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LINDSEY ARCHAEOLOGICAL SERVICES
FRANCIS HOUSE SILVER BIRCH PARK GREAT NORTHERN TERRACE LINCOLN LN5 8LG

ARCHAEOLOGICAL EXCAVATIONS AT BRAUNCEWELL LIMESTONE QUARRY

REPORT FOR

BRAUNCEWELL QUARRIES LIMITED

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Excavations at Brauncewell Limestone Quarry.

J.B. Tipper

Introduction

In Spring 1994 Lindsey Archaeological Services were commissioned by Brauncewell Quarries Ltd. to undertake archaeological excavations adjacent to Brauncewell Quarry, TF 032 521, before the eastward extension to the quarry workings. An extensive complex of Romano-British features were defined including the ground plans of three parallel ditches forming a triple ditch complex, substantial quarry pits, enclosures, burials and a dense scatter of pits and postholes. An informative site plan has been produced but dating and phasing are complex and must be considered with caution rather than certainty.

Location: Topography and Geology

The site is situated c.0.5 km west of the A15 Lincoln-Sleaford road, c.7 km north of Sleaford, on Lincoln Heath, on the southern edge of an E- W dry valley, with the land gently sloping away from the south end of the site to the north, before rising up be low Church Row Plantation (Fig. 1). The site is situated between c.34-41 m OD over local geology consisting of limestone brash and bedrock, with pockets of sand, deriving from Middle Jurassic Lincolnshire limestone.

Fieldwork

The site was first identified as a crop mark by aerial photography in 1971 (Hunting Surveys Ltd. associated with Aerofilms (for the 1971 Census survey). HSL UK 71 155, Run 03/2034-5, 30/6/71). Further aerial photography clearly defined the site in 1992 (B. Thompson. PRN 1765 and 1767). A desk top study was undertaken by LAS in November 1993 (Field 1993).

This was followed by an archaeological evaluation during February 1994 comprising of systematic field walking across the field to the east of the present quarry and a magnetometer survey, covering 1.44 ha, was undertaken by the Landscape Research Centre Ltd. (Field 1994). The results of these surveys will be discussed in conjunction with this excavation report (Fig. 2).

Mechanical topsoil stripping of the site was undertaken using a 9 foot bucket followed by machine cleaning. This was carried out in two stages, a first area of c.2000 m^2 in early March 1994 followed by the rest of the site, 1.8 ha in total, in May, all of which was monitored by LAS.

The stripping removed c.0.3 m of the ground surface across the site. No surviving subsoil was visible, almost certainly destroyed by intensive

cultivation: although not visible at ground level, ridge and furrow obscure the southern end of the aerial photographs and one of the earliest records of the field shows it as arable in 1852.

Consequently, only features cut into the limestone brash and bedrock have survived: the uppermost parts of features and shallow features were probably already destroyed before the topsoil stripping. The lower parts of substantial features have survived but their original dimensions must be assumed to have been greater. It must be borne in mind that areas apparently devoid of surviving archaeological features may only be the result of post-depositional processes and not a reflection of the actual occupation. Even so, the topsoil stripping uncovered an extensive area of activity.

Six weeks of excavations were undertaken in two stages: c.3 weeks were carried out in March to evaluate an area of the site identified by the geophysical as being of potential interest (Area 1). The features revealed in this area were fully sampled. However, the second stage of stripping, c.1.6 ha, required to create the bund surrounding the quarry extension, uncovered an intensity of activity beyond the limited time and funds available to enable complete investigation.

A week of surveying was carried out immediately after the topsoil stripping, before thorough cleaning, in order to plan all features (at a scale of 1:500) visible on the surface (apart from the south-east quadrant, which was stripped during the excavations). From this, it was possible to select specific areas of archaeological interest and potential for the second stage of excavations. Two weeks of excavations were undertaken in May/June 1994.

These excavations concentrated on three main areas spaced out across the site, Areas 2, 3 and 4 (two smaller areas, 5 and 6, were also investigated) (Fig. 4). Selective cleaning of the surface was undertaken to expose and define all surviving archaeological features (in particular, to remove the lines of earth left by the machine bucket). Detailed plans of each area were produced (1:20 - 1:100). Sample excavations of archaeological features were carried out, particularly those with stratigraphic relationships.

Of the 1.8 ha which was mechanically stripped, c.2900 m² were archaeologically investigated in detail, c.16% of the total site area. Both phases of the excavations will be discussed together in this single report.

Archaeological features were assigned numbers for recording purposes, which are referred to in the text and on the illustrations. All measurements are taken from the surface of the natural after stripping.

Earliest Evidence of Activity

The earliest evidence for activity consists of a small dispersed surface scatter of worked flint: twenty-one flints were retrieved from the field walking of the 4 ha field prior to excavation. No evidence for associated prehistoric occupation was discovered by the excavations. These may relate to the Bronze Age barrows c.1 km to the east (TF 041 522) (Field 1994).

A Triple Ditch Complex

Four parallel ditches were defined by aerial photography in a gently sinuous N-S alignment: three close together forming a triple ditch, c.18 m (on average) in total width, although gradually narrowing and fading as they progress southwards from c.23 m below Church Row Plantation to c.14 m to the north of the excavation site, and a fourth ditch c.45-60 m to their west. A fifth ditch was defined by air photography to the west of the fourth, making an overall width from the western most ditch to the eastern most ditch of c.200 m (a fallacious comparison as the western ditch is almost certainly of a different phase of activity. See below).

The air photographs show that the triple ditch continues for at least c.1.5 km northwards from the site, cutting across the E-W valley and curving eastwards in a wide arc of 1100 (Fig. 1). Only the eastern ditch of the triple ditch and the single ditch to the west are defined across the area to be affected by the quarry extension, continuing for c.30 m south of the modern road. The ditches may possibly continue south-eastwards but this is uncertain and the cropmarks may relate to the deserted medieval village of Dunsby (Fig. 1).

The magnetometer survey clearly demonstrated that two of the ditches continued southwards across the site (Fig. 2). The eastern ditch of the triple ditch (F2), and the single ditch to the west of the triple ditch (F22) were defined, showing that the central and western ditches terminated to the north of the geophysical survey area, as indicated by the air photographs.

Although the limestone was responsive to the magnetometer survey, the readings gave a false impression that the break in ditch F22, confirmed as real by the excavations, formed a complex entrance system. The anomalies in this survey grid (Grid 12) of c.90 m² were the result of quarry pit disturbance and the pattern of tipping; different backfills giving different magnetic intensities. Topsoil stripping uncovered the plans of three roughly parallel ditches c.45-50 m in total width (Fig. 3, Pl. 1). However, only the eastern two of these form the triple ditch complex defined by air photography to the north of the site.

The Eastern Ditch

The eastern ditch, F2, is continuous across the site, extending N -S for c.210 m. This forms the eastern ditch of the triple ditch complex. The ditch has a V-shaped profile with a flat base (probably a result of horizontal planes of weakness in limestone bedrock) 0.6 m wide, 2.3 m wide x 0.9 m deep (Figs. 11, 12, Pl. 2). Post- depositional leaching of the soil has made identification of the stratigraphy more difficult: most features across the site have a uniform reddish-brown colour. The ditch probably contained three recuts: at the interface above (19) and (127), (148) being the primary fill banked up the eastern side, with a layer of dumped rubble (147) overlying; a U- shaped recut at interface above (147), containing layer (18), a rubble fill with limestone fragments >0.2 m in size; this is probably truncated by the final

recut, the primary fill (17) lying up the eastern side. A single sherd of indeterminate Roman pottery was recovered from the surface of ditch F2.

An Associated Bank

The pattern of silting, and rubble backfill, strongly indicates that a bank existed to the immediate east of ditch F2, soil upcast during excavation of the ditch. A greater quantity of primary silting on the eastern side of the ditch from the erosion of a bank was overlain by rubble backfill (18) and (128) from deliberate levelling, possibly in its final phases. There was no upstanding evidence for a bank.

A Palisade

Intermittent sections of a line of postholes were clearly defined along the western edge of ditch F2, along the whole length of the stripped area, particularly after cleaning of the surface, suggesting that the line was probably continuous, but obscured by the machine and truncated by the stripping and cultivation (Fig. 3, Pl. 4). It was obscured to the north of Area 3 by topsoil, creating the impression that the line terminated within the lee of F219, the central ditch of the triple ditch complex. This was not substantiated either way but the line was apparent at the northern end of the site, for c.7 m, c.3 m from the edge of ditch F2, indicating continuity.

In Area 1, a single line of postholes was defined along the western edge of ditch F2, and roughly parallel with it, c.1.5 - 2.2 m from the edge of the ditch, set between 0.8-1.3 m apart (Fig. 6). These were subcircular shaped postholes, 0.2-0.5 m in diameter , with U-shaped profiles 0.18 m deep (maximum). Two gaps in the line, c.21 m between F9 and F85, c.3 m between F85 and F83, are almost certainly the result of erosion, given their average depth of 0.06 m. A few sherds of Roman pottery were recovered from postholes F6 and F9.

In Area 3, c.25 m to the north, the same line of postholes was recorded c.1.5 m to the west of Ditch F2, with intermittent postholes surveyed in between and shown on the general plan (Fig. 7, Pl. 4). These are almost identical with those discussed above: twenty three subcircular shaped postholes in a single line (and three offset to the east), 0.22-0.46 m in diameter x >0.21 m deep, spaced at intervals of c.0-0.6 m (centre to centre). They contained a reddish-brown sandy loam fill: post-pipes were visible in F328, F341, F349 and F374 but no post-packing was evidenced (with the possible exception of F373). None of the postholes produced any evidence of date, but their positioning parallel to the ditch strongly implies contemporaneity with it.

The line of postholes is good evidence for a palisade along the western side of F2, the eastern ditch of the triple ditch complex: the evidence for a possible bank on the eastern side of ditch F2 has already been discussed above. Ditch F2 was flanked on one side by a continuous palisade set in individually dug postholes, making it a substantial and formidable linear boundary by itself.

The Central Ditch

The central ditch of the three uncovered on the site, F219, forms the central ditch of the triple ditch complex defined by aerial photography (Fig. 3). This ditch is parallel with, and c.15 m to the west of, ditch F2. The ditch lies c.30 m to the east of ditch F22, the single ditch to the west of the triple ditch (see below). Ditch F219 terminates with a butt end (unexcavated) in Area 3, c.77 m south of the northern edge of the site, which lies to the north of the magnetometer survey grid, and does not recommence in the stripped area (Fig. 7, Pl. 1).

The ditch is cut by an isolated quarry pit, F278, c.6.5 m long x 5.5 m wide, c.43 m north of the main quarry pit complex. F219 is also cut by gully F302, forming the north side of an enclosure, c.17.5 m north of the southern terminal (see below).

The ditch has a break/ interruption at the northern end of the site of 22.75 m but with a short section of ditch in between, before continuing southwards for 52 m up the slope to its termination. An area of c.240 m² was cleaned (Area 2) in an attempt to understand the interruption in the ditch with excavation of the ditch terminals with the aim of retrieving artefactual evidence, often collected in ditch terminals, and profiles of the features (Fig. 5, Pls. 5, 6).

The northern ditch terminal of the break, F200, was defined for 2.1 m at the northern of the site before disappearing out of stripped area. The butt ended ditch had a V-shaped profile, 1.6 m wide x 0.7 m deep, to the base of a posthole in the ditch terminal, and contained a lower fill (267) of orangey-reddish brown sandy loam, 0.26 m in thickness, probably the result of natural silting (Pl. 7). The ditch had possibly been cleaned out, layer (269) of the second phase. There was no evidence of a postpipe in the posthole fill. No artefacts were recovered from the ditch terminal.

The southern terminal of the break, F219, lying c.1 m above the height of terminal F200 (surface) was very similar in character, with a steep sided butt end (Pl. 8). There was no conclusive evidence to indicate a post but one could have butted the terminal. The two fills were defined in the V-shaped ditch, 1.5 m wide x 0.6 m deep, do not suggest deliberate backfilling rather than gradual silting. Layer (220) plunges c.0.2 m at the butt end, perhaps suggesting filling after decay/removal of an end post. Like terminal F200, there was no artefactual evidence from F219.

A pit, F263, was defined c.1.3 m to the west of ditch F219, 2.2 x 1.8 m in size, containing burnt ashy material on it western side. No relationship between it and F219 was apparent.

The evidence for end posts suggests that the ditch may have been foundation trench for a fence line. It was not possible to determine whether or not there had been a bank: the earth from the ditch may have been backfilled to support the posts.

A short interrupted section of ditch, F218, was offset by c.2 m to the south of the centre point between the terminals F200 and F219. Ditch F218 was very similar in profile to F219, 4.4 m long x 1.6 m wide x 0.55 m deep, and in its pattern of silting: an upper layer (224), c.0.2 m deep plunged c.0.1 m immediately at the butt end (Pl. 9). Unfortunately, ditch F218 produced no artefacts. Its position strongly suggests it is contemporary with F219 and

F200. It is possible that a single opening was found to be too wide and ditch segment F218 was added in between.

A slot F222 extends northwards from the northern end of F218 for c.1.1 m, and is apparently cut by it. This slot may relate to a crescent shaped pit/slot F259 adjacent to its east side. Both were unexcavated.

Two rows of postholes were defined, aligned N-S, parallel to each other and the break in ditch F219 (Fig. 5). The western line of postholes, set c.1.5 m to the west of the line of ditch F219, was defined for c.18 m. The individual postholes, 0.2-0.69 m in diameter, were set 0.5-2.5 m apart. The eastern row of stakeholes, c.0.2-0.55 m in diameter, set c.2.4 m to the east of the line of F219, were defined for 5.75 m.

The western line of postholes blocks all but 4.4 m of the c.23 m gap between F200 and F219, apparently negating ditch segment F218, if this held a fence-line. The eastern stakehole line is set across half of the gap between F219 and F218: both rows appear to terminate opposite each other at their southern ends. This indicates that the posthole line may be of a separate phase, possibly a later addition, to the ditch complex. All possible postholes were planned but none was excavated.

A possible posthole structure may be inferred in the break between ditches F200 and F219, although the pattern could also be interpreted as an arrangement for control movement through the gap (Fig. 5). This phase of activity appears to post-date an area of disturbance by shallow pits and scoops, F227, F258 and F277, containing rubble backfill (see below).

A row of postholes aligned in a SE direction from ditch terminal F200 for c.5 m may relate to a line of postholes curving NE from posthole F236 on the N-S western line of postholes. This must remain a very tentative interpretation because a number of postholes were very obscure, some severely truncated and others may well have been machined away. Some may be replacements, realignments and alterations to the complex arrangement. Therefore, it is very difficult to reconstruct the arrangement at any one point in time.

Interpretation of the break in the central ditch of the triple ditch is problematic. Ditch F219, a possible fence line, lies c.15 m to the west of, and parallel with, ditch F2, which is unbroken and twice the size of F219, with a palisade in front of it, c.12 m from ditch F219, and possibly a bank behind it. Ditch F22, also continuous across the site lies c.27 m to the west of the gap (see below). No evidence has been found to contradict the supposition that the three ditches making up the triple ditch, and the fourth ditch F22, are contemporary. Furthermore, ditch F219 terminates c.50 m to the south of the c.20 m gap.

To argue for a pragmatic functional interpretation of the elaborate complex is unsatisfactory. It seems irrational from what familiarity allows to have a E-W entrance in the shadow of a palisaded and banked ditch. It could simply be interpreted as a complex entrance arrangement for livestock control and management; the triple ditch complex could being seen as a wide track/droveway for passage across the limestone heath (eg. Jackson and Knight 1985). This ignores the context of the central ditch interruption and the elaborate scale of the triple ditch arrangement, in which the western ditch terminates c.50- 70 m north of the gap in F219, and north of the excavations, which itself terminates c.50 m to the south (c.100-120 m south of the

termination of the western ditch). The air photography (03/2034, 1971) defined a similar interruption in the central ditch under 1 km to the north of the site, but in this case both the flanking ditches were unbroken (Fig. 1).

The lack of similar excavated sites means that there is no representative security with which to make a comparison. The elaborate spatial layout argues for something more than a droveway entrance, possibly for the control of people. This complex was not necessarily a functional boundary for practical and physical movement, but must instead be seen more as a symbolic boundary, enabling and constraining movement and, more importantly, the conceptual ideas of people. In this way, the practical and the ideal can be seen to be inextricably linked.

The lack of artefacts from the ditch terminals is not particularly unusual by itself, indicating the lack of close occupation, but combined with the elaborate spatial arrangement, particularly the large 20 m gap, normally indicative of a frequented passageway, suggests an active avoidance of discard in the ditches. The complex may even have been a `special' liminal zone on an important symbolic boundary.

A ritual elaboration can be seen through the explicit use of the cultural principles of ditch building. The routine nature of ditch construction has been exploited in the manipulation of society. Research in the Iron Age period of Southern Britain has shown that pits and ditches are `part of a symbolically constituted spatial text' (Hill 1989). It is suggested that through the manipulation of the symbolic references of material categories, be it discard in ditches or ditch construction itself, the meaning of location in space and time, and cultural tradition, is negotiated, maintained and transformed.

The Single Ditch, west of the Triple Ditch

The western ditch of the triple ditch, in between F219 and the single ditch F22 to the west was shown by air photography to terminate c.40 m north of the site, and confirmed by the mechanical stripping (Fig. 3, Pl. 1).

The air photography (1971) and the magnetometry showed that the single ditch F22, c.40-60 m to the west of the triple ditch, continues N-S across the site and is visible as a cropmark for c.30 m to the south of the modern road (Figs. 1, 2). The ditch was not defined to the north of Church Row Plantation, possibly a result of a variation in the crop conditions in different fields.

Ditch F22 follows a similar sinuous alignment but which is apparently converging with the line of the triple ditch. It is c.65 m west of the eastern ditch of the triple ditch complex, south of Church Row Plantation on the air photograph, but at the southern end of the site it lies c.38 m west of F2, the eastern ditch of the triple ditch. It converges with ditch F2 as the other two ditches in the triple ditch system terminate.

The relationship between the parallel curving ditches of the triple ditch and F22 is suggestive of contemporaneity, or, at the very least, temporally close phases: the line of the boundary must still have been defined at replacement.

The magnetometer survey created a misleading impression that ditch F22 formed a complex entrance arrangement (see above): the excavations

showed that the anomalies were created by the quarry pits (F28), cutting the ditch for c.45 m.

Ditch F22 has a V-shaped profile, but with a flat base (c.0.55 m wide), 2.5 m wide x 0.8 m deep (Fig. 11, 12, Pl. 3). The fill consists of primary silting layers (123) and (126) and backfill dumping, layer (149) containing limestone fragments >0.3 m in size. Two possible recuts were defined: at the interface above (60), layer (58) being primary silting in the base of the recut; and above layer (59), (146) forming the primary silting in the recut. The upper fill (23) contained two sherds of Roman pottery.

Evidence for a bank on either side of ditch F22 was inconclusive from the pattern of silting. No postholes were observed along either side of the ditch. This possibly suggests that ditch F22, whilst very similar in profile to ditch F2, may have held less importance in the ditch complex. However, it is over twice the size (volume) of ditch F219 (as is ditch F2).

A Fifth Ditch to the west of the site

There is a fifth ditch shown as a crop mark on the air photographs, c.90-100 m to the west of ditch F22, but with a straight NW-SE alignment, suggesting that it may belong to a different phase of activity. This ditch is clearly visible in the south-facing quarry edge, having a V-shaped profile with a reddish-brown loam fill, comparable with F2 and F22 (Pl. 10). A further smaller V-shaped ditch was also visible in the quarry edge, to the east of the fifth ditch, which may relate to it, possibly even forming a double ditch.

The fifth ditch could replace the triple ditch complex: it is tentatively suggested, from its orientation roughly parallel to Mareham Lane, that it may form a later rectilinear planned field system along an E-W trackway across the heath. A side road and rectilinear fields have been recorded by aerial reconnaissance perpendicular to Mareham Lane, aligned NW-SE, c.3.4 km to the east in Ashby de la Launde parish (T. Hayes). This, however, may turn out to be incorrect with further research.

The Brauncewell Triple Ditch

Explanation of the triple ditch complex is problematic. It has an ambiguous relationship with the other features on the site. The lack of artefactual evidence from the ditches suggests that this was not in a context of occupation/settlement (but see below). Moreover, it means that there is no material from the ditch fills with which to date them and their stages of disuse. The complex can only be dated through the relationship of intercutting datable features, which occurred after the ditches had silted up, and by comparison with excavated parallels, which are few in number.

The quarry pits (F28), dated by pottery sherds in the rubble backfill to the 2nd-century AD, cut ditch F22, suggesting that this ditch had at least been backfilled and disused by then. However, the evidence for ditches F2 and F219 is ambiguous. The 3rd-century AD grave F3 clearly cuts ditch F2: but the group of three mid 2nd-century burials appear to respect the line of the

ditch (see below). The two enclosures (Area 3) respect ditch F2, using the ditch as their eastern boundary. However, ditch F219 is cut by gully F302 which means that the central ditch of the triple ditch went out of use before the eastern ditch (ditch F219 is also cut by quarry pit F278), which has been shown to be a more elaborate and, by implication, more important boundary.

The form of the Brauncewell triple ditch complex can be compared to other examples of triple ditches: linear earthworks have been well recorded in North Lincolnshire (Everson and Hayes 1984), and the East Midlands (Pickering and Hartley 1985). Unfortunately, the excavated examples are very few in number and take the form of small trenches across the ditches: the Brauncewell excavations are by far the most substantial investigation of a triple ditch complex to date (Table 1).

The Brauncewell triple ditch is not an isolated example of a triple ditch in the area and other sections have been recorded in south Lincolnshire. Cropmarks of a triple ditch system, possibly with adjacent enclosures have been recorded (by Pickering, in Chowne 1987) adjacent to Fulbeck airfield (SK 9050). The triple ditch is very irregular, with two parallel sinuous ditches and a third which dog legs and meanders. Pickering has recorded further sections of triple ditch to the south of Brauncewell: in Honington parish, a triple and double ditch, aligned N-S, SK 954 435 (eg. SF 2204/14A -19.7.80); triple linear ditches in Hough on the Hill parish, aligned N-S (SK 928 461: SF 2207/9-10 -12.8.80); in Barkston parish, triple linear ditches with the central ditch flanked by a pit alignment (SK 933 425: SF 1784/35 -22.7.79); in Silk Willoughby parish, a triple ditch forming part of a double ditch system (TF 040 431: SF 1714/25- 18.7.79); and in Kirkby la Thorpe parish to the south-east.

Aerial reconnaissance since the 1950s, by Hayes, Everson and Riley, has identified a c.5 km stretch of triple ditch, to the north and north-east of Lincoln, aligned N-S along the dip slope of the limestone outcrop above the 30 m contour.

The recorded sections appear to form an extensive boundary system running from the County Show ground, Grange de Lings, Nettleham and Greetwell. Further sections have been recorded at Glentham (possible), at Hemswell where a triple ditch changes into a single ditch, and Grayingham. The triple ditch has an overall width c.15 m or wider, but irregular and not consistent even over a short stretch (Everson 1979).

The Lincoln triple ditch has been excavated in two places. At Nettleham Glebe (SK 98739973), discontinuous ditches were shown to have a narrow causeway across them (Field 1980). A series of postholes forming a possible structure and fence were defined adjacent to the central ditch terminal, similar to the Brauncewell triple ditch interruption. The ditches failed to produce any dating evidence: sherds of 3rd/4th century AD date in the upper fills were thought to be intrusive.

A further section was excavated at Riseholme Lane (TF 997 756) (Palmer-Brown 1993). Only c.2 km to the north of Nettleham Glebe and shown to be part of the same triple ditch system, all three V-shaped ditches were over twice the size of the U-shaped ditches at Nettleham Glebe and the total width of the triple ditch was almost double. There was clear evidence for an earth

and rubble bank between the central and western ditches, which produced a single late Iron Age sherd and a Roman sherd. A similar Iron Age fragment in the central ditch fill with a sherd of 3rd-century AD Castor Ware, suggesting that the ditch may have been open for a long period. A late 1st-century AD rim sherd overlay the slumped bank material in the western ditch and an Iron Age sherd from the eastern ditch.

Pickering (1978) has suggested that the triple ditch sections form a continuous boundary; an integrated system of territorial land division from Northampton to the Humber. This seems plausible to the north of Lincoln but further research is required, by aerial reconnaissance or subsurface survey, to substantiate the suggestion that it continued on the limestone heath to the south. The orientation of the Brauncewell triple ditch, sweeping eastwards, cannot easily be accommodated into Pickering's general hypothesis. It requires explanation in the immediacy of the local landscape (see below).

In the East Midlands, nine examples of triple ditches had been recorded in Leicestershire up to 1985 (Pickering and Hartley 1985), the clearest being at Ketton (SK 980 023), where c.1 km of triple ditch has been recorded, leading to the River Welland, cut into river terrace gravel and Lower Lincolnshire Limestone. This triple ditch complex has been excavated at Ketton (SK 975 029), and is comparable with those in Lincolnshire, consisting of two larger ditches with an adjacent smaller ditch on the eastern side (Mackie 1990) (Table 1). A small amount of Mid-late Iron Age pottery was recovered from the two larger ditches.

The Triple Ditch in context

Discussion of the triple ditch, and quarry pits/occupation/enclosures, in isolation is little more than a speculative generalisation without evidence of the social structure it supported and the society which it enclosed. It is vital, for example, to examine possible associated settlements, in order to understand what the ditch complex delimits and in what context the different phases of the site were active. The triple ditch turns E-W c.1 km north of the excavation area and could easily enclose a late prehistoric settlement to its east. Their very nature as a boundary means that multiple ditches may well be defining the edge of an area, at some distance from contemporary settlement. The Roman quarry complex could belong to a villa estate in the near vicinity.

Brauncewell and adjoining parishes were researched in an attempt to fit the site into a local context.

A major Bronze Age barrow cemetery c.800 m to the east of the site, consisting of two double ditched barrows and four single ring ditches, was almost certainly visible at the time of the ditch construction (SMR No. 60322). The triple ditch may have been actively constructed around the cemetery as a way of referencing the past in order to justify the present social order. This might be confirmed by the ritual elaboration of the ditch complex. It is even conceivable that the triple ditch was of an earlier date than has been suggested, given the lack of dating evidence from the excavations.

Three undated non-rectilinear ditched enclosures, within an enclosing ditch, are recorded by air photography c.400 m to the east of the triple ditch complex (TF 0355 5226: HSL 03/2034); and, c.1.7 km NE, a double ditched pentagonal enclosure (TF 0462 5320). To the south-west of the site, two enclosures and three N-S linear ditches have been identified to the south of New Farm, Brauncewell Hill Top, c.1 km from the site (TF 025 514: HSL 03/2034); and c.1.3 km to the north-west, an oval shaped enclosure (TF 021 523) and a possible double ditched enclosure (TF 023 524) show as cropmarks (HSL 03/2034).

The site is situated approximately half way between two of the major Roman north-south routes; c.4 km east of Ermine Street and c.3.4 km west of Mareham Lane. The heath was probably criss-crossed by droveways and trackways, as has been recorded in Ashby de la Launde parish (by T. Hayes: see above).

Two villa sites are recorded along Mareham Lane in Ashby de la Launde parish; the first c.4 km ENE (TF 071 522), probably of 3rd/4th century date. A second villa site is recorded c.3.4 km to the north of the first (TF 057 552), c.4.25 km NE of the triple ditch complex. A possible villa site of 2nd/4th century date is known in Cranwell parish (TF 025 488), c.3.1 km south of the site. A late Romano-British site is evidenced by 3rd/4th century pottery c.2.75 km north- west of Brauncewell in Temple Bruer parish (TF 00955365).

The list of sites in the SMR is almost certainly an incomplete record of the total number and judgements based on the distribution of chance finds can be very misleading. A cursory glance at the 1971 air photographs (HSL 03/2034-5) identified four previously unrecorded cropmark sites and extended the knowledge about two others in a small area of 4 km^2 centred on the excavation area. No Iron Age sites have been recorded in the area in contrast to Mid/Late Roman sites. This may have some reflection on the real picture, but it is almost certainly distorted by the greater visibility of Roman sites. The triple ditch complex and the later activity's relationship to sites of all types is inconclusive.

Triple ditches: towards an understanding

Multiple ditches are evidenced from the 2nd millennium BC, apparently marking territorial systems. During the late Bronze Age major dyke systems on limestone were `marking prestigious territories of tribal leaders' (Spratt 1987). For example, a single late Bronze Age sherd was recovered from an excavated section of triple ditch at West Deeping (Collcutt & Field 1990). The spatial relationship of the ditches often strongly suggests that they had been in contemporary use but the possibility of replacements cannot be ruled out. Linear boundaries were possibly associated with and based on earthworks already in existence, eg. barrows, marking long-lived boundaries.

With the emergence of Iron Age hierarchical tribal structures and the integration of communities, smaller dykes were built to subdivide the major territories defined by earthworks, as defined on the Yorkshire Wolds. This process of defining and enclosing the landscape continued during the Roman period.

Multi-phase boundaries must be seen as multi-purpose (Spratt 1987): while the form may have remained similar it is without doubt that their meaning would be constantly re-evaluated and transformed to suit the needs of society (not necessarily all of society) in a mesh of continually changing social and economic circumstances.

Local `systems' or networks of linear features are common across the country and are usually interpreted as land boundaries, marking land rights. Their form can be seen as statements of, and actual, control.

It has been argued that the scale of linear features "may have a hierarchical significance directly related to the importance or status of the earthwork as a boundary" (Jones 1988). Therefore, six parallel ditches, for example, at Essendine, Leics. (TF 055 115) (Pickering and Hartley 1985. 70), situated close to an earthwork of three ditches, must have formed a major territorial boundary, presuming that they were contemporary. The generalisation of ranking ditch complexes in order of importance by the number of component ditches is over simplistic.

The form of ditch systems may not remain constant throughout, the numbers of ditches increasing and diminishing for no apparent reason: sudden expansions, according to Jones, can be seen as accentuating boundaries, reaffirming the limits of a territory or reasserting a territorial claim.

The change in the triple ditch complex at Brauncewell, from a triple ditch and single ditch to a double ditch, suggests that it was located on a territorial division, with a major territorial division continuing northwards. Further research is necessary to extend the known limits of the triple ditch, particularly to the immediate south of the site. Alternatively, the triple ditch can be understood as a local settlement/land boundary. This does not diminish the importance of the ditch system through the control of movement and access to meaning in the local society situated in late a prehistoric landscape.

Quarry Pits

A large area of disturbance was defined after topsoil stripping (Area 1), which had been truncated on the western side by the modern quarry and was visible in the quarry face (Fig 3, Pls. 11, 12). This consisted of irregular - sub-rectangular shaped multiple-cutting pits with tip lines visible in plan, extending for c.1800 m². Aerial photography (HSL 03/2034) has shown that the western pits were much larger but they have since been truncated by the modern quarry. These were almost certainly a series of interlinked Roman quarry pits.

The quarry pits were shown to cut ditch F22, the single ditch along the western edge of the site. The different rubble backfills produced the effect of a complex ditch entrance of F22 on the magnetometer survey (Fig 2). These tip lines can be interpreted as topsoil backfilled from an active quarry face into the expired pit behind: a sample of material taken from the base of a pit truncated by the modern quarry face was identified as re-deposited topsoil.

No quarry pit was fully excavated, and therefore a detailed understanding of their development and stages of disuse and backfill was not achieved. Numerous backfill rubble layers are apparent in the quarry pits visible in the modern quarry face.

Part-excavation took place of F7, F24, F26 and F28. A sub-rectangular shaped quarry pit F24 with steep sides (70° angle of cut), c.7 x 5 m in area, cuts the western edge of ditch F22 but was itself cut on its north-west side by a later quarry pit, F118 (Pl. 13). Pit F26, 3 m long (truncated by the modern quarry) x c.2.4 m wide and excavated to a depth of c.1 m, had vertical sides, undercutting in places (Fig. 13, Pl. 14). The quarry pit contained numerous layers of gradual silting with dumped rubble backfill, the tip lines indicating that it was dumped in from the north side of the pit.

Quarrying was largely confined to the central area of the site, indicating a single centralised and organised phase of working (Fig. 3). Three other small isolated pits were defined to the north and east of the main activity: F162 and F163, c.6 m apart and c.10-15 m east of the main pit complex; and F163, c.43 m north of the main quarry pit down the slope. F162, the larger area of rubble disturbance, measured 6.5 x 4.5 m, and F163 3.5 x 2.5 m. The relationship between pit F163 and ditch F2 was not apparent in plan. Pit F278, c.6.5 x 5.5 m in size, was clearly shown to cut ditch F219.

The quarry pits have been placed in the 2nd-century AD by pottery recovered from the backfill. Sherds were recovered from pit F7, layers (8/40) and (57), pit F26, layers (27) and (130) (2nd/3rd century), pit F24, layer (25), and from backfill rubble deposits (139) and (140).

No artefacts associated with quarrying, such as tools, were found. The quarry pits were a small low technology industry, manpower, and probably animal power, being the main component to remove the stone, which was of low quality, used possibly as hardcore for road/building foundations (as is the modern quarry stone) for use in the near vicinity: limestone rubble for the maintenance of Mareham Lane, c.3.4 km to the east and Ermine Street, c.4 km west of the site, eg. Phase 2 of Ermine Street, Coleby (Chowne 1987).

The Brauncewell complex was probably a small-scale enterprise: it is estimated, from the quarry pit sections visible in the modern quarry face, that

c.3600 m³ of stone was removed from the surviving pits. It is probable that similar sites existed across the heath. The closest known possible Roman quarries are a series of inter-linked gravel quarries were excavated at Ruskington, c.5 km to the south-east of the site (M.W. Atkin 1976).

There was no evidence of stone structures on the site: the quarries could have been controlled by a villa owner in the near vicinity, but the most known examples suggest that they were occupied during the 3rd/4th centuries, although none have been excavated, after the quarries had become disused. It is quite possible that the stone was used in the construction of a local villa: a possible villa site, of 2nd/4th century date, has been recorded in Cranwell parish, c.3.1 km south of the site (TF 025 488).

Alternatively, the quarry complex can be seen as a self-sufficient complex, to the north of and below a small settlement, evidenced by the agricultural processing facilities and posthole lines, with a small burial area on its north edge. Livestock enclosures were defined to the north and east of the quarry pits. Furthermore, there is very suggestive evidence to show that settlement was concentrated to the south-east of the site.

There is no evidence to suggest that the Brauncewell quarries were exploited before the 2nd-century AD, when there was increasing production of, and need for, building stone for towns as they ceased to be half timbered, for villas, and for public and private monuments.

High quality Lincolnshire limestone, and that of the Cotswolds and Northants, was widely appreciated for ashlar masonry. The monumental arch at London was of Lincolnshire limestone. That from the quarries near Ancaster was used on buildings in Lincoln. However, the quality of the limestone across the heath is very variable and localised: the Brauncewell quarry pits are of a lower grade.

Pre-Roman territorial boundaries are often cut by linear Roman roads: this was not only practical but through the destruction of long-lived native boundaries it can also be seen, particularly by the native society, as a gesture, and tacit symbol, of Roman authority. The excavation of quarry pits at Brauncewell was not only practical but it can be clearly seen as an active destruction of the triple ditch complex, a major pre-Roman boundary, and it has been argued, a site of cultural reference: a symbolic destruction of Iron Age organisation. It cannot be seen as mere chance that led to the digging of quarries in this particular location. It provided the hardcore for the construction and maintenance of the Roman roads and villa estates: the construction of the new hierarchy.

It has been suggested that the Greetwell quarries, on the north-eastern side of Lincoln, were first worked by the Romans: these are also located over a triple ditch complex. Further research is required to justify the supposition that Roman quarries were actively located over pre-Roman boundaries.

A minimum of 61 burnt patches were recorded across the site during the surveying, and may possibly relate to the quarrying activity. These patches, burnt in situ, have no characteristic shape, varying from sub-circular to sub-rectangular, c.0.3-2.25 m long x c.0.2-1.5 m wide x 0.02-0.25 m deep (Pls. 15-17). They vary from a spread of material on the surface (eg. F76) to larger scoops and pits (eg. F43). Their fill consists of pinkish reddish brown

burnt loam, mixed with ashy material, containing burnt and shattered limestone fragments c.0.01-0.04 m in size, limestone rubble >0.15 m, in varying quantities. In all excavated examples, all from Area 1, the greatest burning occurs uppermost in the pits: it is possible that the heat from shallow pits has been concentrated on the bedrock directly below, the shattered burnt rock giving the appearance of deeper cuts.

The burnt patches are scattered across the whole site. None of the excavated examples produced dating evidence: they do not all necessarily relate to the same phase of activity.

Their spatial distribution does not appear to respect the triple ditch complex. They have been defined to the east and west of all three ditches: none are cut by the N-S ditches and patch F15 is set over the backfilled ditch F2 (Pl. 15). It is possible that burnt layer (275), thrown into ditch terminal F200 as backfill in its final stages, may be from a similar feature. Burnt patch F93 cuts grave F89. The enclosure gully F300 cuts burnt patch F318. In the southern area of occupation burnt patch F525 appears to be cut by F518.

A comparison of the cleaned areas shows that the area to the north-east of the quarry (Area 3) has the highest percentage of burnt patches proportional to the area cleaned (ten burnt patches), followed by Area 4. Area 1 has the highest absolute number (15) of burnt patches and, in surface area, they are considerably more substantial than those in Area 3 (Figs. 6, 7). However, the search for patterning in the statistics is problematic given the low sample analysed (out of a minimum of 61 across the site).

The density of burnt patches seems to fall off with greater distance from the quarry pits tentatively indicating that they may possibly relate to the quarry phase of activity. None appeared to overlie the backfill rubble of the quarry pits.

The burnt features have a temporary and ephemeral appearance: none has a lining, indicative of hearths/firepits for repetitive use. This is reflected in their spatial distribution. There was no evidence of lime preparation or of metalworking with in them, or of associated structures, but they could have been for repairing quarry tools. More simply, but perhaps unsatisfactorily, they can be seen as small and temporary fires for food preparation and heating for groups of quarry workers. Some unexcavated patches could be ash refuse pits related to occupation, for example, ash from the oven F700 (see below).

Samples taken for analysis have yet to receive attention: they may enable identification of the makeup of the burnt material and of the temperatures reached during the heating.

Burials

Four inhumation burials, three of the same date, one a century later, were excavated in Area 1 (Licence for the Removal of Human Remains No. 20995, issued 15.03.94). This evidence is important in showing that the site was not short-lived and may have been continuously occupied. It possible that more existed, either to the east of the site or on the site itself, given the drag lines of spoil up to c.0.3 m left by the machine.

The graves were located within a discrete area, to the north of the evidence for occupation and south of the quarry pits (Fig. 6). Three burials are grouped in an area of c.25 m², in a N-S alignment (heads to north): grave F89, containing (117), 2.06 m long x 0.55 m wide x 0.25 m deep; F99, containing (145), 2.5 x 1 x 0.55 m; and F101, containing (121), 2.2 x 0.8 x 0.4 m (Pls. 18-20). A fourth burial, F3, containing (5), 2 x 0.5 x >0.07 m, is set c.7.5 m further to the east of the small group (total area 14.3 x 5.3 m), aligned E-W (head pointing east), and cutting ditch F2 (Pl. 21).

Grave F3 is extremely shallow in comparison to the group of three, but which has a similar surface level to the others at c.39.7 m OD, indicating that the grave was originally cut to a shallower depth than the other three: the grave base cannot have been more than c.0.6 m below the ground surface (modern).

All the skeletons were in a poor state of preservation, resulting from bone degradation and post-depositional fragmentation. It was not possible to accurately determine age at death, sex or stature of the individuals with certainty: all four are sub-adult/adult, and at least two are possibly of female sex.

Skeleton (5), laid out in an extended position with the arms by the side of the body, in grave F3, has been identified as sub-adult/adult, but could not be sexed. Unfortunately, the skeleton had been severely truncated by the machine. (117), in grave F89, was placed in an extended position with the lower arms folded over the abdomen. (117) is adult and appears to be a male skeleton. It had suffered fractures of the left collar bone, left lower arm (radius), right lower leg (fibula) and a single rib, which were partially healed at the time of death. (117) also showed evidence of rickets and bone lesions (healing periostitis), possibly the result of tuberculosis.

Skeleton (121), an adult, of apparent female sex (epiphyseal and dental evidence), was laid out in grave F101 in an extended position but with the legs flexed slightly to the right side of the body and the lower right arm laid across the body with the right hand overlying the left lower arm, extended along the left side of the body. The skeleton suffered from active and healing periostitis (inflammation of the fibro-vascular membrane surrounding bone), possibly caused by syphilis or septicaemia.

The largest of the graves, F99, contained (145) in an extended position, identified as adult, possibly in female sex. This skeleton also had healed and healing periostitis (femur, tibia, fibula and ulna).

Three graves, F3, F99 and F101, produced evidence that the bodies were contained within coffins in the form of iron nails, generally positioned around the skeletons, presumably to hold wooden planking for the coffin: 15 iron

nails were retrieved from F99, 14 from F101 and 1 from F3 (but this grave was severely truncated).

Pottery was contained within all four graves. The three grouped together, F89, F99 and F101, can all be dated to the mid/late 2nd-century AD. The identical location of a near/complete vessel in both graves F89 and F101, placed by the left side of the pelvis on the base of the grave cut, suggests that they were placed intentionally with the body, and not the result of backfill over the coffin.

The sherds of the vessels were presumably broken with the collapse of the decomposing coffin: in grave F89, fragments of a grey ware beaker/small jar, placed by the left side of the pelvis, with a sherd of central Gaulish samian Dr. 33 and a sherd of Iron Age tradition, probably from the backfill, collectively dating to the mid 2nd-century; in F101, fragments of a large lattice decorated grey ware jar, placed by left side of the pelvis, with three shell tempered sherds and a single grey ware sherd, of 2nd/3rd century date; and grave F99 contained a decorated sherd of central Gaulish samian Dr. 37, a sherd of rough-cast beaker (c.AD 140-80) and a rim sherd of a Nene Valley coarse grey ware of mid/late 2nd-century date, but none appeared to show active placement with the body.

There was apparently a century gap between graves F89, F99 and F101 and grave F3, which contained fragments of mid 3rd-century Nene Valley colour-coated funnel-necked folded beaker, by the upper right side of the chest and neck region. This may have been complete but the whole grave was severely truncated by machine.

Grave F3 is spatially distinct from the other three, and much shallower, but it is still within c.10 m of the earlier burials. These could have been marked in the form of earth mounds with a wooden marker of which no evidence would survive: it seems more than chance which owed to the location of F3 near the other three. The graves may have been demarcated but perhaps more importantly the burial area would have been held in the memory of the buriers, possibly on the edge of the settlement, which was presumably little altered, given the position of F3, in the intervening period. The importance of memory and tradition is shown by the continuation in the burial practice of the placement of a vessel/part vessel with the body, although not necessarily with the same meaning over time.

The formal deposition of burial is a form of social practice, contributing to the reproduction of certain social and material conditions (Barrett 1991). A burial practice has been identified in use a century after the first evidence. Mortuary goods are often considered to be the possession of the deceased and refer to their status in life. This is not necessarily the case but can be seen as an act deployed by the mourners to re-negotiate their own position, status and claims of inheritance through the reality of death. The deliberate selection of a vessel for disposal has been chosen because of the particular ideas they carry. For example, Thomas (1991) has argued, in a different context, that a beaker placed with the body, normally used in the preparation and consumption of food, is of metaphorical significance: the beaker signifies the reproduction of society.

Relationship To Other Activity

There is suggestive evidence to show that the three graves set together were located on the northern edge of the settlement/occupation-type features.

A line of postholes/pits on the eastern side of ditch F2 may continue to the west side, immediately north of the three 2nd-century burials. To the east of ditch F2, a row of four postholes/small oblong shaped pits F34, F36, F38 and F73, were defined immediately to the east of F2, aligned ESE-WNW (individually aligned N-S), spaced c.1.6 m apart, 0.6-1.2 m long x 0.3-0.6 m wide x 0.07-0.16 m deep (Fig. 6). Their relationship to the ditch, and possible bank, is ambiguous. The burials are parallel to ditch F2, suggesting that, at least, the line of the ditch may have been defined.

Grave F3 is located c.2.5 m to the north of this line, suggesting that the possible boundary had shifted northwards during the century gap, possibly marked by pits F20 and F71, or that the grave was placed outside it.

The posthole row may continue to the west of ditch F2 with subcircular postholes/pits F87, F150 and F151, c.0.6 m in diameter. These lie immediately north of the three graves, tentatively suggesting that they possibly delimit a boundary, quite plausibly the edge of the settlement. Roman burials were usually located on the edge of settlements, implying that the Brauncewell site was an organised complex.

The burials, of a similar date to the quarry pits (backfill), may have been set on the edge of a settlement, to the south-east of the site, which was exploiting the quarry pits. They are located c.10-11 m south of the edge of the quarry pits.

The hypothesis is strengthened by a wider spatial analysis. The evidence of occupation-type features to the south is does clearly not extend to the north of the burial area. A few small pits were located near the burials and are probably not associated with them, possibly of a later date: grave F89 is cut by an oblong pit F93, c.1 m long x 0.7 m wide, which contained an area of burning.

The geophysical survey showed a clear limit to intensity of magnetic anomalies in the area of the burials, and fall off to the north (Fig. 2). A linear feature aligned E-W, probably a ditch, was defined by magnetometry for c.15-16 m to the east of ditch F2. It appears to have a gap of c.7 m between it and F2, possibly an entrance or possibly the result of the levelling of a bank along the eastern side of the ditch, and appears to terminate before the eastern edge of the survey area. This feature may delimit the edge of the occupation.

There is a suggestion, clearest on the inverted greyscale image, that this magnetic anomaly continues to the west of ditch F2, curving SW, but this could not be substantiated (Landscape Research Centre 1994). No feature was discovered in the stripped area and neither the areas to the east of ditches F22 and F2 were cleaned.

A separate line of postholes orientated N-S, between the burials and the quarry pits, is defined by postholes F153, F154, F155 and F156 for c.2.5 m, and possibly F87 and F152, c.3.5 m to the south. This line appeared to be

unrelated to the line of postholes along ditch F2. It could possibly relate to the burials and/or the quarry pits.

Enclosures

Two enclosures were defined on the slope aligned NNE-SSW along the western side of ditch F2, the eastern ditch of the triple ditch enclosure, apparently utilizing the ditch as their eastern boundary, which indicates that the ditch was still demarcated at this stage (Figs. 3, 7, Pl. 4).

These enclosures appear to represent the final phase of activity, at least in Area 3, gully F302 cutting ditch F219, the central ditch in the triple ditch complex, and burnt patches and pits.

Gullies F300/302 enclose an area of 420 m² on the slope to the west of ditch F2: the south-east corner lies c.1.4 m above the north-west corner (Pls. 22, 23). The northern enclosure is formed by a V-shaped linear gully F300, c.34.5 m long x 1 m wide x 0.3 m deep (Pl. 25). The gully is butt-ended at its eastern end, with possible stakehole F391 in its base, butting the line of postholes (F334) along the western side of ditch F2 (see above) (Pl. 24). F300 is orientated NE-SW at its eastern terminal but immediately curves south-west by 60° into a WNW-ESE direction for c.17 m before turning 90°, NNE-SSW, to form the southern boundary of the enclosure. It is severely truncated by the machine along its western side, but is visible for c.12 m.

It proved impossible to define an entrance with any certainty but the lack of gate-postholes is not conclusive for its absence. A gap of 3.5 m was obscured by topsoil along the western sides. The gully was redefined along the western side for c.4.5 m as F302, before turning 90° eastwards, parallel to F300. This northern limit was defined for 8 m, and appears, in plan, to cut ditch F219 before it is apparently truncated by the machine, c.12.3 m west of ditch F2 (see below).

The enclosure post-dates the backfilling of ditch F219: F219 terminated c.17.5 m to the south of the cut by F302, before the southern limit of the enclosure. This indicates that if the triple ditch was constructed in a single phase, the ditches had different histories. Ditch F2, probably recut, was in use after F219 had been levelled, perhaps because it was a more important boundary, as indicated by the palisade and possible bank.

Gully F306 lies c.4.5 - 5 m south of, and parallel with, F300 (Pls. 22, 23). They are almost certainly contemporary. F306 is a V-shaped linear gully, very similar in character to F300, c.0.6 m wide x 0.2 m deep (Pl. 27). At its eastern end F306 is butt-ended, but unlike F300 terminates c.1.2 m west of, and perpendicular to, the posthole line along ditch F2. The gullies F300 and F306 respect the line of postholes along the side of ditch F2, but the line of postholes relate to the ditch, continuing across the length of the site.

F306 runs WNW-ESE in a straight line for c.19 m, parallel to F300, before turning 90° southwards, opposite F300 turning 90° northwards. It is visible in a NNE-SSW alignment for c.3 m before apparent complete truncation. It is conjectures that F306 formed a similar enclosure to that defined by F300/302, but time prevented investigation. Longitudinal sectioning failed to define any evidence of posts/stakes.

The internal areas of the enclosures were not excavated but there did not appear to be any clear structures. A number of burnt patches and pits almost certainly relate to an earlier phase of activity. Gully F300 cuts pits F308, F375, F377, F379, burnt patch F318 (discussed above) and slot F323, which

does not appear to relate to the other features, aligned NW-SE for c.8 m, 0.3 m wide, but truncated at its northern end. F306 cuts a disturbed area F310 (see below) and a small pit F378.

The enclosures may have had no relationship to the adjacent quarries, being livestock enclosures, indicated by the lack of artefacts, associated with the occupation at the southern end of the site. Alternatively, they could have been related to the quarries as livestock enclosures for a quarrying community. Unfortunately, the pottery sherds are too few in number and indeterminate in character to clarify this relationship. Four sherds form gully F300 may possibly date to the 3rd-century but the few from F304 and F306 were undatable.

The area of 100 m^2 between F300 and F306 is problematic: there is no causeway across ditch F2 and the fill of the ditch is uniform, defying the indication of an E-W trackway (Pl. 22). A number of stakeholes were defined at the eastern end of the area between gullies F300 and F306. These may have formed an ephemeral structure or animal pens.

It has been shown by the interruption in ditch F219 that it is not possible to interpret the complex using a maximizing approach for the use of space and energy. The two enclosures may have been separated for a complex reason. The use, and possibly ownership, of space is clearly unambiguous in contrast to the symbolic use of space identified in the elaborate ditch complex of F219 (see above), which the enclosures overlie.

A possible trackway is defined by gullies F304 and F316, c.4.2 m apart, aligned NNE-SSW, parallel with ditch F219 (Fig. 7). Gully F316, roughly parallel with F304, was only defined for c.7 m (and unexcavated: due to the time limitations of the excavations). The U-shaped linear gully F304, 0.7 m wide x 0.2 m deep, was defined for 16 m from an apparent terminal at its northern end, lying c.8 m to the west of, and parallel with, ditch F219 (Pls. 23, 26). The gully bends N-S, in line with the termination of ditch F219, suggesting that they may be of a similar phase. This also occurs at the south-west corner of the enclosure lying immediately to the east. F304 has been machined away at its southern end, with F306: these appear to be merging but further cleaning would have been required to define any further continuation of either.

Gully/slot F325, running west from, and perpendicular to, the terminal of F219, for c.0.5 m before it is truncated, could relate to F304, or alternatively F300.

It seems unlikely that gullies F304 and F314 are contemporary with the two enclosures to the east: F304 would block the fourth side of the area between the F300 and F306 (Pl. 23). However, they are probably temporally close given the close spatial relationship between F304 and gullies F300 and F306. The two eastern enclosures could replace F304, being constructed with respect to it as F304 went out of use (or vice versa).

A third enclosure may be tentatively identified by two short slot/gully sections, c.12 m to the south-west of the northern terminal of ditch F219: an E-W gully of c.3.5 m forming a right angle with a N-S gully visible for c.2.5 m (Fig. 3). These could possibly form the NW corner of an enclosure c.30 m north of the first.

Two parallel linear gullies, in a sinuous E-W alignment c.2.5 m apart, were defined on the eastern side of ditch F2, c.12 m south of F300 and F306 (Fig. 3). One of these may have been defined by the magnetometry (Fig. 2). The northernmost gully was visible for c.9 m to the edge of the site and the second for c.11 m, but they were both severely truncated by the stripping. There was a gap of c.6 m between ditch F2 and the southernmost gully, the closest gully to it, possibly forming a N-S entrance and/or allowing for the bank on the east side of the ditch.

Neither feature appeared to continue to the west of ditch F2, although the area, c.5.5 x 4.5 m, is very disturbed by pit F157. Like gullies F300 and F306, they seem to respect the ditch and may form similar enclosures on the eastern side of F2.

Areas of disturbance/pits/scoops, as opposed to smaller well defined pits, were uncovered by the stripping on the slope and do not continue to the south of the burials. These are very varied in shape, from irregular to sub-rectangular, and may well relate to different phases of activity. It is suggested that some, at least, were probably stone pits. Only a few were excavated. For example, F310, cut by gully F306, is a irregular shaped shallow pit, c.6 m long x 4 m wide x 0.2 m deep (flat bottomed), containing a reddish brown rubble fill, and contained a single Roman sherd. Similar features in Area 3 include F375 and F406, both of which are overlain by burnt areas, F376 and F400 respectively; in Area 2, F227, F258 and F277, are apparently overlain by postholes associated with the ditch interruption of F219, suggesting that these pits may predate the triple ditch complex.

Evidence of occupation to the south and east of the stripped area

Occupation to the south of the site is evidenced by two, or possibly three, non-rectilinear enclosures, on either side of the two ditches, which were defined by aerial photography (HSL 03/2034) to the south of the modern road, immediately south of the stripped area. Their form and irregular arrangement, suggestive of spontaneous development, stands in contrast to the rectilinear enclosures butting ditch F2, to the north-east of the quarry pits, which have the appearance of an organised and planned layout. These enclosures, spatially distinct from each other, may relate to separate phases of occupation.

The field survey identified a concentration of Roman pottery over and to the east of the triple ditch complex, particularly over and immediately to the east of the south-eastern quadrant of the stripped area: in general, as the distance from the triple ditch increases the density of finds decreases (Field 1994). This was confirmed by the geophysical survey. Most of the pottery is indeterminate but a sherd Nene Valley colour-coated ware and a sherd of possible bead-and -flange bowl may date to the late 3rd/ early 4th centuries, the only 4th-century material recovered from the fieldwork.

Occupation to the south-east of the site was suggested by the magnetometry which indicated numerous pits/ occupation features. A dense concentration of high spots, intense magnetic anomalies, was defined in the south-eastern area of the survey, indicative of the centre of activity (Fig. 2). Two intense

concentrations at c.45 and 90 m east of ditch F2 are almost certainly large pits, possibly ovens. The smaller high spots are probably burnt patches, as evidenced across the stripped site.

Approximately ten linear anomalies shown on the inverted greyscale image, aligned NE-SW, appear to obscure the high spots and have been interpreted as modern plough marks (Landscape Research Centre 1994). This cannot be definitely assumed, given the lack of interference across the rest of the survey area.

Two faint parallel linear anomalies were defined, aligned E-W along the southern edge of the survey area for c.120 m, c.6 m apart, and a third linear anomaly to the north, probably aligned NE-SW, defined for c.15 m, extending outside the survey grid. These may relate to occupation on the east side of ditch F2.

The excavated enclosure may have belonged to a larger complex, with enclosures on either side of the eastern ditch. A rectangular enclosure immediately to the east of the excavation area, and possibly butting ditch F2, was tentatively identified by air photography (HSL 03/2034) and probably relates to two parallel linear anomalies to the east of, and perpendicular with, ditch F2, aligned ENE-WSW, c.87 m apart.

The northernmost anomaly, defined for c.18 m before disappearing out of the survey grid, approximately lines up with the northern boundary of the enclosure F302. There is possibly a gap of c.3 m between it and ditch F2, indicating that it respected the bank to the east of the ditch. The southern anomaly probably has a gap of c.7 m between it and ditch F2, and it appears to terminate before the edge of the survey area, defined for c.15-16 m. There is an indication that this ditch continues to the west of F2, curving SW, as a weak anomaly. No clear feature was discovered in the stripped area (but see discussion above).

Areas devoid of archaeological features

The area lying immediately to the north-east of the central quarry pit zone can be explained by a combination of machine truncation, evidenced by gullies F306 and F304, and compressed topsoil obscuring features.

The north-west quadrant of the site (over 2000 m^2), to the west of ditch F22 had a very disturbed appearance and it was not possible to define any features with certainty other than two small rectangular pits. There were no quarry pits, linear features or burnt patches, indicating that occupation did not extend into this area.

Evidence of Occupation/Agricultural Processing

On the level of the rise at the top of slope, c.40 m OD, to the south of the burials, evidence of agricultural processing-type features were defined, indicating the centre/concentration of activity. This had an ambiguous relationship with the ditch F2.

Settlement/domestic occupation is inferred from features and artefacts usually associated with settlement. There was no evidence for domestic occupation on the site in the form of structures, either stone or posthole. The centre of activity may lie to the south-east of the stripped area. Crop processing facilities may have existed as a specific area on the edge of this settlement.

The pottery indicates that the quarry pits and the group of three burials may have been contemporary, of 2nd-century AD date, and possibly the settlement with it. The 3rd-century grave and the two late 3rd-century coins indicates that occupation was possibly continuous. It is suggested that a small self-sufficient settlement was situated to the south of the quarries, which it was exploiting. This settlement may have continued after their disuse, probably with a mixed agricultural economy, the crop drier/s indicative of arable cultivation and the enclosures of animal husbandry. Unfortunately, no environmental remains were recovered from the site (no flotation was undertaken and sampling was limited) and the small quantity of bone retrieved is of insufficient size to permit discussion of the significance of animal husbandry in the economy.

The South-West Quadrant (Area 4)

An area of c.140 m² was investigated at the south-west end of the site, concentrating around pit F500 (Area 4) (Fig 8, Pl. 28). This area is of a different character to those already discussed, indicative of features associated with domestic activity.

A sub-rectangular shaped pit F500 was excavated, aligned N-S, c.13.5 m to the east of ditch F22 (Pl. 29). The pit was steep-sided down to a flat base, 6.4 m long x 3 m wide x 0.65 m deep. The regularity in its shape distinguishes it from the irregular shaped pits at the northern end of the site. The southern end extends outwards, 0.7 m long x 1.1 m wide, with a gradual slope down to the base of the pit, suggesting that its base could have been accessible from the southern end, possibly for use as storage. There was no evidence of features cut into the base.

Pit F500 contained three distinct fills (Fig. 14). A primary deposit (503), of orangey-brown gritty loam, c.0.15 m in depth, had accumulated in the base of the pit, particularly up the sides. This layer, probably the result of natural silting processes, offered no indication for the use of the pit. The pit was kept clean but was disused and open before rubbish was dumped in, if the primary function was not a rubbish pit.

Two mixed layers of rubble backfill (501) and (502) were defined during the excavations, although there were probably more. Both these layers of dumped material are interpreted as rubbish deposits, thrown into the pit after

it became disused. Both layers contained large quantities of artefactual material indicative of domestic occupation in the close vicinity. A large amount of mid/late 2nd-century pottery was recovered from layers (501) and (502), mainly table/kitchen ware, including Nene Valley grey and colour-coated wares, a few sherds of central Gaulish samian and a single sherd of Dressel 20 amphora. Layer (501) contained a few sherds of mid/late 3rd-century date which could possibly be intrusive but a late 3rd-century coin of Allectus (293-296) argues against this. Other finds from the pit included a bone pin, eleven iron nails, animal bone, large quantities of limestone rubble c.0.1 -0.2 m in size, and a few fragments of charcoal (501).

Pit F500, in particular, stands in contrast to the sparsity of artefactual evidence across the site, containing over 70% of the pottery assemblage. It is tentatively identified as a communal rubbish pit in its secondary phase of use and may have been located close to the western edge of the settlement, given the evidence for activity extending to the south-east of the site. Its disuse and backfilling may have been protracted. The pit may have been contemporary with the quarry pits and the 2nd-century burials in its primary phase of use but it could still have been in a secondary phase of use (disuse) when grave F3 was cut (see below). The coin, retrieved from the upper backfill (501), is of the same date as one picked up off the ground surface before stripping, c.30 m to the east of the pit.

A linear gully F520 (unexcavated) may be of the same phase as pit F500, aligned N- S, c.7.5 m to the west of, and parallel with it (Fig. 8, Pl. 28). It lies c.6.5 m to the east of ditch F22, appearing to run parallel with the ditch, but it is not necessarily contemporary. 2nd-century AD sherds were recovered from the surface fill. F520, a possible fence line, was defined for c.10 m, apparently terminating at its southern end. It may well continue south-eastwards, after a break of c.5 m, possibly for an entrance: the general survey defined two parallel slots on a similar alignment to F520, the longest of which continued for c.4.5 m (Fig. 3). Other truncated slots/ gullies were plotted, which possibly delimit enclosures or structures.

Postholes first thought to be associated with pit F500, and suggesting that the pit was enclosed/covered by a structure, were shown to form a posthole structure, adjacent to its west side, which replaced pit F500 (Fig. 8). This is suggestive evidence that the site was still occupied after the closure of the pit. However, there was no 4th-century pottery at all, suggesting that occupation ceased during the late 3rd-century. It is possible that the backfill in pit F500 had slumped and subsided to form a hollow in which late 3rd-century material, associated with the later activity, had collected.

Two postholes were defined cutting the western edge of the backfilled pit: F513, a sub-circular posthole 0.4 m in diameter x 0.2 m deep, centrally located along the western edge of the pit; and a posthole at the NW corner, F517 (Pl. 29). These form the eastern side of a sub-square shaped four-post arrangement/ structure, aligned NNE-SSW, with postholes F532 and F533, 0.5 m in diameter (unexcavated). The four corner posts are spaced 2.5 m apart (6.25 m^2).

This four-post arrangement, possibly near the edge of the activity, could have been a storage structure for crops, given its spatial association to corn driers at the southern end of the site: F504, a possible drier, c.3 m to its

south (although it suggested that F504 may relate to pit F500), and F700, c.50 m north-east. Unfortunately, there was no surviving environmental assemblage to indicate its purpose. It is tempting to suggest that F500, which it may have replaced, had a similar purpose but a different form but this cannot be substantiated.

The four-post arrangement is parallel to a line of five large postholes c.1.75 m to its west, aligned NNE-SSW, probably forming a fence: F522, F528 -531 and possibly F546 and F547 (Fig. 8, Pl. 28). These postholes are set between 2.0-3.5 m apart. Postholes F546 and F547, between F522 and F529, are smaller than the others, 0.2 m in diameter. Only F522 was excavated, but all are very similar in plan and fill (Pl. 30). F522 is sub-circular in shape, c.0.5 m in diameter x 0.25 m deep, containing a yellowish-brown sandy loam. Vertically set limestone slates >0.2 m in size formed post-packing around the edge of the posthole.

It is tentatively suggested, based on the plan, that the fence line defined by gully F520, and pit F500, are replaced by the line of earth-fast posts and the four-post arrangement. There may have been a major realignment of the area in the mid/late 3rd century.

An elongated oval shaped pit F504 was excavated, c.2 m to the south-west of pit F500 (Fig. 15, Pls. 31, 32). It is similarly aligned N-S, suggesting that they may be of the same phase and the upper fill (505) contained mid/late 2nd-century sherds. The pit, 2.4 m long x 0.8 m wide (max), has a straight sided U-shaped profile: the base slopes from the northern end to a flat base in its southern half, 0.5 m deep (Fig. 14).

The side of pit F504, in its southern half, was burnt. Layers of dark grey silty loam (511) and dark brown silty sandy loam (510) containing a high charcoal content, in the base of the pit (southern half), are probably primary deposits. Samples have yet to be analysed but there was no apparent evidence of carbonised plant macro remains. Given the form of F504 and the evidence for burning on the side of the pit, it is suggested that this pit may have functioned as an oven/corn drier (see below). The sloping base indicates that the opening faced northwards, adjacent to the possible opening of pit F500.

An irregular shaped pit F518, c.2.5 m long x 2 m wide, was defined c.2 m to the south-west of F504 (Fig. 8, Pls. 28, 31). Large limestone blocks were laid on the surface, >0.55 m long, with a few burnt limestone fragments. A mid 3rd-century AD tile flake and an iron knife blade were recovered from the surface (519). An area of burnt clay loam, c.1.3 x 1.2 m, containing burnt and unburnt limestone fragments >0.15 m in size, may form part of the same feature, but this is uncertain. An adjacent slot F526, aligned N-S, may relate to pit F518. F518 may possibly be a pit associated with F504. Alternatively, it could be a hearth replacing/replaced by F504.

Other features were surveyed but not cleaned in the south western area of the site, containing large limestone blocks >0.2 m in size within a dark brown loam, similar to (501), are possibly related (Fig. 3). A sub-rectangular feature, c.2.5 m in length, aligned NW-SE, overlies ditch F22, indicating that the activity post-dates the ditch.

The South-East Quadrant (Areas 5 & 6)

The south-east quadrant of the site, to the east of ditch F2, was not surveyed because the area was stripped during the excavations (after the surveying) and was severely obscured by topsoil and truncation. This is unfortunate as the geophysical survey showed that the area to the south-east of the site has a concentration of magnetic anomalies, indicative of substantial occupation. As a compromise, two small areas were sampled (c.1.8%), c.30 m² and c.35 m² (Areas 5 and 6. Figs. 9, 10).

The phases of activity are more complex than has been understood through the limited excavations. The relationship of the occupation to ditch F2 is ambiguous, occurring on both sides of it. There are no features aligned E-W and cutting the ditch to confirm the separate phases, apart from one identified by magnetometry which, it has been argued, could define the limit of a settlement. The enclosures to the north of the quarry pits respect and use ditch F2 as their eastern boundary, but F219 had already been levelled.

The absolute lack of finds in ditches F2 and F22 indicates that they had already been levelled before the later occupation, unless there was an active avoidance of deposition in the ditches. The ditches could have been kept clean because they were symbolically important: a re-affirmation of the earlier boundary. Patterning in the material record has clearly been shown in the Iron Age of southern Britain, with apparent rules of combination guiding the placement of material in pits (Hill 1992). Unfortunately, too few features were excavated at Brauncewell to provide a similar analysis: only one 1 m section of ditches F2 and F22 was excavated (Area 1).

A keyhole shaped feature F700, interpreted as a simple corn drying oven (see below), 2.6 m long x 1 m wide (max), was defined c.12 m to the east of ditch F2 (Figs. 9, 16, Pls. 33-35). This consisted of a circular shaped semi-sunken end chamber, 1 m wide externally and surviving to c.0.2 m in depth (interior), with a stone-lined interior (701). This was made up of blocks of burnt limestone >0.5 m long, set vertically around the sides and the rounded base. A burnt interior clay lining (710) over the stones gave an interior width of 0.76 m to the chamber (internal area of 0.45 m²).

A single tapering flue and combined stokehole faced southwards from the chamber, 1.6 m long x 0.45 m wide at its mouth expanding to 0.55 m at the throat. The stone-lining extends c.0.5 m down the flue through the throat, 0.3 m wide internally. The stokehole has a rough cut base into the natural towards its open end but lining could have been removed: the limestone natural is not burnt, which is problematic given the evidence for burning. The flue and end chamber presumably had a raised floor to support the drying crop, which has also been removed.

The stokehole and flue contained a dark brown loam backfill (712), overlying a thin black layer (711) of silty loam and charcoal on its base, c.0.02 m in thickness, and possibly in situ. This was distinct from the end chamber which was backfilled with burnt and unburnt rubble backfill (702), burnt stones >0.15 m in size within a reddish brown loam, possibly evidence of a destroyed superstructure: no cover survived. Pottery sherds from (702/12) have been dated to the 2nd-century AD. A sample of the rubble backfill was taken but has not been analysed. There was no apparent evidence of

carbonised grain: this would not necessarily have survived the destructive post-depositional processes. The oven may have been cleaned out before it was abandoned but, even so, carbonised material is often common in corn drying ovens and is one of the main indicators of their purpose.

F700 must be considered in context. Its association with other possible agricultural facilities at the southern end of the site suggests that it was used in agricultural processing, despite the lack of carbonised material. It does not appear to have been an industrial kiln: there was no evidence of metal-working residues, pottery firing in the form of wasters (although 73 sherds were recovered from the rubble backfill) or of calcining lime. Drying kilns must be seen as multi-purpose features, possibly used for threshing, parching before storage, for milling, malting and ripening. They need not only be for corn but could have been used to dry a variety of crops, eg. barley, flax and peas.

The form of F700 can be seen as a derivation of a simple bowl shaped crop drying oven, common between the 1st and 4th centuries (Morris 1979). Most examples of corn driers are T-shaped stone kilns from villa sites and date to the 3rd/4th centuries. Six corn drying ovens were excavated at Scamblesby, c.40 km north-east of Brauncewell on the Lincolnshire Wolds (Brown and Field 1988). A single oval shaped oven may be comparable to F700: rural ovens vary in form on a single site and between sites and no two will be the same. The others were described as cigar-shaped with steep, often vertical, sides, c.1.3-2.1 m long x c.0.2-0.9 m wide x c.0.2 m deep. Carbonised grain was recovered from their fills. Carruthers (1988) explained these as ephemeral features with little superstructure: a form of native rural oven of the area, probably dating to the 2nd/3rd centuries. Their size and form is more similar to F504 (see above) than to F700, which is more sophisticated even though it is probably contemporary with F504.

Associated structures

There was no clear evidence to show that F700 had been enclosed within a structure (Fig. 9). Three postholes were defined around the oven and may relate to it, c.0.4 m x 0.2-0.3 m in size: F703, c.1.25 m to the north, F704, c.1.5 m to the east of the flue, and F709, c.2.2 m to the west of the flue.

A small pit F705 was defined c.0.5 m to the east of, and parallel with, the flue opening. Although unexcavated, it does not appear to be lined, eg. to hold water during the malting process.

F700 is possibly enclosed on its eastern side by a linear gully F708, aligned N-S, c.1.9 m from, and parallel with, F700 (Pl. 33). This probable fence line was defined for c.6.5 m but may continue to the north as it has been severely truncated. The gully appears to bend in south-westwards, c.1.5 m south-east of F700, apparently respecting the oven, before returning N-S, in line with the southern opening of F700.

A sub-oval shaped pit F600 was defined c.35 m to the south of the crop drier F700, 2.3 m long x 0.9 m wide, containing a dark grey loam with limestone blocks >0.25 m, but substantially truncated by machine stripping (Area

6)(Fig. 10, Pl. 36). F600 was unexcavated and its function remains uncertain: it could be a hearth or possibly a disturbed crop drier but this has not been substantiated.

F600 appears to be enclosed by a posthole structure, consisting of postholes F602 -609 and F632, 0.25-0.65 m x 0.2-0.45 m in size, c.0.6-2.0 m apart and 0.4-2.2 m from F600. The possible structure is aligned ESE-WNW, parallel to F600, and appears to open eastwards, which would seem logical given the prevailing westerly wind.

An hourglass shaped pit F610, c.2.2 m NE of F600, c.2.6 m long x 1 m wide (max), was not completely defined, and may form two pits joining one another, or one a replacement of the other.

Five possible fence lines were defined in Area 5 (Fig. 10). However, it is very difficult to define posthole and stakehole alignments within the limited area of c.30 m2 and can create misleading patterns. Some postholes have almost certainly been eroded away. Many of those planned were not certain: few were excavated.

A posthole row was defined c.2.5 m to the west of F600, aligned N-S, for c.2.7 m, consisting of F611- 613 and possibly F633. The individual postholes, 0.1-0.2 long x 0.05-0.15 wide, were spaced between 0.75-1.1 apart.

A second row, c.2.7 m long and aligned ENE-WSW, possibly contemporary with the first, consists of posthole F613, which may form the corner of two sides of an enclosure around F600, and small stakeholes F614 -617 (and possibly F618), 0.05-0.1 m in diameter, 0.4-1.1 m apart.

The fragmentary remains of a structure or pen c.1 m north of the second row, was defined by stakeholes F621 -625 (and possibly F619 and F620), c.0.1 m in diameter and between 0.2-0.4 m apart.

A linear row of possible fence posts, aligned NE-SW for c.4 m and passing c.1 m to the north-west of F600, is almost certainly of a separate phase to the lines described above (but it could be temporally close). This employs stakeholes F626-631, F637, F638 with possibly F633 and F639, c.0.1 m in diameter and spaced 0.2-1.2 m apart.

Perpendicular to this row, from stakehole F629, is a row of three stakeholes F634 -636 aligned NW-SE, c.0.3 m apart and c.0.1 m x 0.05 m in size.

It is possible that posthole structures existed in the southern third of the site but extensive cleaning would have been required to define them. Discussion of the spatial organisation is complicated by the small scale of the excavation, the difficulty of establishing contemporaneity of features, truncated by cultivation and machine stripping, many of which are stratigraphically unrelated, without finds, and unexcavated. However, it does show that there were enclosed areas of more than one phase, even if their exact outlines cannot be precisely defined.

Summary

A multi-phase complex has been defined at Brauncewell, on the limestone heath south of Lincoln. A major triple ditch system has been excavated, probably dating to the late prehistoric period. Presuming that the ditches were still open, the triple ditch was apparently destroyed during the mid to late 2nd-century AD by a Roman quarry complex and possible settlement to the south-east. This settlement, indicated by burials, enclosures and an area of agricultural processing facilities, continued after the quarry became disused, into the late 3rd-century.

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A full paper and photographic archive has been prepared and will be deposited with the City and County Museum, Lincoln.

August 1994

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TABLE 1

Triple Ditches in the East Midlands: A comparison of excavated examples

	Western ditch	distance	Central ditch	distance	Eastern ditch	Total width	Date
Brauncewell	2.5 x 0.6 (F22)	**8**	1.5 x 0.6 (F219)	**10**	2.3 x 0.9 (F2)	**18**	?
Ketton	3.0 x 0.9	**3**	3.0 x 0.9	**7**	0.9 x 0.5	**16.5**	I.A.
Nettleham	1.5 x 0.5	**2.4**	1.2 x 0.3	**3.2**	1.5 x 0.5	**10.2**	?
Riseholme	4.5 x 1.2	**6.2**	4.0 x 1.4	**4.5**	3.5 x 1.6	**19**	I.A./Rom
West Deeping	1.5 x 0.5 (south)	**1.5**	1.7 x 0.2	**1.1**	3.0 x 0.7 (north)	**8.6**	B.A.

(All measurements in metres; B.A. = Bronze Age; I.A. = Iron Age; Rom = Roman)

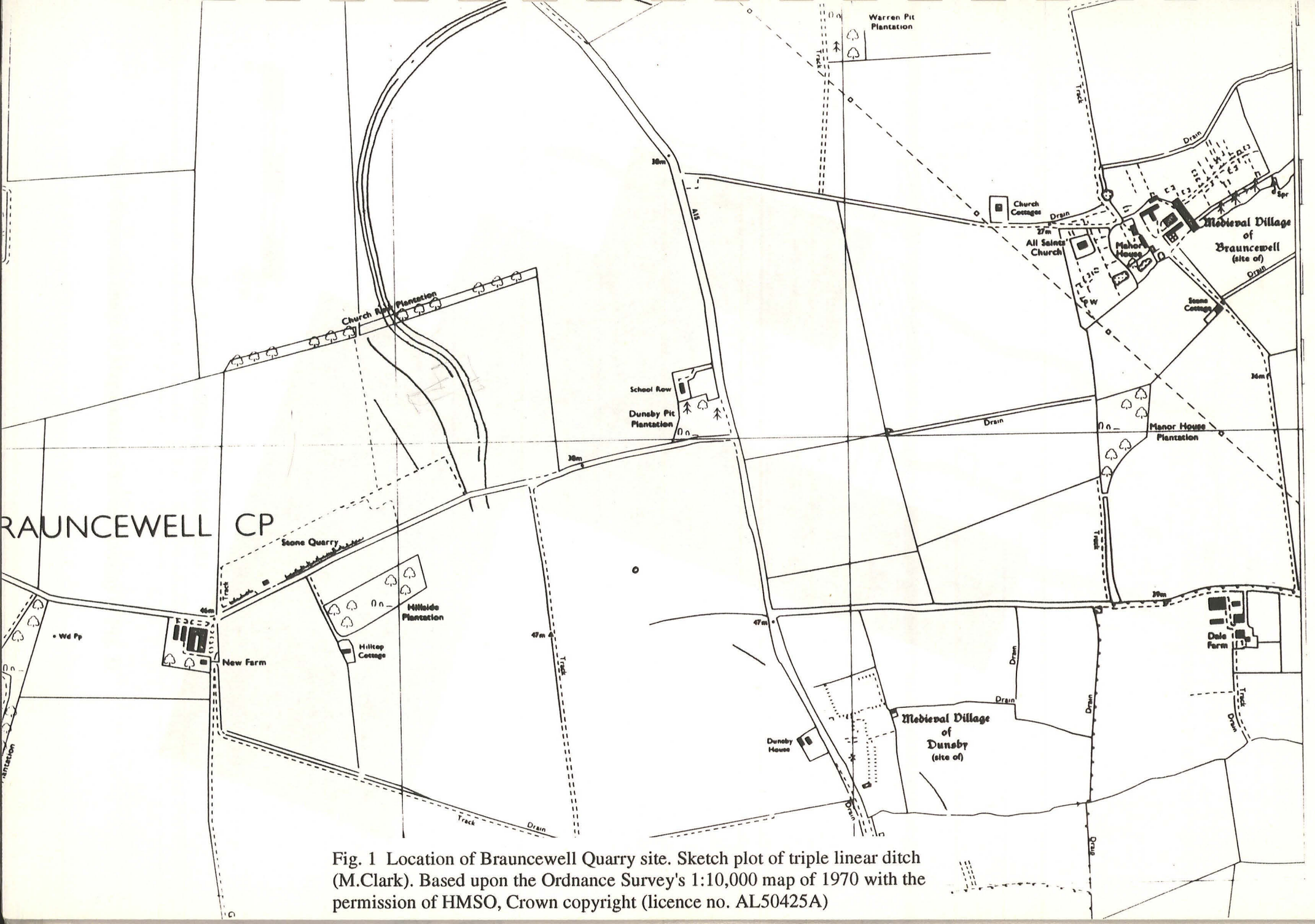


Fig. 1 Location of Brauncewell Quarry site. Sketch plot of triple linear ditch (M.Clark). Based upon the Ordnance Survey's 1:10,000 map of 1970 with the permission of HMSO, Crown copyright (licence no. AL50425A)

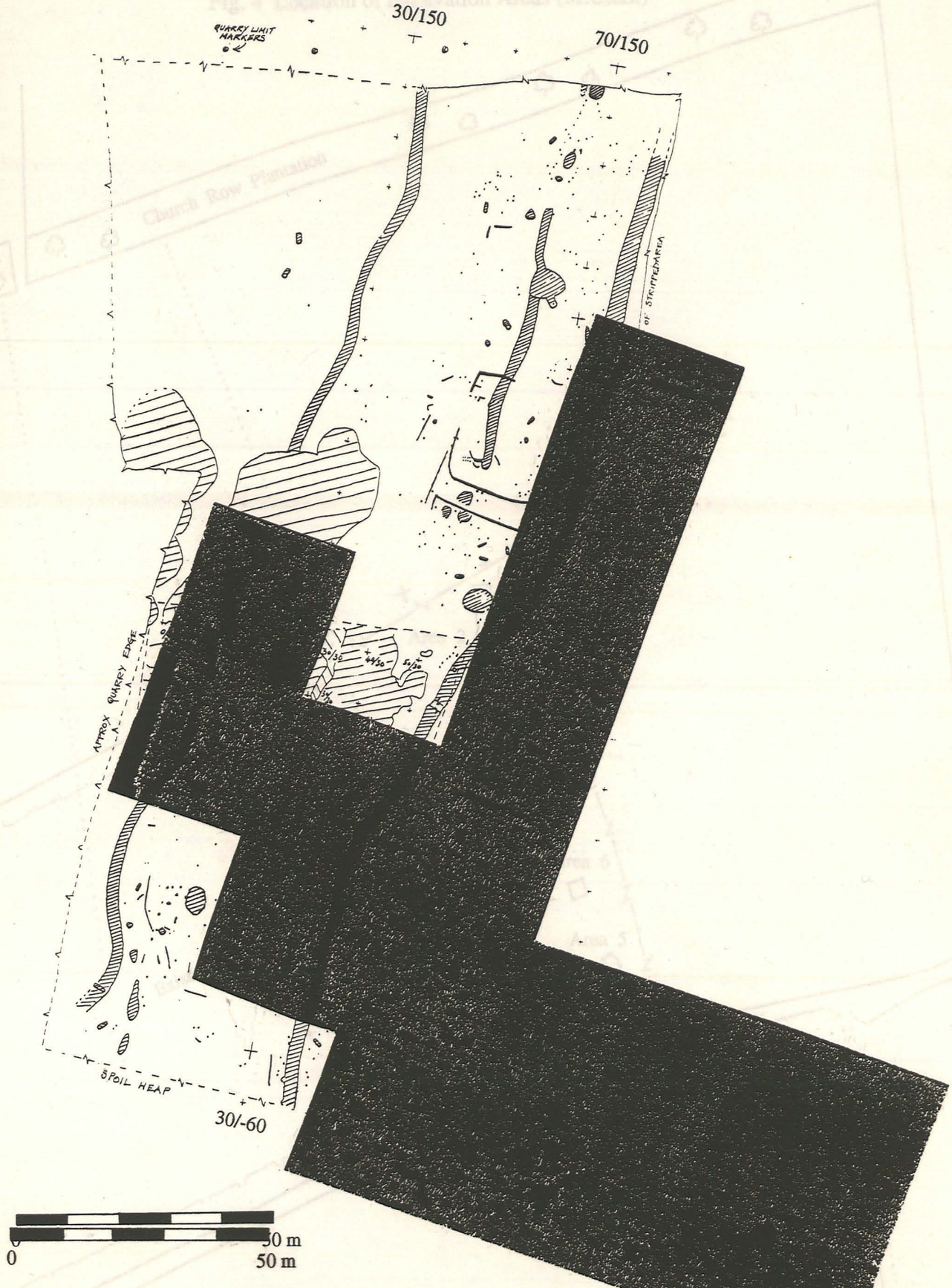


Fig. 3 General Plan of Site (M.Clark)

Fig. 2 Greyscale Image of Magnetometer Survey (overlay of Fig. 3)

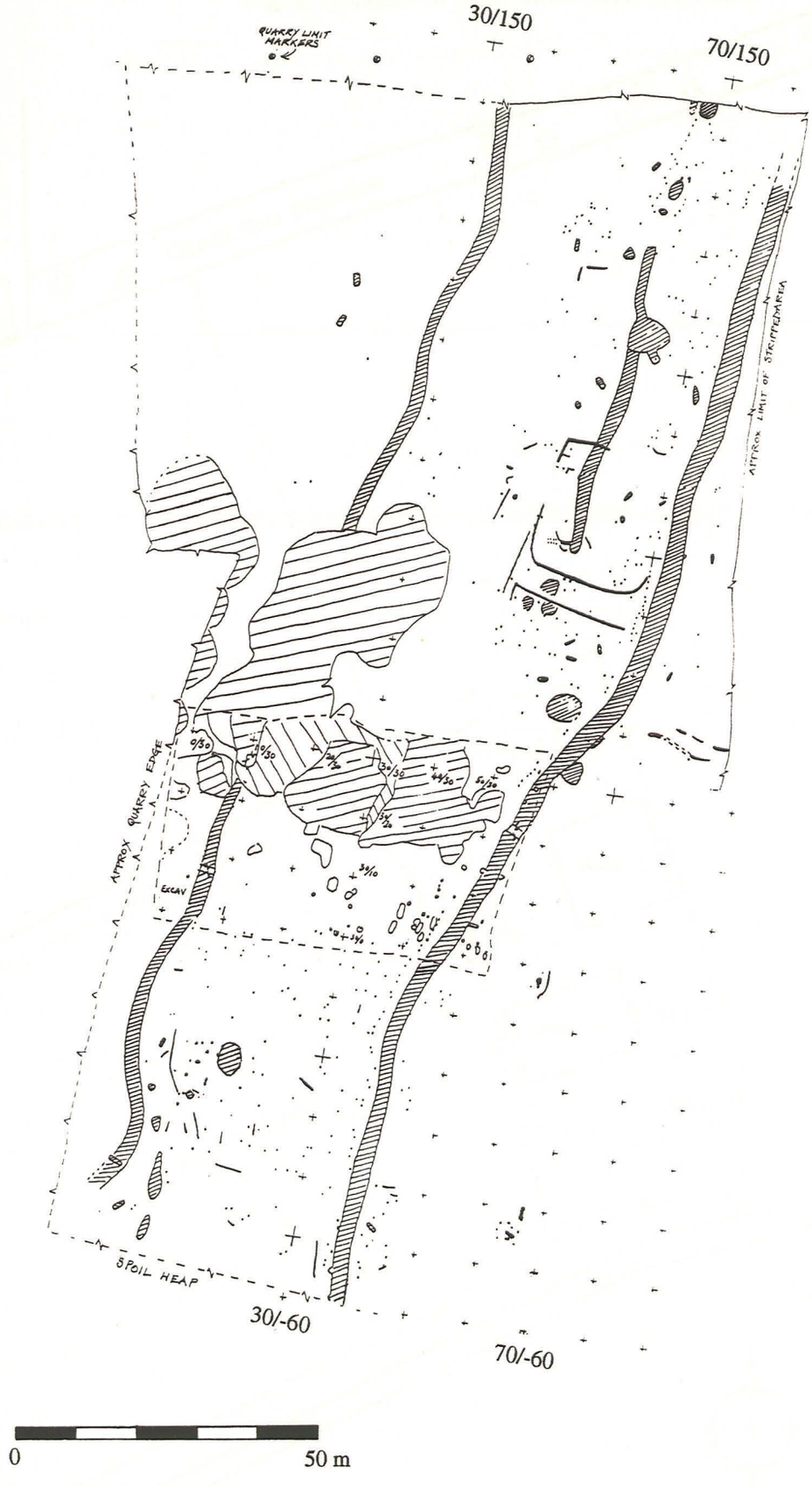
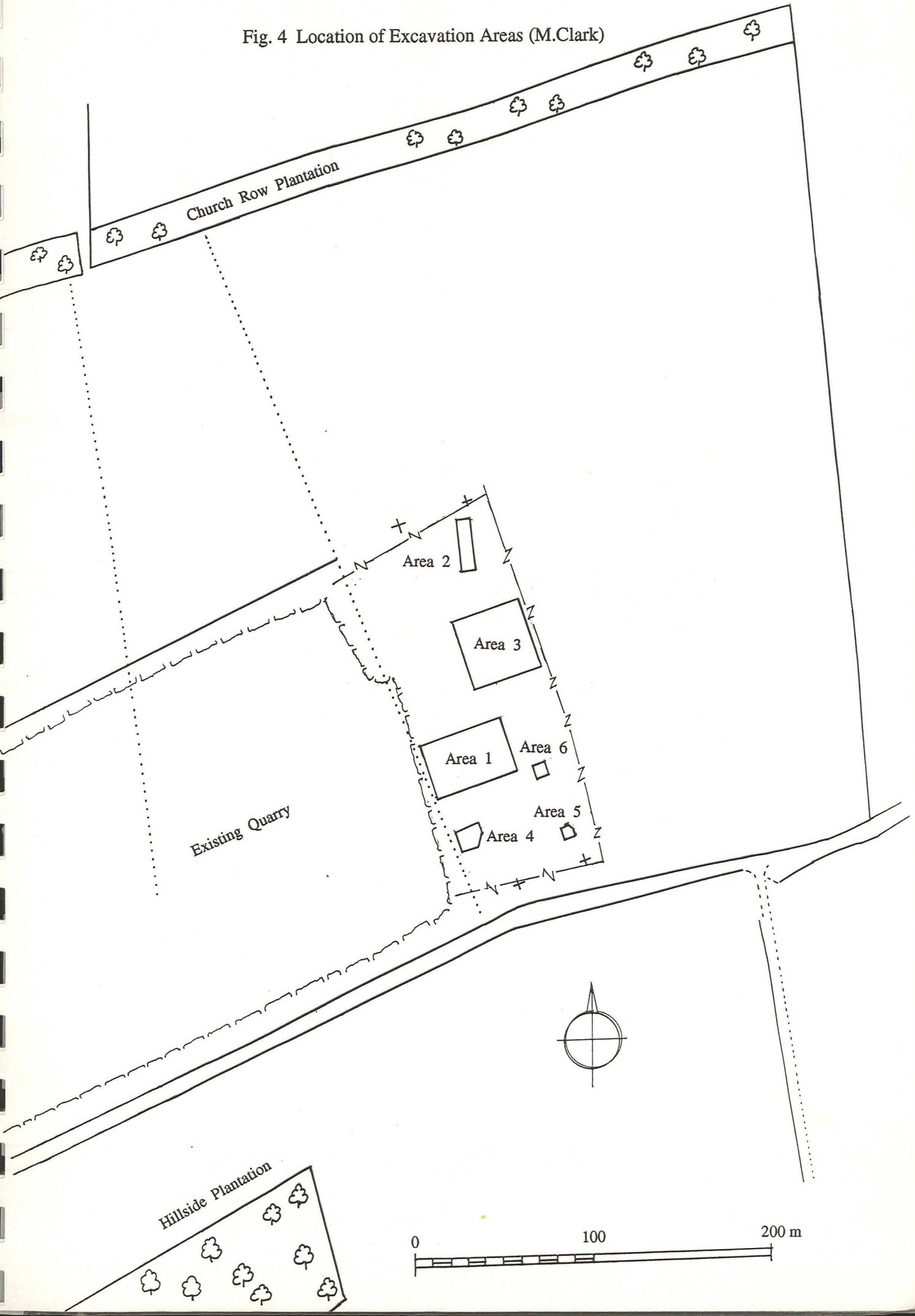


Fig. 3 General Plan of Site (M.Clark)

Fig. 4 Location of Excavation Areas (M.Clark)



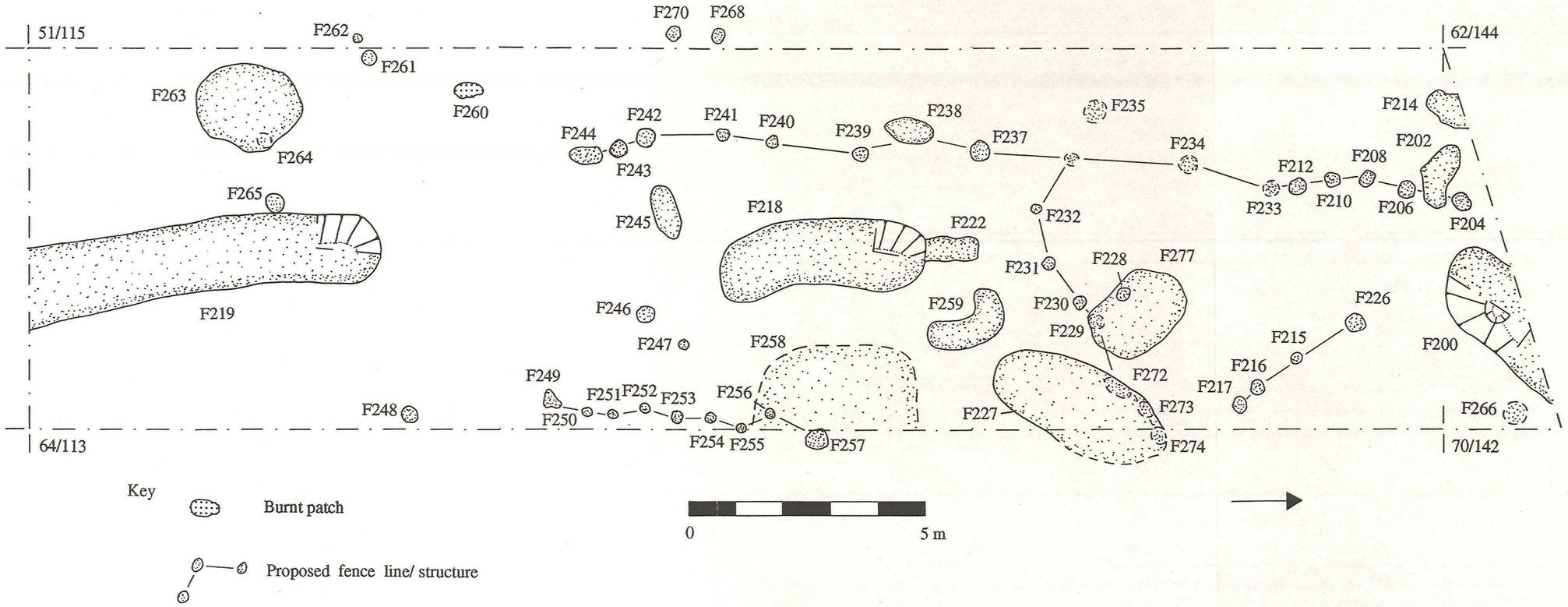


Fig. 5 The Central Ditch Interruption (Area 2 plan)

Fig. 6 Quarry Pits and Burials (Area 1 plan)

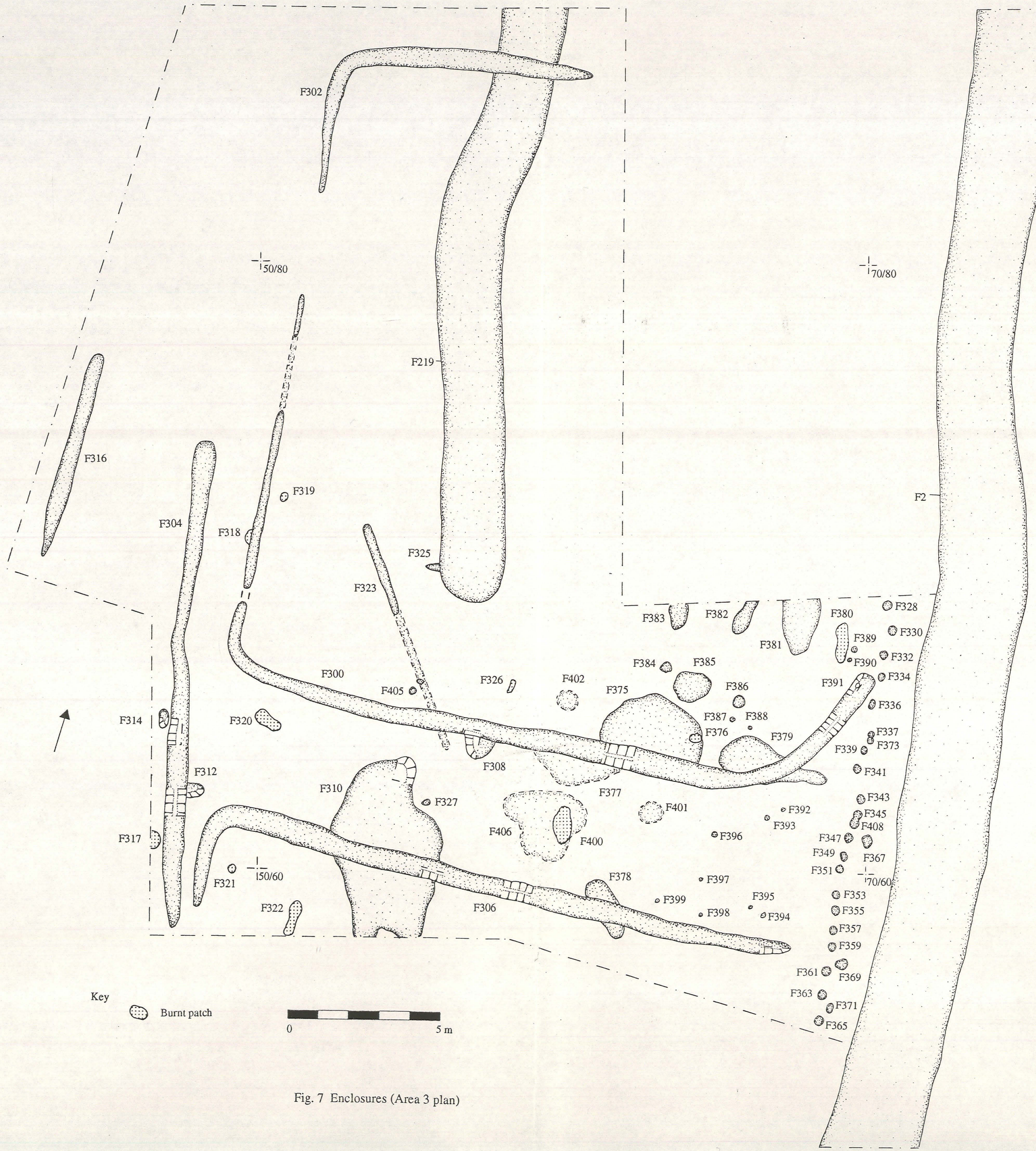


Fig. 7 Enclosures (Area 3 plan)

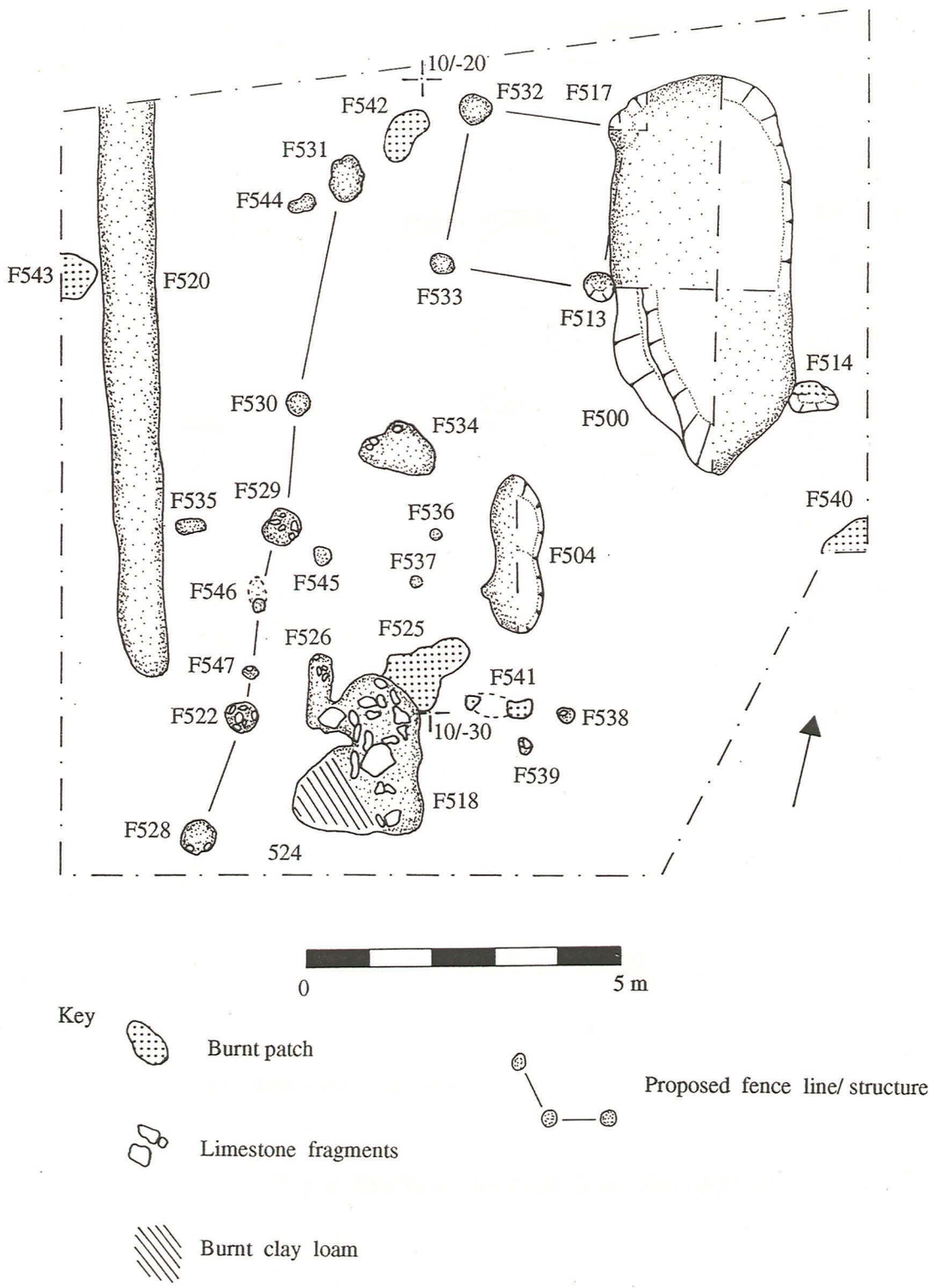


Fig. 8 The South-West Quadrant (Area 4 plan)

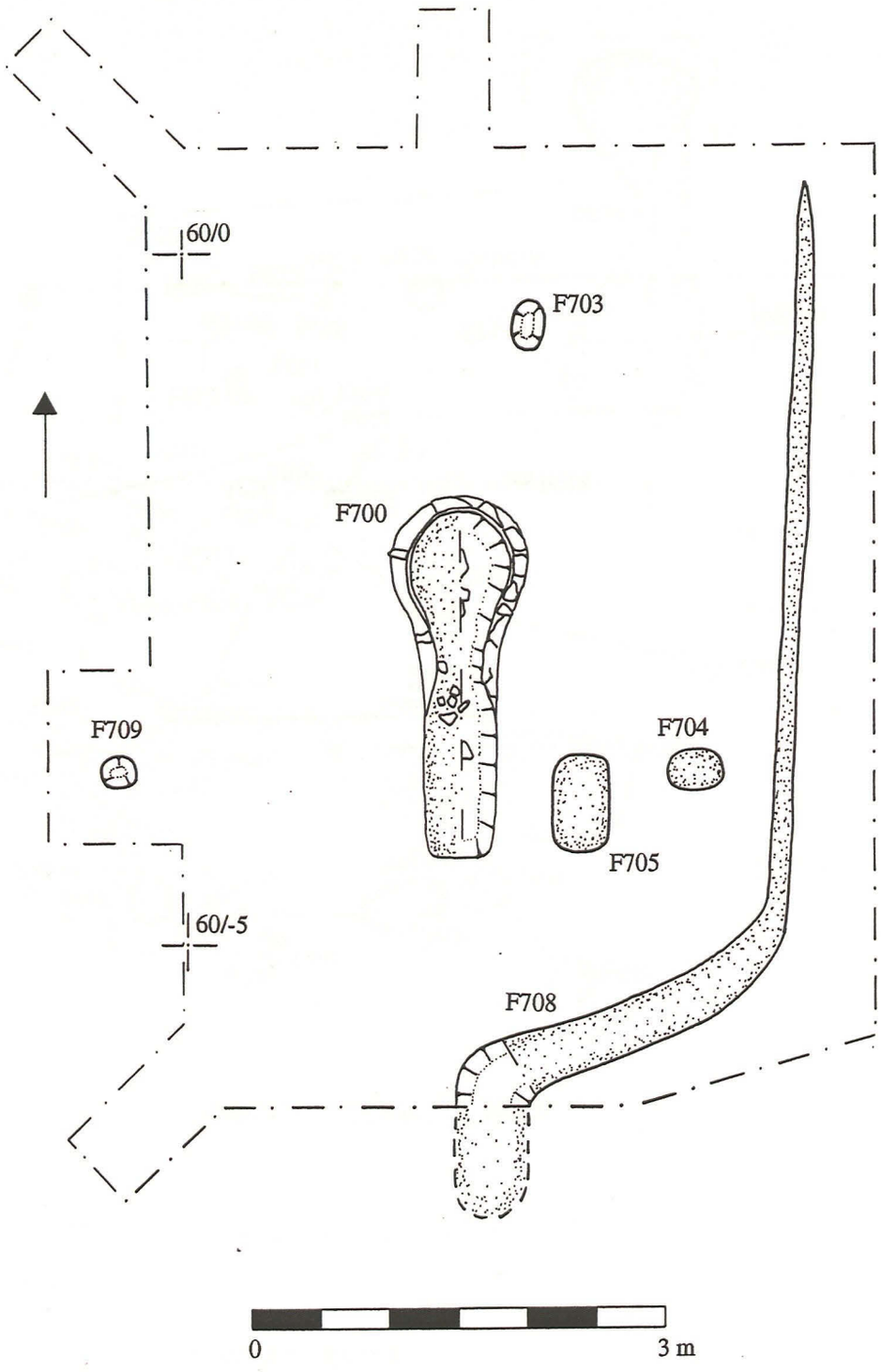


Fig. 9 The South-East Quadrant (Area 6 plan)

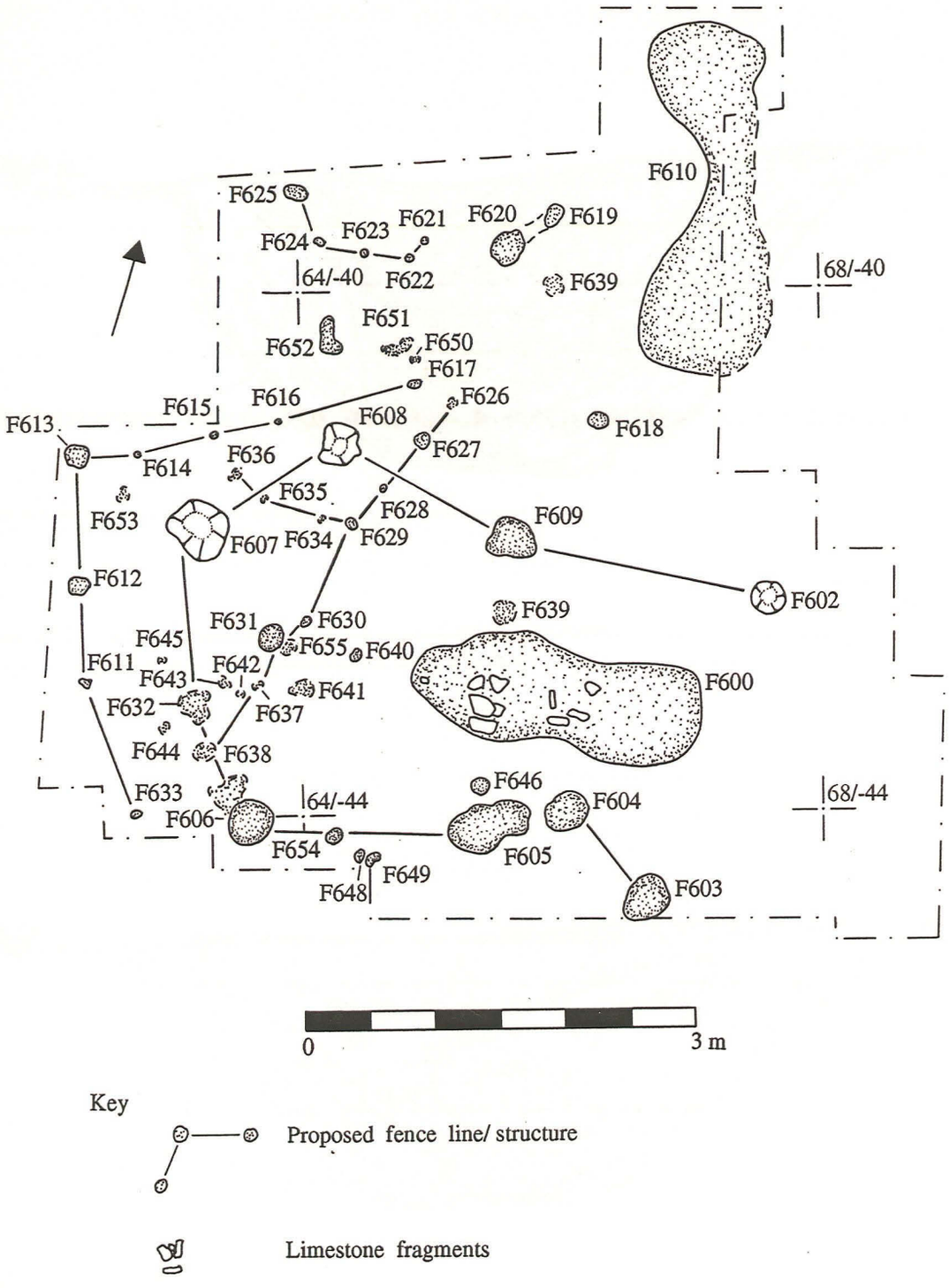


Fig. 10 The South-East Quadrant (Area 5 plan)

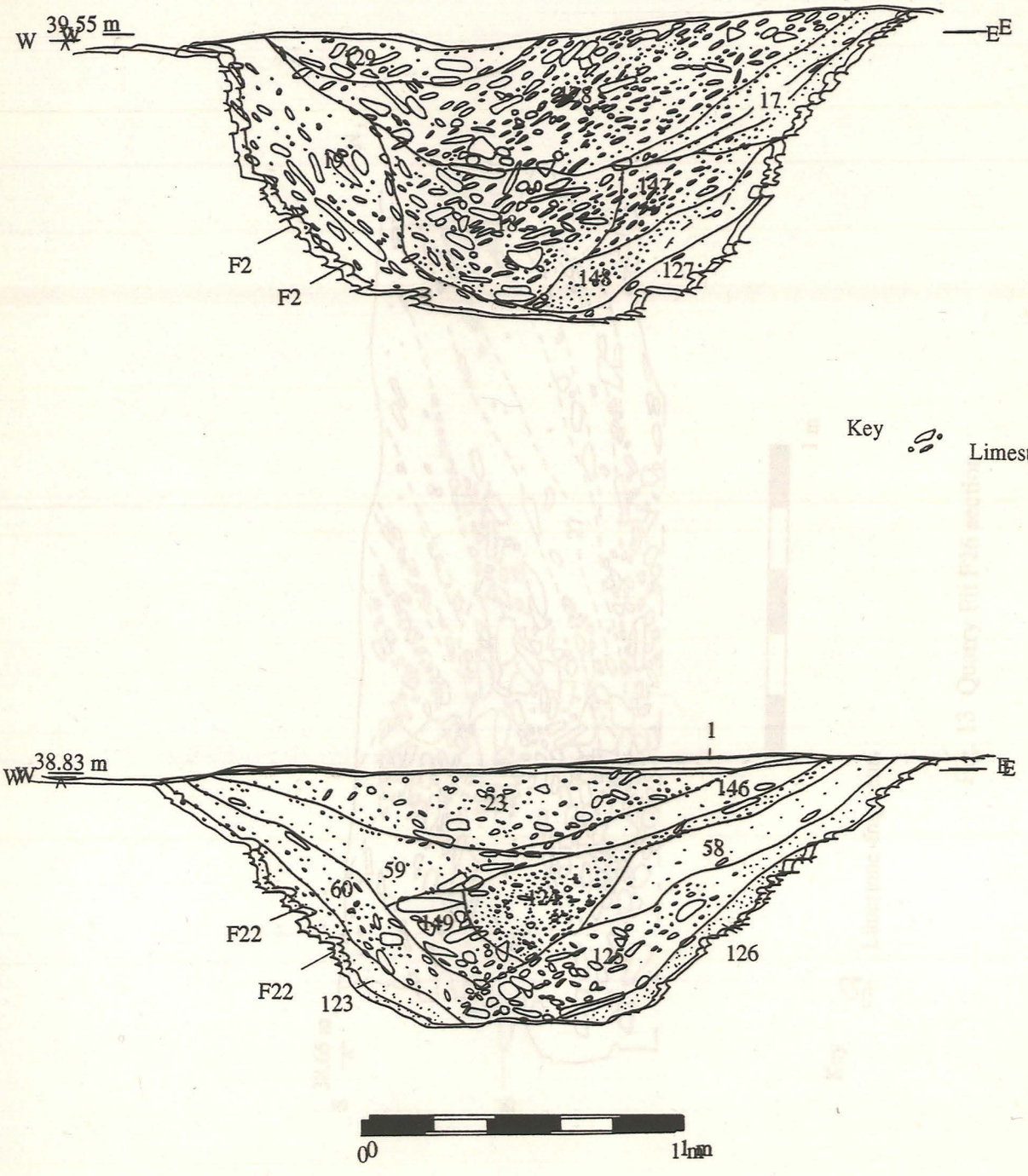


Fig. 11 Interpretation of the ditch fills a. F2 and b. F22 (overlay of Fig. 12)

Fig. 12 Ditch sections a. The Eastern Ditch F2 and b. The Single Ditch F22

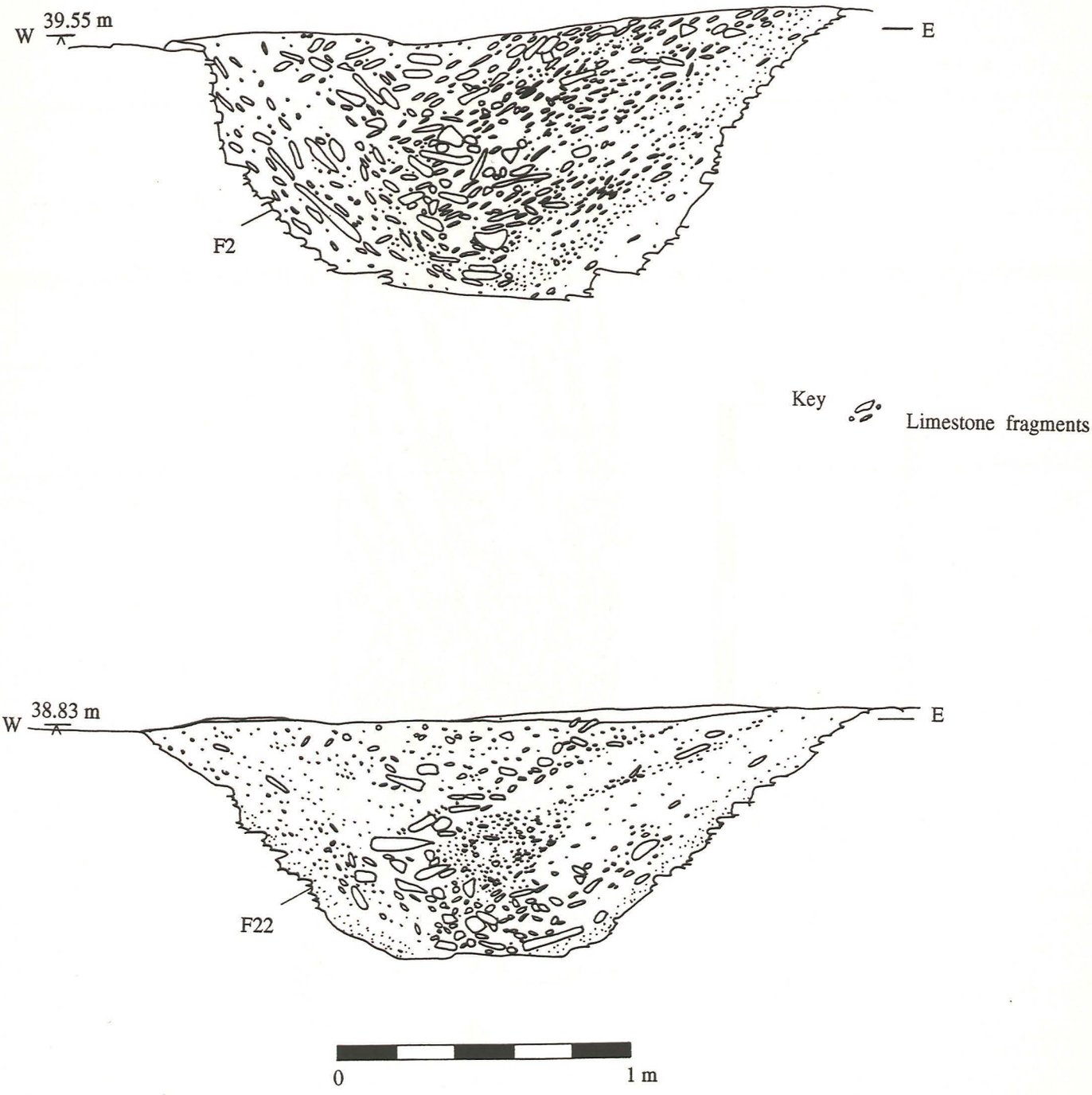


Fig. 12 Ditch sections a. The Eastern Ditch F2 and b. The Single Ditch F22

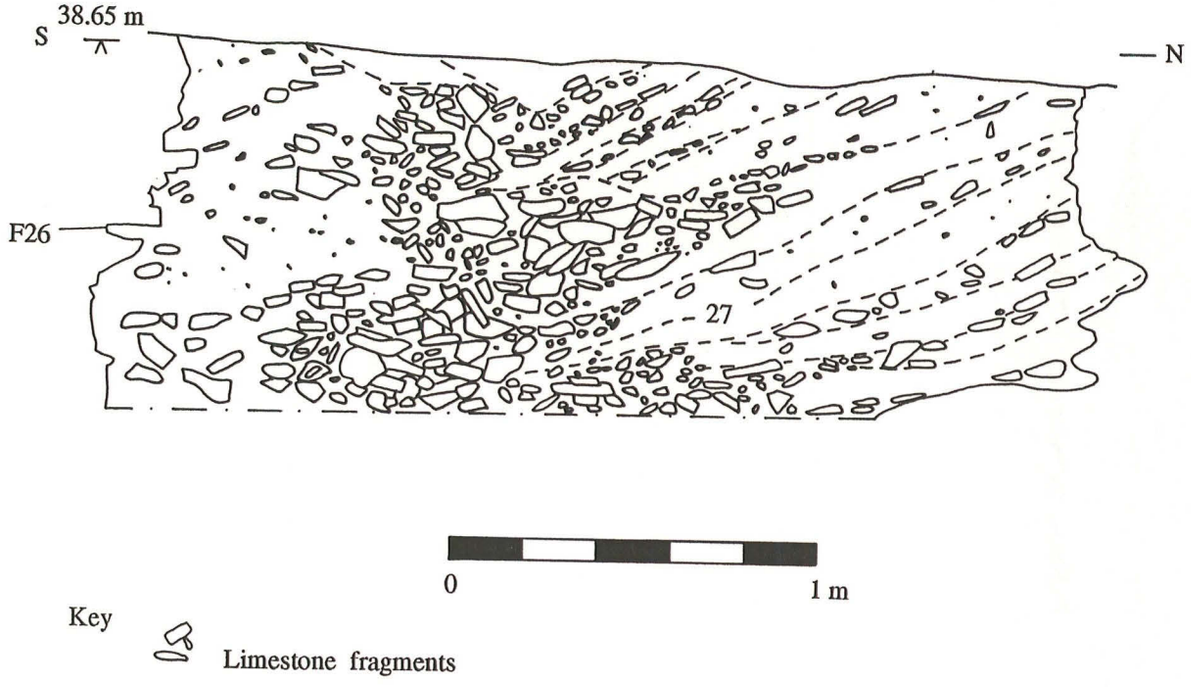


Fig. 13 Quarry Pit F26 section

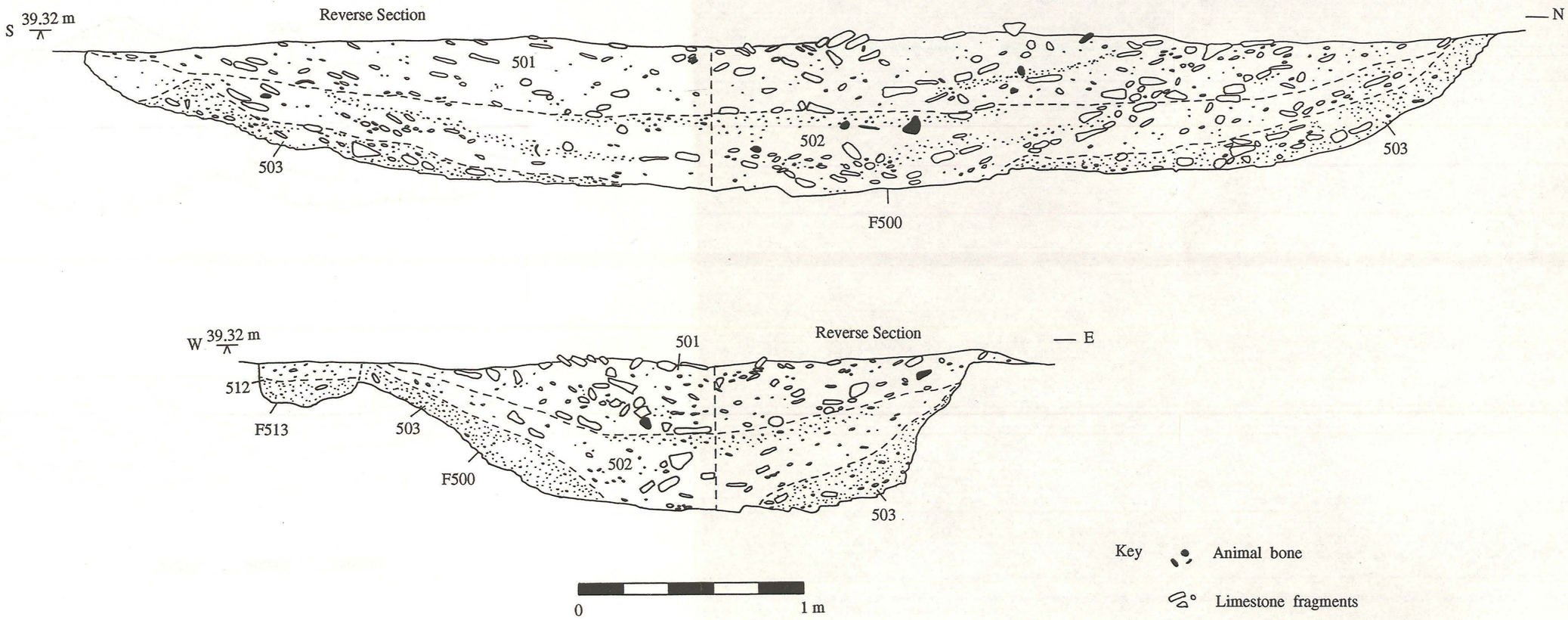


Fig. 14 Pit F500 sections

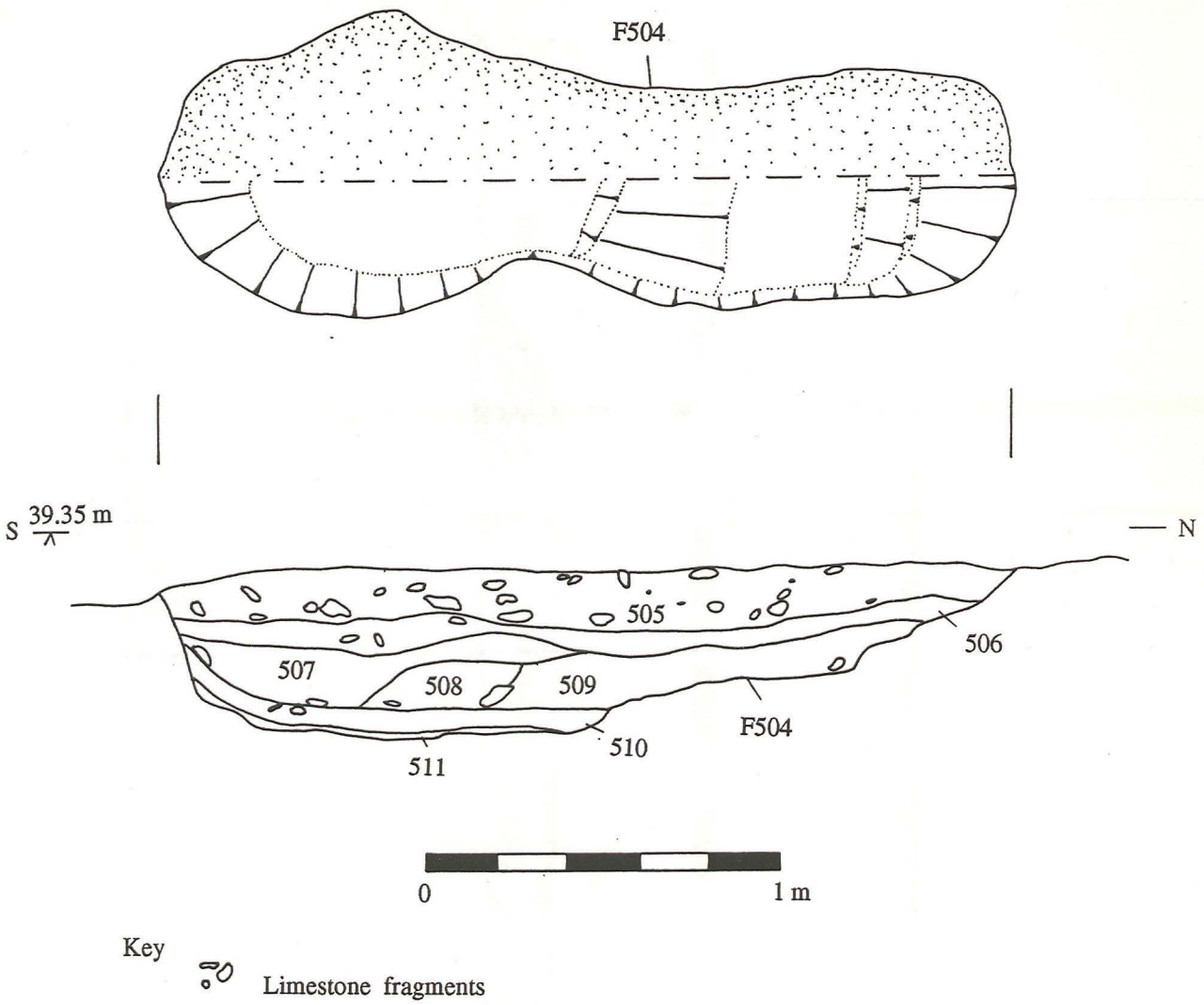


Fig. 15 Possible Crop Drier F504 plan and section

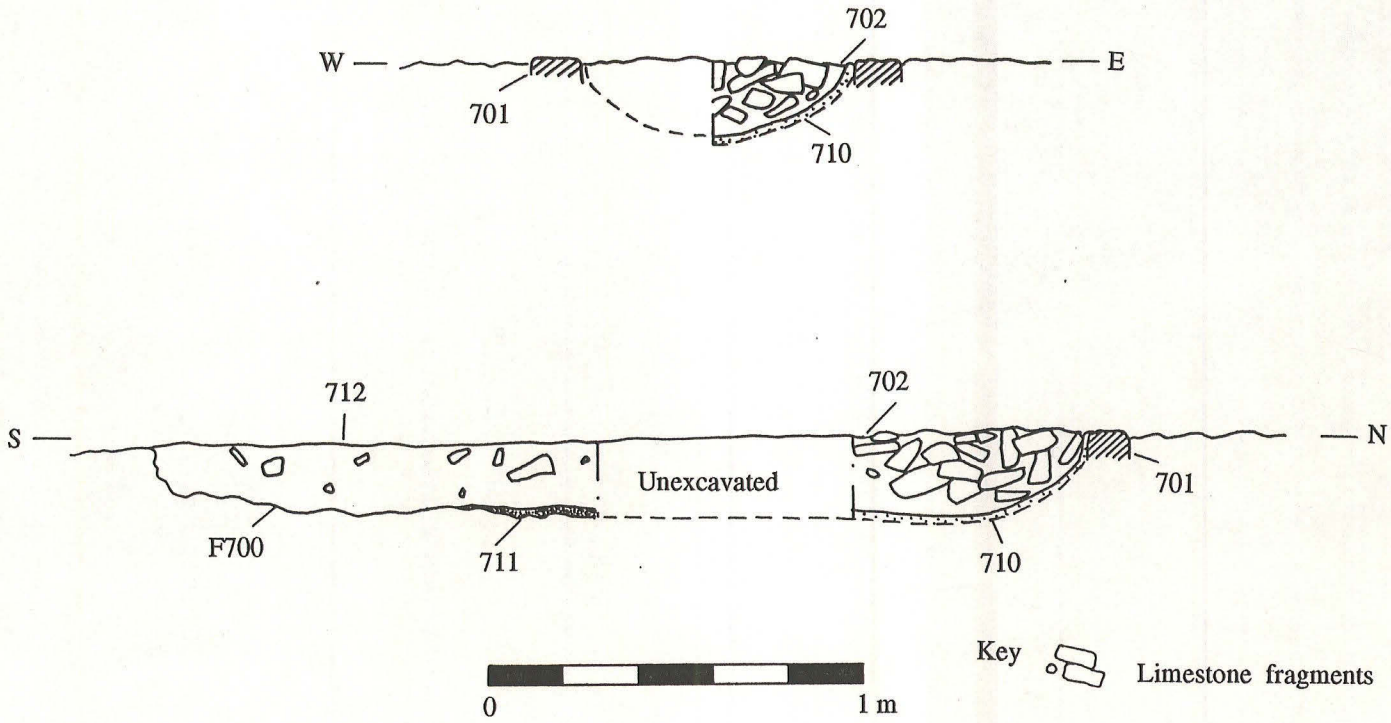


Fig. 16 Possible Crop Drier F700 sections

Pl. 1. Aerial view of the site, looking south (prior to stripping south-eastern quadrant).

Pl. 2. Ditch F2. View north.

Pl. 3. Ditch F22. View north.

Pl. 4. Line of postholes parallel to Ditch F2 (Area 3).

Pl. 5. The Central Ditch: interruption, looking west.

Pl. 6. The Central Ditch: interruption, looking south.

Pl. 7. Ditch terminal F200.

Pl. 8. Ditch terminal F219.

Pl. 9. Ditch terminal F218.

Pl. 10. Fifth ditch in the south facing quarry edge.

Pl. 11. Quarry pit shown in working quarry face, north facing.

Pl. 12. Quarry pit shown in working quarry face, north facing.

Pl. 13. Quarry pit F24.

Pl. 14. Quarry pit F26.

Pl. 15. Burnt patch F15, containing (16).

Pl. 16. Burnt pit F41, containing (42).

Pl. 17. Burnt patch F45, containing (46).

Pl. 18. Grave F89, containing skeleton (117).

Pl. 19. Grave F99, containing skeleton (145).

Pl. 20. Grave F101, containing skeleton (121).

Pl. 21. Grave F3, containing skeleton (5).

Pl. 22. Area 3: enclosures, looking west.

Pl. 23. Area 3: enclosures, looking north-east.

Pl. 24. Eastern terminal of gully F300.

Pl. 25. Gully F300. Section.

Pl. 26 Gully F304. Section.

Pl. 27. Gully F306. Section.

Pl. 28. Area 4: general view, looking north.

Pl. 29. Pit F500.

Pl. 30. Posthole F522.

Pl. 31. Pit F504: pre-excavation.

Pl. 32. Pit F504: section.

A

Report to

Lindsey Archaeological Services

August 1994

Prepared by

The City of Lincoln Archaeology Unit
Charlotte House
The Lawn
Union Road
Lincoln
LN1 3BL

Tel: Lincoln (0522) 545326
Fax: Lincoln (0522) 548089

REPORT ON THE ROMAN POTTERY FROM BRAUNCEWLL QUARRY 1994

By M Darling

CLAU ARCHAEOLOGICAL REPORT NO: 117

REPORT ON THE ROMAN POTTERY FROM BRAUNCEWELL QUARRY 1994

Margaret J Darling

CLAU, 29 July 1994

1 INTRODUCTION

The pottery from bq94 has been recorded in the archive format of the City of Lincoln Archaeology Unit, the resulting computer database being available on the CLAU system. Listing of the archive file is in the appendix. Details of dating and comments are given below. 864 sherds were recorded, the bulk coming from the pit contexts 501-502.

2 CONDITION

The condition of much of the pottery is relatively poor and scrappy, although the sherds from the pit 501-502 were generally fresh, particularly from 502.

3 SUMMARY OF DATING

Table 1: Dating summary

Cxt	Shs	Date	Comments	Sherd links
AREA2-1	3	RO	MIDDLE DITCH IV	
AREA3-1	7	RO	TOPSOIL/SURFACE CLEANING	
SF1	1	RO?	Small find 1?	
1	1	EM2?		
1-NE	3	RO?		
1-SURF	1	RO	SURFACE	
2	1	RO		
3	1	RO		
4	12	M3?		
5	2	RO?		
6	1	RO		
7	1	RO?		
8-11	7	M2	11 in triangle	
8-12	1	2?	12 in triangle	
8-13	1	RO	13 in triangle	
8-14	1	RO?	14 in triangle	
10	1	RO?		
23	2	RO		
25	3	2?		
27	4	RO		
40	1	RO		
57	2	RO		
90	18	2+?		
90-23	25	2	Small find? 23	
100	12	ML2?		
102	7	2-3		
116	1	RO		
130	1	2-3		
139	1	RO?		

140	1	RO		
301	4	RO POSS M3?		
305	3	RO		
307	5	RO		
311	1	RO		
501	453	ML3	SOME ABRASION. FRAGMENTED	502 (x 6)
502	171	ML2	MOST F.FRESH SHS. QUANTITY JOINS	501 (x 6)
505	10	ML2?		
519	5	M3	TILE FLAKE	
521	16	RO2?		
702	8	RO		?707
702B-C	3	RO		
702D	47	2?		
702E	3	2 POSS		
707	12	RO		?702
Total	864			

4 DISCUSSION OF DATING

As the above shows, many of the contexts consisted of only one or two sherds, with the attendant dating problems. The lower part of the large pit 501-502 contained no sherds that need date after the mid-late 2nd century, whereas the upper part, 501, had a few sherds of mid or late 3rd century date. This upper group was much more fragmented and showed more abrasion than 502 below, and given the difficulties of excavation, the few later sherds could be intrusive. There were at least six separate instances of joining sherd links between the upper and lower layers of the pit.

Over the site as a whole, the evidence points to activity in the mid to late 2nd century, and slight evidence for later activity in the 3rd century. There was no 4th century pottery at all, suggesting that use of the site, or activity likely to lead to the deposition of contemporary rubbish, ceased in the last half of the 3rd century.

A scan of the field walking finds, most of which are indeterminate and largely undatable grey body sherds mixed with medieval and post-medieval pottery, produced a single sherd probably from the Nene Valley colour-coated bowl or dish base, the date of which could extend from the later 3rd into the 4th century (from 24/3). There was also a possible bead-and-flange bowl in grey fabric of similar date range (from T4).

5 OVERVIEW OF FABRICS

The table below shows the fabrics from the site as a whole.

Table 2: Analysis of fabrics

Fabric	Expansion	Sherds	%age
CR	Cream	2	0.23
DR20	S.Spanish globular amphorae	1	0.12
DWSH	Dales ware shell-tempered	7	0.81
GFIN	Grey, fine	2	0.23
GREY	Undifferentiated grey	628	72.68
IAGR	Iron Age tradition gritty fabric	2	0.23
NVCC	Nene Valley colour-coated	24	2.78
NVGW?	Nene Valley grey ware	8	0.92
NVGWC	Nene Valley coarse grey ware	100	11.58
OX	Undifferentiated oxidized	13	1.51
PART	Parisian/London type ware	1	0.12
RC	Rough-cast colour-coated	1	0.12
SAMCG	Central Gaulish samian	5	0.58
SHEL	Shell tempered	70	8.11

The fabrics are consistent with the chronological spread of the site use. The rarity of **cream** fabrics, usually from flagons, is notable as these remain in common use into the later 2nd century. The coarser **Nene Valley grey** fabric was largely confined to the large pit 501-502, with only a scatter of sherds from other contexts, suggesting that this was a mid-late 2nd century appearance on the site. The two **Iron Age tradition** sherds consisted of a single body sherd and a jar rim from the topsoil, the form of which would be consistent with a 2nd century date. The **rough-cast** beaker sherd cannot be positively attributed to a source, but the period c AD 140-180 is probable. All the **Nene Valley colour-coated ware** bar one sherd came from the upper layers of the pit 501-502, including both earlier and later versions of the fabric, indicating a spread through the 3rd century. The single other sherd came from context 4, and was a funnel-necked folded beaker dating probably to the mid 3rd century. A single **grey rusticated** jar was represented by body sherds in 501; although rusticated decoration starts in the 1st century, it continues in Lincolnshire into the Antonine period.

Amphora sherds are rare on rural sites, and it is unlikely that the single sherd found here arrived on the site with its contents. This is from the commonest type of amphora, the Dressel 20 globular form from Baetica in Southern Spain imported containing olive oil. It came from the lower fill of the 501-502 pit, and apart from being slightly burnt, the smoothness of the interior surface indicated some type of re-use. Amphora, as large strong vessels, were commonly re-used for a host of different purposes, and none more so than the thick large Spanish globular vessels.

6 OVERVIEW OF VESSEL FORMS

The table below gives a summary of vessels by their general class. The detailed listing of vessels by vessel type is in Appendix 1.

Table 3: Vessels by vessel class

Class	Sherds	%age
AMPH	1	0.12
BEAKER	29	3.36
BOWL	52	6.02
BOWL/DISH	9	1.04
CLSD	38	4.40
COLANDER	1	0.12
CUP	1	0.12
DISH	2	0.23
FLAGON	2	0.23
JAR	82	9.49
JAR LARGE	4	0.46
JAR-BEAKER	26	3.01
JAR-BOWL	15	1.74
LID	1	0.12
Unclassified	601	69.56

The table below analyses the sherds that can be assigned to probable functions. This relies on approximately only 30% of the pottery, as functions cannot be assigned to most body sherds. Two percentage figures are given, relating to the identifiable, and to ALL the pottery, the latter being comparable with figures from the city of Lincoln. This provides some comparative data until similar figures are available from rural sites.

Table 5: Vessels by possible functions

Function	Sherds	%age identifiable	%age ALL pottery	LINCOLN
Amphorae	1	0.4	0.1	2.4
Liquid Holders	27	10.2	3.1	4.1
Drinking vessels	29	10.9	3.4	10.6
Table Ware	40	15.1	4.6	5.4
Table or Kitchen ware	58	21.9	6.7	13.5
Kitchen ware	103	38.9	11.9	11.9
Storage	7	2.6	0.8	1.2
unallocated	-	-	69.3	50.7
	265	**100.0**	**100.0**	99.8

The main differences between an urban assemblage and that from Brauncewell are in amphorae, as would be expected, the drinking vessels and table to kitchen ware which covers vessels suitable for cooking or serving. The much higher percentage of unallocated sherds from Brauncewell comes from the large number of body sherds. If unallocated sherds are excluded from the Lincoln comparative figures, the main differences lie in the larger percentage of kitchen wares and the lower drinking vessels at Brauncewell.

7 SHERD LINKS

Apart from the multiple sherd links between the upper and lower parts of the 501-502 pit, the only other possible sherd link observed was that possible sherds of the same vessel occurred in contexts 702 and 707.

8 COMMENTS

Use of the site as evidenced by the pottery centres on the mid to late 2nd century, the earliest possible dating being probably within the period AD 125-150, and there is evidence for some mid to late 3rd century activity. Any later use of the site did not result in the deposition of pottery. The character of the pottery is in keeping with what could be anticipated from a rural site in this location, with some coarse wares being derived from the Nene Valley, and more shell-tempered wares than would occur further north. The function and vessel class analysis can at present be assessed only by comparison with an urban assemblage, but seems acceptable for a normal rural assemblage.

9 FURTHER WORK

The ceramic evidence for the site centres on the large pit 501-502, with the bulk of the sherds coming from the upper layers with some possible contamination. It is therefore considered unsuitable for full quantification, but should be published with illustrations.

Approximately 20 vessels should be illustrated. The five sherds of samian, which include a decorated sherd from a Dr 37 bowl, should be submitted for specialist report, and the decorated sherd may require illustration. A text report should be prepared for the pottery from the site for publication in a local journal or similar publication.

APPENDIX

Table Analysis of vessel types

Class	Expansion	Type Code	Sherds	%age
AMPH	Amphora	A	1	0.12
BEAKER	Beaker	BK	13	1.50
BEAKER	Beaker, barbotine decorated	BKBARB	1	0.12
BEAKER	Beaker, cornice-rimmed	BKCOR	2	0.23
BEAKER	Beaker, folded funnel neck	BKFOF	11	1.27
BEAKER	Beaker, rough cast	BKRC	1	0.12
BEAKER	Beaker, rouletted	BKROU	1	0.12
BOWL	Samian Dr 37	37	1	0.12
BOWL	Bowl	B	3	0.35
BOWL	Bowl, carinated	B334	21	2.43
BOWL	Bowl form Dr 36	B36	6	0.69
BOWL	Bowl form Dr 38	B38	8	0.92
BOWL	Bowl, flanged	BFL	2	0.23
BOWL	Bowl, triangular rim	BTR	11	1.28
BOWL/DISH	Bowl or dish	BD	8	0.92
BOWL/DISH	Bowl/dish,flanged	BDFL	1	0.12
CLOSED FMS	Closed vessel sherds	CLSD	38	4.40
COLANDER	Colander	COL	1	0.12
CUP	Samian Dr 33 cup	33	1	0.12
DISH	Dish plain rim	DPR	2	0.23
FLAGON	Flagon	F?	2	0.23
JAR	Cooking pot	CP	5	0.58
JAR	Jar	J	17	1.97
JAR	Jar, lid seated	J107	2	0.23
JAR	Jar, curved rim	JCUR	41	4.74
JAR	Jar, Dales ware	JDW	5	0.58
JAR	Jar, everted rim	JEV	3	0.35
JAR	Jar, lug handled	JLH	3	0.35
JAR	Jar, narrow neck	JNN	1	0.12
JAR	Jar, round rim	JRR	1	0.12
JAR	Jar, undercut rim	JUR	4	0.46
JAR LARGE	Jar, large	JL	3	0.35
JAR LARGE	Jar, storage	JS	1	0.12
JAR-BEAKER	Jar or beaker	JBK	26	3.01
JAR-BOWL	Jar or bowl	JB	12	1.39
JAR-BOWL	Jar/bowl, curved	JBCUR	3	0.35
LID	Lid	L?	1	0.12
Unclassfied	-	-	601	69.56

bq94 BRAUNCEWELL QUARRY ROMAN POTTERY ARCHIVE DATABASE

NOTES:

Weight is only recorded if there is potential for useful data.
Drawings: D = Vital to be drawn; S = useful for site.
To enter date, contextual comments and a note of any post-Roman sherds, pseudo fabric codes of ZDATE, ZZZ and ZPR are used to integrate the information into the archive database.

Cxt,Fabric,Form,Dec,Vess,Draw?,Dwg no,Comments,Sherd links,Sherds,Weight
AREA2-1,SHEL,-,-,1?,-,-,BSS/CHIPS,-,3,-
AREA2-1,ZCON,-,-,-,-,-,MIDDLE DITCH IV,-,-,-
AREA2-1,ZDATE,-,-,-,-,-,RO,-,-,-
AREA3-1,GREY,-,-,-,-,-,BS ?BASAL,-,1,-
AREA3-1,GREY,-,-,-,-,-,FTRG SMALL BASE,-,1,-
AREA3-1,GREY,-,-,1,-,-,BSS LT BN SURFS,-,3,-
AREA3-1,GREY,L?,-,-,-,-,RIM FR ?LID,-,1,-
AREA3-1,NVGWC,-,-,-,-,-,BS W GROOVE,-,1,-
AREA3-1,ZCON,-,-,-,-,-,SURFACE CLEANING,-,-,-
AREA3-1,ZCON,-,-,-,-,-,TOPSOIL,-,-,-
AREA3-1,ZDATE,-,-,-,-,-,RO,-,-,-
SF1,SHEL,JEV?,-,-,-,-,RIM FR MANUF? THIN WALL;FINE SHELL,-,1,-
SF1,ZDATE,-,-,-,-,-,RO?,-,-,-
1,IAGR,JCUR,-,-,-,-,NICE PIMPLY FAB RIM;SKETCH,-,1,-
1,ZDATE,-,-,-,-,-,EM2?,-,-,-
1-NE,GREY,-,COMB,1,-,-,?H'MADE SANDY GRY FAB BSS W VERT COMB,-,3,-
1-NE,ZDATE,-,-,-,-,-,RO?,-,-,-
1-SURF,GREY,-,-,-,-,-,BS ABR,-,1,-
1-SURF,ZCON,-,-,-,-,-,SURFACE,-,-,-
1-SURF,ZDATE,-,-,-,-,-,RO,-,-,-
2,GREY,-,-,-,-,-,BS,-,1,-
2,ZDATE,-,-,-,-,-,RO,-,-,-
3,GREY,-,-,-,-,-,CHIP,-,1,-
3,ZDATE,-,-,-,-,-,RO,-,-,-
4,NVCC,BKFOF,-,1,-,-,RIMS/BSS FRAGS;LT RB FAB;SF9,-,11,-
4,SHEL,-,-,-,-,-,CHIP,-,1,-
4,ZDATE,-,-,-,-,-,M3?,-,-,-
5,GREY?,-,-,1,-,-,BSS W CREAM SURF;ABR,-,2,-
5,ZDATE,-,-,-,-,-,RO?,-,-,-
6,GREY,-,-,-,-,-,BS RB FAB DK GRY SURFS,-,1,-
6,ZDATE,-,-,-,-,-,RO,-,-,-
7,SHEL,-,-,-,-,-,BS ABR ?MANUF,-,1,-
7,ZDATE,-,-,-,-,-,RO?,-,-,-
8-11,GREY,-,-,-,-,-,BSS,-,6,-
8-11,GREY,B334,-,-,-,-,BS CARINATION,-,1,-
8-11,ZDATE,-,-,-,-,-,M2,-,-,-
8-12,GREY,J?,-,-,-,-,RIM FR W SL.LID SEAT INT;RB FAB,-,1,-
8-12,ZDATE,-,-,-,-,-,2?,-,-,-
8-13,GREY,-,-,-,-,-,CHIP NVGWC?,-,1,-
8-13,ZDATE,-,-,-,-,-,RO,-,-,-
8-14,SHEL,-,-,-,-,-,BS,-,1,-
8-14,ZDATE,-,-,-,-,-,RO?,-,-,-
10,SHEL,-,-,-,-,-,BS,-,1,-
10,ZDATE,-,-,-,-,-,RO?,-,-,-
23,GREY,-,-,-,-,-,BSS ONE F.COARSE,-,2,-
23,ZDATE,-,-,-,-,-,RO,-,-,-
25,GREY,-,-,-,-,-,SM.CARINATED VESS BS,-,1,-
25,NVGWC,-,-,-,-,-,BSS,-,2,-
25,ZDATE,-,-,-,-,-,2?,-,-,-
27,GREY,-,-,2,-,-,BSS,-,4,-
27,ZDATE,-,-,-,-,-,RO,-,-,-
40,NVGW?,-,-,-,-,-,CHIP,-,1,-
40,ZDATE,-,-,-,-,-,RO,-,-,-
57,GREY,-,-,-,-,-,BS,-,1,-
57,NVGWC,-,-,-,-,-,BS,-,1,-
57,ZDATE,-,-,-,-,-,RO,-,-,-
90,GREY,-,-,-,-,-,BSS,-,6,-
90,GREY,BK,-,-,-,-,FTM BASE;OXID INT,-,1,-

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90,IAGR,-,-,-,-,-,BS PIMPLY,-,1,-
90,NVGW?,-,-,-,-,-,ABRADED BS,-,1,-
90,NVGWC,-,-,-,-,-,BS THIN WALL,-,1,-
90,OX,-,-,-,-,-,SANDY RB BS;DK GRY FAB,-,1,-
90,SAMCG,33,-,-,-,-,RIM,-,1,-
90,SHEL,-,-,-,-,-,ABR BS,-,1,-
90,SHEL,-,-,-,-,-,RIM FR CHANNEL RIM J OR B & CHIPS,-,3,-
90,SHEL,-,-,1,-,-,BSS SPARSE SHELL ?MANUF,-,2,-
90,ZDATE,-,-,-,-,-,2+?,-,-,-
90-23,GREY,JBK,-,1,D,-,COMP PROF,-,25,-
90-23,ZDATE,-,-,-,-,-,2,-,-,-
100,CR,-,-,-,-,-,CHIP,-,1,-
100,GREY,-,-,-,-,-,BSS LT GRY,-,3,-
100,GREY,-,LA,-,-,-,BS & CHIP ?BBT,-,2,-
100,GREY,BK?,-,-,-,-,FTM;LT GRY,-,1,-
100,GREY,JB,-,-,-,-,CURVED RIM FR ONLY,-,1,-
100,GREY,JNN,-,-,-,-,ROUNDED RIM;PART NECK,-,1,-
100,NVGWC,BFL,-,-,-,-,RIM FR,-,1,-
100,RC,BKRC,RCC,-,-,-,CR FAB CHIP;LT RB CC,-,1,-
100,SAMCG?,37,-,-,-,-,DEC BS SLIP LOOKS LATE SG?,-,1,-
100,ZDATE,-,-,-,-,-,ML2?,-,-,-
102,GREY,-,-,-,-,-,BS,-,1,-
102,GREY,JL,LA,1,-,-,BSS ABR,-,3,-
102,SHEL,-,-,-,-,-,BSS,-,3,-
102,ZDATE,-,-,-,-,-,2-3,-,-,-
116,GREY,-,-,-,-,-,ABR SCRAP,-,1,-
116,ZDATE,-,-,-,-,-,RO,-,-,-
130,NVGW?,JB,-,-,-,-,CURVED RIM FR ONLY,-,1,-
130,ZDATE,-,-,-,-,-,2-3,-,-,-
139,SHEL,-,-,-,-,-,BS MANUF?,-,1,-
139,ZDATE,-,-,-,-,-,RO?,-,-,-
140,GREY,-,-,-,-,-,V ABR FR,-,1,-
140,ZDATE,-,-,-,-,-,RO,-,-,-
301,GREY,-,-,-,-,-,FLAKES,-,2,-
301,SHEL,-,1,-,-,-,BSS LGEISH VESS NOT DEF JDW,-,2,-
301,ZDATE,-,-,-,-,-,RO POSS M3?,-,-,-
305,GREY,-,-,-,-,-,BSS,-,2,-
305,SHEL?,-,-,-,-,-,OXID BS DK EXT MIN SHELL ?GROG,-,1,-
305,ZDATE,-,-,-,-,-,RO,-,-,-
307,GREY,-,-,-,-,-,BSS,-,5,-
307,ZDATE,-,-,-,-,-,RO,-,-,-
311,OX,-,-,-,-,-,SANDY BS RB FAB ABR,-,1,-
311,ZDATE,-,-,-,-,-,RO,-,-,-
501,CR,CLSD,-,-,-,-,BS,-,1,-
501,DWSH,JDW,-,2,-,-,RIM FRS ONLY;ABR,-,2,-
501,GFIN,-,-,-,-,-,BS,-,1,-
501,GFIN,BK?,-,-,-,-,PED BASE;ABR;NEAR PART FAB,-,1,-
501,GREY,-,-,-,-,-,BASES MISC,-,20,-
501,GREY,-,-,-,-,-,BSS POSS SOME NVGWC;SOME ABR,-,236,-
501,GREY,-,-,-,-,-,BSS W FALSE CORDONS,-,5,-
501,GREY,-,BAB,-,-,-,BS ?SHLDR W SINGLE BLOB,-,1,-
501,GREY,-,LA,-,-,-,BS,-,1,-
501,GREY,B38,-,1,D,-,BS/2 UNUS.RIMS;JOINS,502,3,-
501,GREY,BD,-,-,-,-,BSS,-,4,-
501,GREY,BK?,-,2,-,-,PED TYPE BASES;SKETCH,-,2,-
501,GREY,BTR,-,-,-,-,RIM WALL UNDEC,-,1,-
501,GREY,BTR?,-,-,-,-,RIM FR,-,1,-
501,GREY,CLSD,-,-,-,-,BURNISH EXT BS;?BK SHLDR OR FS?,-,1,-
501,GREY,COL,-,-,-,-,BASE/WALL;SM.HOLES,-,1,-
501,GREY,CP,-,-,-,-,RIM FR;BURNT,-,1,-
501,GREY,CP,-,1,S?,-,RIMS/BS;M3 TYPE ?NVGWC,-,3,-
501,GREY,DPR,-,-,-,-,RIM FR,-,1,-
501,GREY,DPR,-,-,S,-,COMP PROF,-,1,-
501,GREY,J,-,-,-,-,RIM FRS,-,3,-
501,GREY,J,RLIN,1,-,-,BSS;BURNT EXT,-,5,-
501,GREY,J107,-,2?,-,-,RIMS FRS,-,2,-
501,GREY,JB,-,1,-,-,RIMS POSS B334;SKETCH,-,6,-
501,GREY,JB,-,2,-,-,CURVED RIM FRS;POSS SAME,502?,2,-
501,GREY,JCUR,-,-,D,-,RIM/SHLDR;SKETCH;SAME,502,1,-
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501,GREY,JCUR,-,1,-,-,RIM FR;?SIMILAR JAR,-,1,-
501,GREY,JCUR,-,1,-,-,RIM FRS,-,2,-
501,GREY,JCUR,-,1,-,-,RIM/BSS,-,4,-
501,GREY,JDW,-,2,-,-,RIM FRS;ABR,-,2,-
501,GREY,JEV,-,1,-,-,RIM/SHLDR,-,2,-
501,GREY,JLH,-,2?,-,-,HDLE FRS;PROB W INT.PATCH,-,3,-
501,GREY,JRR,-,-,-,-,RIM/SHLDR;ALMOST NECKLESS,-,1,-
501,GREY,JS,-,-,D,-,RIM/SHLDR;SL.OXID SURFS;SKETCH,-,1,-
501,NVCC,B36,BA,-,S?,-,RIM FR;ABR;CR FAB,-,1,-
501,NVCC,BK,-,1,-,-,BS UNDEC;CR FAB,-,2,-
501,NVCC,BK,-,1,-,-,SM.BASE POSS SIM.BK;LT RB FAB,-,4,-
501,NVCC,BKBARB,BA,-,-,-,BASAL BS W DOTS;CR FAB,-,1,-
501,NVCC,BKCOR,-,1,S,-,RIM/BS;LT RB FAB,-,2,-
501,NVCC,BKROU,ROUZ,-,-,-,BS;CR FAB;NOT BKPM,-,1,-
501,NVCC,F?,-,-,-,-,THICKER BS;CR FAB;CC EXT ONLY,-,1,-
501,NVCC,F?,-,-,D,-,UNUS RIM FR;CR FAB;10DIAM;SKETCH,-,1,-
501,NVGWC,-,-,-,-,-,BSS,-,31,-
501,NVGWC,-,-,1,-,-,BASE,-,5,-
501,NVGWC,-,-,1,-,-,BASE;GROOVED FTRG;SAME,502,3,-
501,NVGWC,-,BL,-,-,-,BS$;BL DEC;TYPE UNCLEAR,-,3,-
501,NVGWC,BD,-,-,-,-,BASE FR,-,1,-
501,NVGWC,BTR,-,-,-,-,RIM UNDERCUT UNDEC,-,1,-
501,NVGWC,BTR,-,1,-,-,RIMS;UNDERCUT UNDEC,-,2,-
501,NVGWC,BTR,-,1,D,-,COMP PROF;UNDEC,-,6,-
501,NVGWC,CLSD,-,-,-,-,BASE;CR FAB/INT DKER EXT;SAME,502,1,-
501,NVGWC,CP,-,-,-,-,RIM FR;M3 TYPE,-,1,-
501,NVGWC,JBCUR,-,1,-,-,RIM FRS,-,3,-
501,NVGWC,JCUR,-,-,-,-,RIM FR.GRITTY FAB,-,1,-
501,NVGWC,JCUR,-,-,-,-,RIM FR;?SIMILAR JAR,-,1,-
501,NVGWC,JCUR,-,-,-,-,RIM/SHLDR STRONG CURVE,-,1,-
501,NVGWC,JCUR,-,1,D,-,RIMS/BS;SL.INT LIDSEAT;SKETCH,-,3,-
501,NVGWC?,CLSD,-,1,-,-,BASE SM.VESS;GRITTY,-,5,-
501,NVGWC?,CLSD,STAB?,-,-,-,BS ?BASAL AREA;DKER SURFS,-,1,-
501,OX,-,-,-,-,-,ABR FRAGS;BRIGHT SANDY ORANGE RED,-,5,-
501,PART,CLSD,-,-,-,-,UNDEC BS,-,1,-
501,SAMCG,-,-,-,-,-,BS,-,1,-
501,SAMCG,BD,-,-,-,-,BS,-,1,-
501,SHEL,-,-,-,-,-,BSS & FRS;PROB MOST WHEEL,-,18,-
501,SHEL,-,-,-,-,-,BSS H'MADE INC 2 X LGE VESS,-,5,-
501,SHEL,-,-,-,-,-,BSS THINNER WALL;FINER;SPARSE SHELL,-,8,-
501,SHEL,BD,-,-,-,-,RIM FR ONLY;SL.MOULDING;SKETCH,-,1,-
501,SHEL,J,-,-,-,-,BASE;WHEEL,-,1,-
501,SHEL,J,-,-,-,-,LARGE BASE;WHEEL & BSS,-,3,-
501,SHEL,JCUR,-,-,D,-,RIM/SHLDR;WHEEL;SKETCH;JOINS,502,1,-
501,SHEL,JUR,-,1,D,-,RIMS/SHLDR;SIM FAB BOURNE;SKETCH,-,4,-
501,ZDATE,-,-,-,-,-,ML3,-,-,-
501,ZZZ,-,-,-,-,-,SOME ABR;F.FRAGMENTED;JOINS 502,-,-,-
502,DR20,A,-,-,-,-,BS;SL.BURNT INT;SOME ?WEAR INT,-,1,-
502,GREY,-,-,-,-,-,BSS,-,53,-
502,GREY,-,-,-,-,-,MISC.J.SHS GROUPS BSS,-,19,-
502,GREY,-,-,-,-,-,SM.VESS W CARINATION,-,5,-
502,GREY,-,LA,-,-,-,BSS,-,3,-
502,GREY,B334,-,1,D,-,RIMS/BSS,-,19,-
502,GREY,B38,-,1,D,-,UNUS.RIM NON-J BSS;JOINS,501,5,-
502,GREY,BDFL,-,-,-,-,RIM ONLY;NO DEC;NEAR BB1,-,1,-
502,GREY,BFL,BIAP,-,S,-,RIM/WALL,-,1,-
502,GREY,CLSD,-,-,-,-,BS;LTGRY FAB;DKGRY SURF;F.FINE,-,1,-
502,GREY,CLSD,-,-,-,-,GROOVE FTRG;TRIMMED BASE,-,5,-
502,GREY,J,-,1,D,-,RIM/SHLDR;MOULDED;SKETCH,-,2,-
502,GREY,JB,-,-,-,-,RIM FR;SAME?,501,1,-
502,GREY,JCUR,-,1,-,-,RIMS/BS,-,4,-
502,GREY,JCUR,-,1,D,-,RIM/SHLDR SAME IN,501,3,-
502,GREY,JCUR,SWL,1,D?,-,RIM NON J BSS;COARSER FAB;SKETCH,-,13,-
502,NVGW?,B36,-,1,D,-,RIMS/BSS,-,5,-
502,NVGWC,CLSD,-,-,-,-,BS CR INT;BURNT;SAME,501,1,-
502,NVGWC,CLSD,-,-,-,-,GROOVE FTRG BASE & BS;JOIN,501,20,-
502,OX,B,-,1,D,-,UNUS.BOWL;?H'MADE;BURNISH RIM;26DIAM.SKETCH,-,3,-
502,SAMCG,BD,-,-,-,-,BASAL BS;THICK;31-31R?,-,1,-
502,SHEL,JCUR,-,-,D,-,RIM/BSS JOINS,501,5,-
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502,ZDATE,-,-,-,-,-,ML2,-,-,-
502,ZZZ,-,-,-,-,-,MOST F.FRESH SHS;QUANT.JOINS,-,-,-
505,GREY,-,-,-,-,-,BSS,-,6,-
505,GREY,-,-,1,-,-,BASE STRING;LGE ?JAR,-,2,-
505,GREY,B334,-,-,-,-,BS CARINATION;BURNISHED,-,1,-
505,GREY,JB,-,-,-,-,CURVED RIM FR,-,1,-
505,ZDATE,-,-,-,-,-,ML2?,-,-,-
519,DWSH,-,-,-,-,-,BSS PROB FROM SAME VESS,-,4,-
519,DWSH,JDW,-,-,-,-,RIM FR. ABR,-,1,-
519,ZDATE,-,-,-,-,-,M3,-,-,-
519,ZZZ,-,-,-,-,-,TILE FLAKE,-,-,-
521,GREY,-,-,-,-,-,BSS C 9 X ONE VESS THIN WALL,-,15,-
521,SHEL,-,-,-,-,-,OX BS;SPARSE SHELL;?MANUF,-,1,-
521,ZDATE,-,-,-,-,-,RO 2?,-,-,-
702,GREY,-,-,-,-,-,FLAKES/BSS POSS ONE SAME,707?,8,-
702,ZDATE,-,-,-,-,-,RO,-,-,-
702B-C,GREY,J,-,1,-,-,BSS W GROOVES ?SHLDR,-,2,-
702B-C,OX,-,-,-,-,-,FLAKE LGE VESS W GROOVES,-,1,-
702B-C,ZDATE,-,-,-,-,-,RO,-,-,-
702D,GREY,-,-,-,-,-,BSS. BLK SURF THIN WALL ?SAME,-,2,-
702D,GREY,-,-,-,-,-,CHIPS/BSS,-,8,-
702D,GREY,-,-,-,-,-,FLAKES POSS X SAME VESS;1 W CARINATION,-,22,-
702D,GREY,-,-,-,-,-,THIN WALL BSS GRITTY X CARINAT.VESS,-,6,-
702D,GREY,BK,-,1,-,-,BASE BADLY DAMAGED;BLK SURFS;SKETCH,-,2,-
702D,GREY,CLSD,BWL,-,-,-,FLAKED BS;RB FAB BLK SURFS,-,1,-
702D,NVGWC?,-,-,-,-,-,BSS,-,4,-
702D,SHEL,-,-,-,-,-,BSS PROB WHEEL THROWN,-,2,-
702D,ZDATE,-,-,-,-,-,2?,-,-,-
702E,GREY,-,-,-,-,-,CHIP,-,1,-
702E,OX,-,-,-,-,-,FLAKE,-,1,-
702E,OX?,JBK,-,-,-,-,SANDY LT CR-BN RIM,-,1,-
702E,ZDATE,-,-,-,-,-,2 POSS,-,-,-
707,GREY,-,-,1,-,-,BSS ONE VESS POSS SAME,702,12,-
707,ZDATE,-,-,-,-,-,RO,-,-,-
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Four Human Skeletons From Brauncewell, Lincs.

Sue Ensor

April 1994

For Lindsey Archaeological Services

Human Skeletons From Brauncewell Quarry, Lincs.
BQ94 5, BQ94 117, BQ94 121, & BQ94 145.

For detailed descriptions of pathological lesions, and of ageing, and sexing techniques used by the investigator, please refer to the separate archive report.

1.0 Preservation of the bone.
All four skeletons are in a very poor state of preservation both in terms of level of bone degradation and post-depositional fragmentation. The remains are friable or brittle and consequently much material did not survive retrieval. There are therefore discrepancies between the photographic record and the visual inventory sheets. The latter now show surviving and identifiable bone.

1.1 Implications of poor preservation.
As a consequence of the poor state of the bone it is not possible to accurately determine age at death, sex or stature of the individuals, nor is it possible to acheive a conclusive palaeopathological evaluation of them.

The following assessments are based on the limited morphological features available, AND SHOULD BE REGARDED AS TENTATIVE except where specified.

2.0 Age at death (AAD)
Based on the extent of epiphyseal fusion it may be confidently said that the AAD of BQ94 5 is >/= ~~18 years~~ adult or subadult, and of BQ94 117 and 145 is >/=28 years (Morse et al:100). It may be equally confidently said that BQ94 121 is >/= 28 years based on epiphyseal fusion, and may possibly be within the range of 28 - 35 years from dental evidence (Morse et al: 100, Brothwell, 1965). It is not possible to determine AAD for BQ94 5.

3.0 Sex
There are insufficient surviving areas of the skeletons which can be used to determine sexual characteristics with any confidence.. However, based on limited evidence, BQ94 121 and BQ94 145 appear to be female skeletons, while BQ94 117 appears to be a male skeleton. It is not possible to determine the sex of BQ94 5.

4.0 Palaeopathology
Detailed descriptions of pathological lesions and disribution drawings appear in the separate archive report.

The identification in skeletal individuals of many of the diseases which produce bone changes in life depends heavily upon the distribution of lesions throughout the skeleton. Therefore it is essential to have an intact or virtually intact skeleton to diagnose many diseases with any degree of confidence. This is obviously not the case for the Brauncewell skeletons, and so very little can be said about their general state of health or specific conditions.

4.1 Palaeopathology of BQ94 117

4.1.1 Osteomalacia and rickets

This being said however, BQ94 117 displays bone changes which may represent healed rickets, or possibly osteomalacia (adult rickets). There is marked torsion of the only surviving femur, which would have caused a 'knock-kneed' appearance in life. There is also antero-posterior femoral flattening, and fractures to the right clavicle, a single right rib shaft (number unknown but not first) , the right fibula and the right distal radius. Despite the femoral flattening being a characteristic of healed rickets, and frequency of fractures being indicative of osteomalacia there is little other evidence for the disease in the limbs. However, the presence of mild porotic hyperostosis may add weight to this diagnosis . Despite occurring as a result of anaemia and other diseases, its most likely cause is rickets (Ortner and Putschar 1981:280) and there is no evidence for anaemia aside from this.

4.1.2. Periosteal rib lesions

In addition there are clear areas of periosteal new bone formation on the visceral surface of the sternal ends of six left ribs (numbers unknown but not first) . The bone lesions range from areas of active remodelling, to areas of healed and healing periostitis. This type of lesion may be caused by a number of diseases including TB and mycoses, but there are no surviving vertebrae which are also often effected by TB to assist in the rejection or confirmation of this diagnosis.

4.2 Palaeopathology of BQ94 121 and BQ94 145

Both these individuals display periosteal new bone formation , a condition which may be caused by a number of diseases such as syphilis, or septicaemia or by direct infection of the bone surface. Accurate assessment of the causes are not possible without survival of key areas of the skeleton, which is not the case here.

,

4.2.1 BQ94 121

This individual has small areas of active and healing periostitis on the anterior surface of the right tibia and fibula, and on the posterior surface of the right femur.

4.2.2 BQ94 145

This individual has healed and healing periostiteal striations on the left femur, tibia and fibula , and on the right ulna shaft.

4.3 Dental pathology

Each individual which had surviving dentition had evidence of poor dental care in life. There is tooth loss, the presence of periodontal disease, dental calculus and caries.

4.3.1 Tooth loss

There is extensive antemortem tooth loss (AMTL) . From 10 molars which can be accounted for ie, not due to post-mortem loss, BQ 94 121 lost 8. BQ94 145 lost 10 out of 11, and 117 lost 5 out of 6.

4.3.2 Periodontal disease

Periodontal disease where the bone recedes from the tooth roots is to be found to a serious extent in BQ94 121, in the maxillary anterior teeth and in the right mandibular premolars.

4.3.3 Dental calculus ('tartar')

Both BQ94 121 and 145 have moderate to severe calculus.

4.3.4 Caries

BQ94 121 has carious lesions on the posterior surface of the right maxillary 1st premolar, and a corresponding lesion on the 1st molar, the 2nd premolar having been lost in life, probably as a result of the same infective process which caused the surviving carious lesions

5.0 Conclusions and recommendations.

Little discussion is possible of the implications of these findings for the four individuals, because of the overwhelming problems of preservation. It is likely that the poor preservation was encouraged by the length of time that the bones spent in a damp or even wet environment after retrieval. This could have been considerably reduced by the use of perforated bags. However, soil conditions and constraints placed upon the excavators in the field also played a part. Reburial is appropriate in these cases.

Environmental Archaeological Consultancy

BRAUNCEWELL QUARRY EXCAVATION (BQ94)
ARCHIVE CATALOGUE OF ANIMAL BONES

PHASE 1

The condition of this material is such that many bones must have been completely lost through erosion and dissolution in the soil. No further work is warranted. The specimen in context 100 with slight polish, a condition unlikely to occur naturally in these soils, must have been utilised as a point/awl and therefore developed a polish which helped preserve the bone fragment.

PHASE 2

The collection of animal bones from the second phase of excavation and evaluation at Brauncewell Quarry comprised 219 fragments, many of them broken into a number of pieces by modern breakage. The material was considerably less eroded than the bones from the first phase. The collection derives largely from two contexts, 501 and 502, a large pit of mid 2nd-mid 3rd century.

The sample is dominated by cattle bones with those of horse the next most frequent species (Table 1). Such a high proportion of horse, although in general unusual, is not uncommon on late Iron Age sites in Lowland Britain, but less so on Roman sites although found on a number of native and villa sites (King 1978). These horses are small pony sized animals and all are adult. They probably reflect the typical native ponies used for riding. Bones of sheep were the next most frequent species and then pig.

TABLE 1
Fragment counts of species and categories of animal bone in 501 and 502

	Number of Fragments
Cattle	45
Horse	19
Sheep	3
Sheep or Goat	13
Pig	5
Cattle-size	115
Sheep-size	8
Oyster	5

The cattle bones are generally adult although a small number of the late fusing epiphyses (fusion at about 3.5 years - Silver 1969) were unfused and

two jaw fragments indicate animals with an incomplete adult dentition. There was no evidence for young cattle. Only the pig bones indicated young animals being slaughtered.

The sample is small and does not sustain a detailed analysis and interpretation.

James Rackham
Environmental Archaeology Consultant
May and August 1994

REFERENCES

King, A. 1978. A comparative survey of Bone assemblages from Roman sites in Britain. *Bulletin of the Institute of Archaeology,* No 15, 207-232

Silver, I.A. 1969. The ageing of domestic animals. In D. Brothwell and E. Higgs (eds) *Science in Archaeology,* 283-302, Thames & Hudson

PHASE 1

ARCHIVE CATALOGUE OF ANIMAL BONES FOR BRAUNCEWELL QUARRY

SITE	CONTEXT	SPECIES	BONE	NO	SIDE	FUSION	TOOTH WEAR	COMMENTS
BQ94	16	OVCA	MTT		R			SEVERE SURFACE EROSION
BQ94	16	OVCA	UM2		L		J12	
BQ94	23	SSZ	LBON	2				SEVERE EROSION
BQ94	23	SSZ	UNI	2				SEVERE EROSION
BQ94	23	UKN	UNI					SEVERE EROSION
BQ94	25	OVCA	RAD		R			MID-SHAFT REGION, SEVERE EROSION
BQ94	40	SSZ	LBON	3				SEVERE EROSION, PROB FEMUR SHAFT
BQ94	58	BOS	LM3		R		K7	BADLY ERODED
BQ94	58	CSZ	MAND		L			FRAG ASCENDING RAMUS, ERODED
BQ94	58	BOS	HUM		R			DIST SHAFT, ERODED
BQ94	58	CSZ	HUM					SHAFT FRAG, ERODED, POSSIBLY ABOVE BONE
BQ94	61	OVCA	TIB		R			SHAFT ONLY-VERY SEVERELY ERODED
BQ94	90	BOS	UM2		R		J13	SEVERELY ERODED
BQ94	90	OVCA	UM3		R		K13	MED WEAR
BQ94	90	OVCA	UDPM3		R			MED-WELL WORN
BQ94	100	OVCA	TIB					FRAGMENTED SHAFT (X6), ERODED
BQ94	100	SSZ	LBON					SHAFT FRAG-SLIGHT POLISH-TOOL-POINT!

PHASE 2

ARCHIVE CATALOGUE OF ANIMAL BONES FOR BRAUNCEWELL QUARRY, BQ94

SITE	CONTEXT	SPECIES	BONE	NO	SIDE	FUSION	ZONES	TOOTH WEAR	COMMENTS
BQ94	501	EQU	MTC		R	DF	12345		BROKEN IN TWO, PONY SIZE
BQ94	501	OVI	MTT		R		125		SURFACE ERODED
BQ94	501	OVCA	MTC		L		12		SURFACE ERODED
BQ94	501	OVI	MTT		L				SHAFT ONLY
BQ94	501	EQU	HUM		L	DF	6789		DISTAL END ONLY
BQ94	501	EQU	MTT		F				POST SHAFT FRAG
BQ94	501	BOS	CQ		F				GNAWED-HALF ONLY
BQ94	501	OVI	HC		R				SMALL WETHER OR EWE
BQ94	501	OVCA	FEM		F				MID SHAFT ONLY
BQ94	501	EQU	MTT		F		1		PROX-3 FRAGS-MODERN BREAKS
BQ94	501	EQU	MTC		R		12		PROX-3 FRAGS-MODERN BREAKS
BQ94	501	EQU	MTP			DF	3		DISTAL FRAG
BQ94	501	EQU	RAD		R	PF	1		
BQ94	501	BOS	MTC		L		12		PROX & SHAFT-MODERN BREAKS
BQ94	501	BOS	SCP		L		2		GLENOID
BQ94	501	BOS	RAD		R	PF	12		PROX END
BQ94	501	EQU	MAND		R		56		3 FRAGS -MODERN BREAKS
BQ94	501	BOS	FEM		F		4		9 FRAGS SHAFT-MODERN BREAKS
BQ94	501	BOS	ULN		R		2		
BQ94	501	EQU	SKL		F				2 FRAGS POST-CRANIUM-FRNT
BQ94	501	BOS	TIB		L				SHAFT FRAG
BQ94	501	BOS	HUM		L	PO	1		PROX EPI JUST FUSING
BQ94	501	CSZ	SKL	2	F				FRAGS
BQ94	501	CSZ	RIB	3	F				SHAFT FRAGS
BQ94	501	CSZ	UKN	20	F				FRAGS-MANY MODERN BREAKS
BQ94	501	BOS	MTT		F				PROX FRAG
BQ94	501	BOS	SCP		L				SHAFT FRAG-MODERN BREAKS
BQ94	501	EQU	SCP		F				PROX SHAFT FRAG
BQ94	501	BOS	SCP	2	F		4		SPINE FRAG
BQ94	501	EQU	SCP		R	DF	1		DIST FRAG MODERN BREAK

SITE	CONTEXT	SPECIES	BONE	NO	SIDE	FUSION	ZONES	TOOTH WEAR	COMMENTS
BQ94	501	CSZ	SCP	12	F				FRAGS
BQ94	501	BOS	SCP		R		2		FRAG GLENOID
BQ94	501	BOS	SCP		R				DIST FRAG
BQ94	501	CSZ	UKN	17	F				FRAGS -MOSTLY MODERN BREAKS
BQ94	501	BOS	SCP		F				3 FRAGS-MODERN BREAKS
BQ94	501	BOS	SCP		F				3 FRAGS-MODERN BREAKS
BQ94	501	BOS	SCP		L				DISTAL SHAFT FRAG
BQ94	501	CSZ	HUM	2	F				
BQ94	501	CSZ	LBON	9	F				MODERN BREAKS
BQ94	501	EQU	MTP		F				PROX SHAFT FRAG
BQ94	501	CSZ	LBON		F				2 SHAFT FRAGS-MODERN BREAK
BQ94	501	CSZ	RAD		F				SHAFT FRAG
BQ94	501	CSZ	ULN	2	F				SHAFT FRAGS
BQ94	501	EQU	MXT		R				MAXILLARY MOLAR-WELL WORN
BQ94	501	EQU	MNT		R				M2?-MEDIUM WEAR
BQ94	501	BOS	MAND		L			Gh14I11	M2 & 3 LOST
BQ94	501	BOS	MXT		L				VERY SLIGHT WEAR ON ANT
BQ94	501	BOS	INN		L	EF	9		FRAG
BQ94	501	CSZ	TRV		F				POST-ZYGA
BQ94	501	CSZ	CEV		F	DN			CHOPPED THRU CENTRUM
BQ94	501	CSZ	LMV		F				ANT ZYGA
BQ94	501	CSZ	LMV		F				POST ZYGA
BQ94	501	CSZ	TRV		F				DORSAL FRAG
BQ94	501	CSZ	CEV	2	F				POST ZYGA
BQ94	501	CSZ	LMV		F				POST-ZYGA
BQ94	501	BOS	RAD		F	DF			FRAG DIST END
BQ94	501	BOS	MAND		R		7		FRAG ACSENDING RAM
BQ94	501	CSZ	MAND	5	F				FRAGS
BQ94	501	BOS	MAND		L			I16J15K15	ERODED BONE LOST OR BROKEN
BQ94	501	BOS	INC		L				SLIGHT WEAR
BQ94	501	OVCA	MAND		L		2	F	
BQ94	501	OVCA	MNT		L			K13	
BQ94	501	OVCA	MXT		R			J	MED WEAR

SITE	CONTEXT	SPECIES	BONE	NO	SIDE	FUSION	ZONES	TOOTH WEAR	COMMENTS
BQ94	501	OVCA	MAND		R		237	FGH11I12K9	FRAGMENTED
BQ94	501	OVCA	MAND		L		23	I11	
BQ94	501	BOS	MAND		L				FRAG ASCENDING RAMUS
BQ94	501	CSZ	LBON		F				SHAFT FRAG
BQ94	501	EQU	MTT		F				PROX FRAG
BQ94	501	SUS	ULN		R	PN	2		JUV
BQ94	501	OVCA	RAD		R		3		SHAFT FRAG-WEATHERED
BQ94	501	OVCA	RAD		L		3		3 FRAGS-MODERN BREAKS
BQ94	501	SSZ	LBON	5	F				FRAGS
BQ94	501	OVCA	ULN		F				SHAFT
BQ94	501	SSZ	LBON		F				FEM SHAFT?
BQ94	501	OVCA	TIB		F				DISTAL SHAFT FRAG
BQ94	501	OVCA	TIB		F				DISTAL SHAFT FRAG
BQ94	501	SSZ	LBON		F				SHAFT FRAG
BQ94	501	SUS	INN		R	EN	239		JUV SAME ANIM AS BELOW?
BQ94	501	SUS	INN		L	EN	9		JUV POSS SAME AS ABOVE
BQ94	501	SUS	INN		L		2		JUV-POSS SAME BONE AS ABOVE?
BQ94	501	SSZ	RIB		F				ERODED SHAFT FRAG
BQ94	501	OVCA	TIB		R		4		SHAFT ONLY-ERODED
BQ94	501	OST	UPP	4	W				OYSTER VALVES
BQ94	501	OST	LOW	1	W				OYSTER VALVE
BQ94	502	BOS	SKL		F		967324		53 FRAGS-HORNED
BQ94	502	BOS	SKL		L				COMPLETE-SL TWISTED
BQ94	502	EQU	ATL		L				LAT SIDE-PONY?-2 FRAGS
BQ94	502	EQU	CEV			DN	145		PONY-SIZE-JUV-2 PIECES
BQ94	502	CSZ	TRV		L	PNDN			AXIALLY SPLIT
BQ94	502	CSZ	LMV		L	PNDN			AXIALLY SPLIT
BQ94	502	BOS	SCP		R		2345		FRAGMENTED
BQ94	502	BOS	MXT		L			I/J15	
BQ94	502	BOS	MNT		F				M1 OR 2 FRAGMENTED-IMM
BQ94	502	BOS	MAND		L		56		CHEWED-JUV-DP4LOST
BQ94	502	BOS	SCP		F		4		
BQ94	502	SSZ	RIB	2	F				

SITE	CONTEXT	SPECIES	BONE	NO	SIDE	FUSION	ZONES	TOOTH WEAR	COMMENTS
BQ94	502	BOS	SCP		L				DIST-POST FRAG
BQ94	502	CSZ	RIB		F				SHAFT FRAG
BQ94	502	BOS	MAND		L		45		WEATHERED
BQ94	502	BOS	HUM		R	DF	78		
BQ94	502	BOS	HUM		R	DF	6789		
BQ94	502	SUS	TIB		R	PNDN	47		JUV
BQ94	502	BOS	ULN		L		2		ARTICULATION INTACT
BQ94	502	BOS	RAD		R	PF	123		PROX 2/3
BQ94	502	BOS	RAD		L	DF	3456		DISTAL 2/3
BQ94	502	CSZ	LBON	18	F				ALL MODERN BREAKS
BQ94	502	BOS	HUM		F		0		SHAFT FRAG
BQ94	502	BOS	FEM		L	DN	34567		SHAFT
BQ94	502	EQU	TIB		L		4		WEATHERED
BQ94	502	BOS	FEM		F		4		SHAFT FRAG
BQ94	502	OVCA	HUM		L		0		CUT MARK ON SHAFT
BQ94	502	OVCA	TIB		F				SHAFT
BQ94	502	EQU	FEM		L	DF	67		
BQ94	502	BOS	HUM		F	PN	1		FRAG PROX EPIPHYSIS
BQ94	502	CSZ	FEM	2	F				SHAFT FRAGS
BQ94	502	CSZ	HUM		F	PN			SHAFT FRAG EPI JUNCT
BQ94	502	CSZ	HUM		F	PN	1		EPIPHYSEAL FRAG
BQ94	502	BOS	RAD		F	DN	4		
BQ94	502	CSZ	LBON		F				SHAFT FRAG
BQ94	502	CSZ	FEM	3	F				FRAGS
BQ94	502	CSZ	UKN	3	F				FRAGS
BQ94	502	BOS	CAR		W				
BQ94	505	BOS	MXT		L			J5	NO WEAR
BQ94	505	EQU	MTP		F				FRAG DISTAL ARTIC
BQ94	505	CSZ	SKL		F				FRAGMENT
BQ94	505	SSZ	TIB		F				SHAFT FRAG-2 PIECES ERODED
BQ94	505	SSZ	LBON		F				ERODED SHAFT FRAG
BQ94	707	UKN	UKN		F				INDET FRAG BONE
BQ94	707	UKN	UKN		F				CHARRED FRAG BONE

ENVIRONMENTAL ARCHAEOLOGY CONSULTANCY

Key to codes used in the cataloguing of animal bones

SPECIES

BOS	cattle
CSZ	cattle size
SUS	pig
OVCA	sheep or goat
OVI	sheep
SSZ	sheep size
EQU	horse
CER	red deer
CAN	dog
MAN	human
UKN	unknown

BONE

SKL	skull
TEMP	temporal
FRNT	frontal
PET	petrous
PAR	parietal
OCIP	occipital
ZYG	zygomatic
MAND	mandible
MAX	maxilla
ATL	atlas
AXI	axis
CEV	cervical vertebra
TRV	thoracic vertebra
LMV	lumbar vertebra
SAC	sacrum
CDV	caudal vertebra
SCP	scapula
HUM	humerus
RAD	radius
MTC	metacarpus
MC1-4	metacarpus 1-4
INN	innominate
ILM	ilium
PUB	pubis
ISH	ischium
FEM	femur
TIB	tibia
AST	astragalus
CAL	calcaneum
MTT	metatarsus
MT1-4	metatarsus 1-4
PH1	1st phalanx
PH2	2nd phalanx
PH3	3rd phalanx
LM1-LM3	Lower molar 1 - molar 3
UM1-UM3	upper molar 1 - molar 3
LPM1-LPM4	lower premolar 1-4
UPM1-UPM4	upper premolar 1-4
DLPM1-4	deciduous lower premolar 1-4
DUPM1-4	deciduous upper premolar 1-4
LBON	long bone
UNI	unidentified

SIDE

L - left side
R - right side

FUSION

P - proximal; D - distal; E - acetabulum;
N - unfused; F - fused;

TOOTH WEAR - Codes are those used in Grant, A. 1982 The use of tooth wear as a guide to the age of domestic animals, in B.Wilson, C.Grigson and S.Payne (eds) *Ageing and sexing animal bones from Archaeological sites, 91-108*.

Teeth are labelled as follows in the tooth wear column:

h ldpm4/dupm4
H lpm4/upm4
I lm1/um1
J lm2/um2
K lm3/um3