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ARCHAEOLOGICAL EXCAVATION AND WATCHING BRIEF POST-EXCAVATION ASSESSMENT REPORT

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SCORTON QUARRY NORTH YORKSHIRE AREAS 2 AND 4B

prepared for

Tarmac

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SCORTON QUARRY (AREAS 2 AND 4B), NORTH YORKSHIRE

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SCORTON QUARRY (AREAS 2 AND 4B), NORTH YORKSHIRE

PROGRAMME OF ARCHAEOLOGICAL INVESTIGATION REPORT

Summary

This report presents the results of archaeological monitoring and excavation undertaken during topsoil stripping in advance of gravel extraction within Extension Areas 2 and 4B at Scorton Quarry, North Yorkshire. The area of the quarry extension was located to the west of Scorton village and lay at the southern edge of the existing quarry centred at NZ 2431 0003. The archaeological works were undertaken by Northern Archaeological Associates Ltd on behalf of Tarmac and were earned out between May and July 2008.

The 2008 investigation in Area 2 provided an opportunity to examine a small section of the Scorton Cursus measuring some 70m in length. The cursus is one of the major prehistoric ritual monuments of northern England and believed to be of Middle Neolithic date. It has been plotted from aerial photographs running for a length of over 2.1km, although much of it has been destroyed by earlier quarrying with only limited excavation. In this current phase of work, a series of sections were excavated across the main cursus ditches, and the opportunity was also taken to examine smaller flanking linear features recorded from the air, but not previously investigated by excavation. These outer features proved to represent a sequence of palisade trenches, which perhaps held lines of posts revetting banks originally running external to the main cursus ditches. In its final form, the cursus had a single internal bank. Some evidence for remodelling of the monument was recorded in the form of an inserted causeway crossing one of the main ditches, and apparently widespread disturbance was represented by a horizon of gravel deposited into the ditch fill. No finds were recovered from the excavated portions of these features, however extensive soil sampling of the primary ditch fills has provided a small quantity of material suitable for radiocarbon dating.

A small number of other archaeological features were identified during the watching brief, scattered across the remainder of the stripped area. These included a series of five small square 4-post structures, normally interpreted as granaries and likely to be of Iron Age date. The presence of these structures is indicative of contemporary settlement nearby. A small pit which was filled with debris from iron bloom smithing may be contemporary with this phase of activity. Evidence was also found within the area for a number of small ditches or gullies forming part of a widespread former field system considered likely to be of Romano-British date. A small number of scattered pits and postholes remained undated.

The area was crossed by the remains of a former road leading from Scorton village westwards to Catterick Bridge, which was moved to a new alignment.

when a military airfield was built across the area during the Second World War. Recording was undertaken of remains of the roadway, its military replacement and the former agricultural landscape to either side

Only a small finds assemblage was recovered during this phase of archaeological work. These included a single unworked flint, a single scrap of probably Iron Age pottery, a small group of post-medieval pottery and a copper-alloy mount also likely to be of post-medieval date. Soil samples produced only a very small assemblage of carbonised plant remains. No further analysis of these groups of material is recommended.

It is recommended that radiocarbon dating be carried out on four samples of carbonised plant remains, in order to provide two dates for the primary silting of one of the cursus ditches, one date for one of the 4-post structures, and one date for the pit filled with metal-working debris. Should the last return an Iron Age date, it is recommended that a programme of chemical analysis be undertaken comparing slags from this feature to slag-tempered Iron Age pottery recovered in Area 1A(b) nearby in 2007, in order both to determine a possible source for the ores and whether the pottery was likely to have been made nearby using slag derived from the smelting activity. Two fragments of kiln structure recovered from the pit are also recommended for illustration.

Once these additional stages of analysis have been undertaken, the results should be integrated into an overall final published account of the ongoing archaeological works within the quarry.

1 0 INTRODUCTION

- 1 1 This report presents the results of archaeological monitoring (a 'watching brief') and excavation undertaken during topsoil stripping in advance of gravel extraction at Scorton Quarry, North Yorkshire. The area of the quarry extension was located to the west of Scorton village and lay at the southern edge of the existing quarry, centred at NZ 2431 0003 (Figure 1)
- 1 2 The archaeological works were undertaken by Northern Archaeological Associates Ltd on behalf of Tarmac, and were undertaken between 19 May and 10 July 2008
- 1 3 The detailed methodology for the watching brief and excavation followed a Written Scheme of Investigation issued by North Yorkshire County Council Heritage and Environment Section. All work was undertaken in accordance with the professional guidance and standards published by English Heritage (1991) and the Institute of Field Archaeologists (2001)

2 0 LOCATION, TOPOGRAPHY AND GEOLOGY

- 2 1 The quarry extension which was the subject of this phase of monitoring lies at the southern edge of the existing quarry, to the north of Tancred Grange Farm and some 0.75km to the west of Scorton village. The overall area was roughly rectangular, measuring 190m from north to south and up to 208m from east to west, with a total area of some 3.17ha. The area was formerly bisected by the road running between Scorton and Catterick Bridge, replaced by the existing road running further to the south when the area was developed as a military airfield during the Second World War. The old road was retained as an access roadway within the airfield and only removed in the late 20th century. That part of the extension area lying to the north of the former roadway was designated Area 2, and that part to the south as Area 4B (Figure 2)
- 2 2 The site lies on the upper gravel terrace to the north-east of the River Swale. Prior to stripping the extension area had a fairly level but gently undulating surface at a typical height of some 58.8-59.3m along its eastern edge rising very gradually to a typical height of some 59.8m at the western edge
- 2 3 The solid geology in the area of the quarry extension comprises Triassic Bunter Sandstone, overlain by river terrace gravels (Institute of Geological Sciences 1970a, 1970b). The soils across the area are mapped as being of the Wick 1 Association, deep well drained coarse loamy typical brown earths, permeable and well drained and well suited for cultivation (Soil Survey of England and Wales 1983, Jarvis et al 1984, 302-5). Since removal of the former airfield the area has predominantly been under arable cultivation. At the time of stripping

the area had been left fallow but had only developed partial weed cover with extensive areas of soil exposed

3 0 ARCHAEOLOGICAL AND HISTORIC BACKGROUND

3 1 The archaeology of the wider Vale of Mowbray and more specifically the Swale-Ure Washlands has recently been comprehensively reviewed elsewhere (Manby et al 2003, Vyner 2004), and only the background for the area immediately surrounding the development is reviewed below. Archaeological sites within the immediate area are indicated on Figure 1

The earlier prehistoric period

3 2 The Mesolithic period is primarily represented in the area by occasional finds of flint artefacts, for instance at St Giles by Brompton Bridge (SE 209 996), Bridge Road, Brompton (SE 224 994) and Hollow Banks Farm (SE 228 998), located on gravel terraces adjacent to the River Swale respectively 3.5km, 2km and 1.5km west of the recent area of investigation (Cardwell and Speed 1996, NAA 2003a, Speed, forthcoming a)

3 3 The only Early Neolithic site so far recorded within this part of the Swale valley is a knapping platform which produced over 1100 chert flakes excavated at Marne Barracks (the former Catterick aerodrome) in 2004 (Hale and Platell 2007, 44). The major Middle Neolithic monument in the area, the Scorton Cursus, crossed the north-eastern corner of the extension area. It was discovered from the air by St Joseph in 1949, and the evidence has been supplemented by additional photographs taken in 1955 and 1975. The cropmarks show an elongated rectangular ditched enclosure. This has been recorded running north-westwards from a square terminal at SE 2495 9955 for a distance of more than 2.1km. The cessation of visible evidence for the monument coincides with the edge of the level gravel terraces and the beginning of the slope up onto the boulder clays mantling the higher ground to the north-west, which are less conducive to the formation of cropmarks. The full extent of the cursus in this direction has hence not been determined.

3 4 Visible runnmg along the centre within the southern half of the cursus enclosure are a line of irregular parch-marks, indicative of the remnants of a central mound. The presence of the single central bank places the Scorton site within the much rarer 'bank barrow' sub-class of cursus-type monuments. Unusually, the aerial photographs also show additional fainter slightly sinuous linear cropmarks flanking either side of the mam enclosure (but not around the south-eastern terminal), previously considered to represent additional outer ditches.

3 5 Much of the monument has subsequently been lost as a result of quarrying, including the southern terminal to the south of B6271 Scorton Road in 1977, a

short section immediately to the east of the recent excavation sometime prior to 1975, and the most of the known length of the monument to the north-west of the recent excavation (some 1km) between the mid-1970s and 1996

- 3.6 Several short lengths of the monument have previously been either excavated or sections recorded within the quarry faces. Shirley Thubron investigated 70m of both of the mam ditches some 250m to the south-west of The Grange in 1976 (DoE 1977), although in this area the remains had been heavily truncated during topsoil-stripping in advance of quarrying. Immediately to the north, Peter Topping excavated hand-dug trenches in 1978 from the existing ground surface across both mam ditches and part of the interior of the monument, and recorded the remains of part of the central mound (Topping 1982). In 1996, Field Archaeology Specialists excavated 9m of the north-eastern mam ditch to the south of The Grange (FAS 1997, 15) and just to the south-east of the 1976 investigation. In addition, a section across the mam ditches was recorded in the quarry face just to the north of the 2008 excavation area. Further recording was undertaken nearby by Jan Harding in 1998 and he identified traces of the central mound together with the mam ditches (Harding 1998).
- 3.7 Several ring-ditches were also recorded on the aerial photographs, clustered around the southern terminal of the cursus and also flanking its central section, but all have subsequently been quarried away without investigation. One of these ring-ditches lay between an enigmatic pair of parallel ditches 30-40m apart, crossing the centre of the Scorton Cursus from east to west and visible on the aerial photographs over a distance of more than 500m. The whole of the observed extent of this feature has subsequently been quarried away, although it is likely to continue into the remaining un-quarried field immediately west of Elmfield. On the basis of the limited available evidence, it is possible that these ditches represent a second (or 'B') cursus. During topsoil stripping within the north-eastern corner of Scorton Quarry (Area 1A), several large ramped post-pits were recorded. Six of these were arranged in a large, slightly irregular oval, and may represent an associated monument (NAA 2008). A small number of flints of probably Neolithic date were recovered during topsoil stripping of an area just to the north-east of the current extraction area in 2003 (NAA 2003b).
- 3.8 There is only sparse evidence in the wider area for other Middle Neolithic activity potentially contemporary with use of the cursus. Pits and a possible small structure producing sherds of Peterborough Ware pottery were identified at Hollow Banks Farm in 1999. One excavated feature produced a radiocarbon date (2σ) of 3500-3090BC (Wk-14315) (Speed, forthcoming a). A ring ditch, possibly a barrow, also containing Peterborough Ware has been identified near Bainsse farm to the south of Catterick (Speed, forthcoming b) and has produced a similar date (2σ) of 3340-3020BC (SUERC-20368). Slightly further afield, a sherd of Peterborough Ware pottery has recently been recovered during work adjacent to the bank of the Swale near Easby Abbey Mill (SE 1838 0043) some 6km to the west of the current site (Manby 2007).

- 3 9 During the later Neolithic and Early Bronze Age periods a widespread 'ritual' and funerary landscape seems to have developed to the west of the Scorton Cursus, centred on the River Swale. Monuments in this area include a small henge, pit alignments (possibly post- or standing-stone settings), pits containing Grooved Ware pottery and an early Bronze Age cremation burial at Hollow Banks Farm (Speed, forthcoming a). Part of a sandstone slab decorated with cup-and-ring marks and of probably later Neolithic or early Bronze Age date has been recovered nearby at Bridge Road, Brompton (NAA 2003a). A substantial embanked enclosure at Catterick Racecourse has been interpreted as a henge (MacLoed 2002, Moloney et al 2003), and again was accompanied by pits containing later Neolithic and early Bronze Age pottery. Substantial post-defined enclosures of this period have been recorded at Catterick Aerodrome (Hale and Platell 2007). Slightly further to the west, aerial photographs have revealed the presence of a substantial penannular ditched enclosure at Colburn (SE 200 996). The size and form of this feature suggest that it might represent another henge-type site (MacLoed 2002).
- 3 10 Excavation of a penannular ditch within Scorton Quarry in 1977 revealed a central pit (presumably a grave) containing an Early Bronze Age Beaker (Greenhalf 1980). A trial excavation in the Brompton-on-Swale playing field in 1993 recovered an almost complete early Bronze Age pottery vessel (Wilson 2002i, 8-10). Casual finds of Later Bronze Age metalwork in the area include two swords found at Brompton-on-Swale in 1963 and 1992 (NAA 1993, Burgess 1995). A third Bronze Age sword in the National Museum of Scotland from 'Brompton, Yorkshire' could also be from this area (Elgee 1930, 171, plate XXV). A gold bracelet of possible Bronze Age date was found in Scorton Beck sometime before 1904 (correspondence in NYCC SMR). Deposition of these prestige objects indicates the continuing 'ritual' significance of the area.

The Iron Age and Romano-British periods

- 3 11 Evidence of Iron Age occupation has been identified at several sites nearby to the north of the River Swale. At Bridge Road, Brompton, a sherd of Iron Age pottery was recovered and numerous small fragments observed within the pre-Roman topsoil sealed beneath the earliest phase of Dere Street Roman road, suggesting contemporary settlement activity nearby (NAA 2003a). Features containing Iron Age pottery have been identified at Woodside to the north of Brompton on Swale (Speed, forthcoming b). An extensive complex of later Iron Age enclosures and settlement has been identified both by geophysical survey (Casey et al 1995) and excavation (Abramson 1995) at Scotch Corner (NZ 212 052). The results of further excavations of this site during recent widening works on the A66 are currently under analysis. At Hollow Banks Farm, some 1.2km west of the current area of investigation, evidence for Iron Age settlement was recovered during excavations in 1998-2000 (Speed, forthcoming a). Excavations in 1996 and 1997 at Grange Farm, 0.75km to the north of the current site, revealed extensive remains of an Iron Age field system and settlement site of 6th-3rd BC century date, the field system remaining in

use with Romano-British activity dated to the 2nd-4th centuries (Copp and Roe 1996, 1997) Elements of a field system, together with groups of inhumation burials presumed to be of Iron Age or Romano-British date, and a pit containing Iron Age pottery, were recorded in 2007 some 500m to the east of the Grange Farm site (NAA 2008)

- 3 12 The current area of investigation lies some 2km to the east of the Roman town and fort of Cataractonium Numerous excavations undertaken within the town and fort, and also examining linear development and cemeteries along the line of Dere Street to the north and south, have recently been published in a comprehensive monograph (Wilson 2002) The first fort is thought to have been established on the south bank of the Swale around AD 80 A military presence may have continued until the later 4th century From the later 1st century the fort was accompanied by a civilian settlement, initially possibly operating as a supply base (notably for leather goods) for the military Civilian occupation of the town probably continued into the 5th century There was ribbon-development along Dere Street both to the north and south of the town, and a separate focus of settlement at Bainsse adjacent to Marne Barracks (the former Catterick Aerodrome) To date, there has been relatively little excavation of rural settlement sites of the period away from the line of Dere Street, although it appears that the pre-existing later Iron Age settlement pattern away from Dere Street may have continued relatively unchanged Remains recorded during drainage works in 1974 near Uckerby Grange some 2km north of the current area of investigation included a burial within a stone sarcophagus, sherds of amphora and a possible hypocaust tile, perhaps suggesting the presence of a villa site nearby (Thorpe 1974, 4) Another probable villa is visible on aerial photographs near Middleton Tyas (D Ronan pers comm)

The medieval and post-medieval periods

- 3 13 There is no clear evidence for the 'end' of Roman Catterick, and it seems likely that there was some form of continuity of 5th century occupation into the Anglian period During the early Anglian period Catterick was an important centre, and as such was mentioned several times in early sources, although the nature and form of settlement in the area is unknown A number of cemeteries from this period have been excavated, notably at Hollow Banks Farm, Catterick Racecourse and Bainsse (Speed, forthcoming a, Moloney et al 2003, Wilson et al 1996) The 'Dark Age' battle recorded by the poem Y Gododdin took place at Catraeth, commonly considered to be Catterick Bede mentions Catterick several times in connection with 7th century events, including mass baptisms in the River Swale by Paulinus in c 627 when the settlement is described as a vicus Further references by Simeon of Durham for the 8th century, including two royal weddings, make it clear that Catterick was an important royal residence of the kingdom of Northumbria There is little evidence for Catterick in the later Anglo-Saxon period although it seems to have remained an important estate and in the immediate post-Conquest period Domesday Book records it as one of the largest manors in the area (Page 1968)

- 3 14 Scorton village was first recorded in the 1173 version of the Domesday survey. It was a two-row village with green, a typical northern village-type. The village was surrounded by a field system comprising blocks of ridge and furrow cultivation, of which parts have been recorded during previous watching briefs within the eastern part of Scorton Quarry (NAA 2003b, 2004, 2008). Some elements of this system survived to be incorporated into the boundaries of the post-medieval Enclosure field layout. A small area of ridge and furrow appears to survive as up-standing earthworks within the planned quarry extension area 4A just to the east of the present extension area. The village was first recorded cartographically as 'Skorton' in 1610 by John Speed (1611).
- 3 15 Tancred Grange was built during the later 19th century on a green-field site. The 2008 quarry extension area was bisected by the road to Scorton from Brompton-on-Swale. Creation of RAF Scorton during the Second World War swept away the field system across much of the area of the quarry, including the current extension area. It was a satellite station of RAF Catterick and a number of British, Canadian and American fighter squadrons were based there. The aerodrome was closed in 1945. Since the airfield went out of use after the war, the area was returned to agricultural usage. The old road from Brompton, replaced by the existing road when the airfield was created, remained as an access road within the airfield and post-war farmland, but was removed from the current extension area fairly recently.
- 3 16 The only previous archaeological intervention within the area stripped during this phase of work was a brief programme of fieldwalking undertaken by The Brigantia Archaeological Practice in October 1999. Although undertaken under good conditions no artefacts of archaeological significance were identified.

4 0 AIMS AND OBJECTIVES

- 4 1 The aims of the work, as laid out in the Written Scheme of Investigation, were
- to carry out the overburden stripping operations in a careful, controlled and supervised manner to allow condition 43 [of the planning permission] to be fulfilled
 - to preserve by record the features and deposits of the remaining portion of the Cursus monument both in section and plan form
 - to preserve by record any other archaeological remains that form the archaeological landscape or context for the Cursus
 - to carry out a programme of sampling and archaeological science on soil, palaeo-environmental and dateable materials to establish the chronological and environmental context of the Cursus

- to recover information about the character, distribution or density of worked flint assemblages in the extraction areas
- to recover artefacts and small finds, record their location, and undertake investigative conservation in accordance with national codes of practice and standards
- to bring the results of the fieldwork and the recorded information into the public domain through a programme of post-excavation analysis, publication and deposition of the archive with a publicly accessible museum or records office

5 0 METHODOLOGY

5 1 The areas were stripped using a 360° tracked excavator using a toothless bucket and operating under archaeological supervision at all times. The machine removed topsoil and any subsoil down to a level at which significant archaeological deposits were first identified or down to natural gravel, whichever was reached first.

5 2 Where archaeological features were identified, the stripped surface was cleaned by hand. Features were then planned and photographed. Hand excavation of selected archaeological features was undertaken to evaluate depth, dimension and preservation of archaeology, and to ensure recovery of sufficient artefactual and environmental evidence to enable dating and interpretation of the archaeology to be achieved.

5 3 In areas where archaeological features were identified, planning grids were established using a Leica TC 500 total station linked to a Fujitsu Stylistic 1200 pen computer using PenMap software and related to the National Grid. Information was transferred to AutoCAD 2004 software and reproduced for incorporation within the report.

5 4 The site code was TQS08.

5 5 Sections were drawn at a scale of 1:10. Significant archaeological features were planned at a scale of 1:20, less important and extensive features such as ridge and furrow and field boundaries at a scale of 1:50 or recorded by survey. Levels were tied-in to Ordnance Datum.

5 6 A written description of features was recorded on pro forma sheets using the NAA context recording system.

5 7 A photographic record of the site was taken using monochrome prints and colour slide at a format of 35mm, supplemented by digital photographs as

appropriate Digital aerial photography was also undertaken using a kite-system

- 5 8 The stripped surface was scanned with a metal detector after topsoil stripping Only pre-modern metal finds were retained for specialist assessment
- 5 9 Forty-litre bulk palaeoenvironmental samples were taken from appropriate deposits (such as ditch and pit fills) and submitted for assessment Recovery and sampling of environmental remains was in accordance with guidelines prepared by the English Heritage (2002b, 2003)
- 5 10 Pottery was collected as bulk samples whilst significant artefacts were three-dimensionally recorded prior to processing Finds were recorded and processed and submitted to specialists for post-excavation assessment
- 5 11 All finds recovered were appropriately packaged and stored under optimum conditions Finds recovery and storage strategies were in accordance with published guidelines (English Heritage 1995, Watkinson and Neal 1998)

6 0 RESULTS

6 1 The area was generally covered by 0.3m of modern ploughsoil [500] (dark brown sandy silt) containing moderate quantities of gravel This thinned to only some 0.2m along the northern edge of the area This indicated that the greater depth noted elsewhere was of recent origin, the northern fence-line being a temporary quarry boundary inserted in the 1990s Across most of the area the topsoil overlay a subsoil horizon [501] consisting of mid brown silty sand containing frequent sand This was generally some 0.2m thick across the area, although in some places it was absent over higher points in the underlying gravel and in others it was deeper, in-filling hollows in the gravel surface Parts of this deposit were clearly natural, for instance where it was cut through by the cursus, but in general it appeared to be a relict ploughsoil horizon resulting from ridge and furrow cultivation, being absent in the area of the former road crossing the site (which was respected by the ridge and furrow) It was not possible to distinguish between the two The natural deposits [502] exposed at the stripped surface across the area comprised sorted and unsorted gravels with pockets of sand and occasional small patches of silty clay There were numerous tree-holes cutting these deposits

- 6 2 Archaeological features recorded across the two areas could be broadly divided into five main groups
- Features forming the cursus within the eastern part of Area 2
 - A series of 4-post structures distributed across the western edge of both areas

- Ancient linear field boundaries crossing the western half of both areas
- Undated pits and postholes scattered widely across both areas
- The post-medieval roadway crossing the site dividing the two areas, and the associated agricultural landscape comprising former field boundaries and cultivation furrows to north and south of the roadway

The cursus

- 6 3 The four anticipated ditches comprising the Scorton Cursus were revealed during the topsoil stripping crossing the north-eastern corner of Area 2 obliquely from north-west to south-east (Figure 3, Plate 1) Within the stripped area, the monument measured approximately 47m wide and was exposed over a maximum length of 79m on the western side No other associated features were identified, and no traces of the central bank remained in this area, it was considered likely that this had been lost within the excavation area recently as a result of deeper ploughing, since it was recorded immediately to the north in 1996, and, as noted above, recent ploughing has been to a demonstrably greater depth No finds were recovered from any of the features of the cursus

Main north-eastern ditch 582

- 6 4 This was recorded over a length of 21 0m within the main excavation area, running from north-west to south-east An additional c 7m of the feature was observed where the bund at the northern edge of the area was subsequently removed The ditch was 2 9-3 85m wide at the machined surface, the variation to some extent being caused by slight machine truncation A single section 5 0m long was hand-excavated across the feature, and the remainder was subsequently excavated by machine The opportunity was also taken to photograph the section of the feature where it was exposed within the old quarry workings immediately to the north of the new area, although no further investigation or recording was possible on safety grounds
- 6 5 The ditch had a surviving depth of up to 0 96m with a rather shallow 'U'-shaped profile (Figure 4, section 129) The base and lower sides of the ditch were generally lined with a primary deposit of dirty gravel [585], between 0 10 and 0 30m thick This was generally symmetrically deposited, with no indication that any of it derived from a former bank standing to one side of the ditch The exception to this description was that at the north-western end of the feature, the central base of the ditch was clear of this deposit, and filled with a lens of compacted very dark greyish brown (almost black) sandy silt [584] containing frequent cobbles This was up to 0 7m wide and up to 0 2m thick, tailing-off to the south-east A soil sample produced a few tiny fragments of unidentifiable wood charcoal The profile of the deposit suggested that it may have filled the base of an otherwise undetected re-cut of the ditch The

remainder of the ditch was filled above these deposits with a fairly stone-free homogeneous mid brown silty sand [583]

Main south-western ditch [505]

- 6 6 This lay some 34m (center to centre) to the south-west of, and parallel to, ditch [582] (Figure 3) It was recorded over a length of 64.5m within the main excavation area with an additional c 6m observed during removal of the old bund to the north. A total length of 17.6m of the feature was hand-excavated in four segments (numbered [541], [548], [557] and [564] running from north-west to south-east), with the intervening segments subsequently emptied by machine. Within the investigated area it was generally slightly wider than ditch [582], being typically some 4.0m wide (Plate 2), although at the south-eastern edge of the area it narrowed sharply to only some 3.0m wide. The feature had extremely convex upper edges, presumably due to weathering and erosion, and as a result at one point it widened in plan to 5.0m, although removal of an additional few centimetres by machine showed that this additional width was not reflected by a widening of the underlying ditch. The ditch was straight, and had a fairly uniform wide, shallow 'U'-shaped profile (Plate 3), surviving to a depth of 0.62-0.98m depending on the extent to which it had been truncated (Figure 4, sections 116, 119, 126, 127)
- 6 7 The primary fill running down the sides and across the base of each of the hand-excavated segments consisted of 'dirty' gravel presumably eroded from the sides of the ditch shortly after it was excavated. Larger stones had typically accumulated along the centre of the ditch-base. This deposit (numbered respectively [546/547], [552], [563] and [597] in the four hand-excavated segments) was up to 0.40m thick. In ditch segment [541] more of this deposit had accumulated against the north-eastern (inner) side of the ditch, however in the other three excavated segments the accumulation was either slightly or much greater along the south-western (outer) side. In addition, during subsequent machine excavation a considerable quantity of this material was observed against the outer edge of the ditch in the area between segments [548] and [557]. The tentative conclusion from these observations is that the spoil from excavation of the ditch was initially deposited in a bank lying close to the south-western (outer) side of the ditch, with little or no berm between
- 6 8 Once the ditch-sides had stabilised, a very dark greyish-brown (almost black) deposit of sandy silt (numbered respectively [545], [551], [562] and [579]) accumulated along the centre of the ditch-hollow, although to the south-east it petered out within ditch segment [564]. This deposit was 1.1-1.65m wide and up to 0.18-0.25m thick. It was analogous to deposit [584] in the north-eastern main ditch [582]. A similar deposit was recorded by Topping (1982, 10) filling both of the ditches where they were excavated in 1978, although at that point the ditches were so truncated as to have lost any overlying fills. He suggested that the dark colouration of the deposit was a result of humus having been washed down through the soil profile, although microscopic analysis suggested

that it was caused by minute carbon particles, with some tiny fragments of oak (*Quercus*) charcoal being identified (Matheson 1982) Soil samples from contexts [551], [562] and [579] produced similar fine traces of unidentifiable charcoal, but each sample also produced single carbonised cereal grains, one each of barley, naked wheat and another poorly preserved wheat gram

- 6 9 Within ditch segment [548], the 'black' deposit was overlain by a substantial dump of re-deposited gravel [550] (Plate 5, Figure 4 section 122) This was linear, crossing the ditch at an angle, aligned from east to west It was 4.6m long, 2.6m wide and up to 0.32m thick, with a convex upper surface and dipping down slightly towards the centre of the ditch This deposit appeared too 'neat' to be a random dump, and was probably a deliberately constructed causeway across the ditch The source of the material for its construction was not apparent, but it may have used material derived from the external bank postulated above Perhaps related to this episode, gravel lenses were recorded in a similar stratigraphic position overlying the 'black' deposit in the adjacent excavated segments (respectively contexts [544] and [561]), each more than 15m away, suggesting widespread re-modelling of the monument at this point in the ditch-silting sequence
- 6 10 The main upper part of the ditch throughout its observed length was filled with a fairly homogeneous relatively stone-free mid brown silty sand (overall number [506], excavated segments [543], [549], [560] and [567]), similar to the main fill of main north-eastern ditch [582] This was the main deposit visible at the machined surface It had accumulated around and sealed 'causeway' [550] The deposit was 2.1-3.1m wide and 0.36-0.38m thick, and appeared to be a gradual accumulation of wind- or water-borne material Where the complete profile of the ditch was recorded at the northern edge of the area (segment [541]), this deposit was sealed by a thin lens of gravel [542] which probably represented worm-sorted stones from the overlying ploughsoil A similar deposit [559] was observed overlying the ditch fill within segment [557], although in this case greater slumping of the ditch fills meant that within the centre of the ditch hollow this was in turn overlain by a deposit of mid brown sandy silt [558] which was probably part of the wider subsoil [501] (presumably a relict ploughsoil horizon) present across much of this part of the site
- 6 11 Near the south-eastern edge of the area, the main fill was overlain along the north-eastern edge of the ditch by a layer of cobbles [566] (Figure 4 sections 126 and 127, Plate 4) Where present, this was fairly consistently 2 cobbles (c 0.15m) thick, the stones being laid in a mid brown gntty, slightly silty sand matrix This appeared to be a deliberately laid surface It was observed over a length of 9.2m along the ditch, continuing to the south-east, and extended up to 2.4m across the ditch fill, having apparently been truncated to the south-west as a result of ploughing and slightly during machining This surface had clearly been laid after the ditch had become fully silted, but bore no relationship to any known post-medieval activity and was hence likely to have

been of some antiquity. A copper alloy mount of probable post-medieval date was found during cleaning (context [565]) over this surface.

Outer north-eastern 'ditch' 598

- 6 12 This feature was observed over a length of 14.4m within the main excavation area (Figure 3). It could not be observed in the area where the northern bund was removed since it lay within the plant access. It ran parallel to, and 2m to the north-east of, ditch [582]. In plan it was slightly sinuous, up to 1.05m wide and had a distinctive appearance, the north-eastern half being filled with fairly 'clean' redeposited gravel [600] and the south-western half being filled with mid brown silty sand soil [599]. A 4.05m segment of the feature excavated at the northern edge of the area showed that it had a steep-sided 'U'-shaped profile and was 0.54m deep. The recorded sections at either end of this segment proved to be atypical of the feature as a whole, at the northern edge of site the gravel fill [600] was absent whilst to the south-west it occurred down both sides and across the base of the cut. Despite this, the best interpretation of this feature was that it was a palisade trench rather than a ditch, originally with a row of posts positioned along the south-western side of the trench (represented by soil fill [599]) with gravel packing material [600] along the north-eastern edge.
- 6 13 At the northern edge of the area, feature [598] cut through a shallow hollow [601] filled with mid brown sand and pea-grit [602]. This was considered to be a natural feature pre-dating the cursus.

Outer south-western 'ditch' 503

- 6 14 The outer western ditch [503] was observed over a total length of 72.5m within the main excavated area, with an additional c. 6.0m observed at the northern edge of the area where the old topsoil bund was removed (Figure 3). Four segments were hand-excavated across this feature (numbered [570], [572], [571] and [614] respectively from north-west to south-east) with a total length of 19.5m representing 25% of the available length.
- 6 15 As first stripped, ditch [503] appeared as a clearly visible, slightly sinuous band of soil fill (numbered [504]) against the natural gravel. This was probably the component responsible for the distinct cropmark visible on aerial photographs. Upon excavation, however, it became clear that this was only the uppermost fill of a sequence of ditch or gully features otherwise back-filled with gravel and extremely difficult to distinguish from the surrounding undisturbed natural gravel. These were in places almost invisible at the level of the stripped surface when viewed from ground level and parts could only be seen after weathering and under the right light conditions, however they could be seen more clearly in aerial photographs of the stripped area. It is possible that in previous excavations on more truncated parts of the cursus, the obvious upper soil fill may have been lost and only the barely distinguishable lower fills have

remained and have defied identification, particularly within the relatively restricted length of the cursus examined by Topping in 1978

- 6 16 The group of gully features [503] were least plough-truncated within segment [570] at the northern edge of the area, which had been relatively protected from ploughing since the late 1990s (Plate 6) At this point, the earliest component was a slot or gully [594] defining the north-eastern edge of the group, lying some 2-3m from the outer edge of the main cursus ditch [505] (Figure 5 section 124) Slot [594] had a sloping north-eastern side and rounded base, with a surviving width of 0.80m and depth of 0.45m, and had been back-filled with gravel [595] mixed with some mid brown silty sand soil A second larger cut [586] had then been dug adjacent to, and cutting, the south-western edge of [595] (although see the discussion below) The two features diverged slightly to the north Cut [586] had a wider upper section 2.2 m wide with gently sloping sides and up to 0.40m deep, and a deeper central section 1.50m wide at the top The overall maximum surviving depth of the cut was 0.87m
- 6 17 Within the base of the deeper part of cut [586] stood a central 'spine' [587] of gravel mixed with some mid brown soil, up to 0.40m wide and 0.35m high and with vertical sides The form, position and nature of this deposit suggested that it had been packing material between two rows of contiguous vertical posts set along either edge of cut [586] and represented by two slots, [590] running along the north-eastern (inner) side of the larger cut and [588] running along the south-western (outer) side These were each 0.4-0.6m wide and up to 0.50m deep Slot [590] was filled with mid to dark brown sandy silt [591], generally containing moderate quantities of gravel but with a denser lens of gravel running down the north-eastern side which possibly represented remnants of post-packing material opposing packing [587] to the south-west Slot [588] had a similar fill [589], although evidence for this possible packing material was less clear
- 6 18 The wider upper part of cut [586] appeared to have been created subsequently in order to extract the presumed post-rows This extraction episode resulted in disturbance of the upper part of the central packing (represented by deposit [592]), which collapsed to either side over the resulting voids The resulting linear hollow then seems to have been left open, and filled gradually with wind- or water-borne almost stone-free mid brown silty sand [593] (part of overall deposit [504]) The very top of the ditch hollow (lost elsewhere due to modern ploughing) was filled with a lens of pea-grit [596] possibly dragged into the feature from the top of the adjacent natural gravel when ploughing first occurred across the monument (until regularly ploughed, the natural deposits will have been overlain by a layer of pea-grit worm-sorted from the overlying topsoil)
- 6 19 Three other segments excavated across Group [503] further to the south were more truncated due to modern ploughing but recorded a similar sequence of

deposits. The earlier north-eastern cut was traced in plan as a separate feature over a distance of 35.2m before being cut away to the south-east by the larger later cut. Another 5m length of the feature (cut [573], fill [574]) was excavated as part of segment [572]. Although it was no longer visible as a separate feature in plan as far to the south-east as segment [271] its north-eastern edge may still have been present, indistinguishable from the north-eastern slot within the later feature, which was unusually wide at this point.

- 6.20 The wider, later feature was fairly consistent in nature where excavated in the remaining three excavated segments, although more truncated. The primary cut (excavated respectively as segments [658], [656] and [615], from north-west to south-east) varied in width from 1.75-2.0m wide and survived up to 0.4m deep. The central spine of packing material ([659], [657], [616]) was 0.45-0.7m wide and consistently formed of re-deposited gravel mixed with small quantities of mid brown soil. The separate north-eastern ([553], [577], [620]) and south-western ([555], [575], [617]) slots continued much the same throughout the full observed length of the feature (Plate 7).
- 6.21 The base of the final soil-filled re-cut of the feature survived at segments [572] and [571]. At segment [572], this feature appeared to be targeted over the outer (south-western) slot and apparently cut the backfill of the inner slot. The possible implication of this observation on interpretation of the sequence of events within this feature group is discussed in Section 7 below. Also at segment [572], the south-western edge of the group had subsequently been cut by a shallow hollow [580] (fill [581]) interpreted as a later tree-disturbance.

Iron Age and Romano-British

- 6.22 A series of five small structures was recorded scattered in a rough line from north to south across the western edge of the stripped area (Figure 6). As discussed below, these were considered, on morphological grounds, likely to date from the pre-Roman Iron Age. Each structure was represented by four small postholes arranged in a square or near-square arrangement.
- 6.23 Near the southern edge of the area, 4-post structures [518] and [509] were each fully excavated. Structure [518] measured 2.2-2.3m from north to south by 1.95-2.0m, between posthole centres (Plate 8). Three of the individual circular postholes ([519], [523] and [525]) were 0.40m in diameter and cut 0.31-0.38m into the gravel, generally with near-vertical sides and fairly flat bases. The south-eastern posthole [521] was rather slighter, only 0.24m in diameter and 0.07m deep. Each was filled with mid to dark brown slightly clayey sandy silt containing varying quantities of gravel. Within posthole [519] at the north-eastern corner, the distribution of the gravel in fill [520] suggested the presence of a post-pipe some 0.25m in diameter towards the eastern side of the cut. Similar possible post-pipes some 0.20m in diameter were uncertainly identified centrally with posthole [523] and at the eastern side of posthole [525], respectively forming the south-western and north-western

corners of the structure. Soil samples recovered from the fills of postholes [519] and [525] (respectively contexts [520] and [526]) produced a very small quantity of unidentifiable wood charcoal, a carbonised gram of barley and two unidentifiable cereal grams.

- 6 24 Structure [509], located some 16m to the north-west, measured 2.2m square (posthole centres). Postholes [510], [514] and [516] (respectively forming the northern, southern and western corners) were 0.33-0.43m in diameter and 0.25-0.30m deep, whilst posthole [512] at the eastern corner was slightly larger at 0.50m diameter but of a similar depth. The postholes had vertical or near-vertical sides and flat bases, and were notable for the neat way they had been cut. The posthole fills were generally similar to those of structure [518]. No post-pipe was detected in posthole [510], but it produced a single heat-shattered and blackened cobble fragment. In posthole [512] some larger stones within the north-western side could perhaps have been post-packing. Within postholes [514] and [516], larger stones concentrated within the south-western halves of the features suggested that posts some 0.25m in diameter had stood against the north-eastern sides.
- 6 25 A third 4-post structure, [633], lay a further 16m to the north. This measured 2.4m from east to west and 2.2m wide (posthole centres). A sample of two of the postholes were excavated, [634] at the north-eastern corner and [636] to the south-east. The remaining postholes ([638] and [640]) remained unexcavated. The postholes were 0.33-0.40m in diameter. The two excavated examples cut 0.15-0.20m into the gravel and had near vertical sides and flat bases. All of the features were filled with mid to dark brown silty sand containing some small gravel. Within posthole [636] some larger cobbles within the western half probably indicated that the post had originally stood against the eastern side of the cut.
- 6 26 Structure [629] was located some 44m north of structure [633]. It was the smallest of the 4-post structures, measuring 1.6m square (posthole centres). The southern ([625]) and western postholes (respectively [625] and [627]) were each half-sectioned, the northern and eastern northern postholes ([621] and [623]) remained unexcavated. The postholes were 0.35-0.53m in diameter, and, where excavated, were 0.23m deep. They were filled with mid to dark brown silty sand containing moderate quantities of rounded gravel. No post-pipes were identifiable.
- 6 27 The fifth 4-post structure, [613] was located on its own near the north-western corner of Area 2. The south-western, north-western and north-eastern postholes ([609], [611] and [605]) marked out three corners of a rectangle measuring 2.6m from east to west and 2.0m wide (posthole centres), however the south-eastern posthole [607] had been dug some 0.6m to the south-east of its expected position, resulting in an asymmetric plan. All four of the postholes were excavated. The postholes were each 0.40-0.45m in diameter and 0.15-0.18m deep with near-vertical sides and slightly concave bases. Within

- posthole [607] packing stones were concentrated within the western half of the fill, and in postholes [609] and [611] the packing stones occurred within the eastern halves of the fills. This suggests that the posts were stood against the outer edges of the postholes to east and west. No post diameters could be determined. The position of packing stones was not recorded for posthole [605].
- 6 28 Towards the centre of the southern edge of Area 4B, and some distance east of the 4-post structures, was an isolated pit [507] (Figure 7, Plate 9). This feature was circular with near vertical sides and a slightly rounded base. It measured 0.50m in diameter and had a surviving depth of 0.27m. The feature had been subjected to intense heat, the surrounding gravel having been burnt to a purple colour and the soil between the stones to a red biscuit. The fill [508] had a matrix of dark brown silty sand, containing large quantities of charcoal and fired clay fragments, concentrated mainly within the lower and upper parts of the fill respectively. Due to the nature of the deposit, a 100% sample was recovered. This produced a considerable amount of small fragments of iron slag and hammerscale, which is described in detail in Appendix B.
- 6 29 A rather sinuous linear feature [537] was recorded crossing the site, from near the south-western corner of Area 4B to a point near the centre of the northern edge of Area 2, running from south-south-west to north-northeast. It can be seen as cropmarks on post-war aerial photographs continuing to the north for some distance, crossing the former Banks Lane before forming a 'T-junction' with a similar east-west aligned feature. To the south it continued for a short distance before the crop-marks are obscured by a former airfield runway, but a probable return to the east can be seen crossing the southern part of the proposed quarry extension Area 3. Within the stripped Area 4B, another linear feature [642] ran westwards from feature [537]. As discussed below, although no dating evidence was recovered these features are considered by analogy to similar features seen elsewhere within the quarry to represent part of a widespread later Iron Age or Romano-British enclosed agricultural landscape. Since they cut across the area occupied by the 4-post structures described above apparently without reference to them, the linear features are considered likely to represent a separate, probably later, phase of activity. The extremely slight nature of the features suggested that they were not ditches but perhaps represented bedding trenches for hedges.
- 6 30 Feature [537] (overall fill [536]) was observed crossing the stripped area over a total length of some 222m, although within the southern part of Area 2 a 19m length could not be identified, probably as a result of truncation since there were no clear terminals flanking the resulting gap. To the north of the gap, the feature (here numbered [527], overall fill [528]) was recorded over a length of 73m. Two segments with a total length of 10m were hand-excavated across this feature. Segment [529] at the northern edge of the area had steep-sloping sides and a fairly flat base, and was 0.33-0.55m wide and 0.15-0.25m deep. It was filled with mid to dark brown slightly clayey sandy silt [530] containing

frequent gravel. At segment [533] excavated some 50m further south, the feature had a similar profile and measured 0.40-0.55m wide and 0.28m deep with a similar fill [534].

- 6 31 To the south of the gap, the boundary (overall fill [538]) was observed over a length of some 125m. A 5m segment was excavated across this feature towards the south-western corner of Area 4B. At segment [539] it was 0.80-0.85m wide and 0.35-0.40m deep with a 'V'-shaped profile and narrow rounded base. At this point it was cut through a pocket of natural silty sand, but the lower 0.20m of the fill [540] consisted of a deposit of almost pure gravel which must therefore have been deliberately introduced. This supported the idea that the feature was a bedding trench for a hedge, rather than having been intended as an open ditch, the gravel perhaps being placed to provide drainage for the plants in an area where the trench would otherwise have collected water. The upper part of the feature was filled with mid to dark brown silty sand.
- 6 32 Feature [642] ran westwards from this boundary to the western edge of the stripped area for a distance of 28.9m, although some 6.5m of this length had subsequently been disturbed by two large tree-throws. The feature was generally 0.5m wide and had a mid brown fill [643] similar to that of boundary [537]. It was not excavated.

Undated features (Figure 8)

- 6 33 Several other isolated features were identified scattered widely across the stripped area. None produced any artefacts or other dating evidence.
- 6 34 Posthole [603] was located close to the western side of the cursus, although there was no obvious association between the features. It was 0.50-0.55m in diameter and 0.28m deep with a 'U'-shaped profile. The western side of the feature was filled with a series of packing stones measuring up to 200mm, defining a post-pipe perhaps 0.25m in diameter. The feature was filled with slightly yellowish brown silty sand [604].
- 6 35 An isolated posthole [531] was located close to the western side of boundary [535] near the northern edge of Area 2. It was 0.33-0.36m in diameter and 0.17m deep with steep-sloping sides and a concave base. It was filled with mid to dark brown sandy silt [532] containing occasional small gravel concentrated towards the western edge, although there was no clear post-pipe.
- 6 36 Pit [568] was located towards the western side of Area 2. It was 0.68-0.73m in diameter and 0.30m deep, with very steep-sloping sides and a flat base. It was filled with mid to dark brown sandy silt [569] containing frequent gravel. A second pit [630] was located near the western side of Area 4B some 80m south of pit [568]. It was sub-circular, 1.25-1.30m in diameter and up to 0.38m deep with a rather irregular 'U'-shaped profile. It was filled with dark brown silty sand soil [631] containing moderate quantities of gravel. A sample taken from

this material produced a small quantity of ash and oak wood charcoal and a single carbonised gram of emmer or spelt wheat

Medieval and post-medieval features

- 6 37 A number of features relating to medieval or post-medieval agricultural and military use of the area were revealed during topsoil stripping. These were surveyed (Figure 2), but were not otherwise investigated
- 6 38 Prior to construction of the Second World War airfield, the excavation area was bisected from east to west by the road from Brompton to Scorton village, which was moved south to its current position as part of the construction works. The line of the former public road was retained as a roadway within the airfield. Prior to construction of the airfield, a field boundary [650] ran southwards from the road. To the north of the road, a field boundary ran across the extreme north-eastern corner of the excavation area, and to the west a second parallel boundary [652] ran northwards bisecting Area 2. All of these features were recorded on the First Edition Ordnance Survey map and as cropmark features on post-war aerial photographs and were also recorded during the 2008 watching brief and excavation. The map also recorded a field well found during stripping
- 6 39 The earliest of these features recorded were two blocks of furrow-bases from ridge and furrow cultivation. No associated finds were recovered to indicate whether these were of medieval or early post-medieval origin, however, where medieval furrow-bases were recorded slightly to the north in 2003, these produced significant quantities of medieval pottery derived from manuring, suggesting that the finds-free furrows recorded in 2008 are more likely to be early post-medieval in origin. A group of furrows [653] located to the north of the former road were aligned from north-northwest to south-southeast at right angles to the road, and were spaced 8m apart (centre to centre). The surviving bases were up to 3m wide and filled with mid brown silty sand soil
- 6 40 At some point, this ridge and furrow had been subdivided by insertion of ditched field boundaries running on a similar alignment to the furrows and following a similar classic 'reverse-S' plan typical of this type of agriculture. Ditch [652] bisected Area 2 from north-north-west to south-south-east, following the line of a furrow from which it deviated slightly at the southern end. At its southern end it could be seen on aerial photographs to return to the east bounding the southern edge of the ridge and furrow, before being obscured by later roadside features. In plan, ditch [652] was 1.8-2.2m wide. Along the western side was a band of brown soil up to 1m wide, much of which probably represented fill of the underlying furrow, with a similar, narrower band along the eastern edge. Between these was a dark brown soil fill up to 0.8m wide, containing quantities of 20th century pottery, brick, tile and animal bones. Part of a second, parallel, ditch [654] was noted crossing the extreme north-eastern corner of Area 2 some 120m to the east of ditch

- [652] This was recorded by the First Edition Ordnance Survey map of 1857 and was not investigated. It also followed the 'reverse-S' form of the ridge and furrow, and was presumably contemporary with ditch [652].
- 6 41 To the south of the former road, the second block of ridge and furrow [651] was aligned from west-southwest to east-northeast, curving slightly to the north-east following the curve of the roadway. The furrows were spaced 7.5m apart, were up to 2m wide and contained a similar fill. The full width of this 'field' lay within the stripped area. It was bounded to the south by a previously unrecorded probable boundary ditch [655], which was up to 2m wide and recorded running across the full width of the stripped area. It ran straight, so that it diverged slightly from the furrows to the east. Along most of its length it had a similar fill to the furrows, but at its western end the exposed fill was a black organic silt, suggesting that it had been an open feature (i.e. a ditch rather than a furrow-base). No furrows survived in the area to the south of this feature. The next 'furrow' to the north ran parallel to this ditch rather than the more curved furrow to the north, and it is possible that it and ditch [655] actually represented the flanking ditches of a former trackway.
- 6 42 The two blocks of ridge and furrow respected a corridor presumably representing an early version of the former Brompton to Scorton road. At some point, possibly when it became a turnpike road during the later 18th or early 19th century, the roadway (group [644]) was formalised by the provision of flanking drainage ditches, [649] to the north and [647] to the south. These were 1.2-1.5m wide at the stripped surface, but presumably rather wider at the original ground level, leaving 8-10m for the roadway between, comparable to the surviving part of the road immediately to the east of the stripped area running towards the village. The roadway was widened as part of this process, with ditch [649] cutting across the ends of some of the earlier furrows and the southern end of boundary [652]. A recessed gateway, which probably also served as a passing-place, was provided through this new boundary into the field lying between boundaries [652] and [654]. On cartographic grounds all of these changes are known to have pre-dated the mid-19th century.
- 6 43 Also by this time, the southern ridge and furrow and the associated boundary [655] had gone out of use, and had been cut across by a new boundary [650] running southwards from the roadway. This was represented in the ground by a very small ditch only 0.3-0.5m wide at the top of the gravel and filled with mid brown silty sand soil.
- 6 44 The First Edition Ordnance Survey map recorded a field well towards the eastern edge of Area 2. This was identified during topsoil stripping but not excavated. The circular well had an internal diameter of 1.05m. It lay within a construction cut 1.8m in diameter and was built of cobbles backed by a distinctive mid brown clayey sand dissimilar to the nearby natural deposits and presumably imported from another source. The well had been deliberately backfilled with topsoil containing machine-made brick fragments.

6 45 All of these features were presumably removed when the military airfield was laid out. The section of the roadway within the airfield was rebuilt without the flanking ditches (and presumably hedges, which would have been a hazard to aircraft), these being replaced by two drains, [646] and [648], consisting of concrete pipes laid in trenches back-filled with sand. The trackway bounding the excavation area to the east was also laid out at this time as part of the airfield perimeter road, and was flanked by a similar concrete drain. A third concrete drain noted at the western edge of the area probably flanked a runway which ran from north to south just beyond the stripped area. No other military features were noted within the area, which lay within the open central part of the airfield.

7 0 SUMMARY SPECIALIST REPORTS

Flint

Archaeological potential

7 1 A single fragment of flint was recovered from the field surface (context [500]) in advance of topsoil stripping. The fractures on this piece are consistent with plough-damage and it does not appear to have been deliberately worked. It was therefore not submitted for specialist assessment.

Recommendations

7 2 The flint should be discarded.

Prehistoric pottery

Archaeological potential

7 3 A single small chip of pottery of Iron Age character was recovered during processing of a soil sample taken from one of the postholes forming one of the four-post structures. In view of the small size and non-diagnostic nature of the material, it has not been submitted for specialist assessment.

Recommendations

7 4 The pottery sherd does not warrant further analysis. It should be retained with the site archive.

Post-medieval pottery

Archaeological potential

- 7 5 A total of thirteen sherds of pottery weighing 80g were recovered from the field surface (context [500]) in advance of topsoil stripping. All of the material is post-medieval, ranging in date from the 17th to 19th centuries. Due to its scattered nature and limited archaeological potential this material was not submitted for specialist assessment.

Recommendations

- 7 6 No further analysis of this material is recommended. It should be retained with the site archive.

Small finds

- 7 7 For the full small finds report by Gail Hama, please see Appendix A.

Archaeological potential

- 7 8 A single cast copper alloy strip was submitted for assessment from this phase of work. The item was examined by Durham University conservation laboratory but was considered to be of recent manufacture. The object is cast but crudely finished and of substantial weight. It is complete and would therefore not have functioned as a binding strip. Miscellaneous decorative strips and fittings are frequent finds from late medieval and post-medieval contexts. The item if adorned, however, is likely to have been robust to accommodate the weight of such a fitting. A date range of 17th-18th century is feasible.

Recommendations

- 7 9 The object does not aid the interpretation of this site, is of no intrinsic interest and can be discarded.

Metalworking debris

- 7 10 For the full metalworking debris report by Jane Cowgill, please see Appendix B.

Archaeological potential

- 7 11 The 100% sample taken from pit fill [508] produced 771 pieces weighing 1699g. With the exception of some stones, these were probably the by-products of iron smelting using a shaft bloomery furnace. It is likely that all the pieces recorded as fired clay are in fact pieces of furnace structure. The vitrified pieces contain some potentially important information regarding the construction of the furnace structure (discussed in Appendix B).

- 7 12 No large pieces of tap slag or any block slags were recovered from the sample or during excavation. It is possible that most of the slag was lost due to truncation. The majority of the slag recovered from pit [507] is small. There are some small tap flows, dribbles and balls, but again these are all small in size. There is a reasonably large quantity of hammerscale, of which c 7% is spheroidal, a type that forms during hot-forge welding and this would include bloom smithing. Although this is quite a small proportion in a bloom smithing assemblage, this is the most likely interpretation for the presence of this scale. In total this is a very small assemblage of slag and it is not possible to establish whether it is the by-product of both iron smelting and bloom smithing or just the latter.
- 7 13 The possible function of pit [507] and the likely source(s) of the deposit within it are discussed at more length in Appendix B. Overall, the evidence from this feature indicated that some time in the past between the Iron Age and c AD 1400 iron had been smelted at Scorton.
- 7 14 The other soil samples taken only produced small amounts of hammerscale, representing the background quantities that are found on many archaeological sites.

Recommendations

- 7 15 No further work is required on this assemblage and it needs no special storage conditions.
- 7 16 Two fragments of furnace structure are recommended for illustration.

Biological remains

- 7 17 For the full biological remains report by Alexandra Schmidl and Deborah Jaques (Palaeoecology Research Services), please see Appendix C.

Archaeological potential

- 7 18 No animal bone was recovered during the course of the work. Biological remains recovered from nine sediment samples which had been processed by NAA were submitted for an assessment of their bioarchaeological potential. The submitted biological remains were identified as closely as possible and their suitability for radiocarbon dating by standard radiometric technique or accelerator mass spectrometry (AMS) was also considered.
- 7 19 In general, only rather small quantities of identifiable biological remains were recovered from the washovers and the residues. The ancient plant remains present were preserved by charring. Most of the plant remains recovered from the samples were unidentified fragments of charcoal. Some of the larger pieces from several deposits in Areas 2 and 4B could be identified, most being hazel,

ash and oak, with some being less closely identified as alder/birch/hazel. The presence of oak stem wood charcoal in pit fill 508 suggested that oak was being used for fuel – oak burns at high temperatures with greater duration and is, therefore, an excellent fuel wood for a furnace – although its occurrence elsewhere may result from its use as structural timber.

Recommendations

- 7 20 The plant remains do not warrant further examination. All of the remains should be retained as part of the physical archive for the site.

Radiocarbon dating

Archaeological potential

- 7 21 Relatively little material suitable for radiocarbon dating was recovered during the watching brief and excavation carried out in 2008. Much of this came from isolated features producing no artefacts, and does not warrant further investigation. However, it is considered that radiocarbon dating samples should be submitted from three groups of features which are of sufficient interest and where suitable material is available.
- 7 22 There is only a very small dataset nationally for dating of cursus monuments, and their chronology is poorly understood. Very few radiocarbon dates are available from 'primary' contexts associated with construction and any subsequent structural phases of the monuments, and many derive from potentially 'old' material (Barclay and Bayliss 1999). There is currently no published dating evidence derived from previous excavations on the Scorton Cursus.
- 7 23 One of the primary aims of the excavation stated in the Written Scheme of Investigation was to recover "dateable materials to establish the chronological context of the Cursus". Although no artefacts were recovered from the cursus features, extensive soil-sampling of the primary 'black' silting deposit within the base of the main south-western cursus ditch has produced a total of three carbonised cereal grains. Due to the fragile nature of this material when exposed above-ground, it is likely that they are closely contemporary with formation of the deposit within which they were found. In addition, the compact nature of that deposit makes it relatively unlikely that the grains are intrusive modern material. As such they represent potentially high-quality radiocarbon sample material.
- 7 24 Pit fill [508] produced an unusual assemblage of iron-smelting debris. Due to the unusual aspects of the kiln debris recovered, and the possibility that this feature represents rare evidence for pre-Roman Iron Age industrial activity, it is recommended that a radiocarbon date be obtained for this feature. Although wood charcoal from a long-lived species like oak is not an ideal sample

material, due to the potential for 'old' wood to be represented, the large quantity of charcoal available makes it likely that either small round-wood or sapwood, near-contemporary with the date of the feature, may be present and suitable for sample material

- 7 25 Although a number of Iron Age rural settlement sites have been identified within the Catterick/Scorton area, there is relatively little close dating evidence associated with them. Dating of the structures identified at Scorton Quarry in 2008 would therefore represent a useful addition to the local settlement evidence for this period

Recommendations

- 7 26 It is recommended that a total of four samples be submitted for AMS radiocarbon dating. These would include
- the largest of the carbonised cereal grains from the primary fill of the south-western cursus ditch [505], either that from context [551], [562] or [579], in order to provide a probable terminus ante quem for excavation of the ditch and a terminus post quem for subsequent remodelling of the monument
 - the remaining two carbonised cereal grains from the primary fill of the south-western cursus ditch, in order to provide a probable terminus ante quem for excavation of the ditch and a terminus post quem for subsequent remodelling of the monument
 - carbonised cereal grains from posthole fill [526] in order to provide a date for the use of the 4-post structures
 - wood charcoal from pit fill [508] in order to date the assemblage of metalworking debris from pit [507]. Ideally the sample material will be a fragment of either small roundwood or sapwood charcoal, if present amongst the recovered material, in order to reduce the potential for 'old material' to compromise any dating result

8 0 DISCUSSION

The cursus

- 8 1 Loveday (1985, 2006, 26-7) has defined four mam groupings of cursus monuments based on length. He defines 'Major Cursuses' as those with recorded lengths of 1000-2000m. Six particularly large monuments with lengths of 2700-5640m he describes as 'Mega Cursuses'. Confusingly Scorton, with an unknown original length greater than 2100m, falls between these two groups, but until the north-western terminal is identified it is best regarded as a 'Major Cursus'. The recorded south-eastern terminal at Scorton was square, making it a type B cursus (ibid, 23). He goes on to add (p 24) "A distinctive group of rectangular sites laid out with considerable geometric precision " including Scorton are " termed B1 sites". Although the monument displays classic cursus-like features, in its final form the single central bank places Scorton Cursus within the 'bank-barrow' class of monument.

The mam cursus ditches

- 8 2 The ditches as excavated in 2008 were very similar in size and profile to sections investigated previously in various locations along the monument to the north-west. Thubron (DoE 1977,70) did not identify evidence for re-cutting of the mam cursus ditches in her 1976 excavation (contra Hedges and Buckley 1981, 31). Topping (1982, 10) reported possible single re-cuts within the base of both of the mam ditches. The short note published by Field Archaeology Specialists on their 1996 excavation at The Grange states that at least two re-cuts were visible within the north-eastern ditch, although the wording if taken at face value implies that this was not seen in the excavated section but only in plan. Where the section in the quarry face adjacent to the 2008 excavation was recorded, FAS noted a re-cut towards the outer (north-eastern) edge of the north-eastern main ditch (FAS 1997, 15). As discussed above, extremely tentative evidence for a possible re-cut within the north-eastern ditch was noted during the 2008 excavation, although only in one of two opposing sections across the ditch, suggesting that if there really had been a re-cutting episode it had been localised in nature.
- 8 3 The nature of the ditch fills recorded by Thubron in 1976 uncertainly suggested that there had been external banks to either side of the cursus (DoE 1977, 70). The evidence from the recent excavation of the south-western mam ditch supported this interpretation. Although in the northern excavated segment there was more primary weathering deposit of gravel along the inner (north-eastern) side of the ditch, in the other three excavated segments the accumulation was either slightly or much greater along the outer side and, as noted above, a considerable quantity of this material was observed against the outer edge of the ditch along a c 20m length. There was no evidence of corresponding erosion of the side of the ditch in this area and the obvious

conclusion is that the material derived from collapse of a bank lying close to the side of the ditch, with little or no berm between

- 8 4 The 'black' primary silting of the main cursus ditches is of some interest. This appears to be part an equivalent deposit to that recorded by Topping (1982, 10) in 1978 filling the base of both of the main cursus ditches, when it was shown that the dark colouration was the result of the presence of quantities of finely comminuted charcoal fragments, the recent samples also producing a fine charcoal fraction. Comminuted charcoal and carbonised grains have been noted at a number of other cursus monuments, at Aston on Trent on the old land surface between the cursus ditches, and at Potlock and Maxey within the ditches themselves (Loveday 2006, 127-8). A very similar deposit to that recorded within the Scorton ditches was noted filling the base of a probably near-contemporary ring ditch at Bainesse some 3km to the south-west in 2005 (Speed forthcoming b). This feature also produced carbonised grains and Peterborough Ware pottery.
- 8 5 The secondary 'causeway' inserted across the main south-western ditch within the 2008 excavation area was perhaps similar to areas of backfilling across both main ditches recorded by Thubron in 1976 (DoE 1977, 69). Due to the shape of the 2008 excavation area it was not possible to determine whether there was a similar 'causeway' across the north-eastern ditch at this point. As noted above, lenses of disturbed gravel at the same stratigraphic level elsewhere within the south-western ditch fill suggests widespread re-modelling of the monument at this time, and the causeways could have been constructed in order to facilitate repositioning of primary external banks to form a secondary central bank.

The flanking palisade trenches

- 8 6 Outer ditches have only been reported at two other cursus sites. A double ditch is visible on aerial photographs of the cursus at Stratford St Mary, Suffolk (Hedges and Buckley 1981, 12) and on at least one side of the cursus at Brampton in Cambridgeshire (Malim 1999, 80-1). Sections excavated across the latter showed it to be a very slight feature only 0.9m wide and 0.1m deep and ending in a squared terminal. The excavator considered that it had been flanked by a bank standing on its inner (cursus) side.
- 8 7 The outer features flanking the main enclosure of Scorton Cursus were not recorded during any of the previous investigations to the north of the recent excavation. They are not referred to in the brief published account of Thubron's 1976 excavation, although apparently the cursus in the area of her investigation had already been truncated by 0.25-0.50m during topsoil stripping which could have removed all trace of these slighter features (DoE 1977). The flanking features are clearly visible on aerial photographs taken in 1949 and 1975 (e.g. DQ076, BTY054) running across the whole width of the former airfield and approaching north-westwards to within c. 100m of the 1976

excavation, however the crops in the fields to the north of the airfield did not produce similarly clear crop-marks, and only the mam cursus ditches are visible in this area

- 8 8 During the 1978 excavation slightly further to the north, the south-western mam cursus ditch was only examined in a 'keyhole' trench, which was probably too limited in size to have encompassed any flanking feature (Topping 1982, Fig 2) However, the trench sited across the north-eastern mam ditch extended for some 13m beyond it but did not identify the flanking feature Again, the cursus seems to have been rather truncated (either due to ploughing or erosion) with the main ditches only surviving to a depth of 0.45m, so again any flanking features in this area may already have been lost The outer feature on the north-eastern side of the cursus was not recorded in the 1996 FAS excavation at Grange Farm, although it is clearly visible on the 1949 aerial photographs (DQ075-076) only some 80m to the south-east, as noted above Additionally, they were not recorded in 1996 in the quarry face immediately to the north of the 2008 excavation, although they have subsequently been seen clearly in plan in the same location
- 8 9 The 2008 excavation hence provided the first opportunity to investigate these unique flanking features Once the final soil in-filling of the south-western feature had been removed it immediately became apparent that it consisted of a sequence of palisade trenches The inner (north-eastern) trench was clearly the primary feature, only being visible within the north-western part of the area and cut away to the south-east As excavated in the north-western and south-eastern segments ([570] and [614]), the larger secondary feature appeared to be a single trench which had held two parallel rows of posts, one against each side of the cut However, within segment [571] there was some disparity in the depth of the two slots which had held these posts, the outer (south-western) slot being some 0.15m deeper In segment [572] further to the north, the possible re-cut to finally remove the posts from the feature seemed to be centred over this outer slot and indeed to cut through the backfill of the inner slot
- 8 10 Taking all of this evidence, two models for the sequence of events relating to this group of features can be suggested It is possible that what was represented in the ground was a sequence of three consecutive trenches, the palisade gradually being moved further south-westwards The apparent double-palisade trench can be explained by the packing of the second trench being along its south-western side and the third trench being cut through this packing on a closely parallel line and generally to a similar depth As noted above, the mam cursus enclosure ditch on this side has produced some evidence for a nearby external bank, and it is likely that the palisade revetted the outer side of this bank Decay of the first line of posts and resultant spread of the bank might have led to successive replacements being erected further back from the ditch The suggested re-modelling of the cursus from having external banks to a single internal bank would have made the revetting palisades redundant and

the final phase of palisade (and possibly any surviving remnants of earlier posts buried within the spread bank) would have been dug out, resulting (perhaps intentionally) in a linear hollow resembling a shallow ditch which was then left to silt up naturally

- 8 11 There is, however, ample precedent for Neolithic double palisades or double post-rows within the Vale of Mowbray, and this possibility for the Scorton Cursus should not be discounted in advance of future investigation. A Later Neolithic enclosure investigated at Marne Barracks, Catterick in 2004 consisted of a two concentric circuits each consisting of double rows of posts only some 1m apart (Hale and Platell 2007). Neolithic double post-rows have also been recorded at Thornborough (Harding 1998), at Marton-le-Moor and two at Roecliffe near Boroughbridge (Speed, in prep). The latter site is of some interest to the current discussion, since one of the double post-rows excavated ran parallel and adjacent to a ditch which could conceivably represent the western side of a cursus enclosure now entirely concealed beneath the A1 motorway. A radiocarbon date from wood charcoal recovered from the fill of the post-pipe within one of the postholes of this post-row provided a rather broad calibrated radiocarbon date range of 2900-1950BC at 2 σ (RCD-1595).
- 8 12 No discrete features which could be associated with the Scorton Cursus were identified during the 2008 excavation. In 1978 Topping recorded a pit, possibly a large ramped post-pit, located just external to the north-eastern mam ditch. There was no stratigraphic relationship between the two features. Another possible post-pit was observed in section in a nearby quarry face, located in a similar position relative to the cursus ditch. Topping (1982, 16) saw these post-settings towards the north-western end of the cursus as a continuation, in a different form, of the line of what he believed to be the small ditches flanking the rest of the monument. Loveday (2006, 39), however, sees these posts as remnants of an earlier monument replaced by the cursus. No such features were recorded either by Thubron or FAS along the sections of the cursus investigated immediately to the south-east, and were not present in the 2008 excavation area. The identification in 2008 of timber structures flanking the south-eastern two-thirds of the cursus raises the possibility that what Topping recorded was merely a change in form to the north-west of what was essentially a continuous timber structure flanking the full length of the monument.

Dating

- 8 13 The limited suite of available radiocarbon dates associated with the construction of other cursus monuments (including bank barrows) indicates a likely construction period for this class of monument between c 3600BC and c 2900BC (Barclay and Bayliss 1999, 25), although Loveday (2006, 194-5) suggests this could be extended to as late as the middle of the 3rd millennium. There are no published radiocarbon dates for the Scorton Cursus and previous excavations have only produced a very small assemblage of worked flint.

associated with the monument. The 2008 excavation unfortunately did not produce any artefacts at all, although some material suitable for radiocarbon dating was recovered from the primary silting within the south-western mam ditch. Due to the stony and compacted nature of the ditch fills no sites within this part of the cursus were identified suitable for recovery of optically stimulated luminescence (OSL) samples. These require insertion of sampling tubes into stone-free material, and the results can also be affected by the presence of large stones adjacent to the sampling sites. It will hopefully be possible to identify suitable sampling sites during any future excavation in Area 4A further along the cursus to the south-east.

- 8 14 The ramped post-pits as recorded by Topping are of additional interest here in that they potentially provide a direct link between the cursus and the oval of post-pits recorded towards the north-eastern corner of the quarry in Area 1A(b) in 2007 (NAA 2008). Such ramped post-pits are uncommon in north-eastern England, a brief literary search and discussion with colleagues has failed to identify a single additional example, and hence it seems likely that the post-oval and the posts associated with the cursus form part of a common localised tradition and are likely to be of similar date.

Possible Iron Age and Romano-British features

- 8 15 Four-post structures similar to those excavated across the western edge of Areas 2 and 4B are typically found within or close to Iron Age settlement sites. A number of similar features have recently been excavated at Castle Hills to the east of Garforth in West Yorkshire (Brown, Howard-Davis and Brennand 2007, 90-3). At least 15 4-post structures were present at that site, associated with enclosure ditches, roundhouses and a large number of pits, some of which contained human burials. The 4-post structures mostly lay slightly apart from the roundhouses and the pits, and were scattered across an area measuring 75m long by at least 40m wide. The structures measured between 2m and 4m square, and individual postholes were between 0.4m and 1m in diameter, cut in limestone bedrock. A sample from an assemblage of charred barley and wheat recovered from one of the postholes provided a radiocarbon date (2σ) of 390-180 BC (2220 ± 35 BP, SUERC-4364/GU-12382) in the Middle Iron Age. Such structures are generally considered to have served an agricultural function such as haystacks, granaries or storage for other produce (Cunliffe 1991), although it has also been suggested that they served a (possibly secondary) function as platforms for exposing dead bodies (Harding 1974, 116).
- 8 16 It is likely that the scatter of 4-post structures recorded at Scorton were similarly associated with an Iron Age agricultural settlement. If so, any roundhouses have either been lost as a result of plough-truncation or lay beyond the area stripped in 2008, either to the west (in which case all evidence has been lost due to previous quarrying) or to the south within Area 3. That the latter may be the case is supported by the presence of the pit [507].

filled with metalworking debris, possibly an associated feature, at the southern edge of Area 4B. A similar square arrangement of four postholes was recorded adjacent to the Bronze Age barrow investigated by Greenhalf (1980) within Scorton Quarry in 1977 some 800m to the west of the recently excavated 4-post structures.

- 8 17 The pit [507] containing the metalworking debris has been assigned to this phase largely on spatial grounds. The assemblage is considered to be of some interest, including fired clay fragments of furnace superstructure retaining interesting structural details. The other debris consisted of a dump of bloom smithing, and perhaps iron smelting, debris, together with oak charcoal which had presumably been used as fuel in the process(es). It was not clear whether the pit into which the debris had been dumped had formed part of a furnace associated with this activity.
- 8 18 The linear gullies or small ditches recorded crossing the area were very similar in size and form to features recorded in Area 1A(b) at the north-eastern corner of the quarry in 2007 (NAA 2008) and considered to form part of a widespread later Iron Age or Romano-British enclosed agricultural landscape. No dating evidence was recovered from the features examined in 2008. Evidence from the 2007 investigation suggested that the boundaries may primarily have been demarcated by hedges (of which no direct trace survived) and that the gullies were bedding trenches rather than drainage ditches. Possible evidence from the 2008 watching brief to support this surmise consisted of the section of gully cut through silt which appeared to have been deliberately partially back-filled with clean gravel, perhaps to assist with drainage around the roots of a young hedge. No dating evidence has been recovered directly from any of these features within either the 2007 or 2008 watching brief areas, although initial assessment suggests that burials associated with several boundaries investigated in 2007 may date from the early post-Roman period (possibly the 5th or 6th centuries AD), which will need to be confirmed by radiocarbon dating (NAA 2008).

The medieval and post-medieval agricultural landscape

- 8 19 Typically, areas utilised for arable during the medieval period were subject to regular manuring, the material used including quantities of domestic refuse and resulting in pottery sherds being widely distributed across the fields, often in quite large quantities. This phenomenon was observed in relation to two blocks of ridge and furrow cultivation of medieval date recorded a short distance to the north-east during the 2003 phase of work within Scorton Quarry (2003b). By contrast, no medieval pottery was identified within the 2008 watching brief area either during the 1999 fieldwalking programme or during an informal walkover in 2008 in advance of topsoil stripping. Similarly, no such material was recovered from the exposed surfaces of the underlying furrows. This strongly suggested that the observed ridge and furrow was a post-medieval creation.

8 20 Although none of these features were investigated, survey and aerial photographs have shown how the former Brompton to Scorton road developed during the post-medieval period, initially as a trackway between open fields of ridge and furrow cultivation, then between enclosed fields, as a formalised Turnpike road and finally as an airfield and agricultural access roadway, before finally being removed in the late 20th century

9 0 CONCLUSION AND RECOMMENDATIONS

9 1 The 2008 investigation in Area 2 has produced important new information about the Scorton Cursus, one of the major prehistoric ritual monuments of northern England. The presence of palisades flanking the main enclosure feature is, as yet, unparalleled at any other cursus. The profligate usage of timber (probably many thousands of trees) greatly increases both the resources of time and manpower that would have been required to construct the enclosure and the appearance and monumentality of the finished site. The excavation has also provided additional evidence to support the premise that, as originally conceived, the monument was a 'conventional' cursus with external banks flanking either side of the main ditched enclosure, and that it was subsequently re-modelled into a 'bank barrow' with a single central bank. This sequence of events has not been identified to date at any equivalent monument elsewhere, and has implications nationally for understanding the relative chronology of cursuses and bank barrows. The recovery of potential high quality radiocarbon samples closely post-dating initial construction of the cursus but apparently pre-dating the conversion of the monument to a bank barrow is hence of considerable significance.

9 2 Only a small number of other archaeological features were identified during the watching brief, scattered across the remainder of the stripped area. Several of these were, however, of some significance. The 4-post structures, likely to be of Iron Age date, indicate the presence of contemporary settlement nearby. Archaeological evidence for this was not identified within the stripped area to the north or east, and hence has either been truncated by modern ploughing, lies further to the south within quarry extension Area 3, or lay to the west and has been lost due to previous extraction. A small pit located nearby and filled with debris from iron bloom smithing may be contemporary with this phase of activity. If this is shown to be of Iron Age date by radiocarbon dating, it would represent some of the earliest recorded ironworking activity from the Vale of Mowbray, and the recovery of structural fragments pertaining to the kiln technology gives the remains added importance.

9 3 The recording of the early field boundaries crossing the area, which have retrospectively been identified as cropmarks on old aerial photographs of the quarry, have enabled interpretation of similar cropmark features extending across northwards previous quarry areas which were not subject to archaeological investigation.

Recommendations for further analysis

- 9.4 No further analysis is required for several groups of finds. These include
- the flint
 - the prehistoric pottery
 - the post-medieval pottery
 - the small finds
 - the biological assemblage
- 9.5 Two fragments of fired clay are recommended for illustration. Otherwise, the metalworking assemblage requires no further analysis at this stage (but see 9.7 below)
- 9.6 It is recommended that limited AMS radiocarbon dating programme be undertaken. This would involve assay of a total of four samples, comprising
- two samples of carbonised cereal grains recovered from the primary silting within one of the cursus ditches
 - wood charcoal associated with the deposit of ironworking debris
 - carbonised cereal grains recovered from one of the postholes of one of the 4-post structures
- 9.7 An additional recommendation from the work carried out in Area 1A(b) in 2007 was that, should any evidence for Iron Age iron smelting be obtained during subsequent work within the area, chemical analysis should be undertaken on iron slags used as tempering material in Iron Age pottery recovered from 2007 context [404] and on the iron smelting slags, in order both to determine a possible source for the ores and whether the pottery was likely to have been made nearby using slag derived from the smelting activity. Should an Iron Age radiocarbon date be obtained for the iron smelting debris from pit fill [508], it is therefore recommended that such chemical analysis should be carried out for both groups of material.
- 9.8 Once these additional stages of analysis have been undertaken, the results should be integrated into a final report for inclusion within any overall final published account of the ongoing archaeological works within the quarry.

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Aerial photographs

Cambridge University Collection

Year	Reference
1949	DQ 68 77
1955	RG 67-70
1975	AAB 17
	ACB 33
	BTY 52-56

APPENDIX A FINDS ASSESSMENT REPORT

Gail Hama

Introduction

Only one item (RF 1) was submitted for assessment from the 2008 phase of excavation at Scorton Quarry (TQS08) This report has been prepared in accordance with MAP2 guidelines (English Heritage 1991)

Discussion

A cast copper alloy strip was recovered from context 565 a layer on top of a cobbled surface overlying the mam SW cursus ditch The item was examined by Durham University conservation laboratory but was considered to be of recent manufacture with no further work being required The object is cast but crudely finished and of substantial weight It is complete and would therefore not have functioned as a binding strip Miscellaneous decorative strips and fittings are frequent finds from late medieval and post-medieval contexts The item it adorned, however, is likely to have been robust to accommodate the weight of such a fitting A date range of 17th-18th century is feasible

Statement of potential and recommendations

The object does not aid the interpretation of this site, is of no intrinsic interest and can be discarded

Catalogue

RF 1 Cast strip of copper alloy with two integral rivets on reverse, complete Upper surface has a central moulded longitudinal depression bordered on each side by a single uneven band with narrow grooves on either side The reverse bears filing marks and two longitudinal depressions on either side of the rivets The rivets appear to have been sheared off

L 75mm, W 23mm, Th 7mm Weight 52g Context 565

Reference

English Heritage (1991) *Management of Archaeological Projects* HBMC

APPENDIX B METALWORKING DEBRIS AND MAGNETIC MATTER

Jane Cowgill.

Introduction

An archaeological watching brief was undertaken during topsoil stripping of an extension to the southern edge of the quarry. The area lies on the upper gravel terrace to the north east of the River Swale and the area had a fairly level, gently undulating surface. To the north east the ground slopes up onto higher ground formed of boulder clays. This phase allowed the excavation of a short length of the Scorton Cursus, which crossed the north-eastern corner of the site. Apart from the cursus a limited number of archaeological features were identified, including a series of square post structures, small ditches forming part of a field system, several undated postholes and pits and an isolated small heavily burnt pit [507]. This circular pit (diameter 0.5m) with near vertical sides (surviving depth 0.27m), cut into the gravel, was unlined but had severely burnt edges with the surrounding gravel scorched purple to a thickness of some 0.35m. The fill [508] contained large quantities of charcoal and the fired clay, furnace-structure fragments and iron-smelting debris recorded below. A 100% sample of the feature was taken (52 litres weighing 62.5kg).

Discussion of the material recovered from Pit [507]

Most of the material recorded in Table B1 (771 pieces weighing 1699g), with the exception of the stones, are probably the by-products of iron smelting using a shaft bloomery furnace. The technology is so named because the iron will form near the base of the furnace as a spongy bloom, a mass of both metallic iron and slag. This needs to be refined (smithed) to extract the slag and establish the quantity and quality of the iron that has been produced. The iron will then be smithed into a billet or bar before it can be sold on to a working smith who, only at this stage, will be able to judge whether the iron is suitable for their needs. Iron smelting is a reduction process and therefore any clay surfaces inside the furnace will be reduced fired, however, the outer faces will barely be fired at all and often crumble to dust. Although smelting often occurs at temperature around 1400°C this will only be reached inside the furnace in the 'hot zone', where the air enters it through the air hole or tuyere, maybe 0.15m above its base. It is this temperature that results in the vitrification of the clay from around this zone and therefore any vitrified material probably originated from this location within the structure (and probably all the pieces classified here as furnace structure).

It is likely that all the pieces recorded as fired clay are in fact pieces of furnace structure. Most of the fired clay is oxidised and made from a sandy fabric, although some pieces appear to have a more silty content and just one piece has gravel and possible organic inclusions. These slight differences may reflect some natural variability in the clays used to construct the furnace or a slightly different mix may have been used to repair it after a smelt (some experimenters find that adding charcoal makes repairs more robust in later smelts). Some flattish fairly smooth surfaces are present on the fired clay, but they are much more common on the better preserved pieces recorded as furnace structure.

*Scorton Quarry (Areas 2 and 4b), North Yorkshire
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Context	sample	Type	count	weight	Comments
508	AA	FIRE CLAY /STONE		94g	Unsorted small fragments
508	AA	STONE	62	129g	Bumt
508	AA	FIRE CLAY	32	56g	Most oxidized sandy fabric few possible surfaces
508	AA	FIRE CLAY	6	31g	Sandy matrix but frequent voids oxidised 1 smooth but uneven surface
508	AA	FIRE CLAY	7	122g	Oxidised, sandy, some flattish surfaces
508	AA	FIRE CLAY	1	13g	Sandy/silty matrix with pebble and organic inclusions
508	AA	FURNST	1	33g	(2 pieces join), high fired grey/pink curved and smoothed outer surface of furnace
508	AA	FURNST	1	46g	Reduced and partially vitrified surface + ?outer surface 40mm thick section through furnace wall may have construction breaks/ edges oxidised sandy fabric DRAW?
508	AA	FURNST	2	121g	?Air hole x1, ?wattle imprint x1, oxidised sandy fabric
508	AA	FURNST	1	41g	?Air hole/ tuyere, diameter 14mm reduced fired hole partially vitrified, knobby vitrified parallel surface
508	AA	FURNST	16	52g	Small vitrified pieces some reduced some oxidised fired
508	AA	FURNST	1	118g	(2 pieces join), oxidised back, vitrified front formed around air hole, maximum thickness 17mm
508	AA	FURNST	4	112g	Almost totally vitrified reduced back 1 x magnetic 1 x 2 layers Maximum thickness 30mm 24mm x 2 17mm
508	AA	FURNST	1	52g	Totally vitrified, rust coloured maximum thickness 26mm
508	AA	FURNST	4	324g	1 thick slagged face at approximate right angle to vitrified glassy sandy face (fracture in furnace wall) Some other irregular high fired edges Maximum thickness 40mm, 35mm, 30, 22mm
508	AA	STONE		22g	Unsorted >4mm residue
508	AA	SLAG	150	55g	Unsorted >4mm residue brown magnetic all small pieces some charcoal imprints/ inclusions
508	AA	SLAG	300	124g	Unsorted >4mm residue brown all small pieces some charcoal imprints/ inclusions
508	AA	TAP	181	134g	Unsorted >4mm residue, balls dribbles and flows all small
520	AA	FIRE CLAY	1	7g	Very low oxidised fired object disintegrating, domed??

Table B1. Catalogue of the fired clay and iron-smelting debris (FURNST: Furnace structure fragments)

Context	sample	fraction	weight	Comments
508	AA	>4mm	25g	100% sorted, 15g brown slag with charcoal imprints/ inclusions 8g stone 3g slag dribbles, 3g fired clay, 1 large plate hammerscale
508	AA	<4mm	143g	3% scanned 1037 plate + 143 spheroidal hammerscale, most brown slag with charcoal imprints
520	AA	>4mm	<1g	2 pieces of ?ore
520	AA	<4mm	1g	100% scanned, 7 x plate hammerscale 3 x slag, 1 thick plate
526	AA	<4mm	1g	100% scanned 7 x plate hammerscale, 1 x slag
551	AA	<4mm	1g	100% scanned 1 small plate hammerscale 1 iron corrosion flake
562	AA	<4mm	<1g	100% scanned
584	AA	<4mm	1g	100% scanned, 2 x plate hammerscale
620	AA	<4mm	<1g	100% scanned
631	AA	<4mm	<1g	100% scanned, 2 tiny plate hammerscale

Table B2. Catalogue of the magnetic matter.

The vitrified pieces contain some potentially important information regarding the construction of the furnace structure. There is possibly part of an air hole or tuyere which suggests it had a diameter of c 14mm (an air hole is just a hole made through the furnace wall, whereas a tuyere

is purpose-made in advance and built into the furnace - both serve the same function) The fact that the piece is vitrified seemingly through the wall of the structure, parallel to the surface of the hole is, however, problematical. It could be a wattle imprint, if a wattle frame was used to construct the furnace, but the high temperature it has been exposed to argues against this. The piece weighing 118g is a common form of furnace debris and it has clearly flaked off from inside the furnace, having probably formed near the air hole whose curved edge can be seen on one side of the piece. Amongst the thick very vitrified pieces is one with two layers, where a slagged face has clearly been repaired and resurfaced with an added layer of clay, which in turn has become vitrified and slagged.

Much less common are the pieces that perhaps hint at the method of furnace construction. The small piece weighing 46g appears to be a 'brick' that has both the oxidised external and reduced fired internal furnace wall present. Being only 40mm thick it may have originally been built into the furnace quite close to the top. The key feature about this piece is that the surfaces that would have been incorporated within the furnace wall appear to be actual edges and that it has fractured from the structure along these. Experimental furnaces are often built by preparing various sized lumps of clay (from handfulls to irregular brick lumps) and then wedging and smearing these on to the furnace under construction to try and ensure that each addition is well and truly bonded on. It is always important to avoid weak points because of the thermal stresses the furnace will under go while being heated up, during the smelt and when cooling down. This piece may be one of the 'handfulls' of clay that was added, but poorly bonded, and if it is, it is a very rare example of how a furnace may have been built in the past. Possibly in support of this interpretation are the four pieces (combined weight 324g) that have one very slagged face that was evidently the inner surface of the furnace. Strangely they also have, roughly at a right angle to this, a glassy edge that penetrated up to 25mm into the furnace wall. This edge is not slagged per se, but the matrix has been so heat affected that the silica content has melted producing a greenish glaze. This can only have happened if fissures in the internal furnace wall opened up to be penetrated by the heat, and with this sort of depth it must have seriously weakened the structure during the smelt. The other more irregular fractured edges on these pieces suggest that they then spalled off from the inside wall, necessitating a great deal of repair, if the furnace was ever used again. It is possible that the inside of the furnace over heated, although producing enough air-draught to achieve this would be difficult. It is also possible that the clay mix used to construct the furnace was not entirely suitable and unable to repeatedly stand the level of thermal shock involved in an iron smelt and thus after a few attempts cracked too badly for continued use.

No large pieces of tap slag or any block slags were recovered from the sample or during the excavation. These should have been present in some quantity, although the amount would be dependant on how many furnaces existed and how frequently they had been used. It is possible that most of the slag was removed during the stripping of the topsoil (pers comm G Speed). The majority of the slag recovered from pit [507] is small (most weighing less than 0.4g) and brown in colour, many of which are magnetic and form a high proportion of the magnetic matter (Table B2). The larger examples of these can be fed back into the furnace during the next smelt as they may contain a certain amount of partially smelted iron ore. They commonly have charcoal imprints and inclusions, remains of the fuel used for the smelt. These brown slags form a high proportion of the <7mm residues from many smelting sites. There are some small tap flows, dribbles and balls, but again these are all small in size, averaging only

1.35g in weight. There is a reasonably large quantity of hammerscale amongst the <4mm magnetic matter fraction (Table B2), of which c 7% is spheroidal, a type that forms during hot-forge welding and this would include bloom smithing. Although this is quite a small proportion in a bloom smithing assemblage, this is the most likely interpretation for the presence of this scale. In total this is a very small assemblage of slag and it is not possible to establish whether it is the by-product of both iron smelting and bloom smithing or just the latter.

Pit [507] has clearly been subjected to a high temperature, possibly over some duration of time or in repeated episodes. Iron smelting certainly requires high temperatures but this feature is unlikely to be part of a furnace, unless it was the pit that sat below a pit-furnace, but it has never been firmly established that this type of furnace was ever used in England to smelt iron, even though they were so common on the Continent. If the pit once functioned as a tapping pit (it would be unusually deep) cakes of tap would probably have been found in it. Apart from a furnace and structures to store ore and charcoal, ore roasting and charcoal production may also have been undertaken at a smelting site. Converting wood to charcoal is a reduction process and would not have oxidised the edges of the pit, ore roasting does, however, oxidise the ore but the temperature required for this process is not particularly high although it can take several hours for it to be successful. The sample was described before processing as being a 'very dark reddish brown' and perhaps the 'red' element of the fill could have been fines (roasted ore dust which may be red or purplish in colour) or crumbs of lightly fired clay that dissolved during flotation. The pit is unlike any other feature the author has encountered on a smelting site, but few have been excavated and they are very variable with new furnace types not infrequently being found.

It is possible that the feature was not associated with iron smelting. The slag assemblage is small and to a degree biased because no large smelting slags are present - be they tap, raked or block slags. Was there some sort of selection process that decided what went into the pit fill? The largest pieces in the assemblage are the furnace-structure fragments and perhaps some of the stones found, otherwise only small pieces of smelting debris were incorporated.

Just over 14% of the pit fill by weight was smelting by-products (including the magnetic matter) most being 'dark brown silty sand', this is a small percentage given the usually density of slags etc on a smelting site. The large quantity of charcoal and fired clay appeared to be concentrated towards the top and base suggesting that it was deposited as two distinct fills. Even though the quantity of slag is small and biased these are probably dumps deposited when iron smelting was occurring nearby, rather than the soil containing evidence of past smelting being moved from elsewhere to fill the pit. The condition and size of the pieces of furnace structure, which are relatively fragile and would not have survived any sustained trampling under foot, suggests the pit was contemporary with the smelting. They, like the slag, have also not suffered from weathering on a ground surface or movement through soils, which would have much degraded the fired clays and abraded the slags. The iron-smithing debris is not inherently datable and therefore the date of this industry is uncertain.

Conclusion

A small assemblage of bloom smithing, and perhaps iron smelting, debris was recovered from the isolated Pit [507], which had extensive evidence for burning within it. Only the smaller

types of slag were recovered with some hammerscale in the magnetic residue, but enough to indicate that some time in the past between the Iron Age and c AD 1400 iron had been smelted at Scorton

The magnetic matter recorded in Table B2

The samples that were processed were all quite large (most weighing over 45kg), therefore, the small amount of hammerscale recorded from them can be seen as representing the background quantities that are found on many archaeological sites. The only exception is that from Pit [507] which has been discussed above

Recommendations

The piece of furnace from [508], sample AA, weighing 46g and described as a possible section through the furnace wall could be drawn if it is intended for the site to be published. Emphasis needs to be made of the fact that many of the internal faces seem to be actual edges. This form of evidence, if interpreted correctly, is very unusual. The largest piece with the glazed edge at an angle to the slagged face also warrants illustration.

No further work is required on this assemblage and it needs no special storage conditions

APPENDIX C ASSESSMENT OF THE BIOLOGICAL REMAINS

Alexandra Schmidl and Deborah Jaques

(edited from Palaeoecology Research Services Report 2009/02)

Summary

Biological remains representing nine deposits encountered during archaeological monitoring and excavation at Scorton Quarry (formerly Tancred Quarry), North Yorkshire, were submitted for an assessment of their bioarchaeological potential. Excavation in Areas 2 and 4B revealed features related to a ?prehistoric/Neolithic cursus, a series of ?pre-Roman Iron Age four-post structures, late Iron Age/Romano-British linear field boundaries and undated pits and post-holes.

Charred plant remains, mostly in the form of charcoal fragments, were recovered from all of the processed samples, with some also yielding traces of cereals and associated weeds. The condition of the charcoal was, in general, poor, and most of the individual fragments were too small to be readily identifiable. These remains probably derived from fuel waste. In addition, almost all of the samples contained waterlogged rootlets and uncharred seeds/fruits which were almost certainly modern contaminants. Six of the deposits gave sufficient suitable material for radiocarbon dating to be attempted, if required.

No further work is recommended on this material.

Introduction

Archaeological monitoring and excavation were undertaken by Northern Archaeological Associates (NAA) at Scorton Quarry (formerly Tancred Quarry), North Yorkshire (centred on NZ 2431 0003), between May and July 2008 on behalf of Tarmac. The works were carried out in advance of the extraction of gravel from an extension to the quarry.

The work in Areas 2 and 4B revealed features related to a ?prehistoric/Neolithic cursus, a series of ?pre-Roman Iron Age four-post structures, late Iron Age/Romano-British linear field boundaries and several undated pits and post-holes. The site was divided by a post-medieval roadway, and the associated agricultural landscapes showed former field boundaries and cultivation furrows to the north and south.

Biological remains recovered from nine sediment samples ('GBA'/'BS' sensu Dobney et al 1992), processed by NAA, were submitted to Palaeoecology Research Services Limited (PRS), County Durham, for an assessment of their bioarchaeological potential.

Methods

Nine sediment samples were processed by NAA prior to delivery to PRS, and the unsorted 'flots' (hereafter termed washovers) and biological remains recovered from the residues submitted for assessment. The weights and volumes of the samples were recorded before being

placed onto 500 micron nylon mesh in a sieving tank. The light organic fraction was washed over into a 500 micron sieve to collect the washovers. Both the washover and residue fractions of the processed samples were dried. Only those components of the residues that were submitted to PRS are reported here (see the excavator's records for notes regarding any material, e.g. artefacts, removed prior to this).

The submitted biological remains were identified as closely as possible and their suitability for radiocarbon dating by standard radiometric technique or accelerator mass spectrometry (AMS) was also considered. Nomenclature for plant taxa follows Stace (1997). Cereal identifications follow Jacomet (2006) and charcoal identifications follow Schoch et al. (2004).

Vertebrate remains

No vertebrate remains were recovered from this phase of work.

Results

In general, only rather small quantities of identifiable biological remains were recovered from the washovers and the residues. The ancient plant remains present were preserved by charring and largely consisted of fragments of (mostly unidentified) charcoal, with traces of cereal grains. Most of the samples also contained rootlets and uncharred seeds/fruits which were almost certainly modern contaminants or intrusions (as were the earthworm egg capsules noted). Additionally, many *Cecilioides acicula* (Muller) were recorded from Contexts 620 and 631 (both located in Area 2), this snail is a burrowing species, and, again, likely to represent recent intrusions.

Details of the results of the examination of the biological remains from the nine unsorted washovers and the charcoal from the residues are presented in Tables 1 and 2, together with notes regarding any material suitable for radiocarbon dating.

Discussion and statement of potential

Most of the plant remains recovered from the samples were unidentified fragments of charcoal. Some of the larger pieces from several deposits in Areas 2 and 4B could be identified, most being hazel, ash and oak, with some being less closely identified as alder/birch/hazel. The presence of fired clay and oak stem wood charcoal in Context 50B (fill of isolated pit/bowl furnace 507 at the southern edge of Area 4B) suggested that oak was also being used for fuel—oak burns at high temperatures with greater duration and is, therefore, an excellent fuel wood for a furnace—although its occurrence elsewhere may result from its use as structural timber.

The plant macrofossils preserved by waterlogging, including rootlets, seeds and fruits, together with earthworm egg capsules and fragments of the burrowing land snail *Cecilioides acicula*, were probably all modern contaminants (see Table 1).

Six of the samples gave small amounts of charred plant remains (such as cereal grains and seeds) suitable for radiocarbon dating. In each case, the small amounts of material available would necessitate the use of AMS.

Recommendations

The remains do not warrant further examination

Retention and disposal

All of the remains should be retained as part of the physical archive for the site

Archive

All material is currently stored by Palaeoecology Research Services (Unit 8, Dabble Duck Industrial Estate, Shildon, County Durham), along with paper and electronic records pertaining to the work described here

Acknowledgements

The authors are grateful to Gail Hama and Lynne Lowrie, of Northern Archaeological Associates (NAA), for providing the material and the archaeological information, and for the processing of the majority of the sediment samples, respectively

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*Scorton Quarry (Areas 2 and 4b), North Yorkshire
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Table C1. Scorton Quarry, North Yorkshire – Area 2 and 4B (site code TQS08) Summary of the biological remains recovered in the washovers from the NAA processed sediment samples, with notes on any material suitable for submission for radiocarbon dating

Key 'C/S' = Context number/Sample designation, 'Neo' = Neolithic, 'IA/RB' = Iron Age/Romano-British, '?' = undated, "kg/l" = amount of sediment processed in kilograms and litres, 'wt' = weight of washover in grammes, 'IDs' = identifiable charcoal, 'A' = suitable material for radiocarbon dating via AMS present (NB in most cases charcoal fragments are not considered as suitable material for this purpose), 'D' = further detailed recording recommended

C/S	Date	Context description	kg/l	wt	Identifiable ancient plant remains (charred and waterlogged)	IDs	Notes including modern contaminants (waterlogged)	Other components	A	D
508/AA	IA/RB	fill of isolated pit 507	62.5/52	1100	mostly silted deformed charcoal (to 40 mm)	stem wood – oak (<i>Quercus</i>)			No	No
520/AA	IA/RB	fill of post hole 519	10/6	1	mostly charcoal (to 5 mm) one grain of barley (<i>Hordeum distichon</i> L / <i>H. vulgare</i> L), one achene of knotweed (<i>Persicaria</i>)	No	some rootlets some waterlogged seeds and fruits (common fumitory – <i>Fumaria officinalis</i> L, orache/goosefoot – <i>Atriplex/Chenopodium</i> , violet – <i>Viola</i>)		Yes	No
526/AA	IA/RB	fill of post hole 525	13/9	<1	mostly charcoal (to 5 mm) two unidentified cereal grains in poor preservation	No	rootlets some waterlogged seeds and fruits (chickweed – <i>Stellaria media</i> (L) Vill common fumitory – <i>Fumaria officinalis</i> L orache/goosefoot – <i>Atriplex/Chenopodium</i>)	a little slag (to 5 mm)	Yes	No
551/AA	?Neo	fill of south western ditch 505 64	48.5/40	<1	a little fine charcoal (to 3 mm), one silted gram of barley (<i>Hordeum distichon</i> L / <i>H. vulgare</i> L)	No	a few rootlets and culm fragments of grass family (Poaceae)	mostly sand	Yes	No
562/AA	?Neo	fill of south western ditch 505	57/40	3	traces of charcoal (to 3 mm), one silted gram of wheat (<i>Triticum</i>) in poor preservation	No	a few rootlets a few earthworm egg capsules a small number of waterlogged seeds and fruits (black bindweed – <i>Fallopia convolvulus</i> (L) A Love, chickweed – <i>Stellaria media</i> (L) Vill orache/goosefoot – <i>Atriplex/Chenopodium</i>)	mostly sand some slag (to 5 mm)	Yes	No
579/AA	?Neo	fill of south western ditch	47/39	1	a little charcoal (to 3 mm) one gram of naked wheat (<i>Triticum</i>)	No	a little evidence of earthworm egg capsules a few seeds of violet	mostly sand a little slag (to	Yes	No

*Scorton Quarry (Areas 2 and 4b), North Yorkshire
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C/S	Date	Context description	kg/l	wt	Identifiable ancient plant remains (charred and waterlogged)	IDs	Notes including modern contaminants (waterlogged)	Other components	A	D
		505			<i>aestivum</i> L / <i>T. durum</i> Desf / <i>T. turgidum</i> L)		(<i>Viola</i>)	3 mm)		
S84/AA	?Neo	base fill of north western end of north eastern ditch 582	54/40	2	a few fragments of charcoal (to 3 mm)	No	a few earthworm egg capsules, a small number of waterlogged seeds and fruits (black bindweed – <i>Fallopia convolvulus</i> (L) A Love orache/goosefoot – <i>Atriplex/Chenopodium</i> thistle – <i>Carduus/Cirsium</i> , violet – <i>Viola</i>)	mostly sand, a little slag (to 3 mm)	No	No
620/AA	?Neo	fill of north eastern slot in outer south western 'ditch' 503	56/40	2	some silted deformed charcoal (to 10 mm)	No	a few earthworm egg capsules a small number of waterlogged seeds and fruits (raspberry – <i>Rubus idaeus</i> L orache/goosefoot – <i>Atriplex/Chenopodium</i> , violet – <i>Viola</i>)	mostly sand, some slag (to 5 mm) many <i>Cecilioides acicula</i> (Muller)	No	No
631/AA	?	fill of pit 630	51/40	10	mostly silted charcoal (to 10 mm) one poorly preserved grain of emmer/spelt wheat (<i>Triticum dicoccum</i> Schubl / <i>T. spelta</i> L)	ash (<i>Fraxinus</i>)/ oak (<i>Quercus</i>)	a few earthworm egg capsules some waterlogged seeds and fruits (common fumitory – <i>Fumaria officinalis</i> L orache/goosefoot – <i>Atriplex/Chenopodium</i> , violet – <i>Viola</i>)	some sand, a little slag (to 5 mm), many <i>Cecilioides acicula</i> (Muller)	Yes	No

*Scorton Quarry (Areas 2 and 4b), North Yorkshire
Programme of Archaeological Investigation*

Table 2 Scorton Quarry, North Yorkshire – Areas 2 and 4B (site code TQS08) Summary of the charcoal recovered from the residues from NAA processed sediment samples, with notes on any material suitable for submission for radiocarbon dating

Key 'Neo' = Neolithic, 'IA/RB' = Iron Age/Romano-British, '?' = undated, 'kg/litres' = amount of sediment processed in kilograms and litres, 'wt /g' = weight in grammes, 'size /mm' = maximum dimension of charcoal fragments present, 'IDs' = identifiable charcoal, 'A' = suitable material for radiocarbon dating via AMS present (NB in most cases charcoal fragments are not considered as suitable material for this purpose) 'D' = further detailed recording recommended

C/S	Date	Context description	kg/l	Charcoal			Notes	A	D
				wt /g	size /mm	IDs			
508/AA	IA/RB	fill of isolated pit 507	62 5/52	32	60	oak (Quercus)	mostly slightly silted stem wood charcoal	No	No
520/AA	IA/RB	fill of post-hole 519	10/6	3	12	No	slightly silted deformed charcoal	No	No
526/AA	IA/RB	fill of post hole 525	13/9	<1	6	No	slightly silted charcoal	No	No
562/AA	?Neo	fill of south western ditch 505	57/40	<1	8	No	slightly silted charcoal	No	No
631/AA	?	fill of pit 630	51/40	7	14	alder/birch/hazel (Alnus/Betula/Corylus) oak (Quercus)	slightly silted charcoal (including one twig fragment)	Yes	No

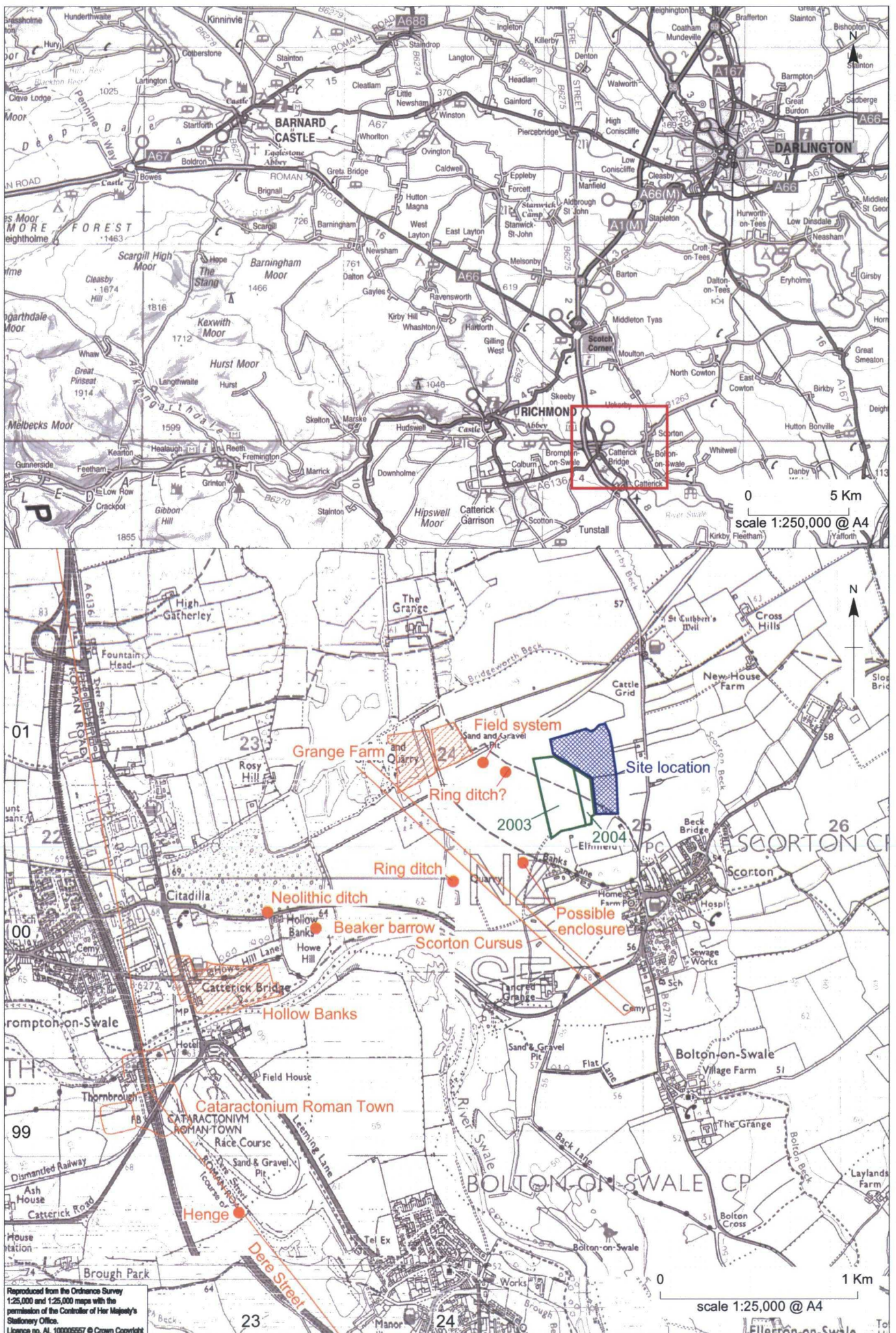


Figure 1 Tancred Quarry, Scorton: site location and archaeological sites in the vicinity

Figure 2 Scorton Quarry Area 2: archaeological features



Fig. 3

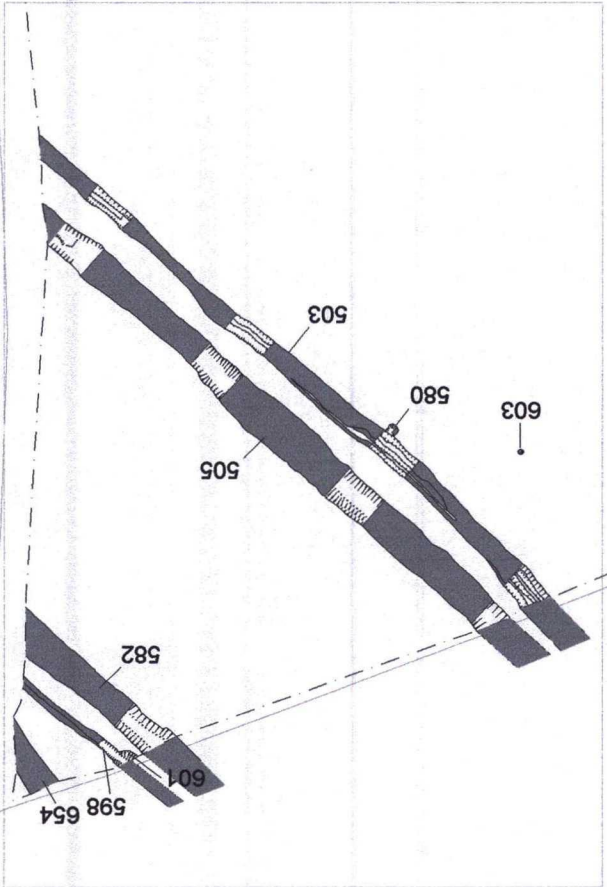
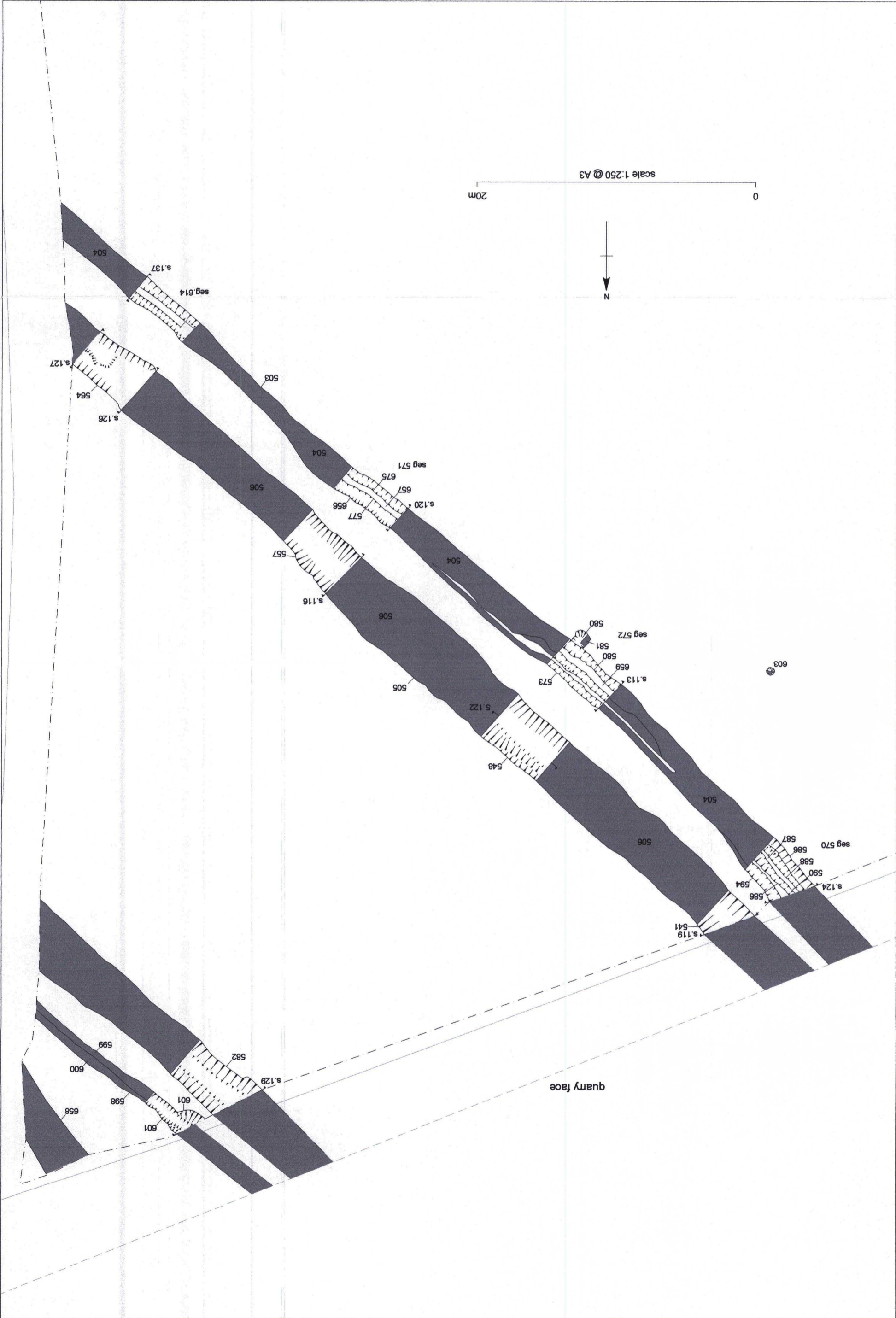


Figure 3 Scotton Quarry Area 2: Cursus



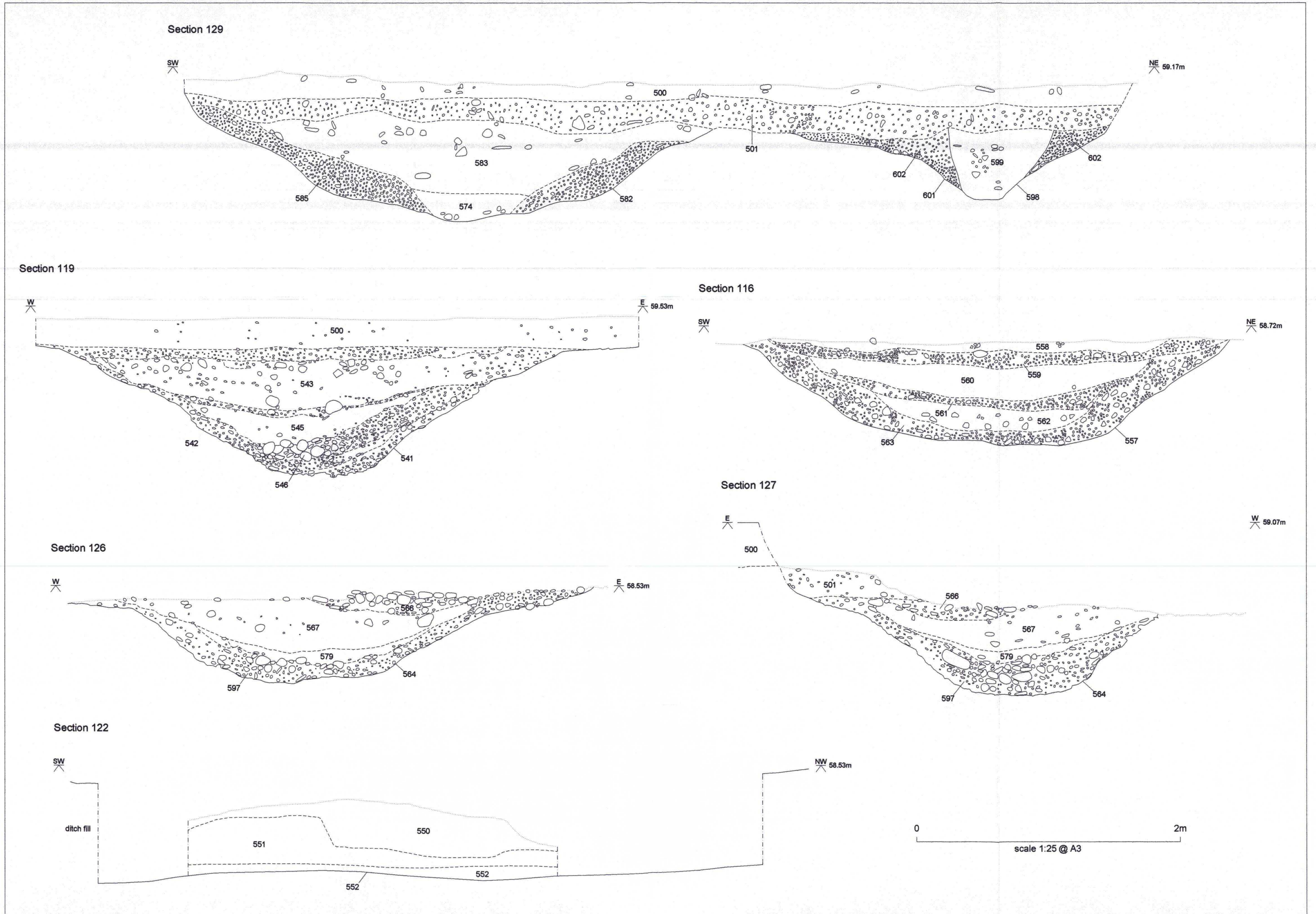
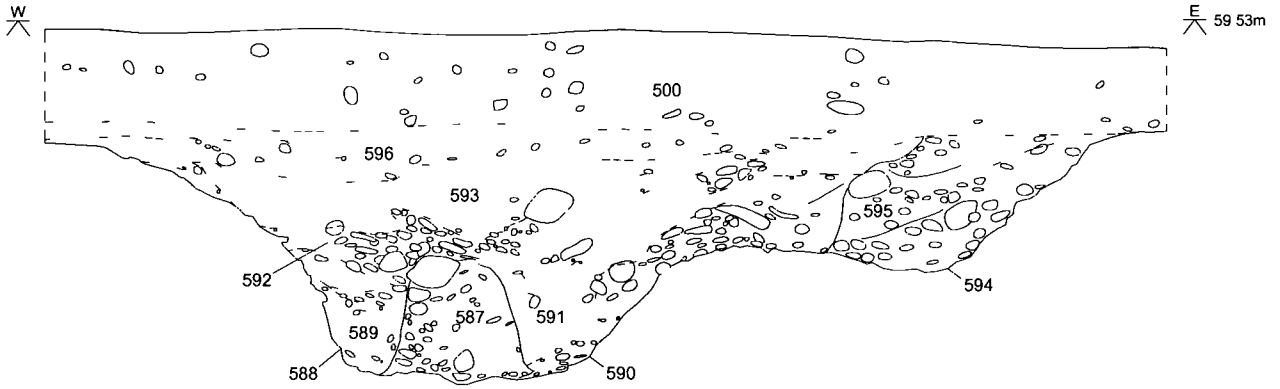
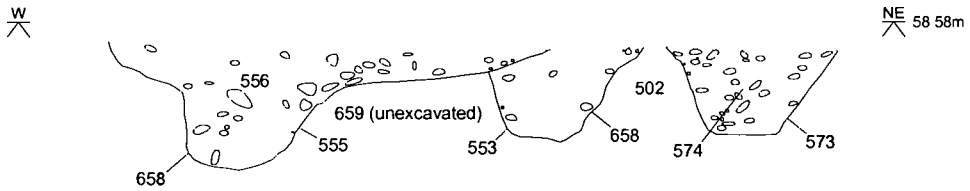


Figure 4. Scorton Quarry Area 2: Curvis main ditch sections

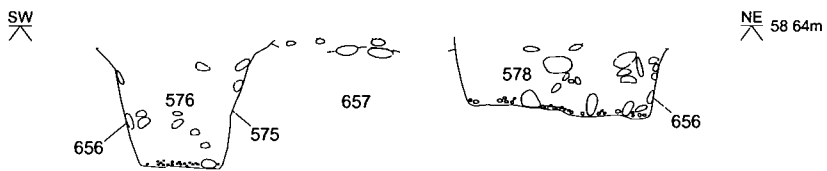
Section 124



Section 113



Section 120



Section 137

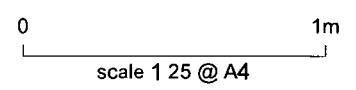
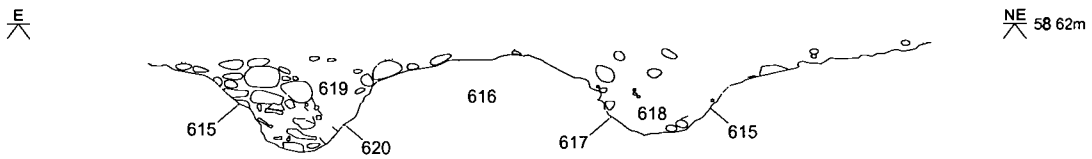
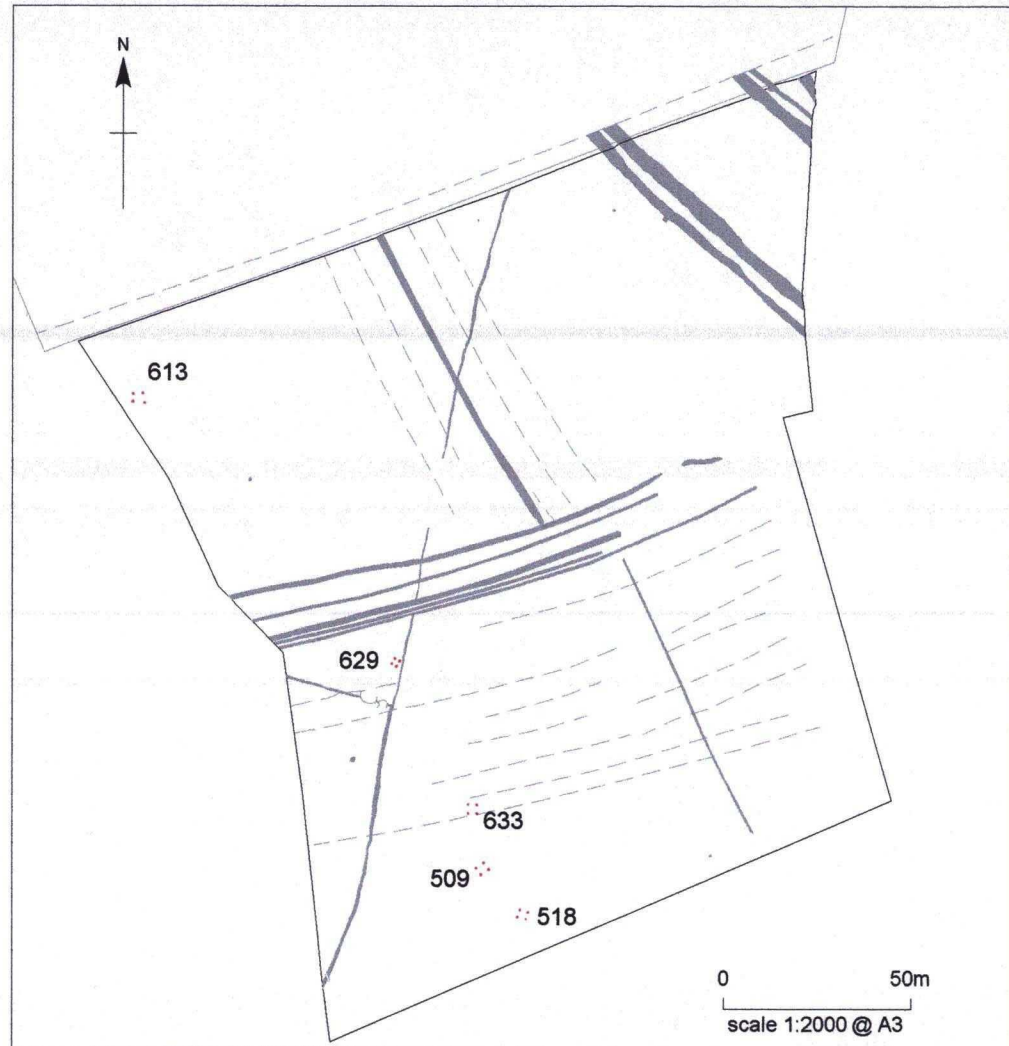
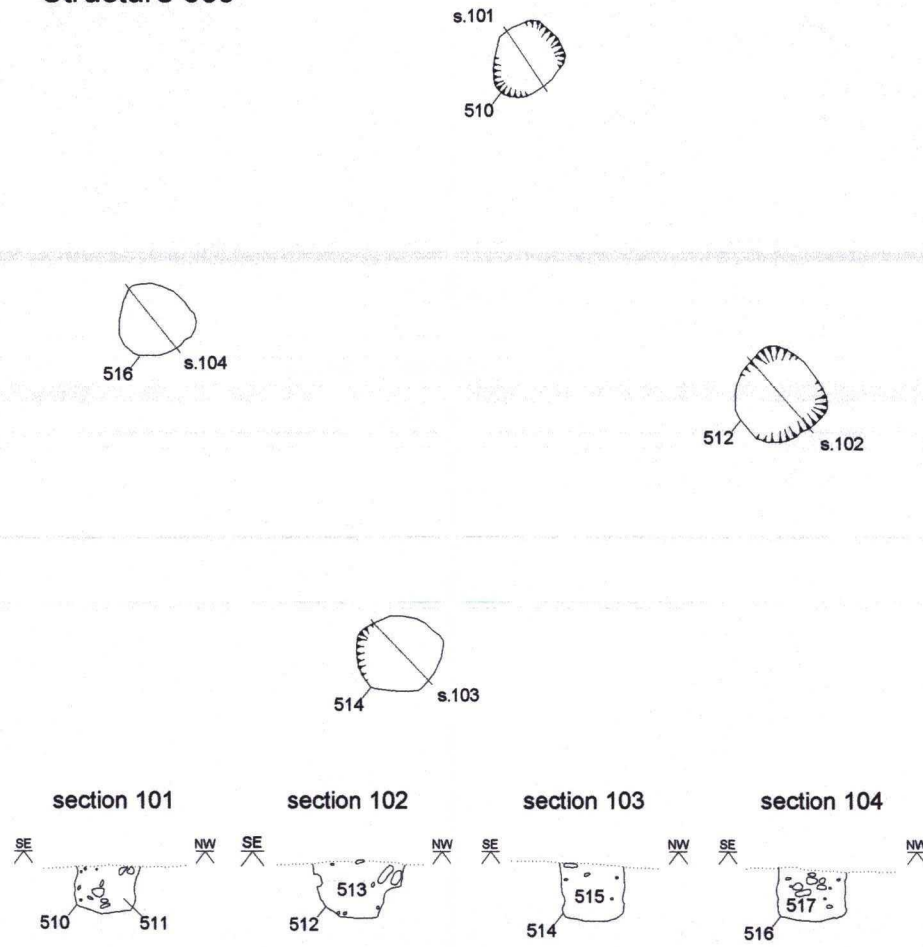


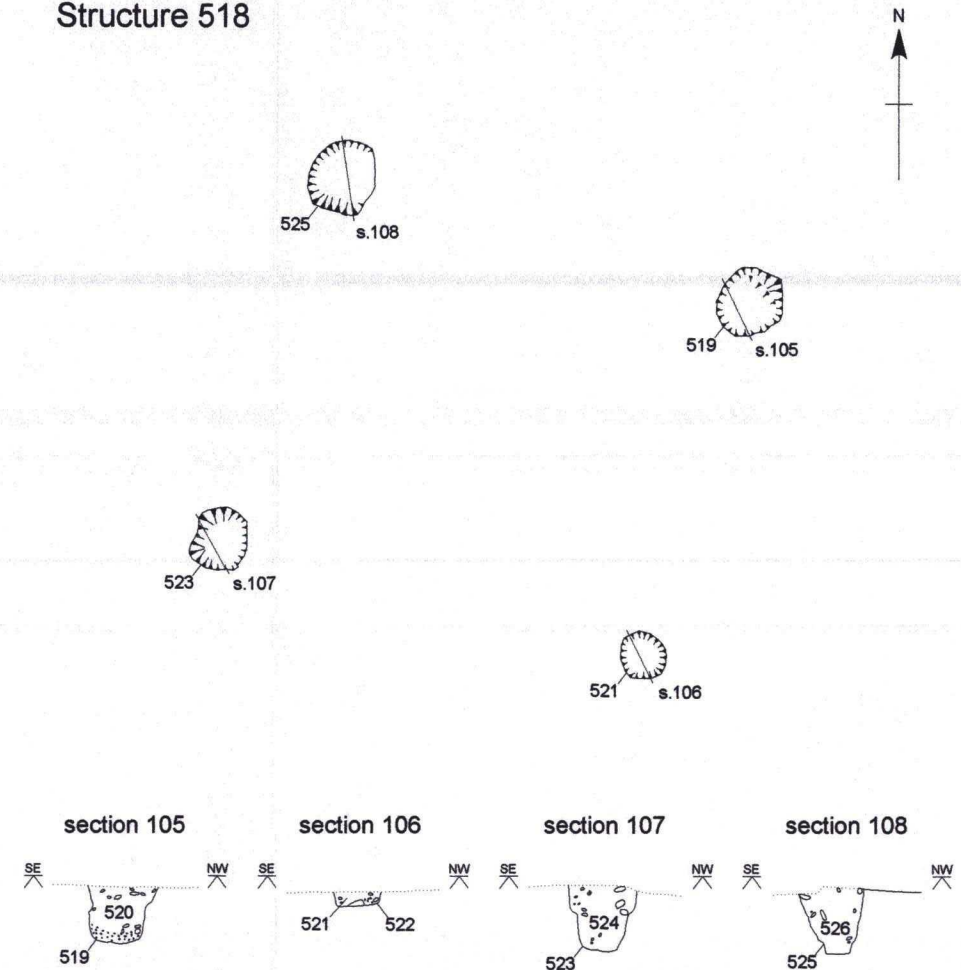
Figure 5 Scorton Quarry Area 2 Feature 503 sections



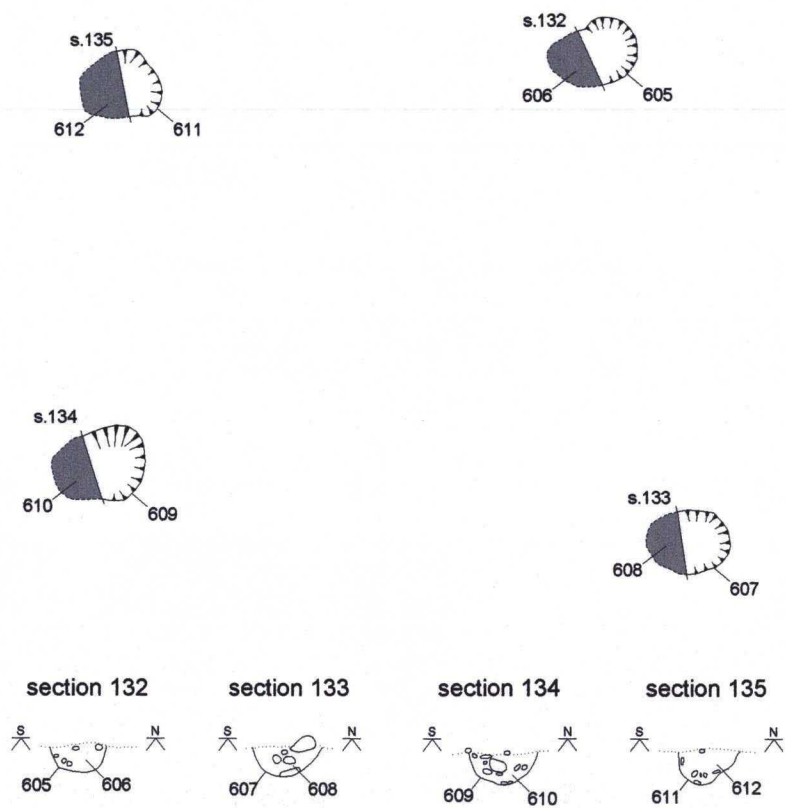
Structure 509



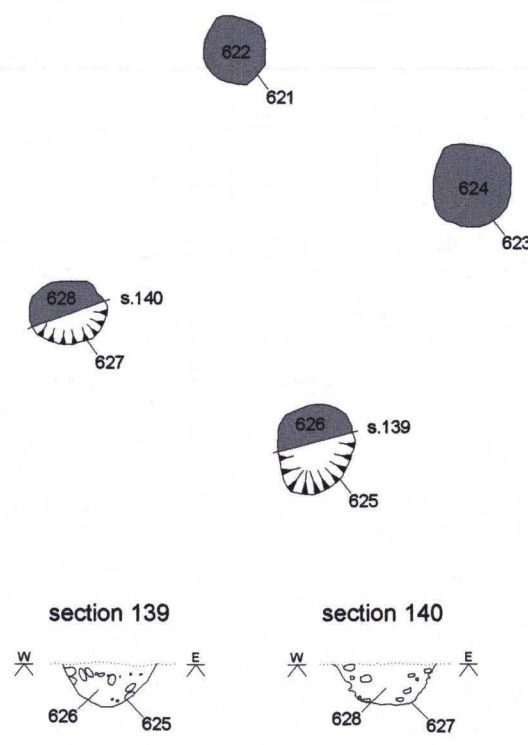
Structure 518



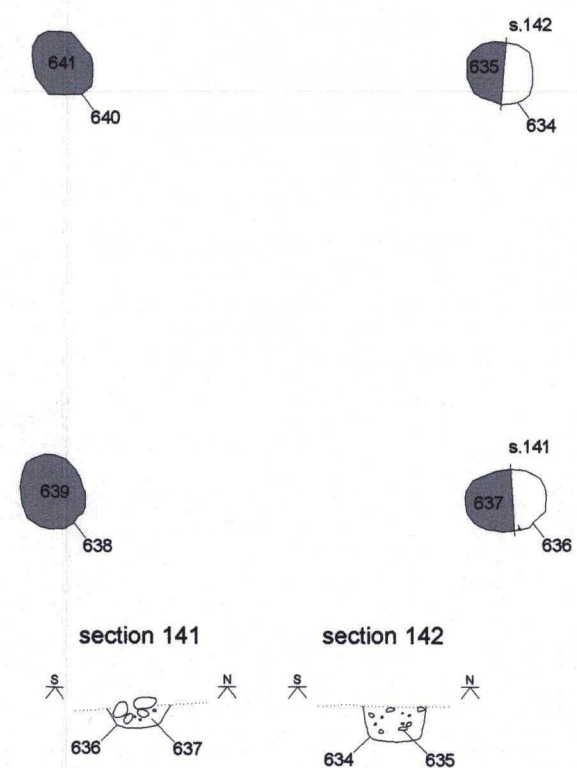
Structure 613



Structure 629

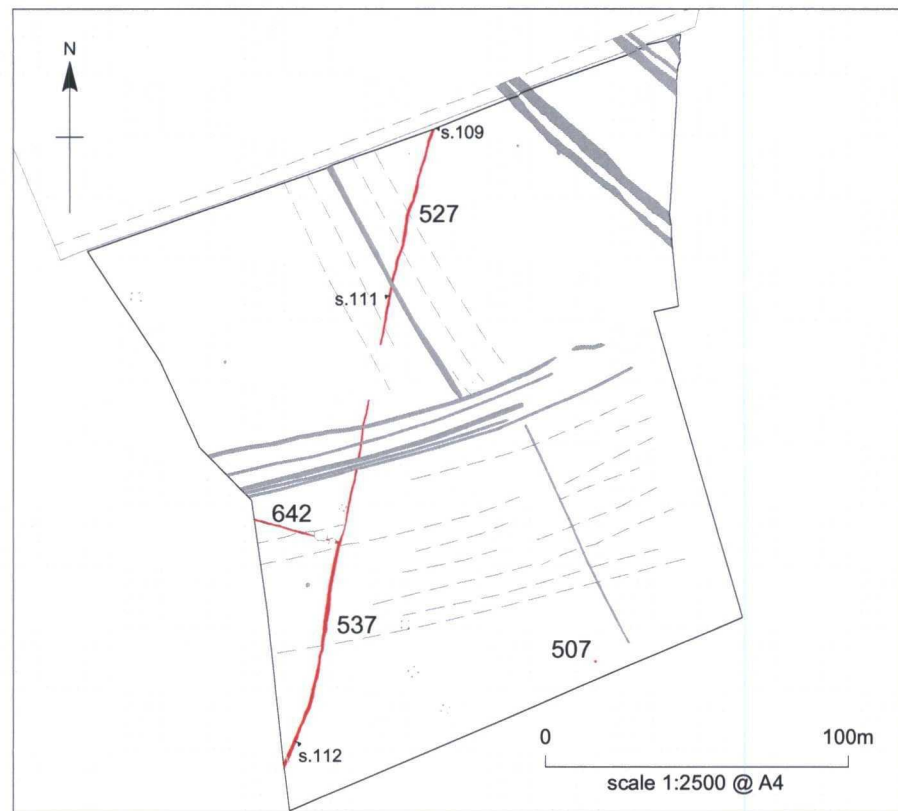


Structure 633

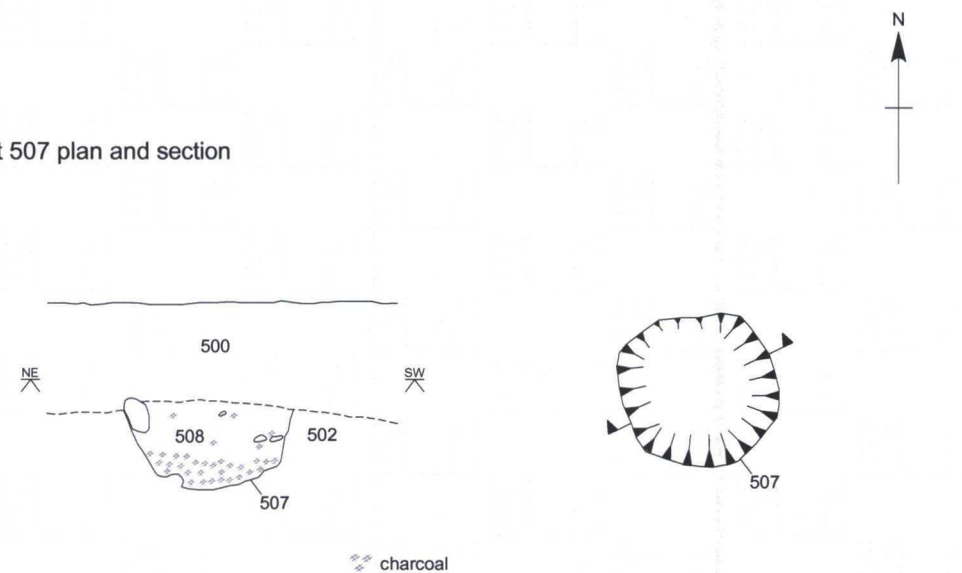


0 50m
plan and section scale 1:40 @ A3

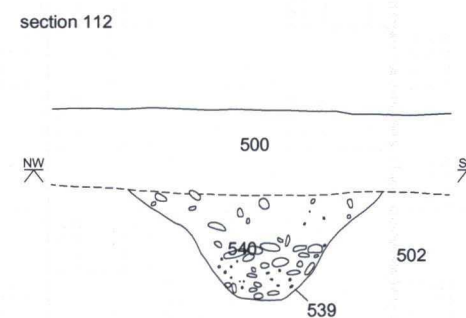
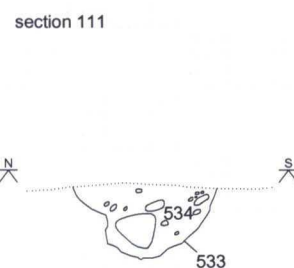
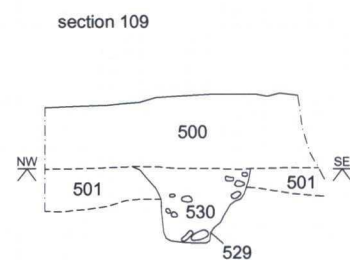
Figure 6. Scorton Quarry Areas 2 and 4B: four post-structures - plans and sections



Pit 507 plan and section

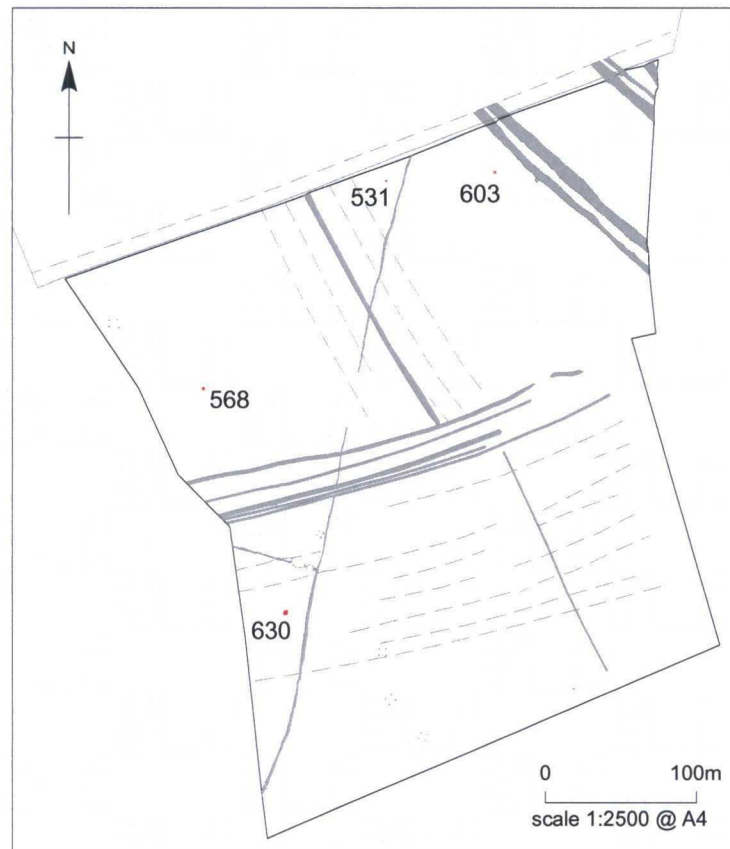


Ditch 527/237 sections

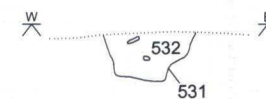
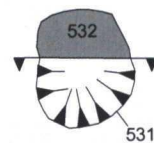


0 1m
plan and section scale 1:25 @ A4

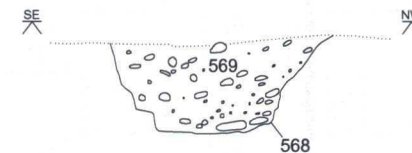
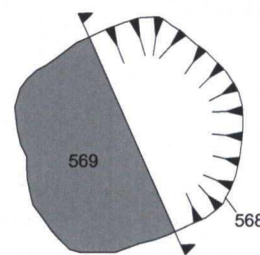
Figure 7 Scorton Quarry Area 2: pit 507 and ditch 527/537 plan and sections



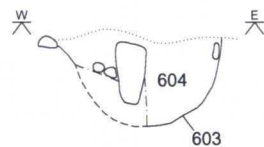
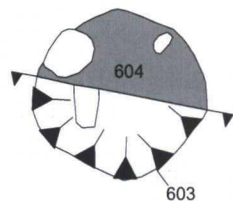
Feature 531 plan and section



Feature 568 plan and section



Feature 603 plan and section



Feature 631 plan and section

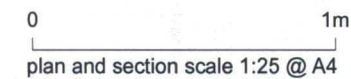
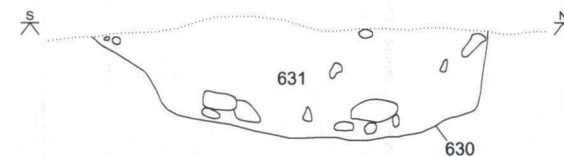
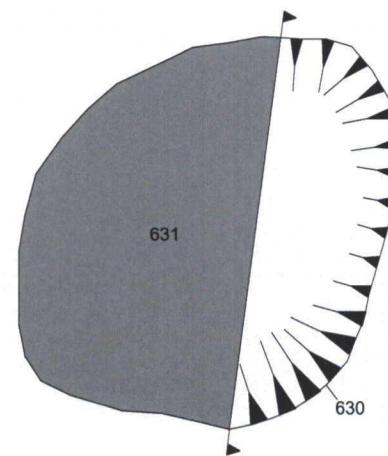


Figure 8 Scorton Quarry Area 2: undated features



Plate 1 Scorton Quarry Area 2: overall view of Cursus during excavation, facing north north-east

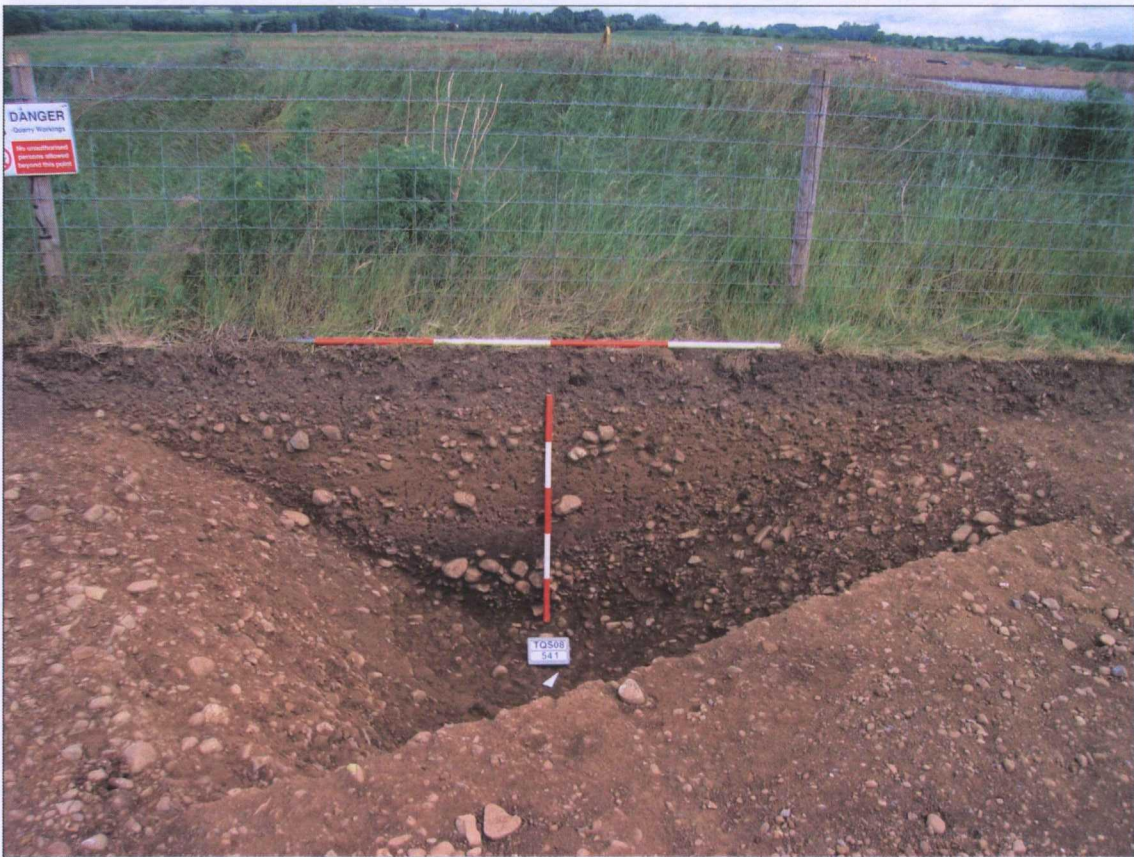


Plate 2 Scorton Quarry Area 2: ditch segment 541, south-east facing section, scales 1m and 2m

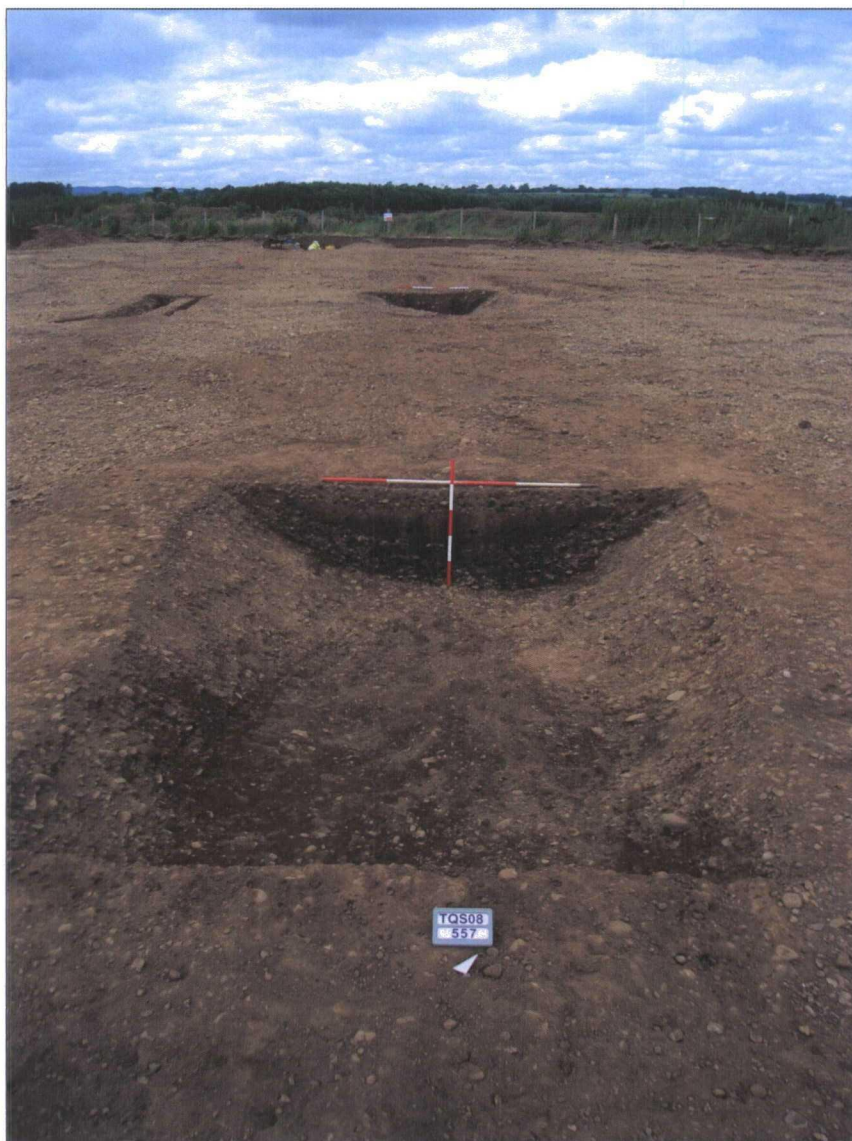


Plate 3 Scorton Quarry Area 2: Cursus ditch segment 557 and overall view of ditch 505 facing north-west. Scales 1m, 2m



Plate 4 Scorton Quarry Area 2: cobble spread 566 overlying ditch 505, facing north-west. Scales 2m



Plate 5 Scorton Quarry Area 2: gravel 'causeway' 550 inserted into ditch segment 548, facing west. Scale 2m

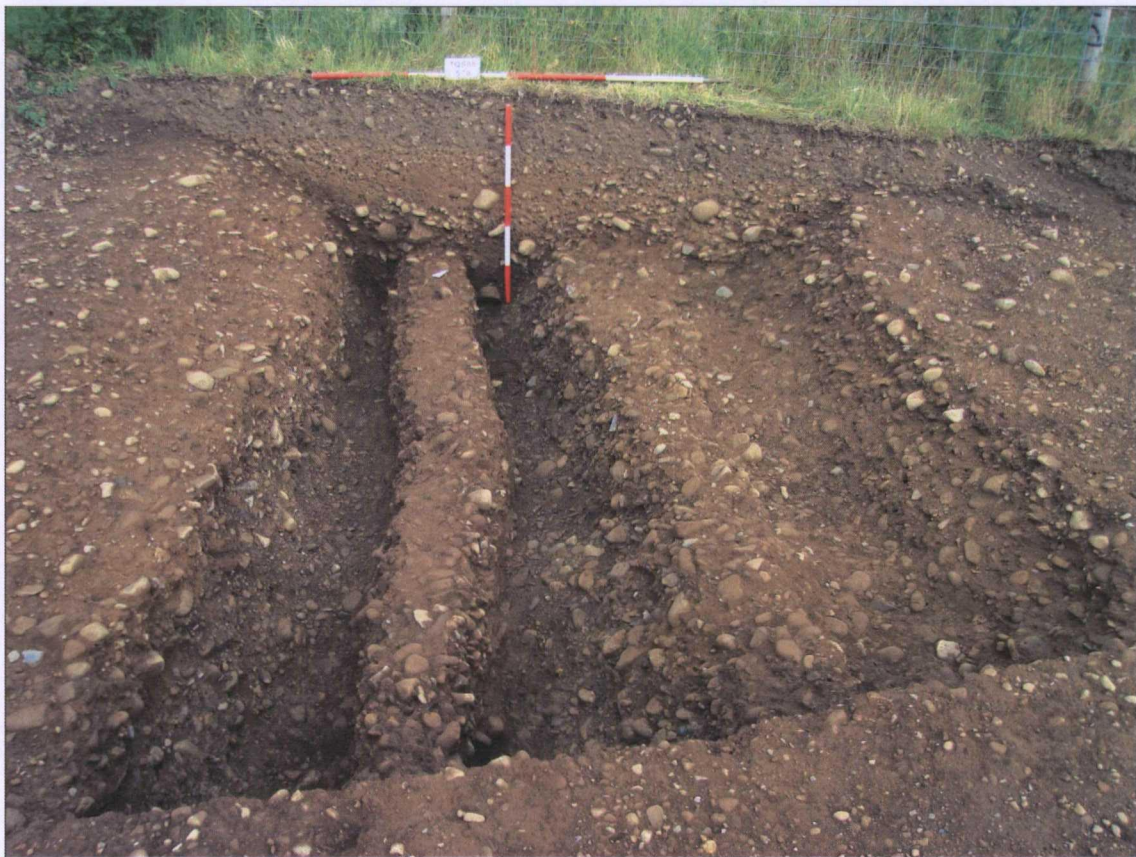


Plate 6 Scorton Quarry Area 2: segment 570 of linear feature 503, facing north-west. Scales 1m and 2m



Plate 7 Scorton Quarry Area 2: Cursus south-west ditch 505 (right) and palisade trenches 503 (left) facing north-west. Scales 0.25m, 0.5m and 2m

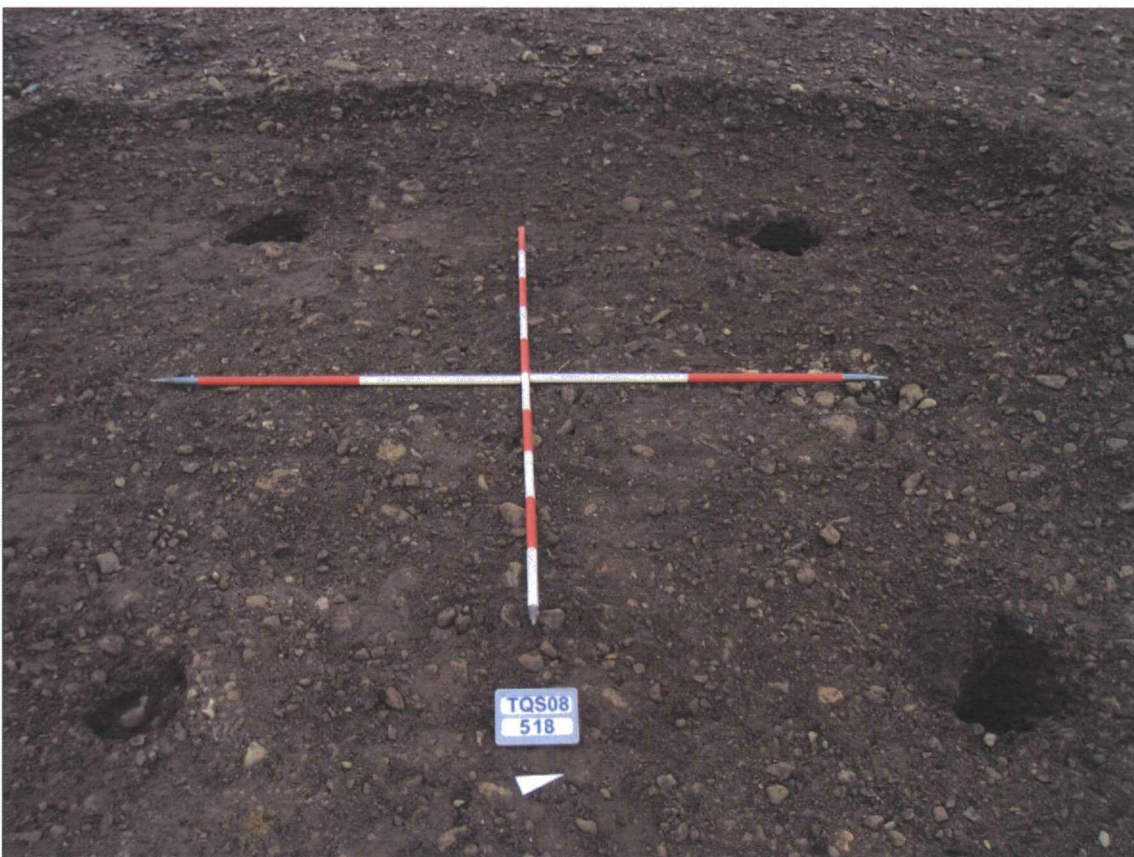


Plate 8 Scorton Quarry Areas 2: four-post structure 518 facing west. Scales 2m



Plate 9 Scorton Quarry Area 2: pit 507, north-facing section. Scales 0.25 and 0.5m