THE EXCAVATION OF A GYPSUM FILLED PIT AT THE THORNBOROUGH MONUMENT COMPLEX, NORTH YORKSHIRE

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CONTENTS

LIST OF FIGURES

ABSTRACT

This report forms one of a series of six (Harding and Johnson, 2004b-f) on archaeological research at the Thornborough monument complex between January 2003 and March 2004, funded by English Heritage through the Aggregates Levy Sustainability Fund.

The report describes the excavation of one of a group of eight pit features, noted on aerial photographs and by geophysical prospection, close to the Double Ring Ditch at the Thornborough monument complex. The work was an unplanned addition to the fieldwork programme in 2003, with the aim of establishing the condition, date and significance of these features. The results were surprising and unique, the excavated pit containing a basal deposit of concreted gypsum. This material was part of the construction and use of a number of surrounding monuments, and it is a distinct possibility that the excavated pit, and by implication, the other associated features, were connected to its exploitation.

1. INTRODUCTION

1.1 Location, topography and geology

The area discussed is based between SE2677-3282 and focused around the Neolithic-early Bronze Age monument complex at SE285795 (centred), which comprises three large henges, a definite cursus and a possible cursus, a long mortuary enclosure, at least nine round barrows, two double pit alignments, contemporary settlement and other features or finds of archaeological significance (Fig. 1). These sites are described in Harding and Johnson (2003).

The topography of the landscape is largely flat or gently undulates between 35 and 45 metres OD (Fig. 2). However, it does rise steeply to the west, between the villages of West Tanfield and Well, to a height of over 135 metres. The River Ure lies to the south-west. The soils are typical brown earths, with calcareous brown earths to the west, and alluvial gley soils to the north. The drift geology is predominantly undifferentiated fluvio-glacial terrace deposits, with undifferentiated river terrace deposits around the River Ure and isolated pockets of till and peat to the east and north respectively. The solid geology comprises Lower Magnesian Limestone to the west, Middle Marl through the central areas, and Upper Magnesian Limestone to the east.

All the monuments lie on the fluvio-glacial terrace deposits along a slight north-south decline towards the River Ure. The primary foci of the monument complex are the three massive henges built 0.75 kilometres apart, along a north-west to south-east axis. There would also appear to be contemporary settlement areas, significantly separated from the complex, either by distance or by variations in the local topography.

2. BACKGROUND

2.1 Archaeological history

The limited excavation work that has been carried out in the Thornborough area has largely focused upon the monuments (Harding and Johnson 2003), the exception being work carried out in advance of gravel extraction in the Nosterfield quarry (Roe 2002), which involved excavation across a wide area to the north of the known limits of the complex. No previous fieldwork has been undertaken on the features described in this report.

An aerial photograph of the Double Ring Ditch (CUCAP, CKD-24), taken in 1979, demonstrated the existence of what appear to be four pit features immediately to the north-west of the monument (Fig. 3). Another four, albeit more closely set and with poorly defined edges, lie directly to its west. Fortunately, two of the former group of pits were detected by geophysical prospection at the Double Ring Ditch in 2003 (Fig. 4), showing as circular positive anomalies (Biggins, 2003, 18). There is no trace of the other group of features, which largely fell outside of the survey area, but there were three further anomalies, which are not visible on the aerial photograph.

2.2 Aims and objectives

These pit features may be of particular significance given their closeness to the Double Ring Ditch and, to a lesser extent, the Southern Henge. This is emphasised by two comparable features, also known from aerial photography (St. Joseph 1977), situated to the south-east of the Centre Hill Barrow, and forming an alignment on the Double Ring Ditch. Excavation was therefore undertaken in August 2003, as part of the Thornborough Project funded by English Heritage through the Aggregate Levy Sustainability Fund, with the aim of evaluating these features and ascertaining their general condition, preservation, date, potential and significance. This was to be achieved by siting two small excavation trenches at the northernmost pair of pits. The tops of any exposed features were to be recorded and one of the pits excavated in its entirety, with the other left *in situ*.

2.3 Methodology

Two small trenches 5 metres by 5 metres (DRDTP1 and DRDTP2) were laid out using a Geotronics Geodolite Total Station, based upon the results of aerial photographic rectification and geophysical prospection (Fig. 5). Topsoil was stripped by machine, under direct supervision, and all features cleaned and recorded. The northernmost trench (DRDTP2) was extended eastwards by 1.5 metres to expose the full extent of a feature. The topsoil of the extension was excavated by hand. All topsoil was

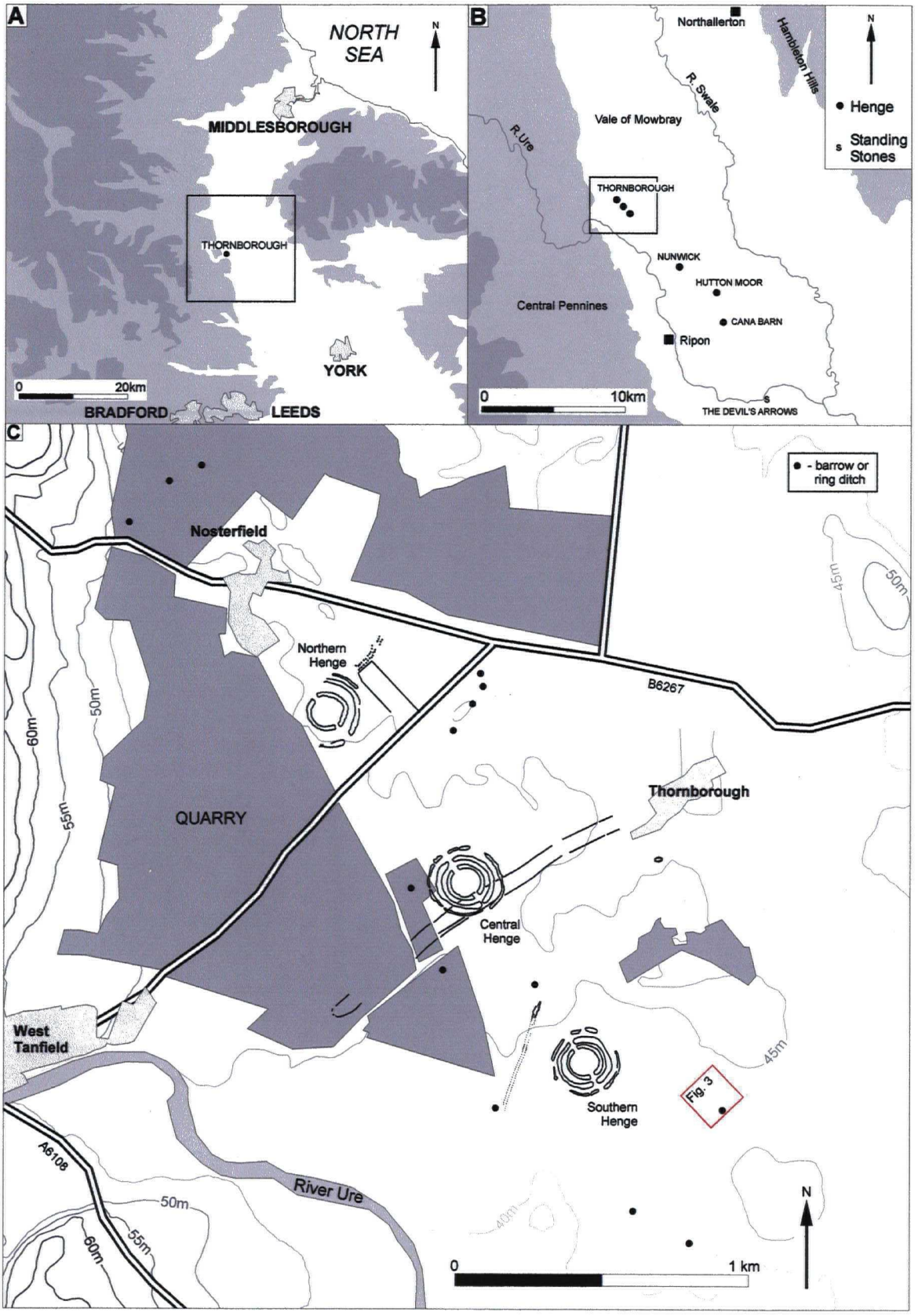

Fig. 1 The Thornborough Monument Complex, North Yorkshire

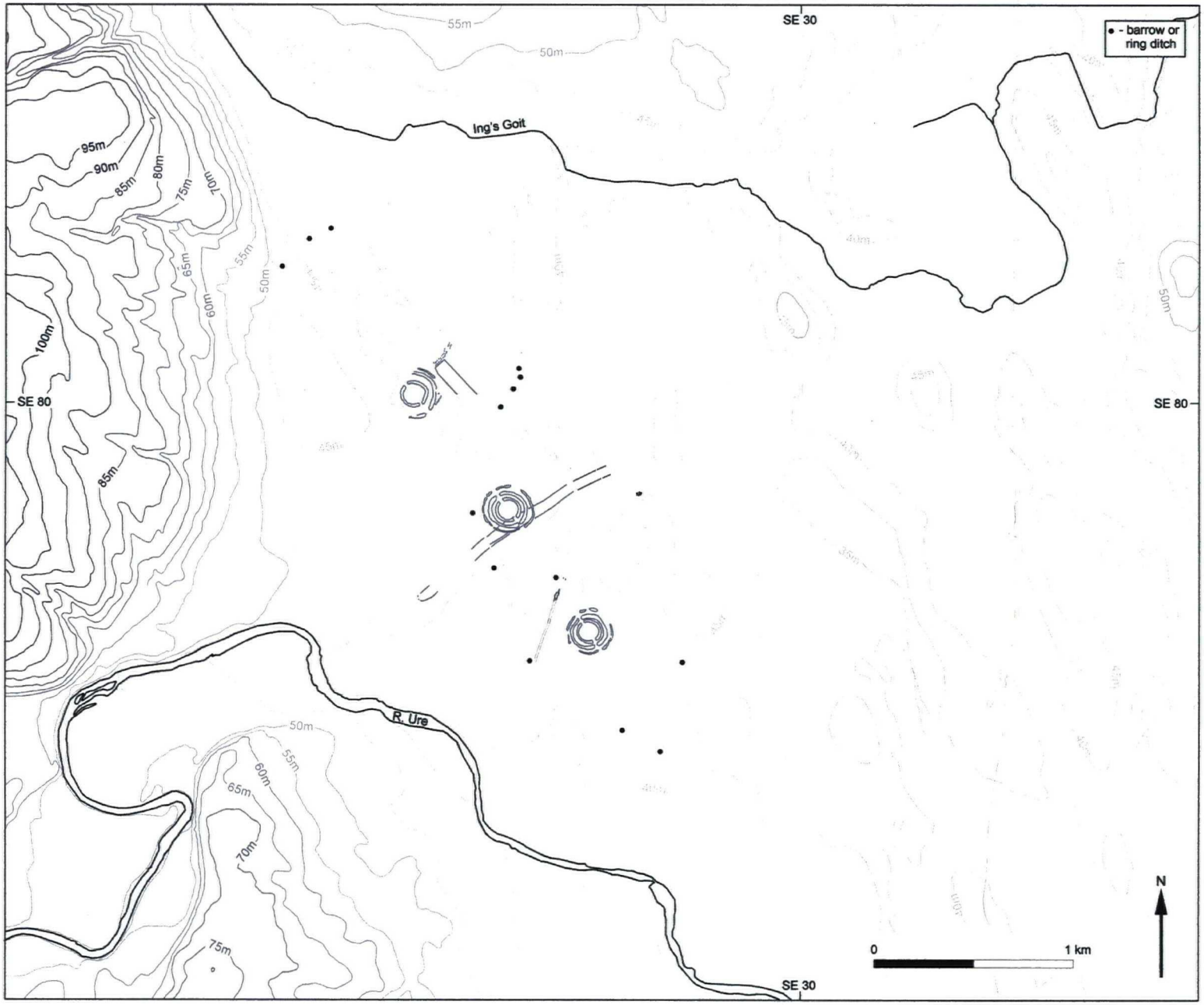

Fig.2 The topography of the study area

Fig. 3 Aerial photograph of the Double Ring Ditch and other nearby features

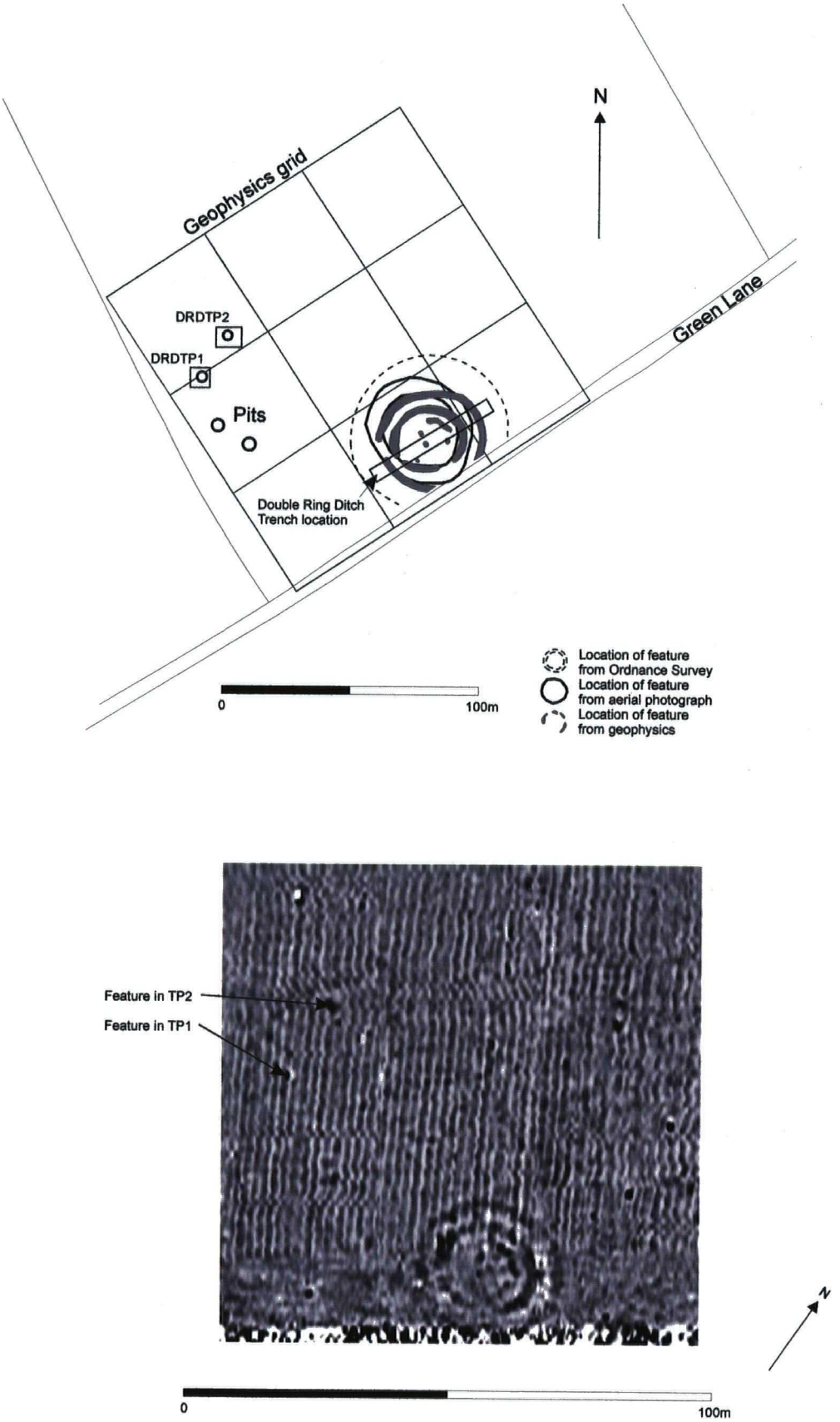

Fig. 4 Trench Location

dry sieved through 5 millimetre mesh and one of the features, in DRDTP2, was sectioned and then fully excavated by trowel, mattock and shovel. Written, drawn and photographic records were made of each feature using the single-context system. All these records were then digitised. Find locations were recorded in three dimensions using a Geotronics Geodolite Total Station. Data processing was undertaken using Landscape Survey Systems v. 8.2, AutoCAD Land Development Desktop, Jasc PaintShopPro v. 6 and Microsoft Excel and Word.

3. RESULTS

Six features were exposed within the two trenches, four in DRDTP1 and two in DRDTP2. All features in DRDTP1 were cleaned and recorded but not excavated. Only one feature, the fully exposed central pit, was excavated in DRDTP2.

3.1 DRDTP1 (Fig. 5)

The removal of the topsoil revealed the plough disturbed upper fills of four features. These comprised: a sub-circular feature filled with a pale brown (10YR7/4) silty sand (008), 3.3 metres diameter in the centre of the trench; a probable sub-circular feature filled with a pale brown (10YR7/4) silty sand (007), possibly at least 2 metres in diameter, but extending beyond the southern boundary of the trench; a probable sub-circular feature filled with a pale brown (10YR7/4) silty sand (012), possibly at least 2.2 metres in diameter, but extending beyond the northern boundary of the trench; and a probable sub-circular feature filled with a pale brown (10YR7/4) silty sand (010), possibly at least 2.1 metres in diameter, but extending beyond the north-west boundary of the trench. None of these features were excavated and their significance is unclear. It is highly likely, though, that they are related to the excavated feature in DRDTP2, appearing to be broadly similar in size and outline, and particularly similar in the composition of their upper fills.

3.2 DRDTP2 (Figs. 6, 7 & 8)

The removal of the topsoil revealed the plough disturbed upper fills of two features. There was a sub-circular feature filled with dark yellowish brown (10YR4/6) silty sand, (014), measuring 3.48 metres east-west and 2.7 metres north-south in the centre of the trench; and a feature of unknown shape filled with a pale brown (10YR7/4) silty sand (016), at least 2 metres across, but extending beyond the north-west boundary of the trench.

The former of these was fully excavated. It proved to be a large steep-sided pit (015) measuring 3.48 metres east-west, 2.7 metres north-south and 0.83 metres deep with a flat base (Figs. 6, 7 & 8). Its upper fill, 014, was 0.16 metres deep and contained a few cobbles. Below this was a very similar fill (021), a dark yellowish brown (10YR4/4) silty sand 0.2 metres deep which also contained a few cobbles. This deposit contained a very similar fill (020), also a dark yellowish brown (10YR4/4) silty sand, although slightly looser than the 021. The primary fill of the pit comprised a strongly cemented layer of a whitish grey (7.5YR7/2) material 0.47 metres thick at the centre but lensing up the sides of the cut. It was so hard it had to be removed with a mattock. On-site testing by the Time Flyers Geologist confirmed it was gypsum (H. Coburn, pers. comm.). This fill was slightly dished in the centre and filled with a reddish brown (5YR4/3) sandy silt, 026 (Figs. 6 & 7).

Interpreting the excavated feature is very difficult as it is unique. The most likely explanation is that it is a deliberate deposit of burnt gypsum — by burning the soft rock is reduced into a more manipulative raw material — that has reset as a plaster (A. Cooper, pers. comm.). The slight dish in the centre, filled with 026, appears to have been naturally infilled, given its fine grained nature, although the fill above, 021, is possibly the product of deliberate backfilling, given its irregular nature and the presence of large cobbles within the fill. Dating it is impossible and no diagnostic lithics or ceramics were recovered. It is very possible, however, that the pit was cut and filled at sometime during the construction of the monument complex for gypsum was used at at least three other sites: the nearby Double Ring Ditch, where it appears to have been deliberately deposited in an inner burial pit (Harding and Johnson, 2004e); at the Central Henge, where it may have been placed on the inner bank (Thomas, 1955; Cornwall, 1953); and probably at the Centre Hill Barrow where Lukis uncovered a "kind of basin, 18 inches deep, had been cut out of the natural soil to receive the coffin, and that the bottom of the basin or cist had been lined with a coarse concrete, 10 inches thick in the middle, diminishing to nothing at the edges and so hard that the pick pierced it with difficulty" (Lukis, 1870, 119). While it is no more than speculation, the digging-out of the pit, and perhaps also the other surrounding features, may have been connected to the use of gypsum at the Double Ring Ditch, or even the Centre Hill Barrow and

Fig. 5 DRDTP1 Plan

Fig. 6 DRDTP2 Plan

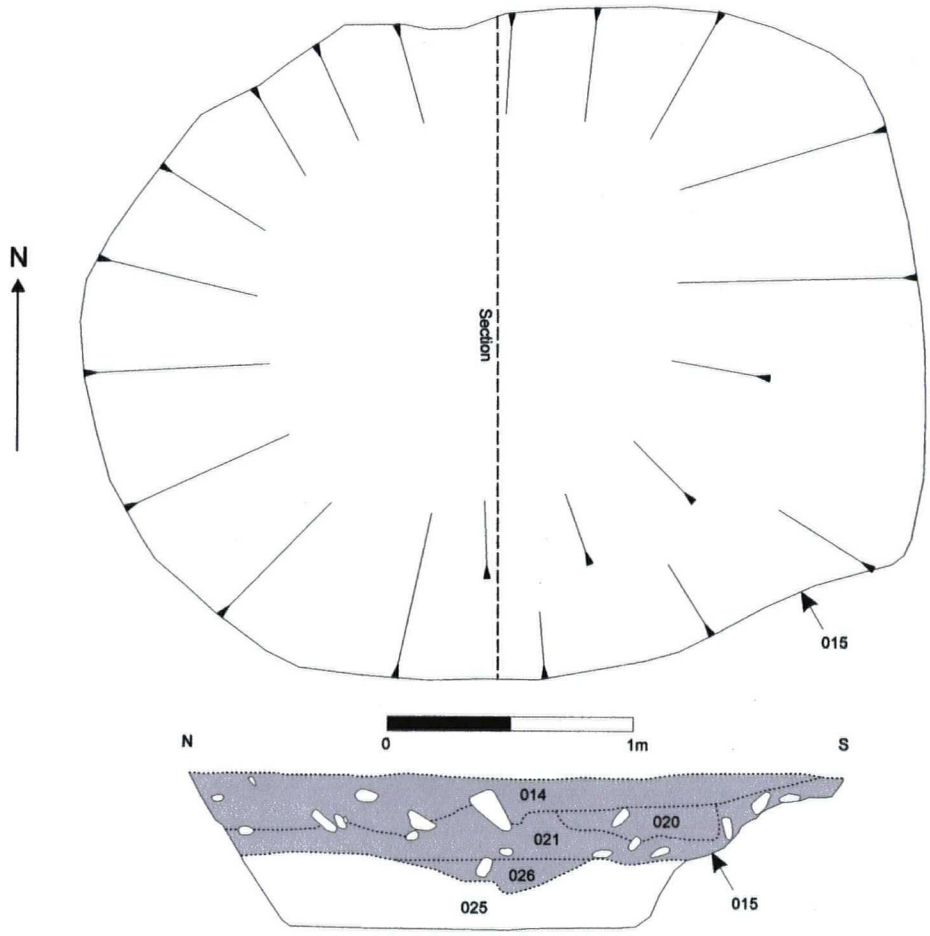

Fig. 7 Feature 015 Plan and section

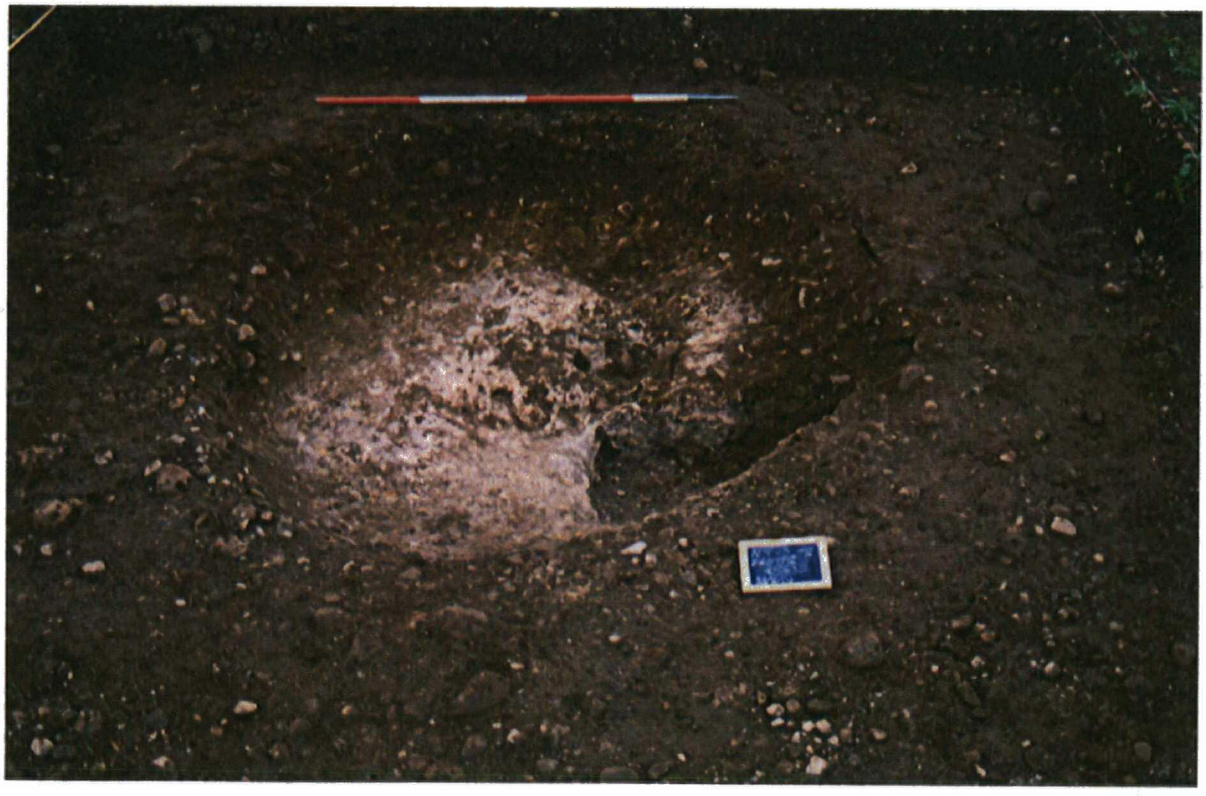

Fig. 8 Gypsum layer in base of 015

Southern Henge, both of which are within a couple of minutes walk. As to their exact purpose, without further work, interpretation is impossible.

3.3 Lithic assemblage

The small assemblage of sixty-eight lithics from these excavations contrasts with the fieldwalking collection from the surrounding field (Harding and Johnson 2004c) and from the 'medium' density scatter explored by total collection and test-pitting in the adjacent field (Harding and Johnson 2004d). Collectively, these other collections amount to seventy-two pieces of worked flint and chert, including ten retouched pieces, ranging in date from Mesolithic to late Neolithic. The material from DRDTP 1 and DRDTP2, on the other hand, included no retouched pieces at all: the recovery of two flakes and a blade, all of chert, in exceptionally fresh condition from contexts 014 and 021 in DRDTP2 suggests that chert was worked on site.

4. CONCLUSIONS

4.1 Archaeological significance

The evaluative excavations have added to our knowledge of the Thornborough landscape, yet they have raised more questions than they have answered. They further confirm the presence of significant archaeological features across the gravel plateau, and suggest that there is more prehistoric activity than that evidenced by the cursuses, henges, pit alignments and barrow monuments.

4.2 Recommendations

Further excavation can only improve our understanding of these enigmatic features, the upper fills of which continue to be eroded by the plough. There is good evidence that significant deposits survive below the plough horizon.

Acknowledgements

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