring and a suitable contingency should be included in the project design. A detailed record must be made of the stratigraphic sequence of the site, in accordance with Institute of Field Archaeologist and English Heritage guidelines. Under no circumstances is the percentage of sampling of archaeological features to be determined solely by resource limitations.
- 4.2.5 The use of metal detectors on site to aid recovery of artefacts is encouraged.
- 4.2.6 All finds (artefacts and ecofacts) visible during excavation should be collected and processed, in accordance with Institute of Field Archaeologist and English Heritage guidelines.
- 4.2.7 Specialist advice for sampling for scientific dating, geoarchaeology and soil science, biological analysis, artefact conservation and analysis, and analysis of technological residues, ceramics, and stone must be included in the project planning stage and based on the field evaluation results. The sampling strategy may be subject to variation during the excavation and further advice from specialists, in the field, should be sought, if necessary. Where there is evidence for industrial activity, including 'domestic' ovens and hearths, macroscopic residues should be collected by hand and soil samples taken.
- 4.2.8 Care must be taken in dealing with human remains and the appropriate Home Office and environmental health regulations followed. The County Archaeology Service and the local Coroner must be informed immediately human remains are discovered. Where human remains are encountered, it is important that the post-excavation assessment contains an analysis and statement for the future retention of the assemblage, including options for reburial.
- 4.2.9 An up to date copy of the Unit excavation manual must be on deposit with Cumbria County Council Archaeology Service before the project commences.

Post-excavation analysis

- 4.2.10 A *post-excavation assessment* (Management of Archaeological Projects 2 Assessment) must be undertaken within six months of the completion of fieldwork. This should include an initial finds and environmental assessment and review of site data. It will identify the scope of the post-excavation work and result in a detailed timetable and cost for the post-excavation analysis. An interim site narrative should also be provided.
- 4.2.11 Following the completion of above, the full post-excavation programme should be implemented through to archive report and publication. This should be completed within two years of the end of the fieldwork stage of the project.
- 4.2.12 All specialists must be named in the project design (see below) and they must have agreed in writing to their involvement with the project. All artefacts must be conserved and stored in accordance with *'First Aid for Finds'* during the post-excavation assessment and analysis.

5. SPECIFICATION

- 5.1 Before the project commences a specification must be submitted to, and approved by, the County Archaeologist.

- 5.2 Proposals to meet this Brief should take the form of a detailed specification prepared in accordance with the recommendations of *The Management of Archaeological Projects*, 2nd ed. 1991, and must include:
- ❖ A description of the excavation sampling strategy and recording system to be used
 - ❖ A description of the finds and environmental sampling strategies to be used
 - ❖ A description of the post excavation and reporting work that will be undertaken
 - ❖ A research design which sets out the site specific objectives of the archaeological works
 - ❖ Details of key project staff, including the names of the project manager, site supervisor(s), finds and environmental specialists and any other specialist sub-contractors to be employed
 - ❖ Details of on site staffing, expressed in terms of person days
 - ❖ A timetable for the fieldwork and post-excavation assessment, with a projected timetable for the post-excavation analysis and publication
 - ❖ Details of the costings for the fieldwork and post-excavation assessment with estimated costings for the post excavation analysis and publication
- 5.3 Any significant variations to the specification must be agreed by the County Archaeologist in advance.

6. REPORTING AND PUBLICATION

- 6.1 The archaeological work should result in an interim report, this should include as a minimum:
- ❖ A site location plan, related to the national grid
 - ❖ A front cover/frontispiece which includes the planning application number and the national grid reference of the site
 - ❖ A concise, non-technical summary of the results
 - ❖ A description of the methodology employed, work undertaken and outline of the results obtained
 - ❖ A list of, and spot dates for, any finds recovered
 - ❖ A description of any environmental or other specialist work undertaken and outline of the results obtained
 - ❖ The dates on which the project was undertaken
- 6.2 Three copies of this report should be deposited with the County Sites and Monuments Record within six months of completion of fieldwork. This will be on the understanding that the report will be made available as a public document through the County Sites and Monuments Record.
- 6.3 A summary report should also be submitted to the Transactions of the Cumberland and Westmorland Antiquarian Society within one year of completion of fieldwork. If archaeological remains of significance are identified, one or more full reports should be also be published in a relevant period journal or national archaeological publication.
- 6.4 A copy of the full archive report should be submitted to the County Archaeology Service within two years of the completion of the fieldwork stage of the project.
- 6.5 Cumbria SMR is taking part in the pilot study for the *Online Access to Index of Archaeological Investigations* (OASIS) project. The online OASIS form at <http://ads.ahds.ac.uk/project/oasis> must therefore also be completed as part of the project. Information on projects undertaken in Cumbria will be made available through the above website, unless otherwise agreed.
- 6.6 The involvement of the County Archaeology Service should be acknowledged in any report of publication generated by this project.

7. THE ARCHIVE

- 7.1 An archive must be prepared in accordance with the recommendations of *The Management of Archaeological Projects*, 2nd ed. 1991, and arrangements made for its long term storage and deposition with an appropriate repository. A copy shall also be offered to the National Monuments Record.

- 7.2 The landowner should be encouraged to transfer the ownership of finds to a local or relevant specialist museum. In this case Kendal museum is the most likely repository. The museum's requirements for the transfer and storage of finds should be agreed before the project commences.
- 7.3 The County Archaeology Service must be notified of the arrangements made.

8. PROJECT MONITORING

- 8.1 One weeks notice must be given to Cumbria County Council's Archaeology Service prior to the commencement of fieldwork.
- 8.2 Fieldwork will be monitored by the Assistant Archaeologist on behalf of the local planning authority. Monitoring notes will be recorded on a standardised form, which will be completed following receipt of the final project report. Copies of the form will be forwarded to the contractor and their clients.

9. FURTHER REQUIREMENTS

- 9.1 All aspects of the excavation shall be conducted in accordance with the Institute of Field Archaeologist's *Code of Conduct* and the IFA's *Standard and Guidance for Archaeological Field Excavations*.
- 9.2 It is the policy of the County Archaeology Service to ensure that the results of archaeological work in Cumbria are made available to the public through a variety of mediums. The presentation of the site is therefore encouraged through, where appropriate, the issue of press releases, a suitable 'open day' for visitors, and public displays and talks.
- 9.3 It is the archaeological contractor's responsibility to establish safe working practices in terms of current health and safety legislation, to ensure site access, and to obtain notification of hazards (eg. services, contaminated ground, etc.). Before commencing work a risk assessment must be carried out to ensure all potential risks are minimised. **The County Archaeology Service bears no responsibility for the inclusion or exclusion of such information within this Brief or subsequent specification.**

10. FURTHER INFORMATION

For further information regarding this Brief, contact

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County Offices
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For further information regarding the County Sites and Monuments Record, contact

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Email: bette.hopkins@cumbriacc.gov.uk

As part of our desire to provide a quality service to all our clients we would welcome any comments you may have on the content or presentation of this Design Brief. Please address them to the Assistant Archaeologist at the above address.

APPENDIX 2
PROJECT DESIGN

June 2003

Oxford
Archaeology
North

THE ORCHARD,
NELSON SQUARE,
LEVENS
CUMBRIA

ARCHAEOLOGICAL EXCAVATION

Proposals

The following project design is offered in response to a request from Mr Parsons, for an archaeological excavation in advance of the proposed development of land at the Orchard, Nelson Square, Levens, Cumbria.

1. BACKGROUND

1.1 CIRCUMSTANCES OF PROJECT

1.1.1 A planning application has been submitted to South Lakeland District Council for two dwellings at The Orchard, Levens. The proposed development has been investigated by a recent evaluation (OA North 2003), which has revealed a single crouched inhumation set into the limestone, which has the potential to be of prehistoric date.

1.1.2 As a result of the evaluation, Cumbria County Council Archaeology Service (CCCAS) has recommended that an archaeological excavation of part of the site is necessary in order to mitigate the impact of the proposed development, followed by a post-excavation assessment and, subsequently, analysis and publication of the results. The following document represents a project design to undertake the excavation of the site as defined in a brief supplied by the CCCAS.

1.1.3 **Background:** of three trenches excavated across the site, one revealed a post-medieval pit, which contained a relatively small amount of pottery, and a grave containing a crouched inhumation burial. This burial remains undatable, due to the lack of any associated artefacts within the grave cut, although, being crouched, it is probable that it is of prehistoric and potentially Bronze Age date. Radiocarbon dating, however, should resolve this issue.

1.2 OXFORD ARCHAEOLOGY NORTH (OA NORTH)

1.2.1 OA North has considerable experience of the evaluation and excavation of sites of all periods, having undertaken a great number of small and large scale projects throughout Northern England during the past 20 years. Evaluations, 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 is an Institute of Field Archaeologists (IFA) registered organisation, number 17, and all its members of staff operate subject to the IFA Code of Conduct.

1.3 ARCHIVE DEPOSITION

1.3.1 The results of the excavation will form the basis of a full archive to professional standards, in accordance with current English Heritage guidelines (*The Management of Archaeological Projects, 2nd edition, 1991*) and the *Guidelines for the Preparation of Excavation Archives for Long Term Storage* (UKIC 1990). The project archive represents the collation and indexing of all the data and material gathered during the course of the project. 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.

1.3.2 The paper archive for the archaeological work undertaken at the site should be deposited with the Cumbria Record Office (here at Kendal) and the finds with Kendal Museum, as this is the nearest museum which meets MGC criteria for the long term storage of archaeological material.

1.3.3 Any burials, following analysis will be interred within the Levens Parish church. Except for burials and items subject to the Treasure Act, all artefacts found during the course of the project will be donated to the receiving museum.

1.3.4 A synthesis (in the form of the index to the archive and a copy of the publication report) will be deposited with the Cumbria Sites and Monuments Record.

2. AIMS AND OBJECTIVES

2.1 ACADEMIC AIMS

2.1.1 The main research aim of the excavation, given the commercial nature of the development, will be to characterise the survival of the archaeological remains on the site, and to record and exhume in controlled conditions any burials. The work will aim to date the skeletal remains, and will contribute to an understanding of burial practice in the region and to the health of ancient populations.

2.2 POST-EXCAVATION AND REPORT PRODUCTION

- 2.2.1 The site records, finds and any samples from the excavation programme outlined below will form a checked and ordered site archive as outlined in the English Heritage guideline document *Management of Archaeological Projects* (2nd edition, 1991b) (hereafter MAP 2). Following compilation of the project archive a report will be produced assessing the potential of the archive (including the paper archive, the finds archive and any palaeoenvironmental samples that are taken) for further analysis as defined in MAP 2 Appendix 4. This post-excavation assessment report will make recommendations for further analysis and publication of the results, as appropriate.

3 METHOD STATEMENT

- 3.1 The following work programme is submitted in line with the aims and objectives summarised above.
- 3.2 Prior to the fieldwork commencing OA North will contact the client to obtain any information relating to live services on the site.

3.3 FIELDWORK

- 3.3.1 The area of investigation will be the footprint of the proposed newbuild and will entail the excavation of 145m². The topsoil and any overburden will be mechanically removed; the uppermost levels of modern overburden material will be undertaken in successive, level spits, by a machine fitted with a toothless ditching bucket to the top of the first significant archaeological level or the underlying limestone bedrock. The work will be supervised by a suitably experienced archaeologist. Spoil will be stored adjacent to the excavation.
- 3.3.2 Thereafter, the areas will be cleaned by hand; except for any large homogenous deposits which are suitable for excavation by machine. Pits and postholes will be subject to a 50% by volume controlled stratigraphic excavation, with the remainder of the feature, should it prove necessary to be removed in entirety, excavated quickly keeping only that dating evidence which is securely derived from the feature in question. Burials will be subject to 100% excavation.
- 3.3.3 Linear cut features, such as ditches and gullies, will be subject to a 20% by volume controlled stratigraphic excavation, with the excavation concentrating on any terminals and intersections with other features which would provide important stratigraphic information. As with pits and postholes, should it prove necessary to remove the remainder of the feature to expose underlying features and/or deposits, it will be excavated quickly keeping only that dating evidence which is securely derived from the feature in question.
- 3.3.4 Structural remains will be excavated manually to define their extent, nature, form and, where possible, date. Any hearths and/or internal features will be 100% sample excavated to provide information on their date and function, and the extent of any associated floor surfaces will be determined.
- 3.3.5 It should be noted that no archaeological deposits will be entirely removed from the site unless their excavation is necessary to reveal other features and/or deposits. If the excavation is to proceed below a depth of 1.2m then the sides will be stepped in.
- 3.3.6 **Recording:** all information identified in the course of the site works will be recorded stratigraphically, using a system, adapted from that used by the Centre for Archaeology Service of English Heritage, with sufficient pictorial record (plans, sections and both black and white and colour photographs) to identify and illustrate individual features. Primary records will be available for inspection at all times.
- 3.3.7 Results of all field investigations will be recorded on *pro forma* context sheets. The site archive will include both a photographic record and accurate large scale plans and sections at an appropriate scale (1:20 and 1:10). All artefacts and ecofacts will be recorded using the same system, and, following on-site processing, will be handled and stored according to standard practice (following current Institute of Field Archaeologists guidelines) in order to minimise deterioration.

- 3.3.8 **Environmental Sampling:** environmental samples (bulk samples of 30 litres volume, to be sub-sampled at a later stage) will be collected from suitable deposits (ie the deposits are reasonably well dated and are from contexts the derivation of which can be understood with a degree of confidence).
- 3.3.9 **Dating Methods:** the deposits will be assessed for their potential for radiocarbon and archaeomagnetic dating and costs for such work have been identified as a contingency. The contingency costs allow for two accelerator dates, which would be undertaken under the supervision of Dr Gordon Cook at the Scottish Universities Research and Reactor Centre at East Kilbride.
- 3.3.10 If necessary, access to conservation advice and facilities can be made available. OA North maintains close relationships with Ancient Monuments Laboratory staff at the Universities of Durham and York and, in addition, employs artefact and palaeoecology specialists with considerable expertise in the investigation, excavation and finds management of sites of all periods and types, who are readily available for consultation.
- 3.3.11 The position of the excavation will be recorded using a Total Station. The information will be tied in to OD.
- 3.3.12 **Human Remains:** there is a potential for prehistoric burials as identified by the evaluation (OA North 2002). Prior to the fieldwork commencing OA North will contact the Home Office to obtain a burial licence. All human remains will be recorded using OA Norths skeleton recording forms. The grave cut and/or coffin and contents will be recorded in plan at 1:20. Significant details of any grave goods, should they be discovered, will be planned at 1:10. Photography will be used to provide a further detailed record of the skeleton. The removal of such remains will be carried out with due care and sensitivity under Home Office Licence as required by the *Burials Act 1857*. As it is not known as to how many burials (if any) will be recovered it is not possible to submit a fixed price cost and therefore a contingency cost per burial is provided.
- 3.3.13 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.

3.4 OTHER MATTERS

- 3.4.1 Access to the site will be arranged via the Client.
- 3.4.2 Spoil removed from the excavation will be stored in the same area as the spoil removed in the initial machining of the site and the site will be backfilled on completion of the excavation.
- 3.4.4 The client is asked to provide OA North with information relating to the position of live services on the site. OA North will use a cable detecting tool in advance of any machine excavation.
- 3.4.5 Normal OA North working hours are between 9.00 am and 5.00 pm, Monday to Friday, though adjustments to hours may be made to maximise daylight working time in winter and to meet travel requirements. It is not normal practice for OA North staff to be asked to work weekends or bank holidays and should the client require such time to be worked during the course of a project a contract variation to cover additional costs will be necessary.

3.5 HEALTH AND SAFETY

- 3.5.1 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 (1991). OA North will liaise with the client to ensure all health and safety regulations are met. A risk assessment will be completed in advance of any on-site works.

3.6 POST-EXCAVATION ASSESSMENT

- 3.6.1 Following completion of the fieldwork, the results will be collated and the site archive completed in accordance with English Heritage MAP 2, Appendix 3. A post-excavation assessment of the archive and the resource implications of the potential further analysis

will be undertaken. The stratigraphic data and the finds assemblage will be quantified and assessed, and the environmental samples processed and a brief assessment of their potential for further analysis made. The assessment results will be presented within a post-excavation assessment report which will make recommendations for a schedule, timescale and programme of analysis in accordance with MAP2 Appendix 4.

3.7 ANALYSIS

3.7.1 A provisional programme of post-excavation analysis is anticipated. The extent of the programme, however, can only be reliably established on completion of the post-excavation-assessment report. Section 6 covers the estimated costs of the analysis. The proposed programme anticipates both analysis of the site stratigraphy and the artefactual/ecofactual evidence leading to the production of a final report.

3.8 PUBLICATION

3.8.1 It is anticipated that the results of the excavation will be worthy of publication. If possible, the publication text will be prepared in a suitable form for inclusion either as a journal article in the *Transactions of the Cumberland and Westmorland Antiquarian and Archaeological Society*.

3.9 CONTINGENCIES

3.9.1 There is considerable uncertainty as to the extent and number of burials that will be identified. For the purposes of the present costing it is assumed that there will be no more than two burials recovered (in addition to that identified from the evaluation). If there are more there may need to be a corresponding increase in costs, which will be subject to agreement with the client and the Assistant Archaeologist. The extent of these contingencies is defined in Section 7.

3.9.2 Thus, in accordance with the Institute of Field Archaeologists guidance, these contingency costs to cover variation from those circumstances that are predictable from the earlier excavation results are defined in the costings section.

4 RESOURCES AND PROGRAMMING

4.1 STAFF PROPOSALS

4.1.1 Day to day management of the project will be undertaken by **Jamie Quartermaine BA SurvDip MIFA** (OA North Project Manager) to whom all correspondence should be addressed.

4.1.2 The excavation will be directed by either an OA North project officer or project supervisors are experienced field archaeologists who have undertaken supervision of numerous small- and large-scale evaluation and excavation projects.

4.1.3 The site director will be assisted by a team of two archaeological assistants.

4.1.4 The processing and analysis of any palaeoenvironmental samples will be carried out by **Elizabeth Huckerby BA, MSc** (OA North project officer), who has extensive experience of the palaeoecology of the North West, having been one of the principal palaeoenvironmentalists in the English Heritage-funded North West Wetlands Survey.

4.1.5 Assessment of any finds from the excavation will be undertaken by **Chris Howard-Davis**. Assessment of the skeletal material will be by **Angela Boyle**.

4.2 PROGRAMMING

4.2.1 A week period is required to carry out the excavation of the combined 145m² area. This will commence with an initial one day period during which the modern overburden material will be removed by machine under archaeological supervision; this process will be undertaken by the excavation director, thence the site will be subject to cleaning with a team of two.

4.2.2 Processing and analysis of palaeoenvironmental samples is dependent on the number of samples taken and can not be predicted at this stage, but will be appraised at the assessment stage.

- 4.2.3 The project archive will be compiled and a MAP 2-style assessment report/updated project design will be produced within six months of the completion of the excavation fieldwork. A copy will be sent to the client and a further two copies to the Assistant Archaeologist. The assessment report/updated project design will outline any requirement for further analysis of the excavation archive, naming all the specialists to be involved in the post-excavation analysis, and will summarise proposals for eventual publication of the excavation results.

5. PROJECT MONITORING

- 5.1 The project will be monitored by the Assistant Archaeologist, who will be kept informed of commencement of the work.
- 5.2 A preliminary meeting/discussion will be held with the Assistant Archaeologist at the commencement of the project. Further meetings/discussions will be held during the course of the fieldwork, on completion of the fieldwork and commencement of the assessment, on completion of the assessment, and on completion of the analysis and final publication report detailing the results of the excavation.
- 5.3 OA North will ensure that any significant results are brought to the attention of the Client and the Assistant Archaeologist as soon as is practically possible.

APPENDIX 3 CONTEXT LIST

CONTEXT NO	DESCRIPTION
<i>1</i>	Fill of pit <i>2</i>
<i>2</i>	Cut of shallow pit, filled with <i>1</i>
<i>3</i>	Fill of grave <i>5</i>
<i>4</i>	Skeleton in grave <i>5</i>
<i>5</i>	Cut of grave, filled with <i>3</i> and <i>4</i>
<i>6</i>	Cut of grave, filled with <i>7</i> and <i>8</i>
<i>7</i>	Skeleton in grave <i>6</i>
<i>8</i>	Fill of grave <i>6</i>
<i>9</i>	Cut of grave, filled with <i>10</i> and <i>11</i>
<i>10</i>	Skeleton in grave <i>9</i>
<i>11</i>	Fill of grave <i>9</i>
<i>12</i>	Cut of grave, filled with <i>13</i> and <i>14</i>
<i>13</i>	Skeleton in grave <i>12</i>
<i>14</i>	Fill of grave <i>12</i>
<i>15</i>	Cut of grave, filled with <i>16</i> , <i>16a</i> and <i>17</i>
<i>16</i>	Skeleton in grave <i>15</i>
<i>16a</i>	Second skeleton in grave <i>15</i>
<i>17</i>	Fill of grave <i>15</i>
<i>18</i>	Topsoil
<i>19</i>	Natural
<i>20</i>	Post-medieval pit, not excavated
<i>21</i>	Post-medieval pit, not excavated
<i>22</i>	Post-medieval pit, not excavated
<i>23</i>	Post-medieval pit, not excavated

APPENDIX 4 HUMAN BONE CATALOGUE

The dental notation employed in the catalogue is as follows:

/ post-mortem loss	X ante-mortem loss
C caries	A abscess
NP not present	U unerupted
E erupting	PE pulp exposed
k calculus	- alveolus and tooth absent

Inhumation 4

A skeleton on its right side with the arm and leg bones tightly flexed. It was orientated north/south within an irregular, heavily truncated grave cut (6).

Preservation poor; 20-30% complete.

Possible male; aged 34-40 years

Skeletal pathology: nil

Dental pathology: caries x 1; DEH (4/8); severe vertical periodontal disease

- 7 6 - - 3 - /	C
- / / 5 / / / /	/ / 3 / 5 6 7 8
	/ 2 3 4 - - - -
	R

Inhumation 7

The skeleton of one individual, tightly crouched and lying on its side within an irregularly shaped and heavily truncated grave cut (6). It was impossible to distinguish between the left and right sides of the skeleton. It was orientated north/south.

The bone preservation was very poor; much of the bone was disturbed by plough damage; there was prolific root damage

Completeness < 25 % (teeth; skull and long bone fragments only)

Young adult (aged 16-25 years); sex unknown

Skeletal pathology: nil

Dental pathology: caries x 1; DEH (6/14)

C	B B
- 7 - - - - -	- 2 3 4 5 / / 8
- - 6 5 4 3 - -	- 2 3 4 5 - - -
B B B	B B B

Inhumation 10

Two unburnt fragments of right maxilla and one tooth found within the northern part of an irregular and heavily truncated grave cut (**9**). The grave cut was orientated north-west / south-east.

Bone preservation very poor

Completeness < 10%

Individual of unknown age and sex

Skeletal pathology: nil

Dental pathology: DEH (1/1)

- - - 4 - - -	- - - - - - -
- - - - - - -	- - - - - - -

Inhumation 13

A single inhumation within an irregular and heavily truncated grave cut (**12**). It comprised very fragmented remains and the body position and orientated could not be recorded. The long axis of the grave (**12**) was north/south.

Bone preservation very poor

Completeness < 15%

Prime to older adult; sex unknown

Skeletal pathology: nil

Dental pathology: DEH (1/4)

- - - - - - -	- - - - - - -
- 7 - - 4 3 - -	1 - - - - - - -
R R	

Inhumation 16

A tightly crouched inhumation laid on its side within an irregularly shaped and heavily truncated grave cut (**15**). The orientation was uncertain but appears to be east/west. A fragment of the mandible of an adult (**16a**) was also found within the grave cut.

Preservation very poor

Completeness < 20%

Aged 7.5 - 8.5 years; sex unknown

Skeletal pathology: bone infarction of distal right femoral shaft

Dental pathology: DEH (15/16) on permanent dentition only

- - 6 5 e 4 3 2 /	1 2 3 c 4 d 5 e 6 - -
/	
- - 6 5 e 4 3	1 2 / / d - - -
21	B

Inhumation 16a

The single fragment of a mandible with five teeth found in the southern part of grave (15). The association between skeletons 16 and 16a, if any, is not known.

Bone preservation very poor

Completeness < 10%

Aged 28-38 years; sex unknown

Skeletal pathology: nil

Dental pathology: caries x 2; severe vertical peridontal disease; marked calculus (3/4)

- - - - -	- - - - -
- - - 4 / / 1	1 / 3 / 5
C	R R C

APPENDIX 5 RADIOCARBON DATE

KIA24385 LEX 02 Sk 4

13 fragments of human long bone, 7 Nelson Square, Levens, Cumbria,
sample depth: 0,20 - 0,35 m

Fraction	Corrected pMC [†]	Conventional Age	$\delta^{13}\text{C}(\text{‰})$ [‡]
Bone, Collagen, 4.5 mg C	77.10 ± 0.23	2090 ± 25 BP	-18.32 ± 0.15
Bone, Residue, 3.9 mg C	77.62 ± 0.25	2035 ± 25 BP	-19.70 ± 0.19

Radiocarbon Age: BP 2089 ± 24

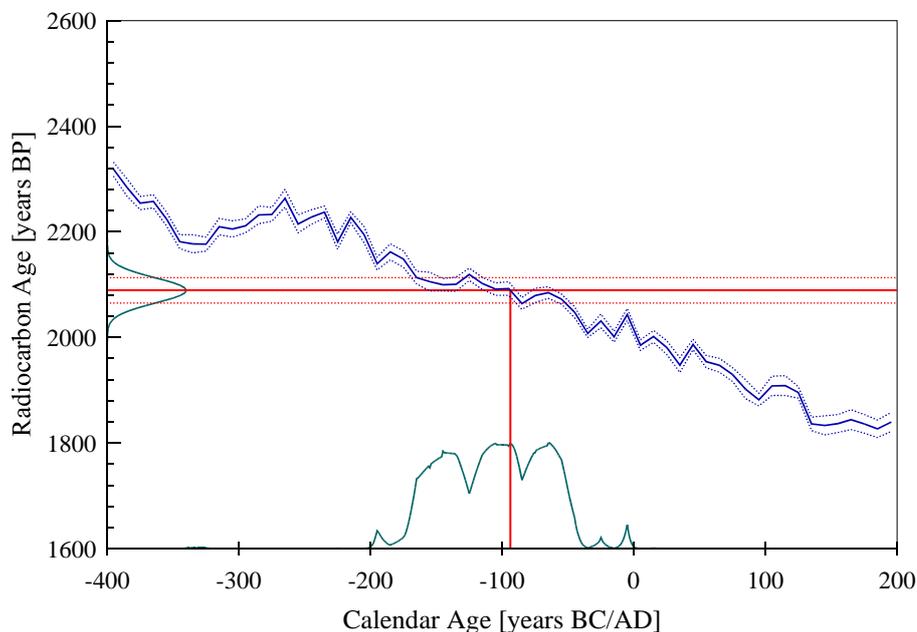
Calibrated Age: cal BC 94

One Sigma Range: cal BC 154 - 132 (Probability 18.4 %)

(Probability 68.3 %) 118 - 87 (Probability 27.3 %)

80 - 54 (Probability 22.5 %)

Two Sigma Range: cal BC 172 - 44 (Probability 95.4 %)



References for calibration:

The calibrated age is according to "CALIB rev 4.3" (Data set 2),
Stuiver et al., Radiocarbon **40**, 1041 - 1083, 1998

[†] "Corrected pMC" indicates the percent of modern (1950) carbon corrected for fractionation using the ^{13}C measurement. The indication "> AD 1954*" denotes the influence of bomb ^{14}C

[‡] Please note that the $\delta^{13}\text{C}$ includes the fractionation occurring in the sample preparation as well as in the AMS measurement and therefore cannot be compared to a mass-spectrometer measurement.

APPENDIX 6 POST-MEDIEVAL FINDS SUMMARY

Trench	Context	Quantity	Material	Description	Date range
1	U/S	3	Pottery	Brown-glazed red earthenware (coarseware)	Late seventeenth - early twentieth century
2	U/S	6	Pottery	Brown-glazed red earthenware (coarseware)	Late seventeenth - early twentieth century
2	U/S	8	Pottery	White-glazed white earthenware	Late eighteenth - twentieth century
2	U/S	1	Clay tobacco pipe	Stem with medium bore	Eighteenth - early twentieth century
2	2	1	Glass	Green (bottle)	Post-medieval
2	2	7	Pottery	Brown-glazed red earthenware (coarseware)	Late seventeenth - early twentieth century
2	2	3	Pottery	White-glazed white earthenware	Late eighteenth - twentieth century
2	2	1	Pottery	Porcelain	Late eighteenth - twentieth century
2	2	3	Pottery	Buff-glazed white earthenware	Late eighteenth - twentieth century
2	2	1	Ceramic building material	Drain or tile	Post-medieval
3	U/S	1	Glass	Colourless (bottle)	Post-medieval
3	U/S	1	Pottery	Brown-glazed red earthenware (coarseware)	Late seventeenth - early twentieth century

APPENDIX 7

EVALUATION TRENCH DESCRIPTIONS

TRENCH 1

Trench 1 was aligned roughly north-east/south-west, measuring 5 x 2m, and was excavated to a maximum depth of 0.1m. The trench was situated about 17m south-east of Church Road, towards the south of the site, on the higher ground at the eastern end of the site. Due to work on site prior to trenching, there was very little material left to remove. This trench revealed natural limestone along the length of its base, with no archaeological features present.

TRENCH 2

Trench 2 was aligned roughly north-west/south-east, measuring 5 x 2m, and was excavated to a maximum depth of 0.4m. The north-western end of the trench was set back approximately 3m from Church Road and the trench was situated on the lower ground at the western end of the site. Across the base of this trench, fissured natural limestone was revealed, truncated by two cut features, **1** and **5**. The first of these, **1**, was located slightly off-centre towards the north-eastern edge of the trench, about 1.4m south-east of the north-west trench edge. It measured 1.3 x 1.1 x 0.25m, with the long axis aligned north-east/south-west. The fill, **2**, of this feature contained one piece of glass and 15 pieces of pottery, dating predominantly from the nineteenth century but with some pieces from the late eighteenth century. The second feature, **5**, measured 1.35 x 0.85m, with the long axis aligned north-east/south-west, and was highly irregular in shape. According to the landowner, until recently a large tree had stood exactly above this feature, possibly explaining some of the irregularity. A crouched skeleton, **4**, was found within this grave cut, with *in situ* skull, pelvis and leg bones remaining. The arm bones had, unfortunately, been removed prior to realisation that this feature represented a burial. Both ribs and vertebrae appeared to be almost entirely absent but root action was heaviest in the area where they should have been found and so it is plausible that they had been destroyed. The bones were in a reasonable state of preservation, but were fairly fragmentary.

TRENCH 3

This trench was aligned roughly north-east/south-west, measuring 5 x 2m, to a maximum depth of 0.3m. The trench was situated about 25m south-east of Church Road, on the higher ground at the eastern end and against the southern boundary of the site. The area of this trench originally lay underneath 7 Nelson Square, but beyond an internal wall, which sat on no apparent foundations; no archaeology relating to this structure was observed. This trench revealed natural limestone along the length of its base, with no archaeological features present.

APPENDIX 8 TASK LIST

Task No	Task	Days	Resources	
Task 1:	Project Set up	1	JQ	
	Contact / Liase with Project Team	0.5	JQ/JM/ PG/ CHD/ EH/ AB	
Task 2:	Submit radiocarbon dates to lab	1	EH	
Task 3:	Radiocarbon Analysis	40	JM	
Task 4:	Submit Teeth for Isotopic Analysis	0.5	AB	
Task 5:	Isotopic Analysis	10	JM	
Task 6:	Production of Site Narrative	2	PG	
Task 7:	Background Research	2	PG	
Task 6:	Illustrations	1	Illust	
Task 7:	Complete Osteological Analysis		2	AB
Task 8:	Finds illustrations	2	Illust	
Task 9:	Publication Compilation	2	PG/ CHD	
Task 10:	Edit of Publication	1	JQ	
Task 11:	Quality assessment of Publication	1	RMN	
Task 12:	Prepare Archive for Deposition	1	PS	

APPENDIX 9 FINANCIAL BREAKDOWN

7 NELSON SQUARE, LEVENS, POST-EXCAVATION COSTINGS

The total cost quoted for the post-excavation is a fixed price which is inclusive of all management, overheads, and other disbursement costs (travel and expenses), to undertake the programme of work as defined in this project assessment. Any other variations from this programme of work at the clients' direction will require recosting. All staff costs are inclusive of holiday entitlement, as well as NI and Superannuation.

- All costs are exclusive of VAT
- Salaries and wages inclusive of NI, Superannuation and overheads
- Project duration beyond 31-03-2005 will require adjustment for inflation
- The costs for the post-excavation include those for the teeth isotope analysis

The costs for publication assume that the results will be published in the *Transactions of the Cumberland and Westmorland Antiquarian and Archaeological Society* or the *Proceedings of the Prehistoric Society*.

Post-Excavation / Publication Costs	£ 2, 625.00
Radiocarbon Dates x 3 (£400.00 each)	£ 1200.00

ILLUSTRATIONS

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Plate 5 Grave **12**, Skeleton **13**, looking north
Plate 6 Grave **15**, Skeletons **16** and **16a**, looking west



Plate 1: View of excavation area looking north



Plate 2: Grave 5, Skeleton 4, looking north-east



Plate 3: Grave **6**, Skeleton **7**, looking north



Plate 4: Grave **9**, Skeleton **10**, looking west



Plate5: Grave *12*, Skeleton *13*, looking north



Plate 6: Grave *15*, Skeleton *16* and *16a*, looking west